SpecView User Manual for Version 3.1

Manual version 3.1.269

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SpecView User Manual for Version 3.1

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1.1 Privacy Notice

Effective 25 May 2018

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Introduction

This is a notice to inform you of our policy about all information that we record about you. It sets out the conditions under which we may process any information that we collect from you, or that you provide to us. It covers information that could identify you ("personal information") and information that could not. In the context of the law and this notice, "process" means collect, store, transfer, use or otherwise act on information.

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2. We take seriously the protection of your privacy and confidentiality. We understand that all visitors to our website are entitled to know that their personal data will not be used for any purpose unintended by them, and will not accidentally fall into the hands of a third party.

3. We undertake to preserve the confidentiality of all information you provide to us, and hope that you reciprocate.

4. Our policy complies with UK law accordingly implemented, including that required by the EU General Data Protection Regulation (GDPR).

5. The law requires us to tell you about your rights and our obligations to you in regards to the processing and control of your personal data. We do this now, by requesting that you read the information provided at www.knowyourprivacyrights.org

6. Except as set out below, we do not share, or sell, or disclose to a third party, any information collected through our website.

The bases on which we process information about you

The law requires us to determine under which of six defined bases we process different categories of your personal information, and to notify you of the basis for each category.

If a basis on which we process your personal information is no longer relevant then we shall immediately stop processing your data.

If the basis changes then if required by law we shall notify you of the change and of any new basis under which we have determined that we can continue to process your information.

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We may use it in order to:

1. process an order you have submitted
2. provide you with Technical Support
3. provide you with a quotation or specification

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4. respond to an 'expression of interest' in one of our offerings

5. send you communications which you have requested and that may be of interest to you. These may include information about updates, upgrades or other SpecView products or services

6. process a job application

We process this information on the basis there is a contract between us, or that you have requested we use the information before we enter into a legal contract.

Additionally, we may aggregate this information in a general way and use it to provide statistical information, for example to monitor our performance with respect to a particular service we provide. If we use it for this purpose, you as an individual will not be personally identifiable.

We shall continue to process this information until the contract between us ends or is terminated by either party under the terms of the contract.

2. Information we process with your consent

Through certain actions when otherwise there is no contractual relationship between us, such as when you browse our website or ask us to provide you more information about our business, (including but not limited to SpecView products and services, specifications, quotations or Technical Support,) you provide your consent to us to process information that may be personal information.

Wherever possible, we aim to obtain your explicit consent to process this information.

Sometimes you might give your consent implicitly, such as when you send us a message by e-mail to which you would reasonably expect us to reply.

Except where you have consented to our use of your information for a specific purpose, we do not use your information in any way that would identify you personally. We may aggregate it in a general way and use it to provide statistical information, for example to monitor the performance of a particular page on our website.

If you have given us explicit permission to do so, we may from time to time pass your name and contact information to selected associates whom we consider may provide services or products you would find useful.

We continue to process your information on this basis until you withdraw your consent or it can be reasonably assumed that your consent no longer exists.

You may withdraw your consent at any time by instructing us privacy@specview.com However, if you do so, you may not be able to use our website or our services further.

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4. Complaints regarding content on our website

If you complain about any of the content on our website, we shall investigate your complaint.

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If we think your complaint is vexatious or without any basis, we shall not correspond with you about it.

5. Information relating to your method of payment

In the event that we require you to provide your payment information, we take the following measures to protect your payment information:

5.1. Access to your payment information is restricted to authorised staff only.

5.2. We do not keep your payment information. It is immediately destroyed once the transaction is complete.

6. Job application and employment

If you send us information in connection with a job application, we may keep it for up to 6 months in case we decide to contact you at a later date. We will ask for your consent if we wish to retain your details for longer than 6 months.

If we employ you, we collect information about you and your work from time to time throughout the period of your employment. This information will be used only for purposes directly relevant to your employment. After your employment has ended, we will keep your file for six years before destroying or deleting it.

7. Sending a message to our support team

When you contact us, whether by telephone, through our website or by e-mail, we collect the data you have given to us in order to reply with the information you need.

We record your request and our reply in order to increase the efficiency of our organisation.

We keep personally identifiable information associated with your message, such as your name and email address so as to be able to track our communications with you to provide a high quality service.

8. Complaining

If we receive a complaint, we record all the information you have given to us.

We use that information to resolve your complaint.

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If your complaint reasonably requires us to contact some other person, we may decide to give to that other person some of the information contained in your complaint. We do this as infrequently as possible, but it is a matter for our sole discretion as to whether we do give information, and if we do, what that information is.

We may also compile statistics showing information obtained from this source to assess the level of service we provide, but not in a way that could identify you or any other person.

Use of information we collect through automated systems when you visit our website

9. Personal identifiers from your browsing activity

Requests by your web browser to our servers for web pages and other content on our website are recorded.

We record information such as your geographical location, your Internet service provider and your IP address. We also record information about the software you are using to browse our website, such as the type of computer or device and the screen resolution.

We use this information in aggregate to assess the popularity of the webpages on our website and how we perform in providing content to you.

If combined with other information we know about you from previous visits, the data possibly could be used to identify you personally, even if you are not signed in to our website.

Disclosure and sharing of your information

10. Credit reference

To assist in combating fraud, we share information with credit reference agencies, so far as it relates to clients or customers who instruct their credit card issuer to cancel payment to us without having first provided an acceptable reason to us and given us the opportunity to refund their money.

11. Data may be processed outside the European Union

Our website is hosted in the United Kingdom.

We may also use services in countries outside the European Union from time to time in other aspects of our business.

Accordingly data obtained within the UK or any other country could be processed outside the European Union.

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Access to your own information

12. Access to your personal information

12.1. At any time you may review or update personally identifiable information that we hold about you, by emailing privacy@specview.com

12.2. To obtain a copy of any information that is not provided on our website you may send us a request at privacy@specview.com After receiving the request, we will tell you when we expect to provide you with the information, and whether we require any fee for providing it to you.

13. Removal of your information

If you wish us to remove personally identifiable information you may contact us at privacy@specview.com

This may limit the service we can provide to you.

14. Verification of your information

When we receive any request to access, edit or delete personal identifiable information we shall first take reasonable steps to verify your identity before granting you access or otherwise taking any action. This is important to safeguard your information.

Other matters

15. Use of site by children

15.1. If you are under 18, you may use our website or services only with consent from a parent or guardian

15.2. We collect data about all users of and visitors to these areas regardless of age, and we anticipate that some of those users and visitors will be children.

16. Encryption of data sent between us

We use Secure Sockets Layer (SSL) certificates to verify our identity to your browser and to encrypt any data you give us.

Whenever information is transferred between us, you can check that it is done so using SSL by looking for a closed padlock symbol or other trust mark in your browser's URL bar or toolbar.

17. How you can complain

17.1. If you are not happy with our privacy policy, or if have any complaint, then you should tell us by

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email. Our address is privacy@specview.com

17.2. For further information about our complaint handling procedure, email privacy@specview.com

17.3. If a dispute is not settled then we hope you will agree to attempt to resolve it by engaging in good faith with us in a process of mediation or arbitration.

17.4. If you are in any way dissatisfied about how we process your personal information, you have a right to lodge a complaint with the Information Commissioner's Office. This can be done at https://ico.org.uk/concerns/

18. Retention period for personal data

Except as otherwise mentioned in this privacy notice, we keep your personal information only for as long as required by us:

18.1. to provide you with the services you have requested;

18.2. to comply with other law, including for the period demanded by our tax authorities;

18.3. to support a claim or defence in court.

19. Compliance with the law

Our privacy notice has been compiled so as to comply with the law of every country or legal jurisdiction in which we aim to do business. If you think it fails to satisfy the law of your jurisdiction, we should like to hear from you. However, ultimately it is your choice as to whether you wish to use our website and/ or our services.

20. Review of this privacy notice

We may update this privacy notice from time to time as necessary. The terms that apply to you are those posted here on our website on the day you use our website. We advise you to print a copy for your records.

If you have any question regarding our privacy notice, please contact us 798.

1.2 Introduction to SpecView

SpecView is SCADA software. SCADA stands for Supervisory Control And Data Acquisition.
SpecView is used as industrial control system software to monitor and control industrial processes.

Industrial processes include manufacturing, production, power generation, fabrication, refining, etc.
These processes may run in continuous or batch modes.

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SpecView makes it easy to use a PC with control and monitoring instrumentation, allowing you to setup:

- Data Logging 589
- Graphical User Interface tools (GUI/HMI) 311
- Recipe System 635
- Batch Tags 627
- Trending 523
- Passwords 703

SpecView has the following license 31 options:

- Multiport 507 - Allows SpecView to be connected to potentially 1000's of different instruments, or increase the data rate on large systems
- Historical Replay 622 - 'Video' review of logged data
- Strategy Controller 666 - Automation of SpecView
- DDE 582 - (Dynamic Data Exchange) Add your own complex functionality with other DDE enabled programs
- Remote Users 713 - Use SpecView from 'down the hall' to 'around the world'
- OPC 572 - (Open Platform Communications) Connect to any OPC Server
- ActiveX 766 - Use Microsoft ActiveX control objects to enhance screen design or use complex controls to perform specific tasks
- Runtime-only 78 - No access to Edit Mode - great for turnkey systems
- Non-standard Driver 568 - Some SpecView drivers are a chargeable option
- Mini version - Restricted to two Instrument Views 346 - which could be 2 simple measurement instruments or may be a single programmable controller with separate Instrument Views for the programmer module and the controller module. A multi-loop controller can have many Instrument Views, one for each loop. The full version of SpecView is not limited to the number of Instrument Views or the number of parameters/variables.

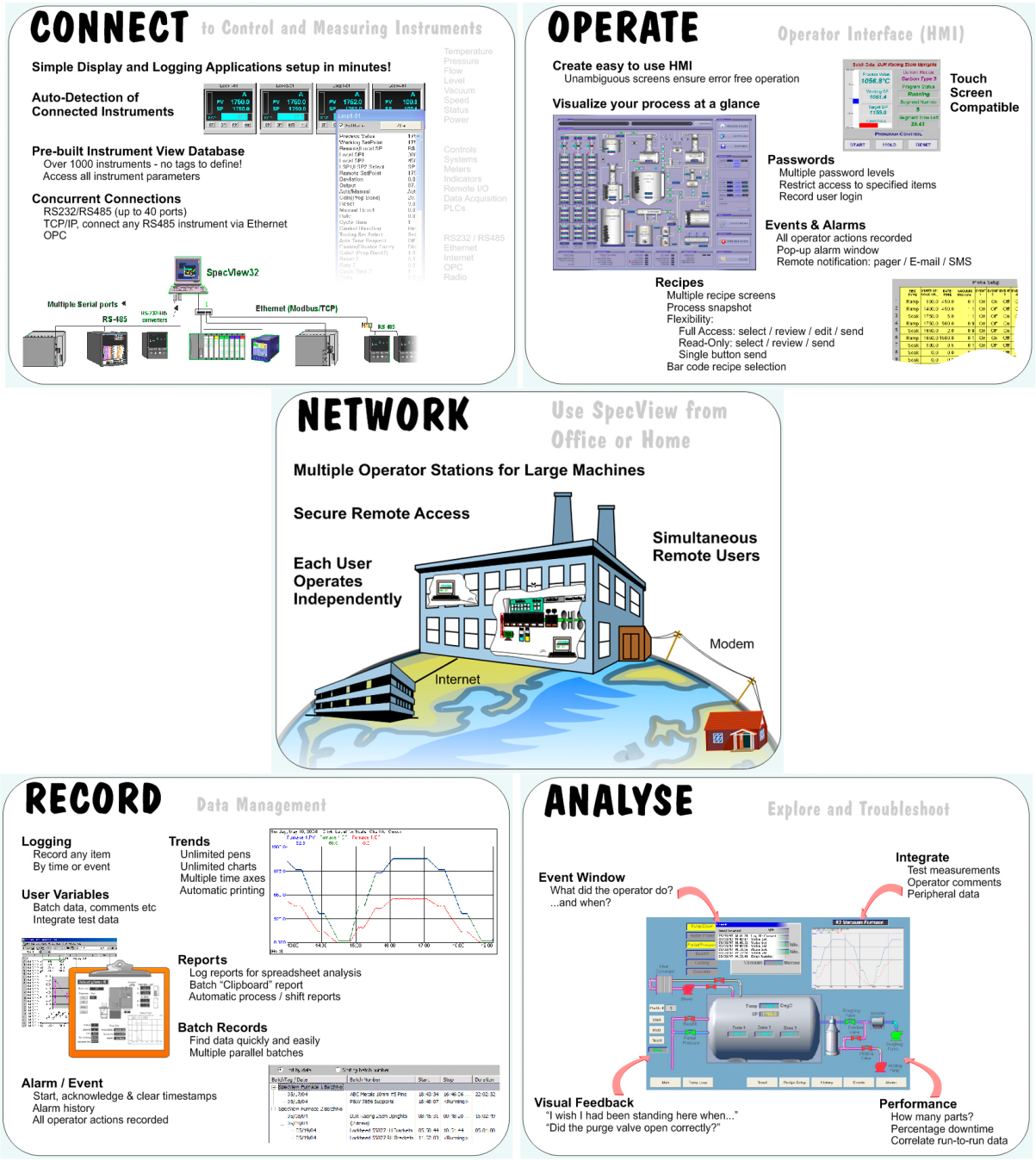
If SpecView is run without a license 31 then it can be run in either Demo mode 31 or Remote mode 740. When used in Demo mode there is a 10 minute limit on communications in **each Runtime session**. This timer is reset each time the user enters Edit Mode and returns to Runtime Mode. It is not necessary to restart either SpecView or the computer. No save functions are disabled.

SpecView may be downloaded from the SpecView web site: http://www.specview.com
However, it is important to check the license has a current Update Subscription 76. This can be seen from the **About SpecView** menu command on the Help menu 278.

It is possible to add options to SpecView by upgrading the license 64 which can be done remotely. For more details on these options see the 'What To Buy' page of our website.

There are now both 32-bit and 64-bit 189 versions of SpecView. Please review the link 189 to see which is appropriate.

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Minimum Requirements for running SpecView 26
Updating SpecView from a previous version 186
Upgrading SpecView to add additional options to a license 64

1.3 Minimum Requirements for running SpecView

The Minimum Hardware Requirements for Running SpecView:

Intel Pentium processor or equivalent AMD

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4GB RAM (8GB or more recommended, as Windows takes most of this minimum)
800MB hard disk space to install SpecView if installing with all the Videos, 200Mb for the Website download
additional disk space for data logging (varies depending on how much and how often you log data)
Instrument connection: RS232 / RS485 / RS422 / Ethernet / OPC

There are now both 32-bit and 64-bit [189] versions of SpecView. Please review the link [189] to see which is appropriate.

Ideal System:

Intel Core i5 (or Celeron or AMD equivalent) 2.6Ghz
8GB RAM
500GB hard disk + enough space for Data Logging [603].
Essentially, anything that runs MS Word and MS Excel quickly will be OK for a typical SpecView system. For heavily loaded systems with lots of comms, screens and Strategy Control [666], it is recommended to get the fastest PC possible with 8GB RAM.

The amount of disk space used by SpecView's log files [603] varies according to the number of variables being logged & the logging rate [604].

We have no plans for Macintosh, Linux, Palm-OS or Windows CE at present.
SpecView may be configured on a Virtual PC - such as Hyper-V or VM-Ware but this can only be done using a soft license [33].

Touch Screen Compatibility

SpecView is partly compatible with touch screens for use during Runtime Mode, as the main data-input boxes have on-screen buttons or an on-screen keyboard with buttons. For foreign languages, it is not possible to enter accented or complex characters using the on-screen buttons.

However, projects cannot be edited using just a touch screen. A keyboard is needed (either on-screen or physical).
Similarly, there are some Runtime features which need a keyboard, such as searching for batches in Historical Replay [622].
Also, for doing Log Report Setup [606] during Runtime mode it is easier to use a standard keyboard & mouse.

The Minimum Software Requirements for Running SpecView:

SpecView runs on the following Windows operating systems:

Windows 11	(32 bit and 64 bit)
Windows 10	(32 bit and 64 bit)
Windows 8, 8.1	(32 bit and 64 bit)
Windows 7	(32 bit and 64 bit)
Windows Vista	(32 bit)
Windows Server up to 2022	(32 bit and 64 bit)
Windows XP	(32 bit)

Windows Evergreen [28]

Note that SpecView does **not** work on Windows 8 RT (as found on some early Microsoft Surface tablets).

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Support for Virtual Machine Environments:

It is best to use a soft license [33] for use in a Virtual Machine Environment.
However, it is possible for a USB license dongle [72] to work in some Virtual Machine environments, for example:

VMware - In VMware, USB dongle passthrough is only supported to a limited extent. Meaning, it is not not possible to access a USB license dongle from VMware VMs if the dongle isn't plugged directly into the VMware ESXi host machine.
Hyper-V - USB dongle passthrough is supported to a greater extent - Google for: hyper-v usb passthrough

For the specification of a computer to be used as a Remote see: SpecView Networking - Minimum Requirements [752]

1.4 Windows Evergreen

Regarding Windows 10 and 'Evergreen':

Windows Evergreen is the concept of Microsoft releasing ongoing updates for Windows rather than having large steps to new versions.

SpecView (the company) remains committed to making sure SpecView (the product) continues to run on upcoming Windows Desktop and Server versions.

We are members of what used to be called MSDN (Microsoft Developer Network) and there is now a Visual Studio subscription that gives us access to all the latest tools used to build and deploy SpecView.

We are also in the 'Microsoft Insider Program' which gets us access to new Windows builds for testing before they get released to Microsoft users on the Semi-Annual Update Channel.

We can't 100% guarantee that any given version of SpecView (now and in the future) will work with Microsoft updates coming out years from now. However, we can say that we are pro-active in trying to keep up with the ever-changing face of Windows Desktop and Server editions.

SpecView (the product) does not currently update itself automatically. When new builds are released the latest version is always available from our website's download page. Note that installation of any build of SpecView is subject to the Update Subscription [76] being valid.

1.5 How to use the Help/Manual

Clicking on a Help button, a Help menu command or pressing F1 within SpecView will go to the relevant topic in the Help file.

The whole text can be reviewed and printed if necessary by going to the **Manuals** folder on the CD where PDF files of the manual are located (both in A4 and Letter format). There are also links to the PDF files on the Support page of the website: http://www.specview.com/Support/support.html

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The Manual, Help and Online Help content is identical.
The Help allows clicking on links (indicated by words which are underlined) to jump to another topic, whereas, the printed manual has page references.

In the Help, the **Forward** and **Back** buttons will navigate through previous pages that have been viewed, and the **Index** and **Search** tabs can be used to find specific topics.

Please email any comments/suggestions on improvements to: support@specview.com

There are a few changes to SpecView's terminology in SpecView Version 3:

- Configuration Mode is now known as Edit Mode
- A Configuration is now known as a Project

See What's New In Version 3 84

There is a Glossary 486 of terms for reference.

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Part 2

2 Licensing of SpecView

The use of SpecView is under the terms of the End User License Agreement (EULA) [79]. Users must agree to these terms to use SpecView.

SpecView software is licensed either through a Soft License [33] or with a USB license dongle [72].
The USB Dongle is your license! Do not lose it! Dongles can be mistaken for memory sticks and therefore should be securely attached to the computer. Dongles can only be replaced or exchanged if the original is returned to SpecView.

From Version 3.1.100 onwards SpecView is supplied as standard with a Soft License; USB license dongles are available on request at extra cost.

There is a comparison of these types of license here [32].

Note, Remote [713] computers used with SpecView's Remote option are unlicensed copies. The license on the local computer will need to have been purchased with the required number of **simultaneous** remote users.

Each computer running SpecView requires its own license. There is no concept of a 'Site License' for SpecView. However, for locations with many copies of SpecView, special pricing may be available. Please contact your SpecView representative for details.

Unlicensed copies of SpecView can used with restricted functionality in Demo Mode [31].

SpecView licenses do not expire but soft licenses need to 'check-in' once per year to remain current.

Evaluation licenses are available which do have an expiry date [75] defined in them, after which time SpecView will only operate in Demo Mode [31]. This expiry date can be changed or removed by upgrading [64] the license.

See Also:

Soft License [33]
USB License Dongles [72]
Evaluation Version [75]
Upgrading SpecView to add additional options to a license [64]
End User License Agreement [79]

2.1 Demo Mode

When used without a soft license [33] or hardware (USB) dongle [72] SpecView can run with restricted functionality in Demo Mode.

Demo Mode has the following functionality:

- Each Runtime session is restricted to a 10 minute limit. This timer is started each time the user goes online either by going into Runtime mode [251] or by using the Online Features [307] menu in Edit

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mode. Going offline will reset this timer. It is not necessary to restart either SpecView or the computer.

- The Strategy Controller 666 is restricted to 2 events.
- Historical Replay 622 is limited to replaying the last 4 hours of data.
- Recipe 635 is restricted to a maximum of 5 items in a recipe.
- The Multiport 507 option is not available, so instrument communications can only be done through a single port.
- Remote 713 one remote connection is available.
- DDE 582 client is enabled.
- OPC 572 client is enabled.
- All drivers are available.
- All SpecView's language options are available. The language that SpecView will run in is based on the current Regional Settings as set via the Windows Control Panel.
- ActiveX 766 is enabled.
- Otherwise all the functions within the standard software are available, including the save functions.

Note that it is not possible to edit a Project 509 using Demo Mode that is intended to be run with a Runtime-Only 78 License.

2.2 Comparison of USB License Dongle with Soft License

Soft License:
Pros:

- No USB License Dongle 72 to lose - they are sometimes mistaken for 'memory sticks' and removed.
- No USB License Dongle to damage - they are sensitive to static discharge.
- Soft Licenses 33 work in Virtual Machine Environments, see below.
- No shipping charge because delivery is by email.

Cons:

- Annual check-ins 41, which if connected to the Internet is just a couple of clicks, but if not then it requires an exchange of codes which can be done via our website or by email. **If the annual check-in is ignored or missed then SpecView will stop communicating, resulting in data loss**. However, SpecView does display messages prompting that the annual Check-In is due from 31 days beforehand, so there is plenty of time to complete the Check-In. When the Check-In time is less than 7 days away the message box cannot be closed.
- Requires initial activation, which if connected to the Internet is just a couple of clicks, but if not then it requires an exchange of codes which can be done via our website or by email.
- If the license is moved from one computer to another then it will require re-activation 48, which is done as above.

USB License Dongle:
Pros:

- No need for initial activation or annual check-ins.
- Easy to move the license from one computer to another.

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Cons:

- Costs an additional charge.
- The USB License Dongle can be lost or broken. Also, due to the fact that the USB dongle looks very much like a USB memory key, it has been known for these to be mistaken for memory keys and taken.
- USB dongle passthrough may not be fully supported in Virtual Machine Environments, see below.
- Shipping charges apply and subject to postal delay.

Support for Virtual Machine Environments:

It is best to use a soft license [33] for use in a Virtual Machine Environment.
However, it is possible for a USB license dongle [72] to work in some Virtual Machine environments, for example:

VMware - In VMware, USB dongle passthrough is only supported to a limited extent. Meaning, it is not not possible to access a USB license dongle from VMware VMs if the dongle isn't plugged directly into the VMware ESXi host machine.
Hyper-V - USB dongle passthrough is supported to a greater extent - Google for: hyper-v usb passthrough

2.3 Soft License

General principles of Soft Licenses

- Soft Licenses eliminate the need for hardware license keys that can fail and get lost.
- Soft licenses can be used where SpecView software runs in a virtual machine.
- The user receives an installation code which is used to install and activate SpecView. This can be done in seconds if the computer is connected to the Internet. If no Internet connection is available codes are sent from another computer or smart phone to SpecView's web site, the returned codes entered manually into the SpecView computer.
- The soft license may be moved [45] to another computer at any time.
- If the computer suffers a catastrophic failure, SpecView may provide a replacement license [52] at no charge.
- The SpecView program requires a Check-In [41] process periodically to ensure the license is kept active.

When SpecView is purchased the user will receive an Installation code [34].

The following steps are required to register and Activate SpecView:

1. Download the program from the website www.SpecView.com.
2. Run the downloaded exe file to install the program. We recommend using the default settings. Note, if upgrading from SpecView Version 2.5 then during install there will be a prompt to migrate configs [188].
3. Run the program by double-clicking the SV3 icon on the desktop.
4. Click the **Enter License Code** button on the opening screen.
5. Once accepted SpecView will automatically exit.
6. SpecView must be Activated [36] within a few days, until then not all features may be available.
7. Run the program again. If SpecView has not yet been activated then the Activation [36] screen will appear.

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Once activated, exit SpecView completely and run again to ensure all the license features are enabled.

Also, if upgrading from SpecView Version 2.5 then now is a good time to update the Trend Charts [527] to Version 3 style.

2.3.1 Installation Code

Visit www.specview.com and download the setup file.

Run the setup file to install SpecView. A single SV3 icon will be placed on the desktop for the 32-bit program.
SpecView also has a 64-bit [189] program.

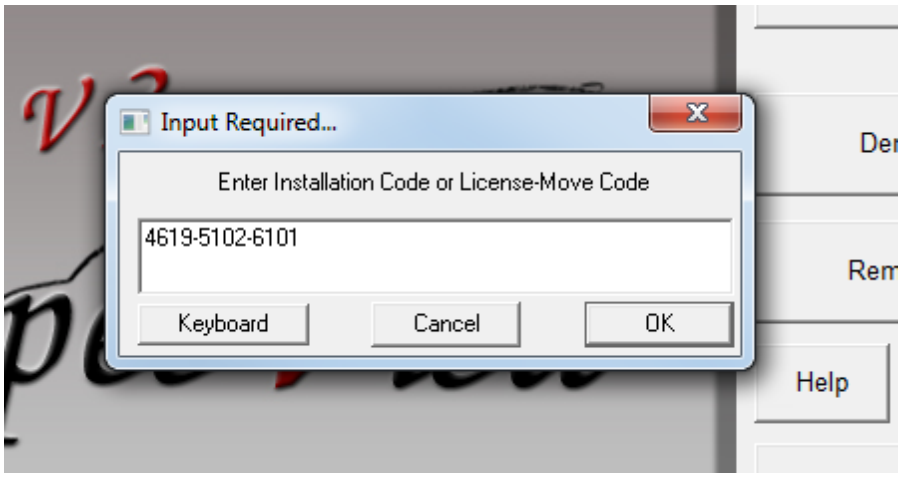
Double click the icon to launch the program.

The startup dialog box will appear:

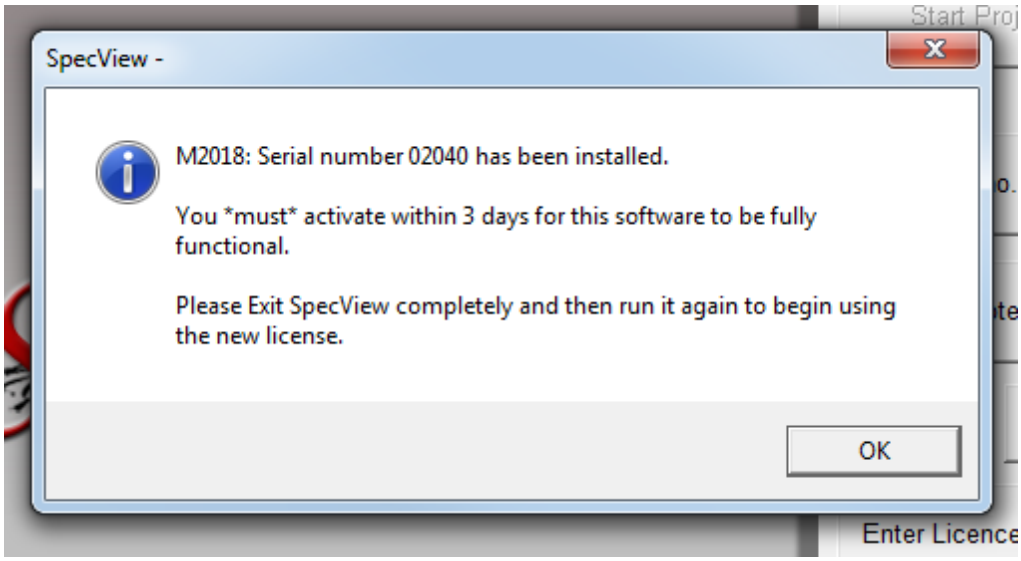


Click the **Enter License Code** button and enter the License Installation Code received from SpecView

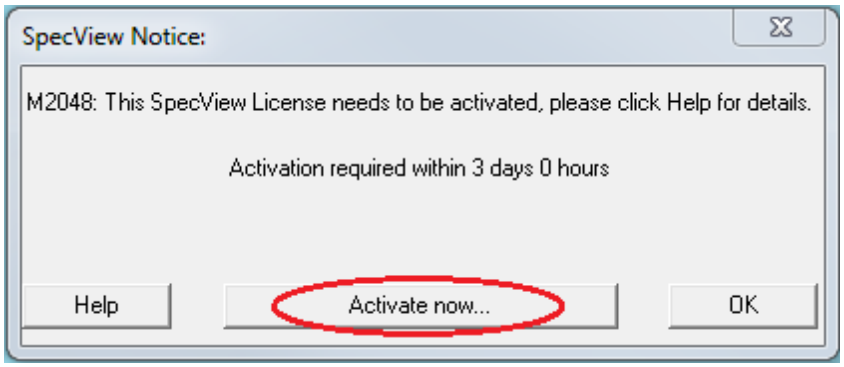
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Click OK and SpecView will automatically exit. Restart the program:



It is recommended that Activation [36] be performed immediately.
SpecView will operate normally for up to 3 days without Activation [36] though some features may not be available until Activation [36] is complete.



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The installation code can only be used once - if the license needs to be on a different computer, then it must be moved [45] to that computer if it is the only copy of SpecView needed, or if more than one copy of SpecView is needed, each needs its own license.

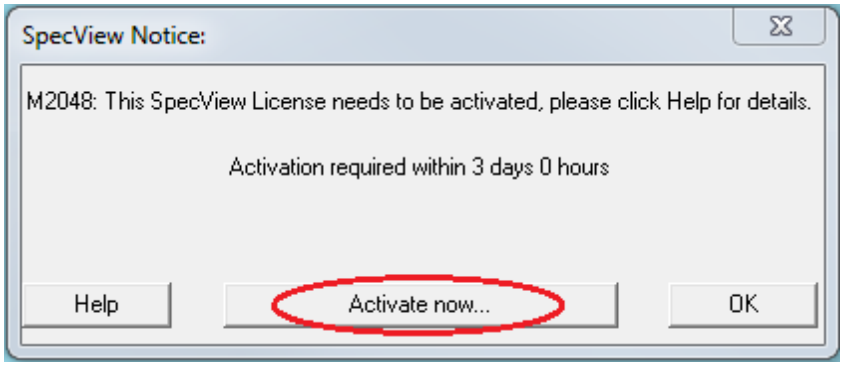
2.3.2 Activation

It is recommended that Activation is done immediately. SpecView will operate normally for up to 3 days without Activation, however some features may not be available until Activation is complete.

When started, SpecView will prompt to Activate the license. This is the easiest method, however, Activation can also be done by choosing **Registration Information** from the Help menu, and clicking the button at the bottom of that box.

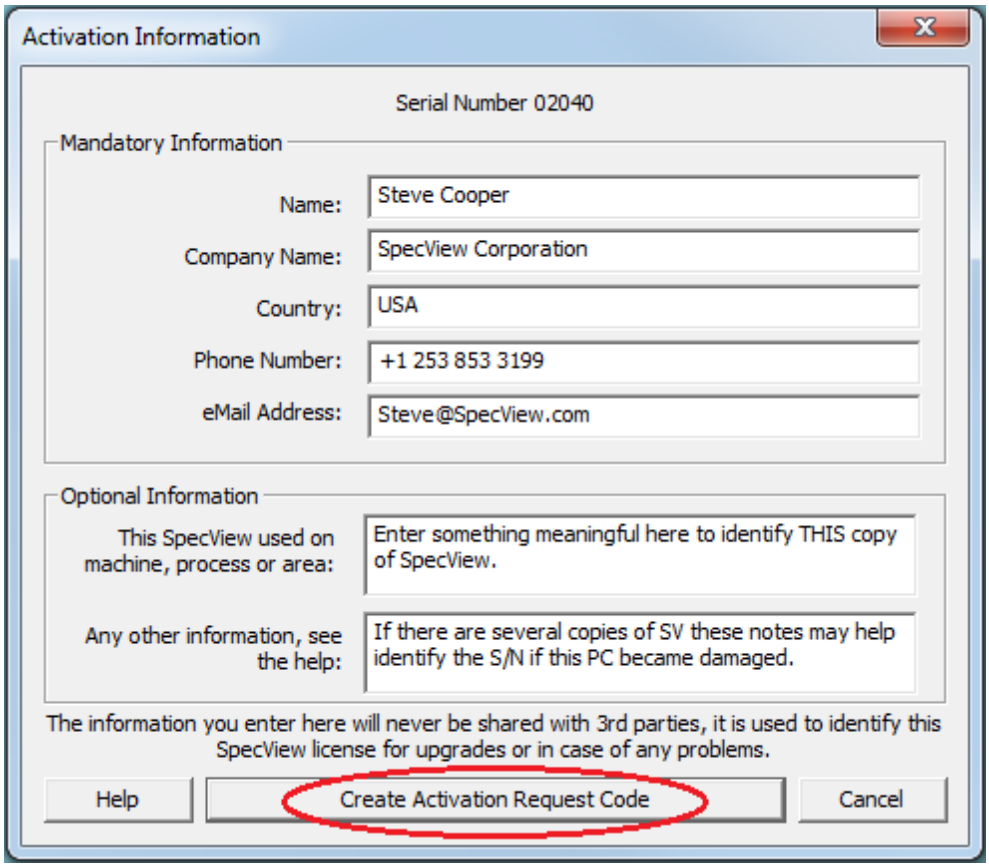
To Activate immediately from the message box displayed at startup, follow the steps below:

Click **Activate now** to display the **Activation Information** box:



Fill in the fields with your own details. The first 5 fields (Mandatory Information) are required, and the two lower fields should be filled in with any extra information that may help SpecView personnel to identify a lost license in the event of a computer failure. For example:

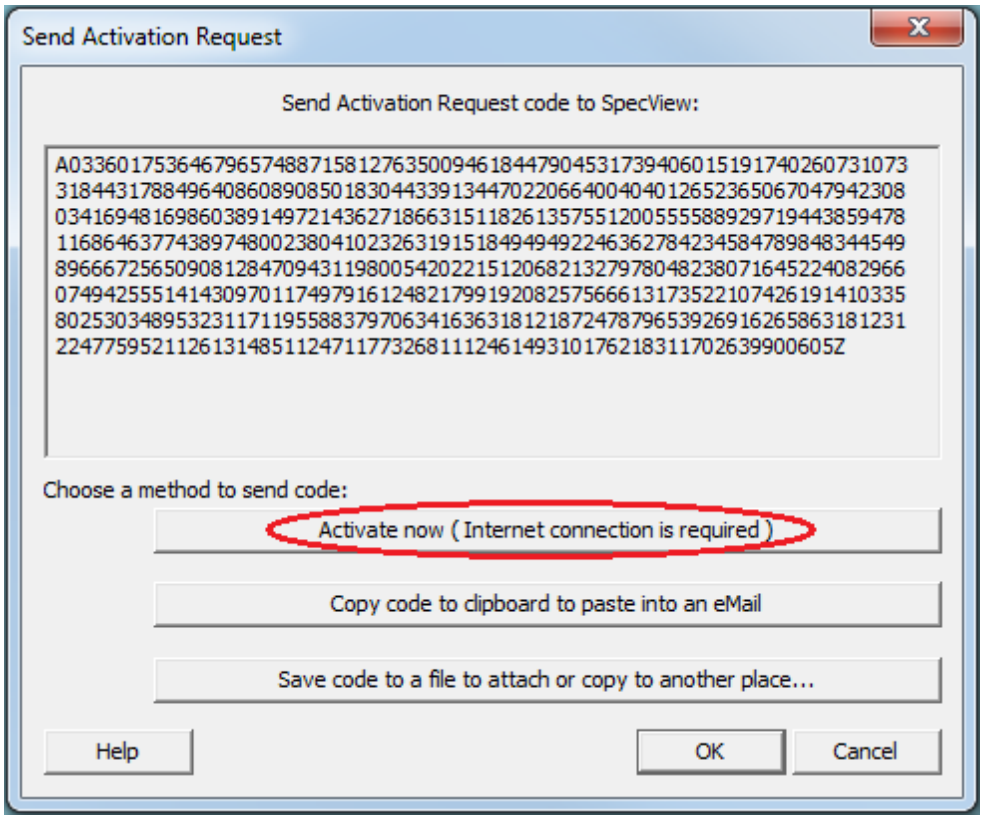
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Once the information has been entered click **Create Activation Request Code**.

If this computer has Internet access click the top button, **Activate now:**

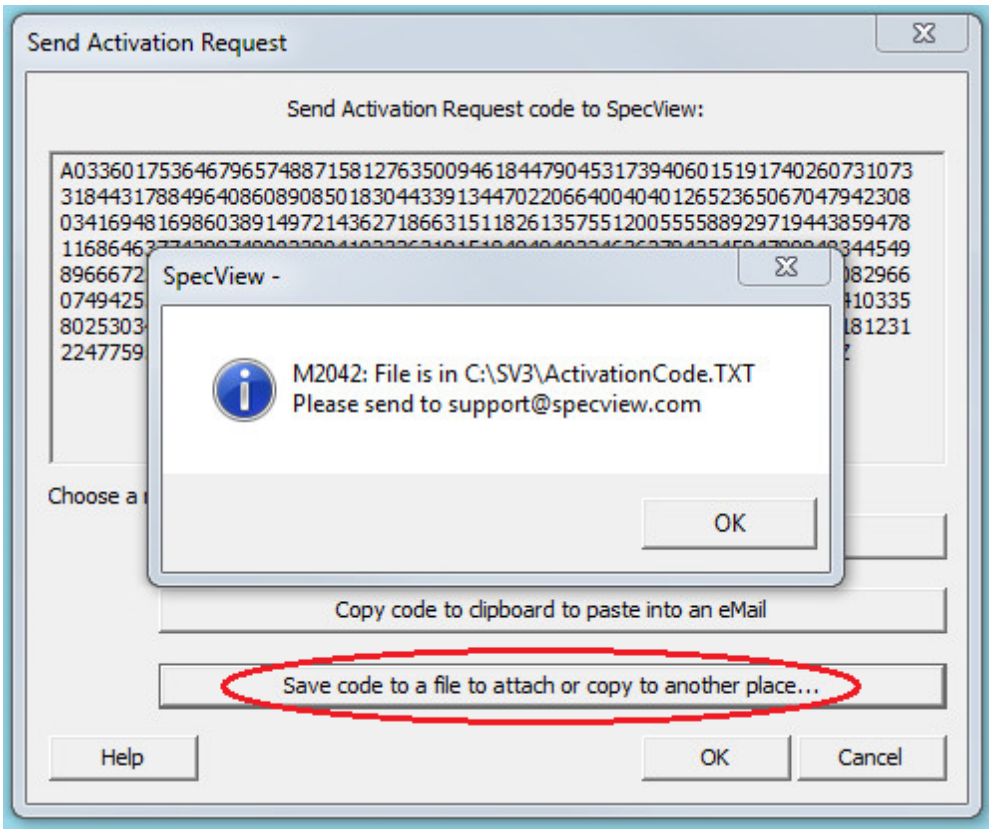
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This will automatically contact the Licensing Server complete the activation.

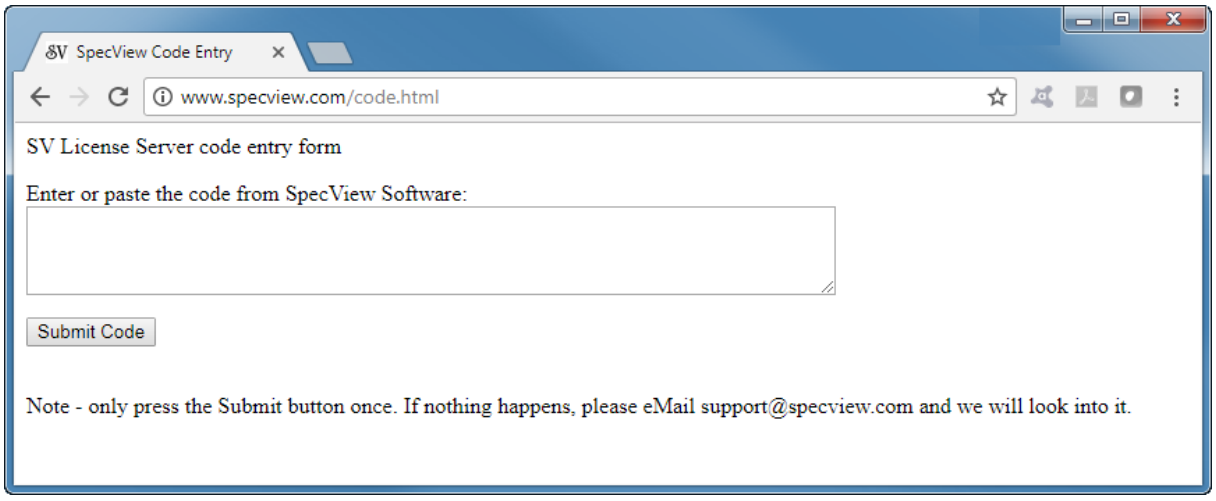
Or, if the computer does NOT have Internet access, the code will have to be sent to the Licensing Server via the SpecView website, so it is recommended to click the the third button **Save code to a file**:

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Note: if the code gets lost or was copied incorrectly, a copy of the code can be found in the file CODESENT.INI located in the SV3 installation folder.

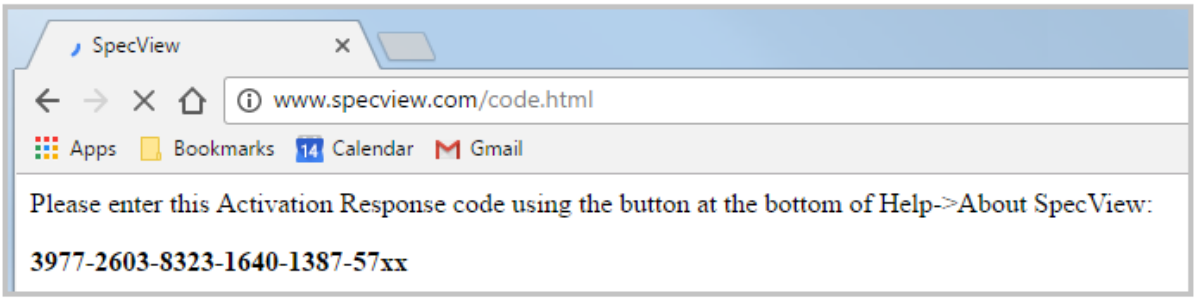
To Activate via the SpecView website directly, go to: http://www.specview.com/code.html to enter the code generated in the previous step, and click **Submit Code**:



If a network firewall prevents the code being submitted to the Licensing Server, then the quickest alternative is to use a browser on a smart phone over mobile data.

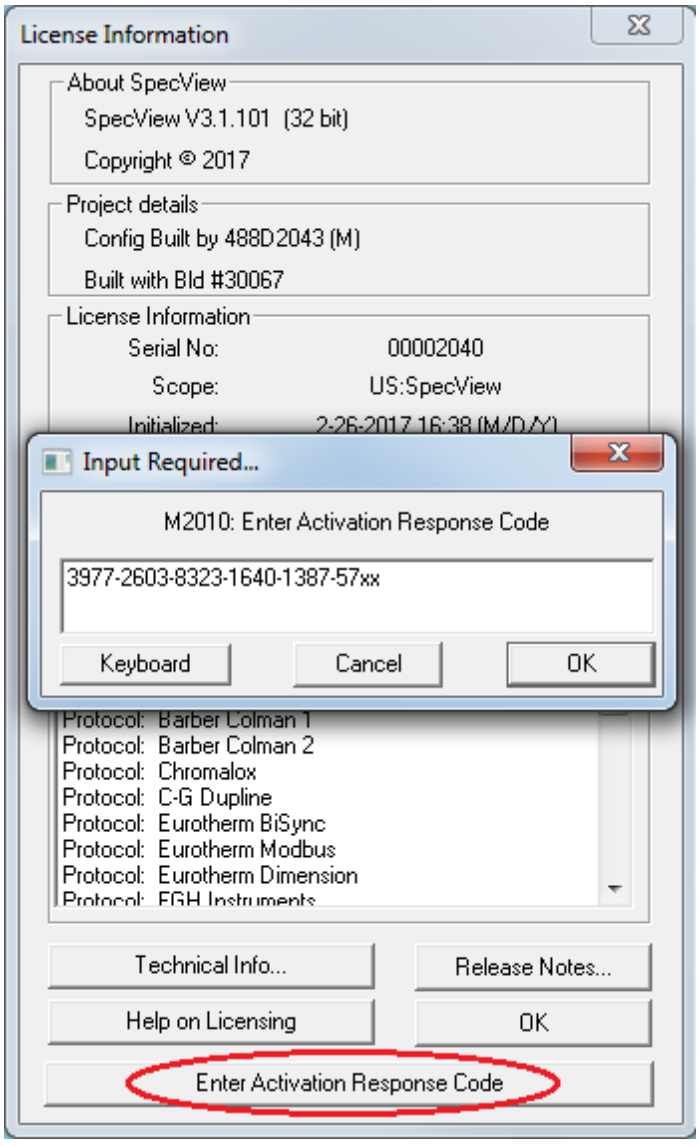
It is also possible to email the Activation code to SpecView.

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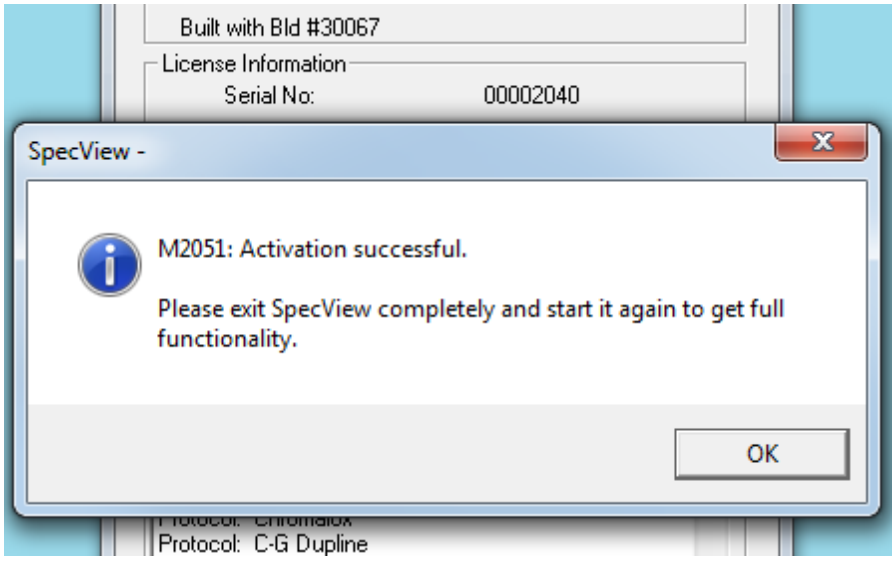
When the Activation Response code has been received from the website or by email, it can be entered by choosing **Registration Information** from the Help menu, and clicking the button at the bottom of that box:

Click **Enter Activation Response Code** and enter the code received:



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Click OK:



Exit and restart SpecView, choose **Registration Information** from the Help menu, and ensure all purchased options are listed.

2.3.3 Check In

SpecView needs to periodically "Check-In" with the Licensing Server to keep the license active.

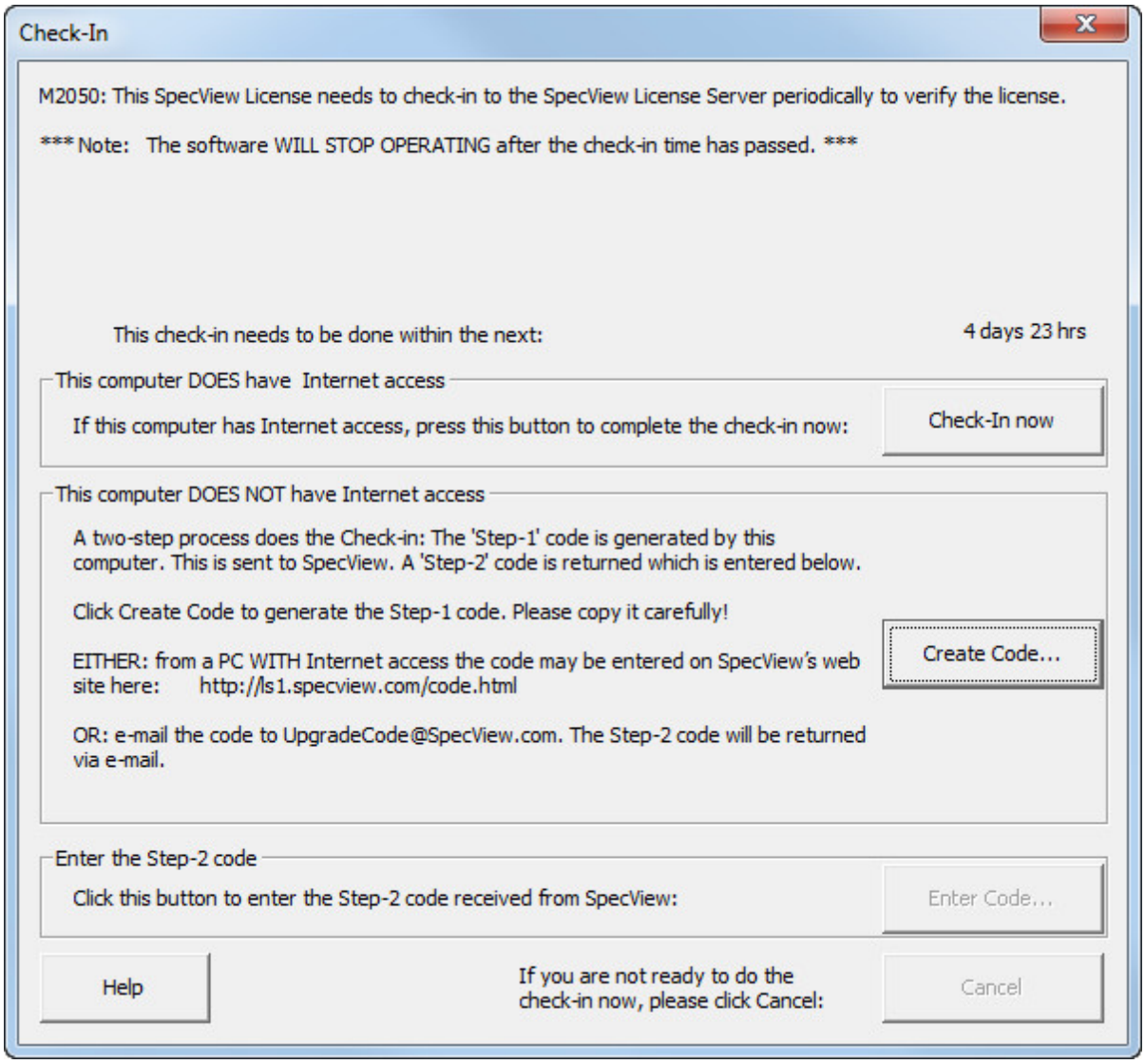
This can be done either automatically over the Internet or via Check-In codes.

Note: If the Check-In is not done before the deadline then SpecView will ONLY OPERATE IN DEMO MODE [31] follow these steps [43] to re-enable it.

There is no cost to perform the Check-In and the Update Subscription [76] does not need to be current.

31 days before the Check-In deadline a box like this will appear:

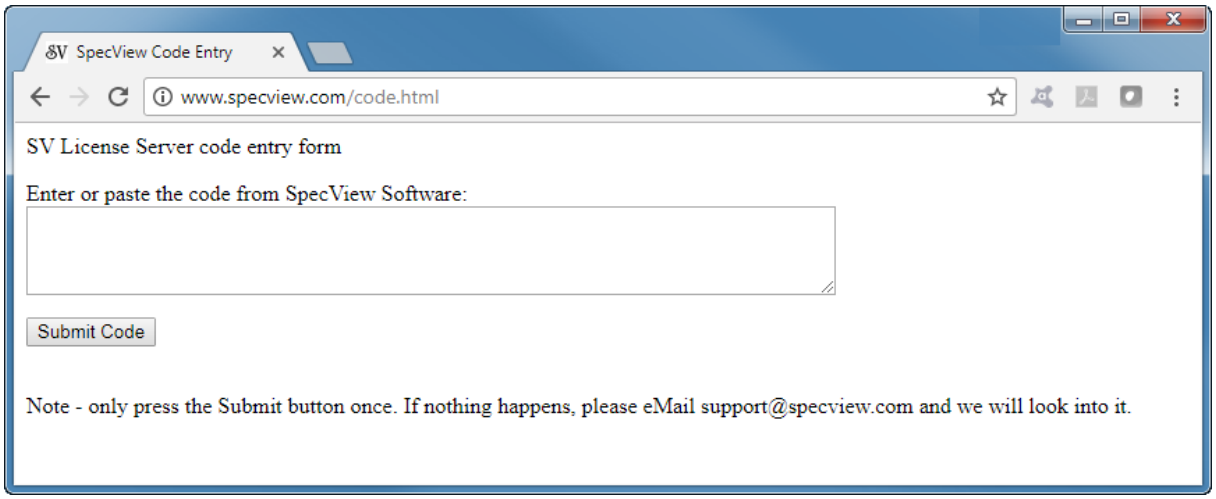
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If the computer has Internet access click the **Check-In now** button and the Check-In will be performed automatically.

If the computer does NOT have Internet access, or if your firewall is preventing the message getting through to our license server then click **Create Code** and follow the on-screen instructions.
The code can be entered into: http://www.specview.com/code.html using a smart phone with mobile data, or a computer with a different Internet connection:

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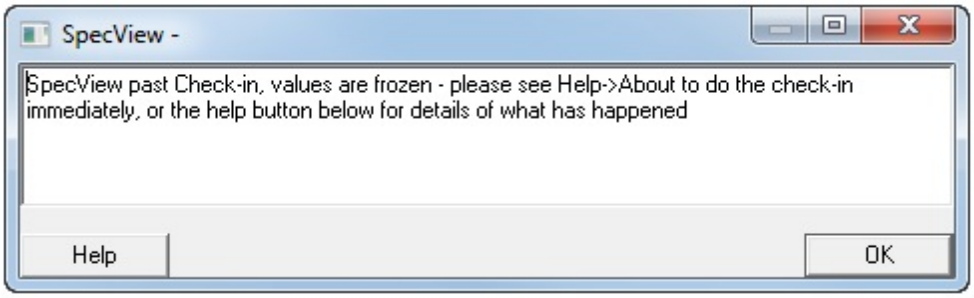


SpecView displays messages prompting that the annual Check-In is due from 31 days beforehand, so there is plenty of time to complete the Check-In.

When the Check-In time is less than 7 days away the message box cannot be closed.

2.3.4 Check In Overdue

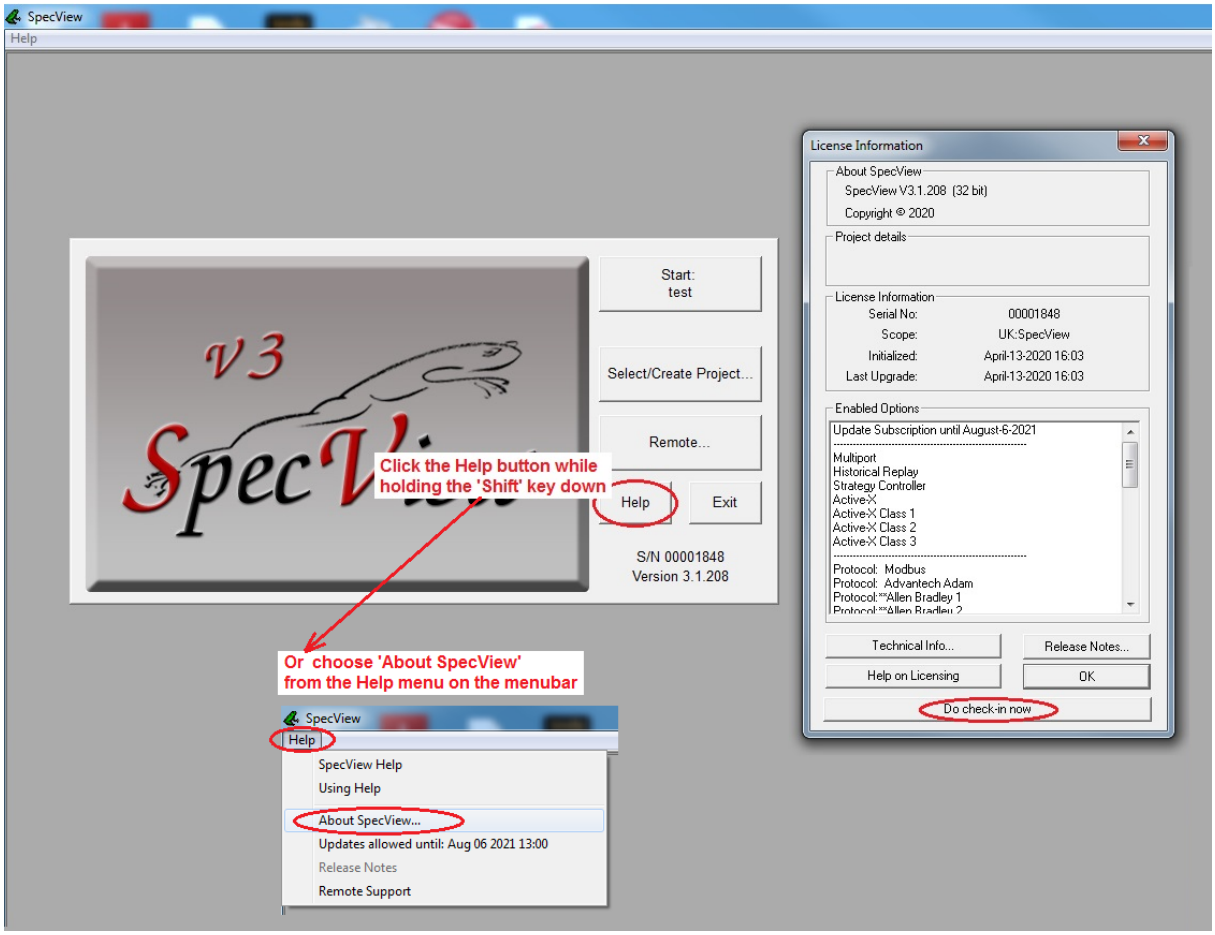
If the license check-in due date has passed then this error will be displayed:

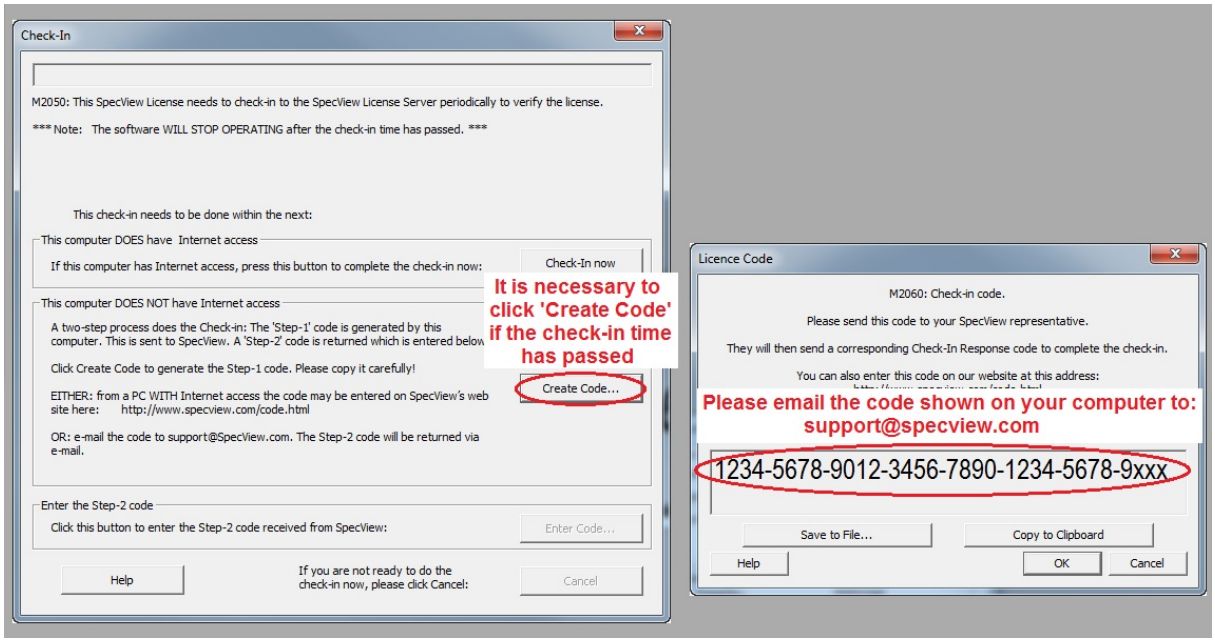


To re-enable the license it is necessary to generate a code and email it to support@specview.com

Follow these steps:

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2.3.5 Move License to Another Computer

The SpecView license can be moved to another computer:

For a USB License Dongle [72]:

The license can be moved to another computer by following these steps:

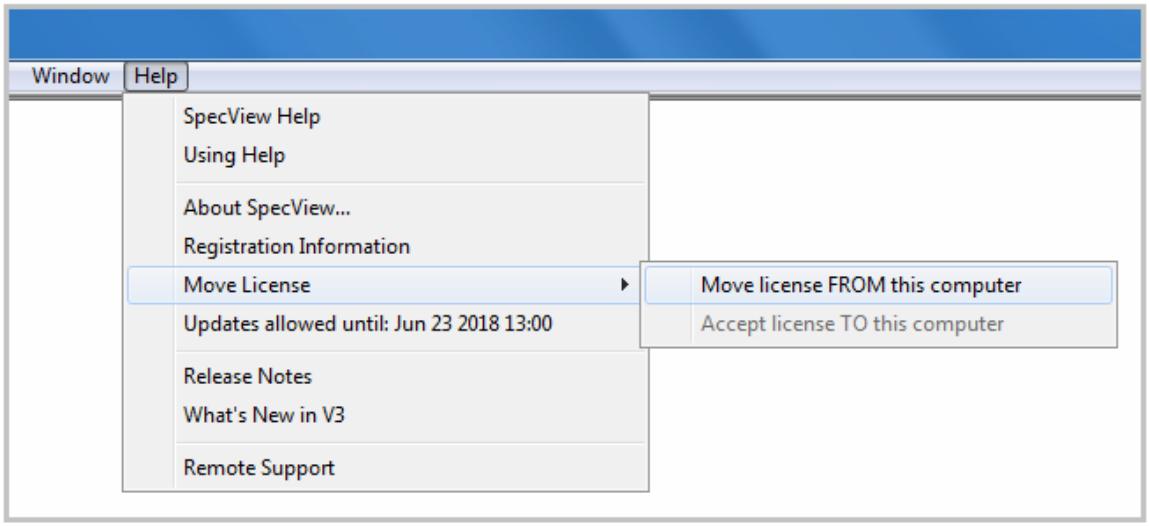
- Exit SpecView on the current computer
- Disconnect the dongle from the current computer
- Install SpecView on the new computer
- Connect the dongle to the new computer, wait a few minutes to allow Windows time to recognize the dongle
- Run SpecView on the new computer

Note: Do not disconnect a USB License Dongle while SpecView is running because this will cause SpecView to give an error and stop communicating with the instrument(s).

For a Soft License [33]:

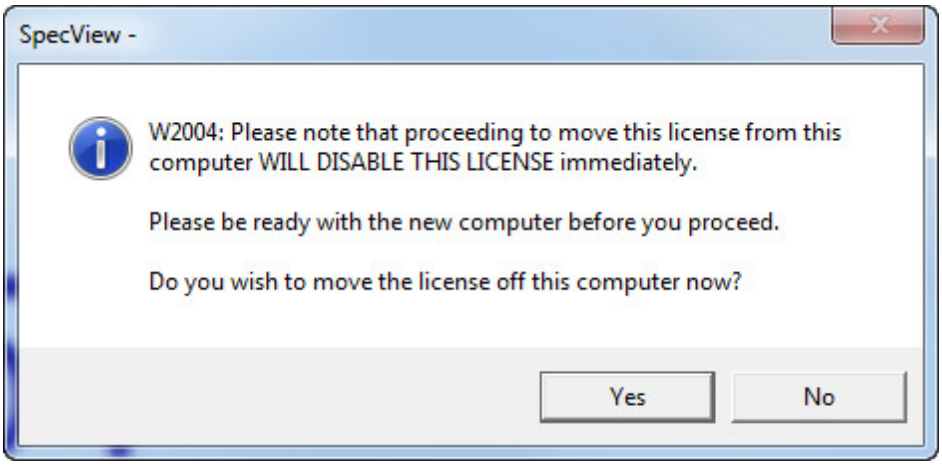
If the old computer is still running, then follow the procedure below. However, if the old computer has failed, see Replacing Licenses [52].

In Runtime or Edit Mode, from the Help menu, choose **Move License** and then **Move license FROM this computer**:

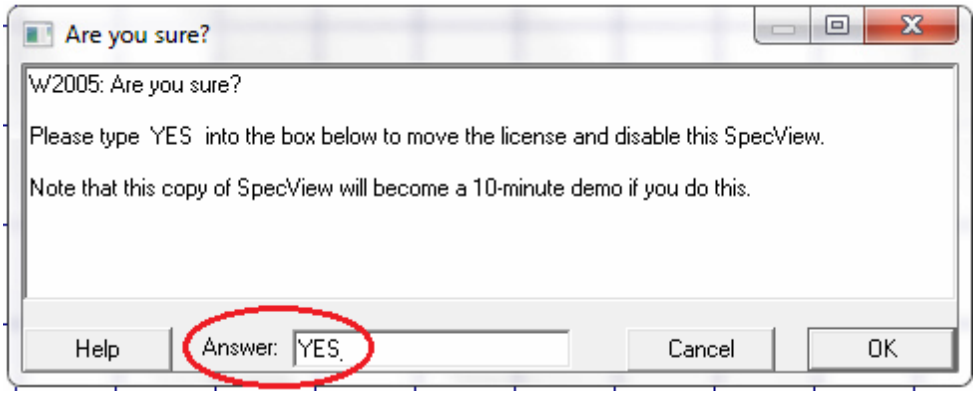


A confirmation box will be displayed:

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This opens an additional confirmation box that requires "YES" to be typed into the **Answer** box:

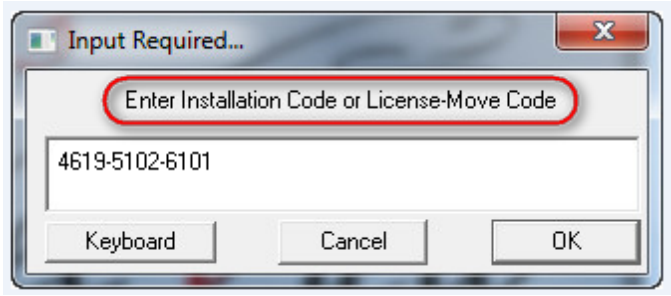


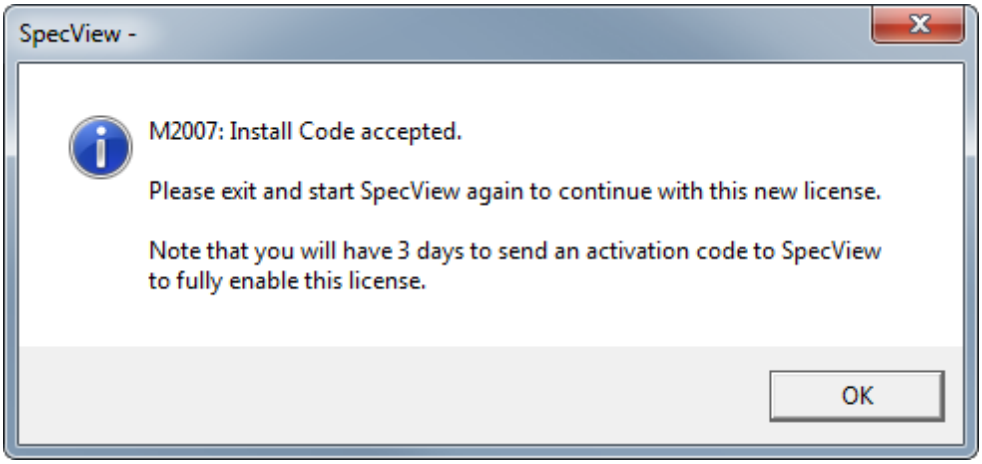
This process will remove the license from this computer and give an Installation Code to be entered into SpecView on the new computer to move the license.

On the new computer, after installing the SpecView software, run it and click the **Enter License Code** button to enter the license installation code that was made in the previous step.

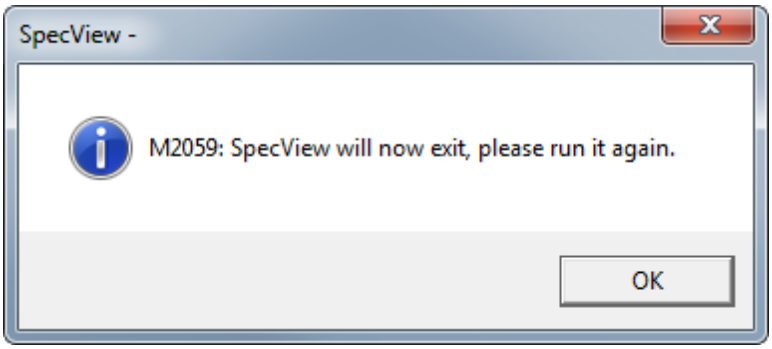
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The license now needs to be Activated [36].

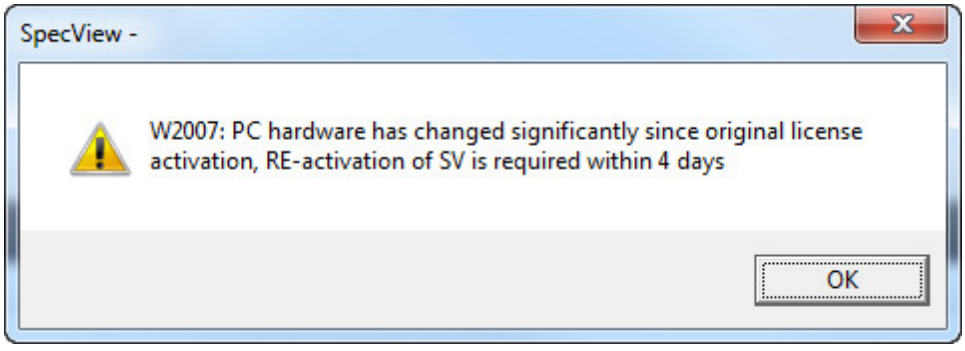
At this point, the old computer will be running as a demo [31]. This is a good time to make a backup Archive [193] of the project so that it can be Restored [193] onto the new computer.

2.3.6 Re-activation

If the computer running SpecView fails, but the files can be recovered and moved [45] to a new computer, then when SpecView starts on the new computer it will detect that it is not the same as the old computer and will require Re-activation [48]. This must be done within 4 days, otherwise the license will stop operating.

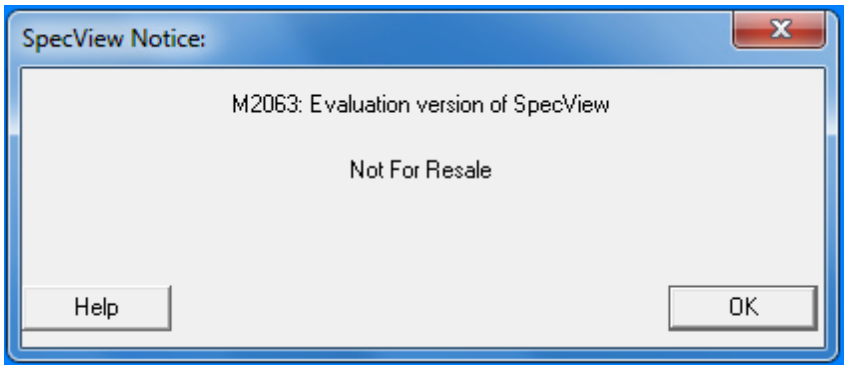
In this case the warning message W2007 would be shown:

(If the hardware has not changed, yet this W2007 message is shown then please contact [798] SpecView.)



This means that SpecView is now running in Evaluation mode [75] for the next 4 days:

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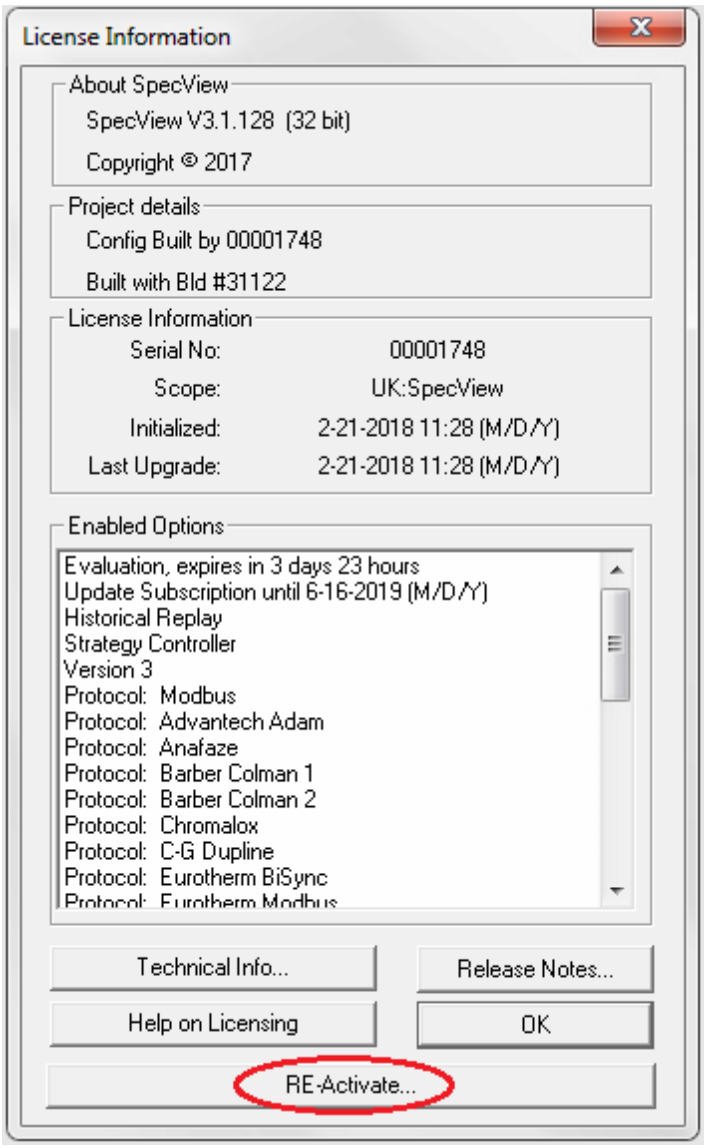


When this happens it is necessary to take the following action within 4 days:

The Re-activation process is similar to the original activation 36 process and is designed to help give the SpecView license server the new details about where the license is now.

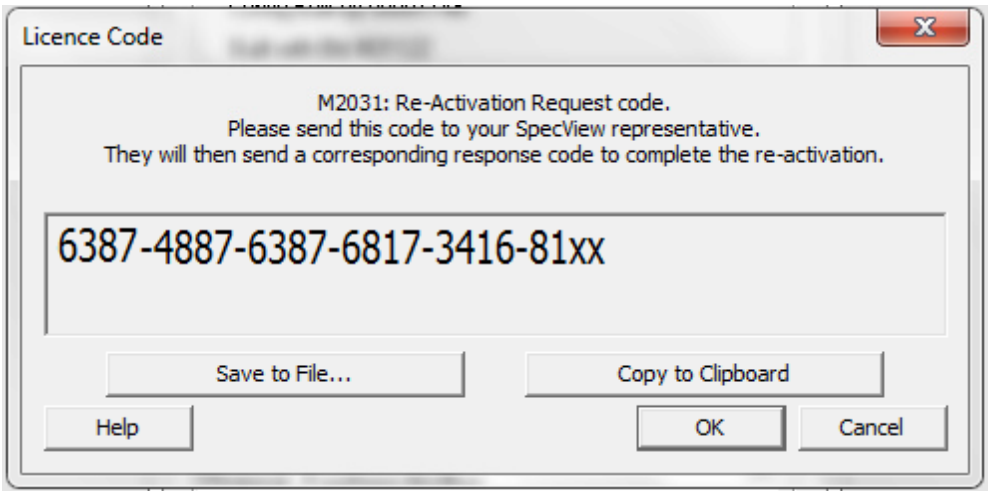
From SpecView's Help menu choose **Registration Information** and click the last button to generate a Re-activation request code:

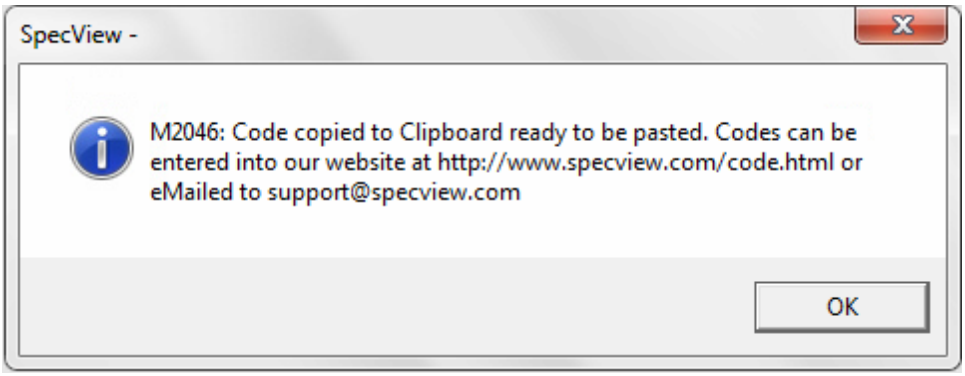
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This will give a Re-activation code:

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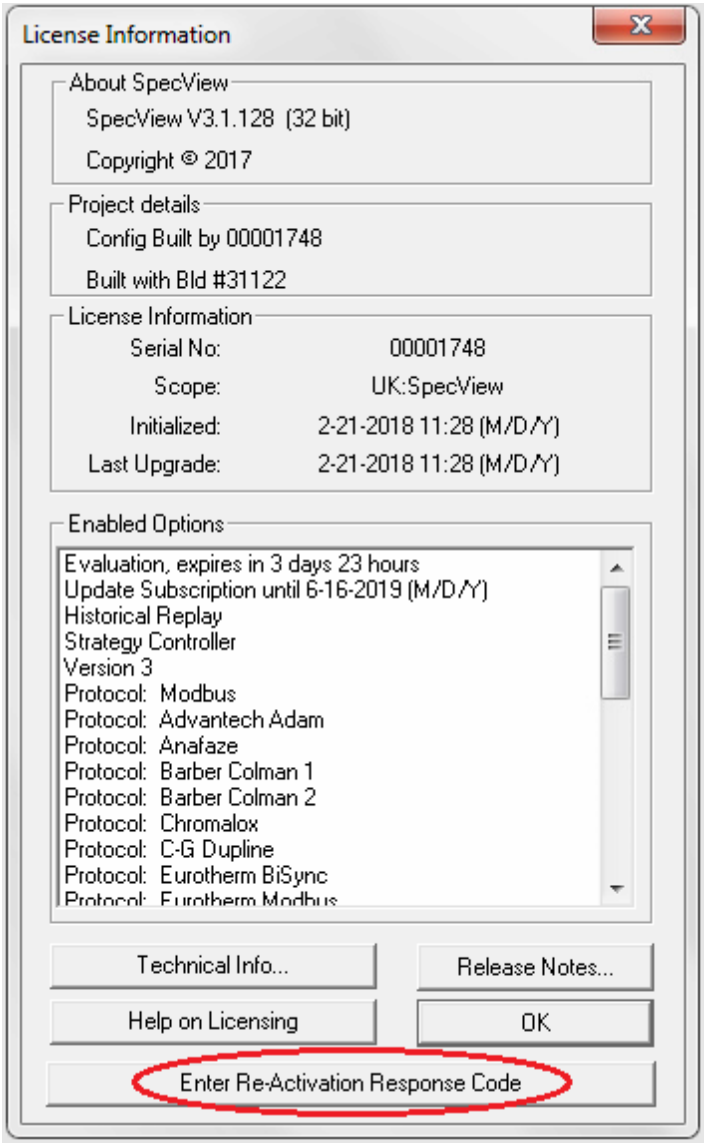


However, in the case of Re-activation it is necessary to email it to support@specview.com
Because the website would give the error E2035 as below.



Once the Re-activation code has been received from SpecView by email then from SpecView's Help menu choose **Registration Information** and click the last button to Re-activate the license:

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The license is now Re-activated and is fully functional.

2.3.7 Replacing Licenses

If the computer becomes inoperable so that the license cannot be Moved [45] to another computer, a new license will be required. If the old computer's hard drive can be recovered, then this will help, or if any backup or Archive [193] of the SpecView project is available, that would also help. See below for how to recover important license information.

A replacement license may be supplied at no charge but ONLY if there is a current Update Subscription [76] and where SpecView personnel can be informed of the serial number of the license that has been lost. This can be recovered from the Project files. See below for how to recover important license information.

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If the Update Subscription 76 has expired a new two-year or five-year subscription must be purchased. Note, it is more cost efficient to extend a current subscription, than to purchase a new subscription after expiry.
To avoid this, renew the subscription when SpecView advises that it is about to expire.

If a replacement license is required in these circumstances, please contact your SpecView representative because this cannot be done as an automatic process.

Recovering Important License Information

If files can be recovered from the old failed computer's hard-drive or if there is a backup of the Project files then the **SETTINGS.INI** file contains the following information. To view this, open **SETTINGS.INI** in a text editor (such as Notepad):

The **[LicLog]** section inside that file shows which SpecView license(s) have been used with this project, the example below shows license 00001701 was last used to run this project:

[LicLog]
RunningLic=00001701

2.3.8 Soft License Errors

There are messages (starting with an 'M'), warnings (starting with a 'W') and errors (starting with an 'E'):

Messages	Warnings	Errors
M2000 54	W2001 54	E17817 59
M2003 54	W2002 54	E12384 58
M2006 55	W2004 54	E2013 56
M2007 55	W2005 54	E2014 56
M2008 55	W2007 55	E2015 56
M2009 55	W2066 64	E2016 56
M2010 55		E2017 56
M2011 56		E2021 57
M2018 56		E2022 57
M2019 57		E2023 57
M2020 57		E2024 57
M2029 58		E2025 57
M2030 58		E2026 57
M2031 59		E2027 58
M2032 59		E2028 58
M2042 60		E2034 59
M2046 60		E2036 61
M2048 63		E2037 61
M2050 63		E2038 61
M2051 61		E2039 61
M2052 61		E2040 60
M2054 62		E2041 60
M2055 62		E2043 60
M2056 62		E2053 60

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M2057 62 M2058 62 M2059 62 M2060 62 M2061 62 M2062 62 M2063 63 M2064 63 M2065 64		E2067 64

The meaning of these messages are detailed below:

M2000: This is the install code for the NEW computer:

When moving a license from one computer to another, the OLD computer generates a code that transfers the license to the new computer. This is the code from the old computer and needs to be typed in as a new license code at the startup screen of the NEW computer.

W2001: There are currently outstanding license operations, please complete these before moving the license.

It is not possible to move a license from one computer to another unless all outstanding license operations have been completed. This message indicates that some form of interaction with the License Server is still outstanding. Please contact SpecView to resolve this issue before moving the license.

W2002: This is not a soft license, to move the license, move the hardware dongle.

For USB License Dongles, exit SpecView, move the dongle to the new computer and run SpecView. The old computer's SpecView will run as a Demo once the dongle has been moved.

M2003: No License to move.

No license has been installed yet, the software is operating in Demo mode, so there is no license to move from this computer

W2004: Please note that proceeding to move this license from this computer WILL DISABLE THIS LICENSE immediately.
Please be ready with the new computer before you proceed.
Do you wish to move the license off this computer now?

This is a warning that once the license move code has been generated, this copy of SpecView will be converted into a demo license. Please be sure that the new computer is ready, with SpecView installed before attempting to move the license from this computer.

W2005: Are you sure?
Please type YES into the box below to move the license and disable this SpecView.
Note that this copy of SpecView will become a 10-minute demo if you do this.

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See above

M2006: Enter 'Move Code' from old computer

A prompt on the NEW computer to enter the code generated from the OLD computer using Help->Move License.

M2007: Install Code accepted.
Please exit and start SpecView again to continue with this new license.
Note that you will have 3 days to send an activation code to SpecView to fully enable this license.
days

An Install code (or License move code) has be installed, to setup the license on this computer. It is recommended that SpecView be closed and started again to ensure that all options in the License are available.

W2007: PC hardware has changed significantly since original license activation, RE-activation of SV is required within XXX days

This indicates that a large hardware change [48] has been detected. This can occur for a number of reasons:
1) The SpecView folder has been moved from one computer to another without doing the correct License Move [45] procedure. Please see this section for full details of how to correctly move a license.
2) New hardware has been installed in the computer and Re-activation [48] of the license is required. Please go to Help->Registration Information and click the 'RE-Activate' button at the bottom.
3) If the hardware has not changed, yet this message is shown then please contact [798] SpecView.

M2008: PC hardware has changed slightly, re-activation of SV is advised (via a Check-in).\n Do you want to schedule a check in now?

This indicates that a small change to hardware has occurred, e.g. changing or adding a network card. This copy of SpecView needs to communicate to the SpecView License Server to register this change. This is done by a 'check-in' process. Go to Help->Registration Info and click the 'Check in' button at the bottom. Note that this kind of check-in requires an interaction with SpecView personnel to check the license details, so it must be done by eMail or telephone.

M2009: Please go to Help->About SpecView and click the [Check-In] button at the bottom to perform a check-in

As above

M2010: Enter Activation Response Code

This is the prompt to enter the Activation Response received from the SpecView license Server or SpecView personnel. Once activated, SpecView should be close and restarted to ensure all options are

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available.

M2011: Enter Upgrade Step-2 Code

This is a prompt to enter an Upgrade Step-2 code that has been supplied by SpecView in response to a Step-1 code generated from this copy of SpecView.

E2013: Code is the wrong length - please re-check and re-enter

This indicates that the code has been entered wrongly. Please check the code carefully and if this continues, it may have been copied or sent incorrectly.

E2013: Code has been typed incorrectly - please re-check and re-enter

This indicates that the code has been entered wrongly. Please check the code carefully and if this continues, it may have been copied or sent incorrectly.

E2014: This Step-2 code is not for this serial number.

This happens where the Step-2 code being typed in applies to a different License. Ensure the correct code is used with the correct license. Contact SpecView if the problem persists

E2015: This Step-2 code does not match the Step-1 code sent to SpecView.

This happens where the Step-2 code being typed in applies to a different License. Ensure the correct code is used with the correct license. Contact SpecView if the problem persists

E2016: You *MUST* update to a newer version of SpecView before trying to upgrade it, this version is too old.

This means that the incoming code refers to options that are not present in the version (build) of SpecView that you are currently using. To use this code you must first update SpecView to the latest version from the downloads section of the website.

E2017: An Installation Code has already been entered, you cannot enter another setup code without first activating this license

This indicates that the original License installation code has been entered, but not yet activated. The Original License Installation code is only used once. See the help on Activation for more details.

M2018: Serial number XXX has been installed. You *must* activate within XXX days for this software to be fully functional. Please Exit SpecView completely and then run it again to begin using the new license.

This message appears after the Installation License code has been entered and gives the number of days that are required before full Activation is necessary. The next step is to activate the License fully.

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Close SpecView and re-start it to get the full functionality of the License options.

M2019: This Activation Response code is not for this serial number.

This could happen if the Activation response code is typed into the wrong license. Contact SpecView if the problem persists

M2020: This Activation Response code does not match the code sent to SpecView.

This could happen if the Activation response code is typed into the wrong license. Contact SpecView if the problem persists

E2021: This license has been reported as lost, activation will not happen, deactivating license.

This message will appear if a License that has previously been reported as lost or stolen is attempted to be Activated again. A SpecView License can only be used on one computer, so a new license would be required. Please contact SpecView for assistance.

E2022: This is a duplicate activation - another installation of SV has already activated using the Activation Response code.
This copy is a second copy, please contact SpecView for assistance.

This happens when a License Install code is entered into a second computer and an attempt is made to activate this second license. The License Install codes are for use on a single computer only. If the intention is to move the license from an existing computer to a new one, please see the help on Moving a License. If the intention is to run a second copy of SpecView software, then a separate licese with a new License Install Code is required.

E2023: This license has now been disabled, please contact SpecView for assistance.

Please contact SpecView if this message is seen.

E2024: Unknown Activation code

This could happen if the Activation response code is typed into the wrong license. Contact SpecView if the problem persists

E2025: This check-in code is not for this serial number.

This could happen if the Check-in response code is typed into the wrong license. Contact SpecView if the problem persists

E2026: This check-in code does not match the code sent to SpecView.

This could happen if the Check-in response code is typed into the wrong license. Contact SpecView if

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the problem persists

E2027: This Re-Activation code is not for this serial number.

This could happen if the Re-Activation response code is typed into the wrong license. Contact SpecView if the problem persists

E2028: This RE-Activation code does not match the code sent to SpecView.

This could happen if the Re-Activation response code is typed into the wrong license. Contact SpecView if the problem persists

M2029: Upgrade Step 1 Code.
Please send this code to your SpecView representative.
They will then send a corresponding Step-2 code to enable the options on the license.
(This Step-1 code was generated previously, this is showing that code again)

For situations where the computer is not able to connect to the internet directly, a two-stop code system must be used, this is the first step, redisplaying the code previously generated.

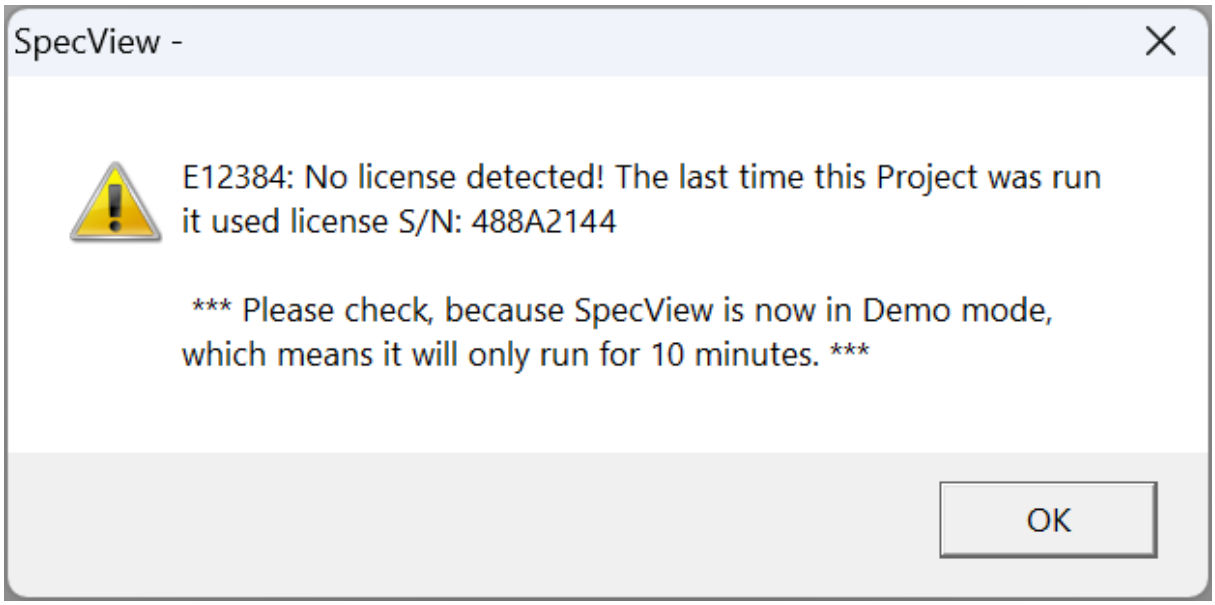
M2030: Upgrade Step 1 Code.
Please send this code to your SpecView representative.
They will then send a corresponding Step-2 code to enable the options on the license.

For situations where the computer is not able to connect to the internet directly, a two-stop code system must be used, this is the first step.

E12384: Warning that a SpecView Project that was last run with a license is now being run without a license:

Error message displayed is:

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This error indicates that SpecView will only operate for 10 minutes in Demo Mode because the license that was previously used, which was either:

1. A USB License Dongle which is now not connected to the PC, in this case the user will need to connect the dongle, then exit SpecView and run it again.

2. A Soft license which is no longer detectable, in this case the soft license needs to be made available. If in doubt contact Technical Support[798].

This error used to falsely appear when a user was using Demo Mode intentionally to create a new project.
However, this issue was resolved in SpecView Build 3.1.249[134].

E17817 No options defined on license.

There are no options on the License, so Standard Single-Port SpecView is in effect.

M2031: Re-Activation Request code.
Please send this code to your SpecView representative.
They will then send a corresponding response code to complete the re-activation.

Displayed during a non-internet re-Activation where the re-activation is done via an exchange of codes.

M2032: Check-in code.
Please send this code to your SpecView representative.
They will then send a corresponding response code to complete the check-in.

Displayed during a non-internet check-in where the check-in is done via an exchange of codes.

E2034: Unknown Error, please contact SpecView to resolve this issue;

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Contact SpecView in this case.

E2040: Could not establish connection to the Licence Server.
Please check outgoing firewall or antivirus rules before trying again.
Contact SpecView for assistance, and / or use the SpecView website to enter codes:
http://www.specview.com/code.html

An attempt has been made to contact SpecView's License Server directly across the Internet, but has failed. This could be for a number of reasons:
- The computer has no internet connection – in which case, an exchange of codes can be done via another computer, eMail or telephone to process the codes.
- The Internet is not working at the moment, use the codes as detailed above.
- The SpecView License Server is undergoing maintenance – try again later, or send the codes via eMail.

E2041: Another Internet session is in operation, please close the other one first

Wait for the other Internet session to complete first before trying again. This can take about a minute. If this persists, close SpecView, restart it and try again. If it still does not work, contact SpecView for assistance.

M2042: File is in XXXX Please send to support@specview.com

This indicated the file containing the code to be sent. This file can be copied to another computer or attached as an eMail.

M2046: Code copied to Clipboard ready to be pasted...

The code is now in the Windows clipboard and is ready to be pasted into an eMail or another document.

E2053: Failed to process license code, XXXXX

The shows a variety of errors where the code that has been sent cannot be processed for a number of different reasons, most likely is that it has been typed in wrongly, please check the codes entered. The code generated from the Software is stored in a file called CODESENT.INI that is in the main SV3 folder (usually C:\SV3) so it can be checked in there to see if it has been sent / copied / typed correctly.

If everything seems correct, but this message is still displayed, then please contact SpecView for assistance.

E2043: Check-in too early

An attempt to check in has been performed when it was not expected. This usually indicates a License issue, please contact SpecView for assistance.

E2013: Code has been typed incorrectly - please re-check and re-enter

The code just entered has been typed incorrectly. It consists of digits in groups of 4, dashes (hyphens) and sometimes the letter 'x' on the end. Please double-check the code and re-request it if required.
If everything seems correct, but this message is still displayed, then please contact SpecView for

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assistance.

E2039: Was not check-in code

The code just entered has been typed incorrectly. It consists of digits in groups of 4, dashes (hyphens) and sometimes the letter 'x' on the end. Please double-check the code and re-request it if required. If everything seems correct, but this message is still displayed, then please contact SpecView for assistance.

E2013: Code is the wrong length - please re-check and re-enter

The code just entered has been typed incorrectly. It consists of digits in groups of 4, dashes (hyphens) and sometimes the letter 'x' on the end. Please double-check the code and re-request it if required. If everything seems correct, but this message is still displayed, then please contact SpecView for assistance.

E2038: Check-in out of sequence, please contact SpecView to resolve this issue.

This message indicates that this SpecView's check-in was not expected by the SpecView License Server. Please contact SpecView for assistance.

E2037: Computer hardware has changed, please contact SpecView to resolve this issue

This message indicates some change of hardware that is not expected. Please contact SpecView for assistance.

E2036: Serial Number not issued by SpecView yet, please contact SpecView to resolve this issue

Please contact SpecView for assistance.

E2034: Unknown Error, please contact SpecView to resolve this issue

Please contact SpecView for assistance.

M2051: Activation successful. Please exit SpecView completely and start it again to get full functionality.

This copy of SpecView has been successfully Activated, however, it needs to be exited and run again (not just using File->Restart) to ensure that all the options are installed correctly. After closing completely and running it again, all the required options should then appear. This can be checked from the Help->Registration Info menu.

M2052: Upgrade retrieval or check-in successful.

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Success, it all worked! If the operation was an Upgrade Retrieval, then the new option(s) have taken effect immediately. If it was a check-in, then it worked and all is well.

M2054: Please fill in the name field

A Name must be entered into the Name filed to help identify the use of this copy of SpecView. At least 2 letters are required

M2055: Please fill in the company field

A Company must be entered into the Name filed to help identify the use of this copy of SpecView. At least 2 letters are required

M2056: Please fill in the phone number field

At least 3 digits are required in the phone number field

M2057: Please fill in the country field

At least 2 letters are required for the country

M2058: Please use a valid eMail address

eMail addresses must have the '@' sign, a dot '.' And at least 3 letters to be valid

M2060: Check-in code.
Please send this code to your SpecView representative.
They will then send a corresponding Check-In Response code to complete the check-in.
You can also enter this code on our website at this address: http://www.specview.com/code.html

For non-internet check-ins, this code should be sent to SpecView by entering it into the SpecView Website at http://www.specview.com/code.html or sent by eMail or read out over the phone.

M2061: Enter Check In Response Code

Prompt to enter the Response code sent from SpecView License Server or SpecView personnel.

M2062: No USB Dongle or Soft License.

No license is found on this computer, SpecView will operate in Demo Mode.

M2059: SpecView will now exit, please run it again.

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During Activation, SpecView needs to restart. Please exit completely and run it again.

M2048: This SpecView License needs to be activated, please click Help for details.
Activation required within XXX days XXX hours

This indicates that a License Installation code has been entered, but they Activation of this License has not yet been performed.
Indicating the remaining time left before Activation. Once this time has passed, this SpecView License will operate din demo mode only.

M2063: Evaluation version of SpecView * PAST ACTIVATION EXPIRY ***

The SpecView License used was an evaluation license, and this time has now passed. SpecView will operate in Demo mode from now on. To continue using the License, please contact your SpecView representative.

M2064: License Retrieval code.
Please send this code to your SpecView representative.
They will then send a corresponding Check-In Response code to complete the check-in.
You can also enter this code on our website at this address: http://www.specview.com/code.html

This message is displayed during a Check-In with the SpecView License Server.

M2050: This SpecView License needs to check-in to the SpecView License Server periodically to verify the license.
This check-in needs to be done within the next: ?? days
***** Note: The software WILL STOP OPERATING after the check-in 41 time has passed. *****
If this computer has Internet access, press this button to complete the check-in now:
A two-step process does the Check-in: The 'Step-1' code is generated by this computer. This is sent to SpecView. A 'Step-2' code is returned which is entered below.
Click Create Code to generate the Step-1 code. Please copy it carefully!
EITHER: from a PC WITH Internet access the code may be entered on SpecView's web site here: http://www.specview.com/code.html
OR: eMail the code to UpgradeCode@SpecView.com. The Step-2 code will be returned via eMail.
Check-In now
If you are not ready to do the check-in now, please click Cancel:
Check-In

This is a dialog box allowing check-in.

A Step-1 code has already been generated. Please click the Help button below for details if you need to recover the previously generated Step-1 code

This message indicates that a Step-1 code has already been generated, this is just re-displaying the previous Step-1 code.

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M2065: Evaluation mode expires in less than %d days, please contact SpecView.
The software will operate with very reduced functionality after this time.
Please visit http://www.specview.com/ for contact details.

A message displayed as Evaluation mode is nearing it's Expiry. To make the license non-evaluation, or to extend the time, please contact your SpecView representative.

W2066: This hardware dongle has been reported lost and has been converted into a Demo with limited runtime. Please contact SpecView for assistance.

This USB license dongle has been previously reported as lost or stolen. A new license is required, please contact your SpecView representative for assistance.

E2067: Memory allocation failed

A message displayed if serious out-of-memory issues occur during Installation or Activation.

2.4 Upgrading and Updating

Upgrading and Updating have different meanings:

Upgrading (Definition: Adding a new option to a license):
SpecView's license may be Upgraded [64] at any time; this means adding, removing or changing options within the license, such as adding the Historical Replay option or renewing the Update Subscription [76].

Updating (Definition: Getting a new version of the software):
SpecView software is under constant development for improvements, new features and functionality. To benefit from this it is necessary to download and Update [71] to a more up-to-date version of the software. This process is not possible if the Update Subscription [76] has expired.

2.4.1 Upgrading Licenses

Upgrading (Definition [64]: Adding a new option to a license):
SpecView's license may be Upgraded at any time; this means adding, removing or changing options within the license, such as adding the Historical Replay option or renewing the Update Subscription [76].

Upgrading Overview:

SpecView Version 3 supports both Soft Licenses and USB License Dongles.
For new purchases Soft Licenses are now the standard (USB dongles can be requested at an additional charge).
See comparison here [32].

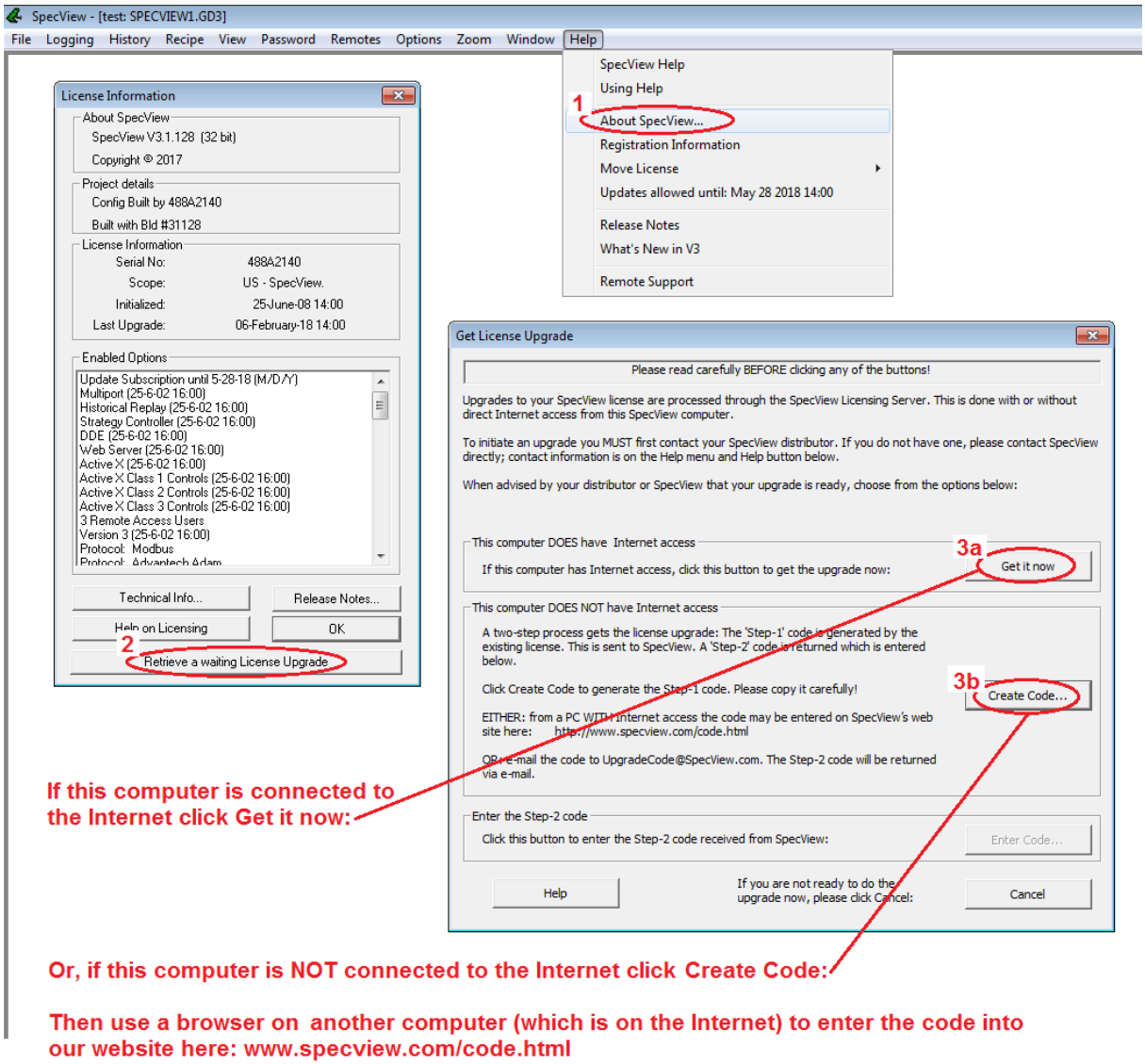
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For Upgrades for both soft licenses and USB dongles the procedure is:

A. Send PO# and the option(s) required and the dongle serial number to a SpecView representative.
B. the SpecView personnel will then change the license on the License Server and inform you when it is ready for retrieval by the SpecView software.
C. Retrieve the Upgrade without needing to contact SpecView personnel either by:
    i. Instantly without any codes IF the computer has an Internet connection.
    ii. By using codes which can be entered into the: www.specview.com/code.html webpage on another computer or smart-phone.

The advantage is that both A and B can be done well in advance and do not require SpecView personnel to be available at the time of the upgrade.

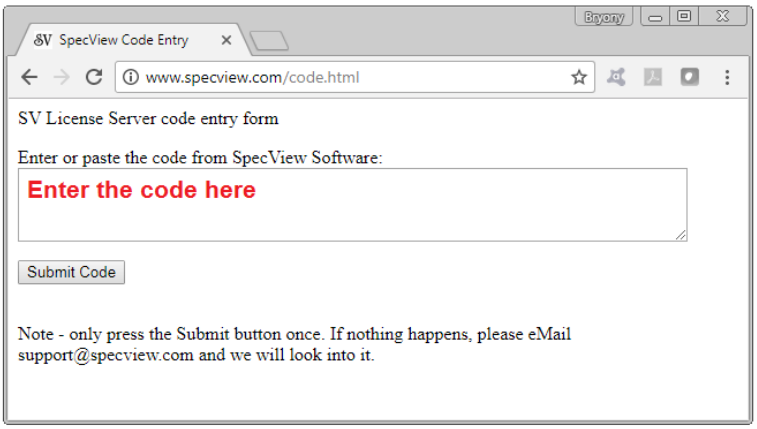
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If this computer is connected to the Internet click Get it now:

Or, if this computer is NOT connected to the Internet click Create Code:

Then use a browser on another computer (which is on the Internet) to enter the code into our website here: www.specview.com/code.html
or eMail the code to: support@specview.com
Using the website is quicker because there is no need to wait for an eMail reply.



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2.4.1.1 Upgrading License Step-by-Step

These are the steps in more detail to Upgrade the license:

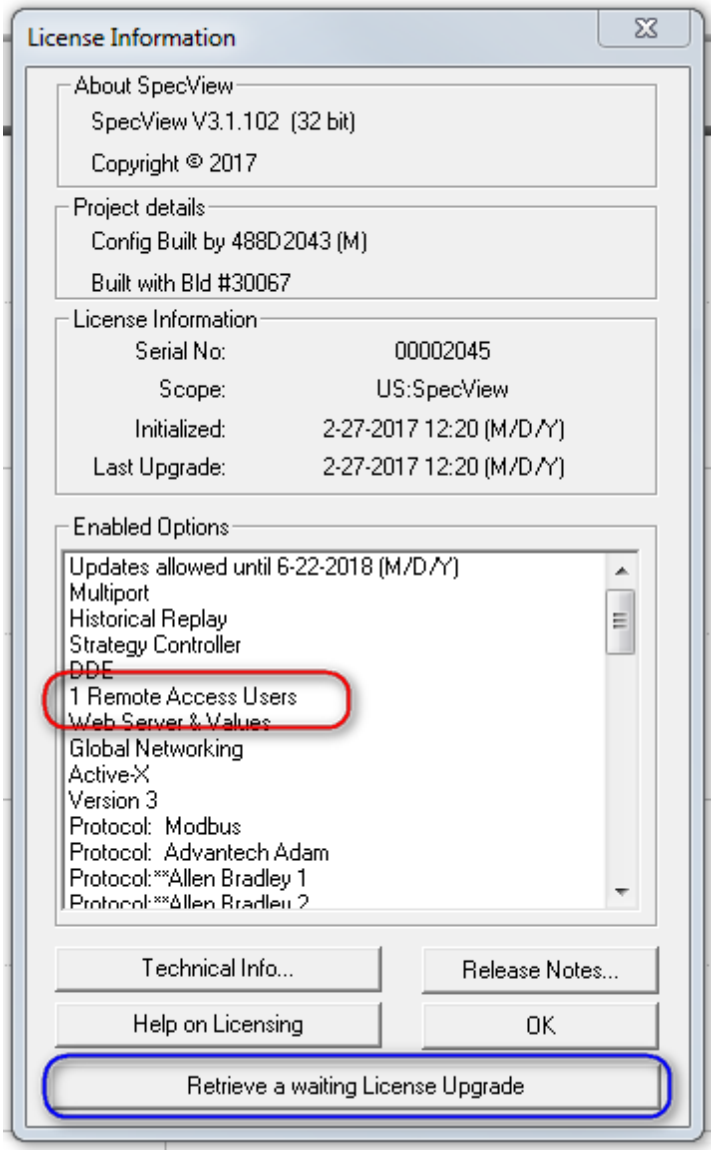
The upgrade process is the same for Soft Licenses [33] and USB License Dongles [72]:

Contact your SpecView representative to purchase an option (or Update Subscription [76]).

When advised that your purchase is ready, choose **Help->Registration Info** from Runtime or Edit Mode.

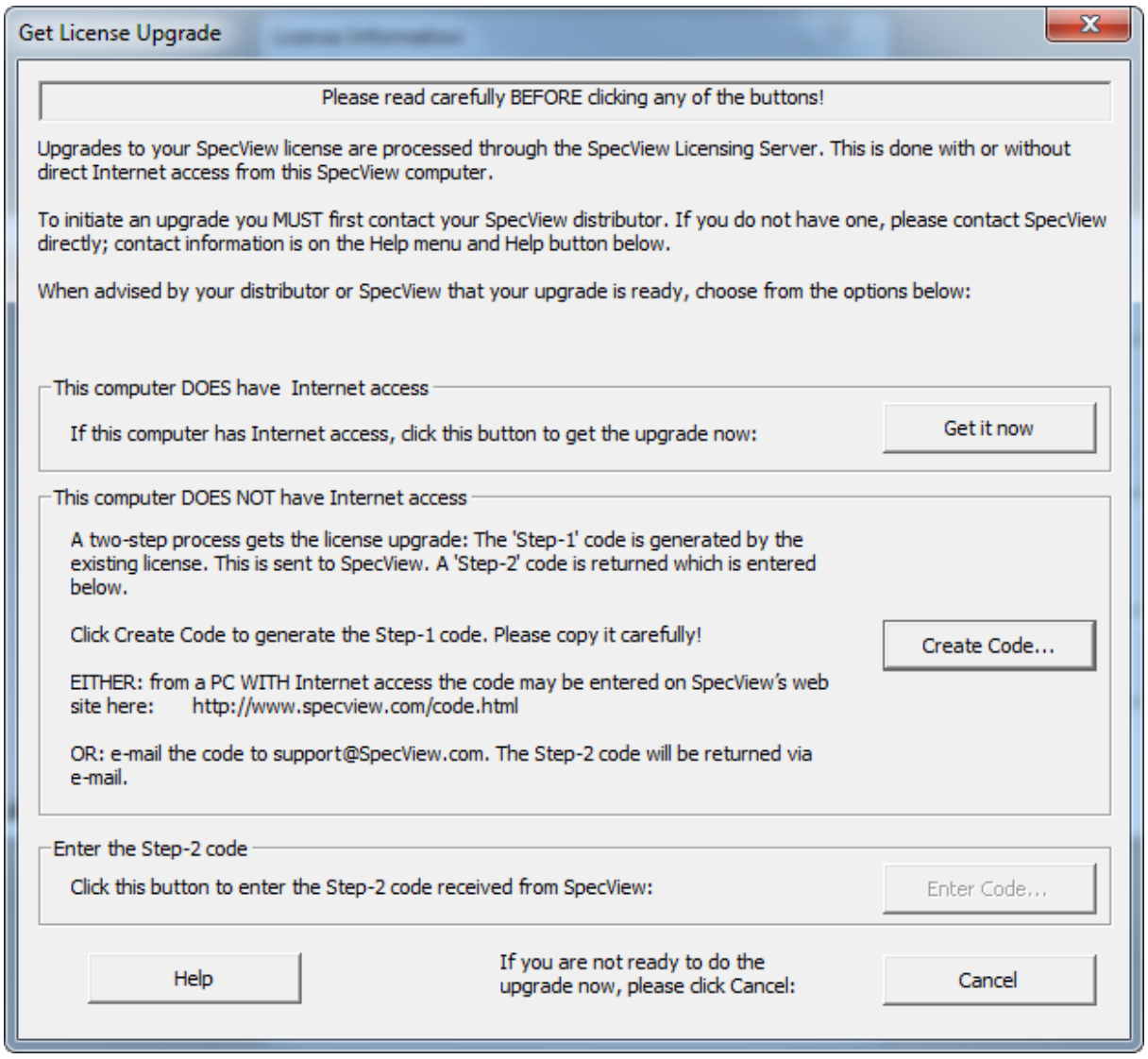
In this example the number of Remote Users is being increased from 1 to 3. The License Information box shows that there is currently 1 Remote User.

Click the button **Retrieve a waiting License Upgrade**:



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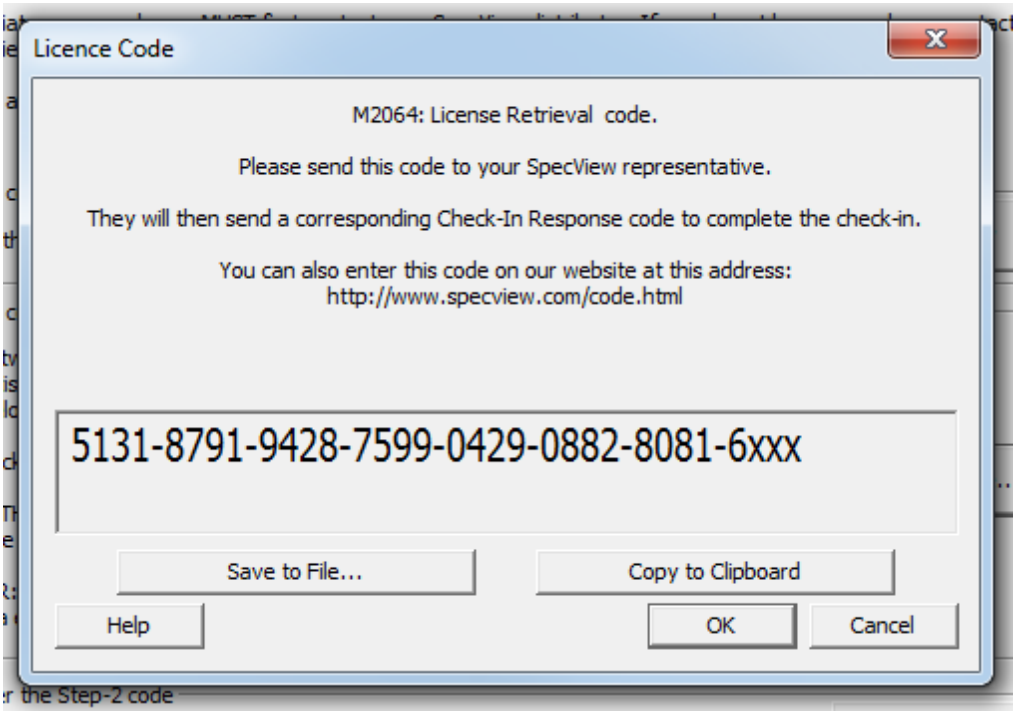
Please read this box carefully!



If the computer has Internet access click the **Get it now** button. The program will contact the License Server and the upgrade will be performed immediately and no further action is required.

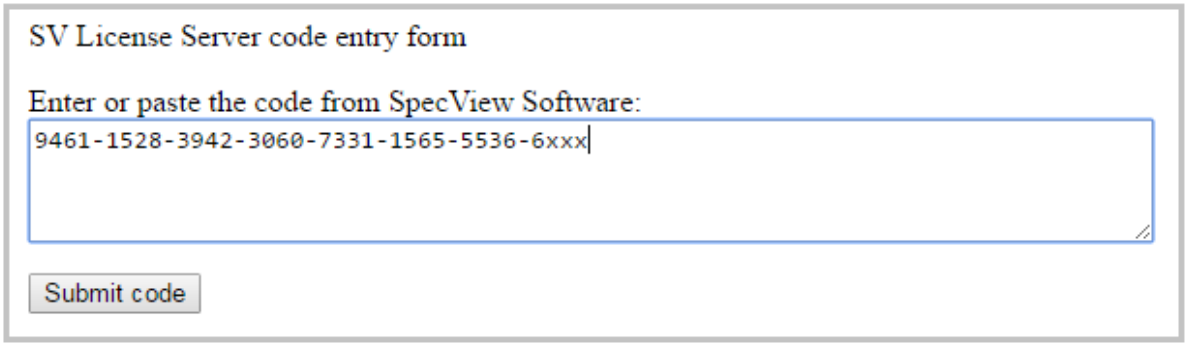
Alternatively, if the computer does NOT have Internet access then click the **Create Code** button to generate a code that can be sent via the SpecView website or by email:

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The fastest way to get the upgrade is to enter the above code into the SpecView web site at http://www.specview.com/code.html
It is recommended to use **Save to File** to make sure that the code is accurately saved to **Step_1_Code.TXT**. Then on a computer (or smart phone) that does have Internet access use a browser to go to the webpage: http://www.specview.com/code.html and enter the code:

Note: If the code gets lost or was copied incorrectly, a copy of the code will have been stored in the file CODESENT.INI located in the SV3 main folder



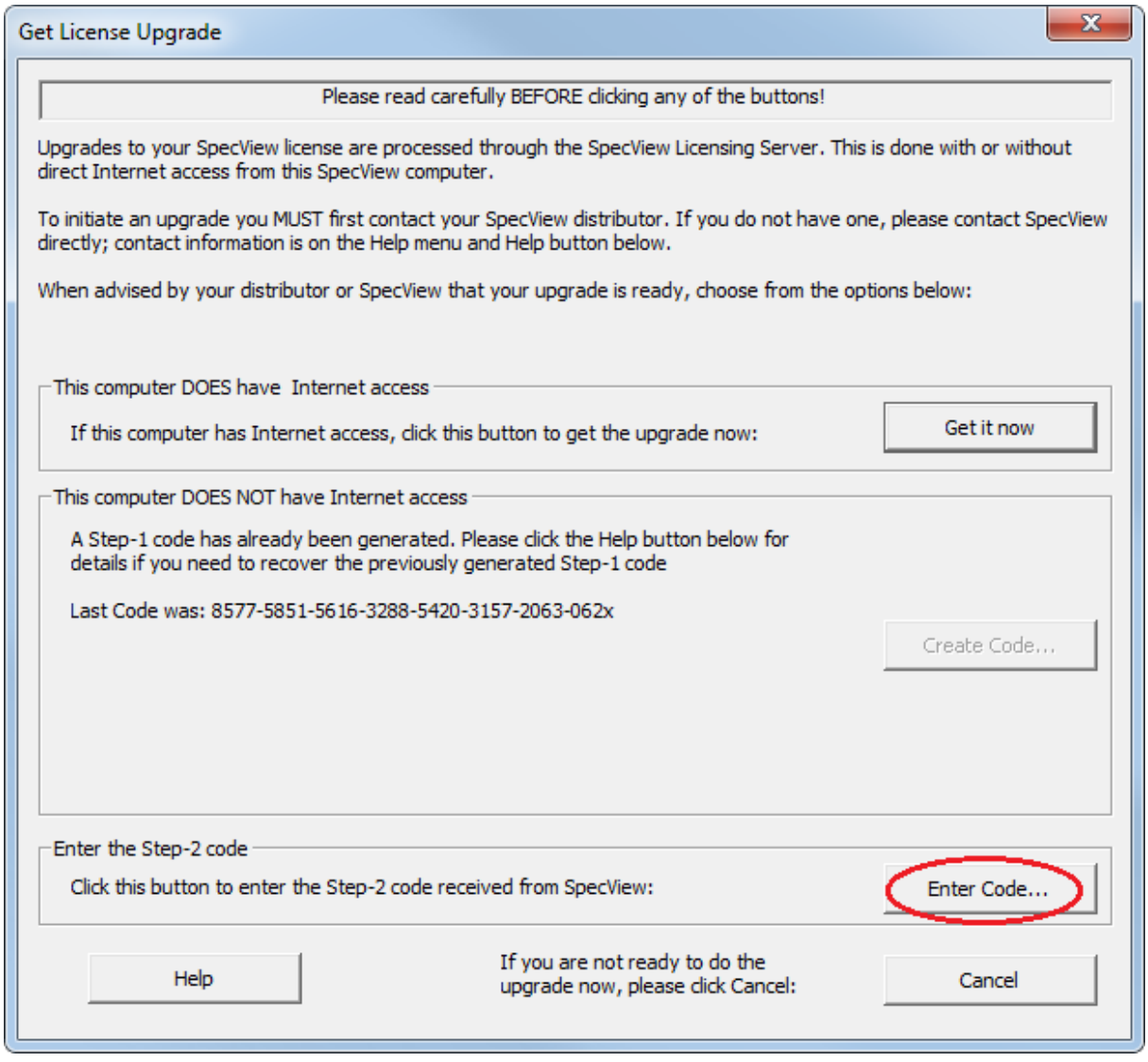
Click **Submit code** to send the code over the Internet to SpecView's License Server which will then display a Response Code, see example below:

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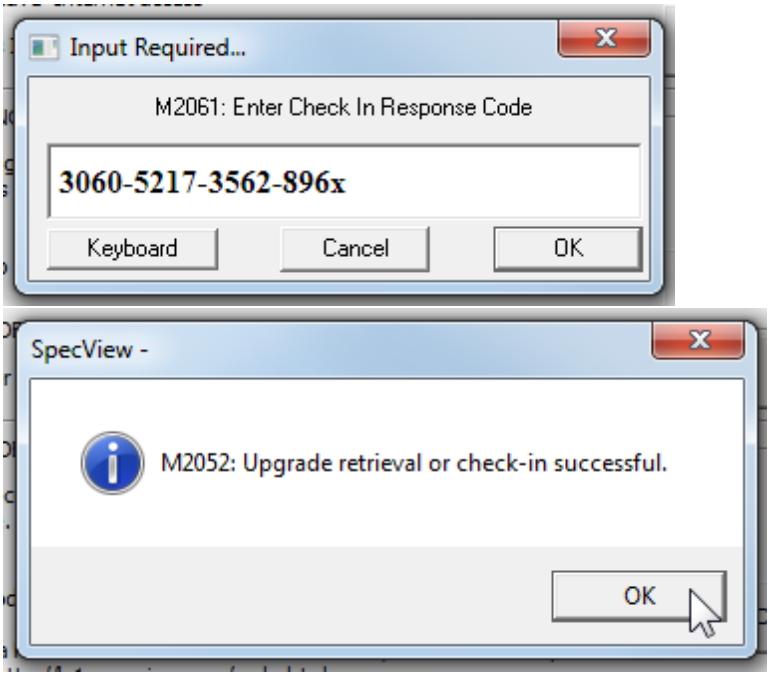
Please enter this License Update code using the button at the bottom of Help->About SpecView:

3060-5217-3562-896x

The Response Code from the website or email can be entered into SpecView by going to **Help->Registration Information** and clicking the **Retrieve a waiting License Upgrade** button at the bottom of that box. Then clicking the **Enter Code** button:



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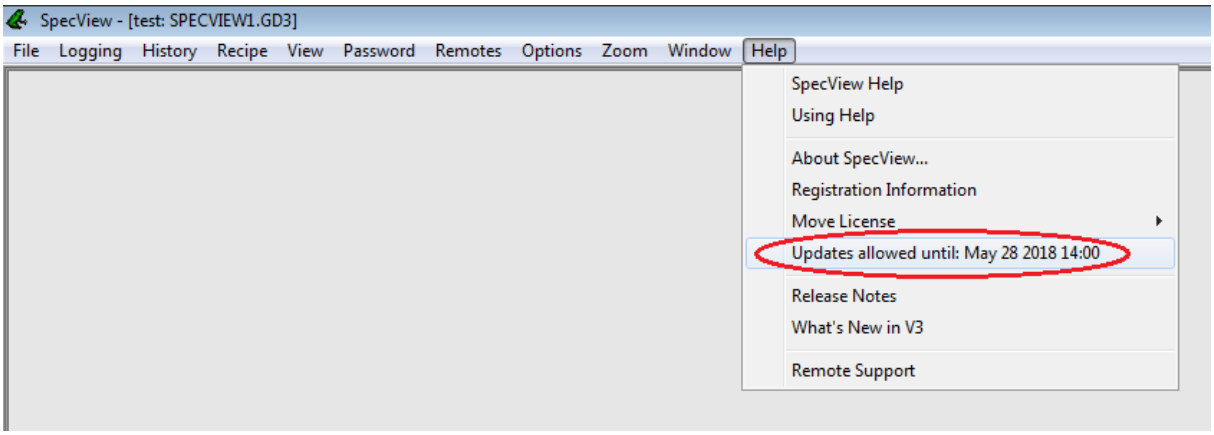
Once the Response Code has been entered the Upgrade will be immediately installed. There is no need to restart SpecView, the new features will be available immediately.

2.4.2 Updating SpecView

Updating (Definition [64]: Getting a new version of the software):

SpecView software is under constant development for improvements, new features and functionality.

To benefit from this it is necessary to download a more up-to-date version of the software. This process is not possible if the Update Subscription [76] has expired.
The expiry date can be checked by looking at the Help menu:



If the Update Subscription [76] is current, then to update the software, visit the SpecView website

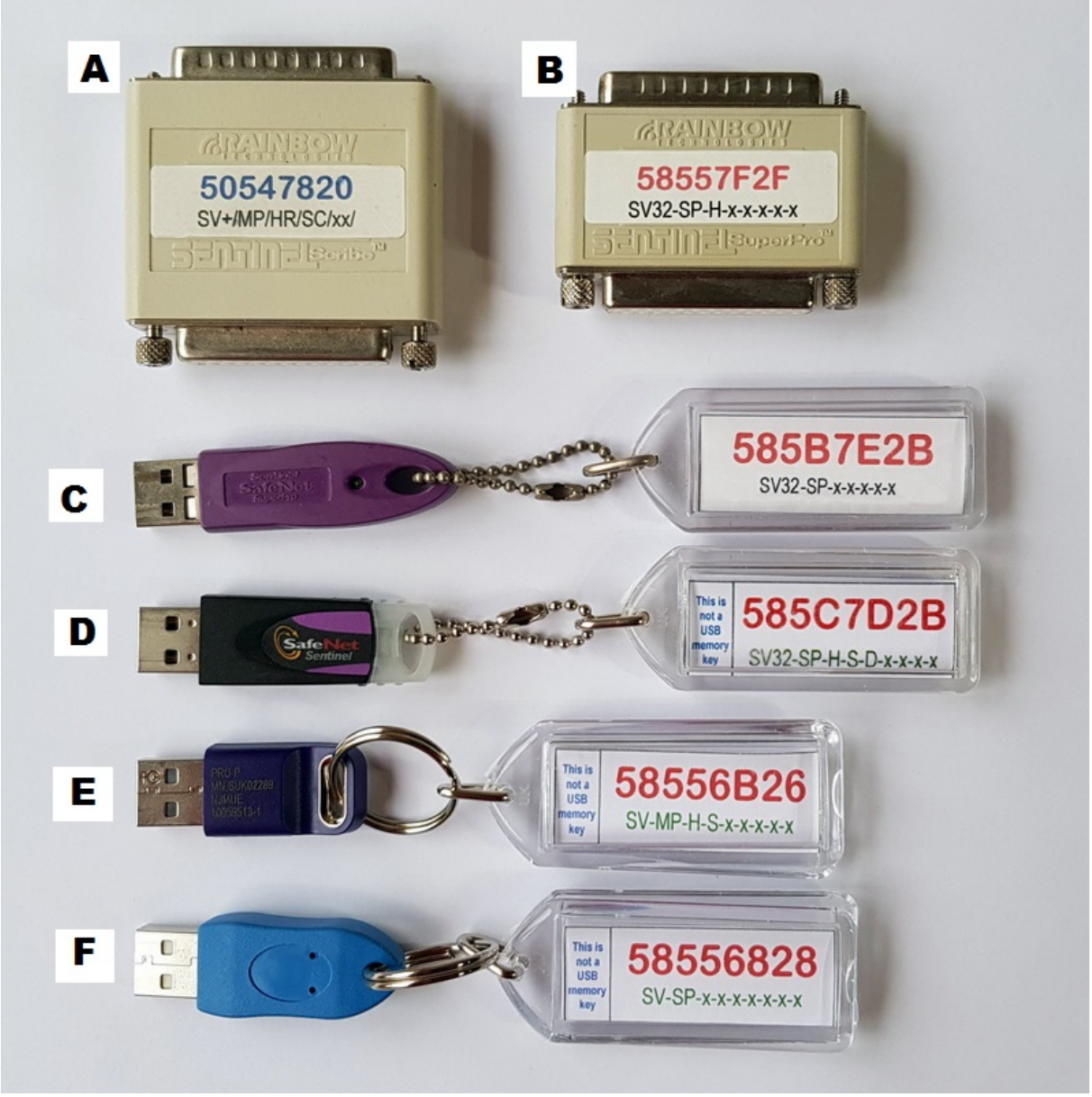
(www.specview.com) and download the Setup file saving it to the computer. Run the Setup file and it will automatically update to the current version.

However, if the Update Subscription 76 has expired, then a new Subscription must be purchased to allow the new version to be installed. Please contact a SpecView representative.

2.5 USB License Dongles

New copies of SpecView are supplied with soft licenses 33 as standard. Existing USB license dongles are still supported.
USB license dongles are available on request at extra cost.
There is a comparison of these types of license here 32.

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A & B: Old style 25-pin parallel dongles which were superseded by USB dongles in 2004, but continued to be supported until 2021.

C, D & E: Safenet USB dongles that are still supported.

F: Keylok USB dongles.

The Dongle is your license. Do not lose it! The dongles can be mistaken for a memory stick and therefore should be securely attached to the computer. Dongles can only be replaced or exchanged for less than the cost of a new license if the original is returned to SpecView.

If SpecView was supplied with a USB license dongle it should be plugged into a USB port before installing SpecView.

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The specification of the license is printed on a keyring label attached to the dongle along with the Serial Number.

When SpecView is started the serial number is shown on the opening 'splash' screen.

The specification of the license may be viewed at any time by clicking the Help menu and choosing Registration Info.

Click here 64 for details on upgrading a USB license dongle.

Note, Remote 713 computers used with SpecView's Remote option are unlicensed copies. The license on the local computer will need to have been purchased with the required number of **simultaneous** remote users.

Each dongle contains one license to use the software. There is no concept of a 'Site License' within SpecView.

Should there be a problem, please contact you SpecView representative.

The following table lists some messages, warnings, and errors related to USB License Dongles.

Messages	Warnings	Errors
		E12069 74 E12384 74

E12069: Dongle is not present, SpecView will exit.

SpecView checks for the dongle frequently while it is running. If it is not detected then it does 10 retries in quick succession - but if the dongle is still not detected then it gives this error and will exit.

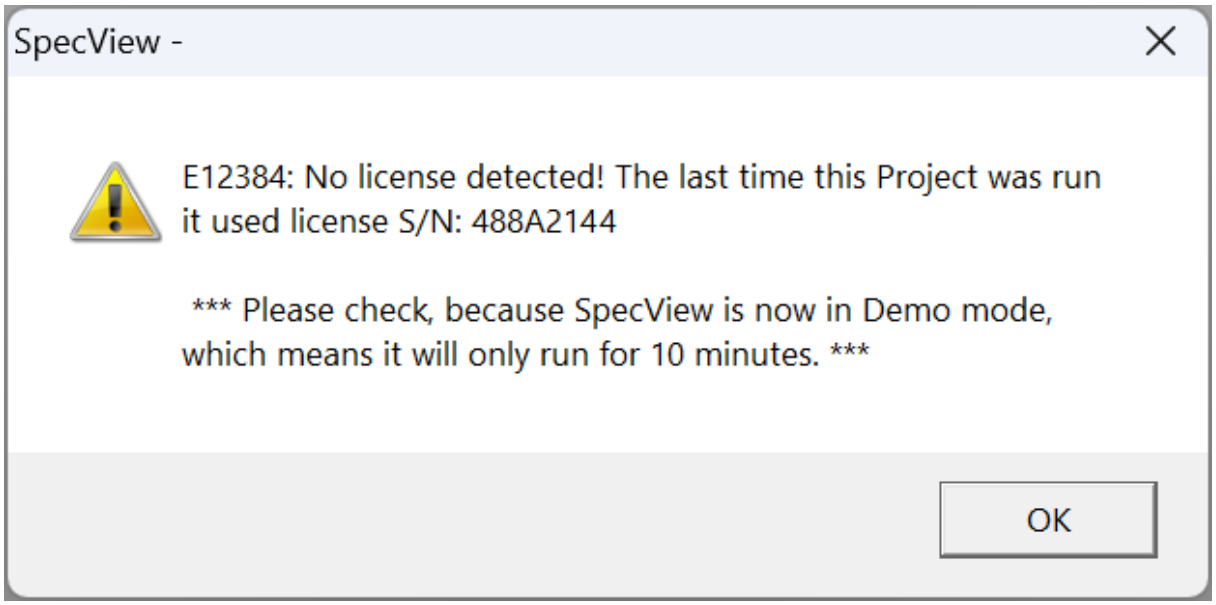


If the dongle is accidentally disconnected and it is quickly reconnected it will be OK.

E12384: Warning that a SpecView Project that was last run with a license is now being run without a license:

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Error message displayed is:



This error indicates that SpecView will only operate for 10 minutes in Demo Mode because the license that was previously used, which was either:

1. A USB License Dongle which is now not connected to the PC, in this case the user will need to connect the dongle, then exit SpecView and run it again.

2. A Soft license which is no longer detectable, in this case the soft license needs to be made available. If in doubt contact Technical Support[798].

This error used to falsely appear when a user was using Demo Mode intentionally to create a new project.
However, this issue was resolved in SpecView Build 3.1.249[134].

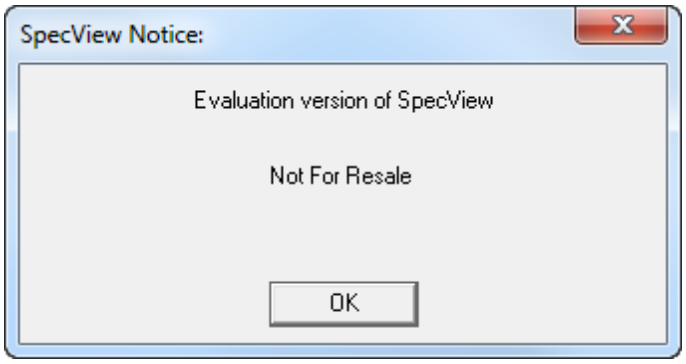
2.6 Soft Dongles (Old Style)

The old Safenet soft dongles were replaced in April 2017 by SpecView Soft Licenses[33] and are no longer supplied.
However, existing Safenet soft dongles will continue to be supported.

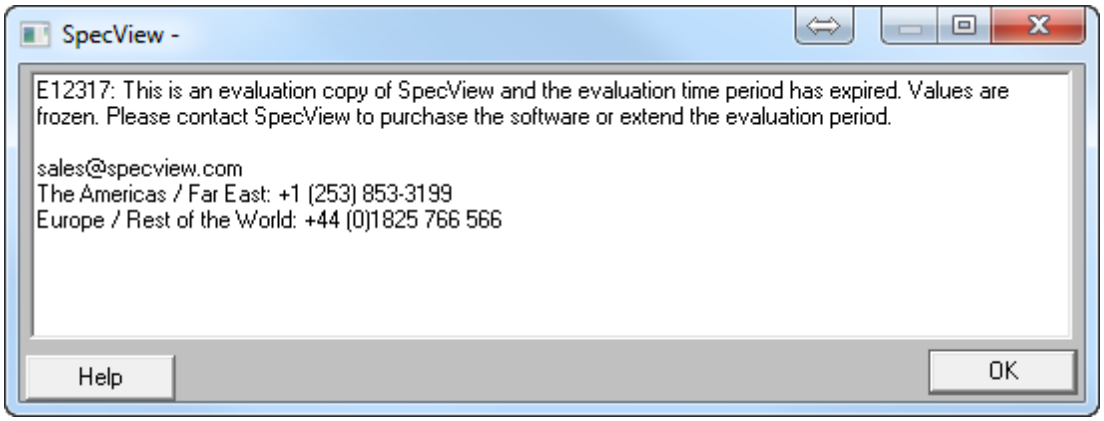
2.7 Evaluation Version

Both USB license dongles[72] and soft licenses[33] can be in "Evaluation Mode". In this mode SpecView has full functionality but will revert to Demo[31] Mode once the evaluation period has expired. This mode is typically used for new users who wish to evaluate SpecView on the actual application.

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The expiry date can be seen on the **Dongle Information** box, which is displayed by choosing **Registration Info** from the Help menu.



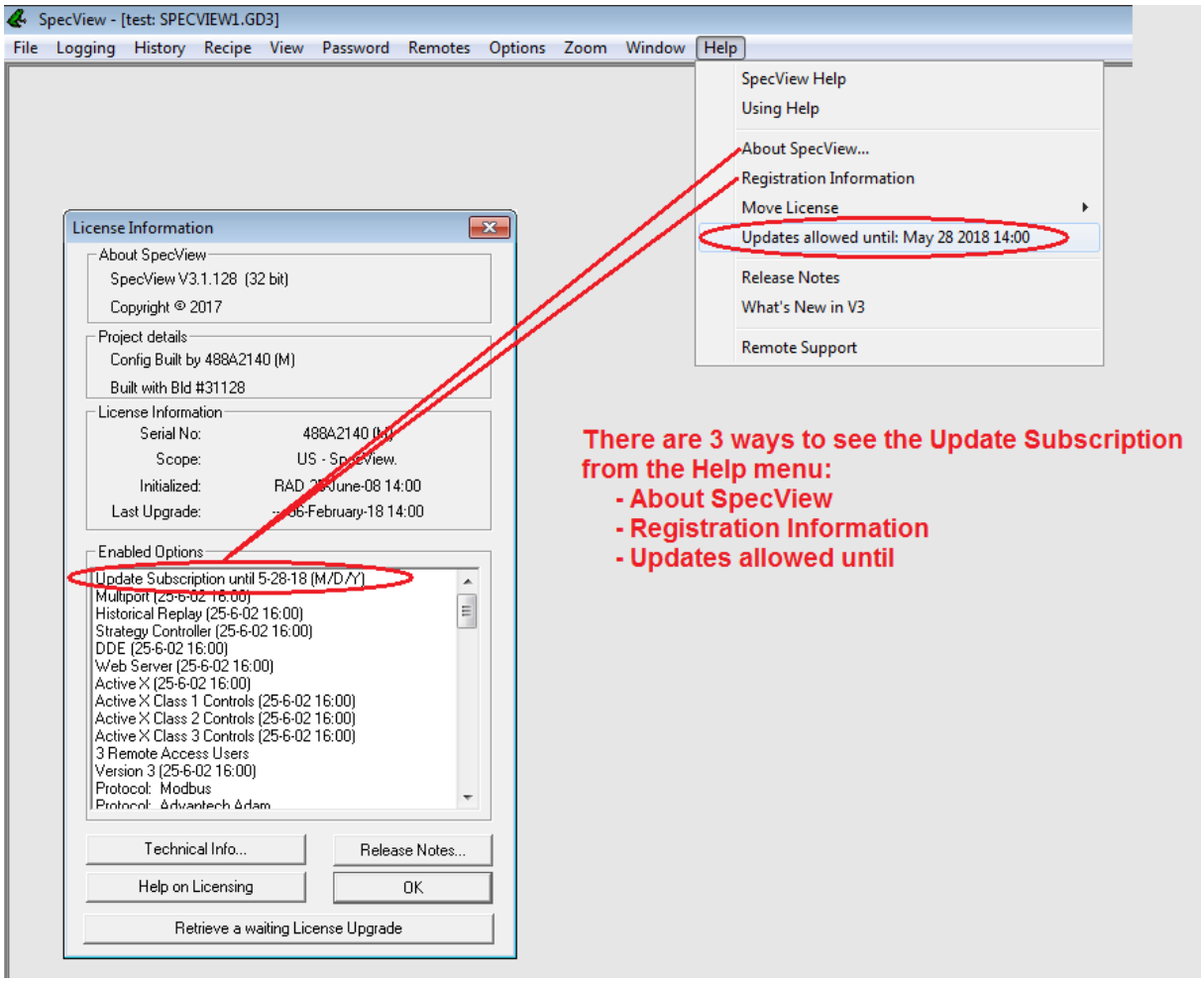
This expiry date can be changed or removed by upgrading [64] the license.

2.8 Update Subscription

An Update Subscription is included with all new purchases of SpecView. Within the update period users may download and install the latest build of SpecView. This will give access to new features and functionality and install any bug fixes. We highly recommend periodically checking the web site to download the latest build.

The expiry date can be seen on the **Help** menu and by choosing **Registration Information** menu command.

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Before the Update Subscription expires advisory messages will be displayed. These will be shown 31, 21, 14 and 7 days before expiry.
These message boxes can be cancelled.

The Update Subscription can be purchased and then added to the license through the upgrade 64 process.

The new Update Subscription period begins immediately after the old subscription expires.
There is a substantial cost saving in keeping the Update Subscription current compared to purchasing a new subscription after an old one has expired.

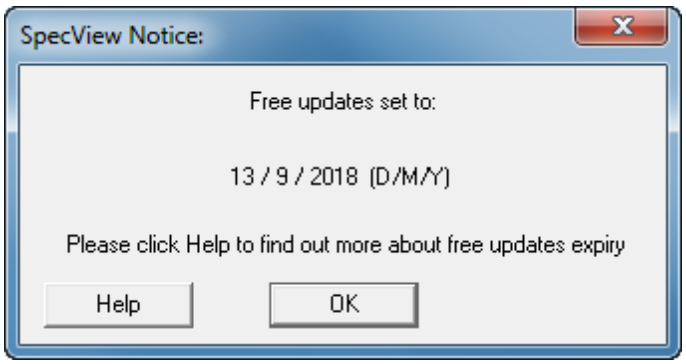
SpecView will continue to operate normally when the subscription has expired. The license may still be moved to another computer but this computer must have the same (or older) build installed. If a newer build is installed, this this is treated as an Update.

If the computer becomes inoperable a new license will be required. This may be supplied at no charge but ONLY if there is a current Update Subscription. If expired, a new two-year or five-year subscription must be purchased. Note, this is more expensive than extending a current subscription.

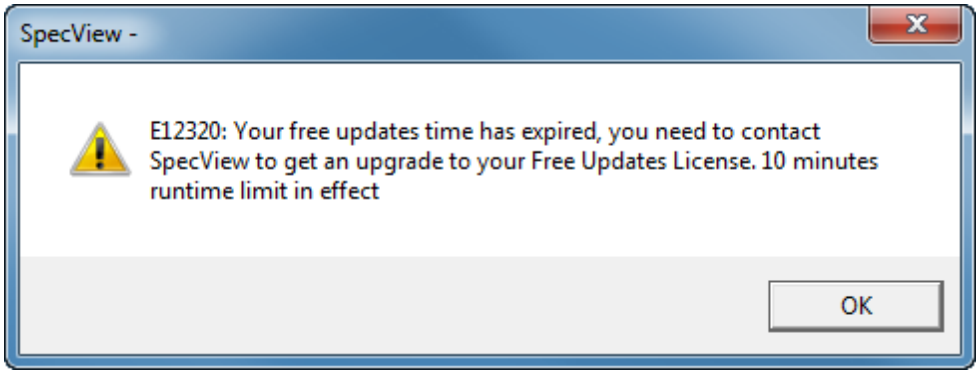
Please contact your SpecView representative for current pricing.

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When SpecView is run for the first time it may display a message indicating the Update Subscription expiry period:



If the Update Subscription has expired and a newer version (build or release) of the software is installed, then SpecView will revert to Demo mode[31] and a message will be displayed as follows:

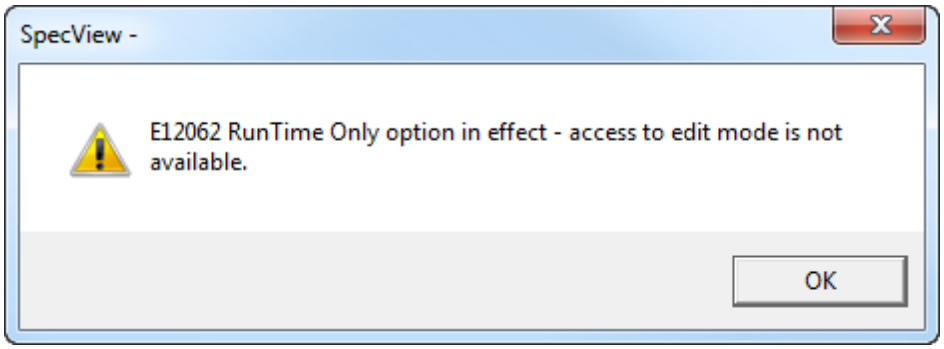


Either re-install the older build of SpecView (after uninstalling the new one) or contact your SpecView representative for assistance with Update Subscriptions.

2.9 Runtime-Only Dongle

SpecView offers Runtime-Only licenses that prevent the user from entering Edit mode and making changes to the project.

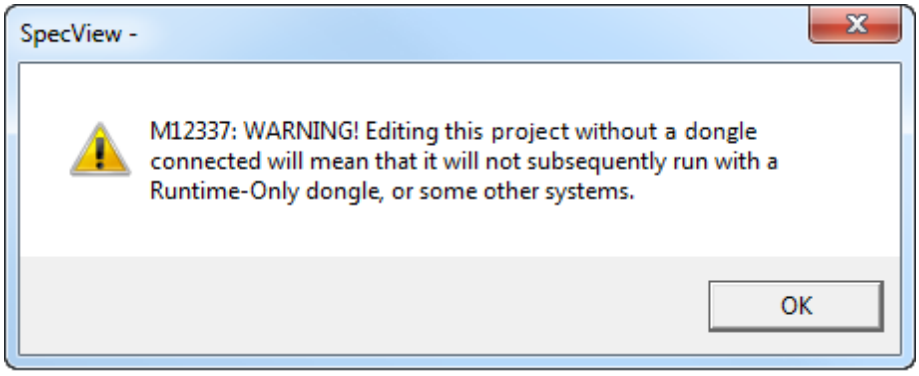
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These licenses are useful:

- If there are several copies of SpecView in the facility and one full copy is used for all project editing. The edited project is then transferred to the SpecView Runtime-Only computers. This is typically done to reduce costs.
- For OEMs or systems' integrators who develop projects for their customers and do not want them to be able to make any changes.

Be aware that ALL changes, including adding and changing passwords, MUST be done with a full SpecView license. If the project is edited without a license (in Demo mode) it will not be allowed to run, a warning box is displayed to advise of this:



2.10 End User License Agreement

License Agreement

BY CONTINUING TO USE THIS SOFTWARE, YOU ARE CONSENTING TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT AGREE TO ALL OF THE TERMS OF THIS AGREEMENT, IMMEDIATELY RETURN THE PRODUCT WITH A COPY OF YOUR RECEIPT TO YOUR SUPPLIER FOR A FULL REFUND OF MONIES PAID, IF ANY.

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VIII MISCELLANEOUS

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Part 3

3 What's New In Version 3

There are a number of new features in Version 3:

Installation 86
Trend Charts 87
Edit Mode 90
Variables List 93 & Templates List
Quick List 99
Position Dynamics 100 for Animation
Color Dynamics 103
Import Project 105
Runtime 105
Startup Sequence 107
Preferences 110
Passwords - Start at level 1 111
Touch Screen Support 112
Additional Features 113
32bit and 64bit SpecView 115
Backward Compatibility 115
Update Policies 116
Bug Reporting Procedure 117

The 'XXX' for missing values has been replaced by specifics: N/R (No Response), NPV (Not Present Value), NCA (Not Currently Available), T/O (Timeout)
Acknowledge Alarms button/strategy action

This section of SpecView's Help does not cover features and functionality which has not changed from SpecView Version 2.5.

If this computer is connected to the Internet, then there are videos on YouTube here:

What's new in Version3
Trend Charts
Variables List
Position Dynamics

There are a few changes to terminology in Version 3:

- Configuration Mode is now known as Edit Mode
- A Configuration is now known as a Project

Note that Version 3 will not work with the old style parallel (25 pin) dongles. It will only work with USB and Soft dongles, please contact your SpecView representative if you have a parallel dongle for dongle exchange pricing.

There are videos 85 available on these features.

Document control: SpecView User Manual for Version 3.1 - Revision: 31.269 (for SpecView Version 3.0.021 Pre-Release)

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3.1 Videos

If the computer is on the Internet, the links below will access the videos that have been uploaded to YouTube.

When SpecView is installed from a CD then the videos will also be installed in the Videos sub-folder of the SV3 installation folder.

1000 Installation
1010 Starting a V2 Configuration in V3
1100 Introduction
1200 Splash Screen
1300 Auto detection
1500 New manual project / Template list
1700 Adding Instruments
2000 Test Comms for Update
2200 Merging Projects
2500 Edit Mode
2700 Variables List
2800 Drag/Drop/Auto arrange
3000 SpecView Version 3 Passwords Tutorial
3200 Drawing
3500 Copying
3700 Barchart
4000 Trend Chart Menu

1. 4050 Chart Setup
2. 4100 Pens Tab
3. 4120 Trend Chart Pen Enable and Disable
4. 4150 Chart Tab
5. 4200 Chart Scales Tab
6. 4250 Chart Time Axis Tab
7. 4300 Chart Cursors
8. 4350 Chart Notes
9. 4400 Chart Notes - Auto
10. 4500 Chart Print/Batch Tab - Batch Tags
11. 4550 Chart Print/Batch Tab - Non-Scrolling Chart Batch Tags
12. 4600 Chart Print/Batch Tab - Printing

4500 Active-X
4700 Buttons
4800 Colour Dynamics
5000 Position Dynamics
5200 Passwords
5500 On-Line features
6000 Quick List
6200 Cloning
6400 Recipe
6800 Set up / Swap COM ports
7000 Strategy Controller
7010 SpecView Version 3 Barcode scanner to Keyboard
7500 Log Reports
8000 History
8500 Batch Reports

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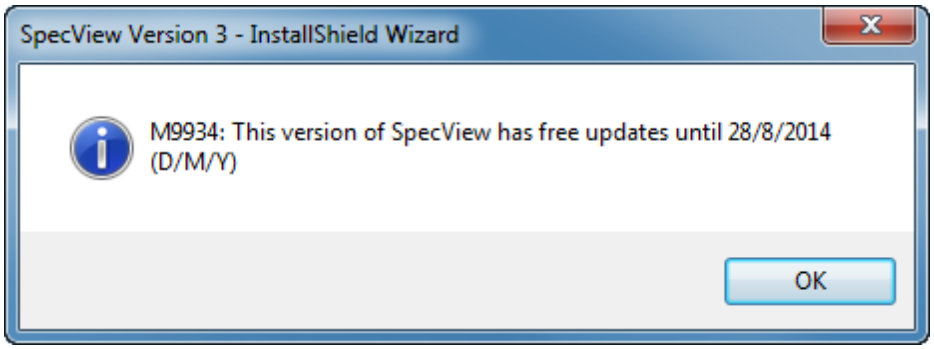
9000 Remote Users
9500 Global

These videos will be added to as they are completed, if there is a particular one that would be useful then please contact SpecView Technical Support[798].

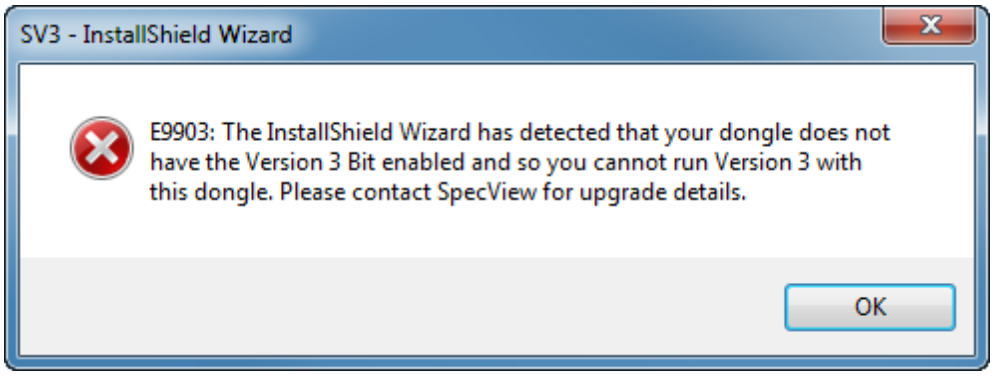
3.2 Installation

SpecView Version 3 is now installed into C:\SV3\ by default, instead of C:\SV32\

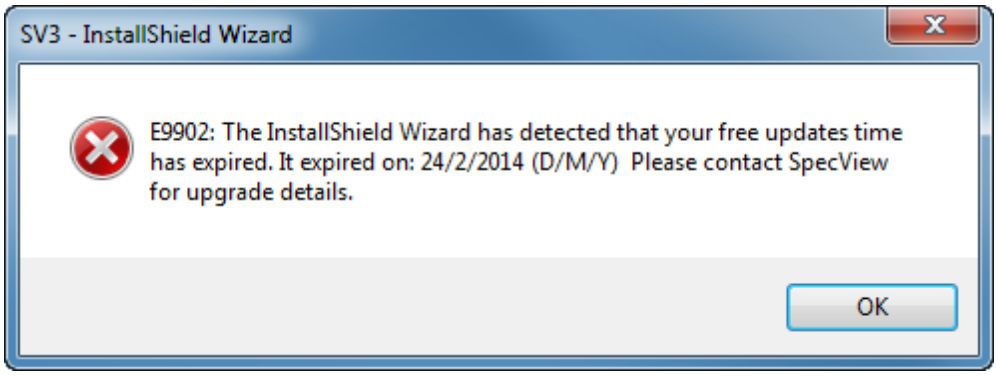
It is necessary to have Version 3 enabled on the SpecView dongle.
Recently purchased dongles will already have this enabled, see Update Policies[116].



The M9934 message is for information only. When the update-subscription expires the software will continue to work, but it will not be possible to update the software to a newer version without purchasing an update renewal from a SpecView representative.



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For the errors E9903 or E9902 please contact [798] your SpecView representative to purchase an update renewal.

3.3 Trend Charts

SpecView's Trend Charts have been completely redesigned and given a new look in Version 3.
This means there are many new options available. However, the basic setup of a chart is unchanged from older versions of SpecView.

Charts from previous versions of SpecView can be converted [527].

If the new features are not required, then the option of simple setup is available.

The most significant changes to the functionality of Trend Charts are:

- Back-fill [528] of historical data when the screen (GDW) is opened. This is independent from Historical Replay.

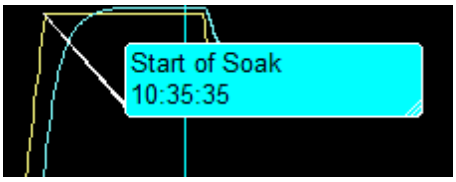
Note: The data points for back-fill are from logged data, so the resolution of the points is in accordance with the data logging rate.

- Scrollback [541] using the scrollback thumb to view up to 10 chart widths of previous data:

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- Chart Notes [550] to mark significant points on a chart:



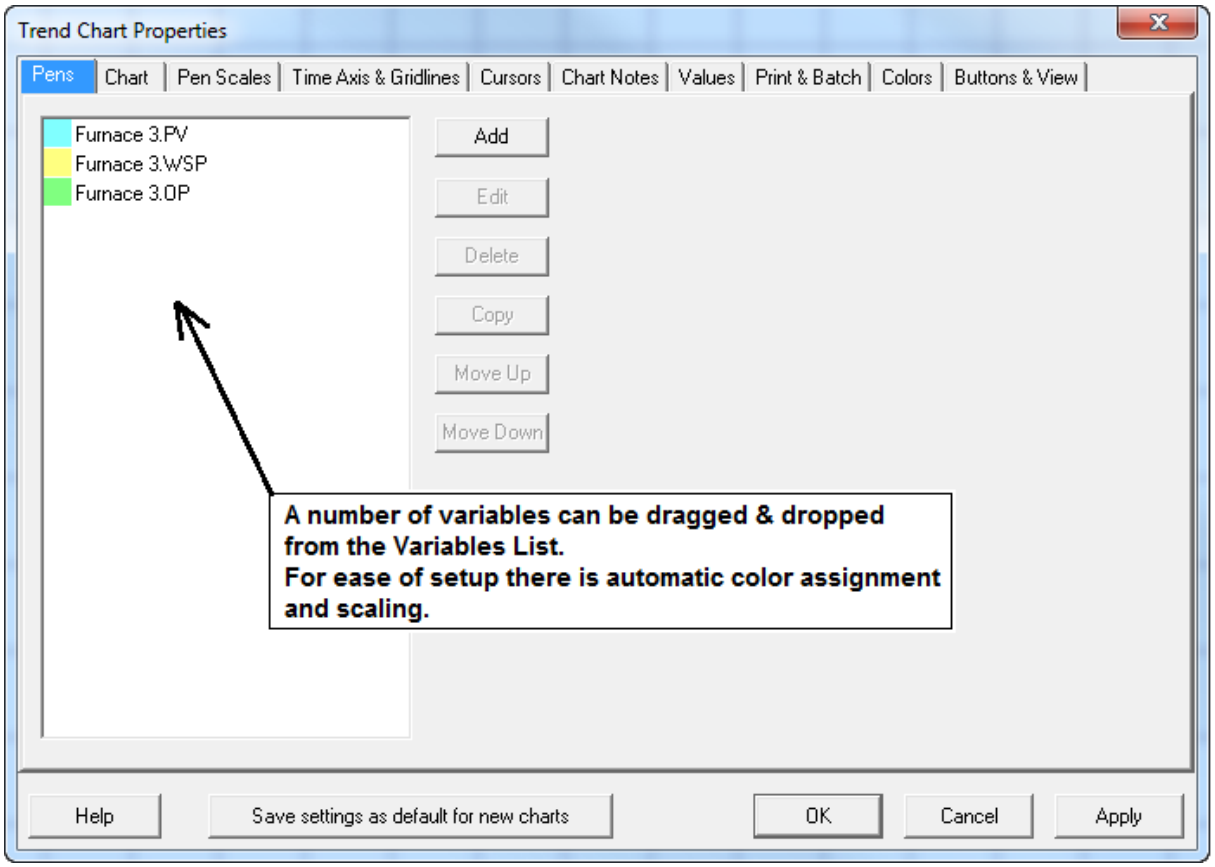
- Zoom [528] - Drag an area of the chart to expand X and Y axes. The popup-menu includes options to export data in zoomed area to a CSV file. The number of intermediate values is specified on the **Chart** [541] tab.

- Multiple scales [544] on the left or right of the chart, for some or all of the pens, with optional value pointers.

- Popup menu - Trend charts now have a popup menu that can be accessed from Runtime Mode [251] using either the left or right mouse buttons, for compatibility with touch screens which don't have a 'right' mouse button. In Edit Mode [90] the popup menu is only available using the right mouse button. This is because the 'left' button is used to select the Trend Chart for moving and resizing.

The new **Trend Chart Properties** box is accessed by either choosing **Setup Chart** from the popup menu or clicking the **Setup** button (if it is enabled) from Runtime Mode.
The **Setup** button is enabled from the **Buttons & View** [560] tab.

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Settings can be saved for future use by clicking the **Save settings as default for new charts** button.

A quick way to assign variables for the pens is to multiselect a number of variables from the Variables List [93] and drag & drop them into the pens box on the **Pens** [535] tab.

Pens are assigned default colors [559] according to the whether the chart background is a light or a dark color. To change the color and settings of a specific pen select it in the pens [535] box and click the **Edit** button to open the Pen Properties [535] box, with the following tabs:

Pens & Pen Properties [535]

- Thickness setting for each pen
- Decimal point setting for each pen
- Pen trace can blink and/or change color on alarm
- Automatic or fixed scaling with logarithmic option
- Optional pointers for each pen on scales
- Y-Axis auto scaling

Chart [541]

- Smooth Scroll – the chart scrolls to the left or downwards*; the latest value will be always shown at the right or bottom* of the chart (* depends on horizontal or vertical chart)
- Jump Scroll (like SpecView Version 2) – when the last segment is full, the chart will jump one segment
- No Scroll – the chart will keep expanding the time axis to fit all the data. This means the chart will show all the data, which is useful if the duration of the batch process is unknown
- More time span selections with scroll back management settings

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- Vertical scrolling chart option for compatibility with paper chart recorders

Pen Scales[544]
- Scales for any pens, left or right

Time Axis & Gridlines[546]
- Secondary elapsed time display, which is useful for batch processes

Cursors[547]
- Cursors are visually clearer and have more features

Chart Notes[550]
- Chart notes to mark significant points on a chart. Chart Notes can also be setup to be added automatically

Values[555]
- The pen values along the top of the chart can have additional information and be formatted in different ways.

Print & Batch[557]
- Chart print and screen print options
- Page print to printer or JPG
- File name selection – fixed or from SpecView variable
- Display the chart with a dark background for clarity on the screen, but when printing use a white background to save ink

Colors[559]
- Automatic pen color assignment

Buttons & View[560]
- Flexibility of items displayed in the top right corner of the Trend Chart

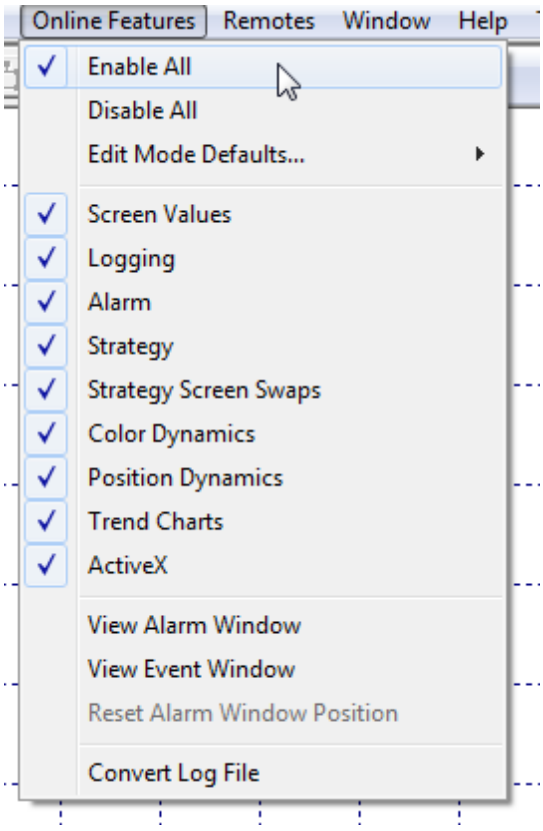
3.4 Edit Mode

Edit Mode[282] allows changes to be made to a project without stopping communication with the instruments or interrupting data logging.
This is useful for making changes to a running system without losing any data.

Instruments can start communicating and logging data as soon as they are put out onto the GDW.

The features that continue to receive live values while in Edit Mode are selected using the **Online Features** menu:

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All features are fully functional.

Individual features can be disabled. For example, while setting the start and end location of animated objects, Position Dynamics [100] must be disabled.

Selecting Objects:

To multi-select objects on the screen hold the SHIFT key or the CTRL key when clicking.

Moving Objects:

Cursor keys can be used to nudge objects, or multiple selected objects or groups of objects on a screen (GDW) by one pixel, this is very useful when aligning objects by eye.

Dragging an object on the screen using the mouse, or using **SHIFT-cursor** keys on the keyboard, will make the object jump by one grid increment, whichever grid size is active at the time. The position of the object relative to the grid will be preserved.

To align an object with the grid use **Object->Align->Realign To Grid**.
To nudge an object by one pixel regardless of the grid, use the **cursor** keys on the keyboard (without the SHIFT key).

Copying and Pasting of Objects:

Objects on a screen (GDW) can be copied & pasted or cut & pasted without losing their associations with parameters or variables or Dynamic/Color Attributes, but in Edit Mode will only work if enabled from the Online Features [307] menu.

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Copy and paste can be done using the Edit menu, or by using CTRL-C CTRL-V to copy & paste or CTRL-X CTRL-V to cut and paste.

To make a clone of an object on the screen hold both the SHIFT and CTRL keys when clicking. Clones of objects will retain their associations with parameters/variables and Dynamic/Color Attributes.

Show Screen Size Guide, Set Screen Guide Size, Screen Size Guide Line Color and **Screen Size Guide Font:**

These are used to display the outline of the portion of the screen that would be seen if the GDW were displayed onto a screen of that resolution.
This is particularly useful when creating a GDW for Remote [713] access from a lower resolution screen to ensure that the items on a GDW are positioned appropriately.

The maximum dimensions of the grid shown in SpecView's Edit mode is: 3837 x 2117.

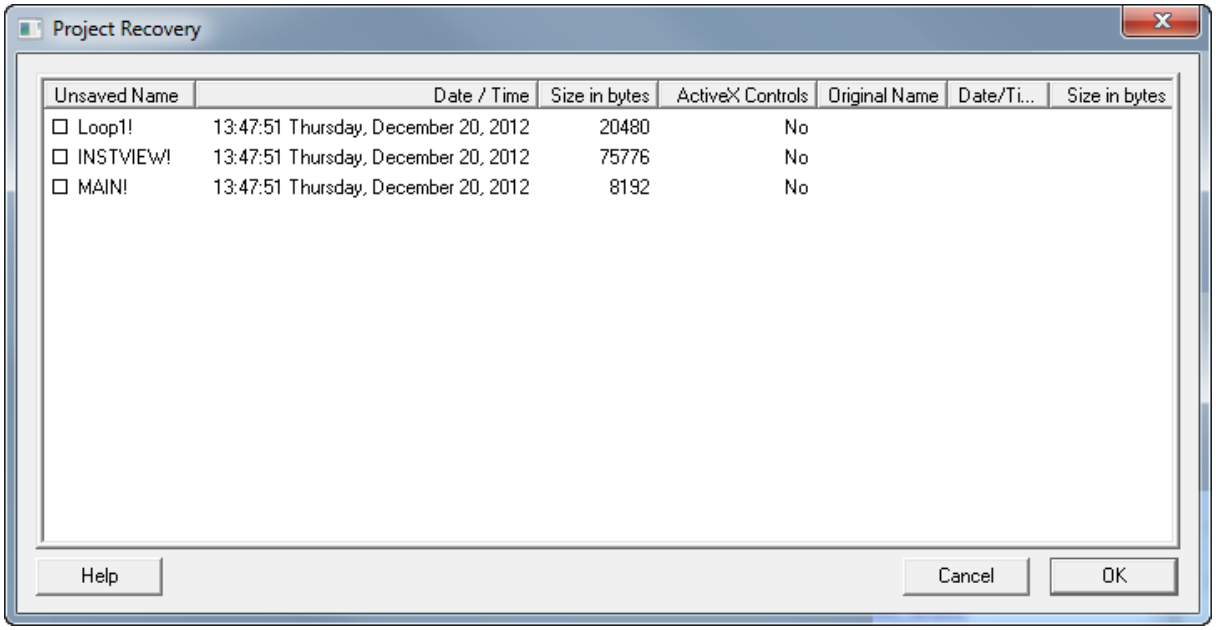
Grid Size and Grid Lines:

The **Grid Size** menu item on the **View** menu allows 3 grid settings to be specified. The defaults are: 5, 10 and 20 pixels.
The dashed grid-lines are drawn at 10 times the actual grid-size, so a grid of 5 will have dashed lines every 50 pixels, etc.

The **Toggle Grid Lines** menu item (Ctrl-G) on the **View** menu, cycles round the 3 grid-size settings. The forth setting is zero to disable the grid.

There are subtle differences to operation in Edit Mode. For example, single clicking a button will select it, double clicking a button will open the **Button Attributes** box and right-clicking pops up a menu to allow the specified action to be performed.

Auto save & recovery of screens (GDWs) will save changes for later recovery in the event of failure. In this case, a list of saved items will be displayed so the items to be recovered can be selected:



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Note: When editing a project, if a button or menu item isn't enabled then a possible reason is that Online Features [307] are enabled.
For example, in the **Variables List's Variable Properties** box the **Delete** button will be disabled (grayed out) if **Online Features** are enabled.

3.5 Variables List

There is now a separate list for new instruments, which are now known as instrument Templates.

The **Show New** button has been replaced by the T on the toolbar  .
Or an alternative way to access it is via the **New** menu on the Variables List [313].

There are now multiple options for sorting instruments and variables within the Variables List.

There are a number of columns which can be selected showing **Values (V)**, **Logging (L)**, **Alarms (A)**, **Short-List (S)** and **Read-Only (R)**.

Live values will be shown in the **Values (V)** column, if enabled on the **Online Features** menu. This will not put a heavy load on comms because only those values visible will be requested.

New User Variable types:

Enum (Enumerated type) - to express multiple states, such as: Stopped/Running/Paused.
The syntax for defining the value is, for example: 1=Stopped;2=Running;3=Paused
Countup Timer - to record durations.

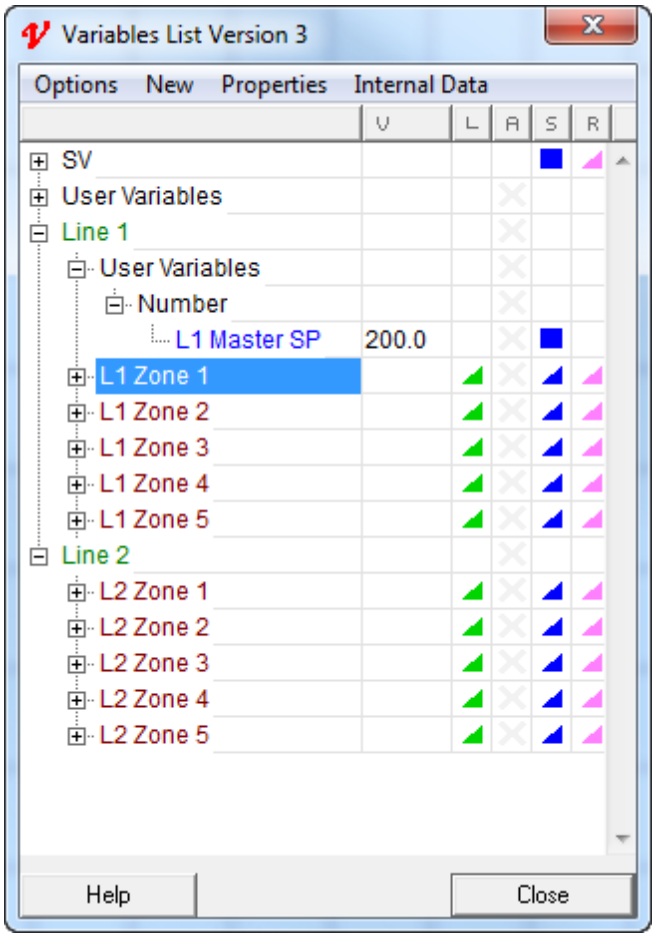
New SpecView Variable:

Date&Time This is the current Date and Time combined, which is useful for Strategy Events.

Choosing **Options->Flat List** displays parameters from multiple instruments, so that all similar parameters from each instrument are shown together.

Instruments may be grouped together under a logical machine name. This is done using **Options->Groups** to create a logical name and going to the instrument's **Properties** and assigning it to a group.

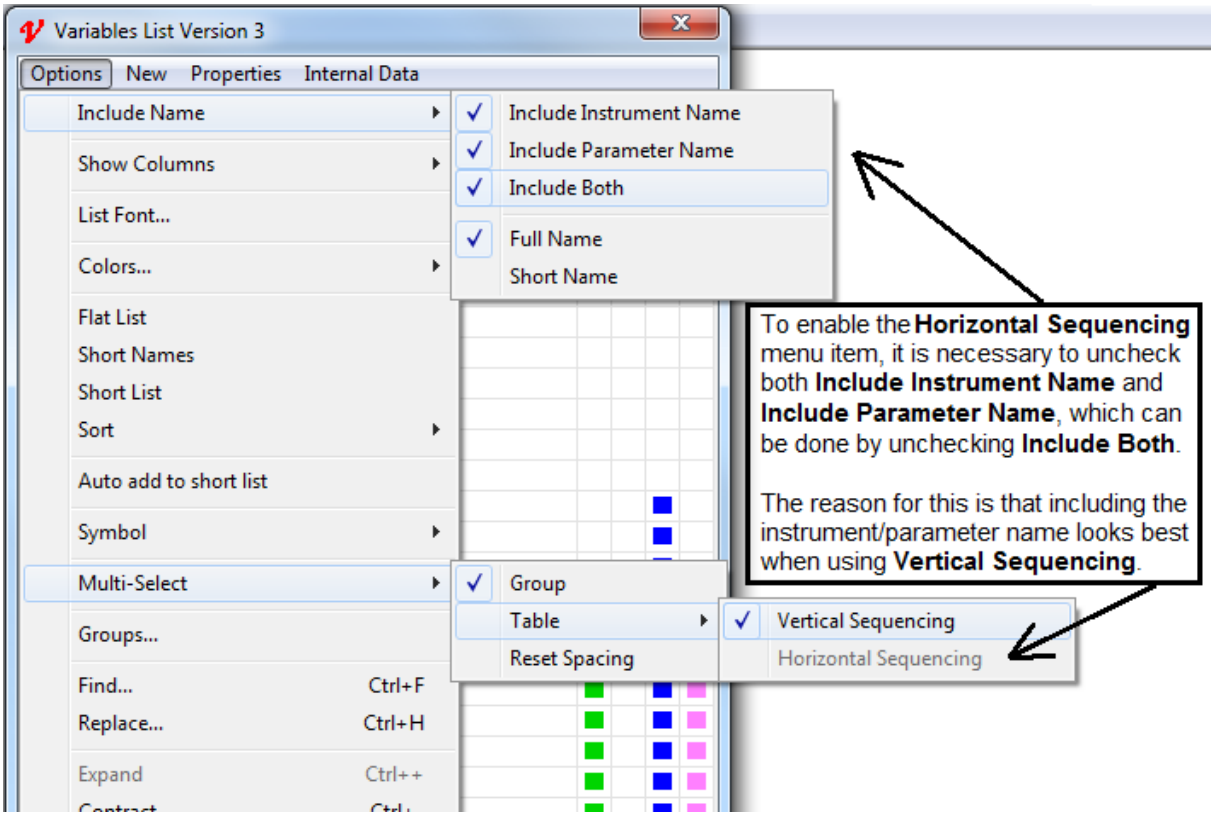
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Variables can now be dragged and dropped onto the screen (GDW).

Multi-select of variables can be sequential, using the SHIFT key, or random using the CTRL key. When using the CTRL key, variables are put on the screen in the order selected.

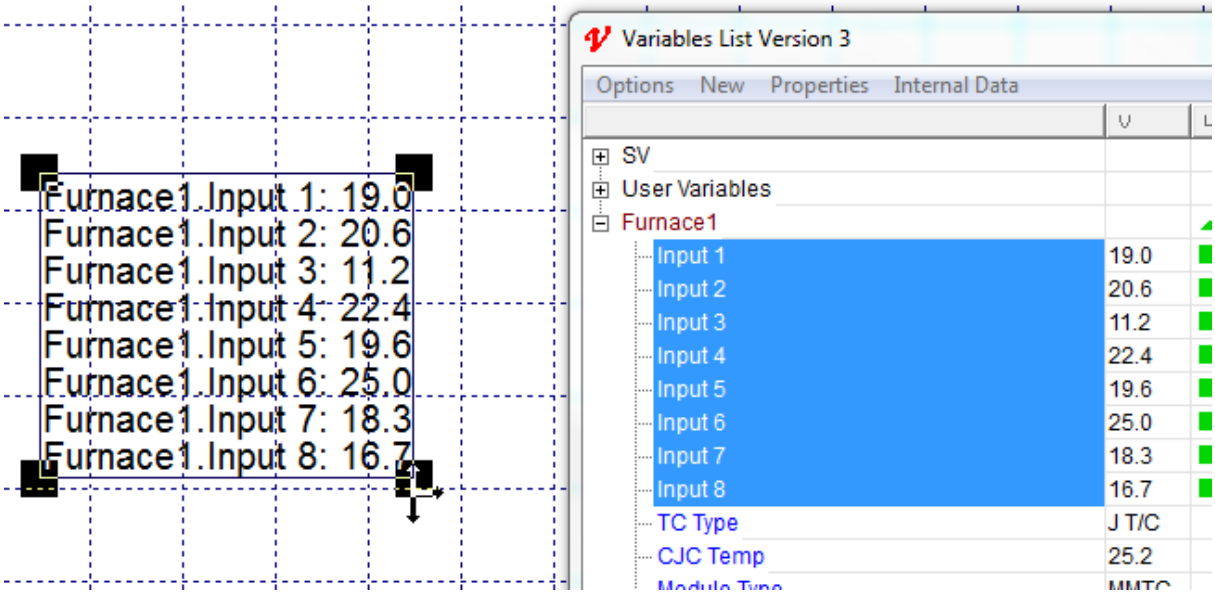
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When a number of variables are multi-selected and dragged out onto the screen they are automatically in **Spread Mode** to assist when dragging out a number of variables for a table.
This is indicated by the large black square 'handles' around them. The 'handles' can be dragged to adjust the spacing, instead of just enlarging the font.
Any group of items can be put into **Spread Mode** by right clicking on the group and choosing **Spread Mode** from the popup menu.

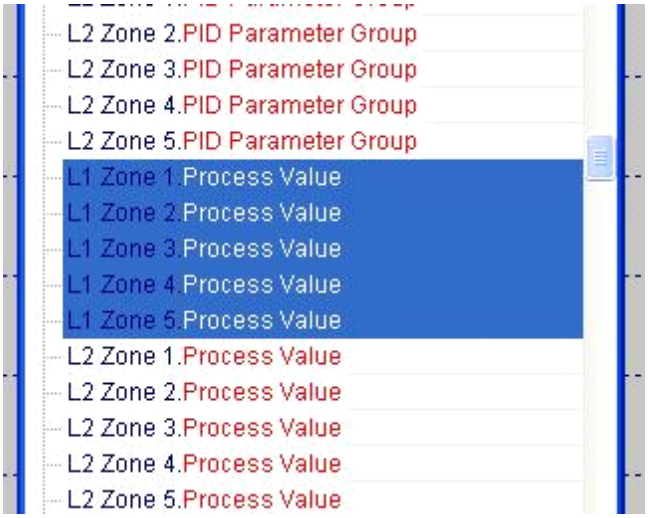
Subsequent dragging will use the previous spacing, or use the **Reset Spacing** menu item from the **Multi-Select** sub-menu.

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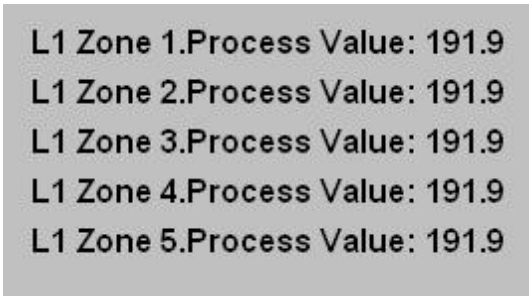


Drag and drop can also be used to assign a variable in a box, such as, the **Strategy Controller Setup** box.

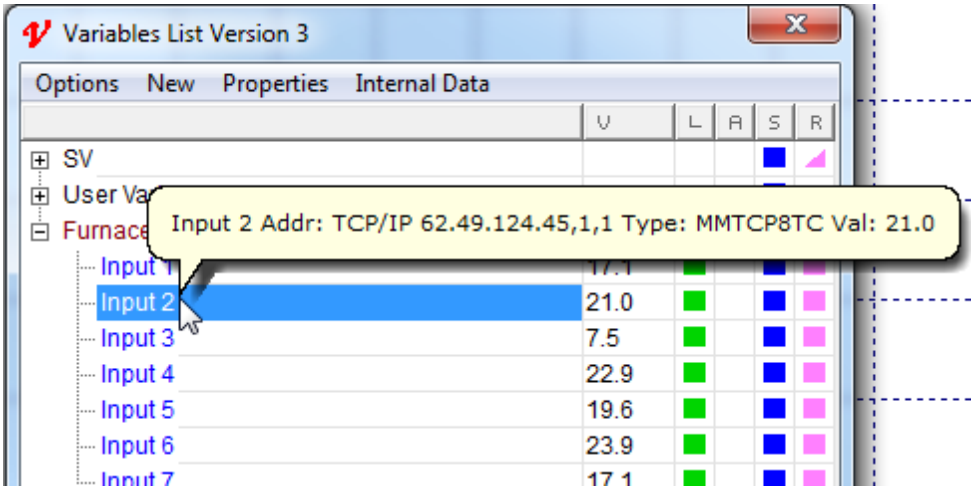
Here the **Flat List** option has been chosen from the **Options** menu, so that all the similar parameters from each instrument are shown together.
After multi-selecting the parameters, drag onto the GDW which automatically arranges them and, if enabled on the **Online Features** menu the live values will be shown immediately.



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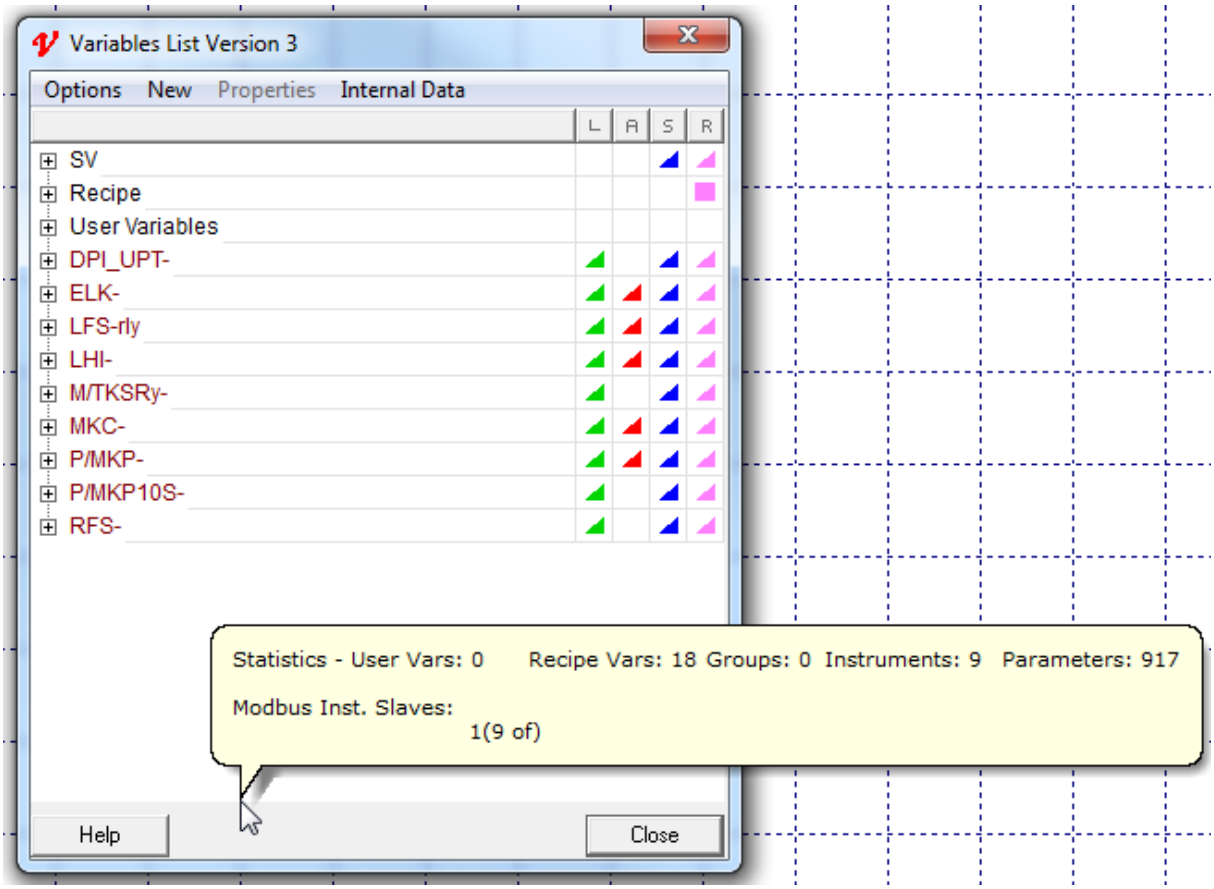


For Modbus instruments the Modbus address of a parameter will be displayed in a tooltip.



A summary of variables is shown in a tooltip when hovering the mouse over the bottom edge of the Variables List.

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Other new Variables List features include:

- Tooltips are displayed by hovering the mouse over items such as: User Variables, Instrument Parameters and column headings.
- Easy re-naming with **Options->Find** and **Options->Replace** so that instrument names, parameter names, and addresses can be found and changed.
- Simplified User Variable creation and renaming, which is more intelligent by recognizing any number in a name and incrementing for the next one.
- Show/Hide columns for **Logging (L)**, **Alarms (A)**, **Short List (S)** and **Read-Only (R)** attributes.
- New **Read-Only** attribute may be applied to Read/Write variables on screen (GDW) to prevent accidental changes to the value.
- The scroll-wheel on the mouse operates the scroll bar on the Variables List.
- Simplified instrument addressing with separate fields for Address, Decimal Point position and Address Offset.
- The menu items that were on the **Setup->Database** sub-menu are now on the **Internal Data** tab on the Variables List.

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3.6 Quick List

In SpecView Version 2.5 there is the Short List. This is an abbreviated list of an instrument's parameters displayed in the Parameter List box. Typically the Short List contains just the most important parameters for an instrument in order to keep it simple. However, only one Parameter List[260] box can be displayed at any one time, and those parameters can only be from a single instrument.

The Quick List is a method of marking particularly important parameters/variables from ALL instruments and User Variables in the Variables List, such that their values can be easily accessed and modified from Runtime Mode[251].

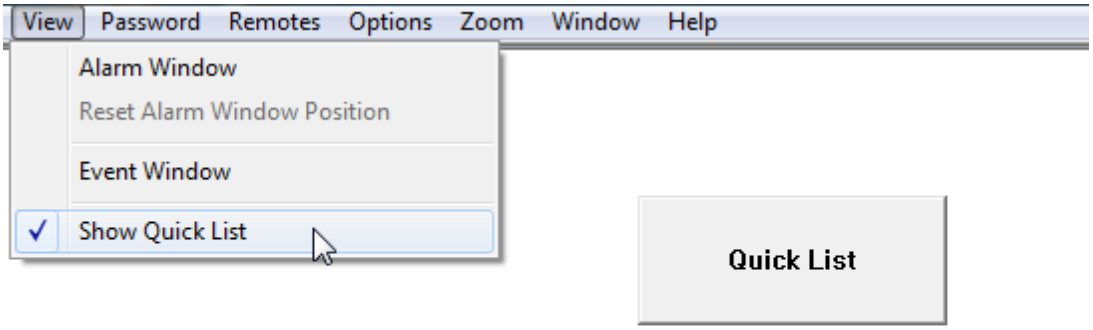
See:

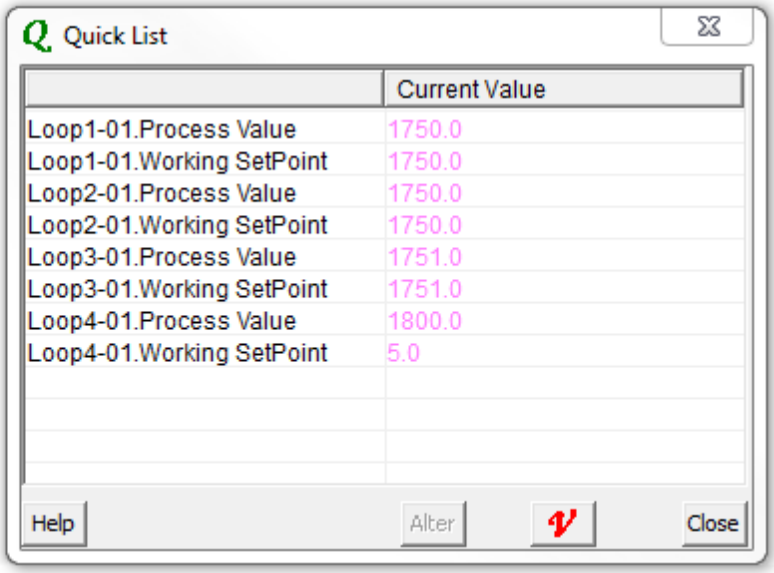
Quick List in Runtime Mode

and

Setting up a Quick List in Edit Mode[369]

There is a new Button Attribute and Strategy Controller Action to invoke the Quick List[443].



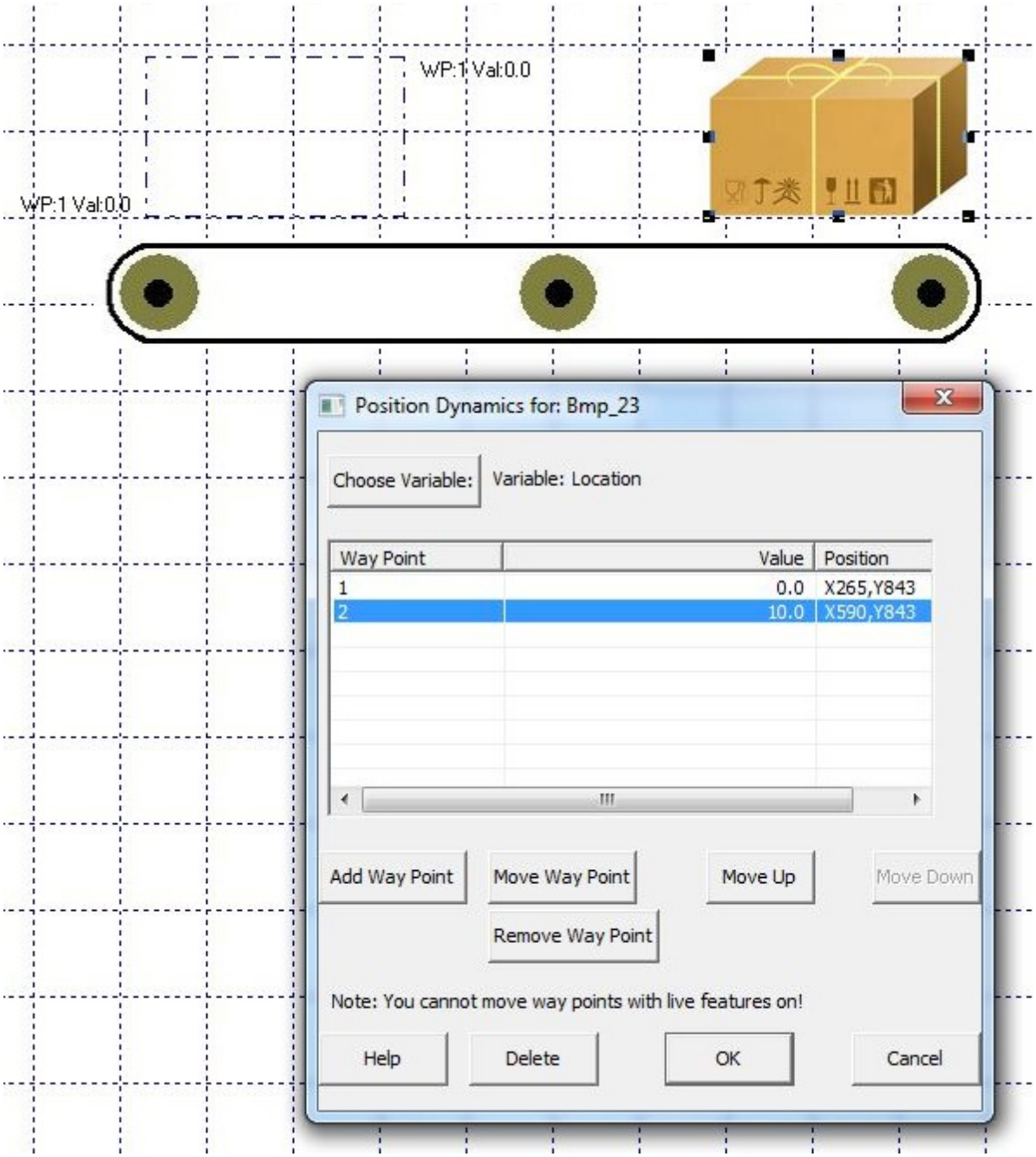


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3.7 Position Dynamics

Position Dynamics [363] allows objects on the screen to be positioned according to the value of a variable, this is useful for animation of an object.

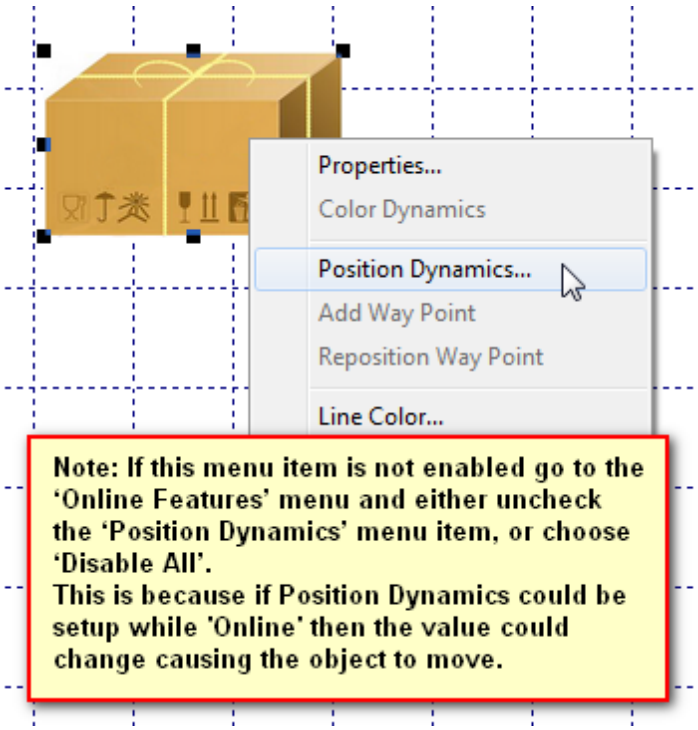
Such as: an object moving, or a button disappearing, etc.
For example: the progress of a product along a conveyor belt, as shown here:



To setup Position Dynamics, for example: a carton on a conveyor belt, follow these steps:

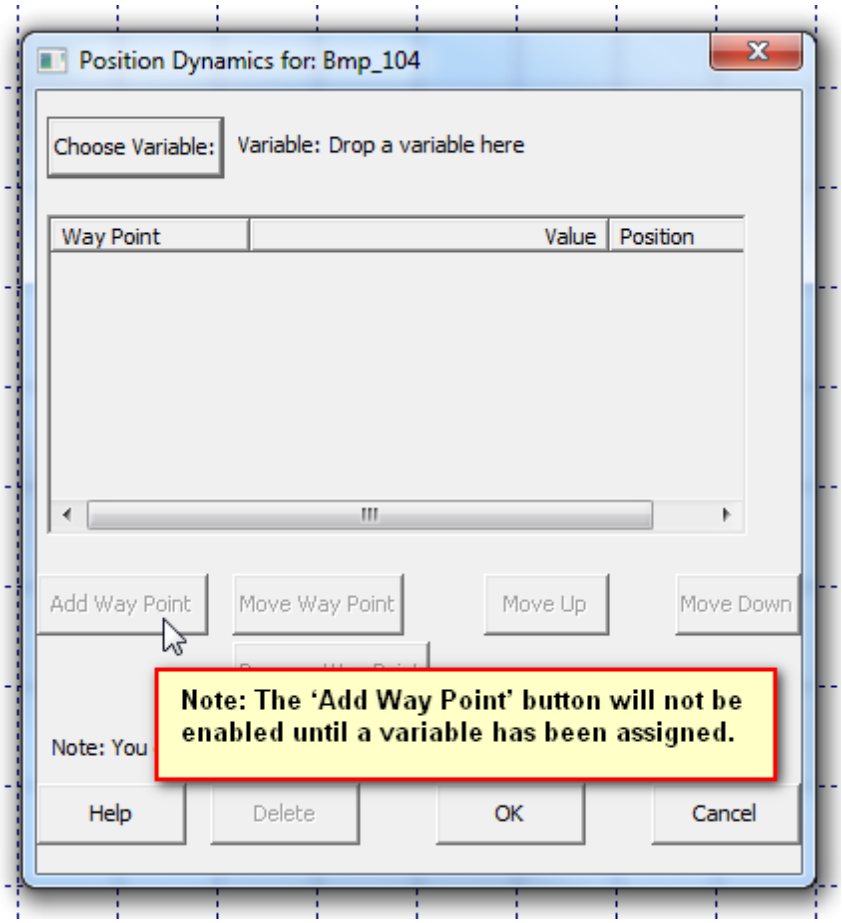
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- From **Edit Mode** put the object on the screen (in this example, a bitmap of a carton) and select it.
- Using the **Online Features** menu check that **Position Dynamics** is disabled, or choose **Disable All**. This is because if live values are being received then the value could change causing the object to move while setting up **Position Dynamics** .
- Either choose **Position Dynamics** from the Edit menu [287] or right-click and choose **Position Dynamics** from the popup menu.



- Drag and drop the variable, from the Variables List [313], this will be used to determine the position of the object.

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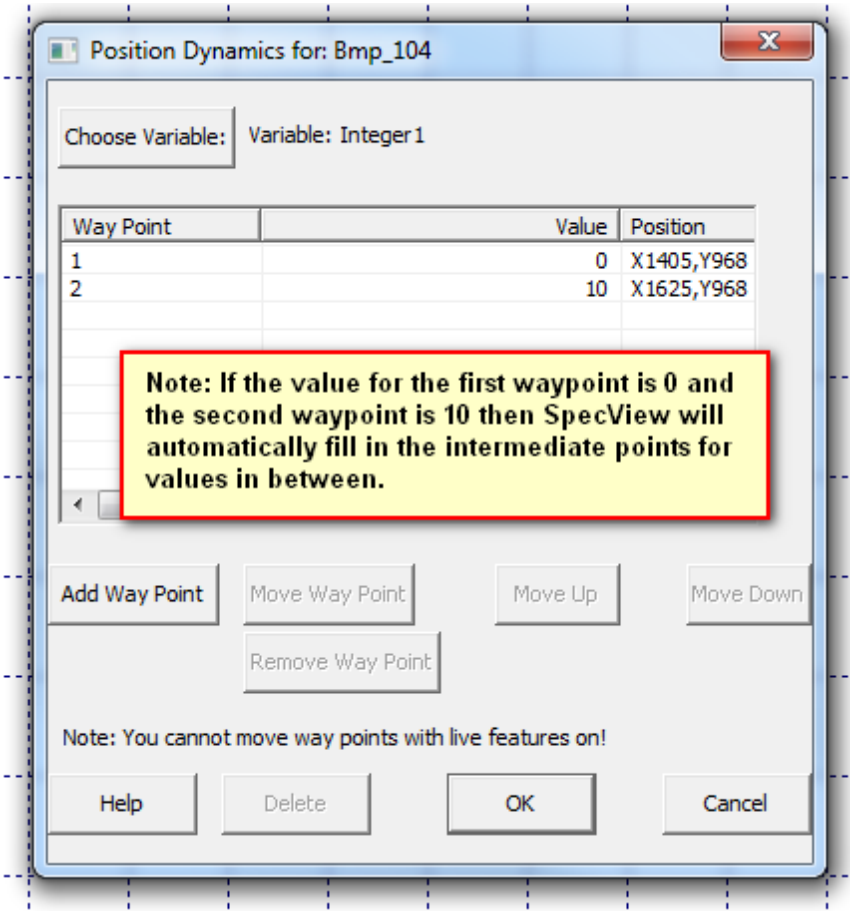


- If the object is not in the first position then move it there by dragging, and click the **Add Way Point** button and enter the value for the first position into the Value cell. This will mean that when the variable has this value the object will be positioned at this location.

- Move the object to the next position required for the next waypoint and click **Add Way Point** and enter the Value in the cell for that position, etc.

- When all way points have been entered it is possible to verify them by clicking on each Way Point in the list in turn and see the position of the highlight change. When finished, click OK.

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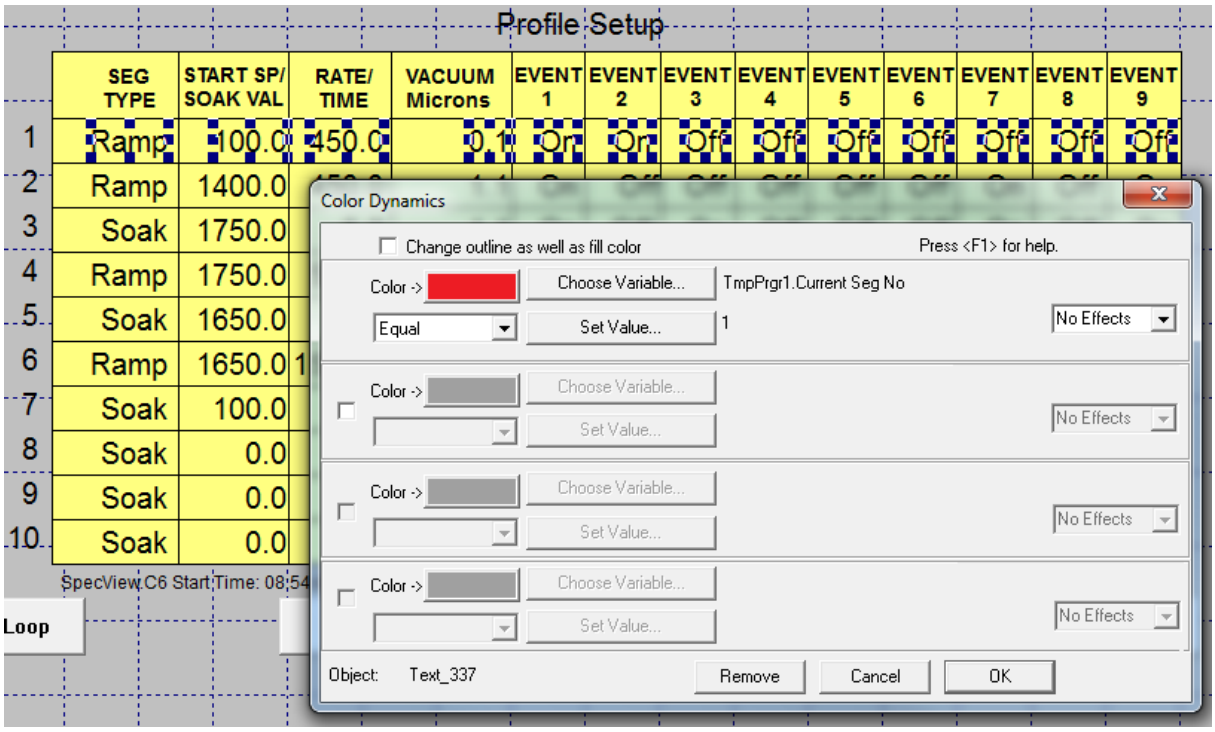
Note: Copying and Pasting of objects on a screen (GDW) will preserve their **Position Dynamics** settings.

3.8 Color Dynamics

Color Dynamics have been improved in a number of ways:

1. It is now possible to multi-select variables on a screen and apply the same Color Dynamics rule to each of them at once.
For example, this can be used to highlight the current segment on a Recipe screen by multi-selecting the variables for that segment and making their color change when that segment is running.

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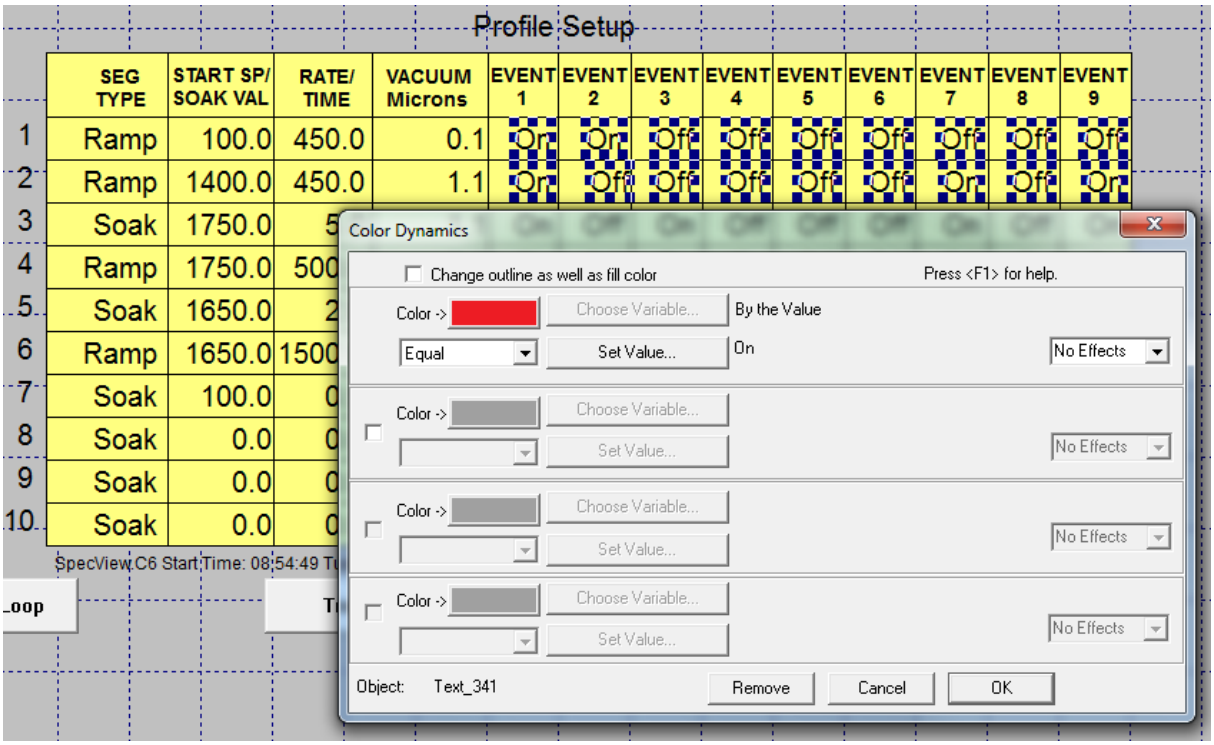


2. Additionally it is possible to multi-select variables on a screen and by using the **Use Value** checkbox apply the rule according to the value.

For example, it is possible to specify that all Boolean variables on a screen are shown in a specific color when they are 'On'.
The **Use Value** checkbox allows this to be done with a single Color Dynamics rule avoiding the need to create a separate Color Dynamics rule for each variable.

In this case it is important to multi-select variables that are of the same type (Number, Boolean, etc.)

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3. Copying and Pasting of objects on a screen (GDW) will preserve their Color Dynamics settings.

4. Objects can be made to flash or be hidden [361].

3.9 Import Project

Import Project [371] allows one project to be imported into another to combine functionality.

This is useful for example; if there is a project with one furnace defined, with its associated Strategy. Then a project with any number of furnaces can be created by repeatedly importing the single furnace project the required number of times.

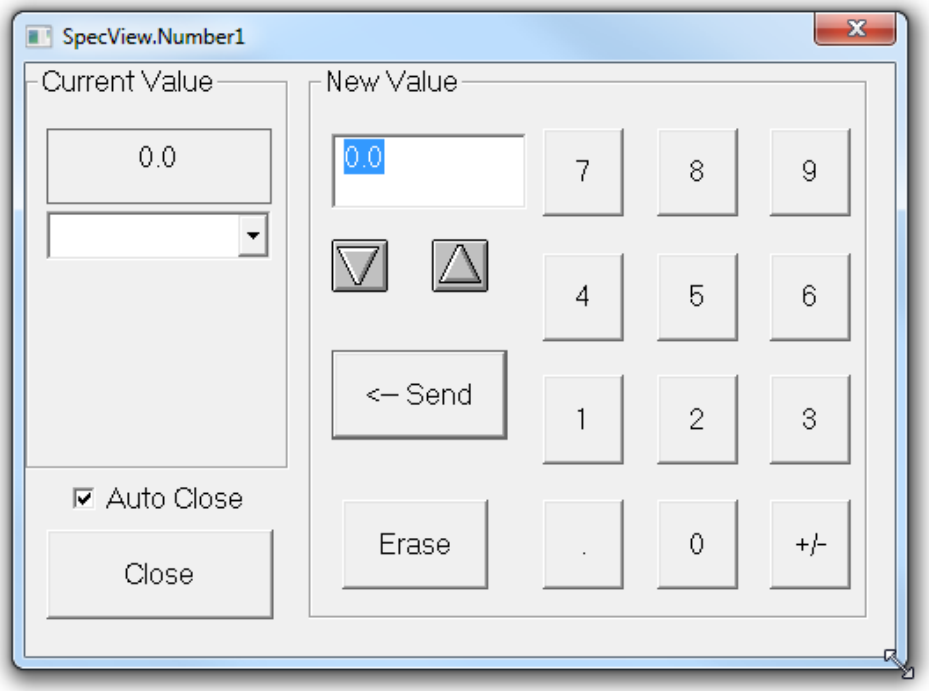
Another scenario could be that there is an elaborate screen layout in another project that needs to be added to an existing project.

Note that it is necessary to be in Edit Mode (Offline) to use this feature.

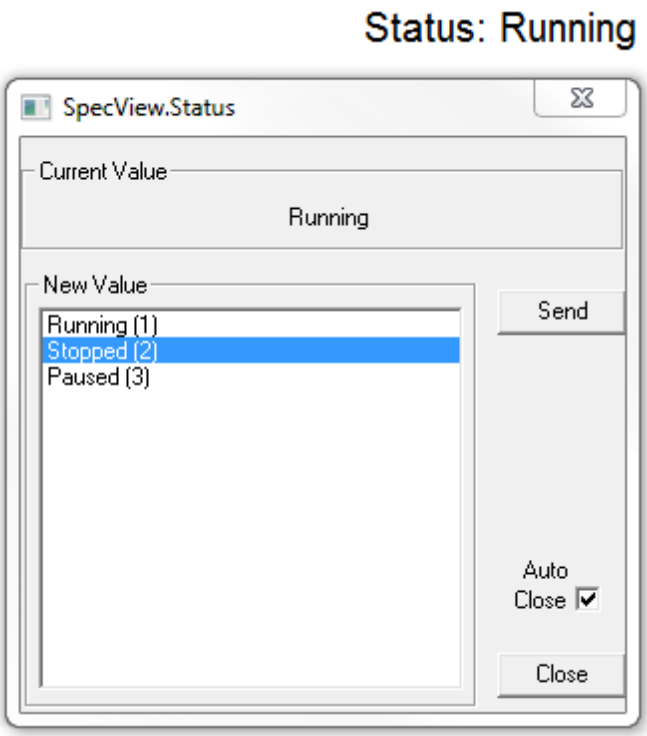
3.10 Runtime

Data entry boxes are now resizeable. Their size and position is remembered, which is particularly helpful when using a Touch Screen, as larger buttons are easier to use.
Since the boxes retain their previous positions, multiple data entry is smoother.

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There are new data types [93] - Enum, Countup Timer and High Precision Number.



Variables and parameters can now be made Read-Only from the Variables List [93] to avoid values being inadvertently changed.

Preferences

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The **Preferences** box, which is accessed from the **File** menu, has some additions that effect Runtime:

- Logging tab - DP Override 110 for decimal places
- Language tab - to set the language 110 for SpecView's menus and boxes
- Display tab - Window positions 110 to remember the positions of GDWs and whether to allow minimizing of windows

Trend Charts

In Runtime Mode the most important features of Trend Charts 87 are:

- Scroll back 87 - to view previous data - this is independent of Historical Replay
- Chart Notes 87 - to add notes to the pen traces
- Chart Cursors 87 - to see exact values and times together with the difference in value and the elapsed time

Quick List

The Quick List is a method of viewing particularly important parameters/variables from ALL instruments and User Variables in the Variables List, such that their values can be easily accessed and modified.

3.11 Startup Sequence

The language to be used by SpecView is selectable at startup. The **Do not show** checkbox is checked by default as normally one language is used throughout.

To reset the **Do not show** checkboxes choose **Preferences** from the **File** menu and click the **Settings** tab.



SpecView starts much quicker than previous versions, especially opening projects containing ActiveX controls.

SpecView's splash-screen has been simplified to make it more straightforward for the the user, so that

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the more complex **Configurations Found** box is not the first box seen at startup. The **Configurations Found** box is called **Projects** and can be accessed by clicking the **Select/Create Project** button.

Holding the SHIFT key down while clicking the **Start** button will go directly into Edit Mode [282] with Live Features Offline (this is the same as SpecView Version 2.5).

Whereas, holding the CTRL key down while clicking the **Start** button will go directly into Edit Mode with all Online Features [307] enabled.

This also applies to the **Go Online** button on the **Projects** box.

The splash-screen graphic can be an animated graphic (GIF) file.



Projects can be grouped together under a folder structure. This means project folders within a sub-folder will be listed in the Projects box and can be expanded by clicking the '+'.

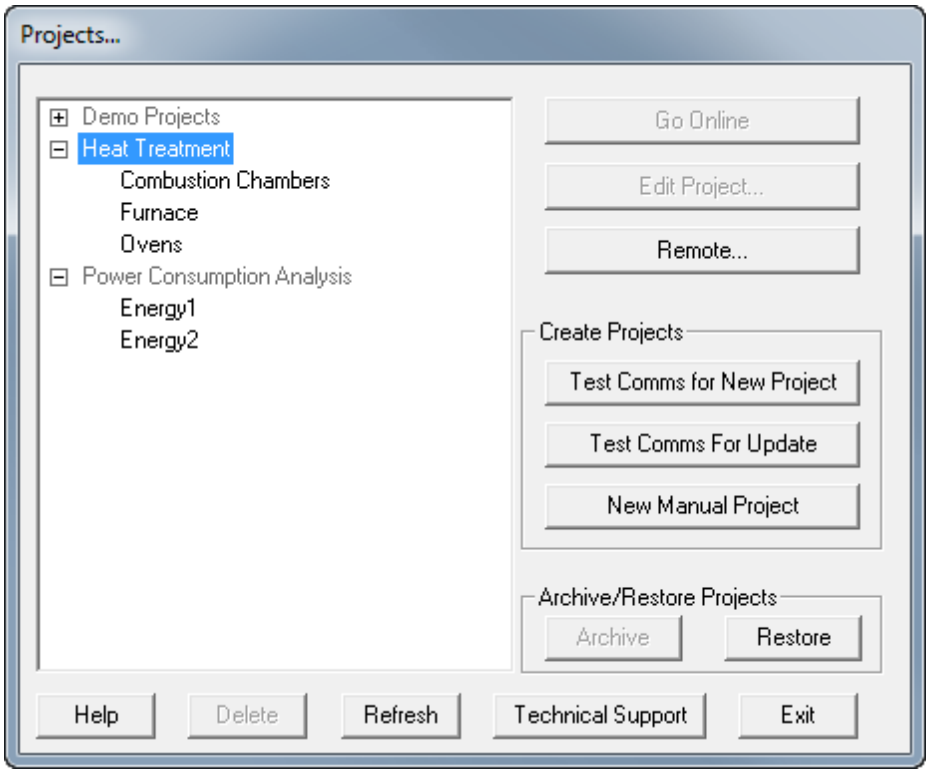
This helps to keep projects organized in logical groups in the project list.

When doing a Restore, the folder to be used can be specified.

The Demo projects are now in their own folder.

To group projects together use Windows Explorer to create a new empty folder with the name of the group and move the related projects into that folder. When SpecView next runs they will be shown in their groups.

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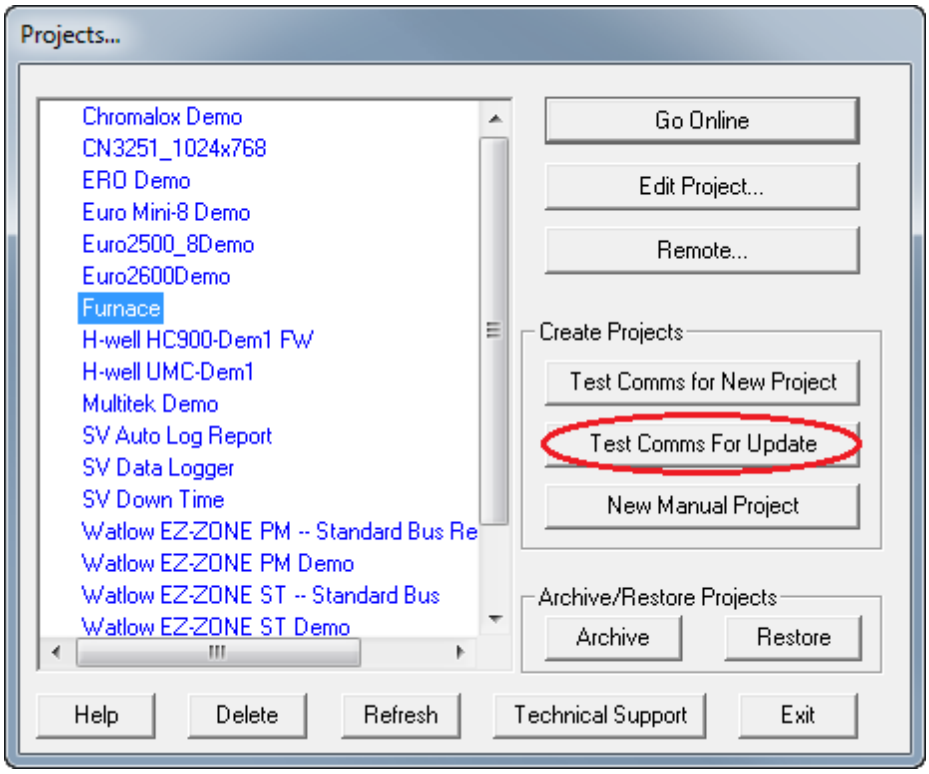


Auto Detection

As instruments are auto-detected there is now a prompt for the instrument's name to allow instruments to be given meaningful names from the outset, rather than having to remember to go into the Variables List [93] and rename them. This is important because if **Online Features** are enabled, logging will commence immediately the instrument is defined and the data will be logged under an incorrect name.

The **Test Comms for Update** button can be used to auto-detect instruments and add them to an existing project.

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3.12 Preferences

The Preferences box now has multi-layered tabs and some additional features.

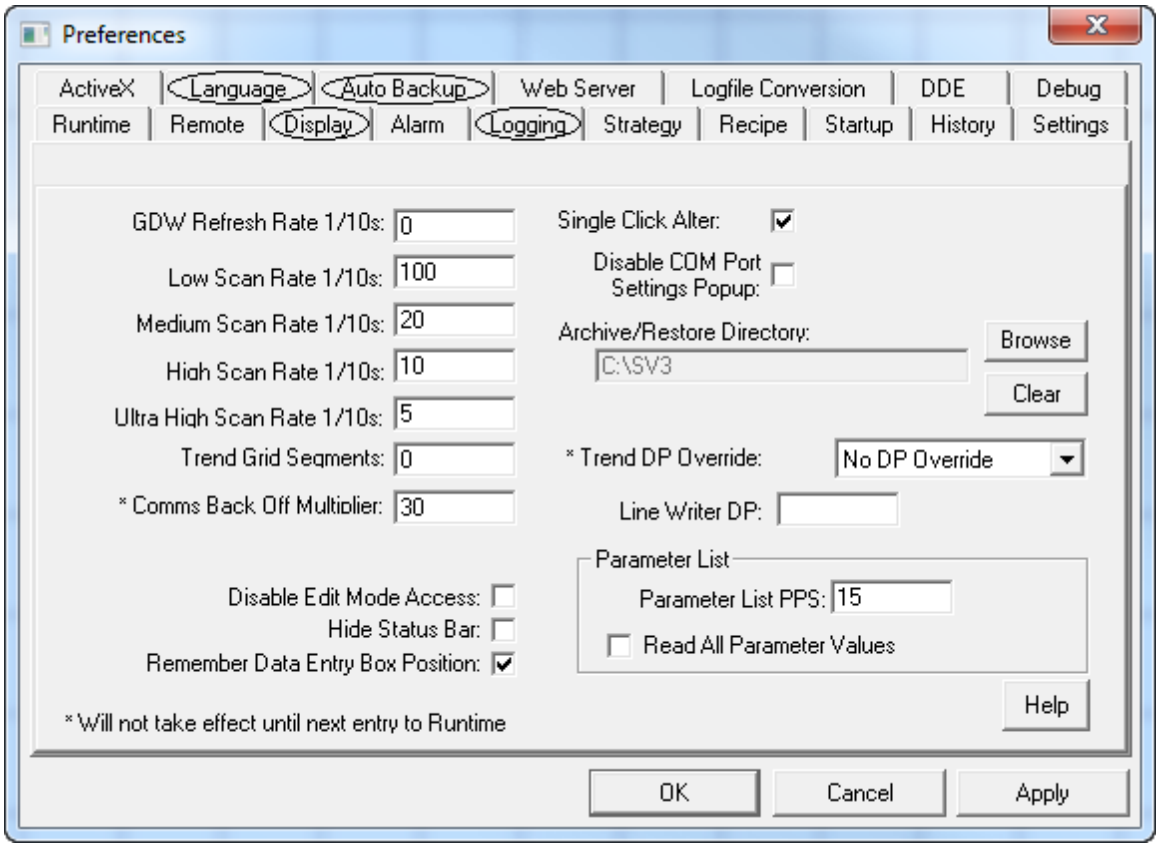
The **Auto Backup** tab specifies the backup interval (default 5 mins).

The **Display** tab has settings for **Remembering Window Positions**. This is to display screens (GDWs) at specific coordinates, which can be useful when using multiple monitors.

The **Logging** tab has a setting for the number of decimal places to be logged. This will affect all logged parameters.

The **Language** tab allows the language that SpecView is running in to be changed. This will not take effect until SpecView is exited and restarted.

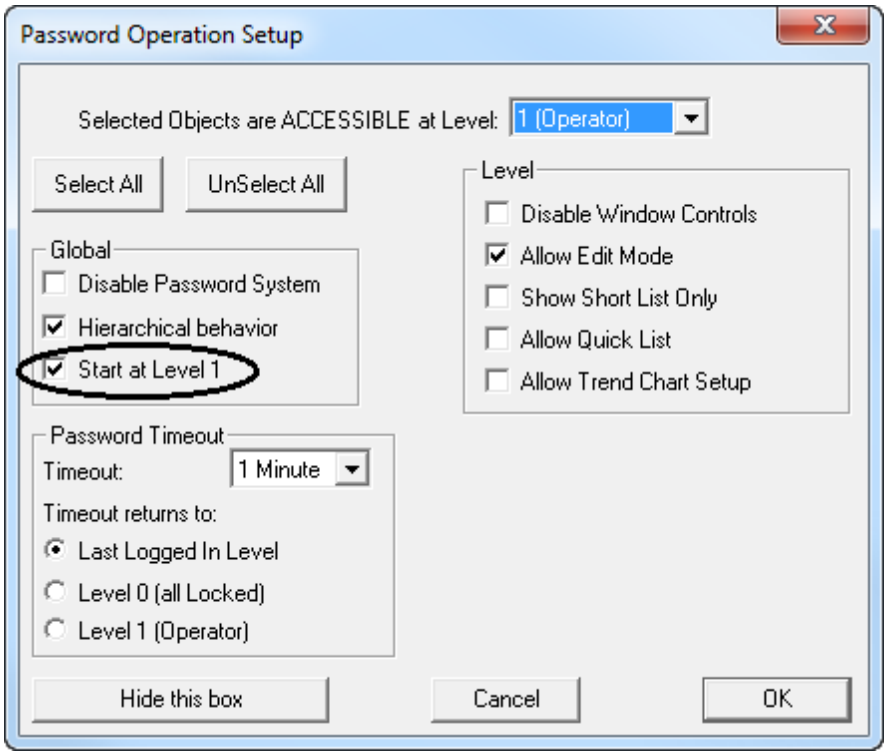
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3.13 Passwords - start at level 1

The Password system has the concept of a level that doesn't require a password. This means that users will be able to do limited actions without having to login.

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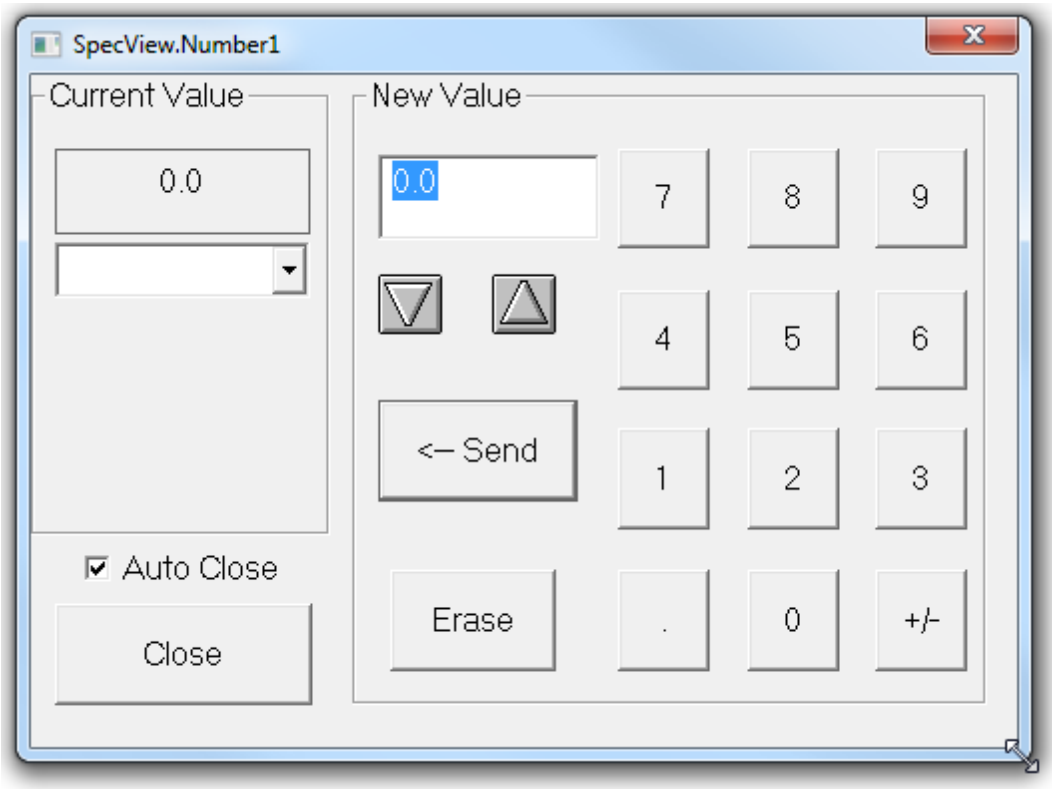
For more details see Passwords GDW Setup [707]

3.14 Touch Screen Support

Touch screen support in Runtime Mode has been enhanced. However, touch screens are not supported in Edit Mode.

Data entry boxes are now resizeable. Their size and position is remembered, which is particularly helpful when using a Touch Screen, as larger buttons are easier to use

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Trend charts now have a popup menu that can be accessed from Runtime Mode using either the left or right mouse buttons, for compatibility with touch screens which don't have a 'right' mouse button.
In Edit Mode the popup menu is only available using the right mouse button. This is because the left button selects the Trend Chart for moving and resizing.

On the **Button & View** tab on the **Trend Chart Properties** box there is the option to have the **Setup** button shown in the top-left corner of the Trend Chart.
The **Setup** button is useful for touch screen users to be able to quickly and easily access the **Trend Chart Properties** box. The alternative method of opening this box is by choosing **Setup Chart** from the popup menu.

3.15 Additional Features

There have been a number of other minor improvements:

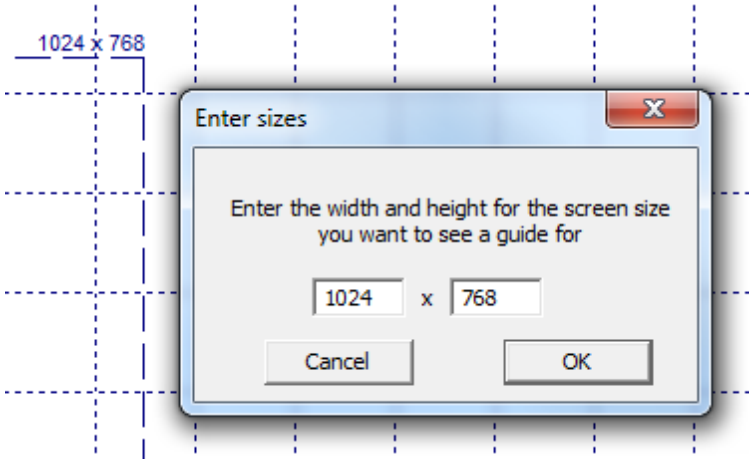
- The **Logging** tab of Preferences [110] has a setting for the number of decimal places to be logged.
- The decimal places of individual values used by Log File Reports [615] and by the Line Writer [452] can be specified using CVTSETTINGS.INI [492]
- Copying and Pasting of objects on a screen (GDW) will preserve their associations with variables as well as their Color Dynamics [103] and Position Dynamics [100] settings.

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- To assist in designing screens (GDWs) intended for use on screens of a different size the **Screen Size Guide** menu item on the **View** menu allows the actual screen size (in pixels) to be specified.

  The **Show Screen Size Guide** menu item is used to display the guide.

  There are other menu items to specify the color of the guide, etc.

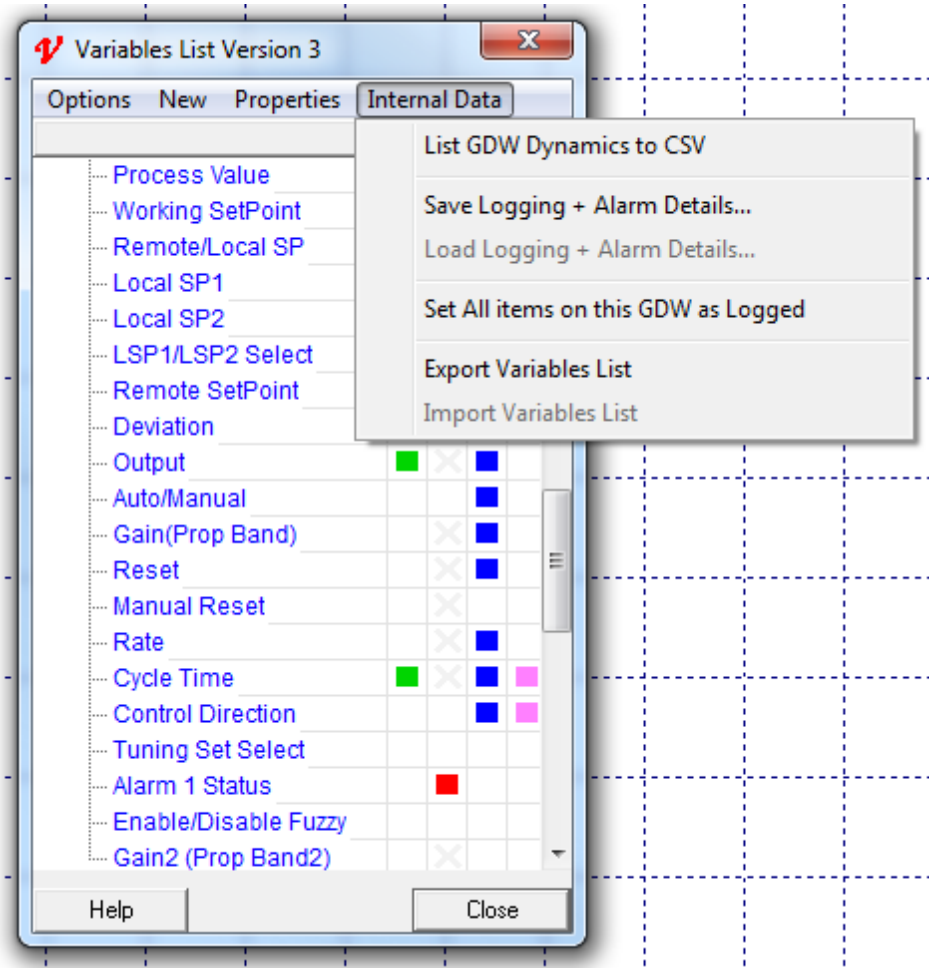


- XXX has been replaced by specifics: N/R (No Response), NPV (Not Present Value), NCA (Not Currently Available), T/O (Timeout)

- Acknowledge Alarms button/strategy action

- The menu items on the **Setup->Database** sub-menu have moved to the **Internal Data** menu on the Variables List [93]

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- New Math[433] functions:
  <Number / Integer / Enum / Time >
  ADD / SUBTRACT / MULTIPLY
  <Number / Integer / Enum / Time>
  put result in <BOOL>
  If the result of the math is 0, then bool will be off, if the result is non-zero, then bool will be on. This allows an Enumerated Alarm to be 'translated' into On/Off.
  Note: The other Math types will all result in Bool being set to Off.

3.16 32bit and 64bit SpecView

There are now both 32bit and 64bit versions of SpecView: ***SV3.exe*** and ***SV3_64.exe***

There are benefits and limitations of both, for more details see 32-bit and 64-bit SpecView[189].

3.17 Backward Compatibility

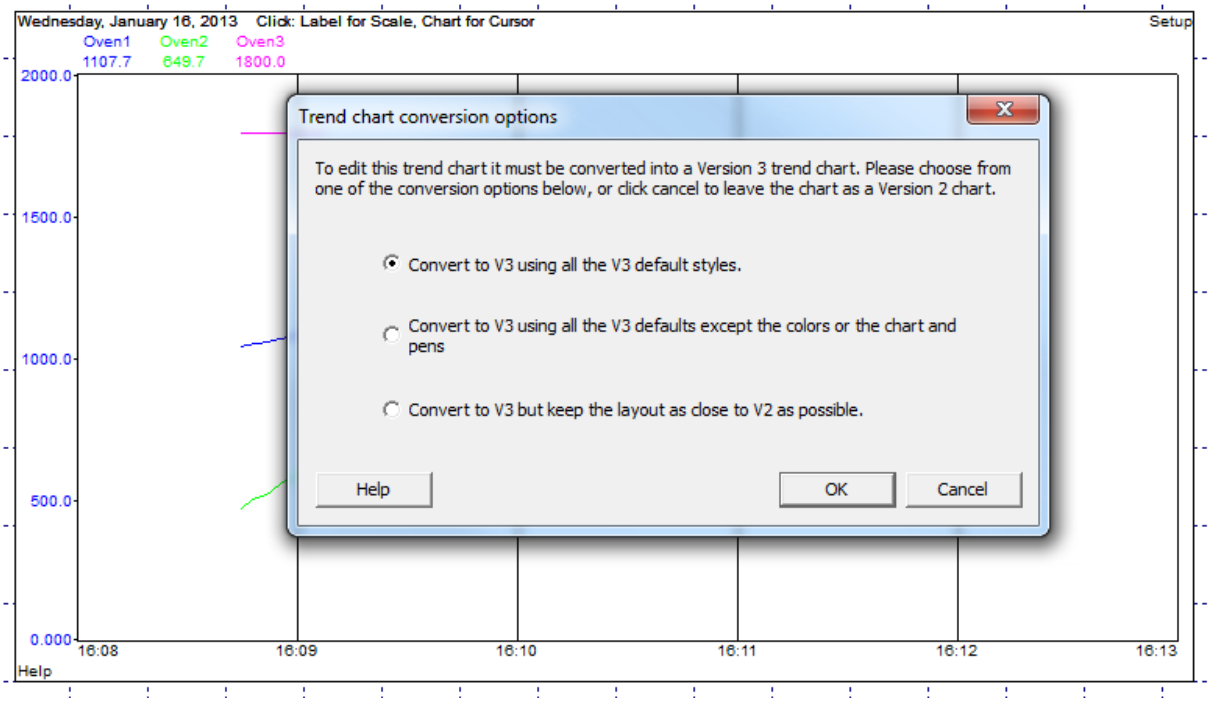
Compatibility between Version 2.5 and Version 3

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Existing SpecView dongles will work with Version 3, please refer to update policies [116].

A project created in Version 2.5 can be used in Version 3. An archive (SVA file) will be automatically created when it is opened in Edit Mode as a backup.

Trend charts will appear as before. However, changing the setup of the Trend Chart will automatically display this box:



Projects created in Version 3 will not work with SpecView Version 2.5.

Note: There is a way to make a Version 3 project work with Version 2.5, but please contact [798] SpecView for details.

3.18 Update Policies

SpecView purchased prior to 1st Jan 2005

SpecView dongles created prior to this date can run builds of SpecView Version 2 (& 2.5) up to and including Build 845.
Users can upgrade to Version 3 as described below.
To run Version 2.5 Build 846 and above requires a Version 2 update. The cost includes the cost of changing from a parallel to a USB dongle, if required. Order Code: **SV32-Upgrade/V2**
NOTE: There are no plans for any further releases of SpecView Version 2.5.

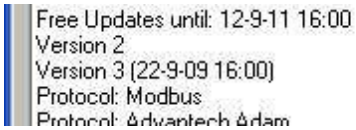
SpecView purchased between 1st Jan 2005 and 31st Dec 2007

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The price to upgrade to Version 3 includes the cost of changing from a parallel to a USB dongle, if required.
Order Code: **SV32-Upgrade/V3**
NOTE: The V3 upgrade will include 2 years of updates of Version 3, from the date of the first use of Version 3.

SpecView purchased after 1st January 2008

All copies of SpecView Version 2 (& 2.5) supplied after 1st January 2008, are "Version 3 ready".
To check if your copy has Version 3, click the Help menu and then Registration Info.



Users will be able to download free updates for two years after the first use of Version 3.

Dongle Exchange

Users who wish to continue to use their existing version of SpecView but need to switch from a parallel dongle to a USB dongle can purchase a dongle exchange. Order Code: **SV32-Swap**

Version 3 Update Subscription

SpecView Version3 (full releases, not the Beta test pre-releases) will set the **Free Updates until** date to 1 or 2 years from the date it is first run. This is because SpecView Version 3 includes a free-update-subscription for 1 year for dongles purchased in 2008/2009/2010, or 2 years for dongles purchased in 2011/2012/2013.

When the update-subscription expires the software will continue to work, but it will not be possible to update the software to a newer version without purchasing an update renewal from a SpecView representative.

Please contact your SpecView representative for prices.

3.19 Bug Reporting Procedure

To report an issue with this release of SpecView please email bug reports to V3bugs@specview.com detailing:

Name:	
Company Name:	
Email:	
SpecView Version & Build number:	
SpecView Dongle Serial Number:	
Microsoft Windows Version:	
Using SpecView 32bit or 64bit:	
Error Message:	Was an error message displayed and if so what was it?
Reproduceable:	Does the problem reoccur?
Configuration/Project Name:	

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Instruments:	Please give manufacturer, model(s), COM port(s) and address(es).
Runtime/Edit Mode:	Did the problem occur in Runtime or Edit Mode?
Crash:	Did it crash? If so, when & what was the module and version that it crashed in?
Comments:	Please give full details of the problem, ideally with screenshots.
Priority:	High/Medium/Low

If a more serious problem occurs, such as a crash or hang, then please generate a dump file[797] and send[798] it to us.

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Part 4

4 Release Notes

Details of the changes in each build:

Build 3.1.269[121] - Feb 6, 2026

Build 3.1.267[122] - Dec 19, 2025

Build 3.1.265[124] - Nov 18, 2025

Build 3.1.257[127] - Apr 21, 2025

Build 3.1.255[129] - Jan 2, 2025

Build 3.1.253[130] - Sep 30, 2024

Build 3.1.249[134] - Apr 19, 2024

Build 3.1.241[136] - Jan 6, 2024

Build 3.1.237[136] - Jan 2, 2024

Build 3.1.233[136] - Dec 11, 2023

Build 3.1.231[138] - Aug 14, 2023

Build 3.1.230[139] - Jul 31, 2023

Build 3.1.228[139] - Jul 24, 2023

Build 3.1.226[140] - May 5, 2023

Build 3.1.224[141] - Jan 19, 2023

Build 3.1.222[142] - Jul 29, 2022

Build 3.1.220[143] - Apr 15, 2022

Build 3.1.218[144] - Jul 1, 2021

Build 3.1.216[145] - May 7, 2021

Build 3.1.214[145] - Apr 26, 2021

Build 3.1.212[147] - Jan 14, 2021

Build 3.1.210[147] - Oct 30, 2020

Build 3.1.208[148] - Aug 18, 2020

Build 3.1.206[149] - Jul 2, 2020

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Build 3.1.204 [150] - Jun 15, 2020

Build 3.1.200 [150] - Mar 31, 2020

Build 3.1.154 [151] - Jan 29, 2020

Build 3.1.152 [151] - Jan 13, 2020

Build 3.1.146 [152] - Jul 12, 2019

Build 3.1.144 [153] - Mar 8, 2019

Build 3.1.142 [154] - Jan 28, 2019

Build 3.1.140 [154] - Dec 11, 2018

Build 3.1.138 [155] - Sep 5, 2018

Build 3.1.136 [156] - Jun 19, 2018

Build 3.1.134 [156] - May 23, 2018

Build 3.1.132 [156] - Apr 27, 2018

Build 3.1.128 [158] - Dec 19, 2017

Build 3.1.120 [159] - Aug 14, 2017

Build 3.1.118 [159] - Jul 25, 2017

Build 3.1.116 [160] - Jul 5, 2017

Build 3.1.108 [161] - Apr 10, 2017

Older Releases [162]

4.1 Build 3.1.269

Release date: February 6, 2026

Fixes and improvements

General

- SpecView start up is now more tolerant of unavailable network printer connections.

Bar Charts

- ***New Feature:*** Users can now inhibit the black rectangles that highlight Bar Charts [397] in Recipe [635].

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Read more here[476].
- Enhanced Pre-Plot[590] handling for Bar Charts[397] in Recipe[635] displaying "N/C" as their value.

Data Logging
- Updated Historical Replay[622] functionality to ensure SpecView remains stable when returning to normal operation.

Strategy Controller
- Improved start up stability when large numbers of Strategy[666] are configured.

New Drivers

Adam Modbus
- Added support for the Adam 6015 instrument.

CS Instruments
- Added support for the VA-521 instrument.

Linak
- Added support for the LA33/36/37/76/77 instruments.

Novus
- Added support for the N20K48 instrument.

Omega
- Added support for the 616A instrument.

Presens
- Added support for the OxyBase/Pro instruments.

Watlow Modbus
- Added support for the EZ-ZONE RMS Linearization module.

Updated Drivers

Omega: iServer2
- Improved Modbus polling performance and stability.

Eurotherm Modbus: EPC3000 Prog/Controller
- Updated the instrument driver to provide access to more instrument parameters.

4.2 Build 3.1.267

Release date: December 19, 2025

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Fixes and improvements

General

- Addressed a Modbus TCP driver issue that could lead to 19037 (transaction mismatch) errors[481], improving long-term stability and communication reliability.
- Variable Substitutions[517] in button captions now refresh correctly after switching from Offline to Online, even when the Variable Substitutions[517] points to an unchanged User Variable[322], ensuring the displayed values are always in sync.
- ***New Feature:*** The Batch Demo has been updated with the new Pre-Plot[590] functionality.

Bar Charts

- ***New Feature:*** Users can now quickly copy Bar Chart[397] attributes to other Bar Charts[397]. Read more here[399].

Data Logging

- ***New Feature:*** Up and Down buttons have been added to the Log Report Format[611] box. Read more here[614].
- ***New Feature:*** Pre-Plot[590] functionality is now available, letting users preview and validate data before running batches for faster insights and more confident analysis. Read more here[590].

GDW

- Fixed an issue in the 64-bit version where setting a button's[384] color incorrectly displayed the M12390 Color Dynamics[359] warning despite the color being successfully applied.
- Line thickness[291] settings are now correctly saved, ensuring they are preserved when the SpecView screen[311] is closed and reopened.

Recipes

- It is now possible to download values to read-only variables[514] in Recipe[635]. Read more here[512].

Strategy Controller & Button Attributes

- Fixed an issue where Strategy[666] invoked Recipe[635] downloads continued after an error instead of stopping.
- Corrected a potential crash condition where entering Edit Mode[501] (Offline) while using Strategy Controller Actions / Button Attributes[690] CopyFrom ... To[429] or Math Functions[433] could sometimes cause SpecView to unexpectedly crash.
- Fixed a rounding issue where the Strategy[666] [List] button exported events and actions to CSV with only one decimal place, causing values like 0.05 to display as 0.1 in comparisons.
- Strategy Controller box positions can now be reset in Preferences[458]. Read more here[468].
- ***New Feature:*** Users can now configure SpecView to automatically abort a Strategy[666] invoked Recipe[635] download after the first error, rather than displaying a warning and requiring user input. Read more here[512].
- ***New Feature:*** Python integration is now available to users, providing enhanced automation capabilities, greater scripting flexibility, which can streamline the number of Strategy events[684] required. Read more here[916].

Trend Charts

- Users can now reset the position of the Trend Chart[523] Properties box through Preferences[458]. Read more here[468].

Web Server

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- ***New Feature:*** SpecView's Web Server[716] now supports limited interaction. Read more here[716].

New Drivers

Generic Modbus

- Added 4X - 32 Bits that enables users to read the status of individual bits within a 4X 32-bit word.

4.3 Build 3.1.265

Release date: November 18, 2025

Fixes and improvements

General

- ***New Feature***: Users can now determine the display format of variables such as Date&Time when utilizing them to create Log Report File Names[877], Automatic Chart Notes[552], Lines in Line Writer[452], etc. Read more here[518].
- ***New Feature***: Buttons can now display live variable values. Read more here[384].
- Errors related to memory leaks in the Modbus driver, E19037, have now been rectified.

Data Logging

- In certain cases, Batch Replay[624] would have, in the past, displayed incorrect time values based on Daylight Savings Time.
- ***New Feature***: Batch Number Search[624] box now remembers column positions.
- ***New Feature***: Batch Number Search[624] box is now enabled to select a Batch by double clicking on the desired Batch ID.

Multi-User System

- Passwords will now be masked when attempting to log in to a Local PC[737] from a Remote PC[740] using the Multi-User System[713].
- ***New Feature***: Failed log in attempts using the Multi-User System[713] will now be registered in the Events Window[264]. Read more here[714].

Passwords

- ***New Feature***: Failed log in attempts will now be registered in the Events Window[264]. Read more here[705].

Web Server

- Previously, SpecView would have displayed an incorrect display box when accessing certain IP addresses.

New Drivers

The following instruments are now supported.

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To incorporate another instrument into SpecView, please contact your SpecView representative.

Automation Direct - Productivity PLC
- Added appropriate Modbus registers with instrument specific help.

Yokagawa Modbus RTU
- Added GM10 modules.

Sixth Sense
- Added PG10/20/30 support.

Watlow Modbus
- Added EZ-ZONE RM Scanner Module.

Updated Drivers

Procon: Modmux & Promux Modules - PT4RO
- Updated Watchdog Timer variable.

4.4 Build 3.1.259

Release date: August 22, 2025

Fixes and improvements

General
- ***New Feature***: Users can now edit in what order SpecView will populate values on a GDW [503]. Read more here [351].

Data Logging
- In Historical Replay - Find Batch Number [624], searching for batches with a blank search field will produce the same results as searching for batches with an asterisk.

Strategy Controller & Button Attributes
- ***New Feature***: Scroll buttons added. For more information please read: Scroll Down [416], Scroll Up [413], Scroll Right [407], Scroll Left [410], Scroll Reset [419].
- ***New Feature***: Users can select either Printer A or Printer B to Print a GDW [423] through Strategy Controller Actions [690]. Read more here [425].
- Corrected a condition where a Strategy Controller [666] invoked Recipe [637] download at start up could generate an "*Improper Argument*" message.

Trend Charts
- Print and Batch [557] now incorporates the following special strings %%SpecViewInstalledPath%% [448] and %%SpecViewProjectPath%% [450]. These strings are available as of SpecView 3.1.253 [130].

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- Fixed an issue where opening Trend Chart Properties or starting Batch Replay [624] while the chart was paused could cause the application to lock up.
- Resolved a problem where editing Automatic Chart Notes [552] always triggered the warning," *W12394: Note, percented variable name not found*," even when no variables are used in the Chart Note Text.

Variables List

- Fixed an issue where selecting and setting multiple variables to Read-Only would not be properly saved.
- Users can now edit the properties of instrument variables without the changes being overwritten by SpecView's update routines.

New Drivers

The following instruments are now supported.
To incorporate another instrument into SpecView, please contact your SpecView representative.

A and D Company

- Added the GXM Series.

CD-Automation

- Added the following new instruments
  REVEX
  REVO C
  REVO PC
  REVO PN

HCS

- Added R22 - 0DP and R22 - 1DP.

InstruTech

- Added the IGM402 module.

Watlow Modbus

- Added EZ-ZONE RMC Math.

Updated Drivers

Eurotherm Modbus - 3500

- Updated the parameters Segment Time Remaining and Program Time Remaining to better reflect firmware updates.

HCS

- Updated the Process Value and Set Point parameters' decimal point precision.

Honeywell Modbus - UDC2800

- Updated the parameters Set Point State and Alarm Delays to better reflect firmware updates.

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- Updated Instrument View to reflect the Reset Set Point parameter.

Procon: Modmux & Promux Modules - PT8DIO
- Resolved incorrect parameter addressing.

Procon: Modmux & Promux Modules - PT8AO/VO
- Resolved incorrect parameter addressing.

Procon: Modmux & Promux Modules - PT4DIRO
- Resolved incorrect parameter addressing.

Super Systems - SSI 9205 - New
- Restructured New Instruments List to better reflect firmware updates.

Super Systems - SSI 9220 - New
- Restructured New Instruments List to better reflect firmware updates.

Watlow Modbus - EZ-ZONE Profile Map 1
- Increased Modbus communication efficiency by grouping Modbus requests.

Watlow Modbus - EZ-ZONE Profile Map 2
- Increased Modbus communication efficiency by grouping Modbus requests.

Watlow Modbus - EZ-ZONE Profile Map 2 - 30 Steps
- Increased Modbus communication efficiency by grouping Modbus requests.

Watlow Modbus - EZ-ZONE Profile Map 2 - 50 Steps
- Increased Modbus communication efficiency by grouping Modbus requests.

4.5 Build 3.1.257

Release date: April 21, 2025

Fixes and improvements

General
- X-axis scroll bars can now scroll further to the left and right to better accommodate smaller monitors.

Strategy Controller
- Previously, %%SpecViewInstalledPath%% 448 would fail to point to SpecView's installed file path when used in Write Line to File/Printer 452.
- Target Text String parameter name is now retentive when editing Write Text to another Text String 456 multiple times.

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Recipes

- ***New Feature:*** The Description[646] button in Recipe Manager[637] will now display an asterisk on the button if a description for the recipe is present.
- Previously, if Strategy Controller[666] downloaded a Recipe[637] on start up, then SpecView occasionally would have generated an 'Improper Argument' error.

Trend Charts

- Trend charts[523] operating on Remotes[713] can now store Batch JPGs[557] locally to prevent the overwriting of Batch JPGs[557] on network drives. Read more here[558].
- Trend chart cursors[547] can now be moved when the Trend chart[523] is refreshing the plot area.

Logging

- SpecView will now display an error message when exporting a Log Report[606] to a location that is not accessible on the network.

New Drivers

The following instruments are now supported.
To incorporate another instrument into SpecView, please contact your SpecView representative.

Ascon Modbus

- H3 Line Humid & Temp Transmitter

Automation Direct - BRX/Do More

- MHR String Char 64

Omega

- iServer 2

Precision Digital

- SuperNova PD500

Sixth Sense

- PG10/PG20/PG30

Watlow Modbus

- EZ-ZONE RMC Digital I/O
- EZ-ZONE Timers

Updated Drivers

Automation Direct - BRX/Do More

- Previously, MC blocks were incorrectly configured and displayed duplicated values.
- Updated instrument help.

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Eurotherm Modbus - 3500 Programmer 1

- Parameters were updated to reflect the current firmware.

Honeywell Modbus - UDC2800

- Previously, parameters were incorrectly configured.
- Updated Instrument View.

Honeywell HC900 - HC9 SPP Segs

- Previously, parameters were incorrectly configured.
- Auto-detection will now complete without producing an error.

Procon: Modmux & Promux Modules - PT8DIO

- Previously, parameters were incorrectly configured.

Ramp Soak 50 Segment Program

- The Ramp Soak Program can now be programmed to start at a specific time of day.

TempCo - TEC 4500

- Parameters were updated to reflect the current firmware.

Vaisala - HMP Series

- Previously, parameters were incorrectly configured.

4.6 Build 3.1.255

Release date: January 2, 2025

Fixes and improvements

General

- Improved communication functionality to better support controllers such as the Watlow F4.

Import Project

- Previously, the Print Screen [423] Button Attribute [403] was not actionable on an imported project.
- Importing a project did not reassign Variable Substitutions [517] in Buttons [384] or Strategy Controller [666].

Variables List

- An issue with the way that changes to parameter names are propagated across Trend Charts [397] and Strategy Controller Events [684] and Actions [690] has been resolved.

New Drivers

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The following instruments are now supported.
To incorporate another instrument into SpecView, please contact your SpecView representative.

Atmosphere Engineering
- Furnace Meter

Kelk
- Rollmax DSP2

Novus
- DigiRail - 2A
- N1040

RKC Modbus
- SA200

SuperSystems
- eFlo 2.0

Updated Drivers

Yokagawa Modbus RTU - UP55A Program
- Added segments 31-40 and associated parameters.

4.7 Build 3.1.253

Release date: September 30, 2024

Fixes and improvements

General
- The 'Help for Instrument' button now displays instrument specific help files when available.
- ***New Feature:*** Additional Resize Screen[301] and Screen Size[296] options were implemented. Read more here[301].
- Added the Show Instantaneous Active Comms List button. Read more here[471].
- Date Time Format[461] no longer reverts back to default settings after being altered.
- In the past, writing to Boolean parameters could have occasionally caused SpecView to freeze.
- Added additional information to warning message when SpecView is unable to connect to the default printer[386].

Color Dynamics

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- Editing color dynamics on buttons used to change the underlying color of buttons.

Historical Replay
- Previously, it was not possible Export Chart Data to CSV[533] while in Historical Replay[622].

Trend Charts
- Previously, Export Range to CSV[534] would not function if selected area contained the surrounding chart area.
- Export Range to CSV[534] is now enabled in Historical Replay[622].

Logging
- Fixed incorrect disabling of the Browse button when attempting to specify a a file path to save the Log Report.
- Cached Log Files list to make it much faster to display on systems with several years of log files.

Strategy Controller
- ***New Feature:*** It is now possible to write a line of text to a target text string using Variable Substitutions. Read more here[456].
- ***New Feature:*** Implemented "%%SpecViewInstalledPath%%[448]" and "%%SpecViewProjectPath%%[450]" strings to point towards SpecView's installed path and the project path respectively.
- ***New Feature:*** Startup or Disabled Events are now labeled in the Strategy Event Setup List.
- ***New Feature:*** Users can now leave notes for Events. Read more here[676].

Recipes
- It is now possible to automatically send a Recipe if Recipe filtering is on and the filter results in just one recipe being shown.
- It is now possible to use Text variables to filter Recipes in Recipe Send To Mode.
- The number of Recipes per GDW has been increased from 1,296 to 32,767.
- ***New Feature:*** SpecView Recipe Filtering[641].

New Drivers

The following instruments and their associated parameters are now available.

Acrel Meters
- ADL200
- ADL400

Automation Direct BRX/Do More
- MC Blocks
- MHR Blocks (Integers and Floats)
- MI Blocks

Alicat Modbus
- Basis 2 Meters and Controllers

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ComWinTop
- Temperature Humidity Sensor

Eldex
- Optos Metering Pumps

FutureDesign
- C Series - 0DP
- C Series - 1DP
- Signal Conditioner (RSC) - 0DP
- Signal Conditioner (RSC) - 1DP

PowerScout
- PowerScout HD - Alarms
- PowerScout HD - Metrology Points
- PowerScout HD - Pulse Inputs
- PowerScout HD - User Config Points
- PowerScout HD - Wye Float Model

HCS
- AT03 PID Temperature Controller

Heidolph
- Hei-Torque

Jumo Modbus
- Logoscreen 601/700

NexThermal
- Single Channel Control Panel
- Single Channel Control Panel Programmer

Parker Hannefin
- Parker Hannefin DB Series

Schneider Electric
- PM750 Setup & Status

SuperSystems
- Series 8

Teracom
- TSH300

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Tidal Engineering
- Synergy Controller

Trumeter
- APM-PWR

Updated Drivers

Delta/Solo/Love/B&B/Omega - Solo SLM
Previously, parameters were incorrectly configured.

Eurotherm Modbus - Euro 26/2700
Previously, parameters in the instrument were incorrectly configured.

Eurotherm Modbus - 3200 Series
Previously, the following parameters were incorrectly configured.
- Recipe To Save
- Recipe No

Eurotherm Mini-8 V5.00+
The following parameters are now supported.
- M8_SuperLoop 1-16
- M8_SuperLoop 17-24

Fireye - NX6100/PPC6000 TCP/IP
The instrument was reading values in the incorrect data format.

Generic Modbus - 3X IEEE Float Register Little Endian
The instrument used to read values from the incorrect register.

Honeywell Modbus - UDC 2800
Updated the UDC 2800 Instrument View SP button to now alter Setpoint 1 in the controller.
The following parameters were updated to reflect the changes in the current firmware.
- Loop Status - Digital Input
- Loop Status - Any Alarm
- Loop Status - Guaranteed Soak
- Motor Time for Positional Proportional
- Soft Start Function

Julabo - Julabo Dyneo DD Commands
- Previously, the Generic ASCII driver used to randomly crash SpecView.

Procon: ModMux & ProMux Modules - PM8TC
- Parameters were updated for enhanced communication efficiency.

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Procon: ModMux & ProMux Modules - PT8TC

- Parameters were updated for enhanced communication efficiency.

Procon: ModMux & ProMux Modules - PM6RTD

- Previously, parameters were incorrectly configured.

Procon: ModMux & ProMux Modules - PT6RTD

- Previously, parameters were incorrectly configured.

RKC Modbus

- Instruments from older releases now appear under the instrument group.

RKC Modbus - RKC RB Modbus

- Previously, the Instrument View displayed an incomplete graphic.

Stride - SIO-MB04THMS

- Previously, the following parameters were incorrectly configured.
    - Offset 0
    - Deg Unit 0

SuperSystems

- The following instruments were updated to reflect the changes in the current firmware.
    - SSI9205 & SSI9220 - Old Firmware
    - SSI9205 & SSI9220 - New Firmware

TempCo -TEC4500

- Segment 0 parameters are now supported.

Watlow Modbus

- The following instruments were updated to reflect the changes in the current firmware.
    - Aspyre DT Modbus RTU
    - Aspyre DT Modbus TCP

4.8 Build 3.1.249

Release date: April 19, 2024

Fixes and improvements:

General:

- There was a very occasional 30 second delay when entering either Runtime Mode or Edit Mode (Online or Offline) which has been resolved.
- There is now a warning that a SpecView Project that was last run with a license is now about to be run without a license, see E12384 [74].

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Printing:
- Printers on the network are now being correctly detected.
- The 'Printer not found' message box is now displayed on top of the SpecView window, not behind it.

Trend Charts:
- ***New Feature***: It is now possible to adjust the scan rates of parameters associated with Automatic Chart Notes. Read more here[554].
- Previously, it was possible to experience an occasional delay in loading historical data when using Trend Charts that had Scrolling disabled in conjunction with Trend charts that had Scrolling enabled.

Strategy Controller:
- ***New Feature***: Play Sound File Strategy Controller and Button Action. Read more here[455].
- ***New Feature***: Specific User Login. Read more here[437].

Import Project:
- Importing projects with Bitmaps on GDWs would have caused missing Bitmap "Couldn't load DIB" errors..

Updated Drivers:
- RKC-SRZ-COM-ME - Added the following instruments, accompanying Instrument Views, and Auto Detect feature.
  - RKC-SRZ-COM-ME-1-CT-Channel
  - RKC-SRZ-COM-ME-1-CT-Module
  - RKC-SRZ-COM-ME-1-DIO
  - RKC-SRZ-COM-ME-1-Module
  - RKC-SRZ-COM-ME-1-TIO

  Read SpecView's RKC instrument help for additional information.

- CasCade Heat Manager - Added the following instruments and accompanying Instrument Views.
  - EasyHeat
  - HeatManagerConnect 6
  - HeatManagerConnect 6+6
  - HeatManagerPro 12
  - HeatManager 6

- Watlow Modbus - Added the following instruments.
  - EZ-ZONE PM Controller - Map 2
  - EZ-ZONE PM Profiler - Map 2
  - EZ-ZONE PM Limit - Map 2

- Keyence Modbus - Added the following instrument.
  - MP-F Series

- IDEC - Fixed an error in the Input and Output blocks that displayed incorrect values.

- Eurotherm Modbus - Added Alarm Type parameter for the alarms in the EPC3000 Program instrument.

- Eurotherm Mini-8 - Added the following instrument.
  - SuperLoop

  Read SpecView's Eurotherm instrument help for additional information.

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- Honeywell HC900 - Added the following instrument.
  - HC9 Clock Date Time

- Procon: ModMux & ProMux Modules - Fixed incorrect parameter addressing for parameter "RTD Type" in the following instruments.
  - MM6RTD
  - MM6RTDB
  - PM6RTD

4.9 Build 3.1.241

Release date: Jan 6, 2024

Fixes and improvements:

General:
- Previously, manual log file conversion would not generate log reports for dates past 12/31/2023 and would give the error E17813 - Invalid Entry [484].
- Similarly, Historical Replay when specified by date would give the same error.

Recipes:
- Recipe downloads which are started from Strategy Controller actions, or from a button with the action 'Download Specific Recipe', could cause a crash.

4.10 Build 3.1.237

Release date: Jan 2, 2024

Fixes and improvements:

General:
- Previously, manual log file conversion would not generate log reports for dates past 12/31/2023 and would give the error E17813 - Invalid Entry [484].
- Similarly, Historical Replay when specified by date would give the same error.
- For SpecView Networking, the Local could occasionally crash after a Remote user disconnects, if the PC was under a heavy load.
- Under very specific circumstances, it was possible for a crash to occur when going into Recipe Mode.

Updated Drivers:
- Procon: Modmux & Promux Modules - Incorrect module type was being detected for some PROMUX modules.

4.11 Build 3.1.233

Release date: Dec 11, 2023

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Fixes and improvements:

General:
- DateTime and Date format settings are now used in SETTINGS.INI instead of SV3.INI.
- Previously, Auto Detect replaced 0 with 255 in IP Addresses, which would lead to longer Auto Detect times.
- Help Menu on start up did not contain registration information and did not stop Autostart timer.
- New Feature: Recipe Compare Mode 659.
- Updated Instrument help for Eurotherm Nanondac, WeidMuller, and Emerson.

Trend Charts:
- Automatic Chart Notes used to sometimes cause Trend Charts to freeze on the screen.
- Trend Chart tool would enable users to action buttons on the screen.
- Long duration Trend Charts used to take a while to hide pens when using the Enable On Bool feature.
- New Feature: Event logging of chart notes

Updated Drivers:
- Accuenergy Modbus - Changed instrument description to include manufacturer's name.
- Anafaze 8 Loop - CLS (CPU) - Added additional parameters.
- Fuji Electric - Added PXF series instrument.
- Eurothem Versadac - Added additional instruments for batch and I/O parameters.
- Fireye - Added the following instruments.
  - YB110 BurnerLogix
  - NX6100/PPC6000 TCP/IP
  - NX6100/PPC MB-RTU
  - NXF/PPC4000
- Omega Gas Flow Meters ASCII - FM-1600A - Added Polling Mode parameter.
- Procon: ModMux & ProMux Modules - Added the following instruments.
  - PT4DIRO
  - PT8AIB
  - PM8AIB
  - PM4DIRO
  - PM12RO
  - PM6NTC
  - PM16DIVAC
- WeidMuller - Auto Detect feature, Instrument Views, and the following modules are now available.
  - 4DI-P
  - 4DI-P-3W
  - 8DI-P-2W
  - 8DI-P-3W
  - 8DI-P-3W-hd
  - 16DI-P
  - 16DI-P-PLC-INT
  - 2DI-P-TS
  - 4-DI-P-TS
  - 4DI-N
  - 8DI-N-3W
  - 16DI-N
  - 16DI-N-PLC-INT
  - 4DI-2W-230V-AC

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- 8DI-ISO-2W
- 4DO-P
- 4DO-P-2A
- 4DO-PN-2A
- 8DO-P
- 8DO-P-2W-HD
- 16DO-P
- 16DO-P-PLC-INT
- 4DO-N
- 4DO-N-2A
- 8DO-N
- 16DO-N
- 16DO-N-PLC-INT
- 4DO-ISO-4A
- 4RO-SSR-255
- 4RO-CO-255

New Drivers:

- Emerson Modbus Instruments - Auto Detect feature, Instrument Views, and the following modules are now available.
  - EP-1214
  - EP-1218
  - EP-1318
  - EP-125F
  - EP-12F4
  - EP-1804
  - EP-2214
  - EP-2614
  - EP-2634
  - EP-2218
  - EP-225F
  - EP-2714
  - EP-2814
- SCC Inc. - Added TS-D series

4.12 Build 3.1.231

Release date: Aug 14, 2023

Fixes and improvements:

General:

- Moved back to Visual Studio 2010 to correct full screen functionality.

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4.13 Build 3.1.230

Release date: Jul 31, 2023

Fixes and improvements:

General:
- The format settings for DateTime and Date were being stored in SV3.INI, and therefore weren't being Archived with a project, these are now stored in SETTINGS.INI.

Drivers:
- The driver for the 'Ramp Soak' function block could under certain circumstances cause SpecView to exit.

Demo Projects:
- The Watlow 'EZ-ZONE RM - Standard Bus' demo project had some fixed numbers on one of the screens that were not being read from the instrument.
- The Honeywell HC900 demo project was using the IP address of an old HC900 which was available over the Internet, not the HC900 default IP address of: 192.168.1.254

4.14 Build 3.1.228

Release date: Jul 24, 2023

Fixes and improvements:

General:
- Allow for unsolicited keyboard input from a barcode scanner into a Text Variable. See Here 210.
- French Language translation partially completed.
- Move up to Visual Studio 2022 to remove dependencies on Visual Studio 2008 and 2010 due to vulnerabilities in those versions.
- The close button for Event Window was being obscured after the window was resized.

Trend Charts:
- Adjust Time Scale from Trend Chart Menu. See Here 531.
- Show or Hide pens from the Trend Chart Menu. See Here 531.
- Minor fix in gridline appearances.
- Cursor movement for touchscreen devices.
- Cursor values no longer display for disabled pens.
- Altered positioning of Help and Setup buttons to view date and time better.

Drivers:
- New driver support for the following:
  Samwontech Temp2500
  Teledyne M1 Class Pump
  Eletech N4VIA02
  Future Design MCT-MC 4.3

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- Modifications to the following drivers:
  Teledyne: Fixed Run and Stop commands.
  Zesta: Added instrument name ZEL C-62 to New Instruments List.
  Yaskawa: Stopped Yaskawa drives incorrectly appearing in the Auto Detect List.

4.15 Build 3.1.226

Release date: May 5, 2023

Fixes and improvements:

General:
- Improvements in the wording of some error messages.

GDW:
- The button action: 'GDW: Swap to another GDW' the drop-down menu contained menu items that were only relevant to printing.

Logging:
- The Action: 'Purge Log Files' failed when using the 64-bit [189] program (sv3_64.exe).

Printing:
- There is a new menu item: **Print Options** on the **File** menu that can be used to control how the contents of a screen are positioned and resized on the paper (or in the PDF file if 'Print to PDF' is being used), see here [386].
- It is now possible to define 2 additional printers, **Printer A** and **Printer B** (in addition to the Default printer), which can selected when creating a button that uses the Button Action 'GDW: Print Screen' [423] or 'GDW: Print Screen (Last Batch Values)' [426].
- The initial default settings (Out Of Box Experience) were for fit height and portrait, these have been changed to fit width and landscape.

Trend Charts:
- Pens can now be turned off using a Boolean variable on the 'Pens' tab of the Chart setup box, see here [535].
- Adding a Chart Note while passwords are on using 'Start at Level 1' did not allow the 'OK' button to be clicked because the user was not logged in.

Color Dynamics:
- Buttons now return to the original color they were drawn in when Color Dynamics [359] is not active.

Passwords:
- A password [703] system loophole has been closed where if the inactivity timeout occurs while a data entry box is open it was possible to gain access without having to re-enter a password.
- Adding a Chart Note to a Trend Chart while passwords are on using 'Start at Level 1' did not allow the 'OK' button to be clicked because the user was not logged in.
- Passwords: Adding a Chart Note to a Trend Chart (or any Trend Chart menu command, such as adding cursors) didn't reset the password timeout.

Drivers:
- New driver support for the following:
  IDEC FC6A PLC

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Sorensen XPF Power Supply
Vaisala HMP Series
Yaskawa VFD GA500
Zesta ZEL-C62
Omega Gas Flow Meter FMA 1600A
Equilibar EPR
Teledyne HF Series Pump
Polyscience DuraChill
Julabo Dyneo DD
Future Design PR Recorder

- Modifications to the following drivers:
  Generic Modbus: Further rationalization.
  Honeywell: UDC 2800 improvements and a new Instrument View graphic.
  New Instrument View for Zesta.

4.16 Build 3.1.224

Release date: Jan 19, 2023

Fixes and improvements:

GDWs:
- On systems with a large number of User Variables, screens full of User Variables would sometimes update very slowly.

Trend Charts:
- Auto Chart Notes [552] that are not associated with a pen are now displayed along the bottom of the chart.

Historical Replay:
- While flashing objects (from Color Dynamics) are on the screen, there was a slight possibility of a lockup when coming out of Historical Replay.

Color Dynamics:
- The 'Fill' check box is now checked by default on new Color Dynamics [359].

Import Project:
- User Variables were not being setup correctly by Import Project [371], potentially causing screen updates to be sluggish, or not done at all. This fix is also applied to old projects.
- Position Dynamics [363] did not import correctly.
- Navigation buttons were not being remapped to the new GDW names.

Drivers:
- New driver support for the following:
  Howard Butler (Hobut):
  Hobut M550 / M560 (BiGS)
  Hobut M553-CTX (BiGS)
  Hobut M850-LCD (BiGS)

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Hobut M850-LDD (BiGS)
Hobut M850-LTHN & -CTP (BiGS)
Hobut M880 (BiGS)
Hobut MutiDin 801/2
Hobut MutiDin 812

AccuEnergy:
AcuDC 240

Advantech:
Adam 6060 Modbus

Alicat Modbus:
Mass Flow Controller
Mass Flow Meter
Pressure Controller
Pressure Gauge

Automation Direct:
Click PLC

Huber:
Unichiller OLÉ ASCII
Minichiller OLÉ ASCII
510 Modbus

Honeywell Modbus:
UDC 2800 together with a fully featured 'Demo' project.

Weidmuller:
16DI_P
4AI_UI_16
4RO_CO

ControlByWeb:
Webrelay
X600M

SuperSystems:
9220
9125

Procon:
Prologic - support for all I/O and CPU modules.

- Modifications to the following drivers:
  Procon: Improved enumerated types in PT8TCS.
  Watlow: F4 Profiler added a 33 segment Instrument View to join the existing 25 and 99 segment Instrument Views.
  Yokogawa: Modbus UP55A - Added PID for L1 and L2 for both heat and cool.
  Generic Modbus: Tidied the categories to make the address-ranges clearer.

4.17 Build 3.1.222

Release date: Jul 29, 2022

Fixes and improvements:

Batch Tags:
- If a screen had its batch number removed then the 'Find Batch' feature would attempt to open a non-existent screen.

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Networking:
- Chart Notes created on a Trend Chart on a Remote and then subsequently edited on the Local - the edits were not being sent back to the Remote that created it.
- If a computer was running as a Local, with a project that contained ActiveX controls, then going from 'Runtime Mode' to 'Edit Mode Online', then back into 'Runtime Mode', the 'Starting network connection' box progress bar never completed, which prevented Remotes from going back Online, and the box on the screen could not be cancelled.

HC900 Import:
- Under certain conditions the Import of an HC900 Custom Modbus Map could crash.

Drivers:
- Watlow - the PM Legacy can now be auto-detected.
- Eurotherm - added the Ramp Units parameter to the EPC3000 Program instrument definition.
- Parr Instruments - improved the Instrument Views for the Delta DTB 4824 and 4848.
- ControlByWeb - new support for X600M, WebRelay-10, WebRelay X410 & X418.
- Generic Barcode - the driver now ignores NUL characters.

Other:
- Update of the Sentinel System Driver Installer for Safenet USB dongles to version 7.6.1 which supports Windows 11.
- Watlow F4T Monitor & Log demo project - the 'Find Batch' box wasn't being displayed correctly.

4.18 Build 3.1.220

Release date: Apr 15, 2022

Fixes and improvements:

GDW:
- Moving grouped objects left a trail on high resolution monitors.
- Text objects that were grouped and also had Color Dynamics could be incorrectly shown as 'N/R' when re-opening the GDW.

Trend Charts:
- When in Historical Replay it wasn't possible to see the edits that had been done to Chart Notes [550].
- The 'Export all chart data to CSV' menu item now works in the expected way. There are settings for CSV Export [563] that can be specified.
- The font for the 'Date and Time' on a Trend Chart (if it needs to be different to the Values font) can be specified [562] in the SETTINGS.INI file.
- If a variable on a Trend Chart was deleted from the Variables List, then 'Export Data to CSV' from the Trend Chart would fail.

Networking:
- Very occasional failure during the disconnection of a Remote resolved.

Drivers:
- New: Rayleigh RI-F200-G-C (Power Meter)
- New: Hanyoung Nux LC4
- New: Chauvin Arnoux Energy MEMO P200 Meter

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- New: Arlyn F50 (Weigh Scale)
- New: Krohne MFC400 (Mass Flow Controller)
- New: Linak Link Actuators LA36/LA37
- New: Despatch Protocol3
- HCS - added FZ PG14
- Autometers - added IC 970
- Watlow Modbus - added Generic hybrid enums

Support:
- TeamViewer for remote support [799] has been updated to version 15.

4.19 Build 3.1.218

Release date: Jul 1, 2021

Fixes and improvements:

GDW:
- File->Set as First GDW could fail to work if the [AUTOSTART] section in SETTINGS.INI was mixed up, containing both .GDW, .GD3 and SetAsFirst screens with duplicates.

Strategy Controller:
- If an Event fired-off immediately after going online, causing a change in a Batch Tag and a Trend Chart to clear, then this could cause a crash if the Trend Chart screen (GDW) was still in the process of opening.

Trend Charts:
- The Trend Chart Setup box is now re-positioned to the center of the screen if it would otherwise have been positioned off-screen, for example if using a different sized monitor.
- Adding a pen to a chart in Runtime mode now back-fills the new pen with data if there is previous logged data for that parameter.
- Historical Replay on a GDW with a chart could subsequently affect the chart's ability to back-fill with data.

Project Import [371]:
- The Trend Charts in an imported project were not being setup correctly, batch tags were not preserved and some User Variable assignments were being lost on import.
- Parameter List buttons on Instrument Views did not import correctly, they stayed assigned to the old instrument.

OPC:
- The OPC driver could crash if the OPC Server returned a null packet instead of a value.

Modbus:
- If a value wasn't available for a signed-float parameter, then the Modbus driver could occasionally return 32768 instead of NCA (Not Currently Available).

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Drivers:
- Eurotherm Nanodac: Added LGC2
- VMI Pro: New driver

4.20 Build 3.1.216

Release date: May 7, 2021

Fixes and improvements:

GDW:
- Moving Instrument Views[346] could cause the buttons to be lost.
- Occasional lockup fixed when Grouping and Ungrouping objects
- Moving a group of buttons off-screen (to the right, or above, the visible area of the GDW) would leave the buttons behind, or not properly remove them while they were partially still in view.

Licensing:
- Evaluation Soft Licenses[33] had an 'Activate Now' button shown on the "M2063: Evaluation, expires in..." message box even after activation.

Position Dynamics:
- Using Position Dynamics[363] to move groups of buttons off-screen either left them behind or did not properly remove them as they were being moved off.

Trend Charts:
- Trend Charts with scrolling set to None - rescale time to fit[541] on the 'Chart' tab, which were also set to automatically print to JPG, could sometimes crash when used on a Remote[713] to a Local that was slow or via a slow connection.
- Trend Charts which are set to non-scrolling charts (by checking 'None - rescale time to fit' on the Chart tab) which also have 'Auto save to JPG' set on the Print&Batch tab may crash when on a Remote to a Local that is particularly slow.

Data Logging:
- If a path was specified for a Log Report then due to a previous fix the backslashes in the path were being erroneously replaced with underscores.

Strategy Controller:
- Strategy Controller[666] was sometimes being started twice on very large systems with lots of User Variables. This could cause CountupTimers to misbehave and could also have given a 'E17024: Failed to come out of Runtime properly' message later.

Eurotherm Drivers:
- Eurotherm Nanodac: File names added as parameters to the driver.

4.21 Build 3.1.214

Release date: Apr 26th, 2021

Fixes and improvements:

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General:
- The CONFIG.TZI file, which is used to record timezone changes was being rewritten each time SpecView was started during during the Daylight Savings time of the year.

GDW:
- Grouping buttons & moving them could cause settings such as color and multi-line text to be lost.
- Color Dynamics on buttons: 'Hide' of a button has been changed to 'Disable', and the color dynamic color is now used. When the Color Dynamic test succeeds, the button is disabled (so it can't be clicked), and its color is changed to that specified, unless: SETTINGS.INI [Settings] HideButtonToBackground=Y is used to set it to the color of the screen background. N is the default.
- When a project was imported the Color Dynamics did not get imported properly. (Button Run External does not get copied across)

Variables List:
- Variables assigned to a 'Group' could occasionally pop out of their Group.

Trend Charts:
- Back-fill of data sometimes didn't work when a Project was started
- If printing a Trend Chart causes the pen lines to be upside down then this can be fixed by setting the appropriate **PrintInvertTracesTo_<your printer name>=1** in SV3.INI, however for some printers this could have caused SpecView to crash.

Data Logging:
- If the Log Report filename from a text variable contained a '<' or '>', (which are illegal characters for filenames) then this could cause a crash, illegal characters are now replaced with underscores.

Historical Reply:
- Historical Replay is now more forgiving of data corruption in log files.
- If SpecView was running during a 'Daylight Saving Time' change, then Historical Replay would have been out by an hour until SpecView was restarted.

Recipes:
- Using File->SaveAs to make a copy of a GDW it did not always copy the Recipe files from the old screen name to the new name.
- Using File->SaveAs to make a copy of a GDW the copies of the Recipe files could contain duplicate entries, causing an error message about duplicate references and causing the copied recipe files to be corrupted.

Strategy Controller:
- The Strategy Action: Display Simple Message Box 445 now allows simple formatting: \r for return and \t for tab.

German Language:
- Couldn't create a Bar Chart in German, an 'Unsupported Operation' error was displayed.

Watlow Drivers:
- Watlow PM Plus: This can now be auto-detected.
- Watlow F4T: Improved names in the Program Engine

Eurotherm Drivers:
- Eurotherm 3504: Fixed Program names issue.
- Eurotherm Mini8: Added all parameters to IO Module instruments.

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- Eurotherm Modbus: Added 3216P.

4.22 Build 3.1.212

Release date: Jan 14th, 2021

Fixes and improvements:

General:
- Occasional crash on exit fixed.

Licensing:
- Closing the **Retrieve a waiting License Upgrade** box could cause a crash.

Trend Charts:
- A chart note with a value from a deleted variable could crash when the chart note was displayed.
- Edit Replace: Did not work on Trend Chart labels, descriptions or on Parameter buttons in Instrument Views.
- *New feature*: Edit Replace: There is a new option to only replace inside selected objects.

Language:
- German: Adding flashing color dynamics to a project, then change language to German would cause the error: W12380: Project uses unsupported features.

Strategy:
- Recipe names in a Strategy action doing a Recipe Download, were case sensitive, causing errors, these are now not case sensitive.

4.23 Build 3.1.210

Release date: Oct 30th 2020

Fixes and improvements:

GDW:
- Color Dynamics: When Bar Charts were set to flash using Color Dynamics they could remain flashing until SpecView was restarted.
- When horizontal Bar Charts are very small, such that the font for the value wouldn't fit in the bar then the Bar Chart was being shown as an [X]. Now the font size will not prevent the bar from being shown.
- Position Dynamics: If a group containing buttons was moved totally off-screen using Position Dynamics, then the buttons remained behind instead of being cleared.
- Position Dynamics: If a number was moved completely off the screen then the previous location of the number was still sensitive to clicking.

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Variables List:
- Long strings in Text User Variables when Online could cause a problem with the Variables List.

Trend Charts:
- If all values were shown (max, min, etc.) EXCEPT the current value, then the cursor values at the top of chart were wrongly positioned.
- Trend back-fills could occasionally cause a crash if SpecView was exited very quickly after starting.

Recipes:
- *New feature*: Recipe Limit String 657 functionality to restrict the list of Recipe names shown in the Recipe Manager.
- If a Recipe was saved with, say, 'Timeout' status on a variable, then it was not correctly handled for 'No Change' and could result in Recipe download errors.
- Clicking on a 'No Change' (N/C) recipe item and then clicking 'Close' could result in the variable being assigned a spurious value instead of N/C.

Strategy Controller:
- Action - Display message box 445: The message itself wasn't being remembered if the Event or Action was copied within the Strategy Setup box.

Passwords:
- Passwords 'Start at Level 1' did not always work on a Remote.

Drivers:
- New drivers and modifications for: Yokogawa Modbus (UP55a); Eurotherm Modbus (3500 program names); DataNab; Anafaze CLS & MLS
- OPC: Very long lists of parameters from an OPC Server can take a long time to load, which gave the impression that SpecView had hung, so the OPC Browser box now gives an indication of how long it is likely to take.
- Watlow F4T Modbus comms issues resolved.

4.24 Build 3.1.208

Release date: Aug 18th 2020

Fixes and improvements:

General:
- It is now easier to drag and drop variables with very long names into the Strategy Controller and Trend Chart drop areas. Previously the text justification could interfere with the drop.

GDW:
- Font scaling: On high resolution monitors it is possible to change the Font Scaling in Windows so that fonts are proportionally larger and easier to read. But changing the scaling from 100% means that font point sizes are not as would be expected in the Text Attributes box for Text Objects. This is explained here 382.

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Archive:
- The check-boxes on the Archive box were inconsistent, some were for 'including' file types and others were for 'excluding', they are all now consistent.

Trend Charts:
- It was possible to set Position Dynamics [363] on Trend Charts but it didn't work correctly. Rectifying this would have had unacceptable ramifications, so the feature has been made unavailable.
- *New feature*: Trend Charts can now be hidden [361] or made to flash [361] using Color Dynamics [359].
- When plotting a variable of type 'Integer' on a Trend Chart it is now possible to have 'upside down' scales (i.e. Max smaller than Min).

Passwords:
- The Password Chooser [704] box now remembers its size and position, and now also has a Resize button to help users of touch-screens.

4.25 Build 3.1.206

Release date: Jul 2nd 2020

Fixes and improvements:

General:
- SpecView Text User Variables that are to be used for for Filename and/or Pathname no longer need to be on an open screen (GDW) in order to work
- If the user never went Online [282] in a given session, then there was the possibility of a lockup on exit

Licensing:
- There was a problem with adding the ActiveX Class 1 option to a Soft License [33]

GDW:
- *New feature*: It is now possible to lock [385] objects on a GDW so prevent them from being unintentionally moved with the cursor

Data Logging:
- The DateTime variables for the 'start' and 'stop' of Log Reports no longer need to be out on an open screen (GDW) in order to work
- A Log Report conversion will only start if the DateTime variable for the 'start' of a Log Report is set (because the DateTime must be something other than the default value of 1970)
- The communications error variables: GoodComms, CommsErrors, CommsErrorCode and CommsErrorItem are now logged by default in new projects. However, CommsErrorDescription is not logged by default

Trend Charts:
- The Pen grids have been made lighter in color when Version 2 Trend Charts are converted [527] to Version 3
- The Clear on Batch Start checkbox on the Print & Batch [557] tab is now set to 'On' by default when a chart is created

Passwords:
- *New feature*: There is a new Button/Strategy action to allow changing passwords [436] while in Runtime

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mode

Strategy:
- If Strategy invoked a Screen Swap while a variable was being dragged onto the GDW from the Variables List while in Edit mode (online) then it was possible for this to cause a crash

4.26 Build 3.1.204

Release date: Jun 15th 2020

Fixes and improvements:

General:
- When very long text strings are used for the name & path of a file (over 128 characters combined) this could cause a crash
- Added a warning message[477] that will be displayed if feature(s) are being used in a project that are not compatible with this build

Color Dynamics:
- *New feature*: New functionality has been added to Color Dynamics to allow flashing and hiding[361] of objects
- Testing a variable of type 'text' in Color Dynamics to see if it is blank (an empty string) doesn't work as expected

Strategy Controller:
- *New feature*: A new Strategy action to display a message box[445]

Drivers:
- Watlow Modbus:
  - Added Seg Time for gateway profile instruments (Map1, Map2 and SubRoutine)
  - Added 30 and 50 step Modbus (Map2) instruments
  - Added Profile setup parameters to EZ-Zone Profile Operation
- Watlow F4T: Added Log Control instrument. Other minor changes and Log Control added to Autodetect
- Watlow/Anafaze CLS, MLS,MLS32: Added extra parameters
- West MLC9000 to MLC9000+: Have been revamped. Note use this for Chromalox 1040
- Delta DTB and DTB Linear: Added blocking to Pattern 7 steps 6&7 to fix issue with Step7 when using TCP
- Honeywell HC900: Fixed address error in 2SPP50 Seg11Event11

4.27 Build 3.1.200

Release date: Mar 31st 2020

Fixes and improvements:

General:
- Support for new USB hardware license dongles
- Projects with a very high number of instruments that could not be communicated with, under some

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circumstances could cause a crash

Variable List:
- The color of the markers in the 'R' (ReadOnly column) has been made darker to make them more visible

Trend Charts:
- Trend Chart zoomed values pixel time calculation, when first displayed, was incorrect
- Typing into a chart's scroll-back screen's drop-down box without selecting it, could subsequently cause a problem with the chart
- Version 2.5 to Version 3 Trend Chart conversion - Option 2 now uses gray instead of black for chart gridlines

Batches:
- Batch Print (or print to JPG) could sometimes produce a blank print (or JPG) for non-scroll charts with 'Clear on Batch start' set

Drivers:
- Watlow/Anafaze: CLS / MLS
- Eurotherm Modbus: EPC3000 Changes: Fixed POF for Segments 17-25.; Fixed address error for LA and LB Dig I/O Output; added IO Status for IO 1-4 both analog and digital
- PMA: PMA KS-20 / KS-90 Fixed Direct/Reverse control mistake. Improved some parameter descriptions
- West: New support for MLC 9000+
- West Modbus: Added Pro-16 / 8 / 4
- Yokogawa Modbus: Improved GX Comms Channels

4.28 Build 3.1.154

Release date: Jan 29th 2020

Fixes and improvements:

Installation:
- Due to a date issue the installer wouldn't install if the license was a USB dongle and it had a 5-year Update Subscription

GDW:
- Rectified a recently introduced problem with using buttons to navigate screens

4.29 Build 3.1.152

Release date: Jan 13th 2020

Fixes and improvements:

General:

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- Support added for Update Subscriptions extending to 2024 and beyond

GDW:
- Some Virtual parameters were displayed as 'T/O' instead of 'Virt'
- Editing Bar Charts multiple times caused them to lose their variable information
- Adding Color Dynamics to Bar Charts could have caused color corruption

Trend Charts:
- Using 'Rescale Pen' for scales to fit did not redraw the pen lines
- If a variable was used as the Scale for a pen, and the 'Pen Properties' were saved as defaults, then if the variable was later deleted it could cause a crash.

Modbus:
- Generic Modbus strings with 'byte swapped' contents now work correctly

Data Logging:
- Logging a variable of type 'Enum' which had a large value could have caused a crash
- If there were conflicting definitions in a Log file then numerous messages were displayed about it, now limited to one message

Recipe:
- Recipe Send-To: The list of instruments that a Recipe could be sent to previously erroneously included Virtual and Offline Instruments
- ***New Feature***: It is now possible to do a Recipe Send-To from a Text variable[651] which makes it significantly easier to use Strategy to send a specific recipe

Networking:
- Going 'Online' directly from a new Remote connection sometimes didn't connect
- When connecting to a Local that was running in Demo mode (without a license), a spurious message was being displayed about 0 days check-in time.

Strategy:
- Setting a Countdown timer to open a screen a short time after start-up didn't work unless focus was set by clicking on it

4.30 Build 3.1.146

Release date: Jul 12th 2019

Fixes and improvements:

General:
- Fixed problem with offline instruments and 'Single Port' SpecView

Data Logging:
- A corrupt Log file could have caused a problem at start-up due to Historical Replay back-filling previous data into Trend Charts
- Log File conversion from a variable of type Text (or String) that had never been set to a value could cause a crash. Also added Event logs to notify of this

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- Alarm and Event file conversion when a filename contained a '/' in would fail. These characters / \ : + are now replaced with underscores

Trend Charts:
- Trend Charts that are set to be 'non-scrolling' could noticeably slow the system down after running for some time

Recipe:
- Recipe 'Send To' filtering got confused if some of the variables in the Recipe were User Variables
- Added the ability to set the Recipe Manager to automatically close after a Recipe has been successfully sent

Modbus:
- Recipe download of a Recipe that contained SON (Scaling Of Numbers) could cause an occasional crash
- Bool0Value (e.g. Watlow F4T booleans from enums [517]) did not work correctly

Drivers:
- Fixes to instrument definitions for: Eurotherm Modbus, Generic Modbus, Watlow Modbus and Watlow F4T

4.31 Build 3.1.144

Release date: Mar 8th 2019

Fixes and improvements:

Data Logging:
- There is now a method of changing the column header names in a Log Report using CVTSETTINGS.INI [494]

Trend Charts:
- If 'Vertical Values' was selected and 'No Current Value' was shown, then the cursor left value was placed incorrectly in the values area
- The difference between cursor values was misleading when a Boolean or Enum was used

Recipe:
- The Text entry box did not highlight when it popped up
- Recipes to Virtual Instruments that had new variables added were shown as N/C but these were saved as zeros in the exported file
- Import recipe did not re-import Booleans correctly
- Some recipe imports caused a crash

Color Dynamics:
- The Color Dynamics dialog box can now replace all occurrences of a variable with one drag

Networking:
- Remotes displayed the check-in message even when it was more than 31 days in the future

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OPC:
- The server name sometimes had LOCAL\ in front, requiring the Multiport license option to add new instruments

Drivers:
- Fixes to instrument definitions for: Eurotherm Modbus, Procon, Watlow F4T, Dixell

4.32 Build 3.1.142

Release date: Jan 28th 2019

Fixes and improvements:

General:
- Cannot enter a date of 2020 and beyond

Recipe:
- When a Virtual instrument is used as a recipe source, invoking recipe mode on that screen caused a 'xx values not filled in' message to appear

Strategy Controller:
- Strategy Controller on the Local does not notice Recipe Strings changing when recipe is used on a remote

Modbus:
- Enum Writes and recipe downloads to Watlow F4 instruments could generate spurious 18202 errors
- Modbus fix for HC900 Scheduler Events

4.33 Build 3.1.140

Release date: Dec 11th 2018

Fixes and improvements:

General:
- If a COM port could not be opened, then clicking on an instrument value on that COM port caused a crash
- Comms timeouts while performing write sequences (e.g. Cal Controllers) would hang sometimes

Trend Charts:
- Chart Notes 550 that are added manually are now shown expanded by default. This default can be changed so they are shown collapsed by un-checking the 'Show Expanded' checkbox on the 'Chart Notes' tab of the Trend Chart Properties box. Chart notes can be collapsed at any time using the popup menu.
- Trend Chart leftmost and rightmost times were shown incorrectly in some timezones during Historical Replay

Passwords:
- Buttons positioned 'behind' a rectangle on a GDW could not be selected for passwords and would

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cause a problem with canceling the password dialog box

Recipe:
- Recipe 'Send To'[649] can now send values to User Variables in a recipe. However, use with caution. Needs SETTINGS.INI [RUNTIME] RecipeSendToUserVars=1

Strategy:
- Using the Math Function[433] on text variables to do complex string manipulation could cause a crash
- Strategy was not noticing changes to the PasswordUser variable. Now notices changes to PasswordUser, PasswordLevel and PasswordTime

Changes to existing drivers:
- Watlow F4: Added Alarm DI and DO Names
- Watlow F4T: IO modules fully supported
- Yokogawa UP55a Programmer: Added Repeat cycles; Start Seg and End Seg.; Added Pattern Name; Added IP1 IP2 and IP4
- Eurotherm Nanodac: Loop2 fixed address errors in OP group
- Eurotherm EPC3000: Fixed OP High/Low limit addresses and deleted variables not supported in the 3000
- Eurotherm Mini8: Added Lgc2 and Lgc8 instruments
- Procon PT8AIVS: Removed block reading
- CAL Controls: Corrected WSB and WSA coding; Deleted manual entry/exit of config and Write Seq disable

New drivers:
- Emerson Wireless Gateway 1420
- Atlas Copco: Mk5 Gateway
- ETS: neQdaq
- Papouch: THT
- RealTime Control Systems: RTD-RA & RTD-NET

4.34 Build 3.1.138

Release date: Sep 5th 2018

Fixes and improvements:

General:
- At start-up the 'Test Comms' and 'New Manual Project' buttons were disabled if there are only Demo Projects in the list and one of these had been selected

Strategy:
- If a Log Report has a User Variable start/stop time that has been deleted, then it can cause a crash

Passwords:
- Creating a user-name which is a the same as an existing user-name gives a warning but it is added anyway.

Modbus:
- Large blocks of bits over comms cause 19117 errors

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- Occasional crash if the network faults while comms DEBUG is enabled.

4.35 Build 3.1.136

Release date: Jun 19th 2018

Fixes and improvements:

General:
- Buttons with multiple lines of text did not print properly
- To increase the number of events shown in the Event Window (from the original 1000 lines) SETTINGS.INI[473] [Event] ListSize=5000 (the maximum is 32000)

Strategy:
- Crash when doing lots of string manipulation in Strategy fixed.

OPC:
- Defining a 2nd OPC instrument from the same OPC server caused a 'Two protocols' error message incorrectly.

4.36 Build 3.1.134

Release date: May 23rd 2018

Fixes and improvements:

General:
- Windows 10 Build 1803 (Spring Creators Update) caused the USB dongle not to be recognized

4.37 Build 3.1.132

Release date: Apr 27th 2018

Fixes and improvements:

General:
- Crash when SpecView heavily loaded has been addressed
- Position Dynamics[363] do not work correctly on Booleans that are a 'bit from a status word' and more than one bit is on
- Added 3 new Math Functions: Power, Log10 and LogE[433]. These only work on variables of type 'Number'. Power takes the top 2 parameters, the Logs only use the top one
- Memory leak when using some Text (String) variables from Instruments has been fixed
- Restoring a Project from a memory stick used to operate as if using old fashioned floppies (asking for the first disk)

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- Setting up Color Dynamics would not work for some data types in some cases and also would not work in Edit Mode Online if the COM port could not be opened
- The Event Log now records normal exits properly

Licensing:

- Licensing could not handle a hardware change before Activation [36]
- If the Local is within 31 days of a Check-In [41], then the Remotes will now display a message both at connection and also every week until Check-In

Trend Charts:

- After a Trend Chart had been back-filled threads were being left over, causing SpecView to take several seconds to exit
- When the computer time was moved forward, Trend Charts in Historical Replay display incorrectly requiring a SpecView to be restarted
- When a 'No Scroll' Trend Chart is cleared because of a batch tag change, it defaulted to 30s which could overload comms
- Trend Charts could overload comms, causing 19117 when scan rates try to go below 1/10th second
- If the path for 'Print to JPG' did not exist, the warning box was a 'modal dialog box' which stopped Trend Charts from plotting their pen lines

Recipes:

- Early implementation of 'Recipe Send To' filtering of destination instrument, see YouTube video: Recipe Send To Filter
- Recipe Import button was grayed unless an existing recipe had been selected

Strategy Controller:

- Copy & paste of an Action gave the copy the same name which meant the Up & Down buttons don't work, had to rename the copied action before they'd work
- The Strategy Controller box can now be resized, which is useful when there are a large number of Strategy Events and/or Actions

Networking:

- Occasional crash with Remote-Local networking has been fixed
- Occasionally when a Remote re-connected after a Local went offline it could cause the Local to crash

ActiveX:

- Crash when a Project using ActiveX [766] had been copied

Web Server:

- The 'page date' in the Web Server was being incorrectly displayed on the 31st of a month

Modbus:

- Modbus driver crash when using UDC2500 and the 18206 error happened a lot due to multiple downloads

Drivers:

- RKC: The file RKC_PF.IVW has now been included in the release

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4.38 Build 3.1.128

Release date: Dec 19th 2017

Fixes and improvements:

General:
- Added a setting to specify what date to use when the date isn't set (which used to be 1970) SETTINGS.INI [Settings] DateNotSet=xxx
- While in Edit Mode (offline) it sometimes did not go online after choosing 'Enable All' from the 'Online Features' menu

Trend Charts:
- On a Trend Chart which had pens that were 'disabled' the values between the cursors failed to be calculated correctly and could cause a crash
- When 'Setup Chart' is disabled on the Trend Chart menu via Passwords, the Setup button still worked
- Passwords for Chart Notes were case sensitive, whereas normal passwords aren't, they have been made not case sensitive
- If an 'Auto Chart Note' is associated with a pen whose variable has been deleted, then could crash
- Protected against a crash when unable to display a Trend Chart popup menu
- Trend charts with Auto Chart Notes could occasionally lockup

Logging:
- DateTime Variables were not available for selection in Log Report Format in other languages

Passwords:
- If a Config with Passwords enabled failed to open a COM port then a spurious network timeout message was shown

Historical Replay:
- The Historical Replay Control panel did not remember its position

Strategy:
- If an Event was set to watch an instrument parameter on a COM port that cannot be opened, then an 'Enable on Bool' would trigger that event incorrectly

Networking:
- Enhancements to Local/Remote where more than 10 Remotes are connecting
- Local could lockup when sending Alarm updates to remotes on a heavily loaded system

Watlow:
- Watlow F4T: Boolean and module auto-detect enhancements
- Watlow F4T: Added UI Modules
- Watlow F4 & F4P: Changed Profile Number to Edit Profile Number
- Watlow F4 Prog - Renamed Run to Running
- Watlow F4: Added Alarm DI and DO Names
- Watlow EZ Profiling Modbus added time for each step using F4TTime. H, M & S left in place

Honeywell:
- Honeywell UDC2500: Added further parameters
- Honeywell HC900: Added Write to Flash in HC900 instrument

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Mitsubishi:
- Mitsubishi-A driver failed on fast computers to recognize the CRC

Eurotherm:
- Eurotherm Nanodac: Added instrument for Batch
- Eurotherm Mini8: Fixed data type for fixed IO A & B >> bit from whole word

Yokogawa:
- UP100P series: Fixed Modbus addressing errors and added program parameters

Anafaze:
- Anafaze R/S: Changed .INI file to remove auto-detect

Ramp/Soak driver:
- Changed 'End' to 'Process Complete'. Added 0=N/A to Jump To

4.39 Build 3.1.120

Release date: Aug 14th 2017

Fixes and improvements:

Logging:
- When doing Log file conversion, Time variables have a max value of 23:59:59 before they wrap around. a new setting in CVTSETTINGS.INI[492] [Settings] ShowFullTimes=1 correctly converts times over 24:00:00, but Excel may not like it

Trend Charts:
- Displaying the Min, Max and Average between cursors[547] wasn't working
- Right-clicking on a Trend Chart to place cursors[547] wasn't working in Historical Replay

Passwords:
- The warning box that says 'Password Level X is required' when altering a value now allows the user to login from that box
- Data entry boxes automatically closing prematurely has been fixed
- Password Setup box behaved strangely when selecting a button has been resolved

4.40 Build 3.1.118

Release date: Jul 25th 2017

Fixes and improvements:

GDW:
- Changes to scan rates could sometimes cause a 'E17024: Failed to come Out Of Runtime properly' error message

TrendCharts:

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- Clicking on Values for Pen scales does not get it right for disabled pens

Licensing:
- Added message telling user what to do in the case of being unable to Activate across the internet and then restarting SV

ActiveX:
- Repeated downloads from ActiveX can cause a hang

Modbus:
- Some Modbus Values which use SON had a slow update rate.

RKC:
- RKC Mini driver decoded values incorrectly when using more than 1 decimal place and when regional settings have ',' as the decimal separator, REGION=0 (default) does not use regional settings, REGION=1 does

4.41 Build 3.1.116

Release date: Jul 5th 2017

Fixes and improvements:

General:
- Data Entry - Blank Text strings are shown as '[ ]', but for data entry they are now truly blank, avoiding the possibility of entering '[ ]' as a batch number (for example)
- GDW - On Windows 10 computers, Full Screen mode shifted the GDWs to the left
- GDW - Using Edit->Replace on a screen does not mark it as needing to be saved
- GDW - Some screen swaps cause delays with full-repaints
- Languages - German language resource problems fixed
- Logging - Normally items are scanned at twice the Log Rate. For fast log rates, this becomes intrusive, so for log rates 10sec and faster, the scan rate is the same as the log rate
- Import - Importing Projects without GDWs could cause incorrect import of Strategy Events

Trend Charts:
- A corrupted Chart Note file can cause a crash shortly after SpecView starts as the Trend Chart Backfill encounters the corruption. It now skips over the corruption and resumes reading chart notes
- Chart notes entered on a Remote would not appear on a Local after the local had been in Edit mode Online
- Crash when adding pens to a Trend Chart where the pen was an Enum and had incorrectly specified enum values
- Pen pointer trails leaking resources sometimes
- Trend Chart cursors [547] can now be placed during Runtime using right-click

Passwords
- In Edit Mode ONLINE, selecting a button to be available at a given password level would de-select all other items. Offline was OK

Batches
- Batch tags would be removed from Batch Historical Replay screens at the end of batch replay

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- Printing batches after they end now correctly prints the situation before batch end. See also new Button Attribute 'GDW: Print Screen (Last Batch Values)'[426]

Historical Replay
- Historical replay can now be set to auto-close to prevent users from leaving it running
- Historical Replay could sometimes crash if there was severe corruption in a log file due to hard-disk sector faults. It now skips correctly over the corrupted data and continues

Strategy Controller
- Events not triggering at startup reliably if lots of startup event actions are still being processed

Remotes
- Certain Log Report filename settings could crash the Local when a Remote did a Log File Convert

Modbus
- New OVERLOAD driver command to combat the 19117 errors when very heavily overloaded
- Corrected 19501 errors when downloading to Recipe items

Honeywell HC900
- HC900 Import incorrectly mapped the SPS #1 block with some incorrect addresses

Watlow
- The Watlow F4 'Run Program Name' did not update correctly

4.42 Build 3.1.108

Release date: Apr 10th 2017

Fixes and improvements:

General:
- Soft licenses - new purchases of SpecView will not require a hardware (USB) dongle, instead soft-licences[33] have been implemented. Existing USB dongles will continue to work.
- Object Menu - the setting of 'Show Objects' should be remembered from one run to the next
- Occasional failure during Archive due to files in use while archiving

Trend Charts:
- Trend Chart setup dialog box would crash if the same pen was on the chart twice

Passwords:
- Data Entry Boxes could be closed automatically uder certain circumstances related to password levels.
- Spurious 'Password Level 8' message appeared

Quicklist:
- Save does not work after the first time

Import:
- DateTime Variables are seemingly not found after Import to appear in the Log Report date/time

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lists

Batches:
- Batch Chooser Window is incorrectly sized on some systems
- Batch Replay does not work on the Remotes - Menu grayed

Recipe:
- Recipe crash when loading a recipe for variables that have been deleted from the project

Modbus:
- Post Write Delay (PWD) causes lockup with Scaling Of Numbers (SON) on Serial comms

Honeywell HC900:
- The import of HCDesigner files was not applying the Bool Senses as defined in the file (such as 'Off' means 'Stopped')

Drivers:
- Yokogawa - driver for the early uR1000 and uR1800 driver fixed
- Improvements to drivers for: Dynisco, Eurotherm Modbus, Eurotherm Mini-8, Procon, Watlow F4T, West Plus, Yokogawa Modbus, RKC Instruments and Autometers

4.43 Older Releases

Details of the changes in each build:

Build 3.0.068[178] - 27th Dec 2016

Build 3.0.066[177] - 18th Aug 2016

Build 3.0.064[176] - 5th May 2016

Build 3.0.063[176] - 18th March 2016

Build 3.0.062[175] - 10th March 2016

Build 3.0.061[175] - 9th March 2016

Build 3.0.060[174] - 19th February 2016

Build 3.0.059[174] - 8th February 2016

Build 3.0.058[172] - 28th January 2016

Build 3.0.056[172] - 5th January 2016

Build 3.0.054[171] - 18th December 2015

Build 3.0.053[170] - 4th December 2015

Build 3.0.050[170] - 30th October 2015

Build 3.0.049[169] - 23rd October 2015

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Build 3.0.048 [167] - 19th October 2015

Build 3.0.047 [166] - 9th September 2015

Build 3.0.046 [165] - 18th August 2015

Build 3.0.044 [165] - 19th June 2015

Build 3.0.043 [163] - 28th May 2015

Build 3.0.042 [163] - 12th May 2015

4.43.1 Build 3.0.042

Release date: 12th May 2015

Fixes and improvements:

- Variables List: More precise positioning of variables that are dragged and dropped
- Trend Charts: Batch [557] handling & JPG files
- Historical Replay by Batch number will now go to the correct GDW
- Timezones: Improved interpretation of logged data from other timezones
- Changes to what is displayed when a value isn't available over comms:
    - N/R - No Response (Meaning: Timeout)
    - NCA - Not Currently Available Value (Meaning: If the Segment Type is Time then the Target Setpoint may be NCA)
    - NYA - Not Yet Available Value (Meaning: If the value has been requested, but it hasn't arrived for the first time yet)
- Webvalues on the File-Preferences Web Server [470] tab
- Support for the Watlow F4T

4.43.2 Build 3.0.043

Release date: 2nd June 2015

Fixes and improvements:

Variables List:

- Speed improvements
- The Parameter Attribute **Apply to all similar items** when changing things in the 'L','A','S','R' columns is now OFF by default to avoid unintended setting of other parameters
- Enhancements to multi-drag/drop 'vertical' to 'horizontal' flipping while using the Spread handles [313], including a better indication of when the flip might happen
- When doing a multi-drag/drop while the 'grid' is disabled and then choosing **Reset Spacing** could cause a lockup

GDWs:

- Parameters requested from a GDW were not optimally scheduled, causing occasional slow response times
- Improved response time to values entered by a user when comms throughput is slow or

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overloaded.
- The Screen Size Guide 295 font color could be changed, but this was not being saved
- Edit->Replace while Online with Live values 307 did not refresh the screen correctly to reflect the new variable associations
- Remember Window Positions 461 used to require a dongle to be connected in order to work

Trend Charts:
- When using variables to define Pen Scales 544, this could occasionally revert to **Auto-scaling**
- Pen Scales from variables were not correctly using the backup fixed values in the case of the variables being unavailable over comms
- Adding a Pen to a trend chart would also add similar items to Logging if the **Apply to all similar items** checkbox in the Parameter properties has been enabled

Recipes:
- Recipe Download from a button could occasionally crash. This only affected some instruments.

Historical Replay:
- Bar charts did not operate in Historical Replay if they were not positioned near other items on the screen

SpecView Networking:
- SpecView Remote could occasionally crash just after loading a Project

Import Project:
- Importing one project into another would not correctly interpret unique addresses for non-Modbus instruments in the projects

Drivers:
- Modbus: Driver was pausing sometimes when writing to some parameters of type 'time'
- Generic Modbus: Used to have a Primary Parameter at Reg 0, and if this register was unreadable, the whole block would be shut down over TCP/IP
- Honeywell HC900: Import of HCDesigner files left out information that allowed Labels in SPS blocks to work correctly
- Eurotherm 3500: New parameters added
- Watlow StandardBus: Autodetecting these controllers would sometimes crash if scanning was stopped by the user before the scan was completed
- Watlow StandardBus: Driver could crash when sending values to parameters that were unavailable due to the controller being switched off or disconnected
- OPC: Some changes to the OPC driver for improved debugging

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4.43.3 Build 3.0.044

Release date: 19th June 2015

Fixes and improvements:

- Windows 10 is now supported
- After Auto-detect of a new project, saving the GDW with live values would save the values into the file, so they would be displayed and appear to be valid values, even if there was no comms
- Auto-detect (Ports & Protocols box) now scans for up to 49 COM ports and displays the first 9 available COM ports
- Color Dynamics didn't work in Historical Replay for single (un-grouped) objects

4.43.4 Build 3.0.046

Release date: 18th August 2015

Fixes and improvements:

Installation:
- New manufacturer demo projects & SpecView demo projects
- New drivers for: Dent Power Meter, Cincinnati Sub-Zero and Tenney
- Drivers updated for: ElModbus, Procon, Eurotherm Mini8, MLS32 and Watlow F4T
- The Scope code in the dongle did not appear to control the splash screen JPGs - because SplashWnd.jpg was being distributed which overrides the scope code
- Watlow F4T 64-bit auto-detection module wasn't being included in the installation
- Remove 'V3' from Watlow F4T project name

Archive:
- If creating an Archive asks whether to overwrite the existing Archive (SVA) and answer is 'No' then get E12269 error

Import Project:
- Could cause variables list lockup after import
- Would not always display the imported COM ports correctly

Autodetect:
- Test Comms For New Config: Ports & Protocols now scans for up to 49 COM ports and displays the first 9 available ports
- TCP autodetect could be slow to get past each slave address that doesn't exist

GDWs:
- Occasional slow initial value updates have been improved
- Items in groups (especially Instrument Views) were not updating in some circumstances
- Zoom out (down) in Runtime Mode, then go to Edit Mode but the zoom isn't reset and the bottom edge is off the screen and can't scroll down
- Colour dynamics were not working in HR mode on Simple objects
- The password menu was being shown while in Full Screen mode

Trend Charts:
- Boolean gridlines were being incorrectly being grayed-out

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- Boolean Major divisions with Manual units on scales caused lockup, been disabled
- Boolean senses (i.e. On/Off, Auto/Manual) were not always displayed correctly in Trend Pen setup
- Rare crash on V2 to V3 trend chart conversion Fixed
- Trend chart zoom would crash if a pen's parameter had been deleted

Variables List:
- Adding User Vars did not always cause them to appear in the Var list
- Alarm on False is displayed in Properties, but it didn't work, it has been removed for now
- Can change the Address of an instrument and then go into Runtime but with no 'Save?' prompt
- Short list problems when creating instruments fixed
- Sometimes when re-sorting (using F5) the Recipe group opened up when not previously expanded
- Various inconsistencies with drag and drop of multiple parameters not positioning the parameters correctly

Logging:
- Changed Default 6 char log report name to be 4 chars, allowing 0000->9999 as log report names
- Log file conversion changes for 'sparse data' and Decimal Places, separate document available
- SpecView User Variable Integers were converted in log reports using 16-bit signed integers, so the max value was +32768. Now they are longs to give larger numbers

Passwords:
- The Parameter List box was not respecting the setting of 'Short List' in Passwords

Preferences:
- Settings tab: Problems with changing the font and/or changing it back again

Strategy Controller:
- Dropping parameters on the Strategy event setup showed spurious 'N/R'
- Strategy Setup enable on Bool FALSE was not redisplayed correctly

OPC Client Driver:
- Values could under certain circumstance cease updating

4.43.5 Build 3.0.047

Release date: 9th September 2015

Fixes and improvements:

GDWs:
- Scrolling the screen with the mouse wheel would result in incorrect buttons being selected on the next mouse click
- Using a button to print a screen that was not open could cause a hang
- Edit Mode ONLINE to Runtime should not re-open all the screens
- Default Button Attribute is now Swap & Close
- Changing the font or size of live text while in Edit Mode Online would cause the text's last online value to be shown when Offline
- The 'Are you Sure?' prompt on a button with the action 'Parameters: Download Specific Value' to a Boolean variable would still work even if the answer was 'No'

Variables List:
- Dragging a large number of parameters onto the GDW the drag-image could sometimes be

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incorrect
- Set 'Horizontal Table', 'Reset Spacing' and 'No Names' then drag out about 15 items (while Online), the dropped parameters were positioned incorrectly
- A number of anomalies with Vertical/Horizontal Drag and Drop including diagonal steps and sensitivity to length of first/last in the group
- While dragging and dropping the parameters could appear to 'jitter'

Trend Charts:
- Deleting Trend Charts that had been 'grouped' caused a crash

Archive:
- Creating an Archive with an existing name, then answering 'No' to the overwrite prompt would delete the Archive and then lockup

Modbus Driver:
- Occasional Modbus driver crash fixed

Migrate Configs Tool:
- Could fail to copy when there were filenames without a filename extension

4.43.6 Build 3.0.048

Release date: 19th October 2015

Fixes and improvements:

Variables List:
- Trailing dashes/hyphens on instrument names caused a rename problem if they were attempted to be removed
- Deleting Instruments and Variables from the Variables List soon after it opened could cause a crash
- Variables List could lockup on the first drag off onto the screen
- If an instrument was deleted from a project, then without saving the project 'OnlineFeatures->Enable All' was done, then SpecView could crash

Trend Charts:
- Charts that were set to 'No-Scroll' would clear and restart when going from EditMode Online to Runtime mode
- The New Instruments/Templates list could be moved off-screen, and when opened on a different PC, there was no way to reset the position from the Preferences box
- If a Trend Chart had been set to remember Pen definitions that included an Alarm Boolean, then if a new trend was created in a new project where that Bool did not exist, then Trend pen setup would crash
- Trend Chart Back-fill could consume lots of memory if long period charts were used combined with a fast logging rate
- Edit Mode Online, changing rate of a value could stop all Trend Charts
- Trend charts could crash when some of the scroll-back previous data was deleted after running for some time
- Trend charts could lockup when being edited

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Logging:

- Purge Log Files action: Setting to zero days left an inconsistent set of log files for the current day. Changed it so that the minimum is 1 day to purge and also prevented the inconsistency if this operation was tried

GDW:

- Parameters marked as Read-Only could have 'Alter Value Interactively' invoked on them while in Edit Mode online
- Dragging a grouped button would drag just the button, not the group (i.e. Instrument views)
- If a button is defined to print a screen, and the button is pressed while that screen is in Historical Replay mode, then the real-time screen of it is printed instead of the Historical Replay screen
- Sometimes grouped objects did not update correctly (i.e. color dynamics)
- Grouped items not updating while in Edit Mode Online
- Ctrl-T is now a hotkey for Text Attributes
- Print Preview can cause crashes and lockups
- Cloning (Copy & Paste) a new object that has not been saved crashes
- If the GDW UpdateRate is slow, then User Vars do not update quickly, causing 'Every Second' Strategy to be delayed
- Repeated downloads of a recipe using the action: 'Download Specific Recipe' from Strategy on a screen that was not open failed after 22 times

Startup:

- SpecView crashes during startup if no IDFs (Instrument Definition Files) are present

Networking (SpecView Remote):

- Remotes did not have the correct Password menu when using 'Disable Windows Controls'
- If TAPI Service in Windows Control Panel is set to disabled, then got an error when setting up Remote connections
- When trying to setup a new remote connection for the first time the Edit Connections dialog crashes after clicking OK
- File problems in the Local project could crash the local when a Remote connects

Import Project:

- If doing an Import Project where the baud rate or parity of the incoming Project differs from the target Project, then the Target settings were lost, being overwritten by the incoming settings. Now, the Target settings are preserved

Autodetect:

- 'Test Comms for Update' added instruments to the end of the Variables List, not in the correct sorted order
- The highest numbered COM port detected was omitted from the Ports & Protocols box

General:

- SpecView would sometimes fail to exit correctly, leaving an invisible copy of running
- There is now the ability to restart SpecView if a comms lockup occurs
- SpecView can now optionally create its own dump files to aid in debugging

Modbus Driver:

- Improved performance and fixed lockups
- Connect failures could delay for 5 seconds
- Rare modbus crash fixed where conflicting instruments were defined on the same IP Address
- Modbus driver crash when West ProVu4 and Honeywell DCP200 instruments were used

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- Modbus Serial Comms could crash if large amounts of spurious unsolicited data was received over comms
- SONBL driver command fixed
- Various Modbus TCP/IP failures fixed
- Locks-up doing 'Derived Values' or opening Parameter List to West ProVu4
- Modbus driver could crash when writing some values

Instrument Support:

- Minor updates to: Yokogawa CX, Yokogawa FA-M3, Watlow F4T, Anfaze MLS16, Eurotherm 3500 and Eurotherm 2600
- Eurotherm: added Picolo controllers, including special for NatureForm
- Eurotherm: Added the P304i and modified the P304c parameters
- Tempco: Added 4100 and 410 (limit) instruments
- PC3000 Driver now supported in Version 3
- Watlow StandardBus: Driver did not support Primary Parameter concept, causing inefficient comms during timeout situations

4.43.7 Build 3.0.049

Release date: 23rd October 2015

Fixes and improvements:

GDW:

- Win 8.x caused buttons to flash and a busy cursor when the screen-saver timeout period had elapsed

Networking (SpecView Remote):

- When attempting to go Online to a project that was previously copied across from a Remote, there is now a warning message (E12223). As this seems to be a common user mistake
- The IP Address of the Remote PC is now shown in the 'Remote Users Attached' list
- Changing the timeout in the Edit Network Connection box did not get saved
- Spurious 'Network Connection Timed out' messages could appear on the progress bar
- Local/Remote connection and re-connection issues resolved
- Running two Remotes to the same Local on the same PC is now disallowed
- The 'Remote Users Attached' list has new right-click options to disconnect a Remote connection and to start or stop SpecView's Networking server
- Remote SpecView reconnects could consume lots of CPU time while reconnecting

General:

- Edit mode: 'Failed to come out of Runtime' message could occur if the numeric data-entry box is on screen when switching to Offline mode
- Startup: A rare crash on start-up fixed
- Minidump files are excluded from Archives, and Local/Remote connections now don't copy debug files across to the Remote

Modbus Driver:

- Modbus crash resolved

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4.43.8 Build 3.0.050

Release date: 30th October 2015

Fixes and improvements:

Networking (SpecView Remote):
- The 64-bit SpecView could crash when disconnecting a Remote - this did not affect the 32-bit exe

4.43.9 Build 3.0.053

Release date: 4th December 2015

Fixes and improvements:

Installation:
- Added a message to say which build of SpecView the user can go back to if they are trying to install a later build after expiry

Dongle:
- It is now possible to install SpecView and run in Demo mode even if the 'free updates until' date has passed

General:
- While in Edit mode Online, going offline when data entry boxes were open could cause 'Failed to come out of runtime' error

GDW:
- There was an occasional crash when going offline after using buttons with the action 'GDW: Close this and Swap to'
- Could not delete Position Dynamics waypoints which were assigned to buttons
- Recipe screens could close sometimes after a Recipe had been downloaded

Variables List:
- Using 'Replace' from the 'Options' menu to change an IP address in an instrument could hang
- Variables List Import when errors occurred during the import the file was not closed, which caused a problem when making another attempt to export or import

Logging:
- Log File Convert could sometimes crash under certain circumstances

Trend Charts:
- Trend Charts clear on batch change was confused by the batch tag being set to '[ ]' which made it erroneously clear the chart

Archive:
- Creating an Archive could cause SpecView's journalling of actions to stop, and not restart until the next day
- Making a SpecView Archive would cause a spurious dump file to be generated.

Networking:
- The Remote now displays a warning message if the Local is running a newer build of SpecView

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- The Remote could be incorrectly denied access saying that there were not enough Remote licenses on the dongle
- Batch tags were not being checked on Remotes, so Trend Charts on a Remote couldn't act on them
- Remotes reconnecting to a previously offline Local could be mis-labelled as '--' in the Remote Users Attached list
- Remotes reconnecting to a previously offline Local could sometimes fail to connect
- Remotes could occasionally hang during reconnect

ActiveX:
- ActiveX controls could have transparent fields and buttons when screens were opened or swapped to
- Trying to go into Edit mode offline from start-up by holding the control key while clicking 'Start' does not work with configurations containing ActiveX controls

Modbus:
- New modbus driver 4.1.12.x fixes a number of lockups (causing flat lines on Trend Charts) and crashes
- Write Sequence for booleans was not working as the write fails with the error: 18210
- Occasional Modbus lockup while writing values to devices that were not present
- Implement Boolean from Enum decoding in Modbus

Watlow:
- Implement Boolean from Enum decoding for StdBus

4.43.10 Build 3.0.054

Release date: 18th December 2015

Fixes and improvements:

Variables List:
- 'List GDW DynamicsTo CSV' now includes Trend Charts and also asks to open the CSV file afterwards

GDW:
- Saving a GDW after 'orphan dynamics' (items on a GDW associated with instruments/variables that have been deleted) have been removed can crash

Strategy:
- Strategy start-up can sometimes crash

Networking:
- Excessive memory usage on the Local when a Remote connects
- Local can crash when Remote disconnects. This is only in 64-bit and caused by Local not having a UID that the Remote is requesting
- Remote SpecViews could open fewer screens than it should sometimes. To Prevent opening of all background screens use [Networking] InhibitRemoteAutoOpen=1 in SV3.INI

Autodetect:
- 'Test Comms for Update' of an existing instrument, the error message incorrectly showed the driver

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name instead of the instrument name

Dongle:
- Spurious dongle error message has been removed

Watlow:
- Modbus could crash when creating Watlow Profiles
- New Watlow Addendum and a new 'F4 with Profile option' demo project

New or Modified Instrument Support:
- Updated: Eurotherm Modbus, Natureform, Watlow F4, Watlow Modbus and Honeywell HC900

4.43.11 Build 3.0.056

Release date: 5th January 2016

Fixes and improvements:

Logging:
- Memory leak when converting logged data into Log Reports (CSV files)

Networking:
- Occasionally the Local may hang when the Remote disconnects

OPC:
- OPC Client could crash if the OPC Server was terminated abnormally

4.43.12 Build 3.0.058

Release date: 28th January 2016

Fixes and improvements:

Startup:
- Double-clicking a quick-launch icon in the Windows Task Bar could start two instances of SpecView, resulting in a sharing violation sometimes
- Opening a Project with many Auto-open screens could cause a hung window for a while

Logging:
- Selecting a Batch Tag for replay in SV3_64 could crash when a Project is very large

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Trend Charts:
- Trend Chart redraw seeming to take a long time sometimes
- Attempting to group a Trend Chart will now show a warning (V3 charts only). This is because Trend Charts that are grouped weren't updating correctly
- A Trend Chart Clear on Batch change could lockup when combined with many Remote backfill operations

Recipe:
- A rare recipe anomaly when Dynamic Attributes are used to switch a variable from one instrument to another while in recipe

Strategy Controller:
- Strategy Value Events, if a new 'Value to watch' variable is chosen to replace an old one of a different type, then values were remembered and that could be interpreted wrongly. The value is now cleared if the type is changed

Dongle:
- Added the message 'E17834 You must have the dongle you wish to upgrade connected to this computer' to stop attempts to upgrade a missing or broken dongle

General:
- In Edit Mode the 'Action Button' menu item on the popup menu for a button that does 'Download Specific Value' didn't correctly show whether 'Auto reset' or 'Warn user' had been checked
- The Line Writer now accepts File->Preferences settings for scientific notation of values (-1 to -4) and it also obeys the [DP] settings in CVTSETTINGS.INI[492] if present. ([DP] settings in CVTSETTINGS.INI[492] are also used by Log Reports)

Networking:
- Local could crash if a Remote requested some files for Batch Replay when a temporary file had been left over from a previous run
- Remote Trend Charts causing backfill when there is Alarm Color change or blink enabled can cause Local PC instabilities
- A remote Computer opening trend charts that are not open on the Local PC could cause the Local PC some confusion and lockups
- A rare crash with Networking when starting a new Remote connection

Modbus:
- Modbus could lockup when under very heavy load (using lots of different TCP/IP addresses)
- Driver Command PWD (Post Write Delay) could cause spurious timeouts

OPC:
- Some OPC Servers can cause a hung window condition in SpecView, as well as poor throughput

West:
- West 6400 and 4400 instrument changes

Eurotherm:
- Eurotherm 2600 changes to the instrument definition for the IO Expander

Red Lion:
- Red Lion a Write-with-no-answer (e.g. Gemini 4200) did not continue properly

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4.43.13 Build 3.0.059

Release date: 8th February 2016

Fixes and improvements:

General:
- The Parameter List at Runtime could crash when a large amount of memory was in use
- The version number of SpecView is now shown on the status bar (along the bottom of the screen)

Trend Charts:
- Trend Chart scrollback now has a setting in SETTINGS.INI[473] to auto-cancel scrollback if it has been left alone for a while
- A new setting in SETTINGS.INI[473] to allow a specific trend chart to be displayed WITHOUT any chart notes has been added

Modbus:
- Enhancements in Modbus 'Comms Traffic Analysis' to enhance statistics across different IP or Slave addresses, including a preliminary bandwidth calculation

4.43.14 Build 3.0.060

Release date: 19th February 2016

Fixes and improvements:

Variables List:
- Multi-selecting User Variables and then using the Group tab on the Properties box to 'Assign to group' failed

Logging:
- New option for showing the error code from Log files, see CVTSETTINGS.INI[492]

Networking:
- The SpecView pre-defined Variable 'RemoteMode' was not being updated after any kind of restart
- Remote restart due to connection loss could cause crash if any of the VarList/QuickList/ ParamList were open at the time of disconnect
- On a Remote in Historical Replay, Trend Charts could draw zigzag lines after a comms error was recorded in the log file

Modbus:
- Modbus/TCP could sometimes fail to make the initial connection on slower PCs
- Modbus timing related lockup fixed
- Modbus rare crash when debug enabled fixed

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4.43.15 Build 3.0.061

Release date: 9th March 2016

Fixes and improvements:

General:
- German language problems when SpecView starts

Variables List:
- Add/Rename Instrument box while Online has a new warning message: "Cannot edit address settings while online. Use Online Features->Disable All to allow edits"

Trend Charts:
- Using the same batch tag on multiple trend charts could cause problems during File->Restart
- The date and time were incorrectly positioned if the Values font was bigger than the Scale font

GDWs:
- Buttons which are set to display a bitmap (instead of text) failed to initially display
- The resizing of bitmaps on buttons which use 'Constrain image to button' has been optimized

Logging:
- Log Report DP Override in File->Preferences was not working. See also CVTSettings.INI 492

ActiveX:
- Controls did not update after going from Runtime to Edit Mode Offline and to Runtime mode again
- A Method that returns a value could cause a crash
- Controls that use the VT-Empty mechanism to pass varying types were not being handled correctly

Modbus:
- Downloading to Scaling-Of-Numbers variables that are 'unavailable', such as when a segment is missing, could lockup the driver

4.43.16 Build 3.0.062

Release date: 10th March 2016

Fixes and improvements:

General:
- Added the ability to allow the screen to be minimized even if Windows controls are disabled 707. This is done by overriding with: File->Preferences - Display tab - Allow Minimize.
- Additional fixes to the German language

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4.43.17 Build 3.0.063

Release date: 18th March 2016

Fixes and improvements:

General:
- German language: Data entry boxes in German did not work and gave cascading error dialogs

Recipe:
- Setting individual recipe items to 'No Change' was not being saved in the recipe

Modbus:
- Rapid downloads to 'Scaling Of Numbers' (SON) parameters could sometimes fail

Eurotherm:
- Current Program Name Phantom Parameter not working on Eurotherm 2704 Instrument

4.43.18 Build 3.0.064

Release date: 5th May 2016

Fixes and improvements:

General:
- Changes to the way the built-in SpecView exception handling works
- Colour Dynamics gives an error when using the German language

Trend Charts:
- Some Trend Charts could lock-up while drawing if the Elapsed Time Axis was present and a T0 time had been set
- Historical Replay of a Trend chart when a Pen wasn't fully defined could cause a hang and/or crash

DDE:
- Occasional DDE crash when closing Excel

Networking:
- Remote crash fixed when under heavy load.

Modbus:
- When a TCP/IP converter returned Exception code 11 and the ECR and ECR2 codes were set this could cause a crash
- Could not reliably download to parameters of type 'Time' which had a SON (ScalingOfNumbers) code, also the SON default TimeToLive (TTL) is now set to 60s
- If there were numerous occurrences of NotCurrentlyAvailable (NCA), e.g. when Eurotherm segment data is unavailable, and comms was under very heavy load, then updates could take over 20 minutes
- The driver was constantly attempting to re-connect to dead sockets even though 'Comms Backoff' had stopped requesting from those IP addresses
- Occasionally when a TCP/IP socket was re-opened there could be a crash due to timing

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Watlow StandardBus:
- Driver fixes for multiple problems

4.43.19 Build 3.0.066

Release date: 18th Aug 2016

Fixes and improvements:

General:
- Language problems in German

Trend Charts:
- Printing screens with Trend Charts sometimes crashed with certain HP printers

Variables List:
- Export/Import Variables List: Doing an Import while a previously Exported Varlist.csv file is open in Excel causes SpecView to exit
- Crash when defining COM port based instruments marked as TCP/IP

Data Logging:
- Alarm file corruption could cause log file conversion to crash

Historical Replay:
- Customers reporting that 'End of Data' time is offset by timezone
- Replaying short batches at high rates (or with high CPU load factor) can result in no updates at the end of Historical Replay
- Trend Charts in Historical Replay now show the batch number of the selected batch

Passwords:
- Password system did not draw a box around text items marked as 'Available at level 1' when the Password box was first opened

Networking:
- On a Remote computer, a button that does a 'Run External Program' would not work
- A Remote disconnecting from the local could Lockup the local under rare timing conditions
- Cannot start Local on an IP address that starts with a single digit, e.g. 3.0.0.111

Autodetect:
- Autodetect Honeywell HC900 gives spurious error message when using a 'Mini' Dongle (Note: It is not possible to use the Honeywell HC900 with a Mini dongle)
- ModBus TCP Autodetect left optimized driver commands in the settings file that may not be useful in real running situations

ModBus:

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- Some complex recipe items would not write correctly since Modbus 4.1.32.x. This affects Watlow F4 Recipe and Yokogawa UP55A as well as some others
- Anomaly with Watlow F4 when the Profile number was 0
- 'Scaling of numbers' for parameters of type 'Time' in blocks were Writing incorrectly
- Modbus driver could sometimes stall after a comms loss on slow links

OPC:
- Several OPC driver fixes

4.43.20 Build 3.0.068

Release date: 27th Dec 2016

Fixes and improvements:

General:
- Fastcount would not always start correctly without exiting SpecView and running it again. SETTINGS.INI setting for Fastcount can now be changed on-the-fly and takes effect from going Online in the Project
- When a Runtime-Only dongle is connected the 'New Manual Project' and 'Test comms for New Project' buttons are now grayed-out
- An instance of Failed To Come Out Of Runtime fixed

GDW:
- Full Screen mode at Runtime does not work EditMode->RT
- Scrollbars need to be wider for larger screens
- GDW Corruption when loading GDOs has been fixed for new Objects, but some oddities remain with older GDWs
- Buttons defined with System font > 10 < 20 are now resized to 10 by default now, unless ForceSystem10=N in [Settings] section of SV3.INI
- Horizontal scrollbars made wider to allow smaller screens to view larger projects

Trend Charts:
- Export to CSV not working
- Current batch no chosen for batch replay is shown on the trend chart
- Time Axes disappear on Batch replay with rescaled axes
- Trend chart batch replay would sometimes blank the Time axes or the chart itself when the batch end was replayed to
- Memory leak in Trend Chart CSV export
- Trend Chart Setup dialog box could crash if the same pen was on a chart more than once

Variables List:
- Enum Names are overwritten to the originals every time during IDF update. Unless AutoUpdateEnum=N in [CONFIG] section of SV3.INI

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Data Logging:

- Attempt to read over corrupt log file
- Crash when editing log report formats fixed
- Lockup in logging when a large number of interrelated parameters going unavailable
- A Logfile corruption caused a crash in log file convert. It now skips over the zeroed blocks and attempts to re-sync the next available good data
- SpecView Modbus exception code 18211 (Modbus exception code 11) was not treated as a timeout, which caused SpecView to request the parameter at the usual rate instead of turning the instrument off. With lots of instruments off this caused a runaway situation with nothing being scanned

Batches:

- Large number of Batch Tags would stop working after a certain point

Historical Replay:

- Batch replay crashes sometimes

QuickList:

- Crash in QuickList when it is initially too short for Strategy Add

Strategy Controller:

- Lockups when Strategy is Closing screens automatically
- Some Strategy Controller Actions could cause an Unclean exit

Languages:

- The Add/Rename Instruments box had a problem in the German Language
- German Archive Dialog fault at end of dialog

ActiveX:

- ActiveX controls work even if ActiveX option not enabled on the dongle

ModBus:

- Modbus can crash sometimes on exit from Runtime with Serial devices. Does not affect TCP/IP
- Modbus Scaling-Of-Numbers (SON) problems fixed
- Entering a lot of TCPIMD driver commands messed up the Driver commands window columns
- Crash with Buffered parameters avoided

Drivers:

- FGH driver cannot open COM ports numbered > 9
- Crash when defining certain new instruments while Online

Honeywell HC900:

- New HC900 SPP import naming scheme, controlled by a SETTINGS.INI setting, see Help on HC900 import here [237]

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Part 5

5 Installation and Starting SpecView

Ideally first physically connect [565] the instrument(s) to the computer, although this can be done later if necessary.

Installation [181]
Starting SpecView [190]
Instrument Definition/Detection [197]

5.1 Installation

Then install the SpecView software:

Installing SpecView [181]
Updating SpecView from a previous version [186]
Migrate Configurations
32bit and 64bit SpecView [189]

5.1.1 Installing SpecView

If there are any doubts about the suitability of the computer for installation of SpecView, or if you are using Windows XP, please check the Minimum Requirements for Installing SpecView [26].

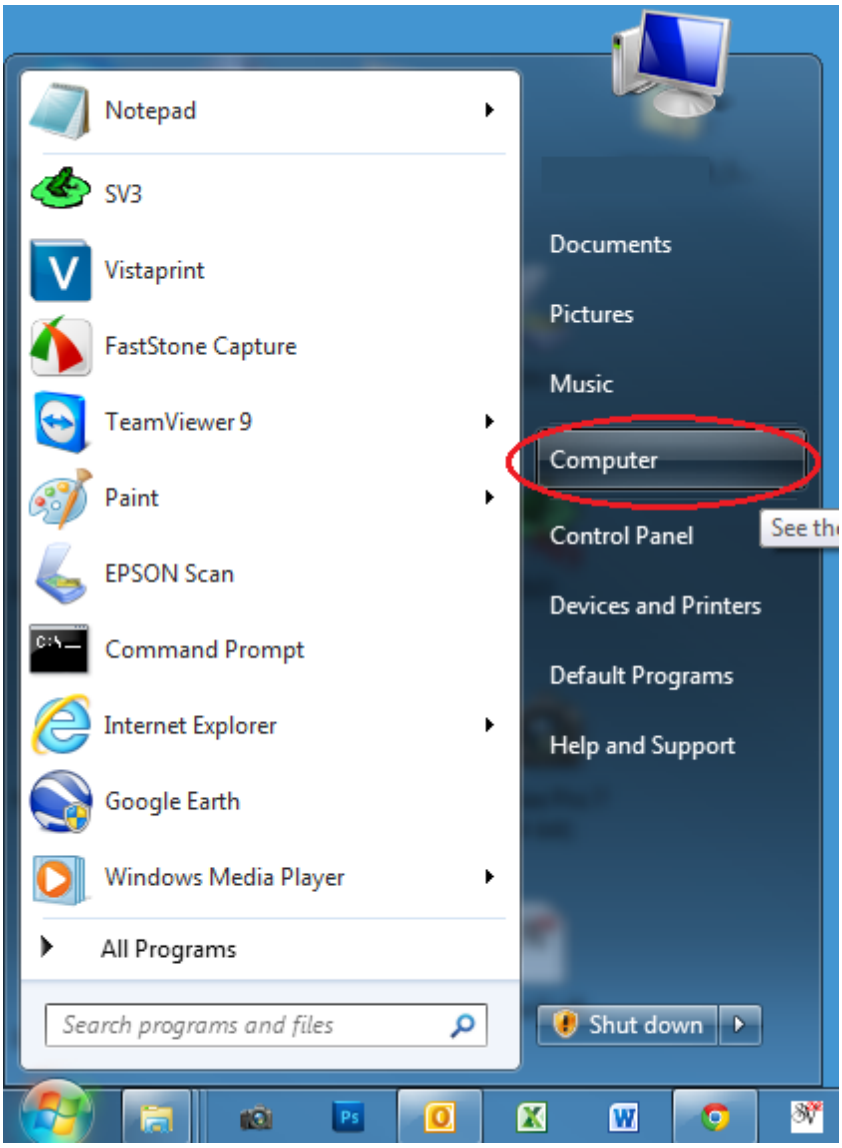
Firstly, it is necessary to have Administrator privileges [511] on this computer before installing SpecView.

To install SpecView choose one of the following methods:

CD

If you have SpecView on a CD then load the CD into the drive. It should then automatically run Setup from the CD.
If the CD does not auto-run then choose **Computer** from the Start Menu

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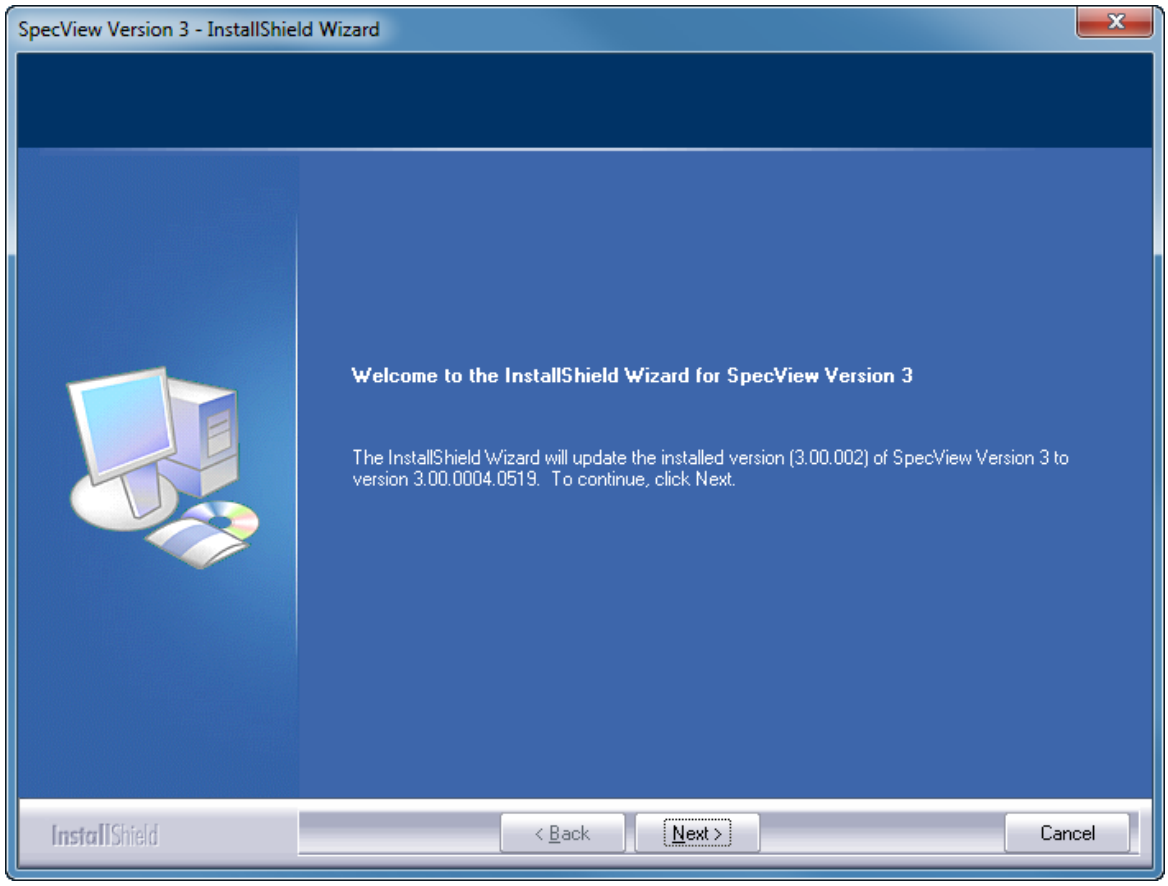


Open the CD drive and double-click the 

icon.

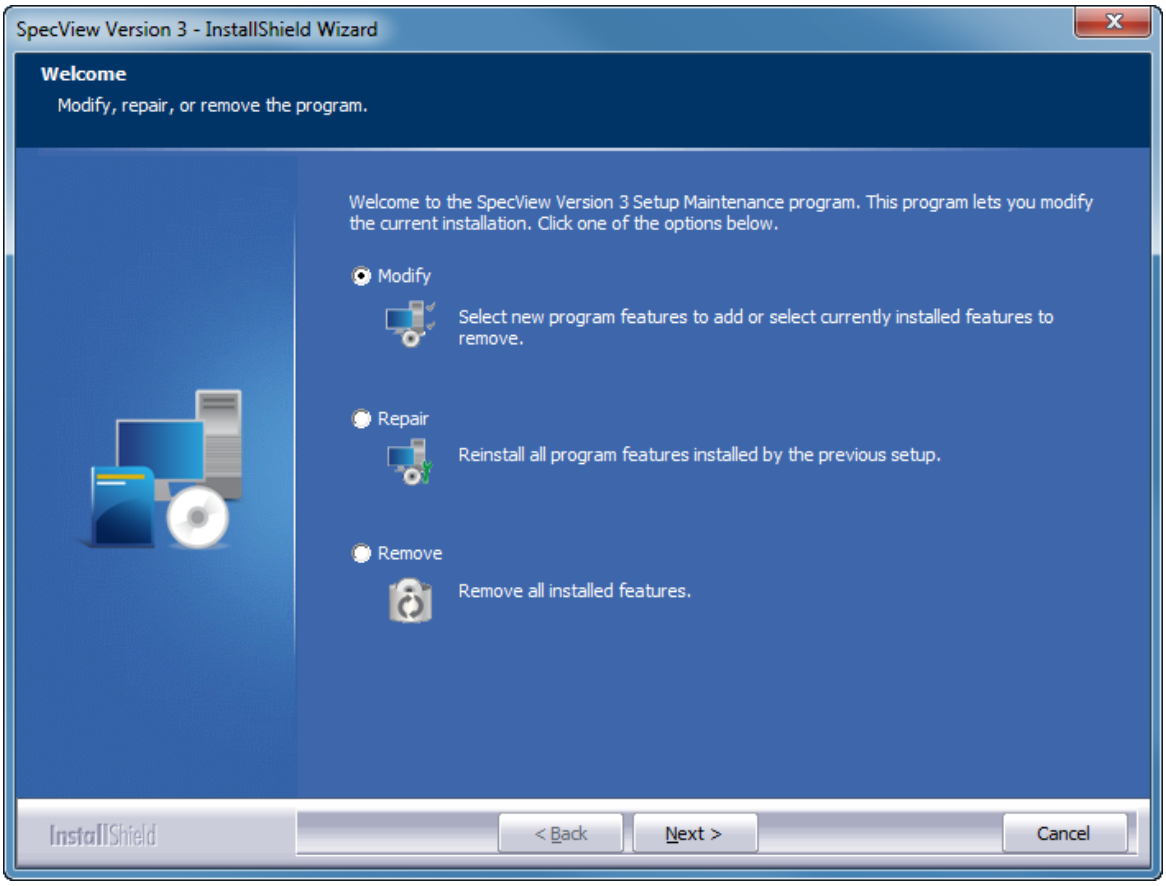
Note: It is strongly recommended to install into the default location C:\SV3

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However, running the Setup program again to install the same release will offer Repair/Modify/ Remove:
(Modify is used to add or remove sub-options, such as drivers or demo projects. Repair can be used if an installed file has been accidentally deleted).

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If the setup being run is a newer version (by build number), then the installer will run as an 'Update Install', where the installer updates anything that's new in this build. However, it will not alter which sub-components are installed, it just updates whatever was installed originally to the new build code (including drivers, help files, etc.).

This type of install would be done if SpecView had previously been installed from SV3_SETUP_30041.EXE and a newer version, such as SV3_SETUP_30042.EXE was subsequently run.

Migrate_Configs[188] would not be run automatically.

Download

Downloading SpecView from http://www.specview.com can be done either by downloading with or without the demo projects.

Demo Projects

There are a number of fully functional example projects pre-prepared for many of the instruments that we support. These projects can be easily installed, and may be modified to meet your exact requirements.

When installing from a CD, by default all the Demo Projects are installed. Run SpecView then at the first screen (Projects), select the one(s) that are required. Each Project is stored in its own sub-folder within the installation folder (which is by default C:\SV3). The sub-folder can be copied using Windows Explorer, therefore it is easy to make a backup of a project by making a copy of it, or by

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using SpecView's Archive/Restore 190 facility. These projects can, if required, be modified from Edit Mode 311.

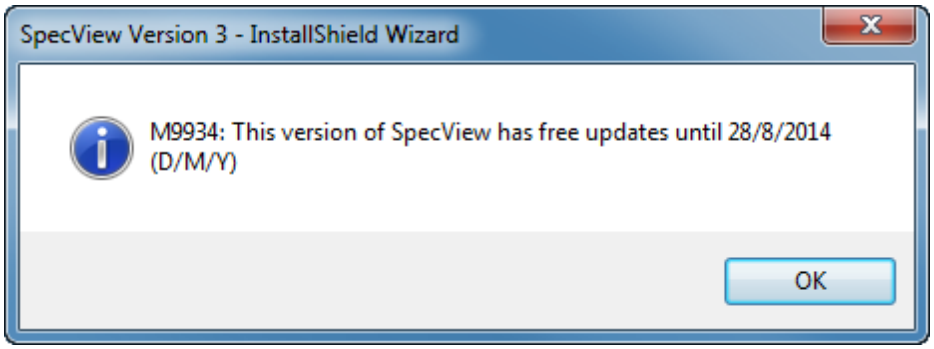
When downloading the SpecView setup program from the SpecView website choose the one that contains the Demo projects or not as required.

Additional Demo projects may also be available for download from the SpecView website. In this case the downloaded file(s) will be .SVA file(s), which is a SpecView Archive 193. To use one of these downloaded .SVA files, install and run SpecView, then at the Projects screen, press the **Restore** button. Find the .SVA file you have downloaded and restore the project into SpecView. Once restored, these projects can, if required, be modified from Edit Mode 282. However modifications will only affect the restored Project folder, not the downloaded .SVA file, therefore the .SVA file can be considered as a backup which can be restored again if necessary.

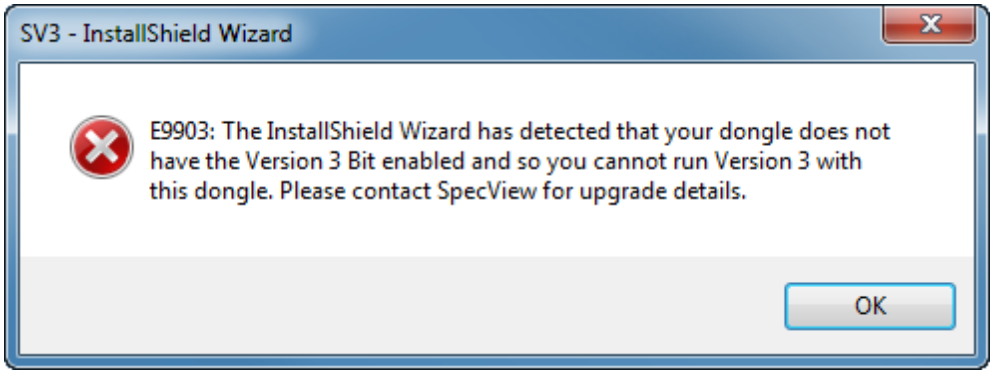
You may see these Installation Warnings and Errors 185
If you have any difficulty during installation please contact 798 your SpecView representative.

Quick Start 802
Starting SpecView 190

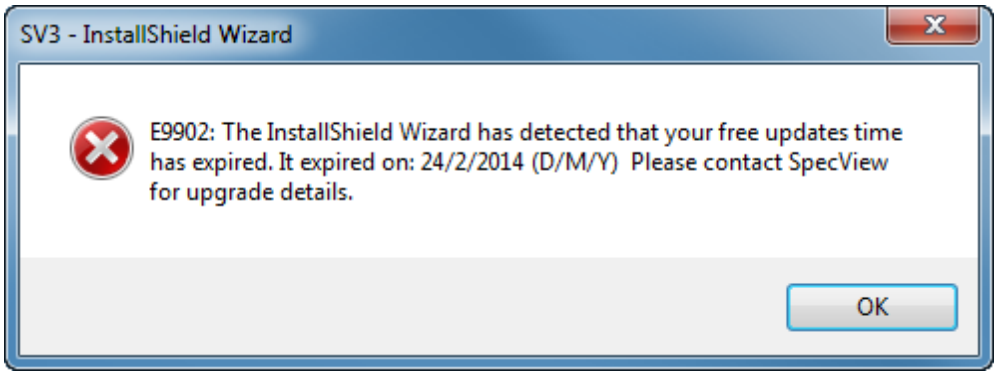
5.1.1.1 Installation Warnings and Errors



The M9934 message is for information only - When the update-subscription expires the software will continue to work, but it will not be possible to update the software to a newer version without purchasing an update renewal from a SpecView representative.



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For the errors E9903 or E9902 please contact [798] your SpecView representative to purchase an update renewal.

5.1.2 Updating SpecView from a previous version

The latest version of SpecView can be downloaded from our website http://www.specview.com

It is always advisable to have good reliable backups of the computer before updating any software.

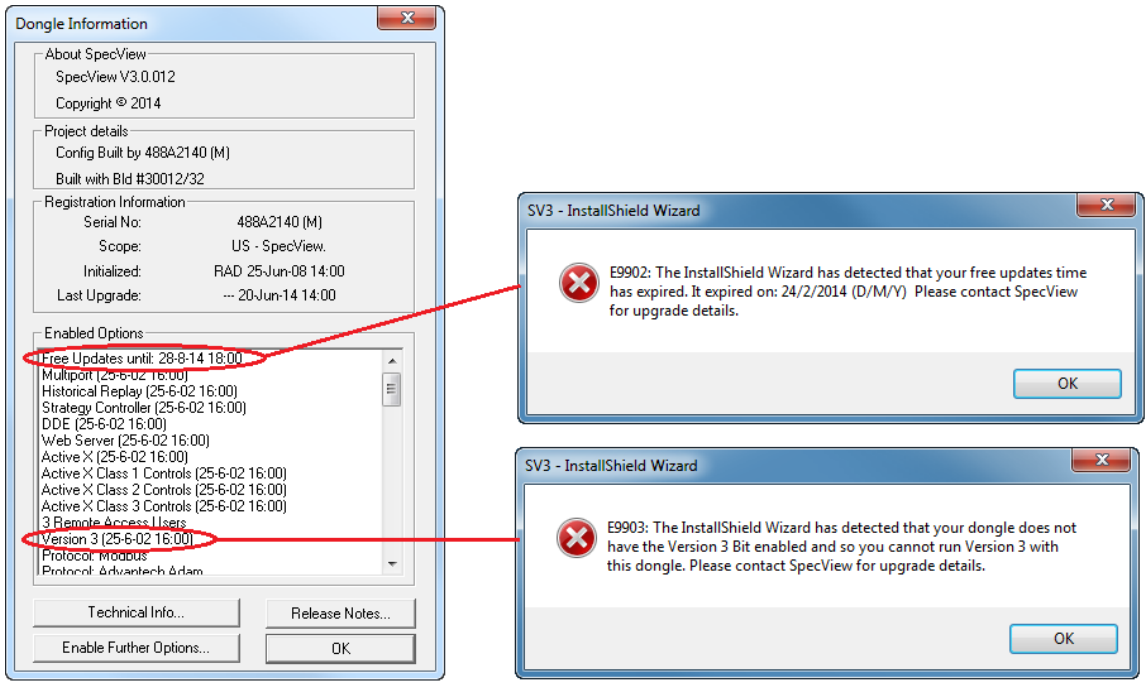
Firstly, it is necessary to have Administrator privileges [511] on this computer before installing/updating SpecView.

Updating SpecView Version 2 or 2.5 to Version 3

Before updating it may be necessary to purchase a Version 3 upgrade [64]. To check if this is necessary use the **Registration Information** menu command on the Help menu [278].
If **Version 3** is listed then this dongle [72] will work with Version 3. Also check that the 'Free Updates', now called Update Subscription [76] hasn't lapsed.

Otherwise these errors may be displayed:

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Install SpecView Version 3 into a separate folder - not into the same folder as Version 2/2.5 (which was by default in: C:\SV32\). We recommend installing into the new default folder, which is: C:\SV3\.

Existing SpecView Configurations (now called Projects) will continue to work in SpecView Version 3. There is a Migration tool 188 that will help with this process.
Once this is complete run SpecView Version 3 and it will be listed in the **Projects Found** box.

Trend Charts V2 (or V2.5) to V3

When a Version 2 (or Version 2.5) trend chart is used with Version 3 it will not be automatically updated to incorporate the new features of Version 3 Trend Charts 87.
This needs to be done manually for each Trend Chart in the Project.

For further information: Trend Chart Conversion 527

Backward Compatibility

A Project cannot however be copied from SpecView Version 3 back into SpecView Version 2.5 as there will have been significant changes to the format of the files and also with regard to Trend Charts.

For more information see What's New in Version 3 84

Updating SpecView Version 3 to a newer build of Version 3

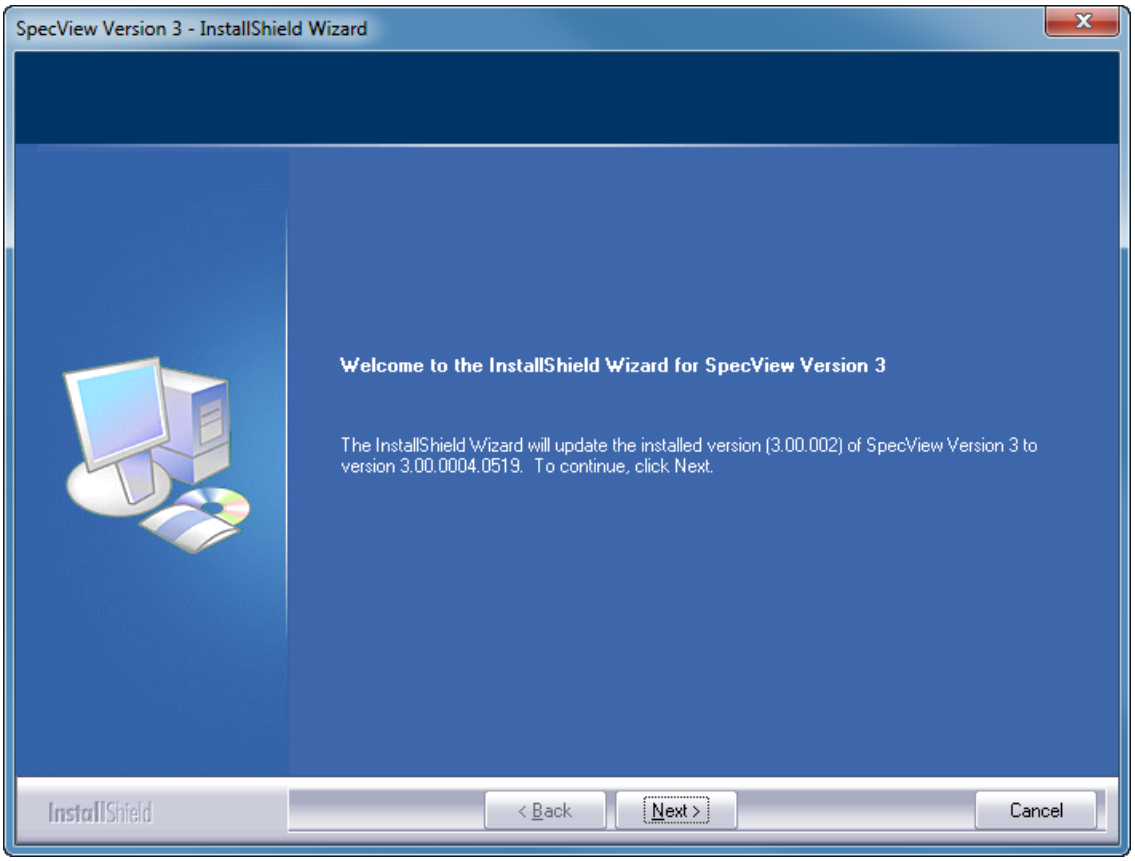
Before updating it may be necessary to purchase an **Update Subscription** upgrade 64 for the license 31. Check the **Updates until** date on the dongle. This can be seen from the **About SpecView** menu command on the Help menu 278.
To purchase an **Update Subscription** for the dongle contact a SpecView supplier/distributor or SpecView directly.

If an update subscription has been purchased, download the new SpecView Setup program to

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update existing installations. Install it in the same directory to overwrite and update the older SpecView files - this will not affect any projects or screens already defined. As always, it is highly recommended to make an Archive[193] of the current project and data before installing the new version.

To update SpecView to a more recent version run SpecView's Setup program to start the InstallShield Wizard:



This will update the same components of SpecView as were installed initially.
In order to add components (such as additional drivers) either run the original setup program and choose **Modify** from the **Modify/Repair/Remove** box.
Or use the Windows Control Panel - Programs and Features, and right-click on 'SpecView' in the list and choose **Change**.

5.1.3 Migrate Configurations

After installing SpecView Version 3 copy the existing Configuration(s), now called Projects, from Version 2/2.5 into Version 3 using the Migration tool[248] to assist with this process.
Or run the Migrate Configs tool manually[249] if the installation was done previously.

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Alternatively manually copy the Configuration's sub-folder from C:\SV32\ into C:\SV3\, or preferably, make an Archive of it in Version 2/2.5 and Restore it into Version 3.

Also, for existing SpecView users see What's New In Version 3 84

When SpecView's Setup program is run to install SpecView there are 3 ways it can be run:

1) Clean Install - When there is NO previous version installed, or if the last version was deliberately uninstalled. **Migrate_Configs would be run in this case.**

2) Modify/Repair/Remove - If re-running the SAME Setup as before (by build number), **Modify** is used to add or remove sub-options, such as drivers or demo projects. **Repair** can be used if an installed file has been accidentally deleted. **Migrate_Configs is NOT run.**

3) Update Install - If the setup being run is a newer version (by build number), where the installer updates anything that's new in this build. However, it will not alter which sub-components are installed, it just updates whatever was installed originally to the new build code (including drivers, help files, etc.). **Migrate_Configs is NOT run.**

There is a command line option (/z2) to SpecView's Setup program that will force **Migrate_Configs** to be run.
Note: This MUST be a lower case 'z' and cannot be used with other command line options.

Link to the Migrate Configs help file.

5.1.4 32bit and 64bit SpecView

There are both 32-bit and 64-bit versions of SpecView: ***SV3.exe*** and ***SV3_64.exe***

Note that the 32-bit version can only access 4GB RAM regardless of how much is installed. Whereas the 64-bit version can access all available RAM if needed. This is a Windows operating system limitation.

If your computer is running a 32-bit version of Windows then use the 32-bit version of SpecView.

Or, if your computer is running a 64-bit version of Windows then use the 64-bit version of SpecView. However, the exception to this is if you are on a 64-bit system but intending to use 32-bit ActiveX controls or a 32-bit OPC Server with SpecView, then use the 32-bit version of SpecView.

The 64-bit version is slightly faster than the 32-bit and the additional memory available in the 64-bit version also allows for more trend charts 523 to be used in the project.

SpecView Projects can be used in either version, with the exception of projects containing ActiveX controls, as mentioned above.

64-bit DMP files are preferable for debugging purposes when reporting bugs 117.

Note: OPC and ActiveX-Control restrictions should be noted i.e. it is not allowed to use projects built in 32-bit and 64-bit and vice-versa.

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5.2 Address Specification

Address Specification

Choose the protocol from those below:

Eurotherm Bisync [218]
Modbus [215]
Allen Bradley [219]
Eurotherm Chessell 5000 [219]
Mitsubishi A Series [220] Q Series [221] FX Series [221]
Yokogawa Green Series [222]
Yokogawa UT15/27/38 Discrete Instruments [223]
Yokogawa UT2400 & UT2800 Controllers [223]
Yokogawa Darwin / Recorder [224]
RKC Discrete Instruments [226]
RKC SR Mini [226]
West [227]
FGH [227]
Yokogawa HGM200 [227]
ERO TFS - see ModBus [215]
Red Lion [228]
Watlow [228] Anafaze Modbus - see ModBus [215]
Honeywell UDC 3000 Modbus [231]
Moore Instruments - see Modbus [215]
Advantech Adam Modules [231]
Anafaze/AB Protocol [231]

5.3 Starting SpecView



Double-Click the **SpecView** Icon to start the program, or run from **All Programs** on the **Start** menu.

If you do not have a SpecView copy protection key (called a dongle [72]) connected then it will only **Demo** or Remote [713] will offered:

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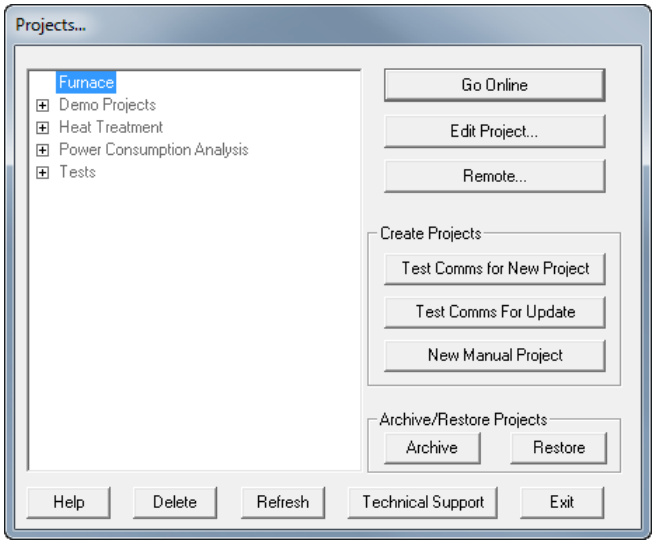
Click the **Demo** button, SpecView will be fully functional in Demo mode[31] but a timer limits communication with the instruments to ten minutes. This timer is reset each time Runtime Mode is entered.

When SpecView starts up it displays a splash screen containing the logo and the Copyright.



Either click **Start** to go directly to Runtime, or click the **Select/Create Project** button to display the Projects box (shown below).
Holding the SHIFT-key down while clicking **Start** will go into Edit Mode (Online)[282]. Holding the CTRL-key down goes into Edit Mode (offline)[307].

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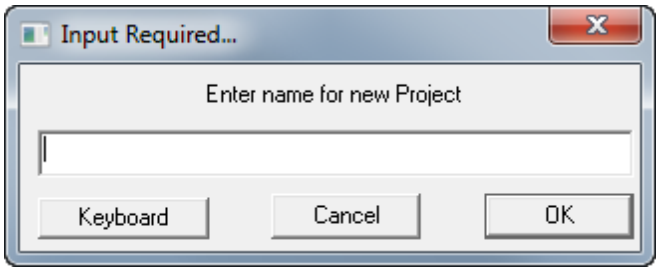


The **Refresh** button on this box allows for the list to be refreshed to take into account any new projects that might have been manually created after SpecView has been started.

The **Archive/Restore** buttons allow you to Archive or Restore [193] entire projects.

If you have an existing Project, which may be a demo project installed as part of SpecView, or previously Restored [193], which you intend to run, then select it and click the **Go Online** button, and continue from Runtime Mode - Using SpecView [251]
Note that it is possible to do a shortcut directly into **Edit Mode (online)** by holding the SHIFT-key while clicking the **Go Online** button. Holding the CTRL-key down goes into Edit Mode (offline) [307].

Alternatively, clicking either **Test Comms for New Project** or **New Manual Project** will display the Input Required box:



Enter a name for the project. SpecView will create a sub-folder with this name in the SpecView folder (which is normally C:\SV3), the name you enter should follow the Windows file naming rules [521] and should not be too long.

Remember this name. This folder will be where all your log files and project files will be stored. Log Reports will also be stored here unless another folder is specified.

Then continue from Instrument Definition/Detection [197]

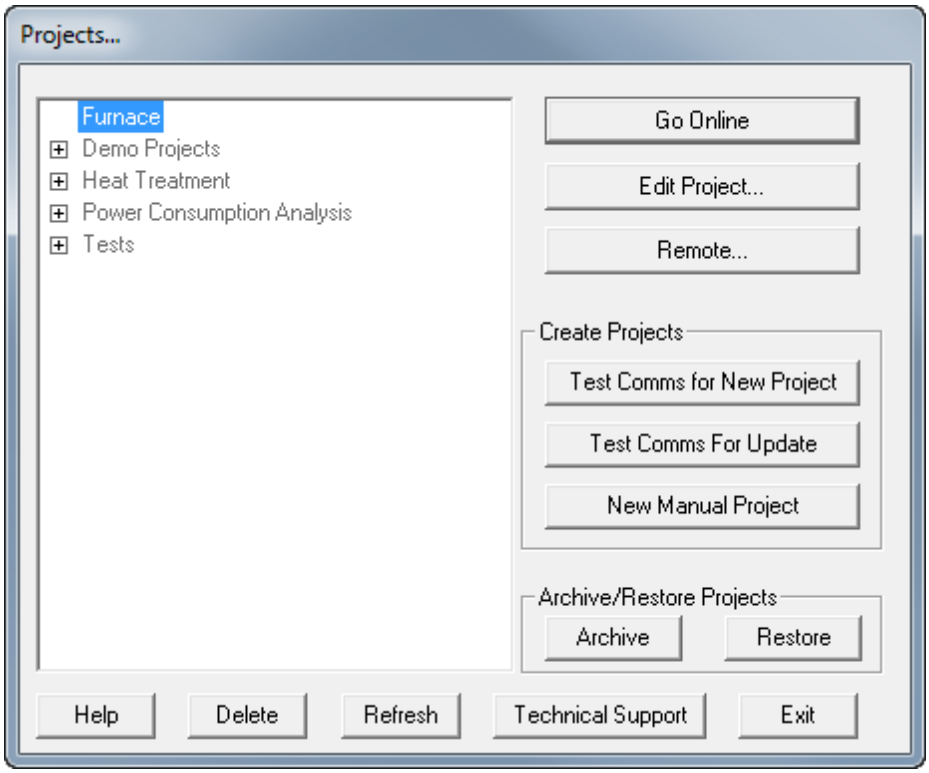
Note that is is not possible for SpecView to be run as a Windows service [897].
But it is possible for SpecView to be run automatically [889] when the computer starts.

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5.3.1 Archive and Restore

To access the Archive and Restore buttons click **Select/Create Project** on this box (splash screen) when SpecView starts:



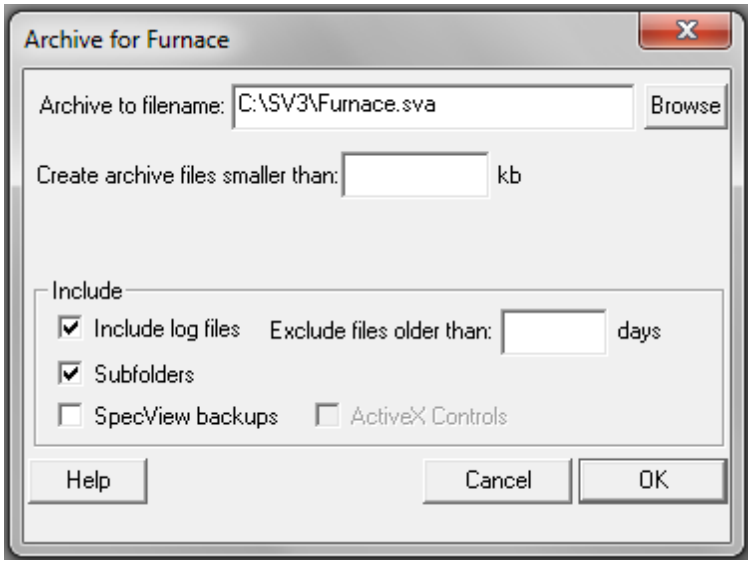


The **Archive** and **Restore** buttons allow you to Archive or Restore entire projects. This can be used for backup purposes, for sending projects from one computer to another, or for technical support purposes. Please see the Warning below.

Archive

SpecView creates a file known as a SpecView Archive, which has a filename extension of .SVA

To create an Archive, exit from SpecView and run it again, then at the Projects Found screen, select the name of the project to be archived and click the **Archive** button.

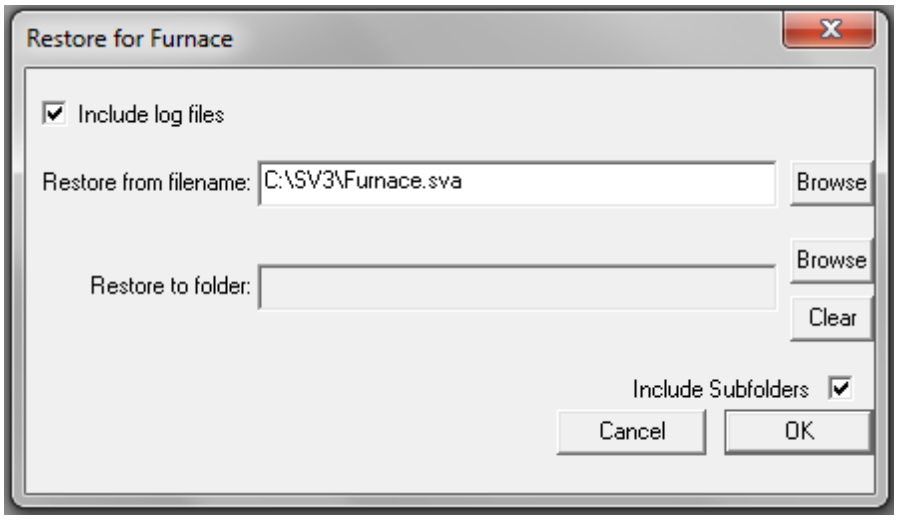


The default place (disk and folder) to create the Archive is specified in Preferences - Runtime [459]. Use the **Browse** button to specify a different location. If removable media (for example a memory stick) is specified (E:\) and the project is too large to fit onto it, then the Archive process will automatically prompt for the additional media. Please ensure that you have a media ready for use.

The checkboxes have the following operation:
Include log files - This will include the log files [603] into the Archive (.SVA) file. Uncheck this if you just want to archive the project without also backing up the log files. However, if the log files are being written to another folder (which is specified by, for example: 'Path=C:\MyLogFiles\' in Settings.ini) then these will NOT be archived even if the Include log files checkbox is checked.
Exclude files older than (days) - This will exclude **log files** which are older than the number of days specified. Therefore entering 7 would exclude log files from the Archive that were more than a week old.
Include Subfolders - This will include the contents of any subfolders within the project's folder.
Include SpecView backups - This will include the backups that SpecView automatically makes of the CONFIG files when these files have been changed while in Edit mode.
These backups are named: CONFIG.CF!, CONFIG.CF!1, CONFIG.CF!2, etc. and: CONFIG.CD!, CONFIG.CD!1, CONFIG.CD!2, etc.

Restore
To Restore a SpecView Archive (.SVA) file, start SpecView, then at the Projects Found screen click the **Restore** button.

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Use the **Browse** button to locate the .SVA file to be restored. If the file is on removable media then the Restore process will automatically prompt for them.

The **Restore to folder** allows projects to be restored into a sub-folder. This is useful if there are a number of projects need to be kept together.

Projects cannot be restored outside the installation[181] folder (default location for this is: C:\SV3\).

NOTE: If the project to be restored contains ActiveX controls then it is necessary to be running SpecView as an Administrator[511] so that the ActiveX controls[766] can be registered[784] correctly.

The **Include Subfolders** checkbox will include the contents of any subfolders within the project's folder.

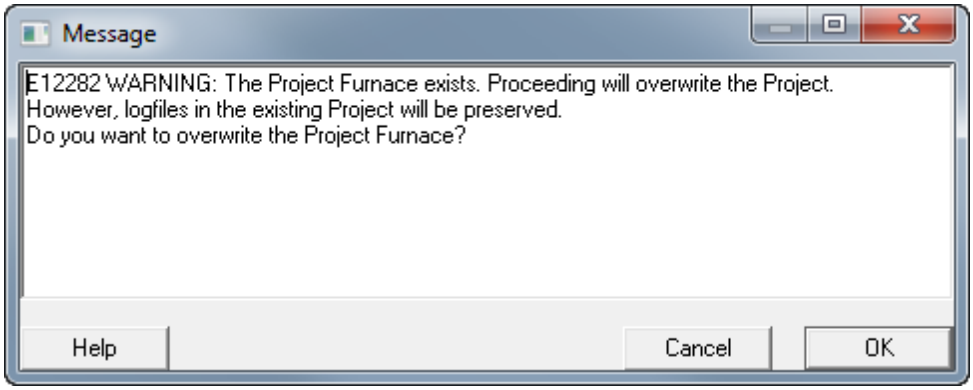
Once restored, a Project can, if required, be modified from Edit Mode[501]. However modifications will only affect the restored Project folder, not the archived .SVA file, therefore the .SVA file can be considered as a backup.

WARNING:

If an Archive of a Project is to be copied onto another computer, in order for changes to be made to it and then to be subsequently Restored back onto the original computer, then **CAUTION** must be observed to avoid losing logged data. This is detailed in Restore - Overwrite Project Warning[196].

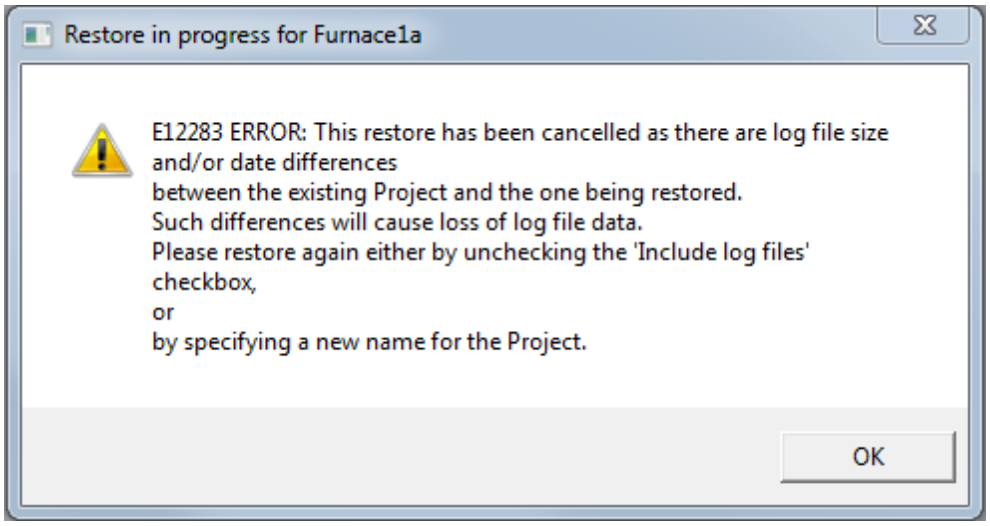
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5.3.2 Restore - Overwrite Project Warning



If an Archive[193] of a Project is to be copied onto another computer, in order for changes to be made to it and then to be subsequently Restored back onto the original computer, then **CAUTION** must be observed to avoid losing logged data:

There are a number of checks that are performed by SpecView before the Restore is allowed, such as:
- If the log files[603] have the same name then they cannot have different sizes or date/times
- The variables are checked to make sure that there are no data type differences e.g. float and text for the same unique ID would be rejected
- Instrument types are the same e.g. not allowed to overwrite a MM8TC with a MM4RO, etc.
- A Restore is only allowed to a project if there is at least one defined instrument of the same type, for example, at least one MM8TC



If you get this error then it means that the Archive file contains Log files which conflict with the ones in the existing project. To resolve this Restore the project without the **Include log files** checked. Or alternatively Restore specifying a new name for the project.

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5.3.3 SpecView Command Line Options

The following command line options are available:

- -r <connection name>

  The connection description is the name listed in the **Connect To** box.
  This will cause SpecView to run up in Remote[736] mode and go online to the connection name[736] specified.

  It can be setup so that SpecView Remote will start automatically[736] when the computer is started. Or configure a button on a GDW which will run another copy of SpecView in Remote mode. (By using the button action Run External Program[447] and specifying, for example: C:\SV3\SV3.EXE -r FactoryZone1). In this case the Remote copy of SpecView will start up minimized by default, if this is a problem then see here[447].

- <file name>.sva

  This will cause SpecView to run up and go to the Restore[193] dialog with the .sva file specified.

- <file name>.gdw

  This will cause SpecView to run up and go online to the project in which the GDW[311] is located.

Launching SpecView by clicking on a .GDW file in Windows Explorer can cause the error:
"You cannot use GDW '<file name goes here>' from this location, press **Yes** for details on how to resolve this problem."
if there is more than one installation of SpecView on this PC. This is because the Windows Add/Remove programs in the Control Panel can only keep track of one installation.

If there is more than one SpecView installed (either by specifically installing into another folder, or by copying SpecView's installation folder to another location) then it is possible that the GDW which is being clicked on is not in a project sub-folder of the folder where the Windows registry currently believes SpecView is installed.

To find all the locations that SpecView is installed, use the Windows search facility to search for all files named SV3.EXE.

Note: When SpecView is being started by any of these three means, the startup boxes will be displayed but will automatically be actioned by SpecView as it goes through its startup sequence. Therefore it is not necessary to click on these boxes.

5.4 Instrument Definition/Detection

Conventional supervisory systems require you to define each of the instrument's parameters (or variables) that you want to access from your computer. Some instruments have hundreds of parameters. In larger systems this can mean tens of thousands of tags and defining these from scratch could take weeks.

SpecView has a built in database[204] containing information on a very wide range of different instruments and their associated parameters (also known as tags).

Special configuration tools are used by SpecView's engineers to define the database. These are available, for some drivers only, to qualified users and only then in certain circumstances. It is not

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possible to add variables to pre-defined instruments from within SpecView. The configuration tools are required to do this. For further information on the above please contact your SpecView representative.

The following sections describe in more detail how to setup SpecView to communicate with the instrument(s) either that you have currently connected by Auto Instrument Detection 198 or which you intend to connect by Manually Defining Instruments 204. However, if you have already successfully done this then go to Runtime Mode - Using SpecView 251.

The Honeywell HC900 is a special case because the HC Designer files can be imported 233.

5.4.1 Automatic Instrument Detection

What does 'Automatic Instrument Detection' mean?

Many instruments have an instrument identity code that SpecView requests. When the instrument responds SpecView uses its built in database 204 to create an Instrument View (or faceplate representation) with button(s) that gives access to all the parameters on that instrument.

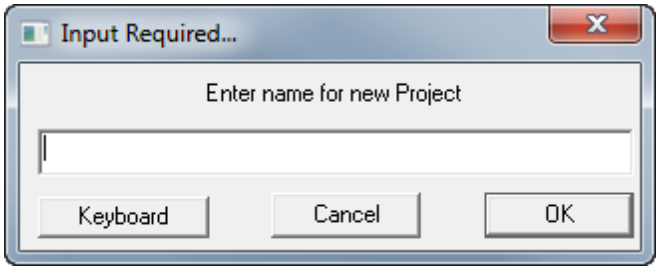
Some instruments, such as multi-loop controllers, have a very large number of parameters, in that case the parameters are split into parts, for example into the 'programmer' and the 'loops' (or 'channels'). So one controller can have many Instrument Views within SpecView.

Note that Auto Instrument Detection is inappropriate in the following cases:

- If there is a type of instrument connected that cannot be auto detected, for example, Red Lion, Dupline and Omron
  In this case please read Manually Defining Instruments 204

- If there are additional instrument(s) connected which need to be added to an existing Project
  In this case please read Test Comms for Update 207

For Auto Instrument Detection click the **Test Comms for New Project** button, to detect the instruments automatically.
The Input Required box is displayed.

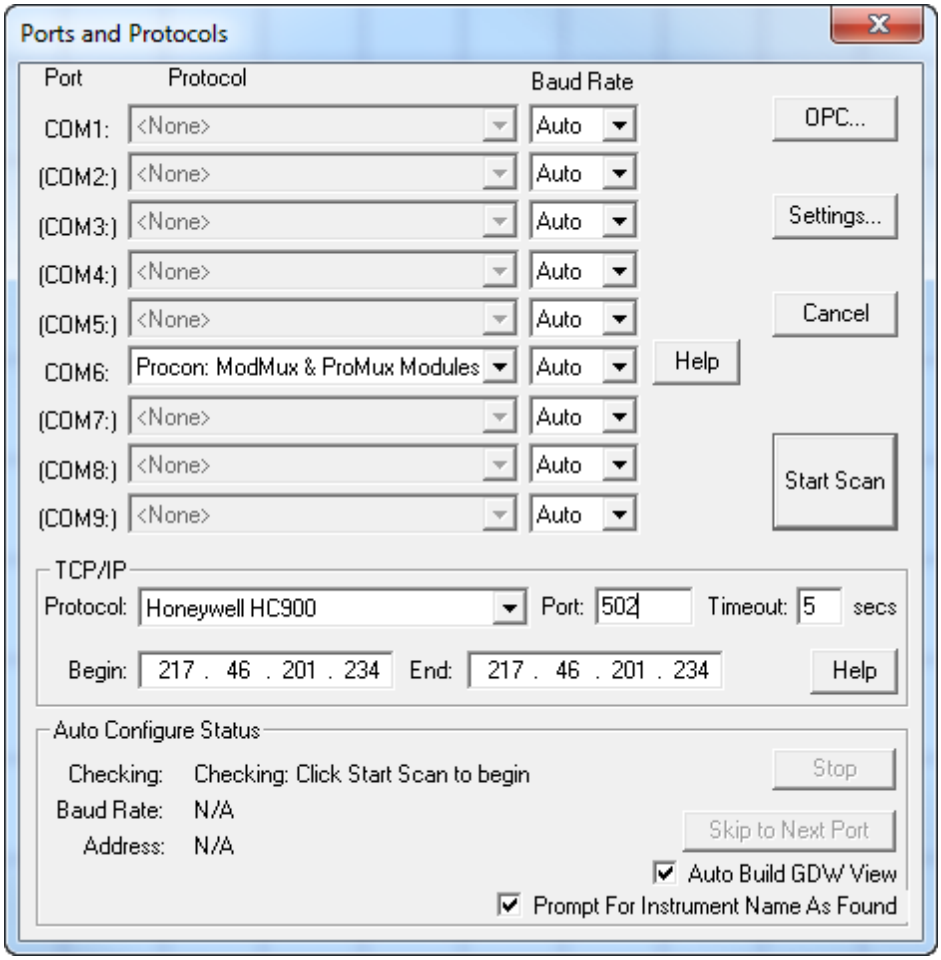


Enter a name for the project. SpecView will create a sub-folder with this name in the SpecView folder (which is normally C:\SV3), the name should follow the Windows file naming rules 521 and should not be too long.

Remember this name. This sub-folder will be where all the log files and project files will be stored. Log Reports will also be stored here unless another folder is specified for the report.

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When the name for the project has been entered, click **OK**, the Ports and Protocols box will be displayed.



Baud Rate

If the baud rate is known then set it appropriately.
If it is left as 'Auto' SpecView will first test different baud rates (9600 baud, then 19,200 baud etc.) for each address for the selected protocol.
If there is any uncertainty as to the baud rate used by the instrument then leave it set to the default shown.

Either select the protocol required for the COM port or use TCP/IP Auto Detection[201] which is available for some types of instrument.

Auto Build GDW View (checkbox)
When this box is checked an Instrument View is created automatically for each instrument found.
Do NOT use this feature if:

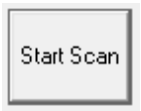
- There are more instruments connected than can fit on one screen
- There is an intention to rename the instruments in the project

Instead:

- Let SpecView detect the instruments
- After scanning all ports click **Stop** which will go into Edit Mode[282]

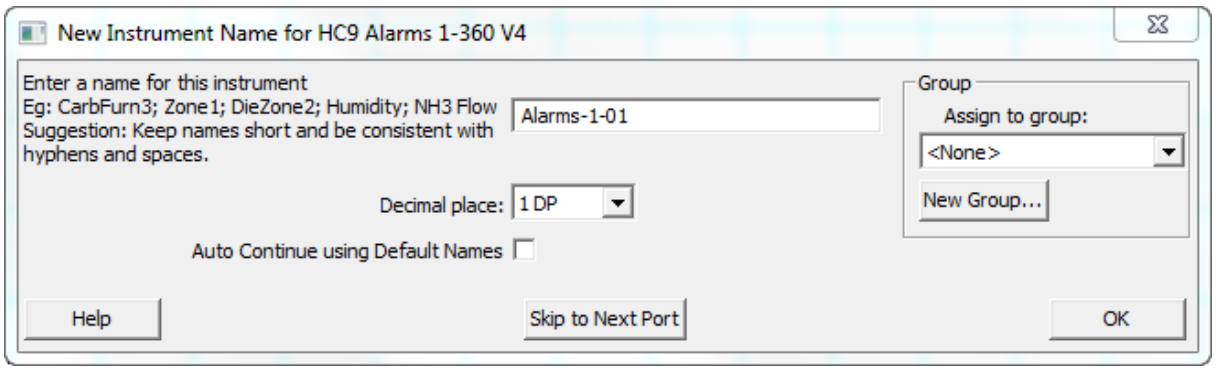
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- Open the Variables List [313] tool 
- Rename each instrument if necessary and add Instrument Views to the GDW(s) as required

Once the above has been set then click 

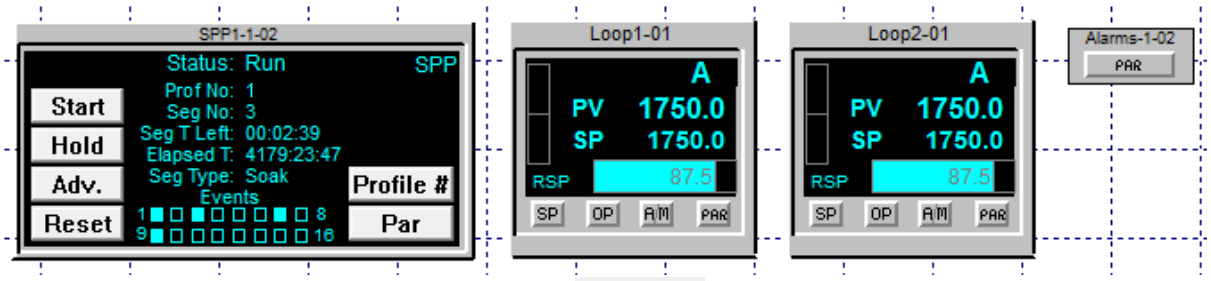
to automatically detect instruments.

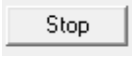
If the **Prompt For Instrument Name As Found** box is checked then this box will be displayed:



This allows instruments to be given names as they are detected and the number of decimal places for the parameters of that instrument defined. The instruments can also be assigned to groups, for example, a number of controllers may make up a furnace, so grouping them together under the furnace name makes a logical group.

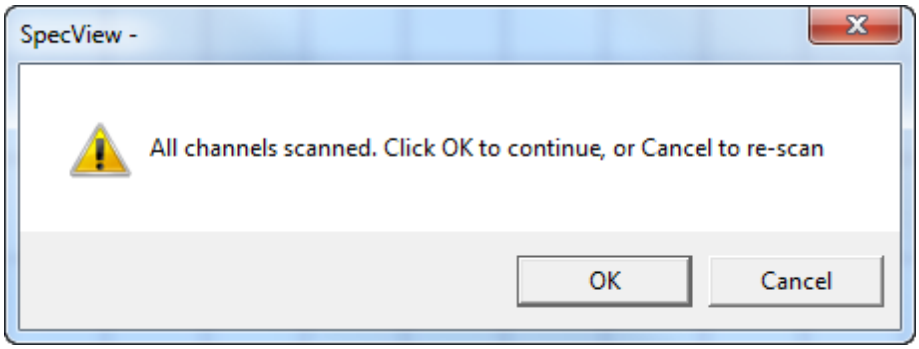
Once there is an Instrument View (or faceplate representation) displayed on the GDW for each of the instruments which are connected, the screen may look as follows and here are some examples:



Then stop the automatic scanning by clicking the 

button. Or if there are instruments on other COM ports then click the **Skip to Next Port** button to continue scanning on the next COM port.

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To scan for additional instruments of different types that are connected click **Cancel** to re-scan:

There is also auto detection for TCP/IP [201]

If there are any problems then first check the wiring and instrument setup [565]

Once the instruments are detected then the next stage is to setup the screen(s) with Trend Charts [523], Bar charts [397], Buttons [403], Bitmaps [289] and other graphics [372].

5.4.2 TCP/IP Auto Detection

TCP/IP Auto Detection for instruments connected via TCP/IP works only with Instruments supporting Modbus/TCP, either natively or via an Ethernet Bridge.

Native instruments are:
- ModMux MMTCP-xxx range
- Honeywell HC900
- Honeywell TrendView Recorder
- Eurotherm Chessell 5000 recorder

Ethernet Bridges allow any Modbus RTU device to be communicated with by Modbus TCP/IP. Some examples of these Bridges are:
- ModMux TCPCONV
- Lantronix CoBox
- Honeywell Ethernet bridge

The Modbus protocol specifies a Slave Address, for RS422/485 devices, this is the address of the instrument over comms. For Modbus/TCP, the slave address is still relevant in the following cases:

For native instruments, there is only one Slave Address per IP Address because there is only one instrument. In this case the Slave Address is usually 1.

For Bridge connected instruments, there can be up to 255 discrete Modbus Slaves connected through the one IP addressed bridge, so the Slave Address has the usual meaning.

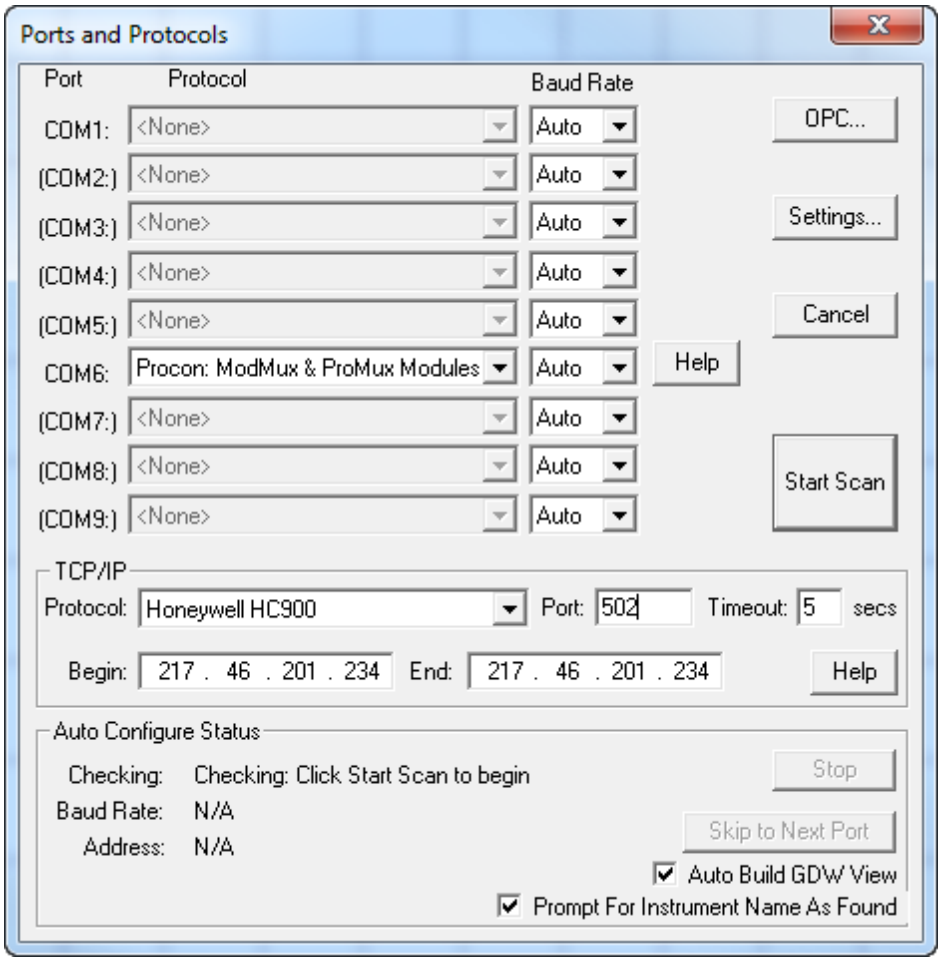
In SpecView's Auto detect setup we can specify a start and end IP Address. SpecView will start at the beginning IP Address and scan Slave Addresses 1 to 255 on that IP address before moving to the next

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IP address.

In the case where each IP address is a native Modbus/TCP instrument this scanning can be unnecessary, as there is only ever one Slave Address to be found. In this case the **Skip to Next IP** button can be used in a similar way to the existing **Skip to Next Port** button.

It is useful to think of each IP Address as a separate COM port. Where it is clear that there is only one instrument attached to a port then looking for 254 more instruments is not required.



Firstly, if all the instruments to be auto detected are accessible via TCP/IP then set the Protocol for all the COM ports to <None>.

Protocol:
Select the relevant protocol for one of the instruments to be detected.

Port:
The **Port** field should be left as 502 unless there is a specific reason to change it. Port 502 is the standard Modbus TCP/IP port.

Timeout:
Due to limitations inside the Modbus TCP/IP protocol and the Internet in general, scanning for Slave

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Addresses on a single IP Address can take a long time. The **Timeout** field is used to control this. For a LAN, the default of 5 seconds is suggested, meaning that one Slave Address per 5 seconds is tested. For testing across the Internet, a higher value is recommended, such as 25 seconds.

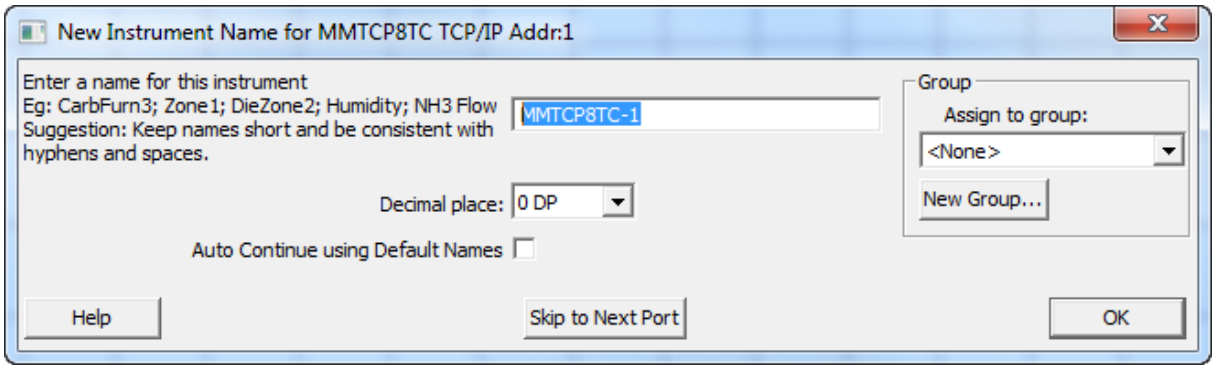
Begin: and End:
This allows you to specify a range of IP addresses and permits all the addresses in the range to be scanned for instruments, or if the precise address is not known.

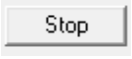
The Ending IP Address is set to the same as the start address by default, this allows for quick scanning of a single IP Addressed native instrument or a string on a single bridge.

The Honeywell HC900 Auto detect is pre-set as there can only be one Slave Address on any given IP Address, so it will always skip to the next IP Address (if any) when an HC900 is found.

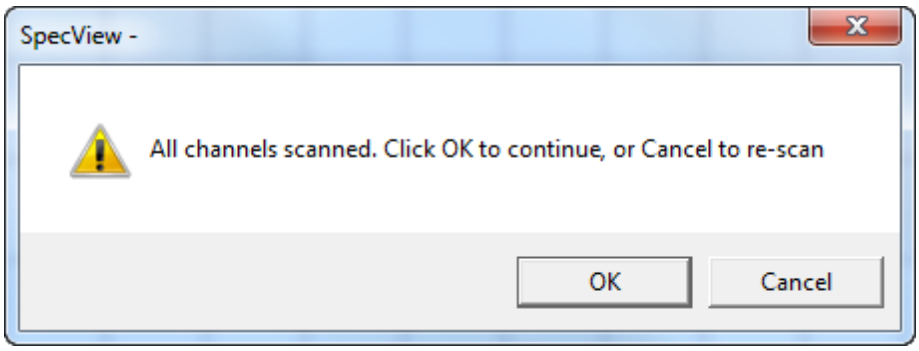
Click 

For each instrument found this box is displayed:



This allows the name for each instrument to be assigned (or use the default names), specify the decimal places [496] and if required assign to a group [504].
Once the instrument view(s) have been displayed on the GDW (which may be behind the Ports and Protocols box) then click 

and the following dialog will be displayed:



To finish scanning for instruments click **OK**. To scan for more instruments click **Cancel**.

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To subsequently add further TCP/IP instruments to this project use Test Comms for Update 207 or add additional instruments manually 204 .

5.4.3 Manually Defining Instruments

Instruments will need to be defined manually if they:
1 Are not physically connected to the computer for auto detection
2 Are a special instrument that cannot be auto detected, for example, Red Lion, Dupline and Omron
3 Modular instruments where SpecView isn't able to automatically detect all the modules in the instrument

After starting SpecView click **Select/Create Project,** then click **New Manual Project** on the Projects box. This will go directly into Edit Mode.

Then see Templates List 343 for the steps to define a new instrument.

For more information on Modbus instruments read Modbus instrument addressing 215

If this is the first occurrence of an instrument being assigned to this COM port then the Port Settings 206 box will be displayed. Typically, just clicking **OK** on this box will be sufficient, unless the instrument is using non-standard settings, in which case please read Port Settings 206.

Some instruments in SpecView are made up of more than one Instrument View 346. This is done when an instrument has a large number of parameters. In this case the parameters for the instrument are split into logical groups, for example, Programmer & Controller, which are assigned the same instrument address. Each logical group has its own Instrument View.

Typically when an instrument is AutoDetected 198 all the required Instrument Views for it are detected & automatically added to both the screen & the Variables List 313. However, for some modular instruments it isn't possible for SpecView to automatically detect all the modules in the instrument so they will need to be added manually, as described above. If in doubt at this stage please contact 798 a SpecView representative.

This is now configured as if the instrument was connected and the instruments had been automatically detected by clicking the **Test Comms for New Project** button.

Now add the Instrument View 346 or individual numeric values 348 to the GDW

Precautions Deleting and Creating Instruments
When an Instrument is defined in SpecView it is given a unique identity code (Unique ID) When any variable from that Instrument is used, SpecView identifies it by the Unique ID, NOT by name.

Note: If an Instrument is deleted IT IS GONE FOREVER. All variables from that Instrument on GDW's, in Logging, on Trends will no longer be updated.

Please be aware that defining another instrument with the same name is NOT regarded by SpecView as the same Instrument.

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Adding Instruments to the Database
Special configuration tools are used by SpecView's engineers to define the database. These are available, for some drivers only, to qualified users and only then in certain circumstances. It is not possible to add variables to pre-defined instruments from within SpecView. The configuration tools are required to do this.

SpecView has a generic driver for the Modbus protocol 215 which can be used to communicate with Modbus instruments which SpecView doesn't as yet support. This can also be used for Modbus PLCs.

For further information on the above please contact a SpecView representative.

Now go straight to Edit Mode 311.

5.4.4 Virtual and Offline Instruments

Virtual and Offline instruments are a way to have one or more instruments in the Variables List 313 that do not make real requests over comms.

Use Offline instruments where:
- An instrument has been decommissioned permanently. This allows log file conversion and Historical Replay to still work on this instrument without deleting it from the Variables List.
- An instrument is temporarily offline and will return to service some time later. This stops SpecView reporting error codes while the instrument is unavailable.

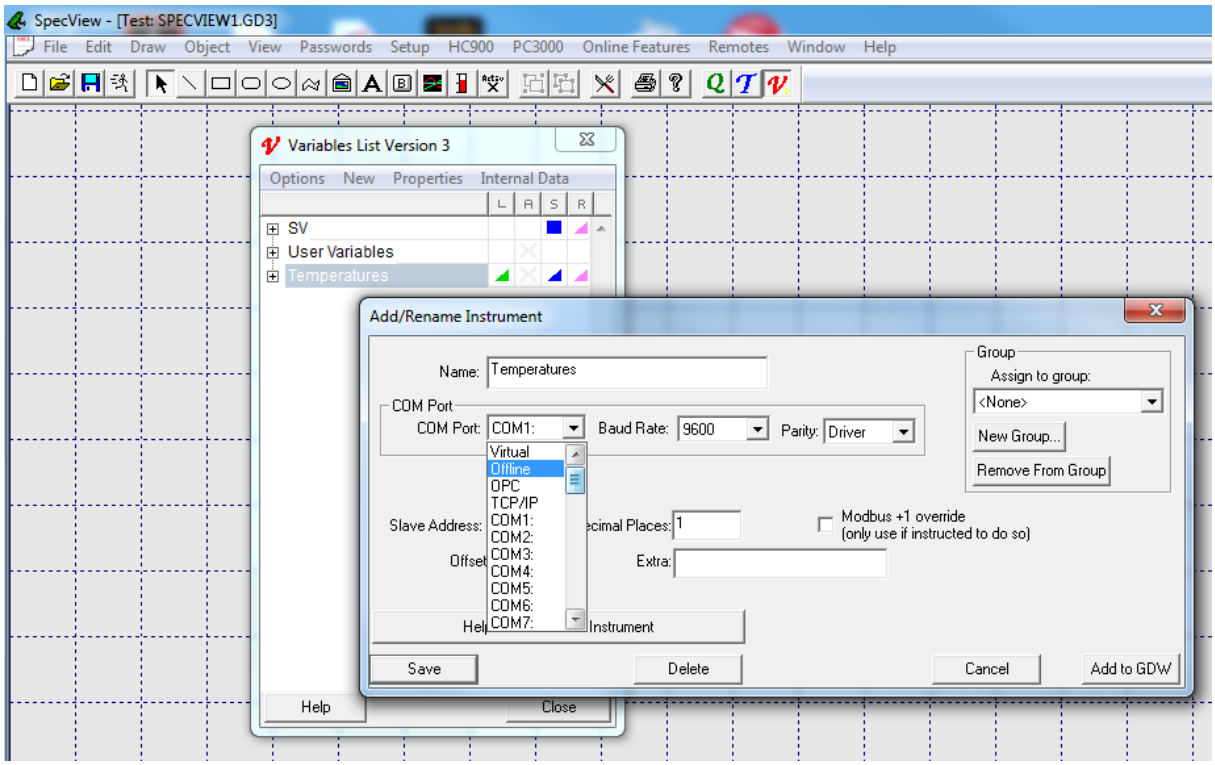
Use Virtual Instruments where:
- A Recipe Send-To 649 scheme is implemented such that the **Virtual** instrument is used as the source of the recipe that can then be sent-to the real instrument(s). This eliminates the chance of an accidental download of a recipe to the source instrument because **Virtual** instruments cannot be written to.

Offline instrument values appear on screen as 'O/L' and **Virtual** instruments appear as 'Virt'.
These indications can be changed in SV3.INI 513 in the [Settings] section:
OfflineValue=(O/L)
VirtualValue=Virt

***IMPORTANT**: To set an instrument to **Offline** it is necessary to be in **Edit Mode Offline** (or from **Edit Mode**, go to the **Online Features** menu and choose **Disable All**).*

To change a real instrument into an **Offline** one, first go into **Edit Mode Offline** and open the Variables List, select the **Properties** of the instrument and then in the **Com Port** drop-down box, at the very top of the list (above **TCP/IP**) is **Offline**.

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To make an instrument **Virtual**, the same procedure as above is used, except select **Virtual** instead of **Offline**.

It is possible to move all instruments on a given COM port to **Offline** or **Virtual** by using **Swap COM Ports** from the **Setup menu** while in **Edit Mode Offline**.

However, using **Swap COM Ports** to swap to **Offline/Virtual** will change *all* the instruments on that COM port to **Offline/Virtual**.
In addition if instruments connected to more than one COM port have been set to **Offline/Virtual** then it is necessary to consider whether to use
Swap COM Ports to change from **Offline/Virtual** because they won't necessarily be assigned back to their original COM ports.

Virtual Instruments can be setup when they are created by choosing the **Virtual** port instead of a real port when the instrument is created from the **Templates list**.

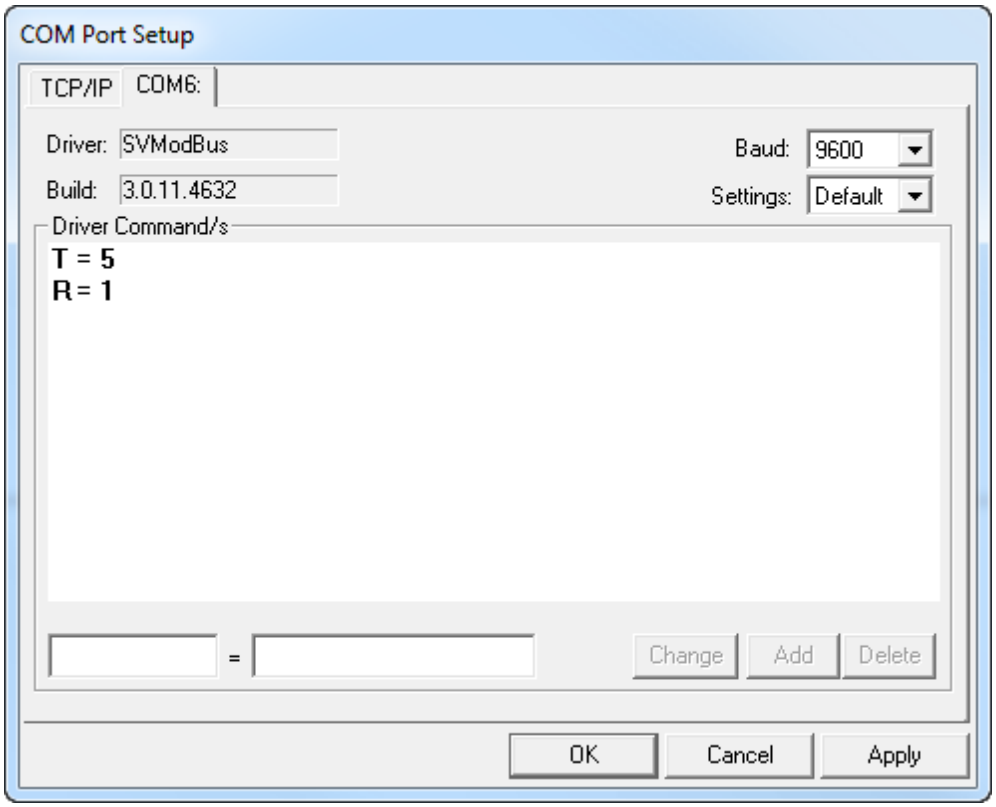
5.4.5 COM Port Settings

When an instrument is being manually defined [204] it is assigned to a COM port, Baud rate and data bits/ parity/stop bits.

These settings can be changed afterwards:
- During Edit mode [282] using the Setup COM Ports menu command on the Setup menu [305].

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- Or during Runtime mode [251] using the Setup COM Ports menu command on the Options menu [276], shown below:



Baud Rate
If the baud rate is known, set it appropriately.
If there is any uncertainty as to the baud rate used by the instrument, leave it set to the default shown.

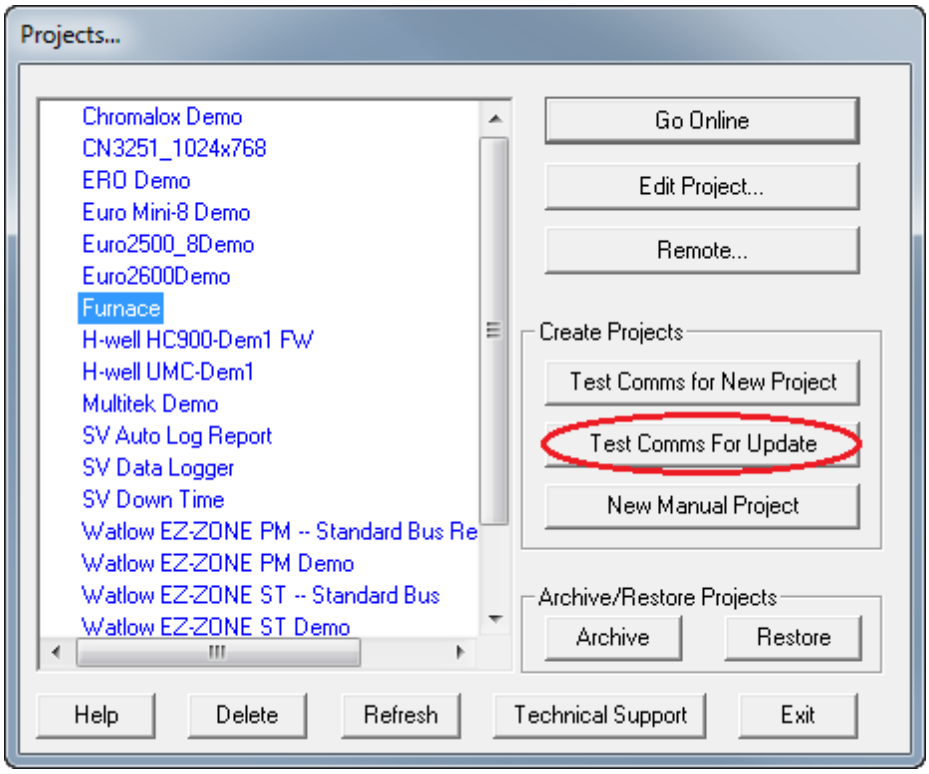
Parity
The Driver [499] settings will be the factory defaults for the selected protocol.
If your instrument is set to other than factory defaults, specify the Data bits, Parity and Stop Bits you need.
For further details click the Variables List [313] tool, select the instrument's name and click **Properties**, then click **Address Help**.

This box also allows Driver Commands to be set. In this example 'T=5' means that the timeout for reading a value over comms is set to 5 tenths of a second, 'R=1' means that it will retry once.
There are many other Driver Commands, such as setting DEBUG levels. However, these are best discussed with a SpecView Representative.

5.4.6 Test Comms For Update

To auto-detect [198] additional instruments to add to an existing project use **Test Comms for Update**.

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This will find any additional instrumentation that has been connected since the original project was created and add the instrument definitions to the Variables List[313].

It searches for all instruments connected then compares this information with what is already defined in the project and will warn of any conflicts, such as where instrument types have changed at a given address.

5.4.7 Add/Rename Instruments

This box is used to add a new Instrument View[346] to a GDW[311]
OR
To change the name, and/or COM port, and/or address of an instrument

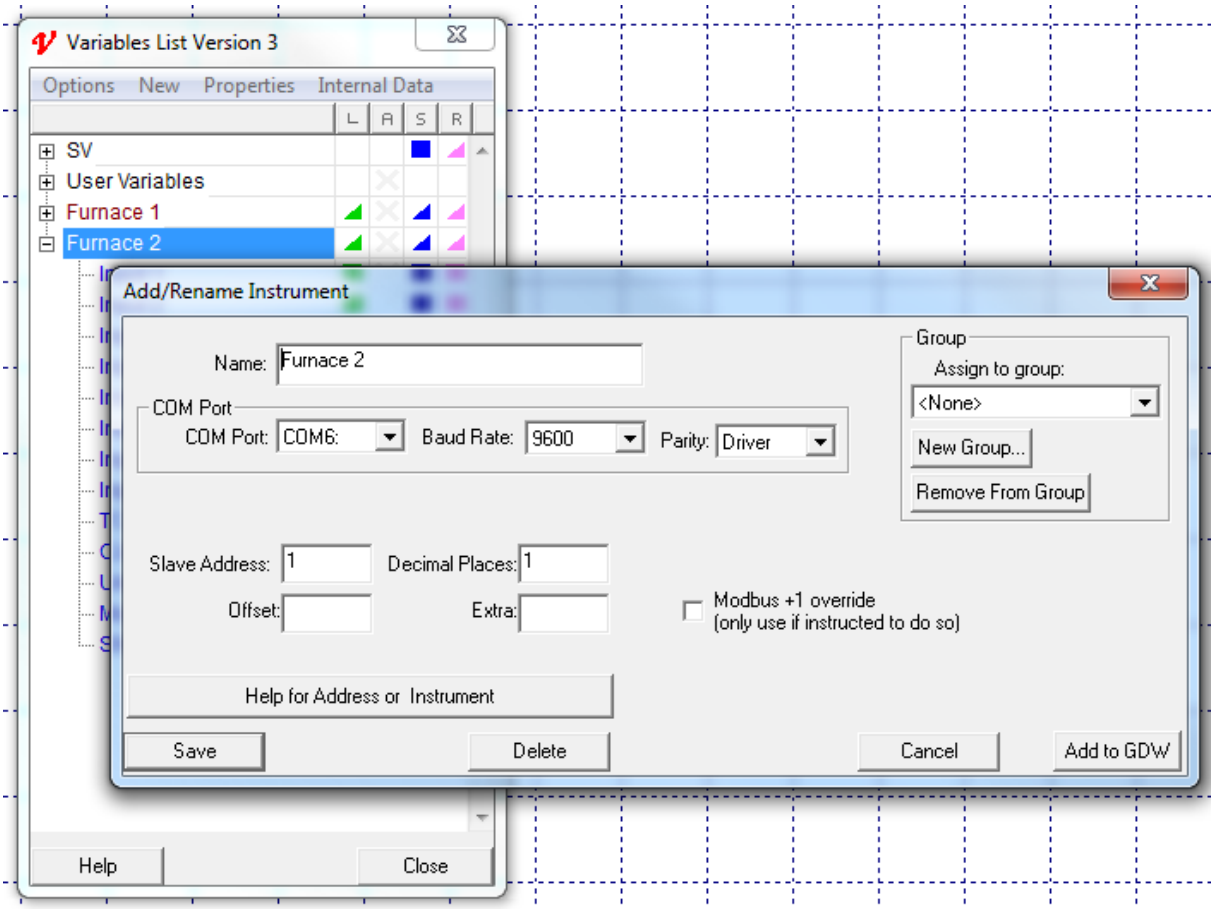
To add a new Instrument View[346] to a GDW[311]:

See Templates List[343] for the steps to define a new instrument.

Open the Variables List[517] by clicking  on the toolbar, then

- Double-click an instrument name in the Variables List OR
- Single-click an instrument name and click **Properties** OR
- Right-click an instrument name in the Variables List

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Note: The names of existing Instrument Views will NOT be changed. To get an Instrument View with the new name, click Add to GDW and delete the existing Instrument View on the GDW by selecting it and pressing the Delete key. Do NOT click the Delete button on the 'Add/Rename Instrument' box.

Decimal Places

Some protocols (examples include Modbus [215], Red Lion and Yokogawa Green Series) do not provide the computer with information about decimal places [496]. Therefore when SpecView auto-detects instruments it will assume NO decimal places for Modbus and Red Lion, and ONE decimal place for Yokogawa Green series.

Some instrument values are known by SpecView to require a decimal place and this will be added automatically. Other instrument values MAY need one or more decimal places depending on how the instrument is configured. These values take their decimal place requirements from the **Decimal Places** field on this box.

When you start SpecView, if the reading is ten or a hundred times too big/small (for example, 123.4 instead of 1234), then you will need to change the **Decimal Places**.

To change the decimal places for a specific variable on a GDW use the Dynamic Attributes [357] menu command.

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Name (of Instrument)
Names can be any length and include spaces and special characters (# : ; * etc.)
Note: Do not make them too long. That will make list boxes very wide.

Port
Select the communications port (COM1 to COM9) that this instrument is (to be) connected to. However, if the instrument(s) are connected to a COM port which has a number above 9 then it will be necessary to set MaxPorts[458].

Address
Type in the address for this instrument. Click **Address Help** if you are not sure.

Add to GDW
Click this button to add an Instrument View[346] to the GDW. Any changes to Name, Address or COM Port are also saved.

Help for Instrument / Address
Help for your instrument(s) may be included if provided by the instrument manufacturer. **Address Help** will detail how to define the address SpecView uses to communicate with this instrument.

Rename Only
Saves any changes made to Name, Address or COM Port without adding a new Instrument View to the GDW.

Delete Instrument
Note: Please read Precautions Deleting Creating Instruments under Manually Defining Instruments[204] before deleting Instruments
Clicking this button will delete the Instrument.

To continue with Editing go to Editing Projects[282]
If you have the project the way you want it go to Runtime Mode - Using SpecView[251]

5.4.8 Using a Barcode Scanner with SpecView

A barcode scanner is another way of entering alphanumeric data into a computer. A common question which is asked is: **"Can SpecView do something such as download a recipe, start the process, check process parameters etc?"**

All of these are possible providing the sequence of events can be broken down to simple 'If – Then' statements that the SpecView's optional Strategy Controller[513] can perform.

Consider the example of downloading a recipe based on a barcode. If there are only a limited set of possible barcodes, then having an event[684] for each possible barcode is reasonable. The Strategy Controller would be set up as:

Event: Barcode = ABCDEFGH Action: Recipe: Download Specific Recipe[444]: 'Blue Widgets'

However, it is probable that there are far too many combinations to do a direct mapping; therefore a *part* of the barcode can be extracted using SpecView's Math Function[433] to get the relevant characters.

Using the Math Function[433] **Divide** operator on a text variable works as a 'mid' function, so the characters from the 'x'th position onward are taken, until the end of the text (where the first character is

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0).

For example, the fourth character of the barcode might identify the recipe to be used for this process.

Therefore, to extract 'D' from 'ABCDEFGH' use divide by 3 giving 'DEFGH' and subtract 1 to give 'D'.

The Strategy Controller is now simplified to:

Event: Barcode = D Action: Recipe: Download Specific Recipe[444]: 'Blue Widgets'

If multiple barcode scanners are being utilized through multiple remote copies of SpecView, then it is strongly recommended to use method 1 mentioned below (Connecting the barcode scanner interface to a serial port).
Using method 1 will avoid conflicting inputs received simultaneously from multiple remotes.

How do I use a barcode scanner with SpecView?

There are two ways to communicate with a barcode scanner from SpecView:

1. By connecting the barcode scanner interface to a Serial port[211]

2. In series with a keyboard, sometimes called a 'keyboard wedge'[213]

5.4.8.1 Connecting the Barcode Scanner Interface to a Serial Port

SpecView will read from the Serial port and the sequence of characters is then seen in SpecView as a **Text Variable**.

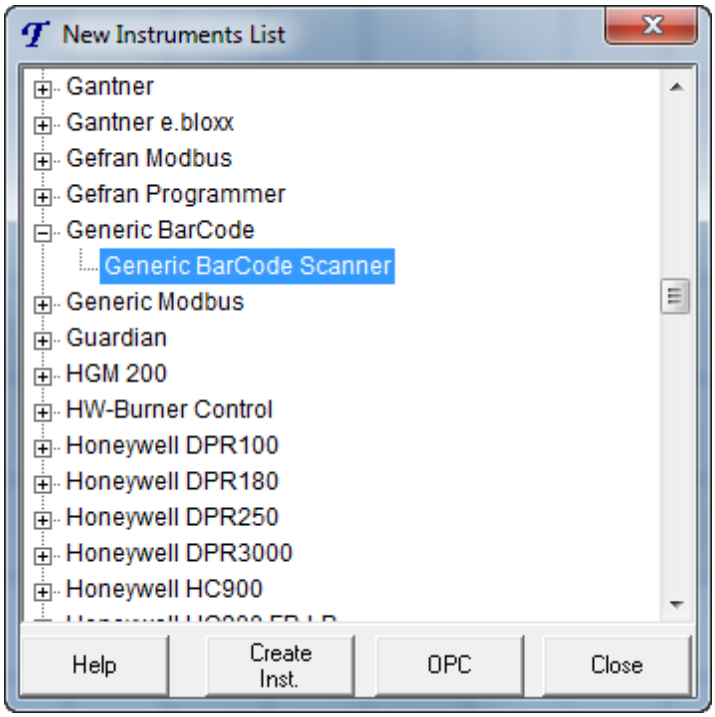
The barcode scanner interface reads from the Serial port until a <CR> is received, and then passes that into SpecView as a Text Variable, SpecView does not transmit anything; it just accepts characters from the Serial port and stores them into the Text variable when a <CR> is received. The Strategy controller can be set to watch for any change in the text and then execute the required actions.

Setting up SpecView with a serial port barcode scanner

To use a barcode scanner the **Generic BarCode** driver must be enabled[64] on the dongle[72].

From Edit Mode open the Templates List  find **Generic BarCode** and create a **Generic BarCode Scanner**. Enter the correct COM port that it is connected to. However, any address can be used, such as '0'.

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The reason the address is not significant is because it is only possible to connect a single barcode scanner to a given COM port. If further instruments are required then SpecView's Multiport option[507] will need to be enabled on the dongle[72].

The 'barcode' parameter of that instrument will display the last sequence of characters sent from the COM port with a <CR> after it.

There is NO specific action for failing to read the barcode within SpecView. Some scanners will return the text 'BAD READ' but SpecView will assume that any text terminated with a <CR> is valid.

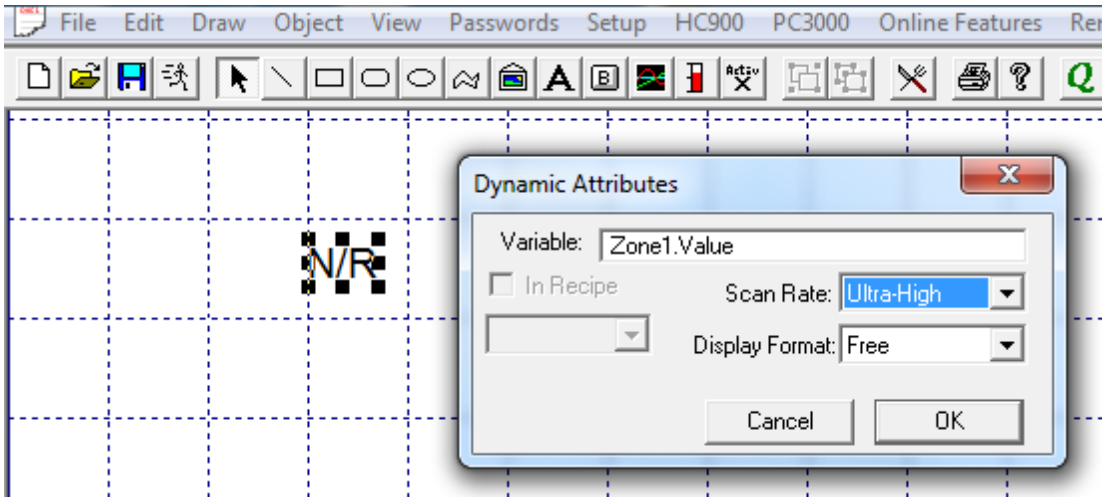
The case of a timeout will need to be handled appropriately, as there might be an issue with timeout when the text goes back to N/R.

Consider these two different scenarios (A and B below):

A) If the barcodes are guaranteed to be different each time, because they represent a serial number, then it would be best if the last barcode received was shown on the screen without going to N/R after a timeout period.

Therefore, it is necessary to use a high value for the timeout, such as T=10000 (using **Setup COM Port** from the Options menu[276]) and TTL=10000 (Time To Live) to keep the last value on the screen. Also put the 'raw' value on the screen and use Edit->Dynamic Attributes[501] to change the **Scan Rate** of the value on the screen to Ultra-High (or at least faster than the barcode is likely to change):

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B) If the barcodes could repeat themselves and be the same twice in a row (such as when there are two of the same product at a supermarket checkout), then keeping the barcode on the screen for a long time means that the operator cannot tell the difference between the first item and the second.

In this case the value of T should be short enough so that the values go to N/R between readings, either because they are being counted, or because an event is being triggered (such as a recipe download) on every barcode scanned.

In the case of (B), the Strategy Controller could be used to capture the last known value of the barcode and could store it in a SpecView Text User Variable [322], in order to retain it on the screen for the operator's reference.

5.4.8.2 In Series with a Keyboard (Keyboard Wedge)

This method allows the barcode scanner to act exactly like a keyboard.

1. User must ensure SpecView is ready to accept keyboard entry.
2. Unsolicited keyboard entry

1. User must ensure SpecView is ready to accept keyboard entry.

This can be done by touching the variable or it can be linked to a button.

For example, the operator clicks a 'Ready to Start' button which turns on a SpecView Boolean that is watched by the Strategy Controller. The actions:

GDW Control: Swap to another GDW [426]
Parameters: Alter Value Interactively [429]

set SpecView ready to receive keyboard or barcode input.

2. Unsolicited keyboard entry

Alternatively, SpecView can support unsolicited keyboard entry from version 3.1.228 onwards by utilizing specific user variables.

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Create a unique Text User Variable and name it 'SVKeyboardEntryText'. The variable name is case sensitive. For additional help with creating user variables, please read Variables List - SpecView Variables 517.

Click and drag SVKeyboardEntryText on to the screen and enter Runtime Mode 486.

If the scanner is correctly connected to the PC and is functioning as expected, then SVKeyboardEntryText should display scanned values without any further user input.

However, when scanning multiple barcodes, SVKeyboardEntryText will append the most recent barcode to the end of the previous barcode as seen below.


Figure 1: SVKeyboardEntryText after scanning one barcode.


Figure 2: SVKeyboardEntryText after scanning two barcodes.

To prevent this from occurring, Strategy Controller must be utilized to implement a few lines of strategy.For information on programming strategy controller, please read Programming the Strategy Controller 667.

One possible way to circumvent the barcodes appending to the end is described below.

Create a Boolean User Variable. The variable must be named 'SVKeyboardEntryEnter'. The name is case sensitive.

If a <CR> (Carriage Return) or <LF> (Line Feed) character is scanned, then SVKeyboardEntryEnter will automatically be turned ON.
The end of a barcode usually contains a <CR> or <LF>.
SVKeyboardEntryEnter will not automatically turn OFF.

Create another Text User Variable. This variable can be named appropriately, for example 'LastBarcode'.

Create a strategy event that looks for SVKeyboardEntryEnter to turn ON. The actions for that strategy event should be as follows:

- Turn SVKeyboardEntryEnter OFF
- Copy SVKeyboardEntryText to LastBarcode
- Clear SVKeyboardEntryText by setting SVKeyboardEntryText to be a blank string.

If done correctly, when a barcode is scanned, SVKeyboardEntryEnter will be ON. SVKeyboardEntryText will be populated.

Strategy controller will notice that SVKeyboardEntryEnter is ON and turn SVKeyboardEntryEnter OFF, copy SVKeyboardEntryText to LastBarcode, and clear SVKeyboardEntryText.

At the end ...

LastBarcode will contain the value of the previously scanned barcode.

SVKeyboardEntryText will be blank and ready to be populated with the next barcode.

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SVKeyboardEntryEnter will be OFF and will be ready to turn ON once a new barcode is scanned.

There is a video on SpecView's YouTube channel that illustrates this here: 7010 SpecView Version 3 Barcode scanner to Keyboard

5.4.9 Address Help

For details on addressing specific types of instrument, choose the protocol below:

Eurotherm Bisync 218
Modbus 215
Allen Bradley 219
Eurotherm Chessell 5000 219
Mitsubishi A Series 220 Q Series 221 FX Series 221
Yokogawa Green Series 222
Yokogawa UT15/27/38 Discrete Instruments 223
Yokogawa UT2400 & UT2800 Controllers 223
Yokogawa Darwin / Recorder 224
RKC Discrete Instruments 226
RKC SR Mini 226
West 227
FGH 227
Yokogawa HGM200 227
ERO TFS - see ModBus 215
Red Lion 228
Watlow 228 Anafaze Modbus - see ModBus 215
Honeywell UDC 3000 Modbus 231
Moore Instruments - see Modbus 215
Advantech Adam Modules 231
Anafaze/AB Protocol 231

5.4.9.1 Modbus RTU and Modbus TCP

If the instrument you are using uses the Modbus protocol then you will need to know how the instrument is configured.

For instruments using Serial Comms:

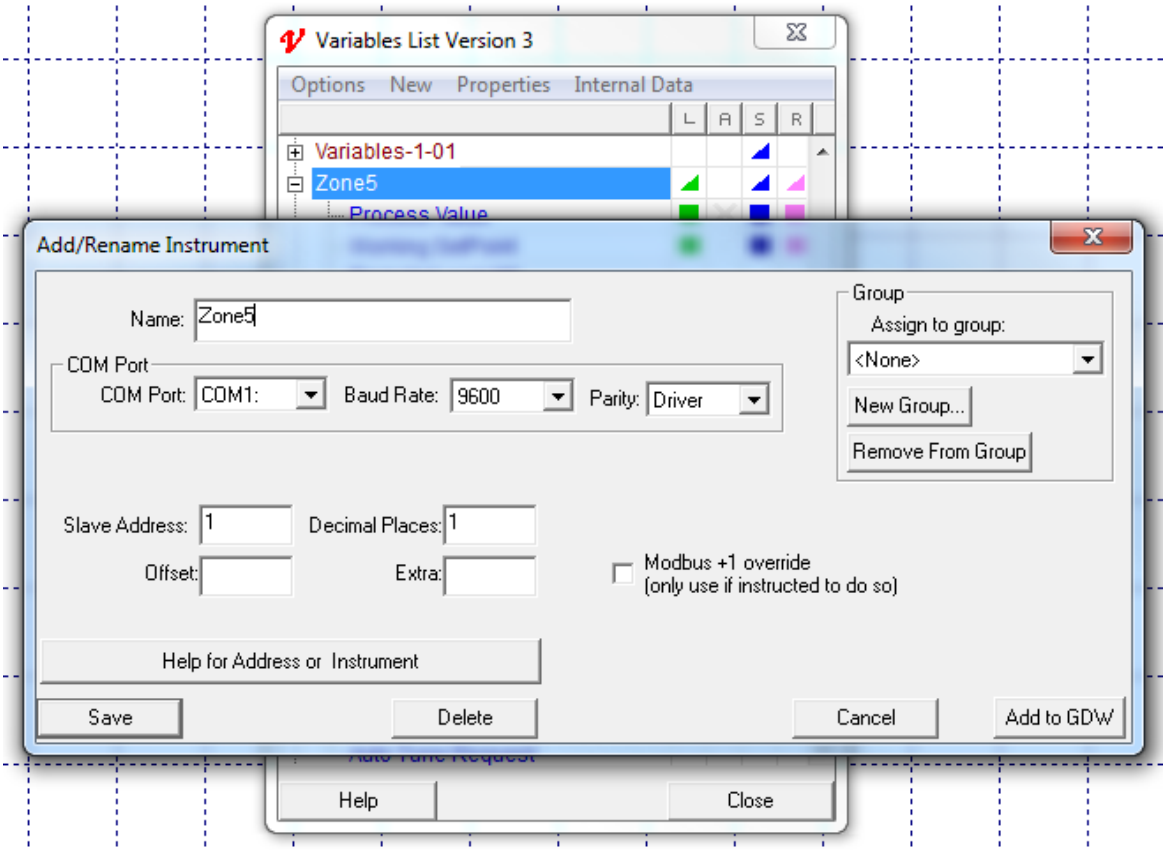
When setting up the instrument itself :

- If there is a choice between Modbus or J-Bus protocol then choose J-BUS
- If there is a choice for Data Bits choose 8 (EIGHT)

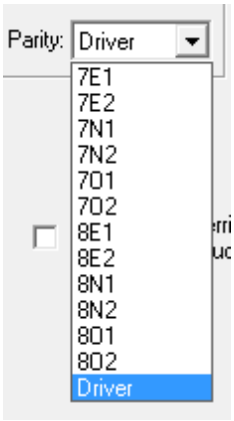
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- If there is a choice for Parity choose NONE
- If there is a choice for Stop Bits choose 1 (ONE)

Then in SpecView use the **Add/Rename Instrument** box to reflect the instrument's own settings:



On the **Parity** drop-down, ideally leave it as 'Driver' to use the driver defaults of '8N1', otherwise choose accordingly:



The meanings are listed below:

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	Data bits	Parity	Stop Bits
7E1	7	Even	1
7E2	7	Even	2
7N1	7	None	1
7O1	7	Odd	1
7O2	7	Odd	2
8E1	8	Even	1
8E2	8	Even	2
8N1	8	None	1
8N2	8	None	2
8O1	8	Odd	1
8O2	8	Odd	2

To define a Modbus instrument in SpecView:

Slave Address:
The two-digit address of the instrument in decimal.

Decimal places:
The number of decimal places [496] for user defined items 0 / 1 / 2 / 3, SpecView will put a decimal place in the position indicated by this setting. The setting affects those variables where the number of decimals required is based on an instrument setting such as the range that has been selected. Some items, such as Output Power are fixed at a given number of decimal places and are not affected by this setting.
SpecView's Instrument Auto-Detection [198] may assume 0 decimal places when detecting instruments. This might result in values being 10 or 100 times too large on displays.

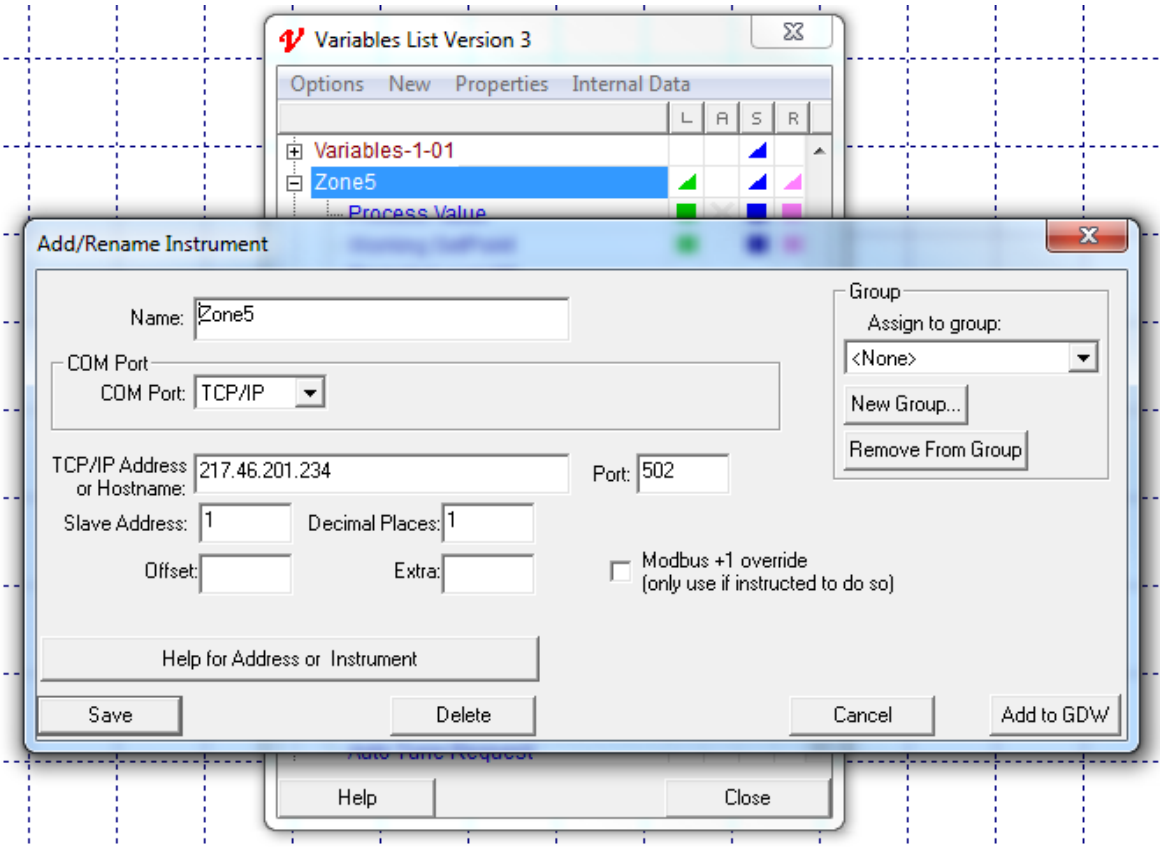
Offset:
Some instrument companies (of, for example, multi-loop controllers) use an address structure so that a particular loop can be accessed with the appropriate address offset. This feature is also used with SpecView's 'Generic Modbus' instrument views. The addresses for each instance of the instrument are the same and offset by a fixed number. See Generic Modbus for more details. Also, where this feature is required for a specific instrument, refer to the Help for that instrument.

Extra:
Leave this field blank unless otherwise directed by your SpecView representative.

For Instruments using Modbus TCP/IP

To specify a Modbus TCP instrument choose 'TCP/IP' from the COM port drop-down list and enter the IP address or hostname into the box:

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Port:
The port is by default 502, only change this if absolutely necessary.

For **Slave Address**, **Decimal Places**, **Offset** and **Extra** see above.

Also ensure the instrument variables are using the correct scaling [326].

5.4.9.2 Eurotherm Bisync

Note: Driver defaults to 7 Databits, Even Parity, 1 Stop Bit

Format is:
AA
Where:
AA: Two digit address of controller in decimal

Examples:
00
01

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5.4.9.3 Allen Bradley

The address for Allen Bradley is specified as follows:

<PLC Address><Duplex mode><Check sum type><PC Host Address><#<File Number Override>><;<Address Offset>>

<PLC Address> is the address of the Allen Bradley instrument in the decimal range 0 to 254.

<Duplex Mode> is either “h” or “H” for Half-Duplex; “f” or “F” for Full-Duplex.

<Check sum type> is either “c” or “C” for Cyclic Redundancy Check (CRC); “b” or “B” for Block Check Character (BCC).

<PC Host Address> is the decimal address you want the PC to be known as - must NOT be the same as the <PLC Address>

<#<File Number Override>> is to be used for Binary (3), Counter(5), Control(6), Timer(4) and Integer(7) instruments to override the standard Allen Bradley file number - shown in brackets. The range of valid values is 9 to 999.

<;<Address Offset>> is to be used when you need more than one data type for a given instrument, for example:

Your ladder program uses 32 Inputs for a Full-Duplex CRC instrument @ address 1 and the PC @ address 99. Then you need 2 Input blocks as each only holds 16 Inputs, so you would specify 2 Inputs:

1. 1FC99
2. 1FC99;1

Your ladder program uses 33 Inputs for a Half-Duplex BCC instrument @ address 5 and the PC @ address 99. Then you need 3 Input blocks as each only holds 16 Inputs, so you would specify 3 Inputs:

1. 5HB99
2. 5HB99;1
3. 5HB99;2

Further details on the Allen Bradley are in:

Allen Bradley Appendix.pdf

which can be found on the SpecView CD in a folder called TechNotes.
However, by default this folder does not get installed, therefore it is necessary to use Windows Explorer to view the CD to access the file.

Alternatively this file is also available for download on our website
http://www.specview.com
Click on the 'Download' link, then click the link to the FTP site.
The most recent document is in the TechNotes folder.

5.4.9.4 Eurotherm Chessell 5000

The addressing is the same as that for Modbus TCP/IP.

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However, in order to address the other channels, the Modbus TCP/IP address specification needs to be followed by a semi-colon and an offset.

For "Channel Cfg Data" the offset is multiples of 162.
For example, if the Modbus TCP/IP address was 192.168.1.99,1,2J then:

Channel 1 would be: 192.168.1.99,1,2J
Channel 2 would be: 192.168.1.99,1,2J;162
Channel 3 would be: 192.168.1.99,1,2J;324
Channel 4 would be: 192.168.1.99,1,2J;486
... (up to as many channels as required)

For "Channel RT Data" the offset is multiples of 3.
For example, if the Modbus TCP/IP address was 192.168.1.99,2,2J then:

Channel 1 would be: 192.168.1.99,2,2J
Channel 2 would be: 192.168.1.99,2,2J;3
Channel 3 would be: 192.168.1.99,2,2J;6
Channel 4 would be: 192.168.1.99,2,2J;9
... (up to as many channels as required)

For "Inst Data" there is no offset required as only one is required.

5.4.9.5 Mitsubishi A Series

The address for Mitsubishi A Series is specified thus:
<Station Address><Check sum type><Station Address Offset><;Block Number>

<Station Address> is the address of the Mitsubishi A Series instrument in the decimal range 0 to 99. The R2 only supports a station address of 0.

<Check sum type> is either “c” or “C” for check sum on i.e. dip switch 12 is set on. Use “n” or “N” for check sum off.

<Station Address Offset> is to be used when you need more than one data type for a given instrument e.g.
Your ladder program uses 257 Inputs for an instrument @ address 0 with check sum on. Then you need 2 Input blocks as each only holds 256 Inputs, so you would specify 2 Inputs:

1. 0c
2. 0c256

Your ladder program uses 513 Inputs for an instrument @ address 0 with check sum off. Then you need 3 Input blocks as each only holds 256 Inputs, so you would specify 3 Inputs:

1. 1
2. 1n256
3. 1n512

<;Block Number> is used when accessing the “File Registers” instrument. The semi-colon is mandatory. The number is decimal starting from 0.

Further details on the Mitsubishi A Series are in:
Mitsubishi A Series Appendix.pdf
which can be found on the SpecView CD in a folder called TechNotes.
However, by default this folder does not get installed, therefore it is

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necessary to use Windows Explorer to view the CD to access the file.

Alternatively this file is also available for download on our website
http://www.specview.com
Click on the 'Download' link, then click the link to the FTP site.
The most recent document is in the TechNotes folder.

5.4.9.6 Mitsubishi Q Series

SpecView does not support the Q series natively.
However some Q series PLCs can take Modbus/RTU cards, which SpecView does support.

See Modbus Addressing for details on how to specify the instrument's address in SpecView

At the time of writing there are 2 ranges of Q series:

- Qn range
- QnAS range

The QnAS rack does allow it to take the A series cards. Therefore it should allow you to use either:

- A1SJ71UC24-R2-S2 - Modbus (ASCII + RTU) interface module, RS232C connection (slave)
- A1SJ71UC24-R4-S2 - Modbus (ASCII + RTU) interface module, RS422/485 connection (slave)

If you use either card it must be set to Modbus/RTU. The R2 is single-drop and the R4 multi-drop. At the time of writing we do NOT have any customers using either card and so cannot guarantee results!

The most uptodate information on the Mitsubishi Q Series
is available for download from our website
http://www.specview.com
Click on the 'Download' link, then click the link to the FTP site.
The most recent document is in the TechNotes folder.

5.4.9.7 Mitsubishi FX Series

The address for Mitsubishi FX Series is specified thus:
<Instrument Name>,<Address Offset >

< Instrument Name > is the name that you wish to call it - this is ignored by SpecView for the purposes of 'talking' to the FX PLC.

< Address Offset > is a hexadecimal offset value to be used when you need more than one data type for a given instrument e.g.

Your ladder program uses 17 Outputs for an instrument that you call "Inst1". Then you need 2 Output blocks as each only holds 16 Outputs, the first would have no address offset and the second would have hexadecimal 10 (16 in decimal) as the Outputs run from Y0 to Y15, so you would specify 2 Outputs thus:

1. Inst1
2. Inst1,10

Your ladder program uses 33 Inputs for an instrument that you call "Cooler". Then you need 3 Output blocks as each only holds 16 Outputs, the first would have no address offset and the second would have hexadecimal 10 (16 in decimal) as the Outputs run from Y0 to Y15 and the third would have hexadecimal 20 (32 decimal), so you would specify 2 Outputs thus:

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1. Cooler
2. Cooler,10
3. Cooler,20

Further details on the Mitsubishi FX Series are in:
Mitsubishi FX Series Appendix.pdf
which can be found on the SpecView CD in a folder called TechNotes.
However, by default this folder does not get installed, therefore it is necessary to use Windows Explorer to view the CD to access the file.

Alternatively this file is also available for download from our website
http://www.specview.com
Click on the 'Download' link, then click the link to the FTP site.
The most recent document is in the TechNotes folder.

5.4.9.8 Yokogawa Green Series

Note: Driver defaults to 8 Databits, Even Parity, 1 Stop Bit

Note: Care must be made to use the right checksum mode on the instrument, see the addressing below, but also the Driver Command section later below.

Note, AutoDetect will assume 1 decimal place when detecting instruments.

Format is:
A,D,C

Where:
A: Address of controller. 0 to 99
D: Precision of user defined items: 0 / 1 / 2 / 3
C: Checksum mode (optional). Must be ", C" if checksum is turned on, or absent if not enabled. Checksum mode on corresponds to the "PSL" setting in the comms setup. Setting PSL to 0 on the instrument (the default setting) means no checksum, and setting it to 1 enables the checksum. See below for an except from the manual.

Examples:
1,2 Instrument 1, Two Decimal Places, No Checksum
2,0,C Instrument 2, No Decimal Places, Checksum Mode on

Driver Command Support:

This driver supports the following driver commands [232]:
TTL=x Set Time To Live to x tenths of a second, Eg TTL=5 means half of a second.
CA=y Set Checksum mode to on (y=1) or off (y=0) e.g. CA=1 turns on checksum mode for all instruments on this comms port.
TW=z Set Write Timeout to z tenths of a second.
TRT=u Set number of tenths of a sec for Automatic Read/Write Triggers to respond in, Default 40. This causes writes to fail if the associated Read/Write trigger does not return to "0" before this time.
ED=v Error Delay in tenths of a sec. Sets time before driver issues retries in case of errors.
Also supported are the T and R commands for Timeout and Retry, see the Driver Command description for information.

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Yokogawa Manual Excerpt:

Symbol	Description	Setting range	Factory setting
PSL1	Protocol selection 1	0: Computer link 1: Computer link (with sum check) 2: Ladder communication 3: Master controller for coordinated operation 4: Slave controller for coordinated operation	0: Computer link
BPS1	Communication speed 1	600, 1200, 2400, 4800, 9600	9600
PRI1	Parity 1	None, Even, Odd	EVEN
STP1	Stop bit 1	1, 2	1
DLN1	Data length 1	7, 8; Set to 8 when not using computer link	8
ADR1	Address 1	0 to 99, maximum 31 controllers connected	1
RP.T1	Minimum response time 1	0 to 10 × 10ms	0
PSL2	Protocol selection 2	0: Computer link 1: Computer link (with sum check) 2: Ladder communication 3: Master controller for coordinated operation 4: Slave controller for coordinated operation 5: I/O expansion (first module) 6: I/O expansion (second module)	0: Computer link
BPS2	Communication speed 2	600, 1200, 2400, 4800, 9600, 19200, 38400	9600
PRI2	Parity 2	None, Even, Odd	EVEN
STP2	Stop-bit 2	1, 2	1
DLN2	Data length 2	7, 8; Set to 8 for other than computer link	8
ADR2	Address 2	1 to 99, maximum 31 controllers connected	1
RP.T2	Minimum response time 2	0 to 10 × 0mS	0

5.4.9.9 Yokogawa Discrete Instruments

Note: Driver defaults to 8 Databits, No Parity, 1 Stop Bit

Format is:
AA
Where:
AA: Two digit address of controller.

Examples:
01

5.4.9.10 Yokogawa UT2400 & UT2800 Controllers

Note: Driver defaults to 8 Databits, No Parity, 1 Stop Bit

Note, AutoDetect will assume 0 decimal places when detecting instruments.

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Format is:
ACP
Where:
A: Single Digit HEX address of controller as defined by the rotary switch on the back, range is 0 to F
C: Channel number, 1 to 8 (1 to 4 for UT2400)
P: Precision of user defined items: 0 / 1 / 2 / 3

The CPU view can be defined on any channel 1-8.

Examples:
011 - Address 0, Channel 1, 1 Decimal
F80 - Address F, Channel 8, 0 Decimals

Driver Command Support:

This driver supports the following driver commands [232]:
TTL=x Set Time To Live to x tenths of a second, Eg TTL=5 means half of a second.

5.4.9.11 Yokogawa Darwin / Recorder

Address Format

The Darwin and Recorder share the same driver, although the addressing of each is slightly different. In each case, the address given is the address of a single channel inside the instrument. SpecView automatically handles alarms for the channels.

Darwin:
DCCC

Where:
CCC is the channel number, leading zeroes required.
D is the letter "D" to indicate a Darwin.

Recorder:
AARCC

Where:
AA is the address of the unit, leading zeroes required.
R is the letter "R" to indicate a recorder.
CC is the channel number inside the unit, leading zeroes required.

Examples:
D001 - Channel 001 of a Darwin
D560 - Channel 560 of a Darwin
02R01 - Channel 01 of the recorder at address 02
01R24 - Channel 24 of the recorder at address 01

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Parity

Driver Defaults to 8E1 - the Darwin default.

Auto-Detect

The auto detect routine is slightly different for Darwin and the recorder:

Darwin:

It seems that the channel address of any given channel is dependent on it's physical slot positioning within the Darwin rack or expansion rack. Any slots not occupied by Analog Input modules do not appear over comms. For example, a 10 channel AI in Slot 1 contains channels 01..10. a 10 channel AI in Slot 3 contains channels 21..30. In this case, there are no channels 11..20.

The Darwin Auto-Detect routine therefore scans linearly from D001 to D560 searching for channels. Any channels that are missing or are marked as "Skip" will not appear in SpecView.

In addition to the channels, a single "Darwin Control" Instrument is create by SpecView for the purpose of reading the Darwin's Time and Date and to set the date of the unit. The Control Instrument can be defined at any channel address (e.g. D001), since the values apply to the entire Darwin.

Recorder:

Recorder auto-detection scans for channels that exist. If these channels are marked as "Skip", then the auto-configure does not create an instrument view for them. If any channel or address returns a timeout, then the next address is immediately tried.

In addition to the channels, a "Recorder Control" Instrument is created for each addressed recorder detected. This Control Instrument allows access to Time and Date, and also allows some simple control over the recorder's functions, for example, stopping and starting the trace. In addition, the paper status is available as an alarm in this unit.
The Control Instrument can be defined at any channel address (e.g. xxR01), since the values apply to the entire Recorder.

Driver Commands

Driver Commands supported are:

Command	Description	Example
T=x	Set Timeout to "x" tenths of a second. Default is 5. Range is 1 to 10000. *See note below.	T=10
R=y	Set retries to "y". Default is 1. Range is 0 to 100	R=3
ED=z	Set Error Delay to "z" tenths of a sec - this causes the driver to delay making a retry because of some error (parity etc) for this time. Default is 0, Range is 0 to 10000	ED=40
TTL=t	Set Time To Live to "t" tenths of a sec. Default is 10. *See note below	TTL=30

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* Note - due to the size of some of the messages coming back from these units, the timeout and TTL times may be extended automatically depending on the baud rate and the size of the messages.

Alarm Handling

The Alarm mechanism on the Darwin and the recorder is such that each channel tells the system that there is a High Alarm, or Low Alarm or Deviation alarm etc. This is represented in SpecView as an Enum type - however, Enums cannot be part of SpecView's alarm system, and so the driver has code to say if any alarm type is going off, then set an Alarm bit. This Alarm Status bit exists purely in the driver. Therefore, in the SpecView Instrument View, there are two parameters for each of the 4 alarms - "Alarm Status" - a Boolean flag that is marked as alarm and "Alarm Detail" which is the exact reason the alarm went off - this is the Enum type.

The recorder also has a Paper Out Alarm in the Control Instrument.

5.4.9.12 RKC Discrete Insruments

Note: Driver defaults to 8 Databits, No Parity, 1 Stop Bit

Format is:
AA
Where:
AA: Two digit address of controller in decimal

Examples:
00
01

5.4.9.13 RKC SR Mini

Note: Driver defaults to 8 Databits, No Parity, 1 Stop Bit

Format is:
AACC when talking directly to a PCP or:
PPAACC when talking through an Operator Panel
Where:
AA: Two digit address of controller in decimal, as set by rotary switch on PCP module, range is 00 to 15 (according to 0-F on switch)
CC: Channel number of desired channel (See note below)
PP: Two digit address of operator panel in decimal, as set by panel setup screens, range is 00 to 31.

Examples:
0001 - PCP 00, Channel 1
1513 - PCP 15 (rotary F), Channel 13
010203 - Panel 01, PCP 02, Channel 3

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Note that the channel number given above refers to the logical channel number of the desired channel and may NOT reflect the position of the channel inside the module, or of the module in the rack.

5.4.9.14 West

Note: Driver defaults to 7 Databits, Even Parity, 1 Stop Bit

Format is:
AA
Where:
AA: Two digit address of controller in decimal

Examples:
00
01

5.4.9.15 FGH

Note: Driver defaults to 7 Databits, Odd Parity, 1 Stop Bit

Format is:
AA
Where:
AA: Two digit address of controller in decimal

Examples:
00
01

Driver Commands:

ED=x - Set Error Delay to 'x' tenths of a second. This causes the driver to wait the specified time before issuing a retry for a parameter.

5.4.9.16 Yokogawa HGM200

Note: Driver Currently fixed at 8 Databits, No Parity, 1 Stop Bit

Format is one of:
AA
AA:TTL (Colon to separate)
AA;Password (Semicolon to separate)
AA;Password:TTL (Semicolon first, Colon second)
Where:
AA: Two digit address of the Unit (Area) in decimal, or 00 for the HGM200 controller
TTL: Time to Live setting in seconds - See notes below
Password: A password for this HGM - See notes below

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Examples:
00 (The HGM200 controller itself)
01 Unit Area 01 (First Area in HGM200 main unit)
11 Unit Area 11 (First Area in first PEM800 attached)
01:10 Unit Area 01, TTL of 10 seconds
Invalid addresses are 08,09,10,19,20,29,30,39 and above

Notes:

The TTL controls how often the HGM is interrogated. If left out, the TTL is 90 seconds. The HGM200 returns ALL it's data in one message, even though SpecView requests each item separately. The TTL specifies that SpecView gets all it's values from the one request until that request is TTL seconds old, at which point the actual message is re-requested from the HGM200.

Since the TTL can be specified for each UnitArea and the CPU, the lowest of all those supplied is used.

Password: If a password is used, then all instruments defined in SpecView must have this set to the same thing. The HGM200 does not check the passwords at the present time (!).

5.4.9.17 Red Lion

Note: Driver defaults to 7 Databits, Even Parity, 1 Stop Bit

Format is:
AA;D
Where:
AA: Two digit address of controller in decimal
D: Decimal Places, 0, 1 2 or 3 (Default to 0 is not specified)

Examples:
00
01
01;1
02;3

5.4.9.18 Watlow

Note: Driver defaults to 7 Databits, Odd Parity, 1 Stop Bit

Watlow Controllers must be set to ANSI X3.28 protocol, NOT the XON/XOFF protocol. See below for details

Format is:
AA
Where:
AA: Two digit address of controller in decimal, 00 to 31

Examples:

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00
31

Protocol Setup:

For the Series 988 Controllers, refer to page 3.2 of "Data Communications with the Watlow Series 988 Family of Controllers", Document number "W98F-XUMN Rev A02", reproduced below:

Set the Protocol to "FULL". Do not set "On" or "Mod"

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Setup



(Communications)

Baud rate

Data bits and parity

Protocol type

Address

Interface type

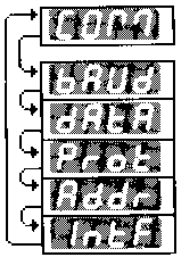


Figure 3.2 - The Communications Menu.

Setup at the Controller's Front Panel

- Press the ▼ and ▲ keys simultaneously for three seconds.
- The CFG prompt appears in the lower display.
- Press the ▼ or ▲ key until the COMM prompt appears.
- Press the ⇧ key to advance through the Communications Menu.
- Press the ▼ or ▲ key to select communications values from the table below.
- Document the setup parameters for each device on your network and label each device.
- Press the ⇧ key to exit.

NOTE:
The Modbus feature on the Series 988 controllers (986, 987, 988 and 989) with enhanced software allows up to 247 controllers to share one EIA-485 network, by using network bridges. See Chapter 6 for more information on Modbus.

NOTE:
Selecting MODB automatically sets DATA to 8.1n.

Prompt	Appears if...	Range	Factory default
BAUD	comms unit	(Baud rate) 4800, 9600, 19200, 38400, 57600, 115200	9600
DATA	comms unit	7.1o = 7 data bits, odd parity 7.1E = 7 data bits, even parity 8.1n = 8 data bits, no parity (Start bit = 1) (Stop bit = 1)	7.1o (see note) (Fixed) (Fixed)
Prot	comms unit	ANSI = ANSI X3.28 2.2 - A.3 XON = XON / XOFF MODB = Modbus (988 only)	ANSI
Addr	ANSI = ANSI or MODB = MODB	0 to 31 (ASCII) if Prot = ANSI 0 to 9 (ASCII) if Prot = XON 0 to 247 if Prot = MODB	1 1 1
InFC	"S" hardware	485 = EIA-485 Interface type 232 = RS-422 Interface type	485

Table 3.2 - Communications Menu Prompts and Descriptions.

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5.4.9.19 Honeywell UDC 3000 Modbus

Honeywell UDC 3000 Modbus

This protocol uses the standard ModBus driver, however there is a problem related to writing to this instrument-the instrument issues busy replies to read requests for a short time after a write has occurred. This means that the ModBus driver command ECR=5 is required for all Honeywell instruments using the SpecView ModBus driver.
Details of the ModBus addressing and driver commands can be found here [215].

5.4.9.20 Adam Modules

Adam Modules

Note: Driver defaults to 8 Databits, No Parity, 1 Stop Bit

Format is:
AA
Where:
AA: Two digit address of controller in decimal, 00 to 99

Examples:
00
31

The driver automatically determines the checksum status of the modules.

Driver Command Support:

This driver supports the following driver commands [232]:
TTL=x Set Time To Live to x tenths of a second, Eg TTL=5 means half of a second.
Also supported are the T and R commands for Timeout and Retry, see the Driver Command description for information.

5.4.9.21 Anafaze/AB Protocol

Anafaze/AB Protocol

Note: Driver defaults to 8 Databits, No Parity, 1 Stop Bit

Note: Driver Supports BCC checksum only. CRC mode is not supported

Format is:
AA,L,P
Where:
AA: Two digit address of controller in decimal, 01 to 99
L: Loop Number, 1 to 33 and 0 for the CPU view
P: Precision, 0=0DP, 1=1DP, 2=2DP, 3=3DP

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Examples:
01,1,1 Instrument 1, Loop1, 1DP
04,33,2 Instrument 4, Loop 33, 2DP

Driver Command Support:

This driver supports the following driver commands [232]:
TTL=x Set Time To Live to x tenths of a second, Eg TTL=5 means half of a second.
ED=y Set Error Delay to y tenths of a second.
Also supported are the T and R commands for Timeout and Retry, see the Driver Command description for information.

5.4.9.22 Driver Commands

Driver Commands

Commands may now be sent to the drivers to affect their operation. The exact list of commands depends on the driver itself, however all drivers support altering of timeout and retries.

The driver commands are currently set in SETTINGS.INI [512] as follows:
In the section:
[COMMS]
entries of the form:
Command1=string
are entered for each port.

The string command is made of one or more sets of key and value pairs separated by a semicolon. For example, a key of "T " and a value of " 3 " would be written as:
T=3
Where more than one pair is specified, the semicolon is used, for example:
T=3;R=2

Note: there must be no spaces in the command.

Common Commands.

T controls timeout length in 1/10 of a second. For example, T=3 would set the timeout to 300ms.
R controls the number of retries in the event of an error. For example, R=2 would instruct the driver to make two more tries to get a parameter, in addition to the original request.

Actual example:

[COMMS]
Command1=T=3;R=2
Command2=T=6;R=1

In this example, the driver on COM1: has a shorter timeout and a larger retry count than the driver on COM2:

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5.4.10 Honeywell HC900

There are some features specific to the Honeywell HC900:

Honeywell HC900 HCDesigner Import 233
Honeywell HC900 Redundant Controller 241
Honeywell HC900 SPP Block's current running profile and descriptor 245

5.4.10.1 HC900 HCDesigner import of Modbus maps

SpecView can import the modbus map file from HCDesigner to define all the blocks and tags from the HC900 into the SpecView Variables list 313.

There are two types of HCDesigner Modbus Maps for the HC900: 'Fixed Modbus Map' and 'Custom Modbus Map'. SpecView can import both types.

If using a Fixed Modbus Map, then the Control Loops 1-32 will be imported in full and will be represented in SpecView by a 'Loop' Instrument View 346. This also applies to the SPP blocks 1-8.

For a Custom Map which is based on a Fixed Map, again Control Loops 1-32 are imported in full (as are SPPs 1-8).

For additional Control Loops, the necessary parameters need to be placed in a custom Modbus map partition in HCDesigner. To retain full use of the SpecView Instrument View 346 features it is necessary to include the parameters needed to support the PID interface for the HC900. You may use 'Select All' when adding parameters for Modbus addresses to the partition. This adds all of the PID parameters to the map. You may also use the Loops Template (Vista_PID.ptf) provided with HCDesigner but you will need to also include the 'LSP1' parameter for the local set point. See section below on importing custom loops from HCDesigner.

If all parameters listed for the Loop are not included, the Loop will still have the Instrument View associated with it, but those parameters not included will simply not work on the Instrument View.

For additional custom SPP blocks (numbered 9 and above), only the minimal SpecView Instrument View, which just has a single Parameter button is used. Clicking on this Parameter button allows access to all the parameters of the given block.

This minimal Instrument View is also used for all other HC900 parts (not Loops and SPPs 1-8).

The steps required to do it 233
Including a Tag Number as part of the name 238 and help on naming conventions between HCDesigner & SpecView
Importing Custom Loops 239
Notes on updating an HC900 using this import facility 240

5.4.10.2 HC900 HCDesigner import: The steps required to do it

It is possible to add either a new HC900 instrument into SpecView, or update an existing HC900 instrument (if, for example, changes have been made to the HCDesigner file). See later in this section for

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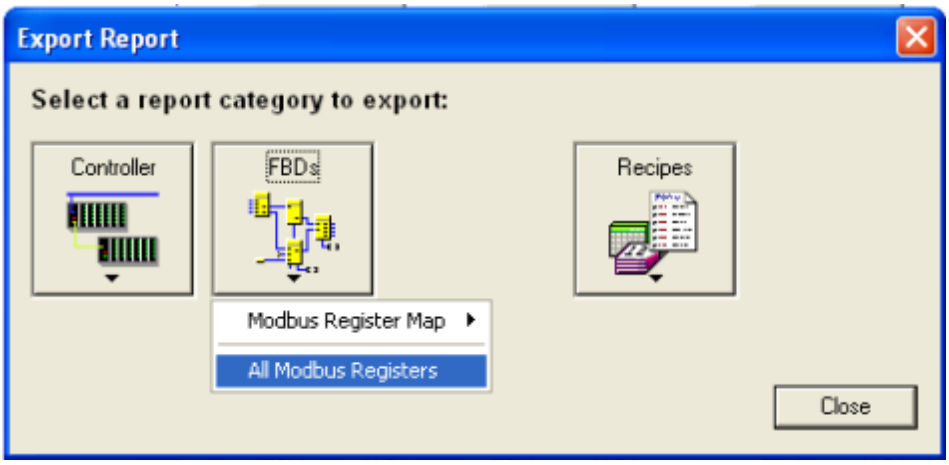
important details about what can be updated.

SpecView can import both types of Modbus Maps ('Fixed Modbus Map' and 'Custom Modbus Map') from HCDesigner.

The following screen shots were taken from HCDesigner V 4.2, later vesions may have slight differences.

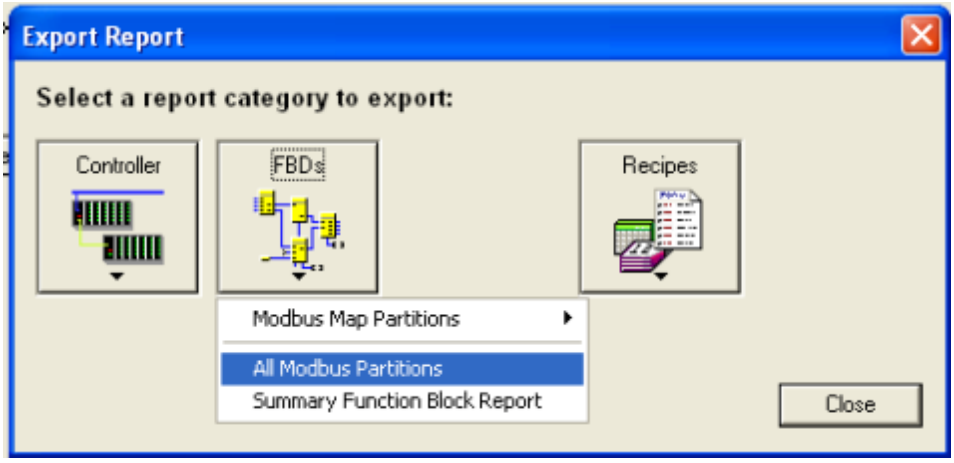
To Export the Fixed modbus map:

In HCDesigner, go to File->Export Report, then click on the **FBDs** button to drop down a small menu. Choose **All Modbus Registers** from this menu:



To Export the Custom modbus map:

In HCDesigner, go to File->Export Report, then click on the **FBDs** button to drop down a small menu. Choose **All Modbus Partitions** from this menu:

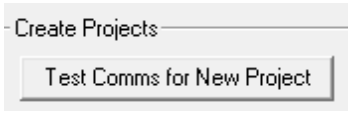


Choose a specific partition if just those blocks are being added to an existing project, or if one part of a project is being updated, SpecView can import either.

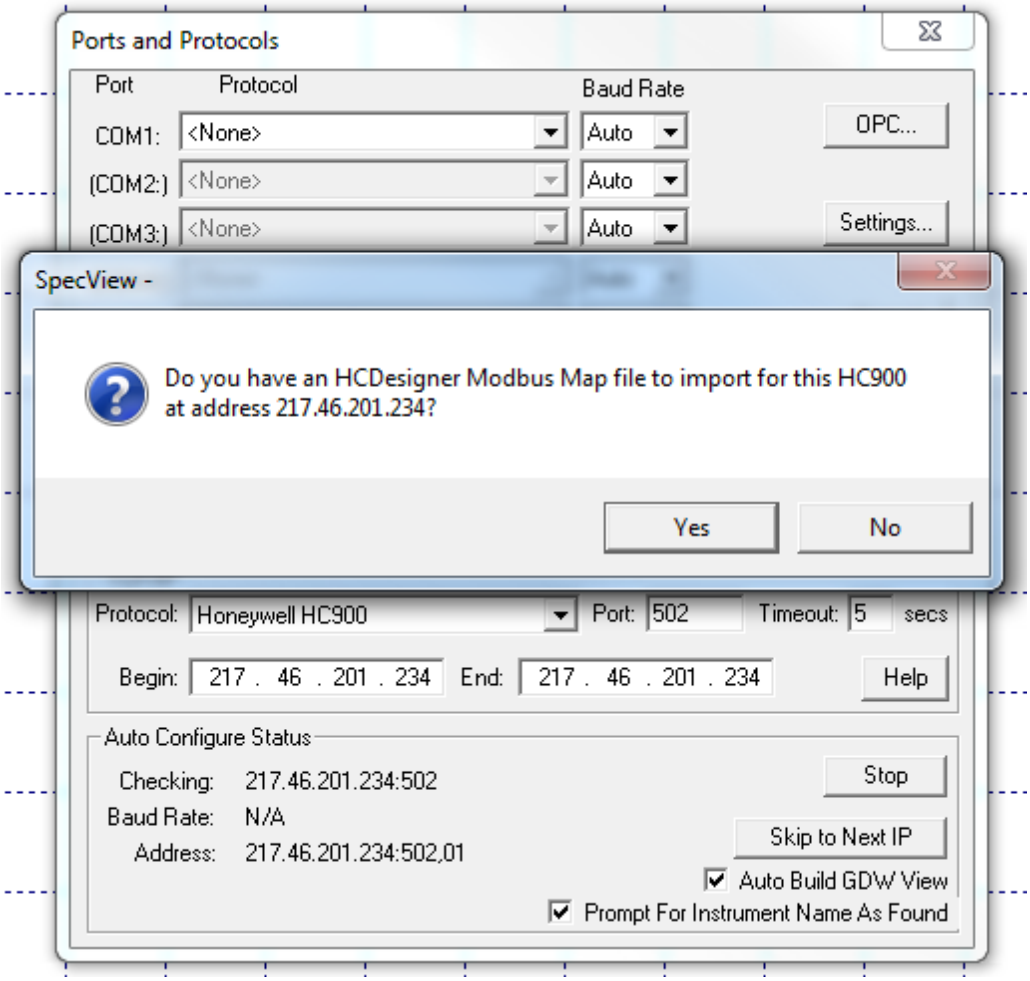
How to import the modbus map:

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If the HC900 is being auto-detected[198] using:

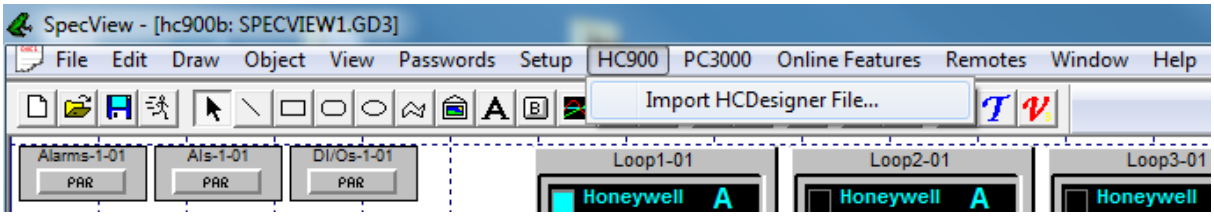


and if an HC900 is found, then the box shown below will be displayed to request the file name of the HCDesigner Modbus Map for each HC900 that is auto-detected:



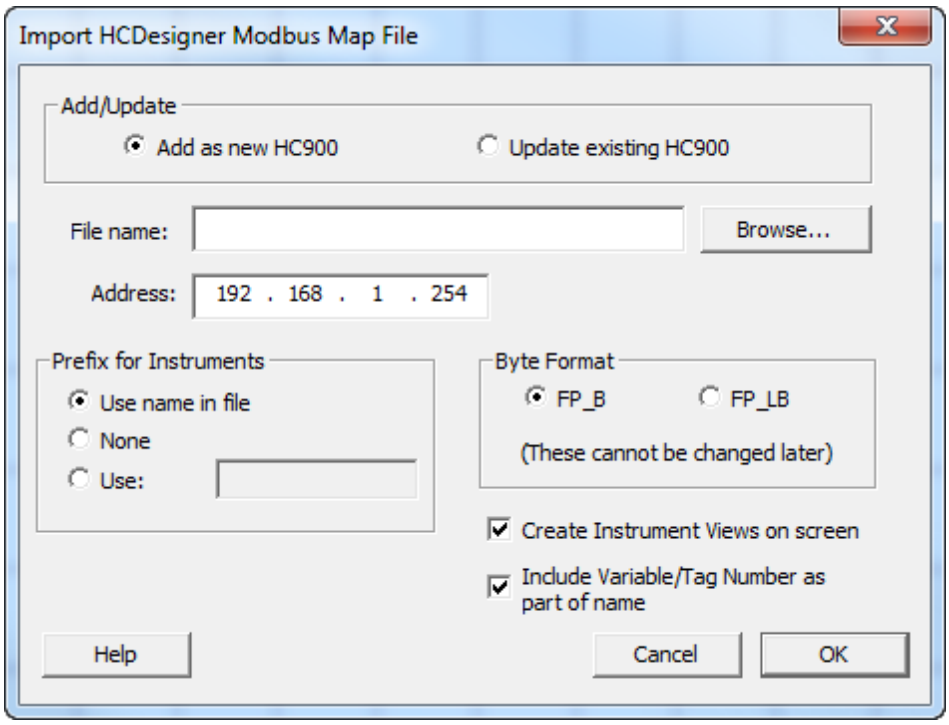
For manually adding an HC900 or updating one in an existing SpecView Project, then this is done from Edit mode in the existing project.

To do this, use the HC900 menu on the menubar in SpecView – if this menu is not present, then the HC900 protocol option is not enabled in the dongle. Please contact[798] a SpecView representative for this option.



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Choose **Import HCDesigner File**, the following box will be shown:



Choose **Add as new HC900** to add this file to SpecView as a totally new Instrument, or Choose **Update existing HC900** if this file is an update to an HC900 previously imported. (See section below on importing)

Type in, or Browse for, the name of the file to import

Select an optional Prefix for the instruments in the **Prefix Section**. Using a prefix can help if there is more than one HC900, either now or in the future.

- **Use Name in file** will use the Controller name given in the HCDesigner file for this HC900 configuration as the prefix for all the SpecView instruments. For example, this could give the names: FURNACE1-PIDZONE1 or FURNACE1-Variables.
- **None** will add no prefix to the instruments, resulting in names like PIDZONE1 or Variables.
- **Use** will use the prefix supplied. For example, if the prefix was 'F1', then all the instruments will have that prefix (a hyphen will be added automatically): F1-PIDZONE1 or F1-Variables.

Choose the Byte Format for the instrument using the options given which cannot be changed later.

The available Byte Formats are:

FP_B (Big Endian: 4,3,2,1)
FP_LB (Little Endian Byte Swap: 2,1,4,3)

Note that SpecView does not currently support the byte formats:

FP_BB (Big Endian Byte Swap: 3,4,1,2)
FP_L (Little Endian: 1,2,3,4)

For more information on byte ordering please refer to the Help in HCDesigner.

If the **Create Instrument Views on screen** box is checked, then the SpecView standard Instrument Views [346] will be created after Import for all new blocks.

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The **Include Variable/Tag Number as part of name** checkbox determines whether or not to add the Tag Number to the beginning of the name in SpecView's Variables List. See: Including a Tag Number as part of the name [238]

Note: SpecView uses the Short Name by default on Trend Charts [397], which is why it is important to know how the Short Name has been determined.

Press the **OK** button to start the import process. This could take a few minutes.

If there are any problems with the import or the update, then email an Archive [193] of the project, plus the Modbus Map file that was used to SpecView [798].

5.4.10.3 HC900 HCDesigner import: Overriding Prefixes

For new Imports of HCDesigner files there is now a setting that controls how the SPP blocks get their type names for Send-To use. (this does not apply to anything else, such as Loops)

As it is up until now, the instrument types of the SPP block are as follows, examples from TrinitySCADA:
No Prefix: 'HC900: SPP SPP313'
User Prefix of "BEN": 'HC900: SPP BEN-SPP313'
Prefix from File: 'HC900: SPP CONTROLLER-SPP313'

There is now a SETTINGS.INI setting as follows:
[HC900]
SPPTypeOverride=0
Values are 0 (default if not specified), 1 or 2 and they behave as follows:

SPPTypeOverride=0 no override, resulting in:
No Prefix: 'HC900: SPP SPP313'
User Prefix of "BEN": 'HC900: SPP BEN-SPP313'
Prefix from File: 'HC900: SPP CONTROLLER-SPP313'

SPPTypeOverride=1 removes the prefix part only, leaving the block type, so:
No Prefix: 'HC900: SPP SPP313'
User Prefix of "BEN": 'HC900: SPP SPP313'
Prefix from File: 'HC900: SPP SPP313'

SPPTypeOverride=2 removes the prefix and the block type, so:
No Prefix: 'HC900: SPP'
User Prefix of "BEN": 'HC900: SPP'
Prefix from File: 'HC900: SPP'

You can add/adjust SETTINGS.INI on-the-fly, it is read from the INI file during the import.

Note: This should NOT be used for Updates, only for NEW Imports.

It is recommended to look at the tooltips of the SPP blocks in the Variables List to see the Instrument type, e.g:

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"HC900: SPP Htr1-SPP313"
and pay attention to the use of spaces. Then replace the text with whatever is required, e.g:
FromText: ' Htr1-SPP313' (Without the quotes)
ToText: " (i.e. Nothing)
Will give the result: "HC900: SPP" as the instrument type in an existing project.

A message box pops up at the end which shows how many it did. Check that it's what is expected. If not, then exit without saving and carefully look at the Variables List instrument summaries to understand why.

5.4.10.4 HC900 HCDesigner import: Including a Tag Number as part of the name

The **Include Variable/Tag Number as part of name** checkbox determines whether or not to add the Tag number to the beginning of the name in SpecView.

This checkbox is checked by default, but there are situations when it is better to leave it unchecked. An example of this is when some Tags refer to a 'logical entity' in the HC900 and other Tags to another 'logical entity'.
For instance:

Tag 15:	SP for Furnace 1
Tag 16:	OP for Furnace 1
Tag 17:	SP for Furnace 2
Tag 18:	OP for Furnace 2

In a case like this, it is possible to use **Find** and **Replace** to substitute 'Furnace 1' with 'Furnace 2', provided that the Tag number is not part of the name. With the Tag number as part of the name, the search/replace fails because it will try to replace:
#15 SP for Furnace 1
with
#15 SP for Furnace 2
but this does not exist, as the tag is actually called
#17 SP for Furnace 2

Therefore, leaving out the Tag number helps in this situation.

Note about naming conventions in HCDesigner and in SpecView:

In HC Designer, a Tag has a Tag Name and (optionally) a Tag Description. These map to the **name** and **short name** in SpecView respectively.

Since the Tag Description may not be present (because it is optional), if it is missing from HCDesigner, then SpecView uses the Tag Name as the Tag Description to fill in SpecView's short name. If **Include Tag Number** is checked, then the name has the tag number added, and the short name does not.

Some examples:

With **Include Tag Number** checked, tag number 12 defined as:
HCDesigner Tag Name = 'Level', HCDesigner Description = 'TankLev'
this appears in SpecView as:
Name: '#12 Level' Short Name: 'TankLev'

With **Include Tag Number** unchecked gives:
Name: 'Level' Short Name: 'TankLev'

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If the Tag Description is blank in the HCDesigner, then this gives:
With Tag Number:
Name: '#12 Level' ShortName: 'Level'
Without Tag Number:
Name: 'Level' ShortName; 'Level'

In addition, if any name is duplicated in the HCDesigner file, then these duplicates have the Tag Number appended to them for the 2nd and subsequent occurrences, to make sure that the names are unique inside SpecView.
For example, consider these 3 Tags in HCDesigner:

Tag 24: TagName='F1Temp' Description: 'Temp'
Tag 25: TagName='F2Temp' Description: 'Temp'
Tag 26: TagName='F3Temp' Description: 'Temp'

In SpecView, if **Include Tag Number** was checked, then these will appear as:
Name: '#24 F1Temp' ShortName: 'Temp'
Name: '#25 F2Temp' ShortName: 'Temp(25)'
Name: '#26 F3Temp' ShortName: 'Temp(26)'

or, if **Include Tag Number** was unchecked:
Name: 'F1Temp' ShortName: 'Temp'
Name: 'F2Temp' ShortName: 'Temp(25)'
Name: 'F3Temp' ShortName: 'Temp(26)'

Note: SpecView uses the Short Name by default on Trend Charts[397], which is why it is important to know how the Short Name has been determined.

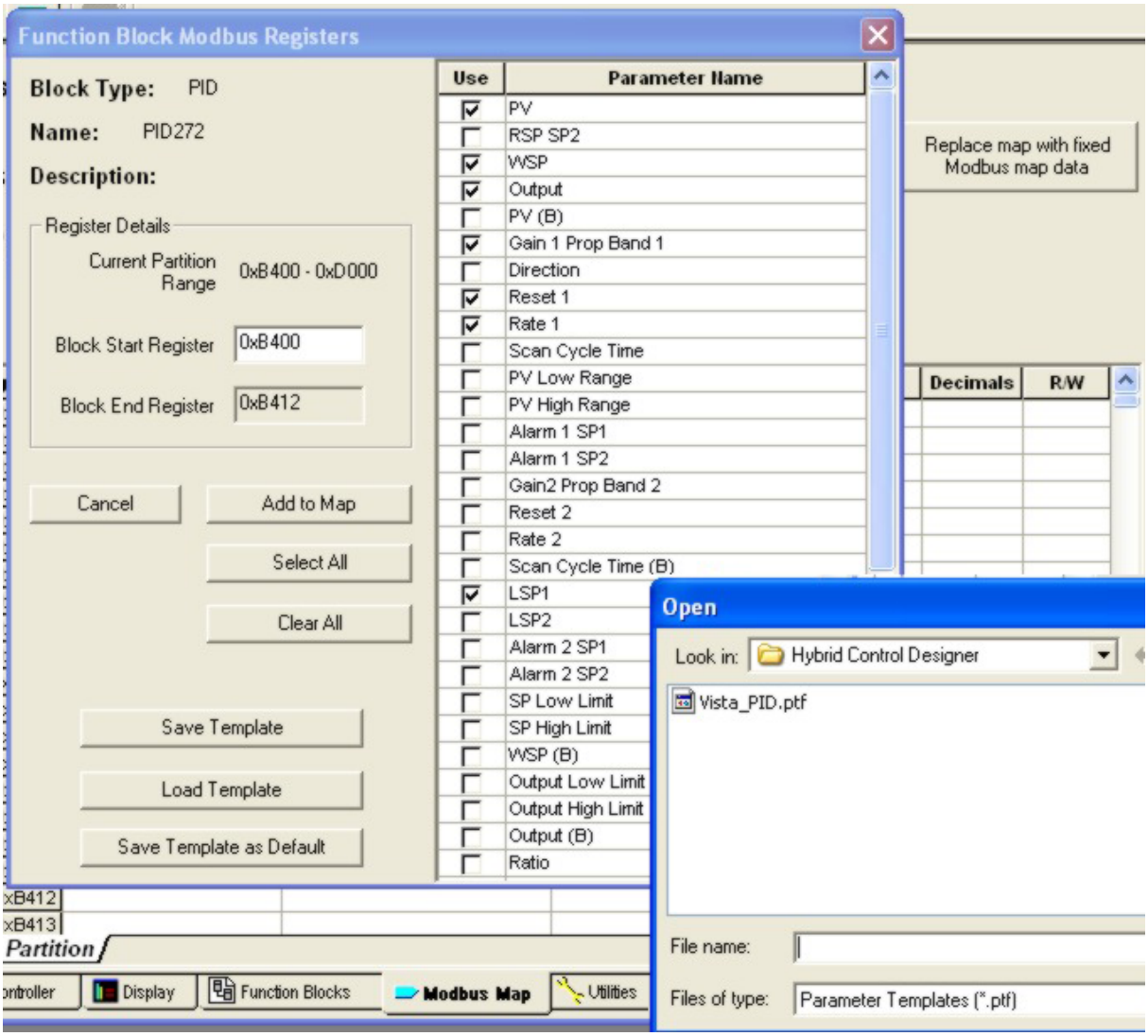
5.4.10.5 HC900 HCDesigner import: Custom Loops

For additional Control Loops, these need to be placed in a custom partition In HCDesigner.

To obtain full use of the SpecView Instrument View features it is necessary to include the parameters needed to support the PID interface of the HC900. The **Select All** button can be used when adding parameters for Modbus addresses to the partition. This adds all of the PID parameters to the map.

Alternatively use the Loops Template (Vista_PID.ptf) provided with HCDesigner but it is necessary to also include the 'LSP1' parameter for Local Set Point. This would provide the minimum list of parameters needed for control via SpecView (see screenshot below):

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Please refer to the Help in HCDesigner for details & other notes on how to access the screen above.

5.4.10.6 HC900 HCDesigner import: Notes on Updating an HC900

- It is stongly advised that a backup (Archive[193]) of the project is made before attempting to update. Although this process has been tested, changes in the future to HCDesigner might mean that the update routine spoils the existing instrument definitions within SpecView.

- This import facility cannot be used to update an HC900 inside SpecView that was not initially created by this import facility – so, for example, a Specview project auto-detected in SpecView 2.5 build 831 (or older), or an HC900 created manually cannot subsequently be updated by this routine.

- When **Update** is selected, a check is made on the HC900 elements already defined in the SpecView project and if there is only one, then the IP address of the HC900 becomes un-editable. If there is more than one HC900, then the address is requested to indicate which HC900 is to be updated. If there is any doubt then cancel and check carefully in the Variables List to see which HC900 needs to be updated.

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- Updating from a **Fixed Modbus Map** to a **Custom Modbus Map** (or vice versa) is allowed, but the update routine may create duplicate instruments, especially variables and Tags as these are defined differently in the two types of Map. If variables and/or Tags have already been used on screens from the Fixed Modbus Map file, then keep using those, otherwise start with the new ones for all future tags and variables used on screens inside Specview.

- If **Create Instrument Views on screen** is checked, then any newly defined instruments in the new Modbus Map file will be added to the current screen.

- If instruments or parameters have been renamed during the import, those changes may not be reflected in the labels that may have been placed on any screens, although the actual variables will have the new names. Therefore it may be necessary to edit some labels on screens, or re-create the instrument views if an instrument has been renamed.

- After import, a summary screen is shown detailing the changes. If this summary indicated items that really should not be altered, then proceed with caution!

- If an instrument is added where the name specified already exists, then the name will have '_2' (or '_3', '_4', etc.) automatically added making, for example Furnace1-PID_2.

- If variables or tags are added to an existing project, then they will appear at the end of the variables or signal tags list in V2.5 of SpecView. i.e. they will be out of the usual numerical sequence.

- Newly added blocks (e.g. more loops) will appear at the end of the Variables List.

5.4.10.7 HC900 Redundant Controller

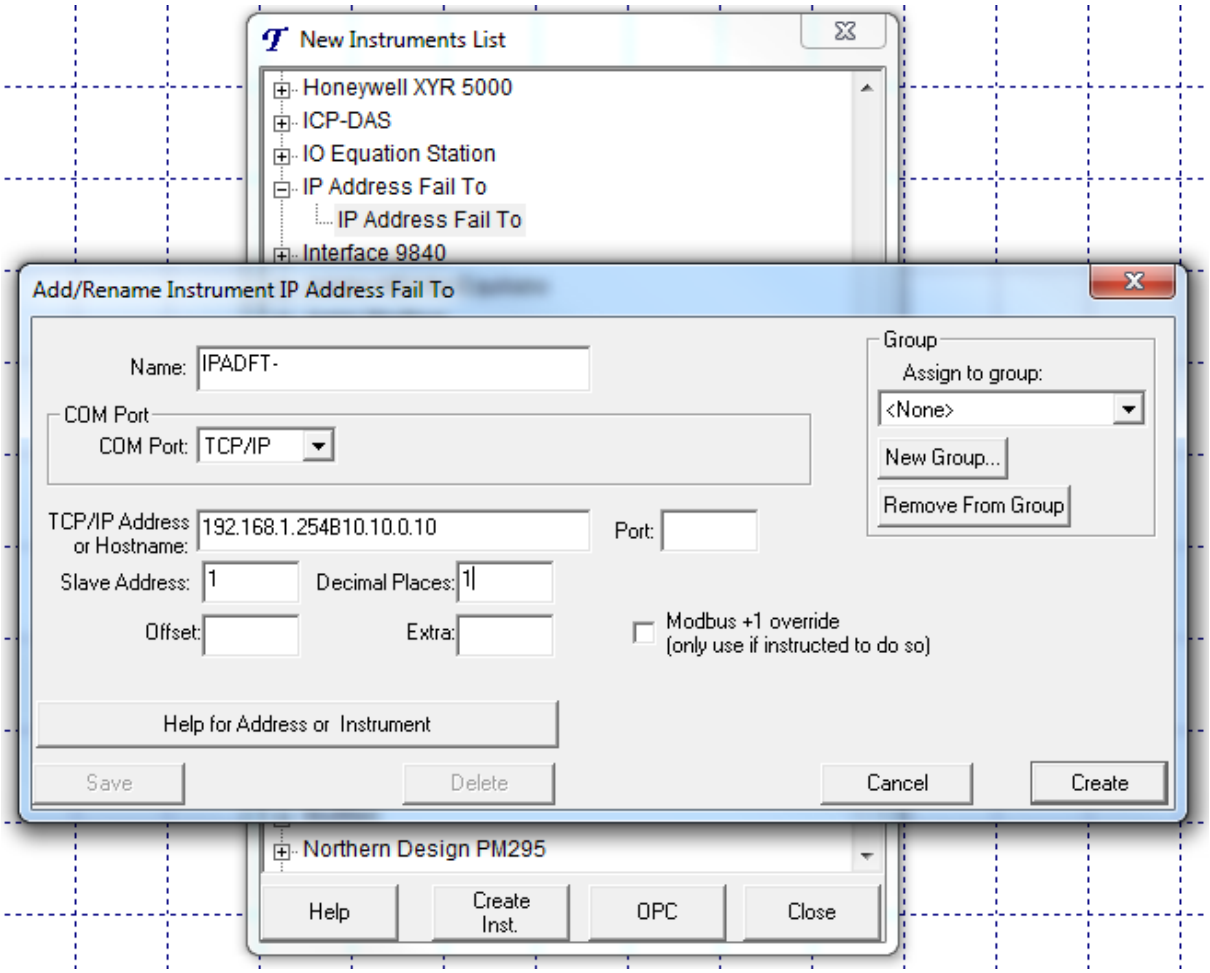
The Honeywell HC900 Redundant Controller has the model number C70R

There are two modes of failure that the Honeywell C70R is designed to protect against:
1) Failure of the CPU, which results in a switch from one CPU to another, keeping the same IP address throughout – i.e. communication is switched from one E1 port to the other E1
2) Failure of the External Network Infrastructure, which can cause a switch from the E1 port to the E2 port.

SpecView can be setup to handle both scenarios, but some care needs to be taken to ensure that the desired behavior occurs. For example, in case (1) above, although the IP address remains constant while the CPU switches from the Lead to the Reserve, the External Network Switch may take some time to notice this change, and during this time, SpecView may see an effect very similar to an External Network Failure.

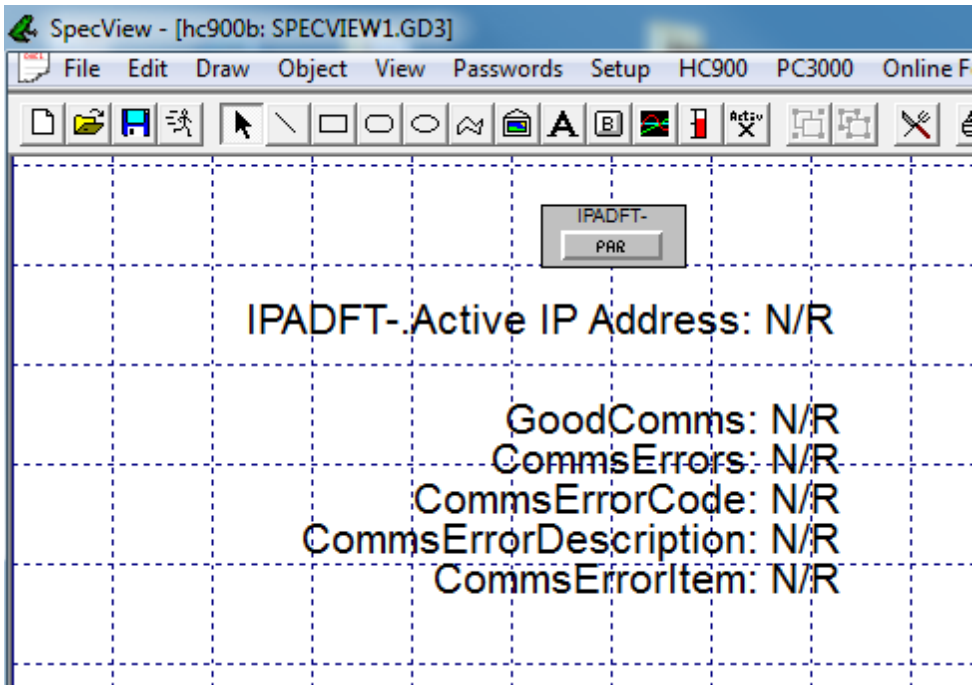
To set it up follow these steps:
- Run SpecView and select the project and go into Edit mode
- Open the Templates List 343
- Scroll down to **IP Fail To** in the list and click the '+' sign next to it
- Double-click the item called **IP Address Fail To**
- Enter a suitable name, choose **TCP/IP** for the port
- Enter an address that is the Primary IP Address, then the letter 'B' and then the Secondary IP Address. For example, to failover from 192.168.1.254 to the second address of 10.10.0.10 then enter the address: 192.168.1.254B10.10.0.10

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- For the failover to work, the parameter inside this **IP Fail To** instrument must be placed on an open screen – to do this:
- Find the new instrument just added in the Variables List[313]
- Click the **+** sign to open its list of parameters.
- Double-click the **Active IP Address** parameter and place it somewhere on a screen that will be opened at Runtime. This parameter will also show which IP address is being used.
- Note: It is useful to also put the SpecView variables: **SpecView.GoodComms, SpecView.CommsErrors, SpecView.CommsErrorCode, SpecView.CommsErrorDescription & SpecView.CommsErrorItem** onto the screen in order to be able to monitor comms.

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This will enable the failover mechanism inside the Modbus driver with some default values:
- The Active IP address parameter must be on an open screen at some point before the failure happens. To make this more reliable see below.
- Once failed over, the connection will remain with the secondary, unless that too fails, where it will switch back to the primary IP address.
- If a CPU failover happens, then there is a chance that SpecView will switch to the secondary IP address as well, because of Network Switch activity. For further information see below.
- If a 'write' was in progress at the time of the failover, then it cannot be guaranteed that the 'write' actually succeeded. If this is important see below for more details.

How it works:
The Default Scenario:

If SpecView sees a break in communications while communicating with the C70R, then SpecView will attempt to re-establish the connection a number of times (Connect Retries). When this amount of connect retries is exhausted, SpecView will flip to the Secondary IP address specified and try to resume communications. SpecView will then remain talking to the Secondary IP address until instructed otherwise. If SpecView was issuing a write to the controller at the time the failure occurred, then, depending on the exact timing of the failure, the message will either have got through to the C70R or not, and SpecView will report CommsError[479] for that value.

Things that can be altered:
The 3 most common things that can be altered from the default scenario are:
1) SpecView can be told to switch to the secondary IP address without retrying – this could be useful if speed is an issue. SpecView can be made to flip very quickly to the Secondary IP at any failure of the Primary Network, including a CPU failover where the External Network Switch does not recognize the failover quickly.
2) SpecView can be told to monitor the Primary IP address while talking to the Secondary IP address so that when the Primary Network connection is once again available, SpecView will ‘fail-back’ to the Primary IP address.
3) SpecView can be told to retry the 'write' that was in progress at the time of the failure. This could have

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the consequence that the 'write' is seen by the C70R coming twice. In the case of momentary signals, this could appear as two requests, in which case it is recommended that momentary requests are not used in this case.

Turning on Redundancy in SpecView:
SpecView maintains in internal table of primary and secondary IP addresses for the failover, but this table must be initialized correctly. It can only be initialized by having a parameter on a screen somewhere that instructs SpecView to initialize the table.

There are 2 ways to initialize the table:
1) Use the Special "IP Fail To" instrument inside SpecView – this has the added advantage that this instrument reports back which IP address is in use at all times. Create the Instrument and give it the address: <Primary>B<Secondary> For example, to failover from 192.168.1.254 to 10.10.0.10 enter: 192.168.1.254B10.10.0.10 as the address of this instrument. The "IP Address in use" parameter of this instrument must be on a screen that is open at some point during runtime to initialize the table correctly. Until this parameter is viewed (or logged), the Redundancy is not operating.
2) Add the Secondary IP address to one or more actual instruments that have values on commonly open screen, or values that are logged – this causes the table to be initialized any time the variables that are important are requested. To add the Secondary Address, go to the instrument and add the "B<Secondary address>" to the end of the existing address, for example, if the instrument was already addressed as 192.168.1.254,1,1 then to add the secondary address of 10.10.0.10 to it, change it to: 192.168.1.254,1,1B10.10.0.10 .

Here are the common commands to alter the default behaviour of the Redundant support.
Each command is entered in the Setup COM port 276 section.
To make the driver fail-back to the Primary address when the primary address becomes available again:
TCPFAIL2PRI = 1 (**TCP Fail to Pri**mary - the default setting is 0)
This causes the driver to check every 5 seconds to establish a link back to the primary address. If it succeeds, then it will switch back to the primary address.

To make the driver switch over quickly without attempting to retry the first connection:
TCPERBS = 0 (**TCP E**xhaust **R**etries **B**efore **S**witch - the default setting is 1)

To make the driver retry a few times to keep the primary connection before resorting to the secondary (the opposite behaviour to above)
TCPLCTOR = 5 (**TCP L**AN **C**onnect **T**ime**O**ut **R**etries - the default is 2 retries)
TCPERBS = 1

To make the driver be fault tolerant including writes in progress at the time of failure:
TCPFFLTTLR = 1 (**TCP F**ull **F**au**LT T**o**L**e**R**ance – the default setting is 0)
Note that this would have the side-effect such that while any write is in progress to any TCP/IP address, the reading of other TCP/IP addresses will be halted for the duration of the write. This could slow down throughput. Also, if the write succeeded just before the failure, but SpecView was unable to gain acknowledgement of this, then the write will go through twice with this command.

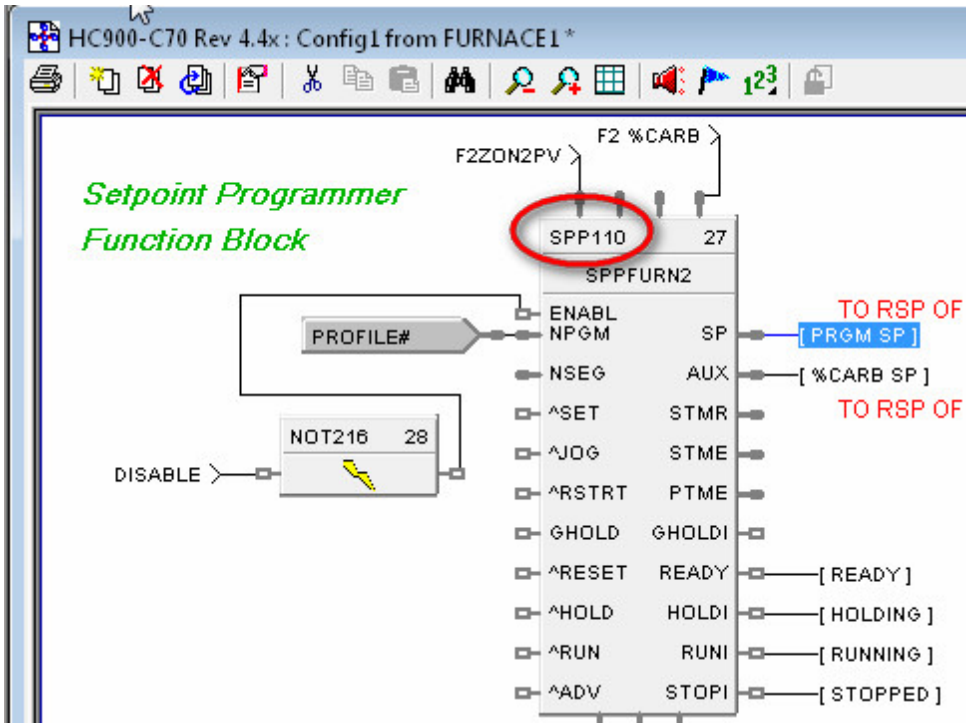
For more information please read the following TechNote, which can be downloaded from SpecView's FTP site:
SVD1950 SV Support for redundant Modbus TCP IP addresses.doc

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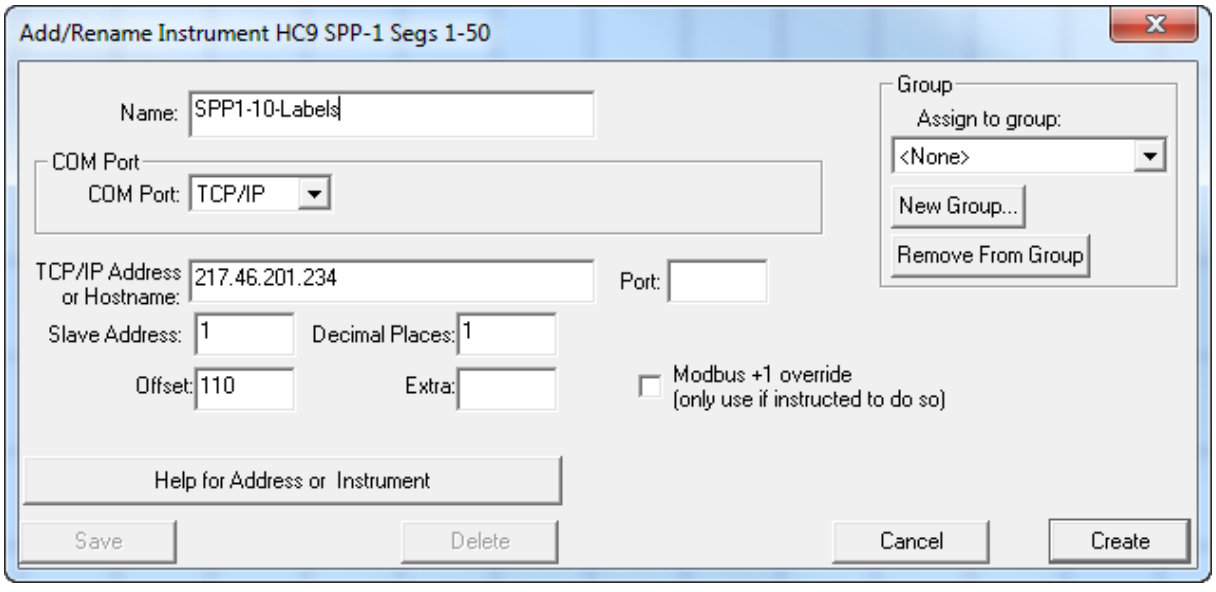
5.4.10.8 HC900 SPP Block running profile and descriptor

To show the HC900 SPP Block's current running profile and descriptor, follow these steps:

1) In HC Designer, find the SPP Block and take a note of the field highlighted below:

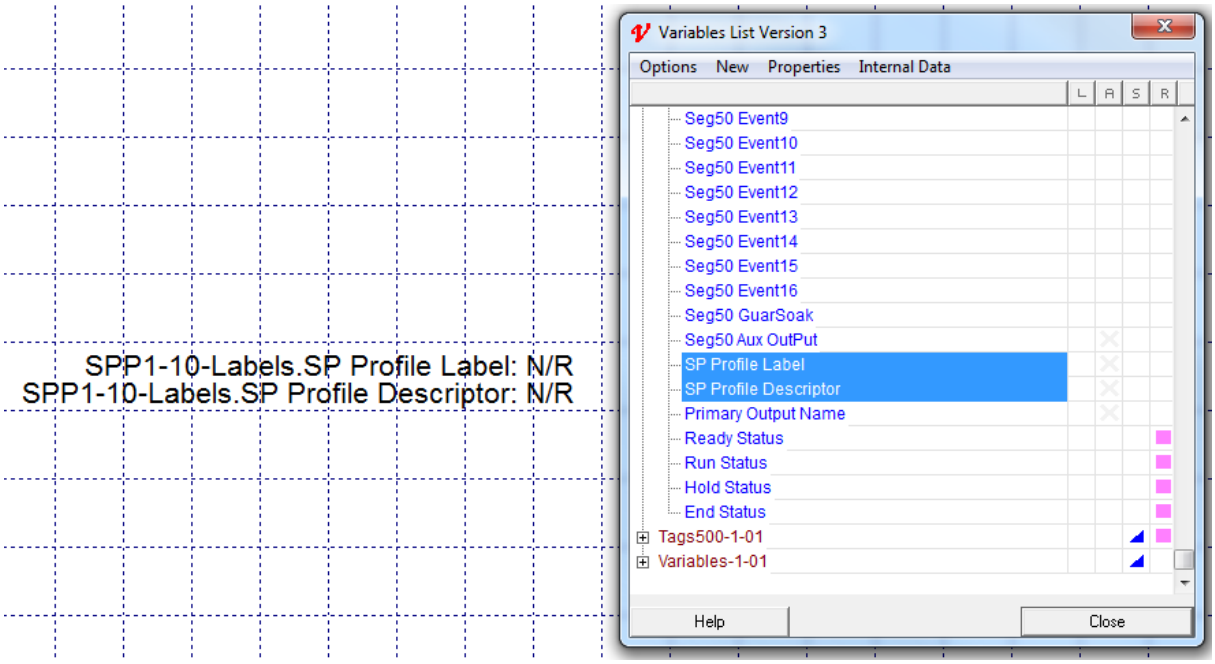


2) In SpecView, find the SPP block and right-click the name to get its address. In the 'Offset' box the number from the SPP Block in HC Designer. In this example, it's 110, as shown below, from the block shown above.



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3) Then, near the bottom of the SPP block in SpecView there will be the Profile Descriptor Fields, these can be put on the screen, as shown below:



4) In Runtime, these fields will show the correct data from the HC900:

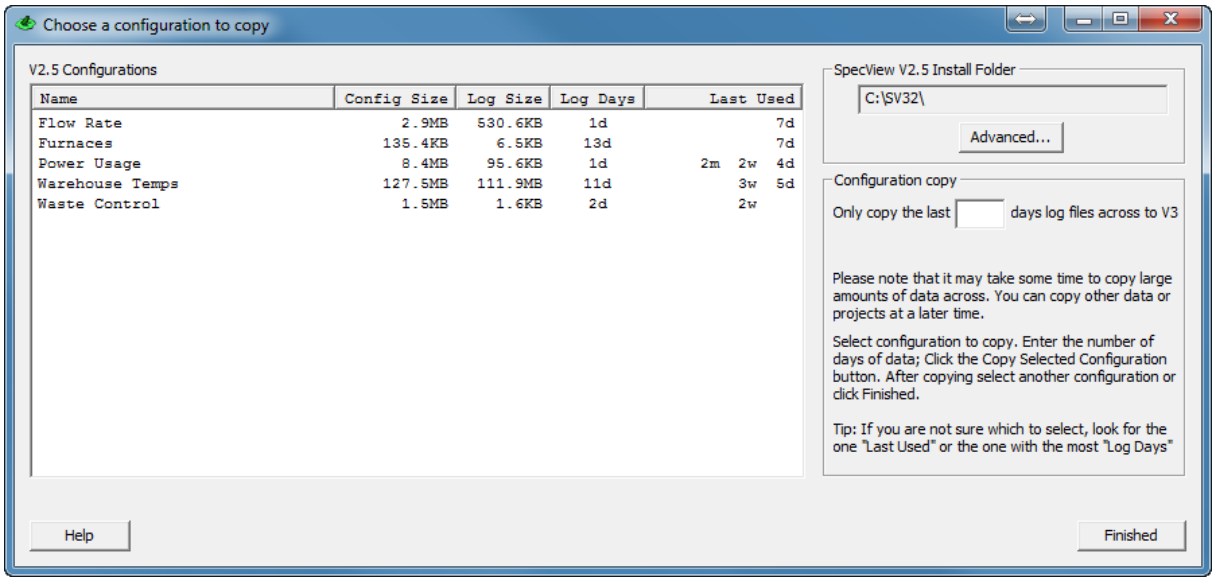


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Part 6

6 Migrate V2 Configuration to a V3 Project

This utility is run by SpecView Version 3's installer, to facilitate the migration (copying) of Version 2/2.5 Configurations to Version 3 Projects.



The most recently used configuration will be highlighted.

A single configuration is copied at a time, and this can be repeated until all configurations have been copied.

Selecting a line in the list will fill in the number of days of log files, this number can be edited before the copy.

The 'Log Days' are not necessarily consecutive days, for example, 5 days of log data is the last 5 days that data was logged on, not the last 5 days from today.
There is a line displayed under the number of days field that shows the time-span over which these log files were collected.

If no configurations are listed or if the required configuration is missing click the Advanced 249 button.

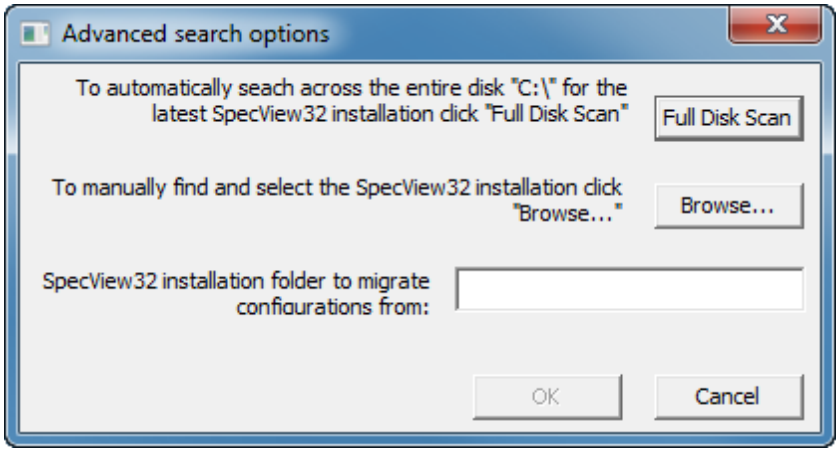
Note that this will not convert any Trend Charts in the Version 2/2.5 Configuration to Version 3 style Trend Charts, this conversion 527 is done afterwards.

Migration Warnings/Errors 249

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6.1 Migration Advanced

The Advanced search can be used if no configurations are listed or if the required configuration is missing.



Use the Browse button if the location of the required configuration is know.

Or alternatively click Full Disk Scan to search every sub-folder on the C drive.

Note that the Full Disk Scan can take several minutes on a PC with a lot of files/folders, and the scan cannot be cancelled. It should only be used as a last resort to try to find the SV32 installation folder. During the scan Windows may report the program as 'not responding' but this is normal and it will recover after a time.

6.2 Migration Manually

It is also possible to run the Migration tool manually.
For further information contact SpecView Technical Support 798.

6.3 Migration Warnings and Errors

If the migration tool has been run once, and for some reason it is required again, then it will be necessary to run it manually 249.

Note: The Migrate_Configs Utility will not run if there is a version of SpecView running at the time.
This is to prevent the possible file-copy conflict when copying data that is still being written to.

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Part 7

7 Using SpecView in Runtime Mode

SpecView has three modes of operation: **Runtime Mode**, Edit Mode (offline)[282] and Edit Mode (online)[282].

Runtime Mode is also referred to as 'online', this is SpecView's normal mode of operation - SpecView is communicating with the connected instruments.

Click the **Start** button on the splash-screen displayed when SpecView starts to go into Runtime Mode using the named project:
This will happen automatically when the countdown ends.

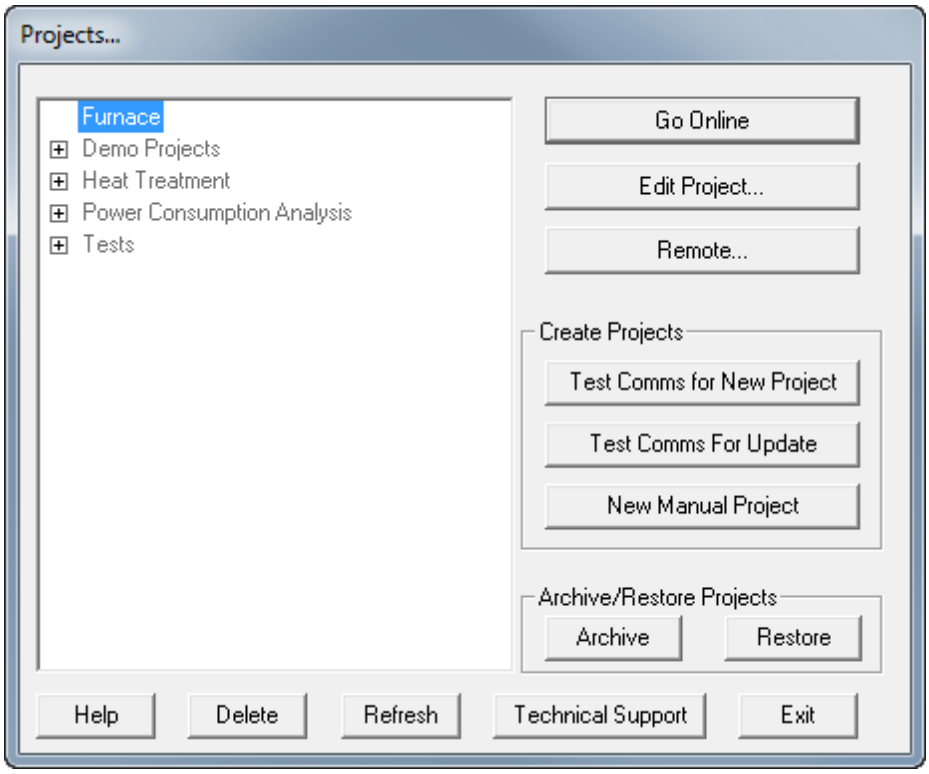


NOTE: To go directly into Edit Mode (online)[311] using the named project, press and hold the SHIFT key while clicking the Start button.

To go directly into Edit Mode (offline)[311] using the named project, press and hold the CONTROL key while clicking the Start button.

Click the **Select/Create Project** button to cancel the countdown and select an alternate project from the **Projects** box:

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NOTE: To go directly into Edit Mode (online)[311] using the selected project, press and hold the SHIFT key while clicking either the Go Online or Edit Project button.

To go directly into Edit Mode (offline)[311] using the selected project, press and hold the CONTROL key while clicking either the Go Online or Edit Project button.

When in Edit Mode use the Enter Runtime Mode menu command from the File menu or the



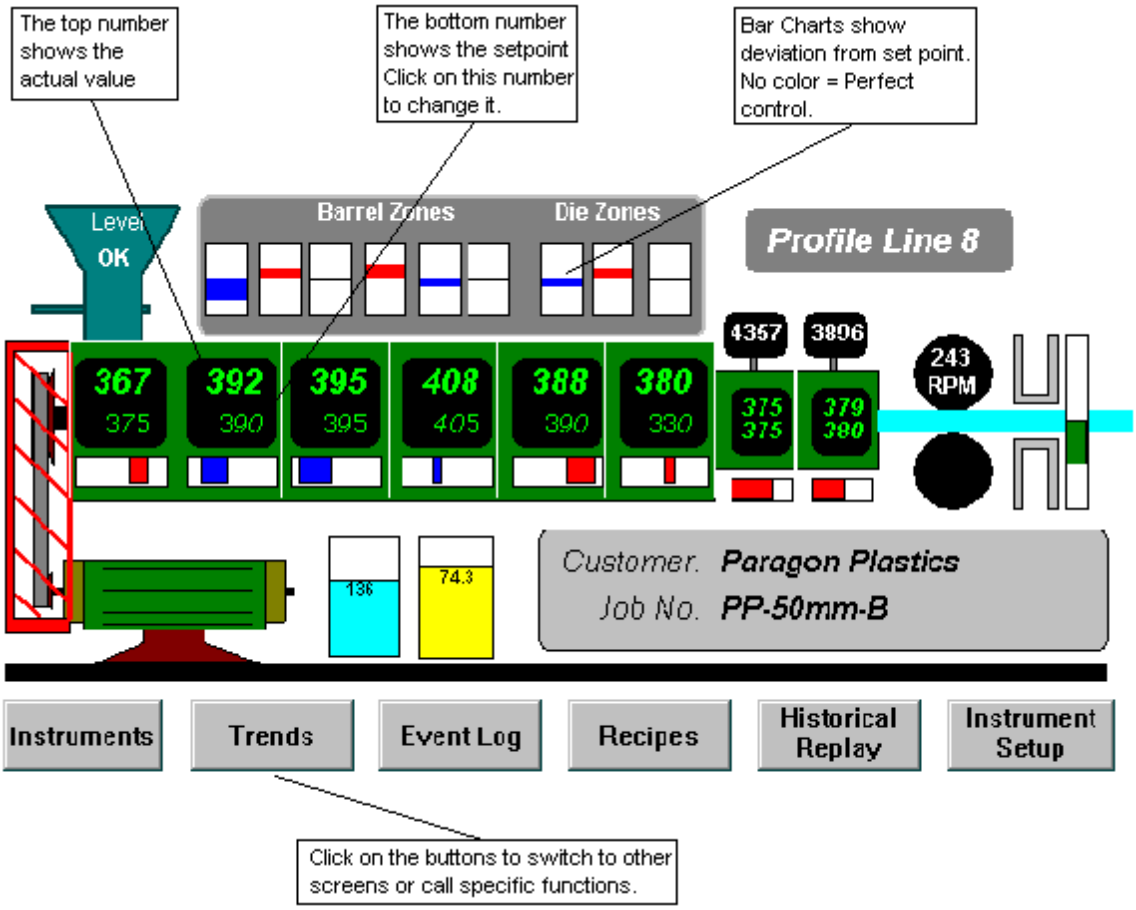
tool to return to Runtime Mode.

From Runtime Mode actions are initiated by: Clicking on an object (such as: the value of a variable, Bar chart or Button) on the GDW, by double-clicking on a (writeable) variable in a Parameter List or by using the Runtime Menu[269].
You will see that:

- GDW's[311] are communicating with the instruments
- Current (or Historical Data[623])• Data Logging[589] is storing values for use in Log Reports[606]
- Recipes[635] may be selected, edited, saved and loaded

To change a value click the one you want to change. For example, click the 390 setpoint for Zone 2 to change it.

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During Runtime the values of variables can be changed by any of the following:

- On the instrument itself
- From SpecView's screen via data entry [255]
- DDE [582]
- Strategy Controller or Button actions [690]:
  - Parameters: Alter Value Interactively [429]
  - Parameters: Copy From… To [429]
  - Parameters: Download Specific Value [431]
  - Parameters: Math Function [433]
  - Recipe: Download Specific Recipe [444]

7.1 Values on the GDW

Values of variables and instrument parameters shown on the GDW may show their value:

Zone1.Process Value: 1750.0

or instead of showing the value it may show one of the following:

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N/R - No Response

N/R will be shown when:
1: SpecView is Offline [307] or
2: When an instrument is not connected or
3: There is some problem [790] with communications.

NPV - Not Present Value

Some common examples of this are:
1: Programmer instruments, where segment variables change their availability depending on segment type, for example, if the Segment type is set to 'Time' then the 'Rate' value would be NPV.
2: Instruments where optional hardware is not present, for example if output boards are not fitted, or auxilliary inputs are not configured/fitted.
3: If a thermocouple goes out of range.

If NPV is shown erroneously then set the driver command [206] NPV = -1 (minus one) this will show the underlying value, instead of NPV.

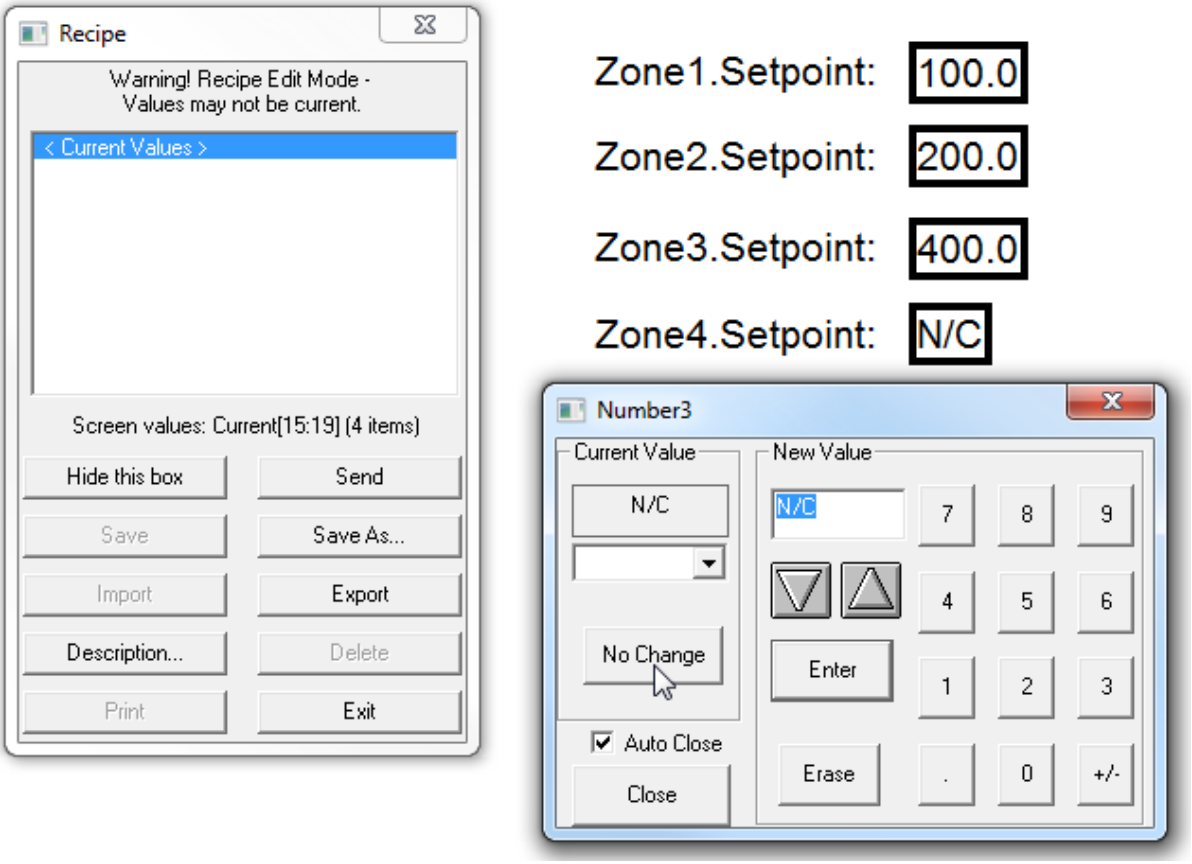
NCA - Not Currently Available

All values are set to NCA when online before they are filled in, but those that have no values, such as PasswordUser when passwords are not enabled will stay as NCA.

N/C - No Change - used in Recipes

This is used in Recipes when a value doesn't need to be set by the recipe:

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T/O - Time Out
This is when a request for an instrument's parameter times-out over comms, for example if the instrument was switched off.

W/O - Write Only
This is when a variable can be written to but not read.

7.2 Data Entry

Any writeable variable's [521] value which is displayed on the GDW can be changed by just clicking on it. However, it may be that some instrument variables cannot be changed unless the instrument is in the correct mode (e.g. Manual mode).

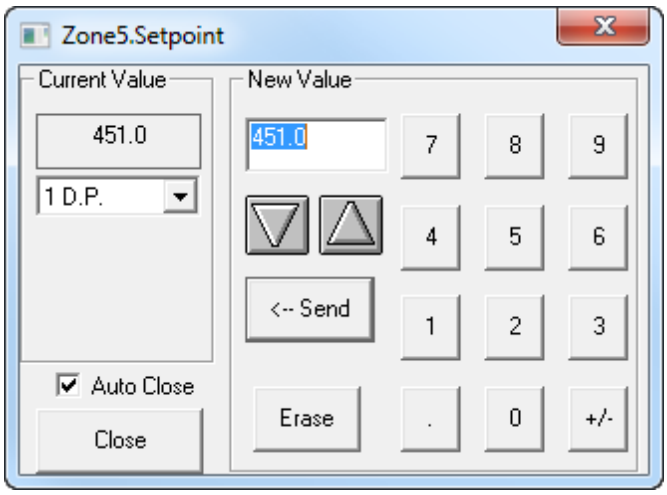
Data Entry - Numeric [256]
Data Entry - Boolean [257]
Data Entry - Enumeration [257]
Data Entry - Text [258]
Data Entry - Date and Time [259]
Parameter List [260]
Quick List [266]
Trend Charts [267]
Trend Chart Cursors [547]
Bar Chart Setup [397]

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Touch Screen Support 267

7.3 Data Entry - Numeric

Used for changing numeric values on the GDW



The current value is shown which is used as the start point for the new value
To change the value:

Click the  buttons OR

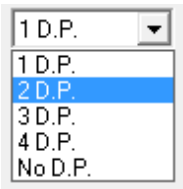
Use the numeric keypad and then click 

NOTE: Each time you click the up/down buttons the new value is sent to the instrument.

The maximum values for the different types of numeric variables are detailed in SpecView Variables 322.

If you make a keypad error click the **Erase** button: the current value will be re-read into the New Value field.
If the value is not accepted by the instrument an error code will be displayed. Check that a valid number is being sent.
Error Codes 476

Decimal Places 496
To change the decimal place resolution of the value sent with each up/down click and select from the list:

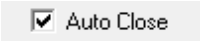


To permanently change the decimal places of a specific numeric variable edit the Dynamic Attributes 357

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of the variable.

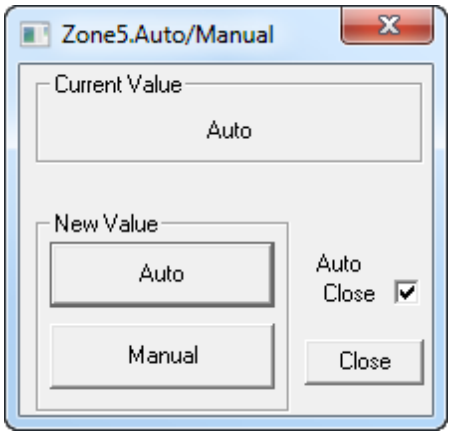
Auto Close
To speed data entry check the Auto Close box



This applies to all data entry boxes
The box will close automatically when SpecView gets confirmation that the entry has been accepted.

7.4 Data Entry - Boolean

Click the button required



To change the wording on the buttons edit the Variable Properties [326] using the Variables List [313] tool

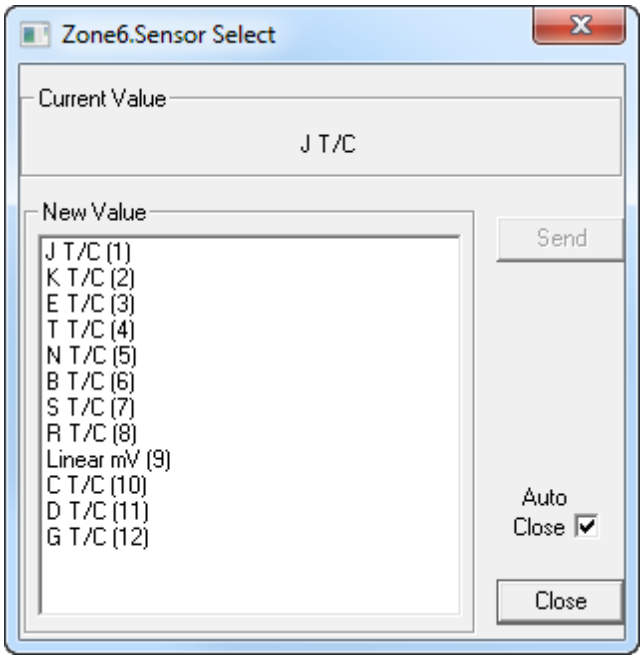


Error Codes [479]

7.5 Data Entry - Enumeration

Used when there are several choices of discrete settings

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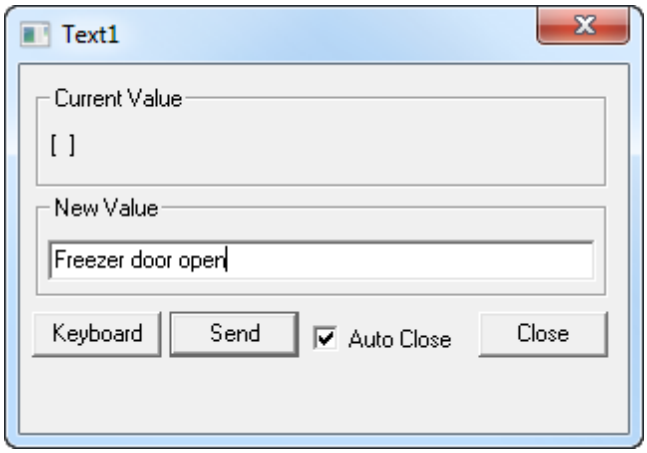
Double-Click (or single-click and click **Send**) on the required value

NOTE: Some instruments immediately change the data back to a default setting. This will cause a write error. Check to see whether the instrument has accepted the expected result. If not, maybe the wrong number of decimal places have been entered.

Error Codes 479

7.6 Data Entry - Text Strings

Fixed text cannot be edited. Text variables from instruments and SpecView Text User Variables 322 can be edited in Runtime Mode.
Click the text to edit:



Click the **Keyboard** button to use an on-screen keyboard.
When the text has been entered click the **Send** button.

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Text Variables can contain up to 32,767 characters.

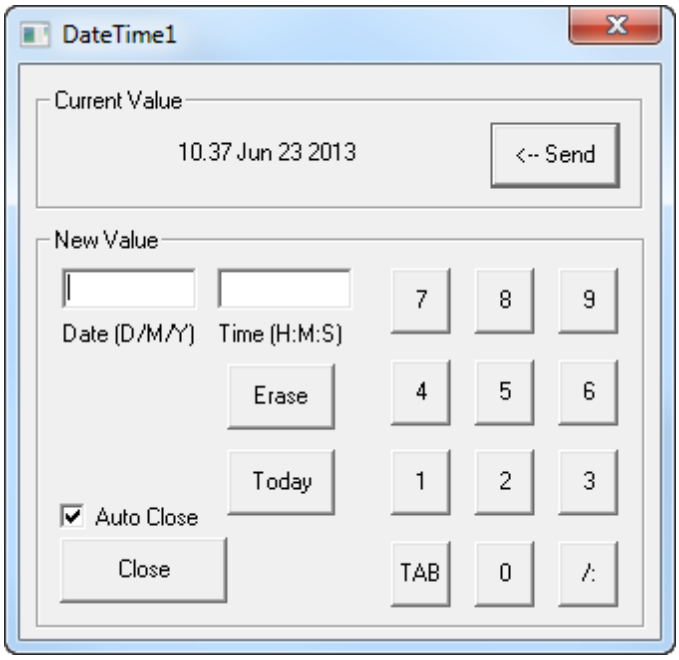
Changing the value of a text variable which is a Batch Tag[627] will mark the end the current batch & the start of another. Setting a Batch Tag to an **empty string** (in other words clearing it so that it contains no characters) will mark the end this batch *without* marking the start of another.

An **empty string** will be displayed on the screen as '[ ]' by default, this can be changed from Preferences - Display[461].

Error Codes[479]

7.7 Data Entry - Date and Time

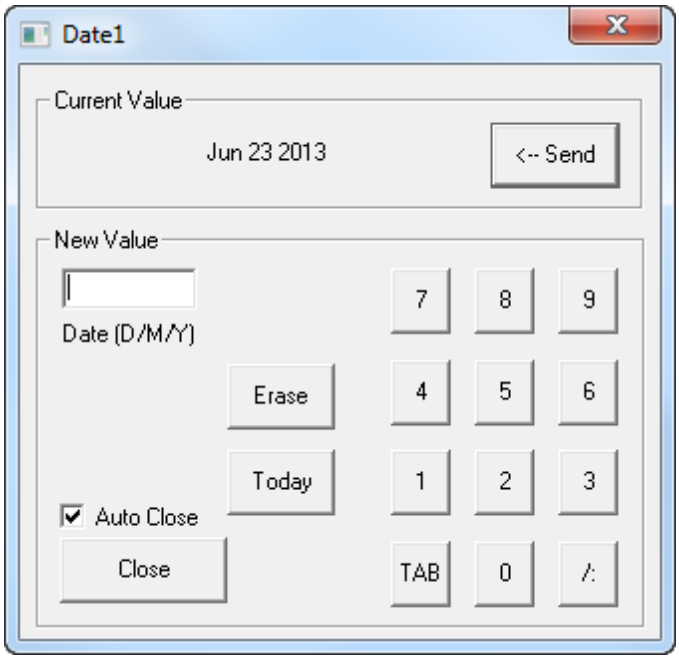
Date and Time variables from SpecView Date and Time User Variables[322] can be edited in Runtime Mode.
Click the Date and Time to edit:

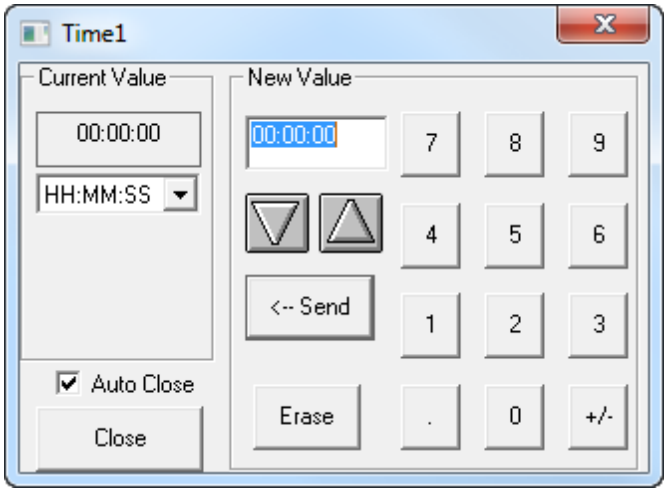


The box above shows entry of both Date and Time into one variable.

There are also boxes for entering the Date and Time separately, as shown below:

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Time variables are entered in the selected format HH:MM:SS or HH:MM

When the Date and/or Time have been entered click the **Send** button.

The maximum values for the different types of variables are detailed in SpecView Variables [322].

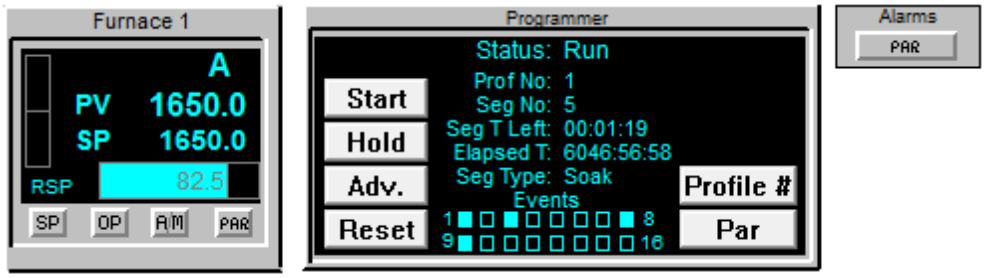
If an error occurs read Error Codes [479]

7.8 Parameter List

The Instrument View [346] on the GDW is a representation of the instrument itself and as such the buttons on it have similar functions to the buttons on the front panel of the instrument.

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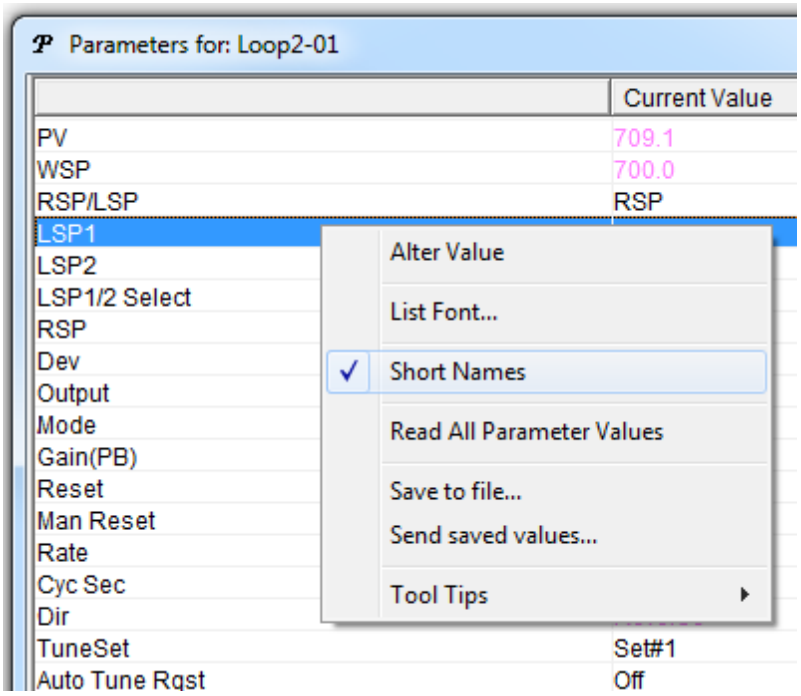
Typically one of the buttons on the **Instrument View** will display the complete **Parameter List** showing the values for all the variables for the instrument.



The particular button on the **Instrument View** that displays the **Parameter List** depends on the specific instrument.

Once the **Parameter List** is shown, if some of the parameters seem to be missing then it may be because it is just the abbreviated list of frequently required variables. To display the full list use the Options Menu [276] and select the **Short Param List** menu command. All the parameters will appear. Choose this menu item again to toggle back to the short list [326] mode.

The **Short Names** menu item on the popup menu switches between a mnemonic and full name mode:



To change a value:

- Single-click a variable and then click **Alter** OR
- Double-Click a variable OR
- Right-click and choose **Alter Value** from the popup menu

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The **Alter** button is disabled if the selected variable is read-only.

Click the **Print** button to save the the list of parameters and their current values to disk for future printing. To send the file directly to the printer use the name of the printer, for example LPT1: as the filename.

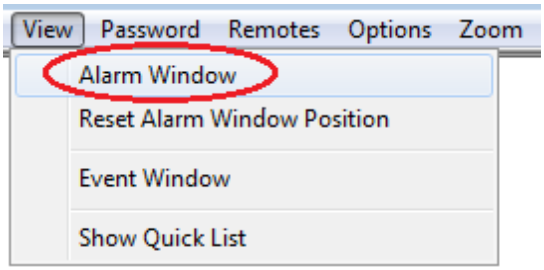
If the **Parameter List** box has been dragged off the screen, such that it can't be seen, then its position can be reset using Preferences - Settings [467] from the File Menu [269].

7.9 Alarm List

An Alarm [353] is an On/Off status within an instrument, or a boolean User Variable which are marked as being significant by having the Alarm attribute [353] enabled.
When an alarm occurs SpecView will display the Alarm box and write an entry into the Alarm logfile [616].

Runtime View Menu (UsingSpecView)
Alarm List/History (Glossary, ...)
Done - Variables List Alarms (EditingProjects)
DONE - Data Logging Alarms log reports (DataLogging)
Done - Button/Strategy Action 'Show Alarm List' (EditingProjects)

The Alarm List (also known as the Alarm Window) can be displayed from the View Menu:



Also, when an alarm occurs SpecView will automatically display the Alarm box and write an entry into the Alarm logfile [616].
(This feature can be enabled/disabled using the 'Popup Enabled' checkbox from Preferences - Alarm [463])

The list shows any active Alarms (unacknowledged alarms), see Fig. 1 below.
If there are no active Alarms then this will just show the Alarm History, see Fig. 2 below.

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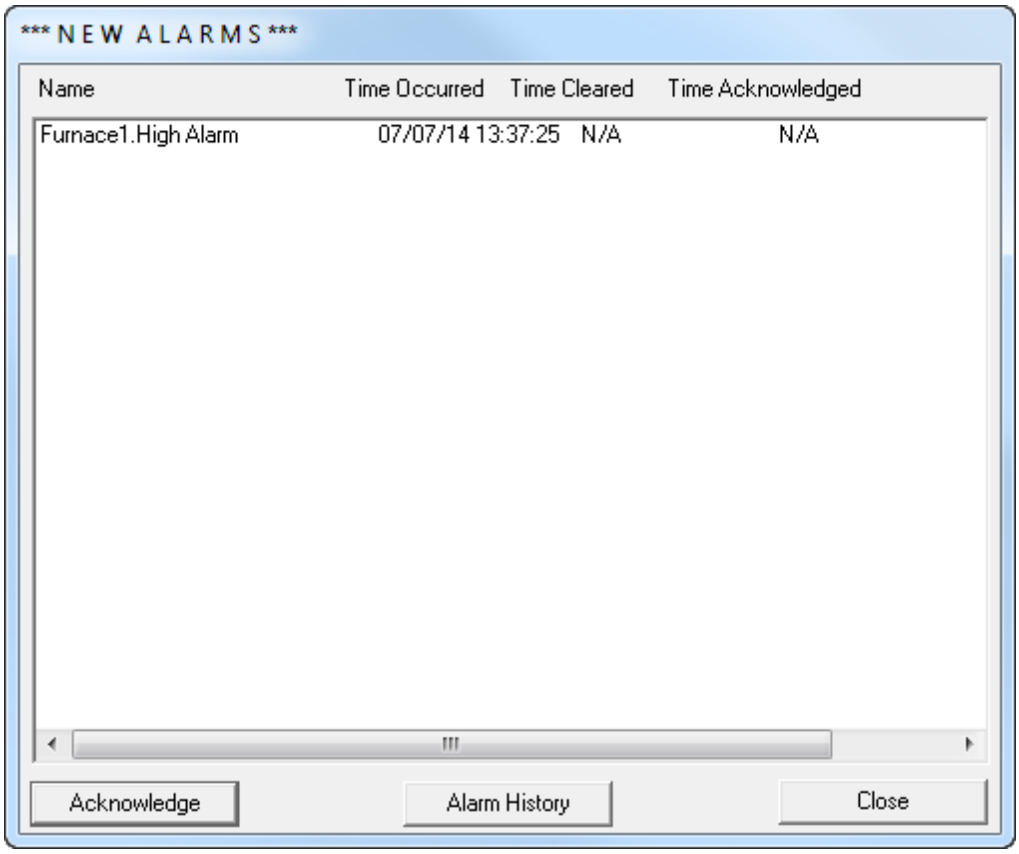


Fig. 1

Clicking the **Acknowledge** button (in Fig.1) will time stamp the **'Time Acknowledged'** column for all unacknowledged alarms and displays the **'Alarm History'** window:

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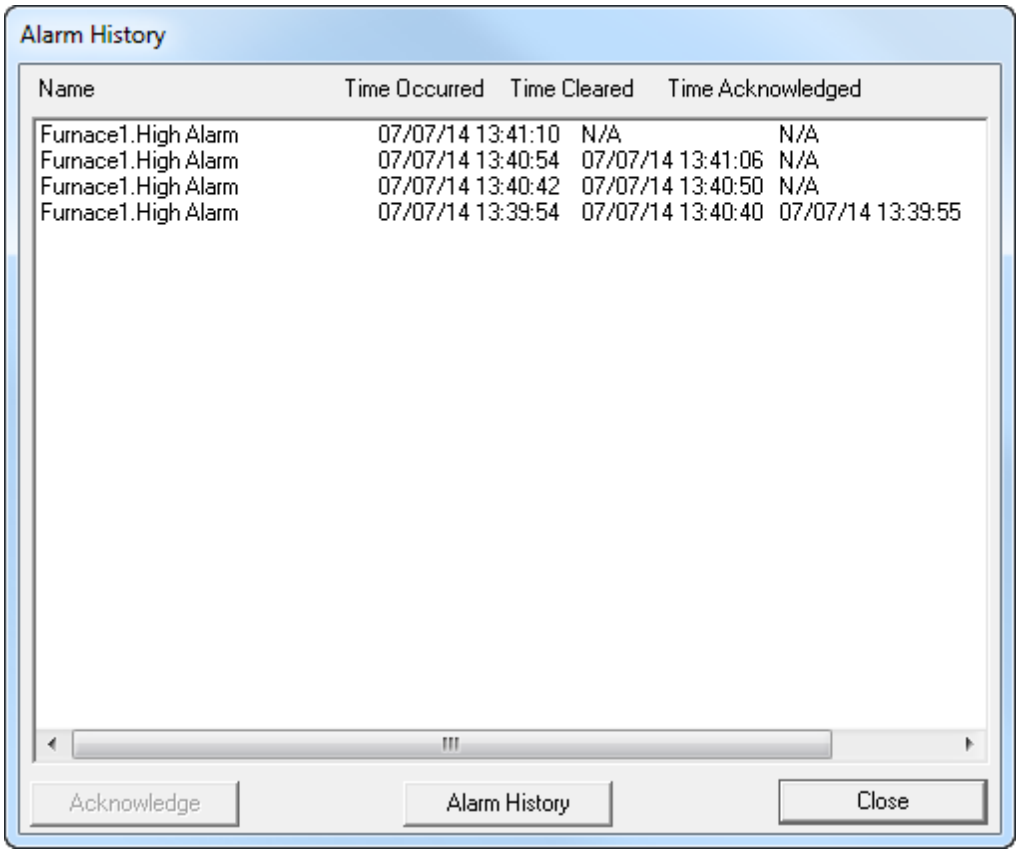


Fig 2.

The Alarm History window shows all the alarms that have occurred since last going into Runtime mode, or Edit mode (online).
If SpecView has just been re-started (either by the program or by coming from Edit Mode offline) then all of TODAY's alarms are shown (up to a maximum of 1000 lines).

Pressing the spacebar on the keyboard once will Acknowledge the Alarms, pressing it again will close the window. This is a quick way to Acknowledge & Close the window.

There is no way to clear or delete alarms

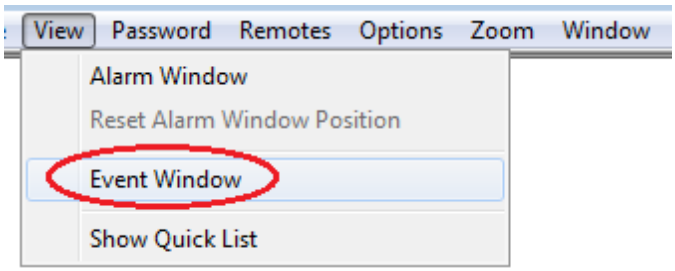
This window cannot be printed (other than by a screenshot)

To get a printable report of the Alarms, convert any log format 611 for the time span required, with the **'Include Alarm Log'** checked. This will create a .CSA file which can be opened in Microsoft Excel.

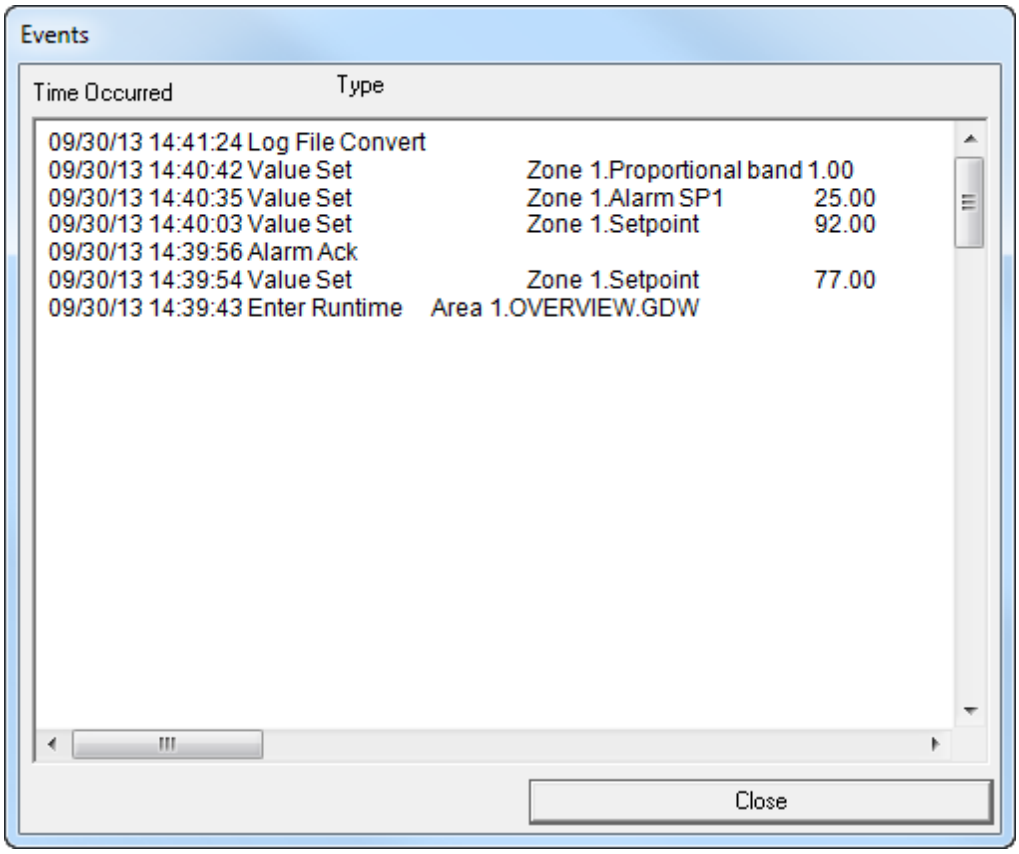
7.10 Event List

The Event List (also known as the Event Window) can be displayed from the View Menu:

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The list shows events that have occurred:



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7.11 Quick List

The **Quick List** is a method of marking particularly important parameters/variables from ALL instruments and User Variables in the Variables List, such that their values can be easily accessed and modified from Runtime Mode [251].

The **Quick List** can be viewed from Runtime Mode from the View menu [273] or from a button that has been assigned the action Show Quick List [443].

There is only one **Quick List**, but the **Quick List** can contain variables from any instrument and any User Variables.
Writeable values can be changed by clicking the **Alter** button.
The **Alter** button is disabled if the selected variable is read-only.

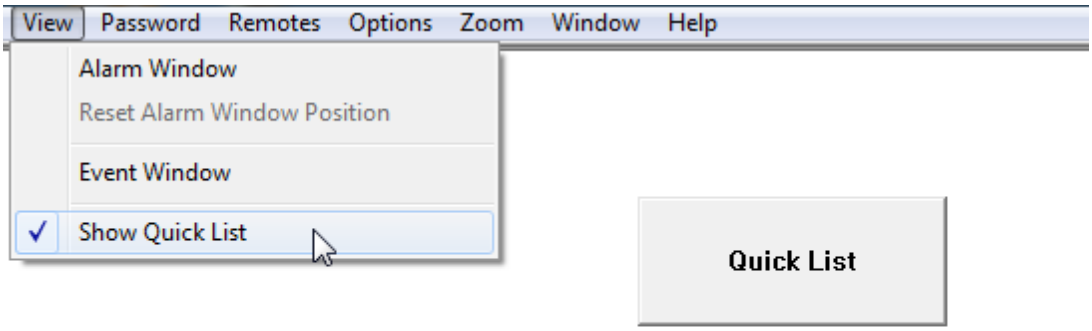
From Edit Mode the Variables List 

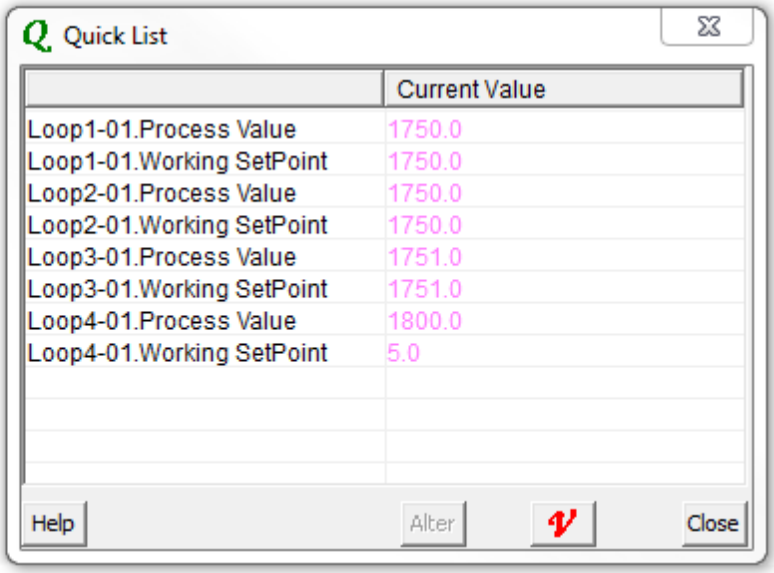
button on the toolbar can be used to open the Variables List to add parameters/variables to the **Quick List**.

When passwords [703] are enabled access to the **Quick List** can be restricted.

See: Setting up a Quick List in Edit Mode [369]

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If the **Quick List** window has been dragged off the screen such that it can't be seen then its position can be reset using Preferences - Settings[467] from the File menu[269].

7.12 Trend Charts

See Trend Charts in Runtime Mode[528]

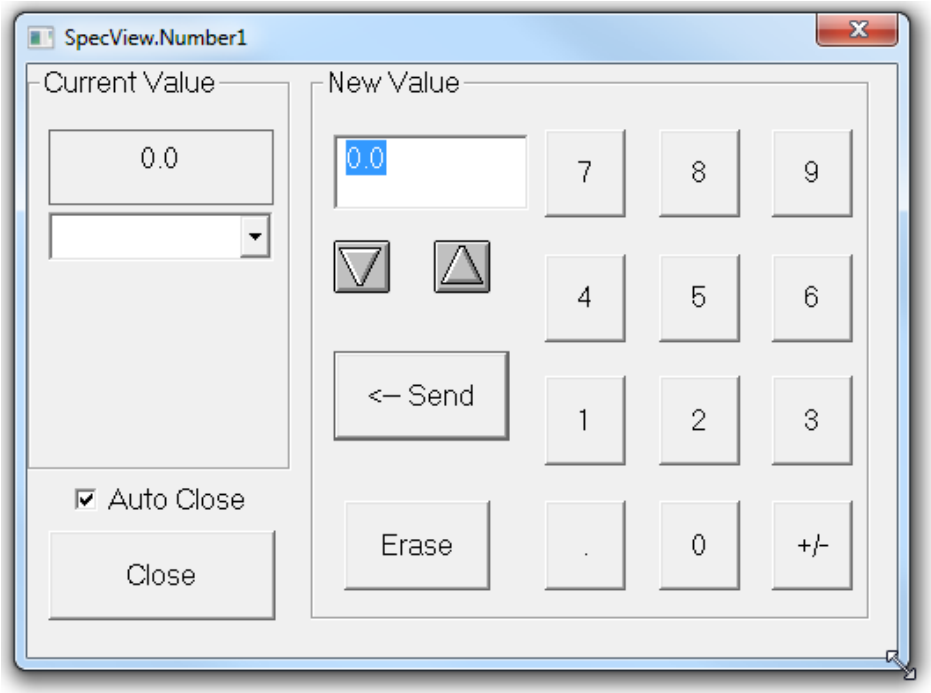
7.13 Touch Screen Support

There is Touch screen support in Runtime Mode, however, touch-screens are not supported in Edit Mode.

Data entry boxes are resizeable. Their size and position is remembered, which is particularly helpful

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when using a Touch Screen, as larger buttons are easier to use



The popup menu on Trend Charts in Runtime Mode can be accessed using the left mouse button, for use on touch-screens which don't have a 'right' mouse button.

In Edit Mode the popup menu is only available using the right mouse button. This because the left button selects the Trend Chart for moving and resizing.

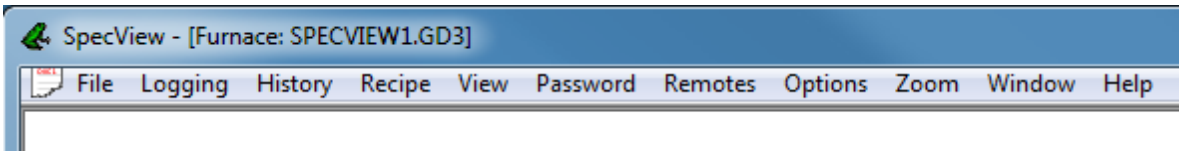
On the **Button & View** tab on the **Trend Chart Properties** box there is the option to have the **Setup** button shown in the top-right corner of the Trend Chart.
The **Setup** button is useful for touch screen users to be able to quickly and easily access the **Trend Chart Properties** box. The alternative method of opening this box is by choosing **Setup Chart** from the popup menu.

The **Password Entry** box can be resized using the **< Resize >** button which centers and keeps enlarging the box until the limit of the screen size is reached.
The resize 'grippy' in the bottom right corner of the frame can also be used to resize the box.
The size and position of the Password Entry box is remembered.

However, other Runtime Mode features such as Historical Replay batch[627] look-up and Trend Chart setup[523] would require the touch screen to have an on-screen keyboard.

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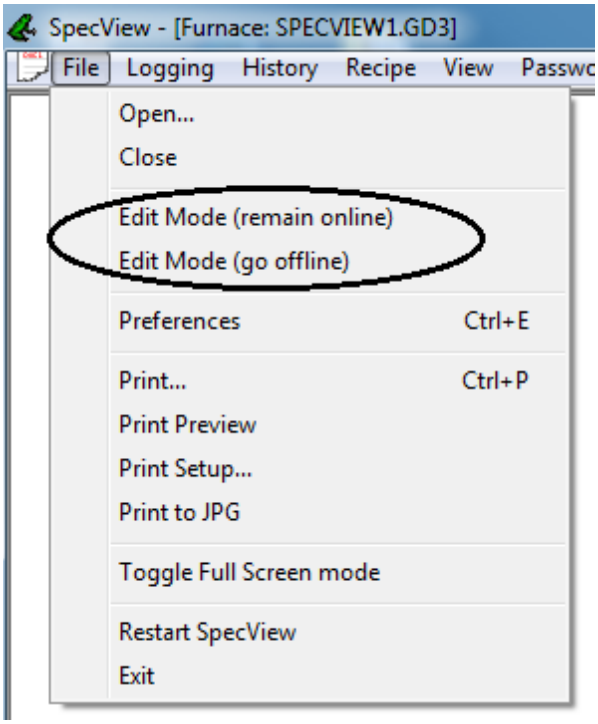
7.14 Runtime Menubar



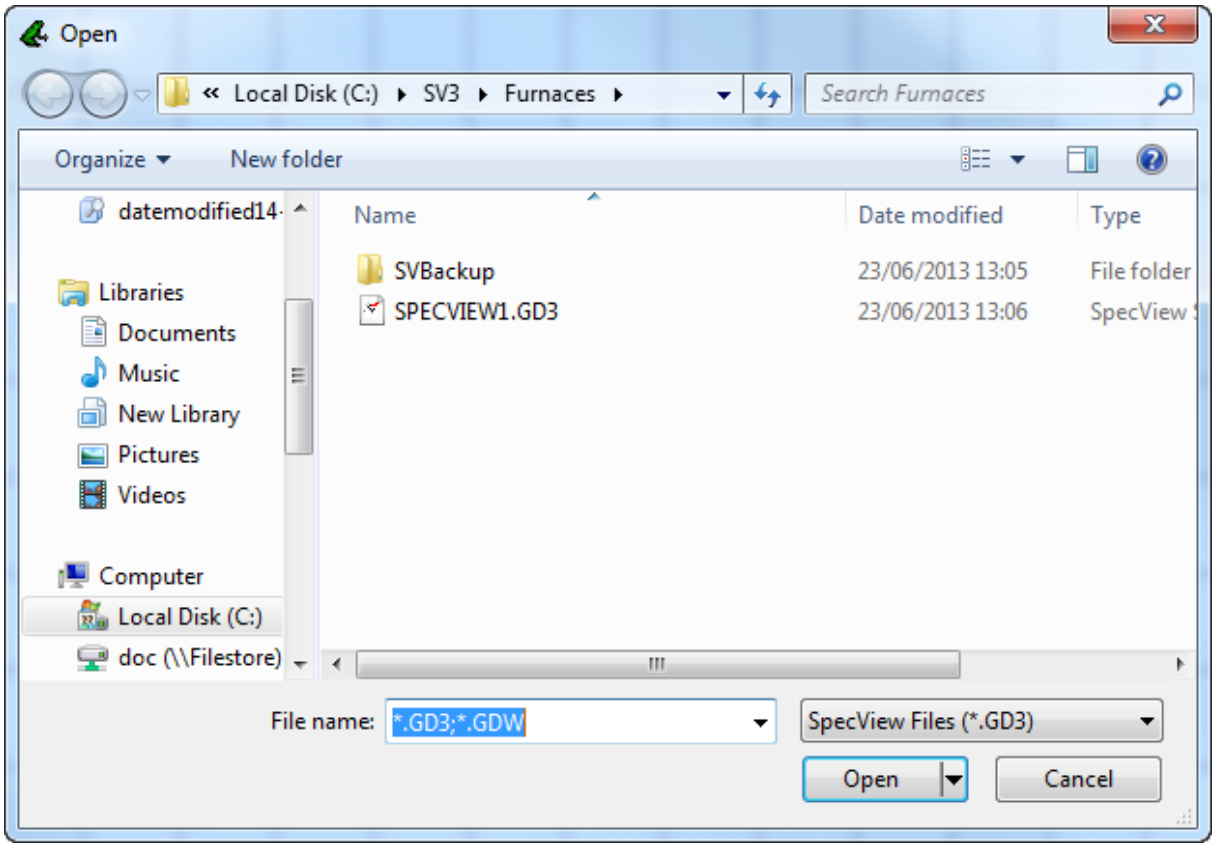
Accessed from the **Enter Runtime Mode** menu command on the Edit Mode's File menu [284].

File Menu [269]
Logging Menu [273]
History Menu [273]
Recipe Menu [273]
View Menu [273]
Password Menu [274]
Remotes Menu [275]
Options Menu [276]
Zoom Menu [277]
Window Menu [278]
Help Menu [278]

7.14.1 File Menu (Runtime)



Open
Use this command to open a previously saved GDW [503]



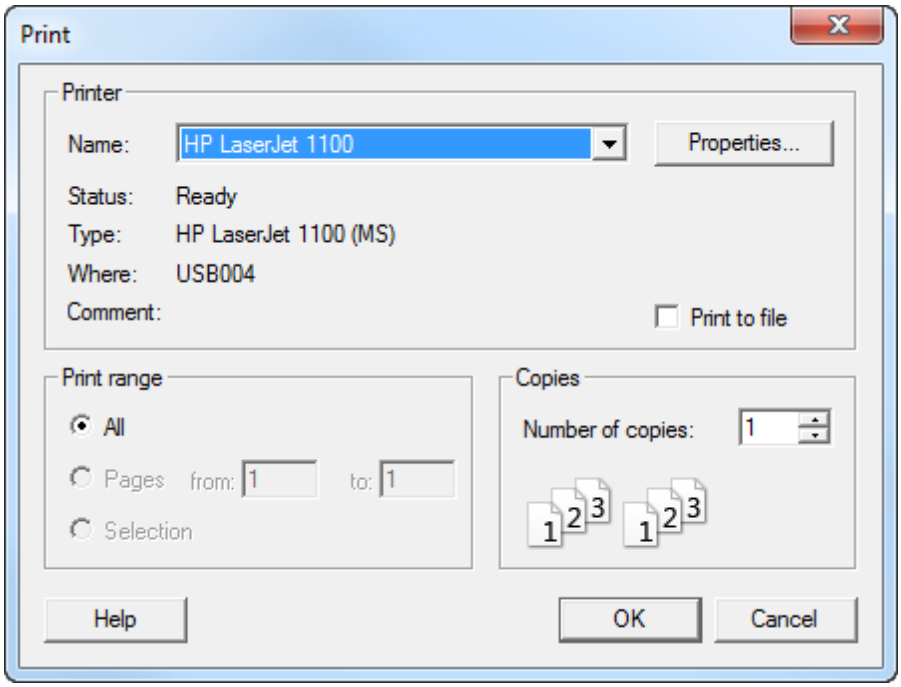
Close
Closes the current GDW. This is the same as the GDW Control: Close this screen [423]

Edit Mode (remain online) and **Edit Mode (go offline)**
Switches to the SpecView Edit Mode [501]
These menu items will be grayed-out if the SpecView license is a Runtime-Only [78] license.

Preferences
Shortcut: Ctrl + E
Displays the Preferences [458] box.

Print and **Print Preview**
Shortcut: Ctrl + P

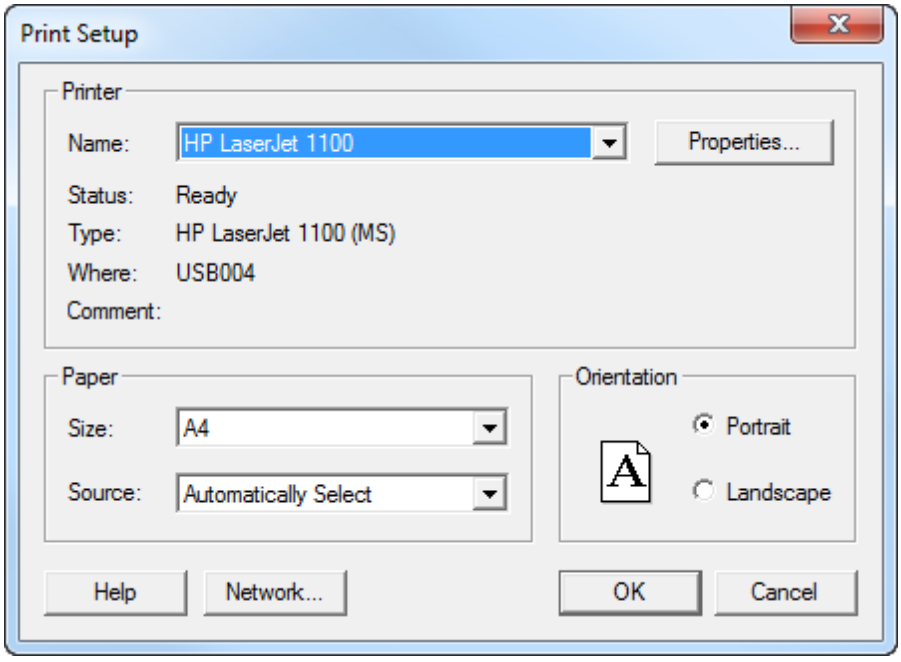
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Click the **OK** button to print the current screen (GDW) to the printer shown.

Print Setup

NOTE: Landscape mode is recommended for GDW's containing Trend charts



Use this box to select and setup the printer.

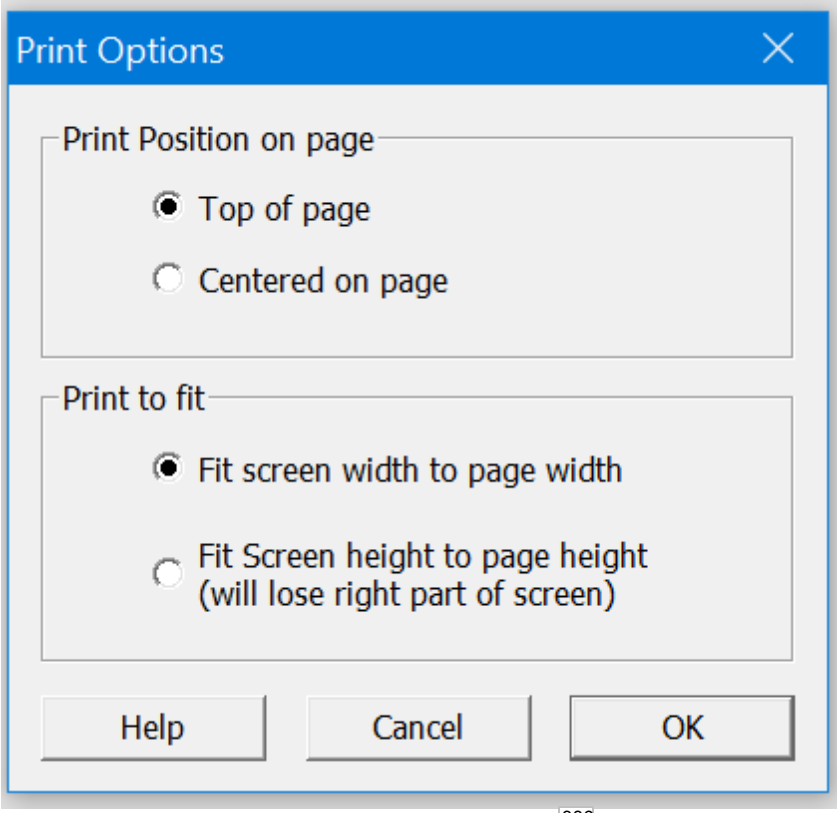
NOTE: To change the default settings use the printer setup in Windows Control Panel

If Adobe Acrobat is installed then this will be shown in the list of printers and can be used to create a

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PDF (Portable Document Format) file.

Print Options:



The Print Options box is described in detail here[386].

Print to JPG
Puts an image of the whole screen, including the Windows task bar if it is visible (not just the contents of the GDW) to a .JPG (Jpeg format) file.
The filename of the file that is created has the date and time in the format:
YYYYMMDD_HHMMSS.JPG
The file is written to the current Project folder[491].
If more than one request to 'Print to JPG' is made at the same second, then the file will be overwritten.
There is also the Button & Strategy Controller action: GDW Control: Print Screen[423] which allows 'JPG' to be selected from the list.

NOTE: Other methods of printing are described here[386].

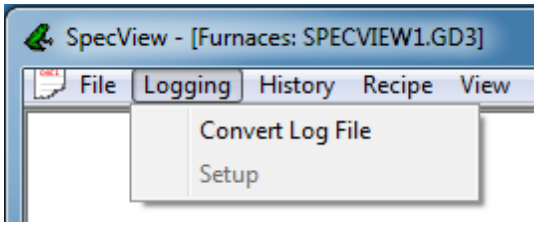
Toggle Full Screen Mode
Described in Full Screen Mode[476]

Restart SpecView
Restarts SpecView as if the user had exited and started it again.

Exit
Shortcut Alt + F4
Exits (closes) SpecView.

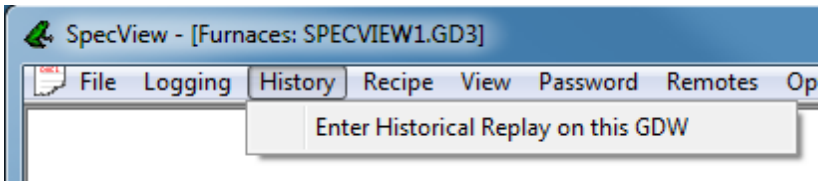
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7.14.2 Logging Menu



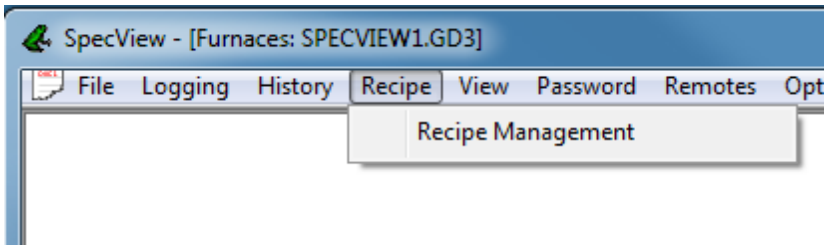
Logged data is converted into Log Reports [606] using this menu command

7.14.3 History Menu



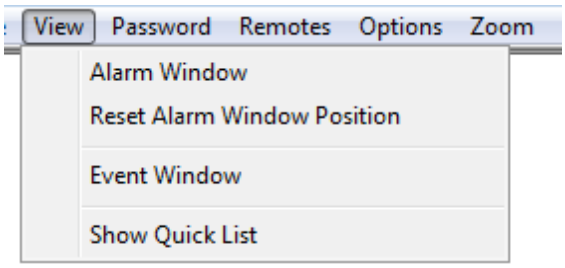
This menu starts Historical Replay [623]

7.14.4 Recipe Menu



Use this menu to open the Recipe [511] Manager for this GDW.
The Recipe Manager can be displayed by the Recipe: Show Recipe Manager [445] button attribute.

7.14.5 View Menu



Use this menu to display the Alarm Window [262] which list the Alarms [353] which have occurred.
When the Alarm Window [262] is displayed it can be resized. SpecView remembers the last position and size. If the Alarm Window is not visible use the **Reset Window Position** menu command.

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The Alarm Window popup can be disabled using the Preferences - Alarm [463]
However, the Alarm Window can be viewed from the View menu when desired.

NOTE: that with the Alarm Window set to not pop-up, there is no other indication from SpecView that the alarm has occurred. Use the SpecView.NewAlarm variable or your own variables to warn the user by some other means, for example Color Dynamics [359] or Position Dynamics [363].

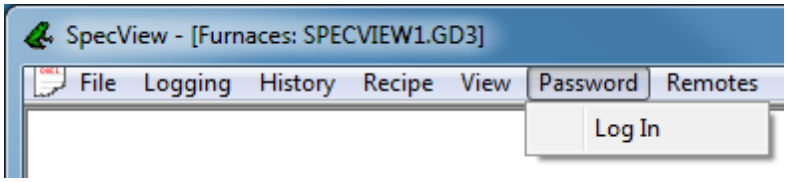
View Alarm Window [262]
Use this menu function to display the Alarm List [262] of current and previous alarms [353].
The Alarm List can also be displayed by the Alarms - Show Alarm List [406] button attribute.

Reset Window Position
If the Alarm Window has been dragged off the screen use this menu command to reset the position.
The Alarm window position can also be reset using Preferences - Settings [467]

View Event Window
Displays the list of events recorded by SpecView
The Event List can also be displayed by the Events: Show Event List [407] button attribute.

Show Quick List
Displays the Quick List [266].

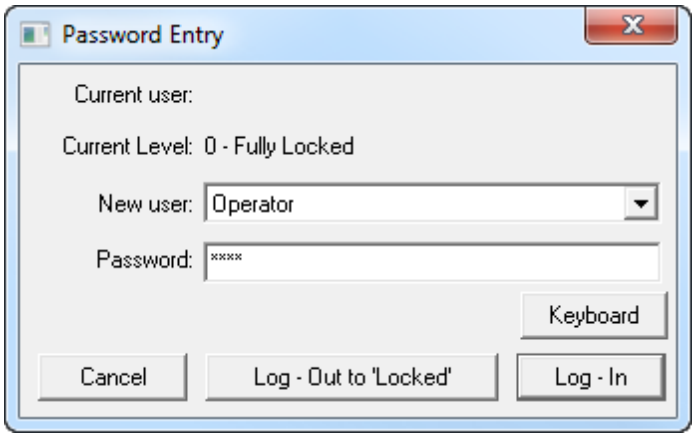
7.14.6 Password Menu (Runtime)



Use this menu to Log In to SpecView with a Password.
Password Log In can be accessed by the Password: Log In or Log Out [437] button attribute

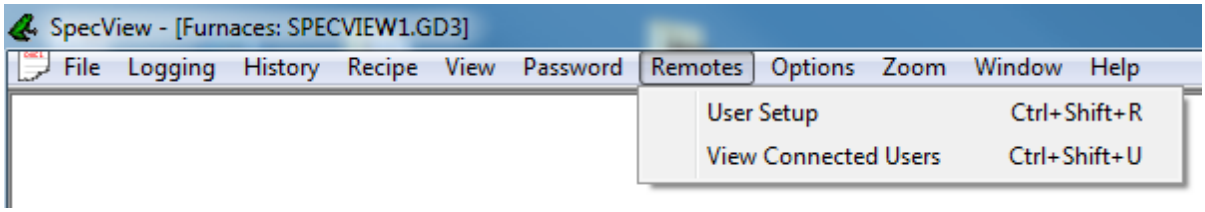
Log In / Log Out
Select the user from the list and enter the password

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For setting up passwords in Edit Mode read Passwords [703]

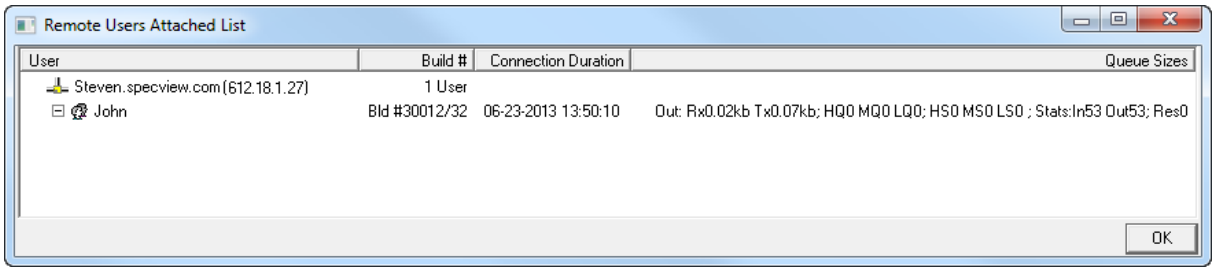
7.14.7 Remotes Menu



The menu items on this menu are only enabled on the Local.

The User Setup menu command is detailed in SpecView Networking - Local [737].

View Connected Users gives information about each Remote connection:



The columns show:

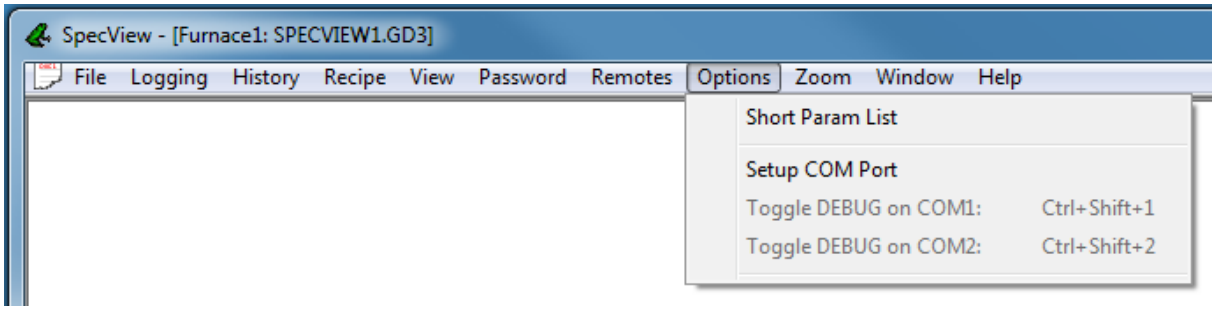
The User ID.
The version of SpecView running on the Remote.
Date & time the connection was made.
The Queue sizes column shows:

Rx0.00kb Tx0.25kb = Receive & Transmit data rates (kb/sec)
HQ0 MQ0 LQ0 = High, Medium & Low queue sizes
HS0 MS0 LS0 = High, Medium & Low packet sizes

If the titlebar of this box shows: 'Remote Users Attached List - Server NOT running' then the Local has not had the

networking server started from Preferences, this is detailed in Setting up SpecView Networking[736].

7.14.8 Options Menu



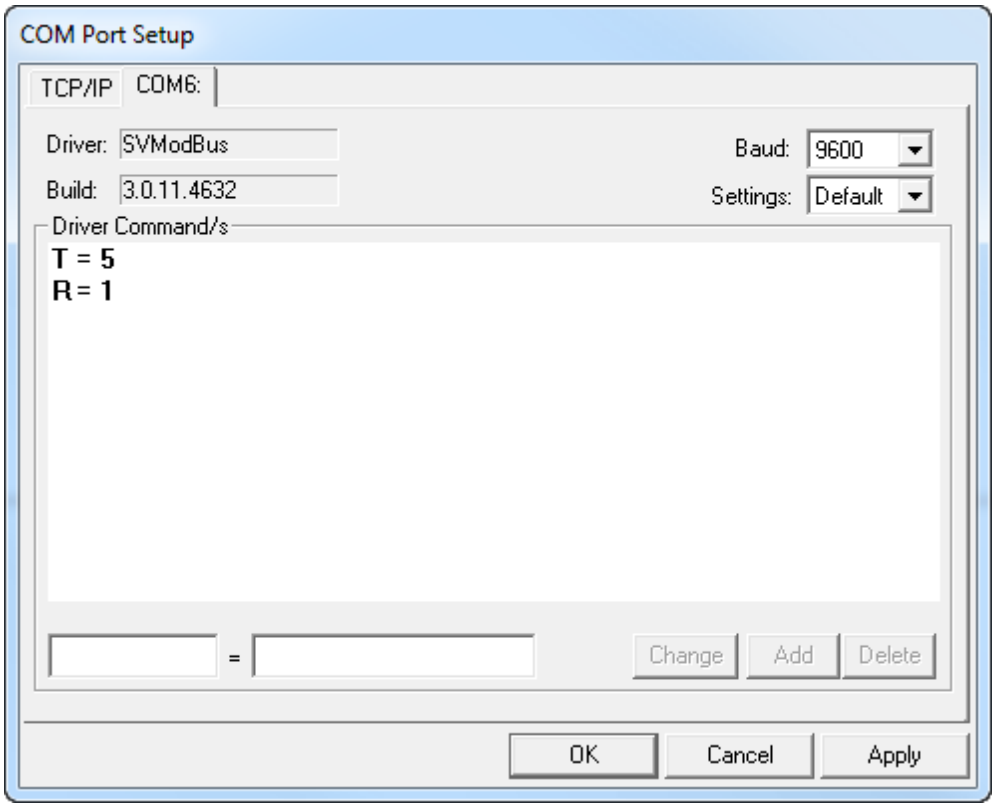
Short Param List
This menu command toggles the parameter list on Instrument Views[346] between Short List and Full list modes. Full List mode lists ALL the parameters for the instrument, whereas Short List mode displays just some of the most frequently used parameters.

NOTE: Full List mode is not the same as the Full Names checkbox on the Parameter List[260] dialog, which toggles between Full variable names and abbreviated variable names.

Access to the Full Parameter List can be restricted by Password Log In Level[703]

Setup COM Port
Displays the COM Port Setup box and allows the COM port(s) settings to be changed, and driver commands[206] added, during Runtime.

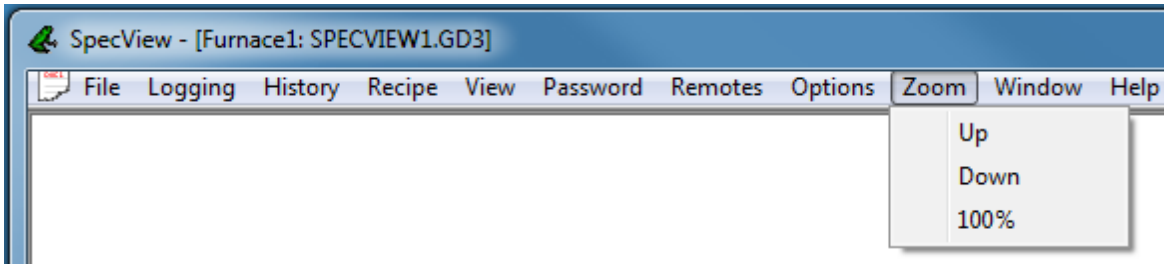
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Toggle DEBUG on COM1
Enable/disable debug information on COM1 by setting the driver command[206]: DEBUG=1
It is not recommended to change this setting unless under the direction of a SpecView representative.

Toggle DEBUG on COM2
Enable/disable debug information on COM2 by setting the driver command[206]: DEBUG=1
It is not recommended to change this setting unless under the direction of a SpecView representative.

7.14.9 Zoom Menu



Up
Zoom-in to enlarge the size of the graphics & text within the GDW. Repeatedly selecting this keeps on enlarging.

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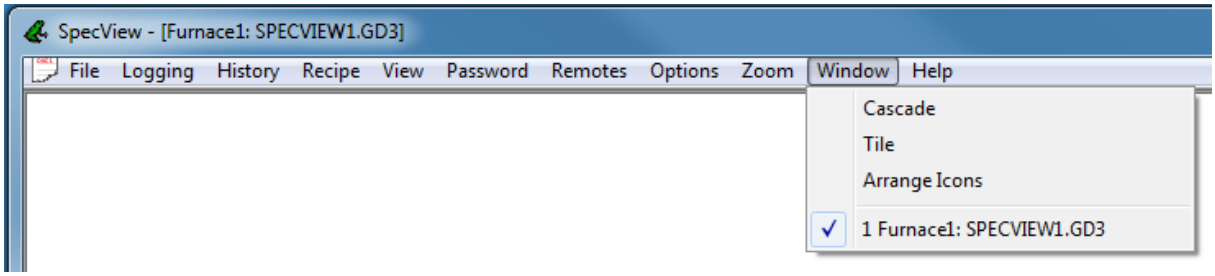
Down
Zoom-out to reduce the size of the graphics & text within the GDW. Repeatedly selecting this keeps on reducing.

100%
Restore to the original size.

For zooming Trend Charts [528] it is best to use the **Zoom** menu item on the Trend Chart's popup menu.

Note: This command will not affect the size of bitmaps on the GDW.
*To change the size of Bitmaps go into Edit mode, double-click on the bitmap and un-check the **'Fix to Original Size'** checkbox on the Bitmap Attributes box.*

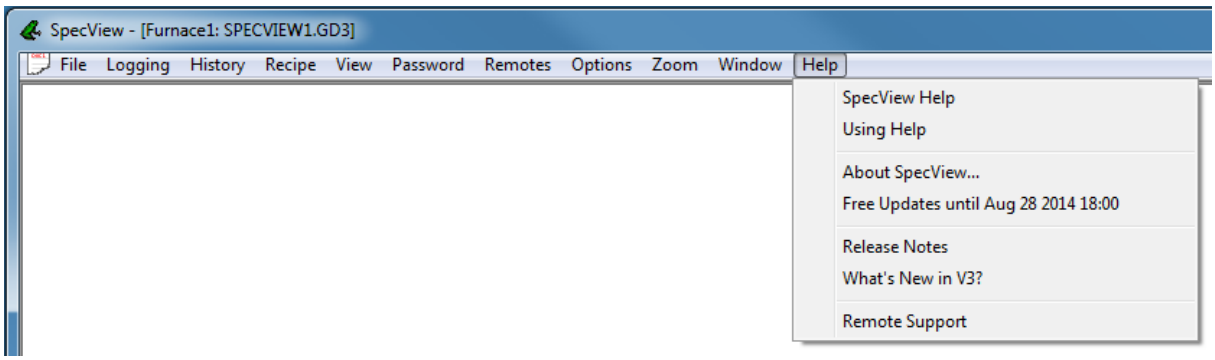
7.14.10 Window Menu (Runtime)



Cascade and Tile commands are standard Windows commands to arrange open Windows.
Arrange Icons has no function in SpecView.
Select any open GDW [503] listed to switch to that GDW.

For details on making SpecView remember window positions see Remembering Window Positions [836]

7.14.11 Help Menu (Runtime)

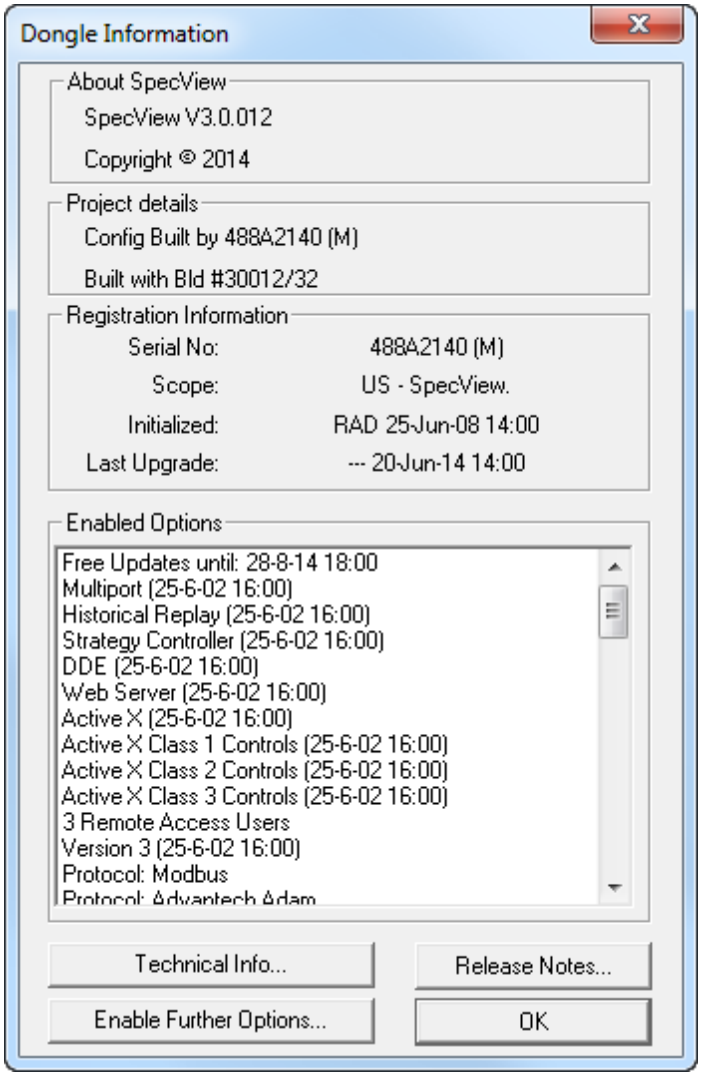


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SpecView Help
This menu command starts SpecView's help system and displays the contents page.

Using Help
Explains how to use SpecView's Help for maximum effectiveness.

About SpecView



Displays the SpecView version/build information and shows the serial number and status of the SpecView Dongle[498].

Click **Release Notes** to see details of changes made to SpecView such as new features and fixed problems.

If you need to contact SpecView's Technical Support[798] you may be asked to click the **Technical Info** button to provide further details of your specific installation.

Click Enable Further Options[64] to upgrade[64] the dongle

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Updates until

See Update Subscription 76

What's New in V3

Details the changes to SpecView from Version 2.5 to Version 3

Remote Support

This is used for interactive Internet Support 799.

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Part 8

8 Editing a SpecView Project

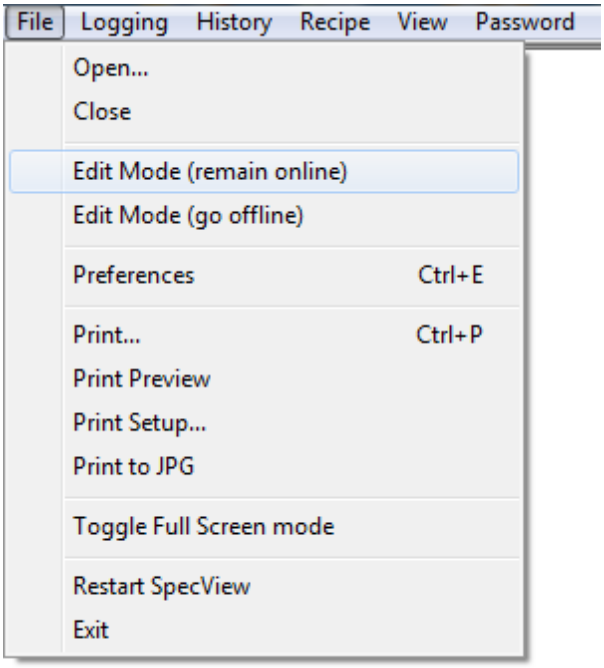
SpecView has 2 main modes of operation: Edit Mode and Runtime Mode.

Runtime mode is when instrument(s) are 'online' and values are being read, displayed and logged.

Edit mode is used to configure a SpecView project, i.e. creating screens, setting up the Strategy Controller, etc.

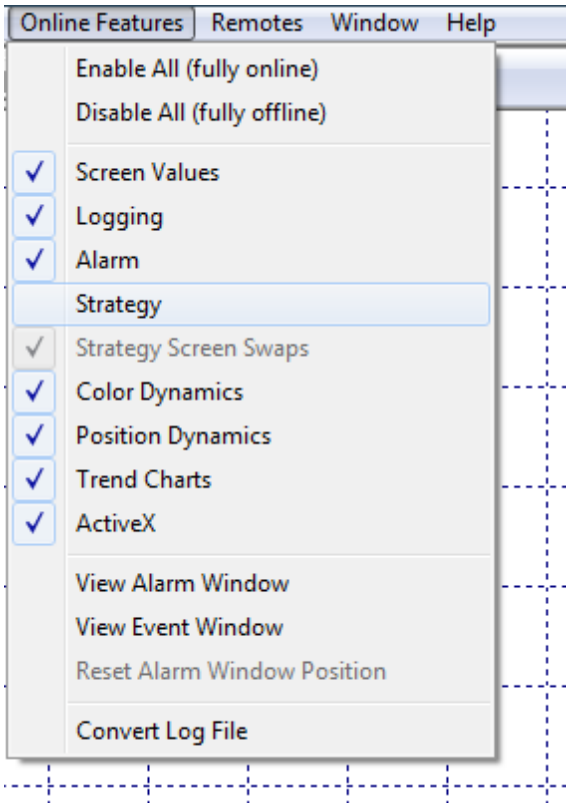
However, there is also a method of Editing a project while remaining 'online' to the instrument(s), so that values continue to be read and logged.

When going from Runtime Mode to Edit Mode there are 2 choices on the File menu: Edit Mode (remain online) and Edit Mode (go offline):



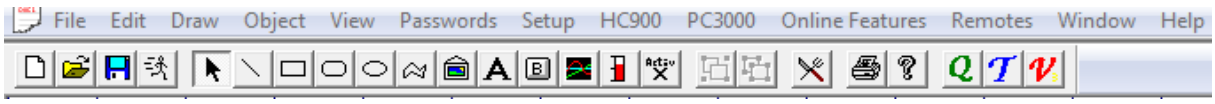
To enable/disable online features use the Online Features 307 menu:

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The reason for this is to prevent the live values from affecting what is being edited, a particular example of this is Position Dynamics. If Position Dynamics was being edited while it was 'online' then the position of objects on the screen could change unexpectedly.

8.1 Menubar and Toolbar in Edit Mode



Accessed from the **Edit Mode** menu command on the Runtime Mode's File menu [269].

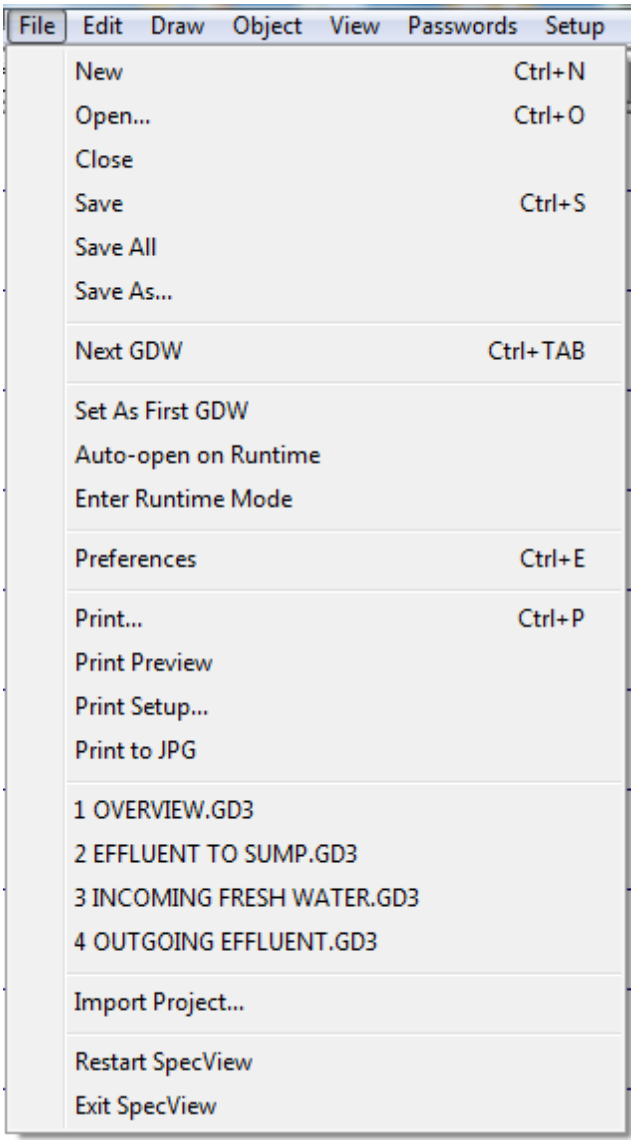
The edit mode menus and menu commands are individually described below. However, for detailed information on how to edit a project in SpecView read Editing GDWs [311]

File Menu [284]
Edit Menu [287]
Draw Menu [289]
Object Menu [291]

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View Menu 295
Passwords Menu 304
Setup Menu 305
Online Features Menu 307
Window Menu 308
Help Menu 309

8.1.1 File Menu (Edit Mode)



New
Shortcut: Ctrl + N



Toolbar: Opens a new blank GDW 503

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Instrument Views and Variables can be added to this new GDW by clicking on the Variables List 313 tool  and a button can be used to swap between GDW's during Runtime Mode as is described in the Quick Start Guide.

Open (Edit Mode)
Shortcut: Ctrl + O

Toolbar:  Opens an existing GDW 503 . Same function as File Open (Runtime Mode) 269

Close (Project)
Closes a GDW 503 (Note: The last GDW can't be closed)

Save
Shortcut: Ctrl + S

Toolbar:  Saves a GDW 503 This will save all changes made.

NOTE: There is no 'Replace Existing?' warning box, so to save as a different name use Save As... on the File menu.

Save As
Saves a GDW 503 with a new name. This is used to make an exact copy of a GDW and then edit the variables.
Editing Dynamic Attributes 357

Set As First GDW
This only applies where a project contains more than one GDW.
Click this menu command to make this GDW 503 the first window when entering Runtime Mode.
If this is not set, then the last GDW to be edited will be the first one opened when entering Runtime Mode.

Auto-open on Runtime
Click this menu command to tell SpecView to open (start) this GDW when entering Runtime Mode

NOTE: Be sure to click this menu command on all of the GDWs which have Trend charts. Then switching between the GDWs will show all the current information on the Trend charts. If you do not, each of the GDWs will have to be opened in Runtime Mode before the Trend chart lines will start to be drawn.

Enter Runtime Mode

Toolbar:  Exits Edit Mode and enters Runtime Mode. This will start communicating with the connected instruments.

Preferences

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Shortcut: Ctrl + E
Click this menu command to display the Preferences box[458] to modify SpecView's settings.

Print (Edit Mode File menu)
Shortcut: Ctrl + P
Toolbar:  Prints the current GDW[503] . Use the Print Setup menu command to change your printer settings.

Print Preview
Previews how the printed GDW will look when it is printed from Runtime mode.

Print Setup (Edit Mode File menu)
Use this to change the printer settings, such as:
- Using landscape format.
- Using a different printer, for example, if Adobe Acrobat is installed then this can be selected to create a PDF (Portable Document Format) file.

Print Options
Use this to control how the contents of a screen are positioned and resized on the paper, see Printing[386].

Print to JPG
Puts an image of the whole screen, including the Windows task bar if it is visible (not just the contents of the GDW) to a .JPG (Jpeg format) file.
The filename of the file that is created has the date and time in the format:
YYYYMMDD_HHMMSS.JPG
The file is written to the current Project folder[491].
If more than one request to 'Print to JPG' is made at the same second, then the file will be overwritten.
There is also the Button & Strategy Controller action: GDW Control: Print Screen[423] which allows 'JPG' to be selected from the list.

Recently Used File List
Shows the four last GDW's[503] that were edited. Clicking on one will open it.

NOTE: If the GDW was in another project all dynamic links will be removed. Do not open a GDW from another project unless only the background and graphics are needed.

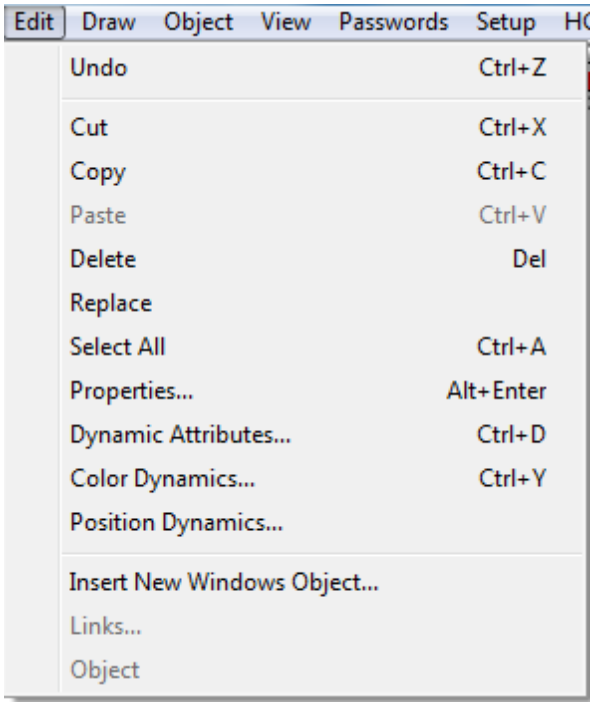
Import Project
Import[371] another project into this one to combine the two.

Restart SpecView
Restarts SpecView as if the user had exited and started it again.

Exit SpecView
Shortcut: Alt + F4
Closes all GDW's and SpecView.

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8.1.2 Edit Menu



Undo
Shortcut: Ctrl + Z

NOTE: Undo will only undo a 'move' of an object.

Cut
Shortcut: Ctrl + X
Cuts the selected object and puts in on the Window's clipboard

Copy
Shortcut: Ctrl + C
Copies the selected object and puts it on the Window's clipboard
SpecView has a quick way to copy drawing objects - Quick Copy 376

Paste
Shortcut: Ctrl + V
Pastes the contents of the Window's clipboard on the GDW 503 .

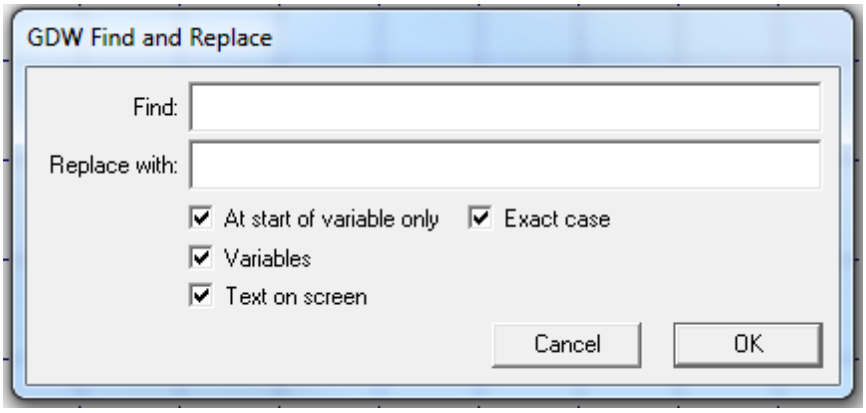
NOTE: The selection will be pasted into the same location on the GDW as the Cut or Copy was taken from. Hence copied items will be overlaid on each other and will need to be dragged into the correct position. Objects in front behind others 376

Delete
Shortcut: Del(ete) key
Deletes the selected object(s)

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NOTE: Do not forget that SpecView does not support Undo for deleted objects.

Replace
If a GDW has been duplicated for use by another identical instrument, then this function can be used to rename all the instrument variables on the GDW from, for example, 'Furnace A' to 'Furnace B'.



Note that this will only substitute the variable names that are on the current GDW.

To use this function the new instrument must be created first (in this case 'Furnace B'), then do the Replace.
This is because the Replace function can only change to a name that already exists.

This can also be used to change the name of variables, for example,
SpecView.BatchZone1 to SpecView.Boiler1
To do this, uncheck the 'At start of variable only' box, and substitute 'atchZone' for 'oiler'.

NOTE: That these name replacements will only affect the current GDW and will not be automatically reflected in the Strategy Controller. Any Strategy Controller changes will need to be done 'by hand'.

Select All
Shortcut: Ctrl + A
Selects all the objects on the GDW.

NOTE: This is useful to find stray objects such as very small drawing objects put down by mistake.

To de-select the objects just click the background.

Properties
Shortcut: Alt + Enter
Shape Properties 375
Edits - depending on the selected object:

- Shape properties of a drawing object
- Text attributes
- Trend chart attributes
- Bar chart attributes

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There is no function for grouped objects or Instrument Views [346]

Dynamic Attributes
Shortcut: Ctrl + D

NOTE: This is only relevant to values of variables displayed on the GDW not to the names of the variables or other objects (for example, Trend charts or bitmaps) on the GDW.

Select the object by SINGLE clicking on it. Then use the Dynamic Attributes from the Edit menu or the shortcut key.
The Dynamic Attributes [357] box is displayed for the selected variable.

Color Dynamics
Shortcut: Ctrl + Y
Select the object by SINGLE clicking on it. Then use Color Dynamics from the Edit menu or the shortcut key.
The Color Dynamics [359] box is displayed.

Position Dynamics
Select the object by SINGLE clicking on it. Then use Position Dynamics from the Edit menu.
The Position Dynamics [363] box is displayed.

If this menu item is grayed-out (disabled) then go to the Online Features menu to check that Position Dynamics is offline. This is because if Position Dynamics could be setup while 'Online' then the value could change causing the object to move unexpectedly.

Insert New Object
Displays the Insert New Object [366] box which allows items created by other Windows applications to be displayed on the GDW.

Links
Displays the Edit Links [367] box to allow items created by other Windows programs to be added to a GDW, for example, Excel spreadsheets.
However, this menu command will only be enabled if the Link box was checked on the Insert New Object [366] box.

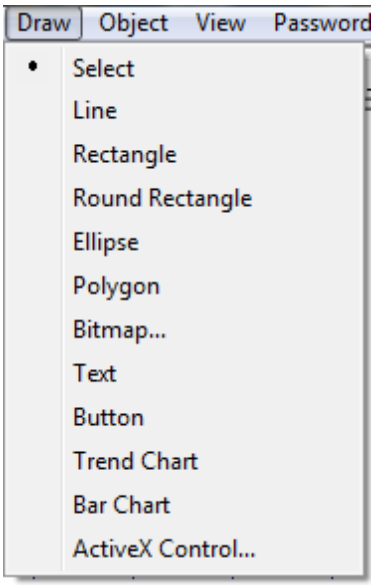
Object
This menu command will only be enabled if an object has been inserted onto the GDW using the Insert New Object [366] box, and that object is currently selected.
It will then display a sub-menu with menu commands appropriate for that type of object.

8.1.3 Draw menu

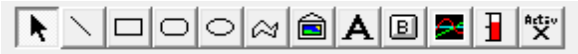
These menu commands and Tools are used to draw graphics on a GDW
You can also add Bitmaps [379] (.bmp files) to a GDW
If you are not familiar with standard Windows drawing functions please read Drawing Basics [372]

Menu:

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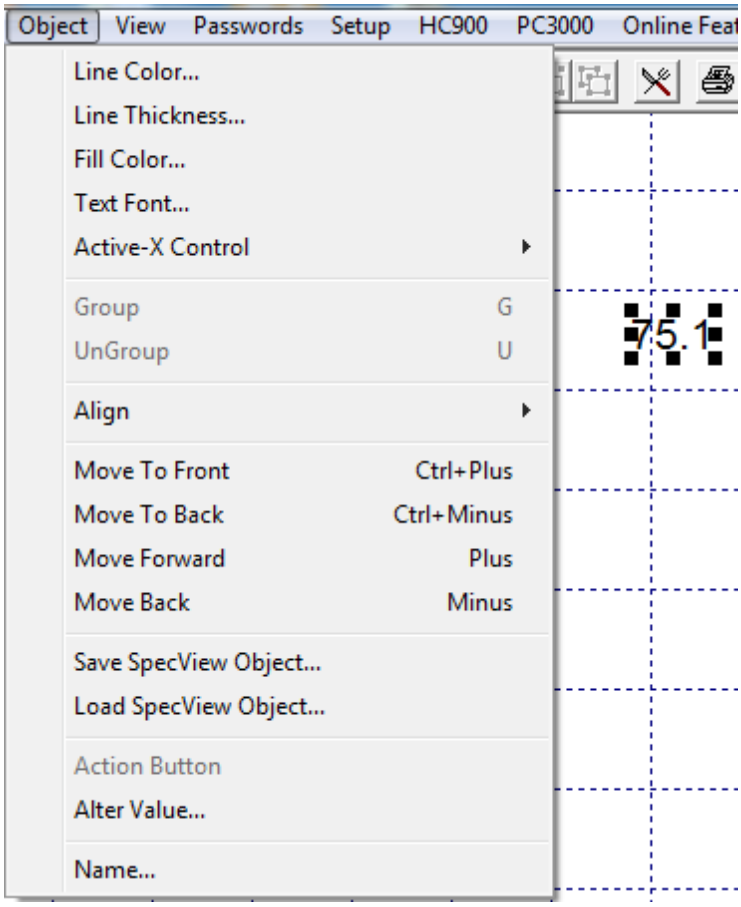
Toolbar:



These drawing functions are described in greater detail under Drawing Basics [372] below:
Select [377]
Line [377]
Rectangle [377]
Round Rectangle [378]
Ellipse [378]
Polygon [378]
Bitmap [379]
Text [380]
Button [384]
Trend Chart [382]
Bar Chart [383]

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8.1.4 Object Menu

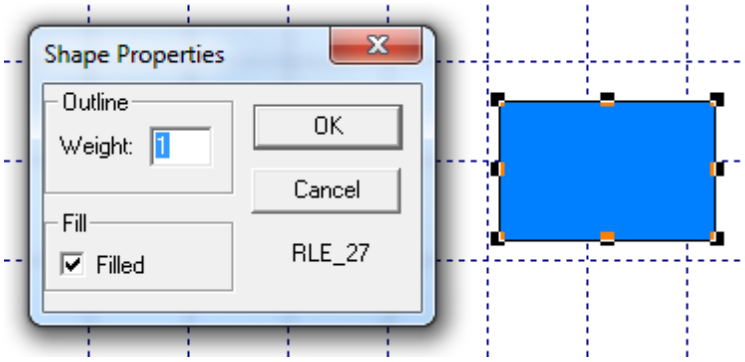


To enable these menu items have an object selected as shown.

Line Color
Changes the color of an already selected line AND chooses the color for the lines drawn from now on.
Note: The word 'Line' applies to both lines and the outlines of the other drawing objects.

Line Thickness
Changes the thickness of an already selected line AND chooses the thickness for the lines drawn from now on.
The **Shape Properties** box is opened by double clicking on the object. The Outline Weight must be greater than zero for the outline to be seen.
Note: The word 'Line' applies to both lines and the outlines of the other drawing objects.

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Fill Color
Changes the fill color of an already selected object AND changes the fill color of all objects you draw from now on.
The **Shape Properties** box is opened by double clicking on the object. The Filled checkbox must be checked.

Text Font
Sets the default Text Font [348] for text objects added to the GDW.

Group
Shortcut: G
Toolbar:  and on the Object Menu: [291]
Objects may be grouped together for moving them around the GDW [503], this is detailed in Selecting, Grouping and Saving drawing objects [374]

Grouped objects may be saved and reused (as GDO [503] files) with the Save Object and Load Object menu commands on the Object Menu [291]
This menu command is only enabled if more than one object on the GDW is selected

UnGroup
Shortcut: U
Toolbar:  and on the Object Menu: [291]
A previously grouped object may be ungrouped for:
- Editing
- Changing the Dynamic Attributes [501]
- Changing the Color Dynamics [359]
- Adding to Recipe [637]

Select the object and click the UnGroup tool (or choose this menu command)
This menu command is only enabled if a grouped [374] object on the GDW is selected

Align Left/Top/Right/Bottom, Distribute evenly horizontal/vertical and Realign To Grid
If a number of objects on the GDW are selected (but NOT grouped), then these menu commands will align or distribute the objects evenly.

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For align, all objects are aligned with the one furthest in the direction specified; for example, if a number of objects are Aligned Left, then it uses the left-most one to align all the others to.

For Distribute, all the selected objects are distributed between the outermost two objects in the selection.
With the exception of Realign to Grid, these sub-menu commands are only enabled if more than one object on the GDW is selected.
The grid size is specified on the View Menu 295.

Move To Front
Shortcut: Ctrl + (numeric keypad) Plus
Moves the selected object in front of ALL other objects
This menu command is only enabled if an object on the GDW is selected
Objects In Front / Behind others 376

Move To Back
Shortcut: Ctrl + (numeric keypad) Minus
Moves the selected object behind ALL other objects
This menu command is only enabled if an object on the GDW is selected
Objects In Front / Behind others 376

Move Forward
Shortcut: (numeric keypad) Plus
Moves the selected object up one layer
This menu command is only enabled if an object on the GDW is selected
Objects In Front / Behind others 376

Move Back
Shortcut: (numeric keypad) Minus
Moves the selected object back one layer
This menu command is only enabled if an object on the GDW is selected
Objects In Front / Behind others 376

Save SpecView Object
Graphics made with SpecView's drawing tools can be grouped 374 and saved as GDO's using the Save Object menu command on the Object menu.
The saved GDO's can be re-used (using the Load Object menu command) any number of times in any GDW in any copy of SpecView.

NOTE: Do not include variables (or Trend charts or Bar charts or ActiveX controls or Buttons which use variables) in saved objects

Only a single entity can be saved as a GDO, such as, a single rectangle or a single group.
However, a group can contain 100's or even 1000's of other objects.
These grouped objects can be a combination of SpecView drawing objects 372 (such as rectangles, lines, ellipses, polygons, text) and bitmaps and buttons.

The objects are saved in a file with the extension .gdo (Graphical Display Object 503)
A GDO can be re-used any number of times on any GDW in any SpecView project.

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A GDO file can only be viewed & edited using SpecView.

The default folder to save the object to (and load the object from) is SymbolLibrary in SpecView's installation folder (so typically this would be: C:\SV3\SymbolLibrary). However, GDOs can be saved to & loaded from any folder.

If a variable, a Trend chart, a Bar chart or a Button (which uses variables) is saved as a GDO then the variable's information (including its Dynamic Attributes 357 & Color Dynamics 359) will be lost when the GDO is re-loaded.

This menu command is only enabled if an object on the GDW is selected.

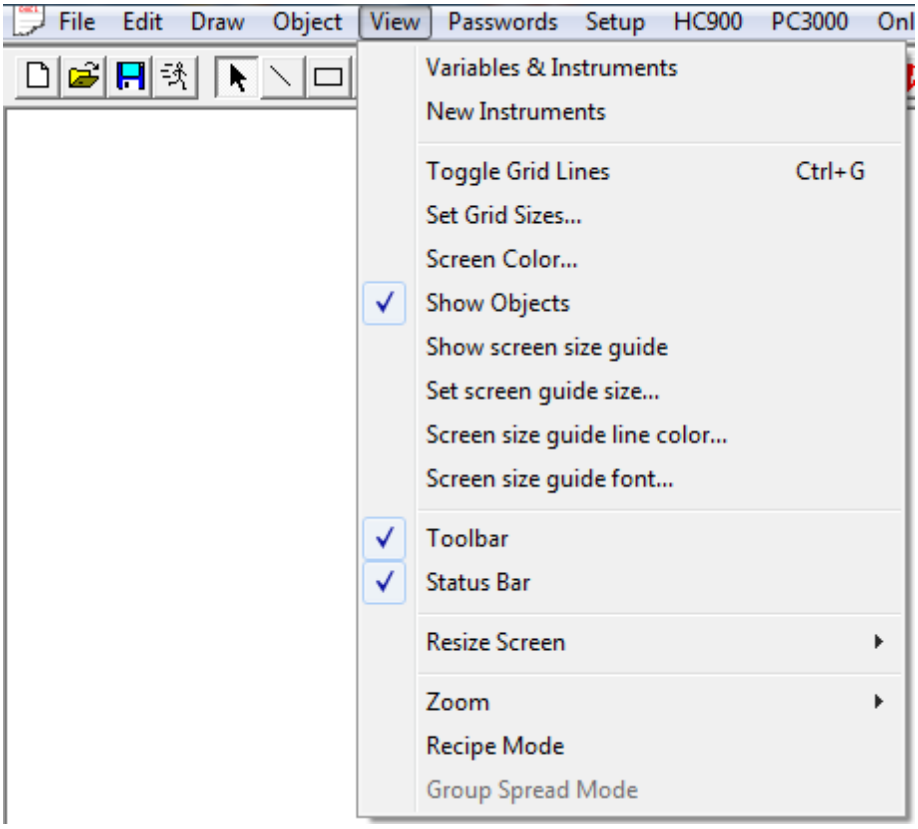
Load SpecView Object
Loads a previously saved object or grouped object 374
Once loaded the GDO 503 can be positioned, resized & modified as required.

The default folder to load the object from is the Project folder. Alternatively use C:\SV3\SymbolLibrary\ which contains other GDO objects.

Name
Used for SpecView diagnostic purposes only
This menu command is only enabled if an object on the GDW is selected

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8.1.5 View Menu



Variables and Instruments

Toolbar: 

Toggles the Variables List[313] On and Off

New Instruments

Toolbar 

Toggles the Templates List[343] On and Off

Toggle Grid Lines:

Shortcut: Ctrl + G

The **Toggle Grid Lines** menu item (Ctrl-G) on the **View** menu, cycles round the 3 grid-size settings.

The fourth setting is zero to disable the grid. This allows objects on the screen to be positioned manually to within one pixel, this requires very precise positioning of the mouse or by using the cursor keys on the keyboard to nudge objects by one pixel, or when holding the Shift key down nudge by the size of one grid square.

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The purpose of the Grid is to help with alignment of objects when positioning them with respect to each other, as objects will appear to jump by the Grid Size setting, which saves having to move the mouse quite so precisely.
The Grid lines themselves are drawn at intervals of ten times the actual Grid size for clarity.

Set Grid Sizes:

The **Grid Size** menu item on the **View** menu allows 3 grid settings to be specified. The defaults are: 5, 10 and 20 pixels.
The dashed grid-lines are drawn at 10 times the actual grid-size for clarity, so a grid of 5 will have dashed lines every 50 pixels, etc.

Note: When putting values in tables set the grid to a larger number than the default value of 5 before starting, this will make it easier to align them.

Enter the value for a new grid size. A larger number = a coarser grid.
The Grid lines themselves are drawn at intervals of **ten times** the Grid Size for clarity.
Therefore, if the Grid Size is set to 5 then the Grid lines will be drawn every 50 pixels.

It is possible to disable the grid, by setting the Grid Size to zero & unchecking Grid Lines.

Screen Color

Changes the color of the GDW background

NOTE: If the GDW is going to be printed, leave the background white to save ink.

Show Objects

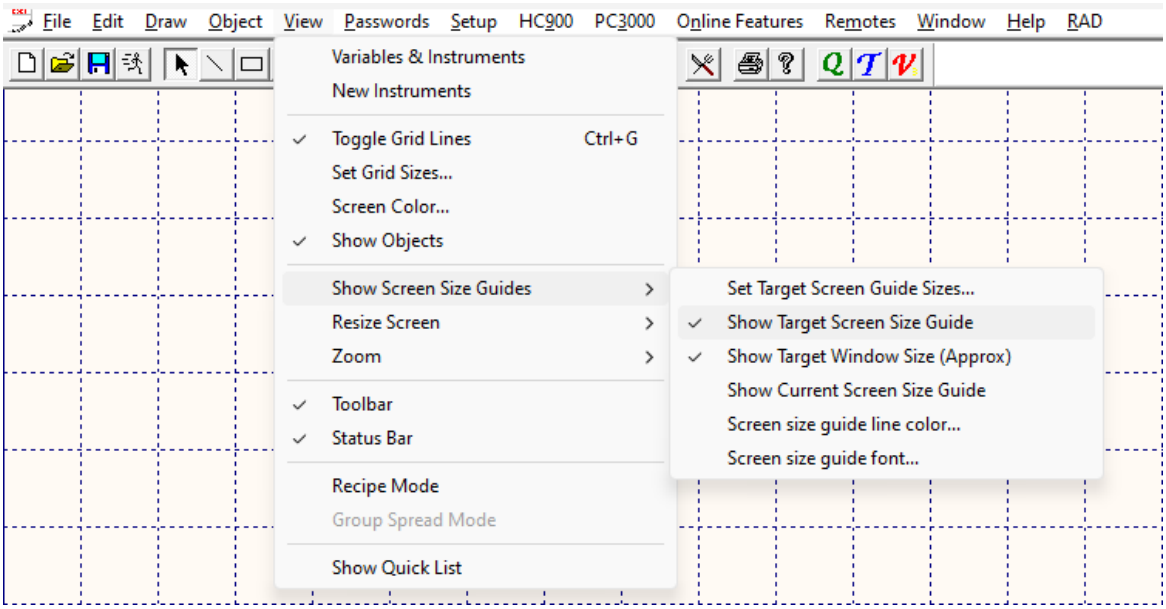
This toggles the highlighting of objects which have been inserted using Insert New Object… from the Edit Menu.

Show Screen Size Guides

These are used to display the outline of the portion of the screen that would be seen if the GDW [503] were displayed onto a screen of that resolution.
This is particularly useful when creating a GDW [503] for Remote [736] access from a lower resolution screen to ensure that the items on a GDW [503] are positioned appropriately.
The maximum dimensions of the grid shown in SpecView's Edit mode is: 3837 x 2117.

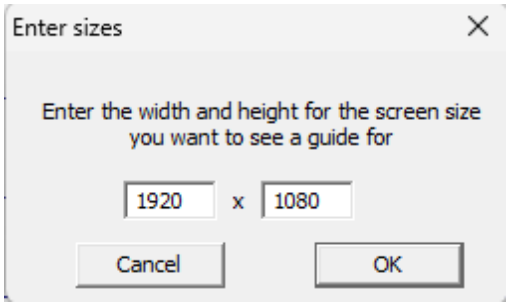
As of Version 3.1.251, Show Screen Size Guides [296] menu has additional options added as seen in the image below.
Click on the options to enable them.
If checked, click on the options to disable them.

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Set Target Screen Guide Sizes

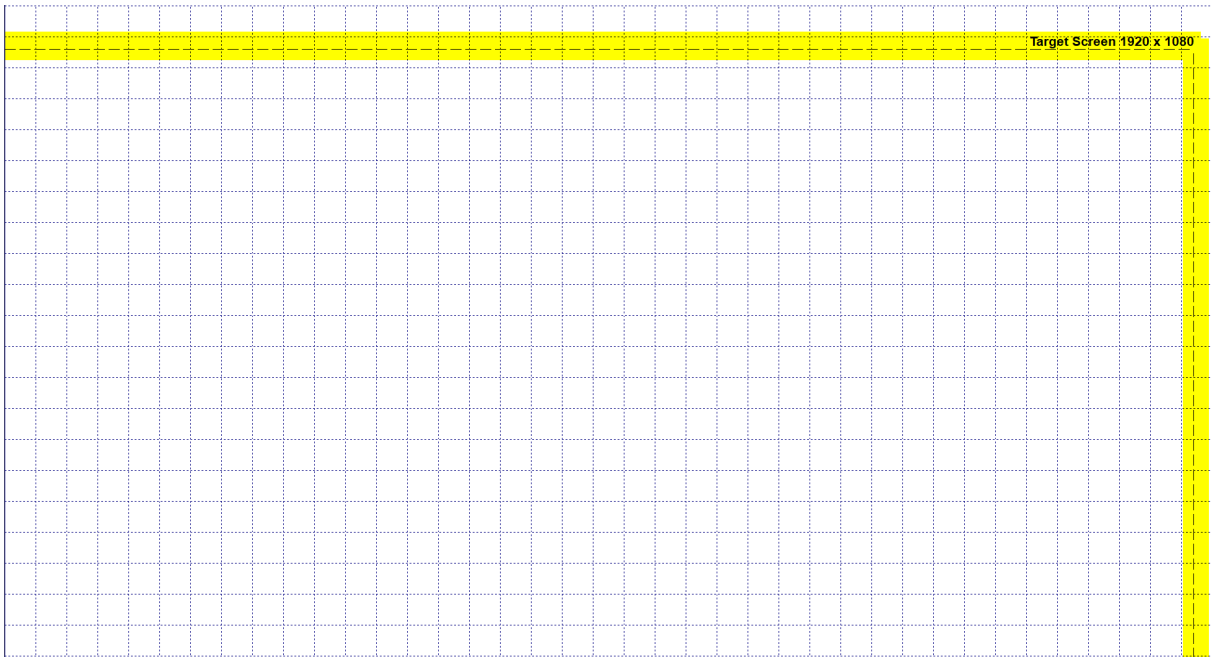
Enables users to set the dimensions for the target screen size resolution.



Show Target Screen Size Guide

Displays the Target Screen Size Guide 297.

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Show Target Window Size (Approx)

Displays the window size available for the Target Screen Size [297] chosen.
A Target Window Size approximation is automatically calculated by SpecView when setting the target resolution using Set Target Screen Guide Sizes [297].
For example, if the target resolution is 1920 x 1080 (HD), then the Target Window Size is approximately 1903 x 972.

The Target Window Size accounts for the SpecView Scroll bars, SpecView Menu bar [283], Windows Task bar, and Windows Title bar.
When creating a GDW [503], it is best to have the dimensions of the GDW [503] match the target window size to ensure that all the contents of the GDW [503] are visible on the screen.
However, this target window size is an approximation, and further editing of the GDW [503] and its contents might be required.

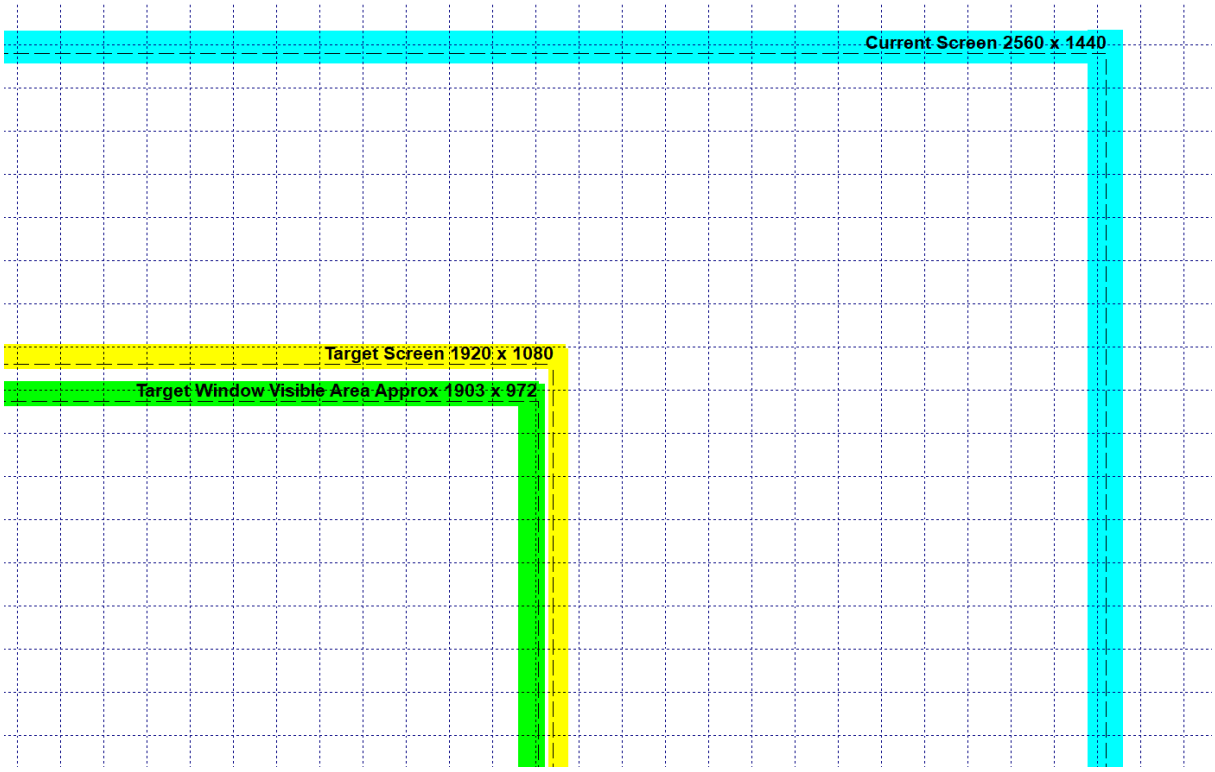
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Show Current Screen Size Guide

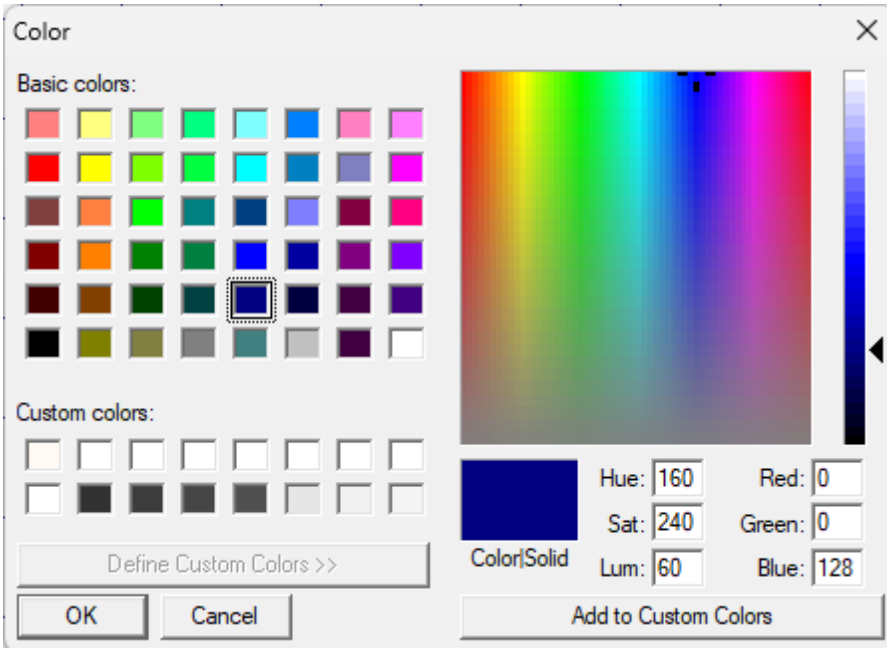
Displays the Current Screen Size Guide [299] with the resolution of the monitor that SpecView is currently opened on.
For example, if the monitor's current resolution is 2560 x 1440, then those dimensions will appear in the Current Screen Size Guide [299].
However, if the resolution changes or SpecView is dragged to another monitor with a different resolution, then SpecView will automatically change the dimensions appearing for the Current Screen Size Guide [299].

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Screen Size Guide Line Color

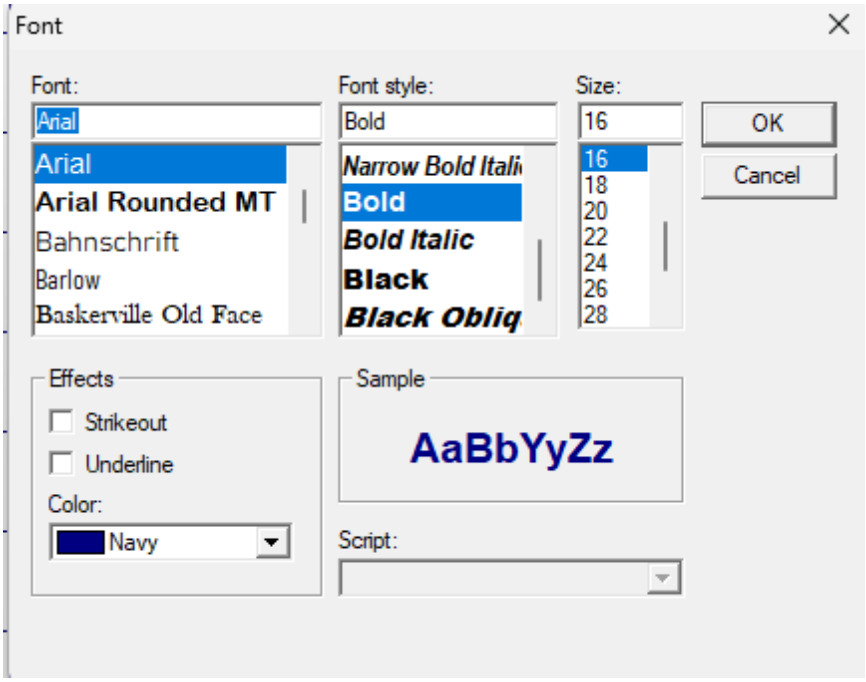
Enables the selection of the Screen Size Guide's [296] line color.



Screen Size Guide Font

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Enables the selection of the font for the Screen Size Guide[296].



Toolbar
Toggles the Toolbar On and Off

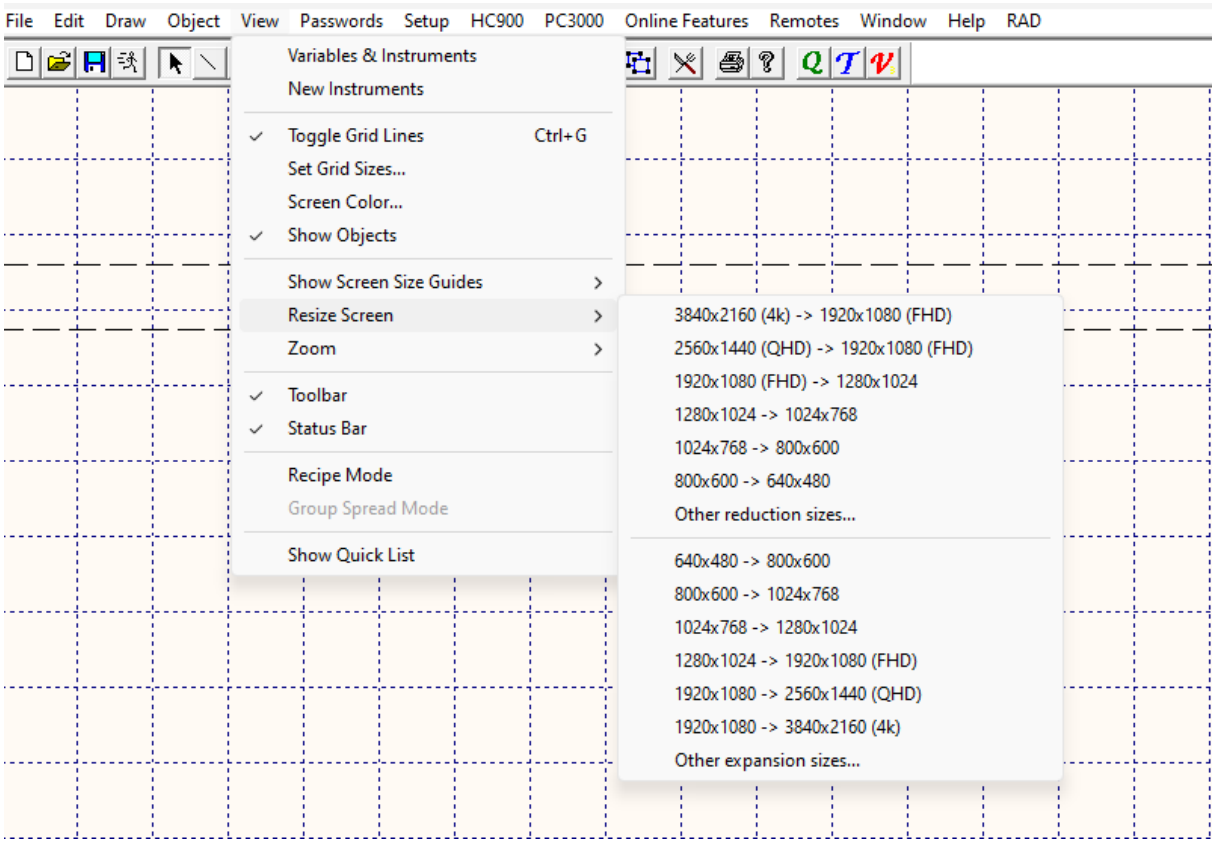
Status Bar
Toggles the Status Bar (at the bottom of the screen) On and Off
NOTE: Turning Off the Status Bar in Edit Mode will hide it in Runtime Mode

Resize Screen
If the GDW[503] was created on a computer with a different screen resolution it will be necessary to resize the GDW[503] to fit the current resolution.
Resizes this GDW[503] from the first resolution to the second.

The project must be in Edit Mode (Offline)[284] to resize.
Additionally, please be aware that text resizing while changing the resolution of a GDW[503] can be arduous.
Resize Screen works as good first step, but additional editing and fine tuning will be required to get the GDW[503] and its contents to an appropriate size.

As of Version 3.1.251, additional Resize Screen[301] options have been added.
The following options can be seen in the image below.

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To apply other reduction or expansion sizes for screen resolutions not present in the menu follow the steps below.

1. Ensure the project has been saved and backed up.
2. Enter Edit Mode[284] (Offline) via File > Edit Mode (go offline) if in Runtime Mode[512] or via Online Features[307] (fully offline) in Edit Mode[284].

   If in Runtime Mode[512] and the Menu Bar at the top is not visible, then the project is in Fullscreen Mode[476].

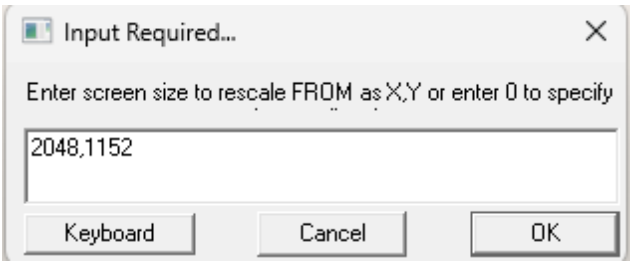
   Please exit Fullscreen Mode[476] by using the appropriate buttons on the screen or the Magic Square[461].
3. Know your desired screen resolution for either reduction or expansion.

   For example, if the screen's current resolution is 640 x 480 and the desired screen resolution is 2048 x 1152, then an expansion is required.

   However, if the current screen resolution is 2048 x 1152 and the desired screen resolution is 640 x 480, then a reduction is required.
4. Click on View from the Menu bar.
5. Click on Resize Screen.
6. Click on Other reduction sizes... if a reduction is required, otherwise click on Other expansion sizes... if an expansion is required.
7. In the Input Required Box, enter the width and length of the current resolution respectively or enter 0 for the option of entering a scaling factor.

   For example, if the current resolution is 2048 x 1152, then enter 2048,1152.

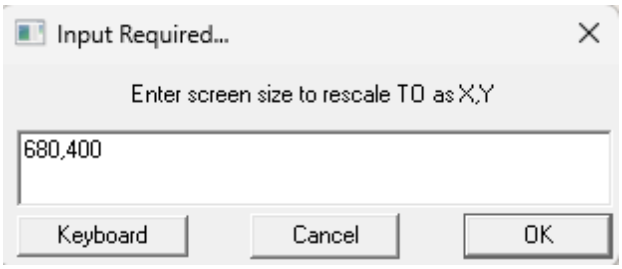
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8. Click OK in the Input Required Box.

If current screen resolution was entered,

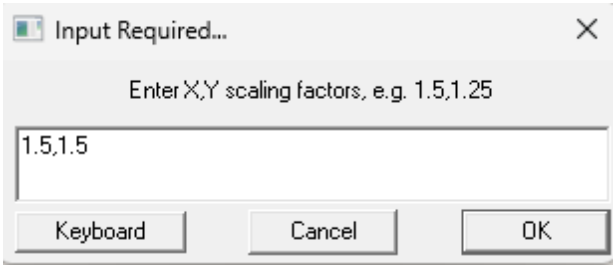
9. Enter desired screen resolution.
   For example, if the desired screen resolution is 680 x 400, then enter 680,400.



10. Click OK in the Input Required Box.

If 0 was entered,

9. Enter the scaling factors for width and length of the screen.
   For example, if the desired screen resolution needs to be 1.5 times the width and 1.5 times the length of the current screen resolution, then enter 1.5,1.5.



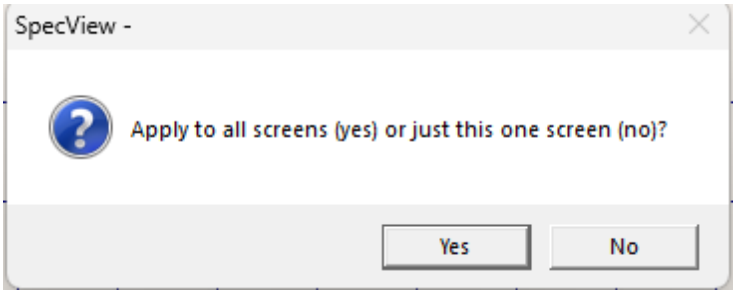
10. Click OK in the Input Required Box.

11. For the warning that appears on the screen, click on Yes to apply screen resize for all *GDWs* [503] in the project or click on No to resize only the current GDW.

If Yes is clicked on, then SpecView will resize all the GDWs [503] in the project.
So, if there are 50 GDWs [503] in the project and only 10 are currently being used, then SpecView will still open all 50 GDWs [503] and resize them.
This might lead to unintended consequences such as text and graphics being incorrectly resized or mispositioned.

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To avoid unintended consequences, ensure Step 1 is followed and proceed with caution.
Out of the total 50 GDWs in the project, if only 10 GDWs[503] are being utilized, then it might be prudent to click No and individually resize 10 screens.



Zoom
Zooms the current GDW. This is useful for detailed editing and precise positioning of objects.

Zoom 100%
Returns the GDW to normal size

Zoom 150%

Zoom 200%

Zoom 300%

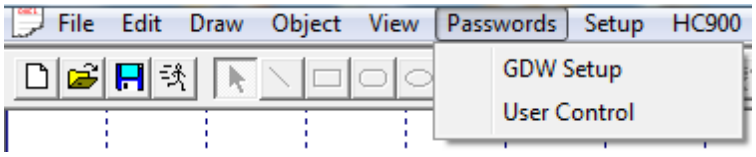
Zoom 400%

Zoom 500%
Zooms the GDW to the specified percentage of normal size

Recipe Mode
Toggles the Recipe Mode[511] On and Off

NOTE: You can also cancel the Recipe Mode by pressing ESC

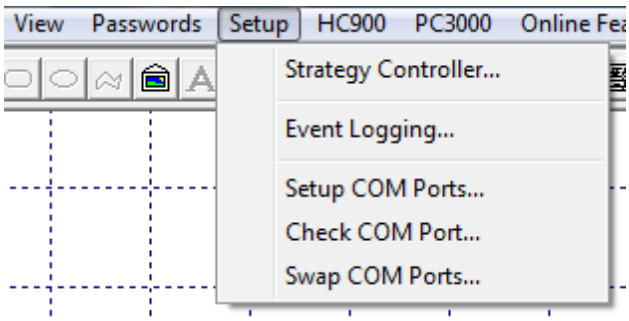
8.1.6 Password Menu (Edit Mode)



These commands are detailed in Passwords[703]

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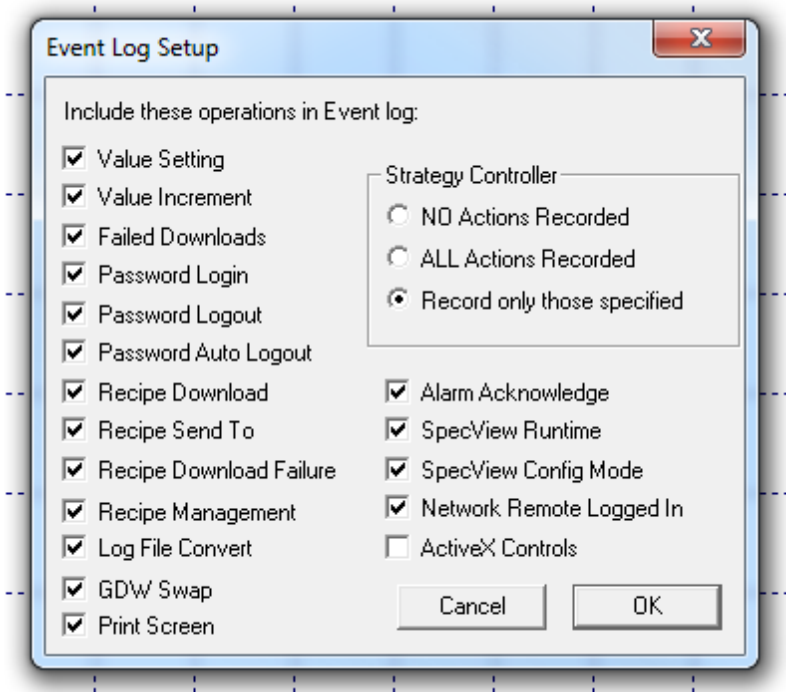
8.1.7 Setup Menu



Note: The menu items that were on the Database sub-menu in previous versions have been moved to the Internal Data tab on the Variables List.

Strategy Controller
Displays the Strategy Engine[666] setup box

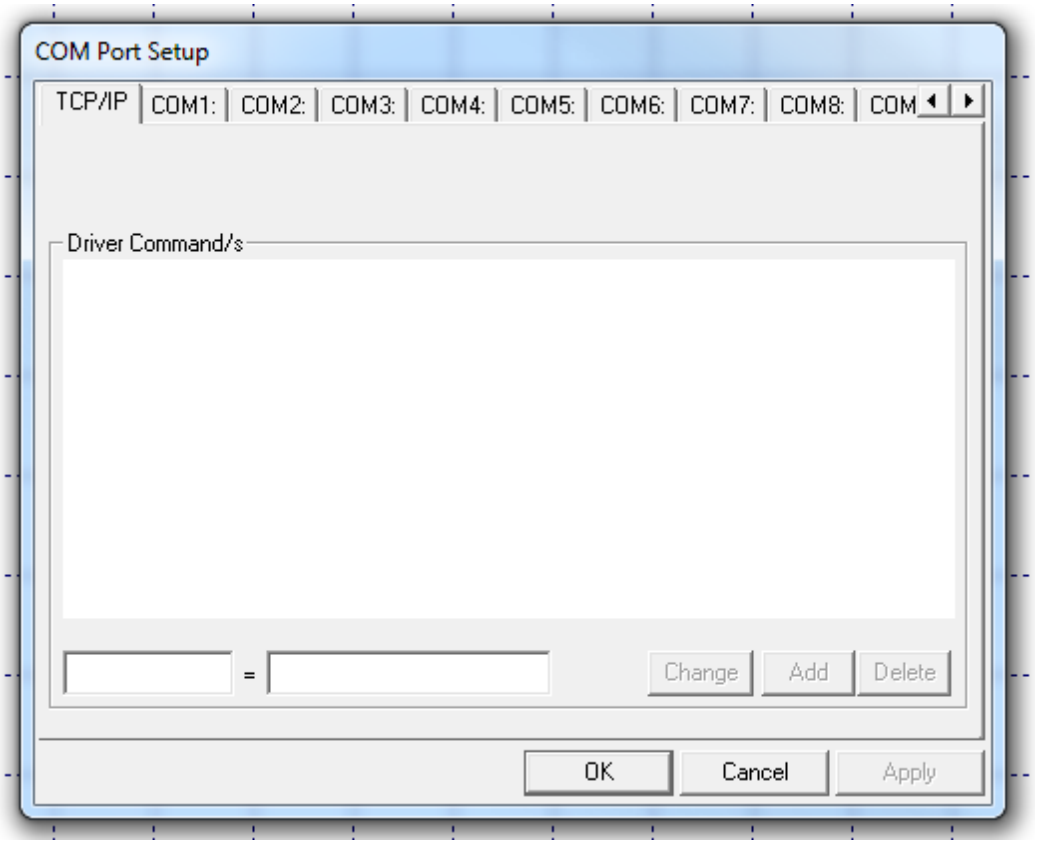
Event Logging
Sets the actions and events, which will be included in the Event Log[620]



Strategy Controller[666] events and actions can also be logged to the Event Log by checking the 'Log To Event Log' box

Setup COM Ports
Displays the COM Port Setup box and allows the COM port(s) settings to be changed and driver commands[206] added.

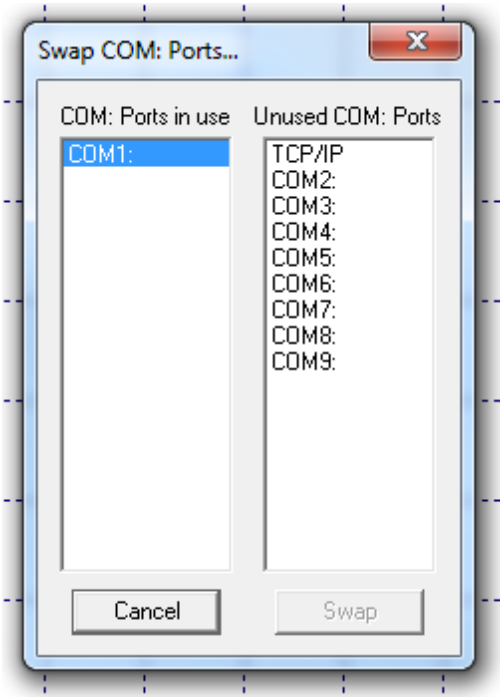
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Check COM Port
Checks whether the COM Port is available and working.
Does NOT check communications. The port might be a modem.

Swap COM Ports
This allows the COM ports for multiple instruments to be re-assigned without manually editing each instrument.

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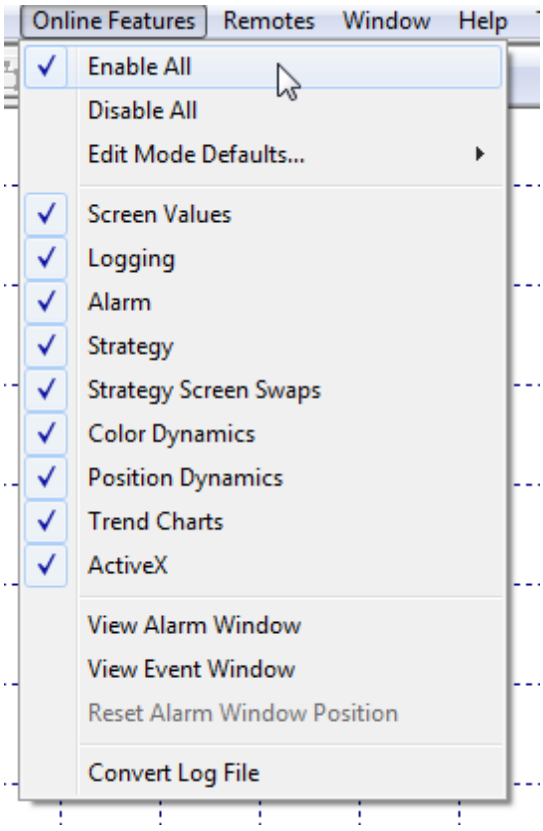
8.1.8 Online Features Menu

Edit Mode allows changes to be made to a project without stopping communication with the instruments or interrupting data logging.
This is useful for making changes to a running system without losing any data.

Instruments can start communicating and logging data as soon as they are put out onto the GDW.

The features that continue to receive live values while in Edit Mode are selected using the **Online Features** menu:

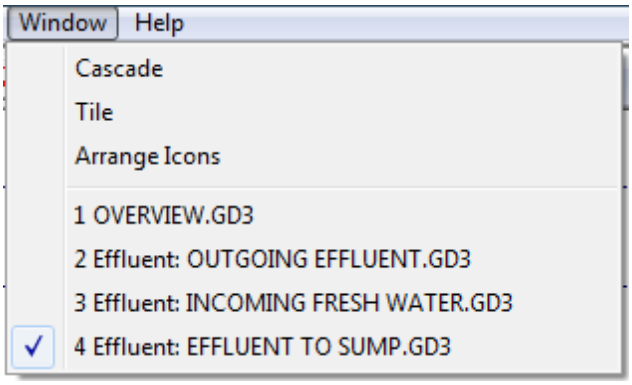
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All features are fully functional.

Individual features can be disabled. For example, while setting the start and end location of animated objects, Position Dynamics [363] must be disabled.

8.1.9 Window Menu (Edit Mode)



Cascade
Standard Windows function to Cascade all open windows (GDWs)

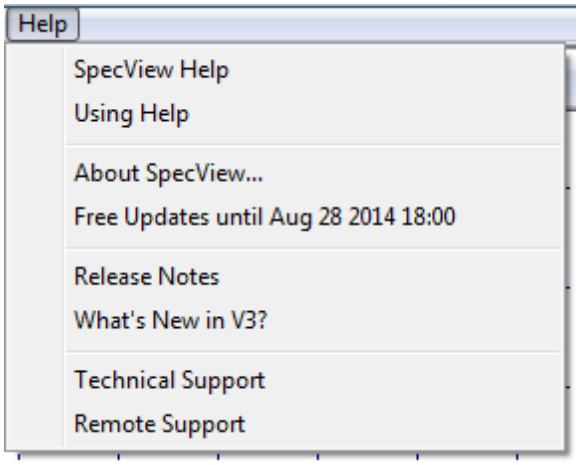
Tile
Standard Windows function to Tile all open windows (GDWs)

Arrange Icons

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This has no useful function with SpecView. (It is a standard Windows function, hence it appears on the standard Windows menu but it is not used by SpecView)

8.1.10 Help Menu (Edit Mode)



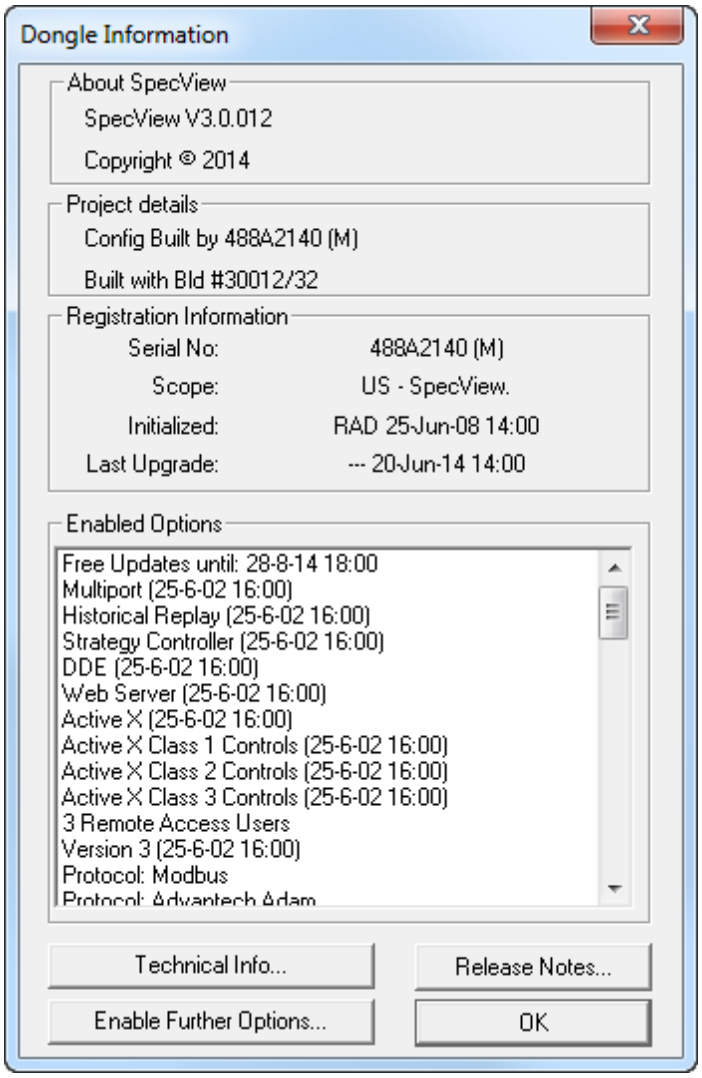
SpecView Help
This menu command starts SpeView's help system and displays the contents page.

Using Help
Starts the help system for Windows

About SpecView

Toolbar: 
Displays the SpecView version and build information.

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Displays the serial number, enabled options and status of the SpecView dongle [498].

Click Enable Further Options [64] to upgrade the dongle.

Click the **Release Notes** button for details on changes made to SpecView such as new features and fixed problems.

If you need to contact SpecView's Technical Support [798] you may be asked to click the **Technical Info** button to provide further details of your specific installation.

Updates Until
This shows the date of the Update Subscription expiry [76]

Release Notes
Details changes made to SpecView such as new features and fixed problems.

Technical Support

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For further information contact Technical Support [798]

Remote Support
This launches TeamViewer (www.teamviewer.com) to allow your SpecView Representative to access your computer over the Internet to assist with technical queries and resolving problems, while speaking on the phone or using TeamViewer's 'chat' window.

This is a secure method of access over the Internet requiring you to give the ID and password generated by TeamViewer to your SpecView representative.
The password is unique for each TeamViewer session so won't compromise security.
Using TeamViewer is the most efficient way of allowing your SpecView representative to assist and support you.

8.2 Editing GDWs - Graphical Display Windows

The project will ideally need to have already been setup according to Setting up a Project [831].

Then the GDWs - (Graphical Display Windows) [311] need to be setup.
(GDWs are the screens that are seen when using SpecView.

These files have a filename extension of either GDW (old style) or GD3 (new style).

Note: These files are not 'stand-alone' and therefore will not work unless they are in the same folder as the rest of the project files they were created with.

Creating / Editing GDWs

GDWs (Graphical Display Windows) also known as 'screens' or GD3s, contain background graphics and variables.

Managing Instruments and Variables [313]
Menus and Toolbar [283]
Creating a background graphic [289]
Adding numeric values to a GDW [348]
Adding a Trend chart to a GDW [382]
Adding a Bar Chart to a GDW [383]
Auto Backup [469] - automatic backup while editing.

8.2.1 GDWs - Graphical Display Windows

These are the screens you look at using SpecView.
GDWs (or GD3s) are created or edited in Edit Mode [501] and used in Runtime Mode [512]
Data is shown on a GDW (or GD3) in four ways:

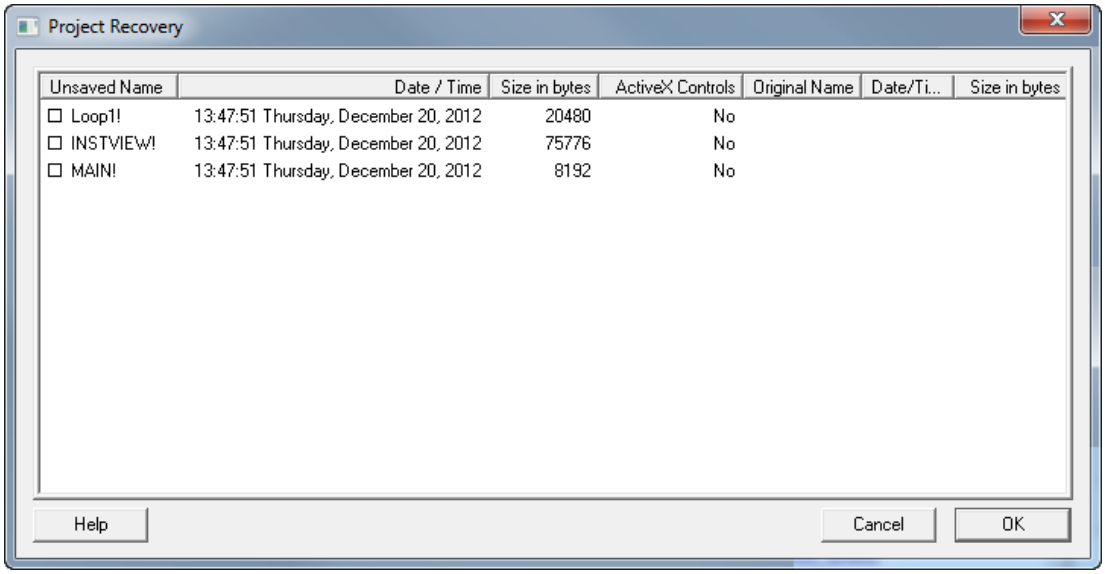
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- Instrument Views 346
- Numerically 348
- As a Pen on a Trend chart 523
- Bar Chart 383

The Extruder Graphic 312 shown below uses SpecView drawing tools to arrange data in an unambiguous way and shows both numeric values and Bar charts
Creating and Editing GDW's 287

Note: Files with the .GDW or .GD3 filename extension cannot be used alone. Consequently they cannot be used by SpecView if they have been separated from the other files in the Project sub-folder that they were created in.

Auto save & recovery of screens (GDWs) will save changes at a specified interval 469 for later recovery in the event of failure. In this case, a list of saved items will be displayed so the items to be recovered can be selected:

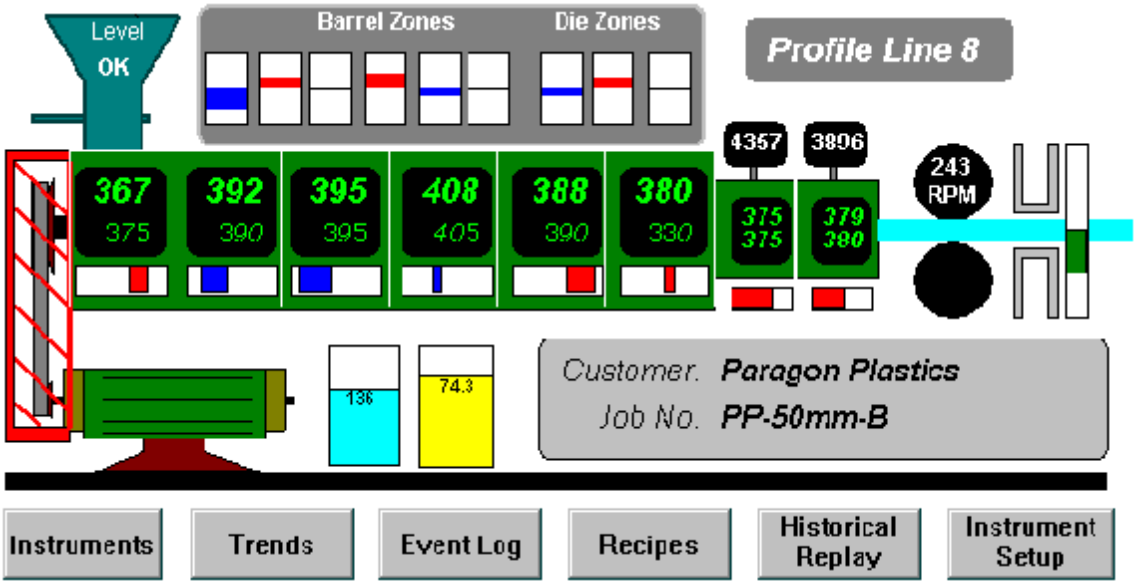


For positioning GDW windows at a specific X,Y location on the screen see: Remember Window Positions 370

8.2.2 Extruder Graphic

This is an example of a graphic made with SpecView's drawing tools with both Bar Charts and values:

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Creating/Editing GDWs

Managing Instruments and Variables [313]
Menus and Toolbar [283]
Creating a background graphic [289]
Adding numeric values to a GDW [348]
Adding a Trend chart to a GDW [382]
Adding a Bar Chart to a GDW [383]

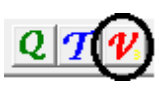
8.2.3 Variables List

The Variables List is used to:

- Define and/or edit connected instruments
- Add Instrument Views [208] and/or individual parameters, which could be: Numeric [348], Alarms [353], Text values onto the GDW
- Add SpecView pre-defined variables [319] to the GDW
- Create User Variables [322] of different types (including Booleans which can be set to be Alarms [353]) and then add them to the GDW
- Change the Variable Properties [326] (such as Scaling & Offset)

NOTE: If the required menu-item in the Variables List is not enabled (grayed-out) then go to the Online Features menu [307] and choose Disable All (fully offline). This is because some of the menu-items, such as changing instrument details can't be done while online [282].

NOTE: ALL variables (either User Variables or Instrument Variables) MUST be out on an open GDW for the Strategy Controller [666] to be able to use their values.

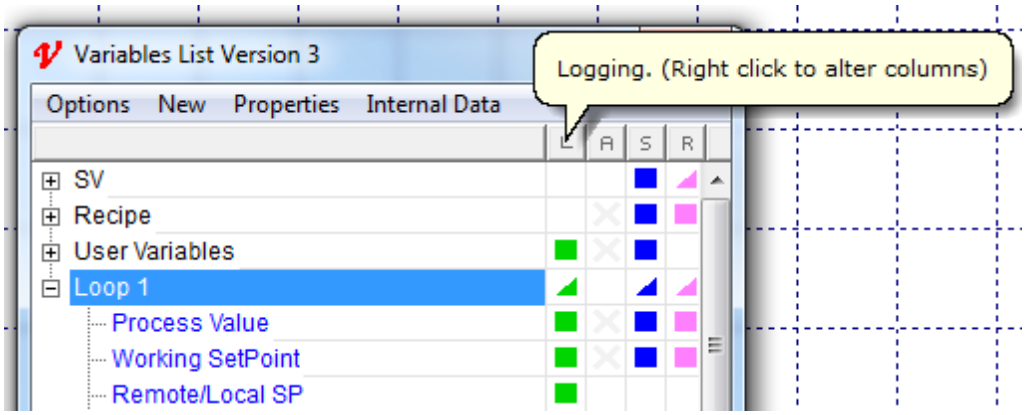
Open the list by selecting Variables & Instruments from the View menu [295] OR click  on the toolbar

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There is a separate list for new instruments, these are known as instrument Templates.

To access the Templates List[343] press the **T** tool on the toolbar 
An alternative way to access it is via the **New** menu on the Variables List.

Note: Tooltips are displayed by hovering the mouse over items such as: User Variables, Instrument Parameters and column headings:



There are multiple options for sorting instruments and variables within the Variables List.

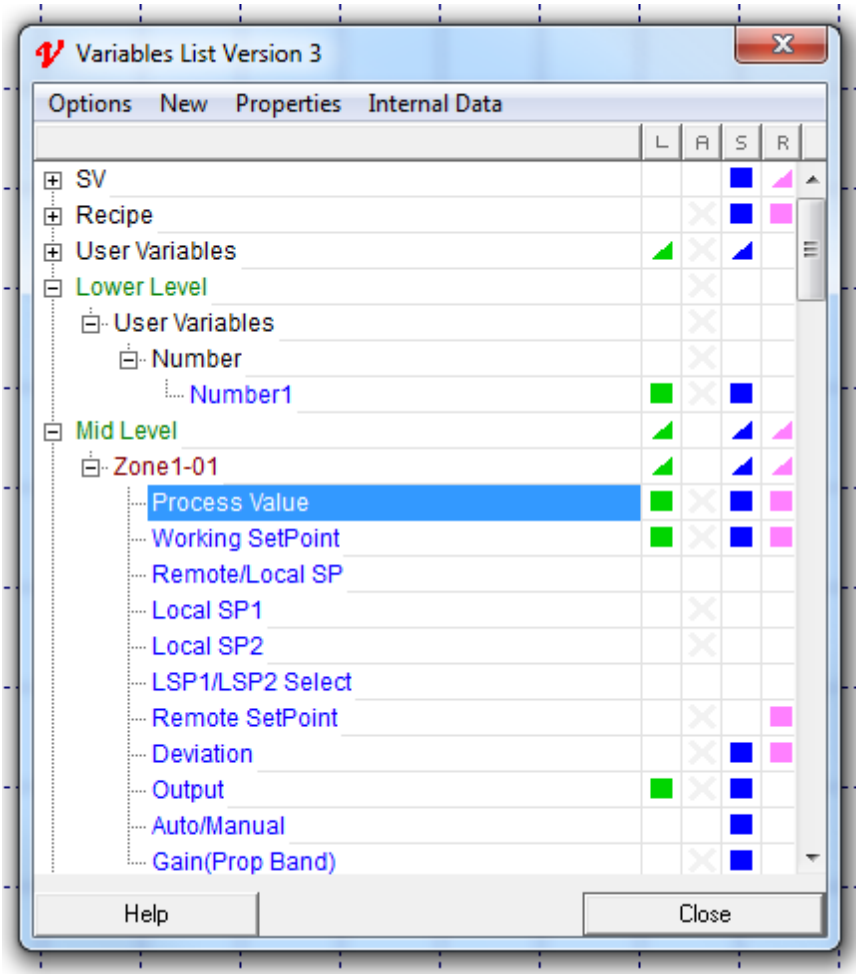
There are a number of columns which can be selected showing **Values (V)**, **Logging (L)**, **Alarms (A)**, **Short-List (S)** and **Read-Only (R)**.

Live values will be shown in the **Values (V)** column, if enabled on the **Online Features** menu. This will not put a heavy load on comms because only those values visible will be requested.

Choosing **Options->Flat List** displays parameters from multiple instruments, so that all similar parameters from each instrument are shown together.

Instruments may be grouped together under a logical machine name. This is done using **Options->Groups** to create a logical name and going to the instrument's **Properties** and assigning it to a group.

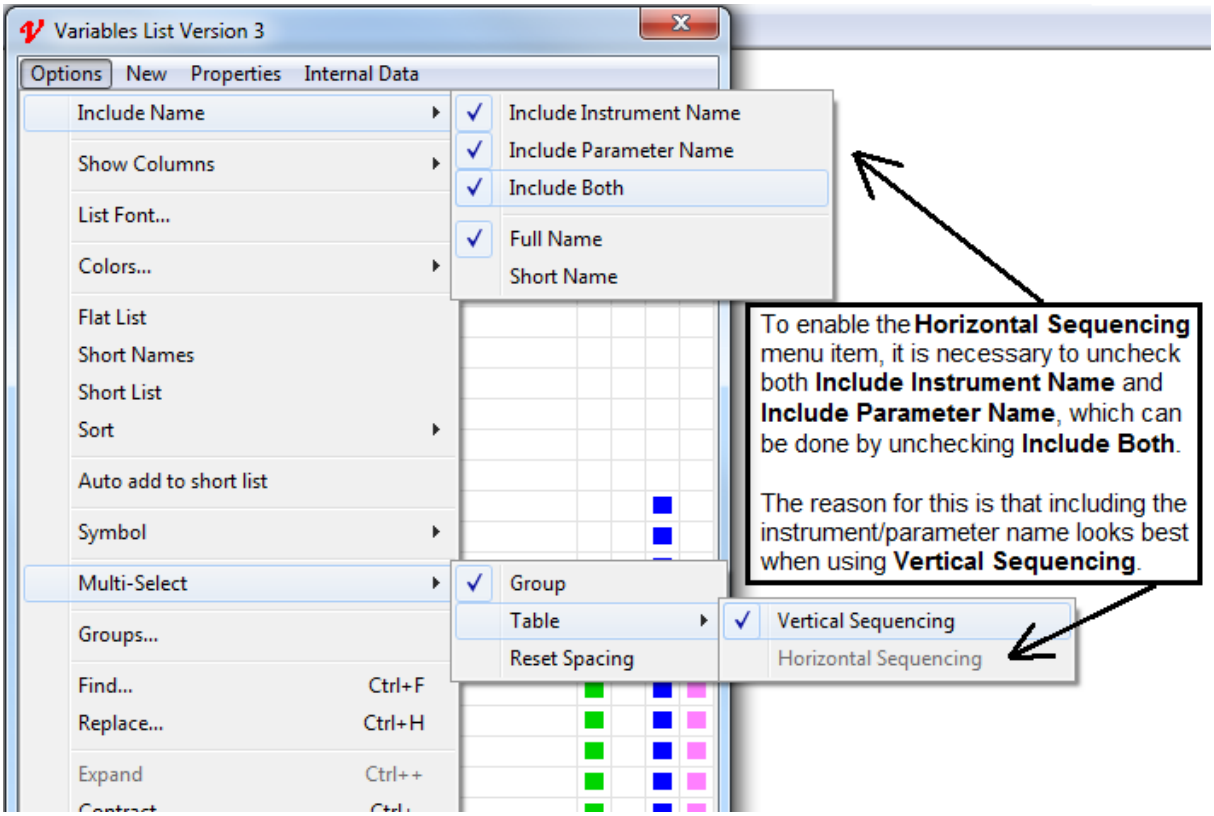
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Variables can be dragged and dropped onto the screen (GDW).

Multi-select of variables can be sequential, using the SHIFT key, or random, using the CTRL key. When using the CTRL key, variables are put on the screen in the order selected.

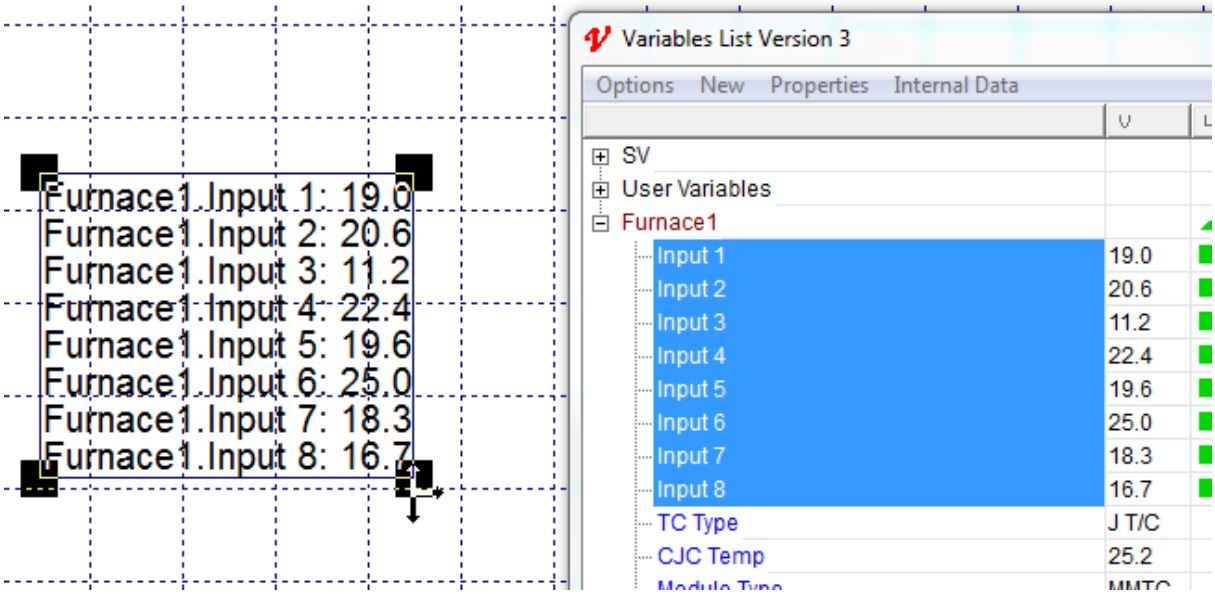
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When a number of variables are multi-selected and dragged out onto the screen they are automatically in **Spread Mode** to assist when dragging out a number of variables for a table.
This is indicated by the large black square 'handles' around them. The 'handles' can be dragged to adjust the spacing, instead of just enlarging the font.
Any group of items can be put into **Spread Mode** by right clicking on the group and choosing **Spread Mode** from the popup menu.

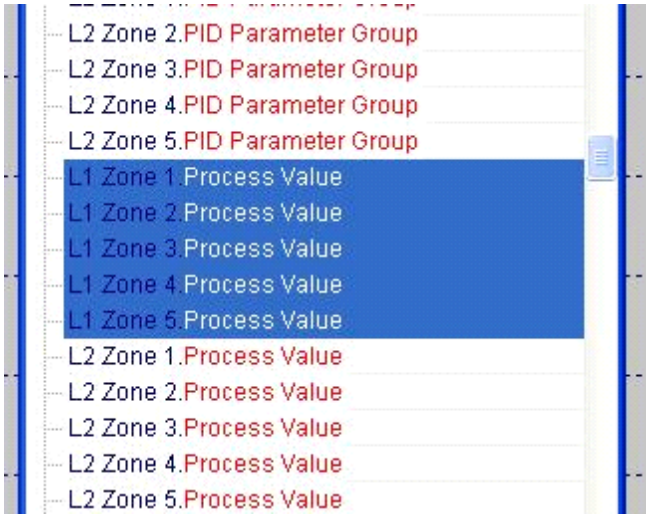
Subsequent dragging will use the previous spacing, or use the **Reset Spacing** menu item from the **Multi-Select** sub-menu.

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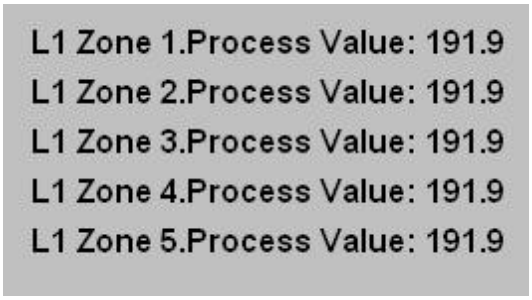


Drag and drop can also be used to assign a variable in a box, such as, the Strategy Controller[666] Setup box.

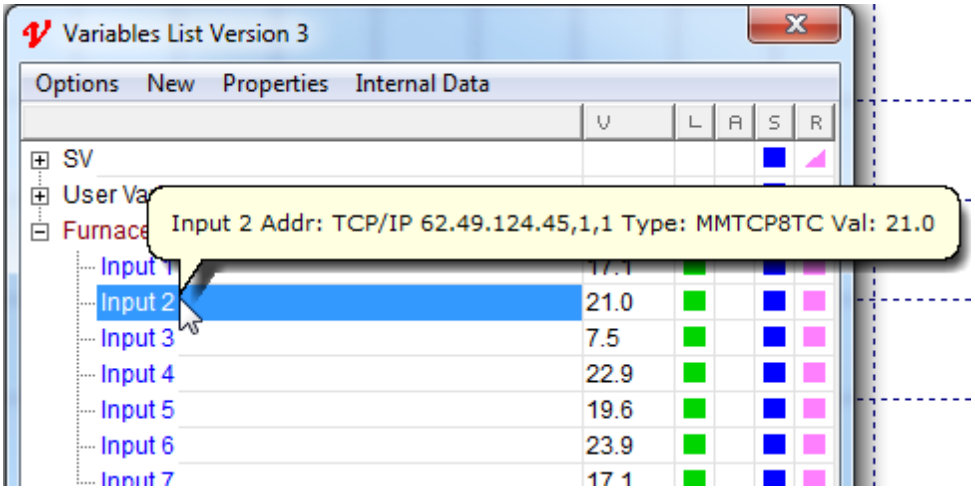
Here the **Flat List** option has been chosen from the **Options** menu, so that all the similar parameters from each instrument are shown together.
After multi-selecting the parameters, drag onto the GDW which automatically arranges them and, if enabled on the **Online Features** menu, then the live values will be shown immediately.



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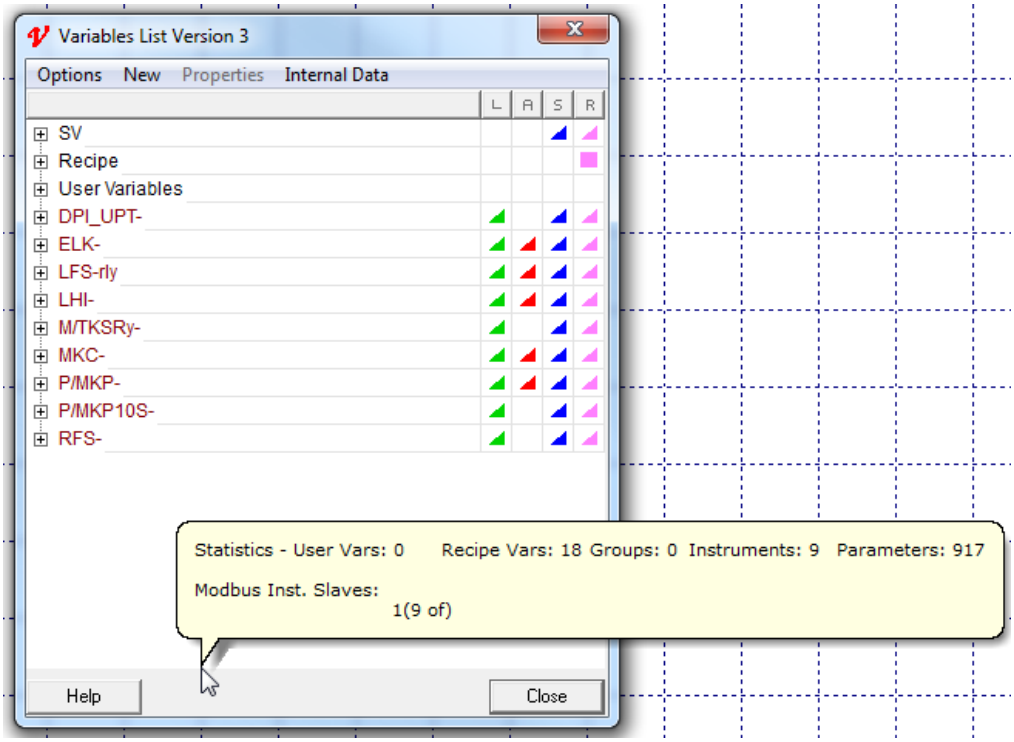


For Modbus instruments the Modbus address of a parameter will be displayed in a tooltip.



A summary of variables is shown in a tooltip when hovering the mouse over the bottom edge of the Variables List.

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Other Variables List features include:

- Renaming with **Options->Find** and **Options->Replace** so that instrument names, parameter names, and addresses can be found and changed.
- When a User Variable is created any number in a name is recognized as such and it is incremented for the next one, e.g. Zone478 the next one would be Zone479
- Show/Hide columns for **Logging (L)**, **Alarms (A)**, **Short List (S)** and **Read-Only (R)** attributes.
- Read-Only attribute may be applied to Read/Write variables on screen (GDW) to prevent accidental changes to the value.
- The scroll-wheel on the mouse operates the scroll bar on the Variables List.
- Instrument creation via the Templates List [343]

Note: If a button or menu item isn't enabled then a possible reason is that Online Features [307] are enabled.
For example, in the **Variables List**'s **Variable Properties** box the **Delete** button will be disabled (grayed out) if **Online Features** are enabled.

See Internal Data Menu [339] for advanced options.

8.2.3.1 Variables List - SpecView Pre-defined Variables

The first Instrument shown in the Variables List [313] is SpecView, these are the variables that exist only in SpecView but have all the same properties [326] as other variables and can be:

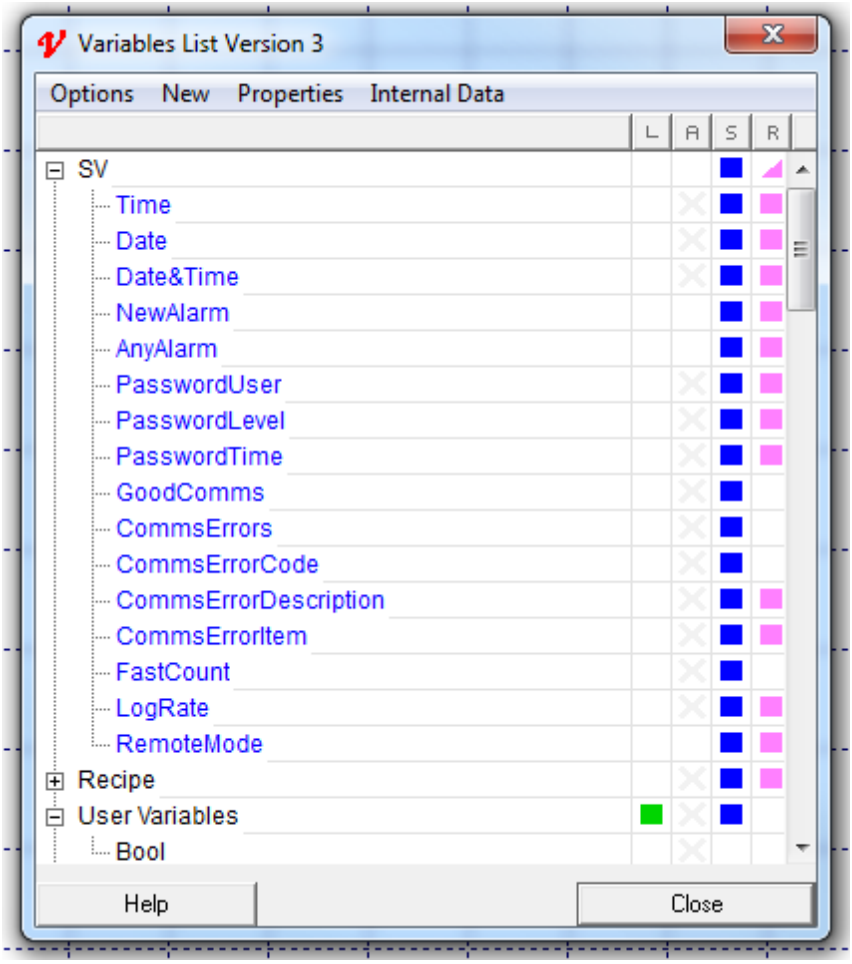
- Logged
- Included in Recipes
- Put on Trend charts or Bar Charts

SpecView boolean variables are used as switches to control events in the Strategy Controller [666].

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There are two kinds of SpecView variables, User [322] and Pre-Defined:

SpecView Pre-Defined Variables



In order to Log pre-defined variables use double-click in the 'L' (Logged) column of the Variables List [313].

SpecView.Time and **SpecView.Date**
The current Time and Date on the computer.

SpecView.Date&Time
The current Date and Time combined, which is useful for Strategy Events.

SpecView.NewAlarm
A Boolean which will become True when there is a new alarm, and will remain True whilst there are any alarms left un-acknowledged. It will be set back to false when all alarms have been acknowledged.

SpecView.AnyAlarm
A Boolean which will be True when there is any alarm, whether acknowledged or not. It will be set back to false when all alarms have been cleared. For further details read Alarms [353]

SpecView.PasswordUser
A Text variable set to the username of the current user who is logged in.

SpecView.PasswordLevel

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An Integer variable set to the level of the current user who is logged in.

SpecView.PasswordTime

A Countdown Timer variable set to the number of seconds that this user can remain logged in. These are shown on the Status bar. For further details read Passwords 703

SpecView.GoodComms

The total number of successful comms transactions coming in from all attached ports

SpecView.CommsErrors

The total number of unsuccessful comms transactions coming in from all attached ports

SpecView.CommsErrorCode

The last error code 476 from the last failed transaction

SpecView.CommsErrorItem

The name of the parameter which caused the last error code. The most common error code is: 1460, which is a timeout. All of the above Comms counters can be reset to Zero by writing to them. Writes of other values are ignored. Currently it is not possible to determine which COM port the error(s) occurred on, if this is needed, use the Toggle DEBUG menu command on the Options Menu 276 under the direction of a SpecView representative.

SpecView.CommsErrorDescrption

Gives more information about the error code 476

SpecView.FastCount

A counter that counts-up accurately and continuously at rates up to 100 times per second. You can use this counter as the basis for a Strategy Controller Event that needs to be checked frequently. For further details read SpecView.FastCount Variable 347.

SpecView.LogRate

The current value for the logging rate. This variable's initial value when entering Runtime mode will be the value set from Preferences - Logging 464. The variable is Read Only and cannot be changed during Runtime mode, other than by using the Logging: On/Off 428 action.

SpecView.RemoteMode

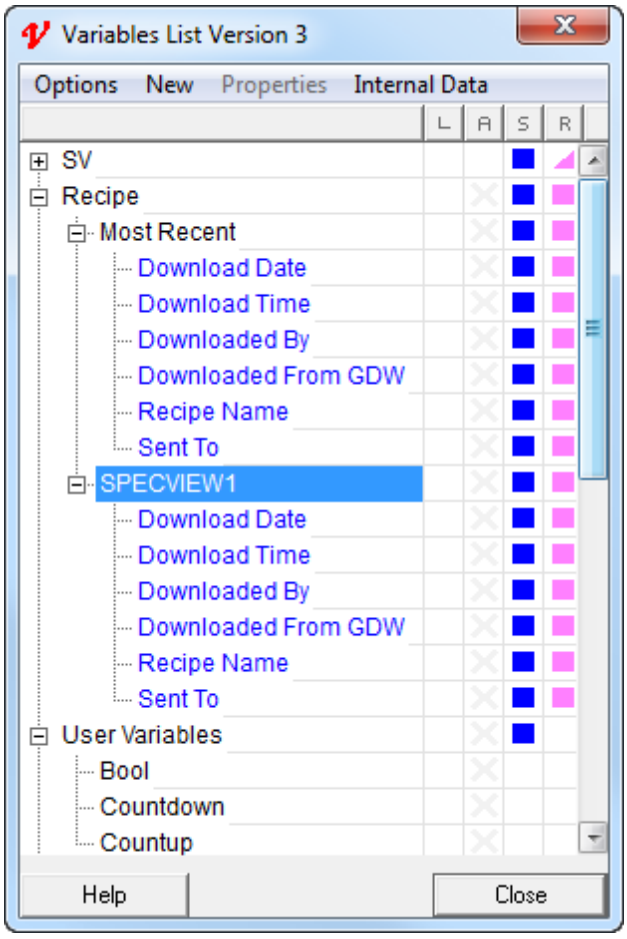
This variable is set to 'Off' when on the Local or set to 'On' when on the Remote 740. This can be used for example to ensure there is only an 'Exit SpecView' button on the Remote. Not on the Local. To do this use Position Dynamics 363 to position the Exit button off-screen when RemoteMode=Off. Or for use with ActiveX 766 controls.

SpecView.Web Server Status

As of SpecView 3.1.267 122, this variable is available to users. For further details read here 732.

SpecView Pre-Defined Variables for Recipe

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Most Recent:

Recipe Name is the name of the last Recipe[635] downloaded
Download Date and **Download Time** are the Date and Time that the recipe was downloaded
Downloaded By is the name of the remote connection that downloaded the last Recipe
Downloaded From GDW is the name of the GDW from which the Recipe was downloaded
Sent To Is the name of the instrument to which the Recipe was downloaded

Although these variables under 'Most Recent' are the ones most commonly used, these variables are also available specifically for each individual screen (GDW) which has a Recipe.

If a screen (GDW) with a Recipe needs to be deleted then it is best to first use the Recipe tool (knife&fork) to un-select all variables that are highlighted as being in the Recipe.
Then save the screen (GDW), open the Variables List and check there is no entry for this GDW in the Recipe section of the Variables List.
Then the screen (GDW) can be deleted. However, it doesn't matter if there are extra entries in the Recipe section of the Variables List, this is just for tidiness.

8.2.3.2 Variables List - SpecView User Variables

The first Instrument shown in the Variables List[313] is SpecView, these are the variables that exist only in SpecView but have all the same properties[326] as other variables and can be:

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- Logged
- Included in Recipes
- Put on Trend charts or Bar Charts

SpecView boolean variables are used as switches to control events in the Strategy Controller[666].

There are two kinds of SpecView variables, Pre-Defined[319] and User:

SpecView User Variables

SpecView User Variables are variables that exist only in SpecView, not in the connected instruments. They are sometimes called Software Tags or Dummy Gates.

Examples include:

Text variables, which are used for a single line of text that can be changed while in Runtime Mode, such as: 'Batch Numbers'[627], 'Material ID' 'Customer Name'.

Times for timers such as log report start and stop times.

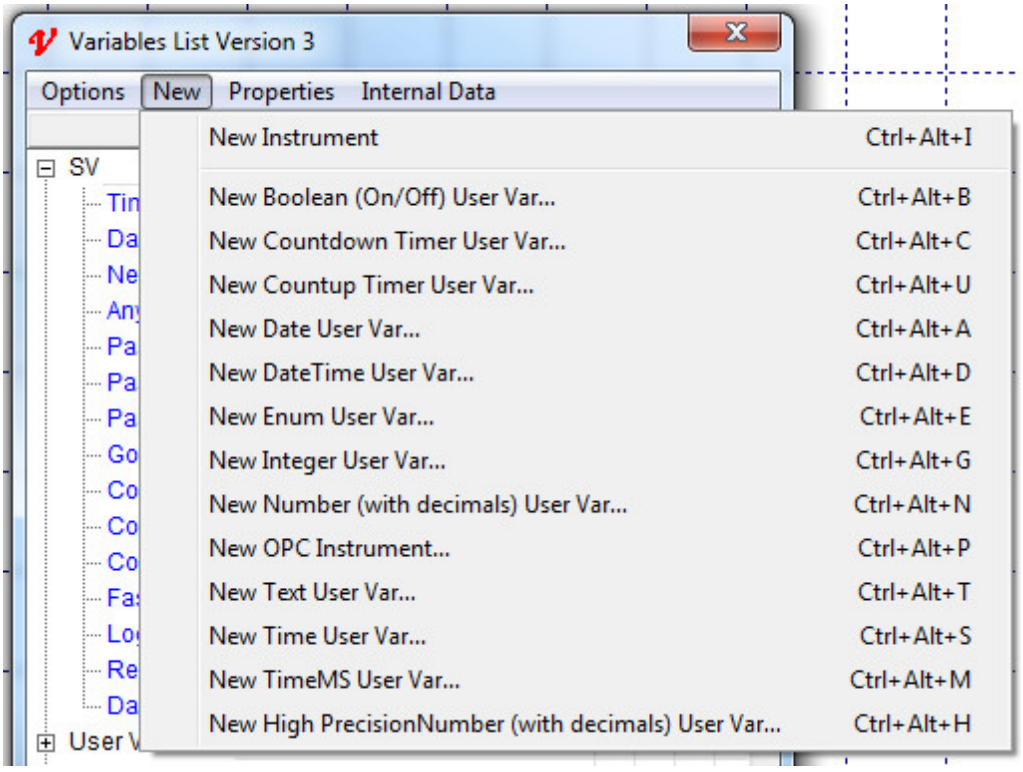
Booleans for automation.

Enum (Enumerated type) to express multiple states, such as: Stopped/Running/Paused.
The syntax for defining the value is, for example: 1=Stopped;2=Running;3=Paused.

Countup Timer to record durations.

Countdown Timer to set a delay.

To define a SpecView Variable click the Variables List[313] tool  click the **New** menu and select the type of variable required:



Give the variable a name together with an initial value using the displayed boxes. The initial value is only used when the variable is displayed on the GDW for the very first time, subsequent SpecView runs will use whatever was the last value of the variable. SpecView will save the values of all User Variables when

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it exits and will restore the values on the next run.

It is possible to set a variable to have a specific default value EACH time SpecView Runtime Mode is entered. To do this use the Strategy Controller's 666 Startup event 685 to do the action 'Parameters: Download Specific Value' 403.

The new variable will be listed under 'User Variables' and grouped by type. Clicking on the '+' symbols will expand these lists.
The User Variable can now be added to the GDW in the same way as the instrument variables, by dragging it out onto the GDW.

To control how values are displayed on the GDW use Dynamic Attributes 357.

User Variables may have a value entered manually from a GDW, or have its value set by a Button Attribute or Strategy Controller Action 403

The Countdown Timer may be written to as a time variable and it will count down from that value.
Note: Countdown Timers are not stopwatches. They have no reset function or start/stop capability. They are always running towards zero from the last value set. They will stop when they reach zero.
They do NOT count when SpecView is not running. When SpecView is re-started they will resume from their last value.

In Strategy Controller 666 to do something when the Countdown has finished test for the Countdown Timer being 1 (not zero because then it will trigger each time Runtime mode is started as zero is its default state).

To start a Countup Timer set it to 1, it will then commence counting up from 1.
To stop a Countup Timer set it to zero. It is not possible to 'Pause' a Countup Timer directly, however, using a button or the Strategy Controller the value of the Countup Timer can be copied into a Time User Variable to 'pause' it and then copied back into the Countup Timer to 'resume'.
Note: A Countup Timer that has been started WILL continue to count up while SpecView is not running.

By default SpecView will save the current values of User Variables on leaving Runtime mode. Either by exiting SpecView, or by going into Edit mode.
There is also a setting: AutoSaveUserVars which can be changed, this is detailed in Preferences 458.

To control how values are displayed use Dynamic Attributes 357.

Maximum Values:
Integer Variables - can contain values in the range: -2147483648 to +2147483647

Number Variables - can contain values which have the following limits:
Largest positive number: 3.402823466e+38 (3.4E +/- 38 (7 digits))
Smallest positive number: 1.175494351e–38
Significant digits: 6 e.g. 1.23456 (There is further clarification of Decimal Places 496)
Internally, SpecView uses 15 significant digits to perform math functions 433.
These limits also apply to negative numbers.

Text Variables - can contain up to 32,767 characters.

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Time Variables - can hold up to a maximum of +/- 596523:14:07 (hhh:mm:ss) Time has a resolution of 1 seconds and a max value of 2147483647 seconds, or 68 years

TimeMS Variables - have a resolution of 1ms and a max value of +/- 2147483.647 seconds, which is 596:31:23.647 or just 24.8 days.

TimeMS came about because some instruments return that type - for example, a programmer instrument running in seconds might have a sub-second Segment Time Remaining.

In general, the Time one is more useful, but if you need sub-second resolution then TimeMS is your thing. Maybe you could be calculating average cycle times that need the odd 0.5 seconds in there?

There are two things to note about TimeMS:
1. The three millisecond digits are NOT enabled by default. To enable them edit SETTINGS.INI and in the [RUNTIME] section of that file there is:
MillisecondDecimals=0
Change this to 3.

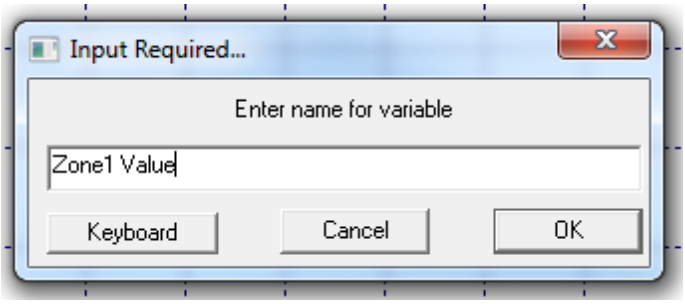
2. Once the three millisecond digits are enabled as above, the display of them can be controlled by using Dynamic Attributes. 357

Countdown and Countup Variables - the limits for these are the same as for Time variables above.

Date Variables - can hold dates up to the 19th January 2038.

DateTime Variables - can hold dates and times up to 03:14:07 on 19th January 2038.

SpecView User Variable Names
Enter a name for the User Variable
It can be any length (up to 32,767 characters) but shorter names are more manageable



Use the **Keyboard** button to get an on-screen keyboard.

To set an initial default value for a User Variable:

- While **Screen Values** are disabled on the **Online Features** menu in Edit Mode:
  In this case the **Properties** will have an **Initial Value** tab. Select the variable, and click **Properties**, or choose **Properties** from the popup-menu, and click the **Initial Value** tab to set it.

- While **Screen Values** are enabled on the **Online Features** menu in Edit Mode:

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In this case the 'initial value' has no meaning.

- **Variables List** will have a '**V**' (Values) column, therefore right click on the value in the **Variables List** to set it.

Boolean default value box

Note: You can change the names of the boolean states from 'On'/'Off' to something more logical for your application (for example 'Open'/'Closed') by using the Properties[326] of the defined variable.

Date and DateTime User Variables

Date and DateTime User Variables can have the current computer date and time copied to them by using the Parameters: Download Specific Value button action in a Button Attribute or Strategy Controller Action

8.2.3.3 Variables List - Properties

Use Variable List Properties to:

- Change the name of a variable
- Add / Delete a variable from:
  - Data Logging
  - Alarm Checking (booleans)
  - Short List
- Scaling (for numbers with decimals)
- On/Off Labels (booleans)

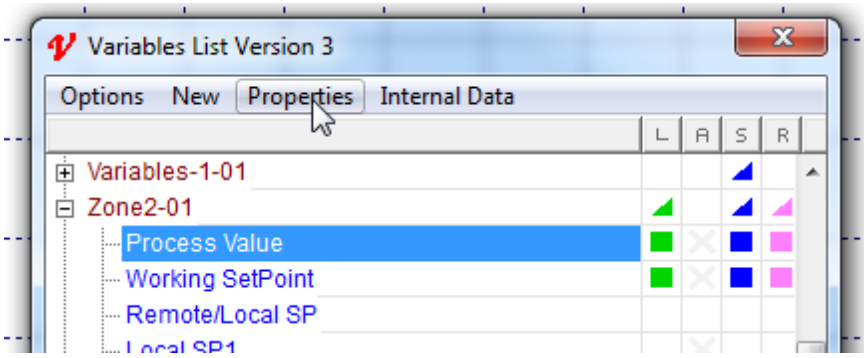
NOTE: If the required menu-item in the Variables List is not enabled (grayed-out) then go to the Online Features menu[307] and choose Disable All (fully offline).
This is because some of the menu-items, such as changing instrument details can't be done while online[282].

Open the Variables List[313] by clicking  on the toolbar,
then, navigate to the Variable that you require:

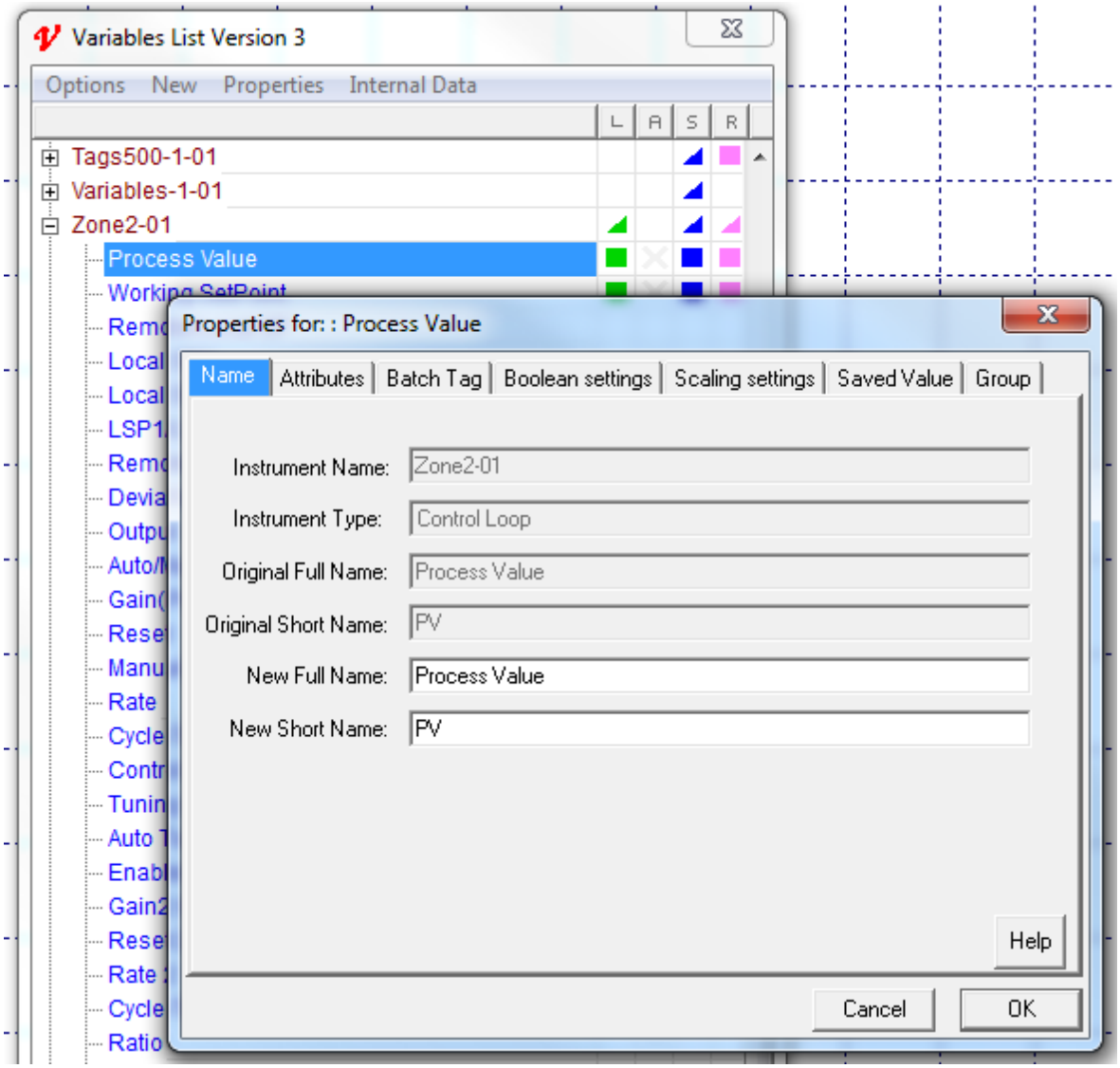
- **For Instrument variables**: Click the ⊞ by the instrument's name.
- **For SpecView Variables:** Click the ⊞ by 'SV' to show the pre-defined variables.
- **For User variables**: Click the ⊞ by 'User Variables' and click the ⊞ by the type of the variable.

Then single-click the variable name to select it and click **Properties**, OR right-click the variable name and choose Properties from the popup-menu.

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Name Information
Edits the names of variables such as alarms using the Variables Properties 326 box
Example: Change 'Alarm 1 Status' to 'High Alarm'

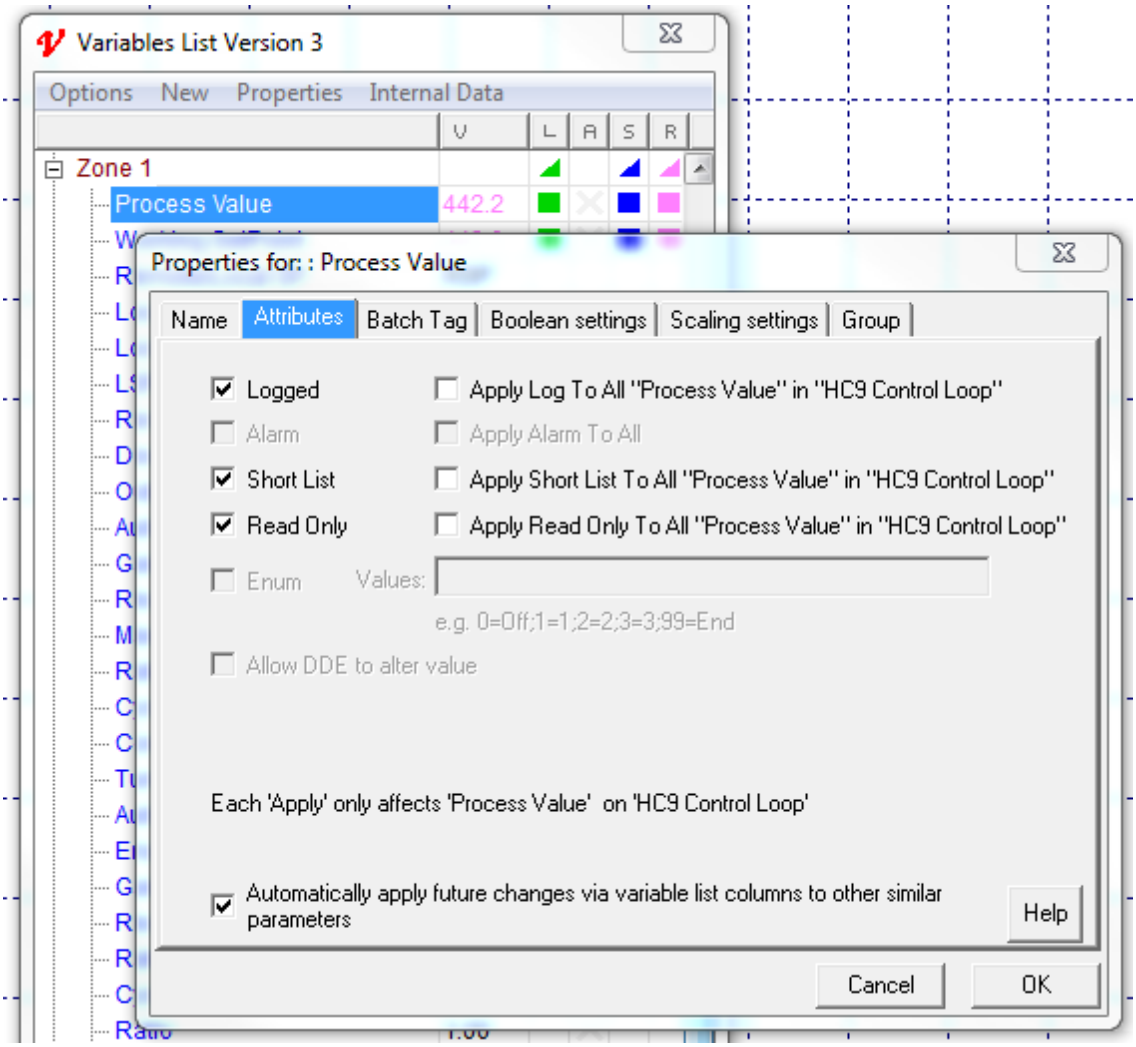


Attributes
Check the Logged box to add a variable to Data Logging [589]
Check the Alarm box to have SpecView monitor this boolean as an alarm [353]; this option will be grayed-out if this variable is not a boolean type.
Check the Short List box to have the variable included in the Short List [260] mode.

Note that the Logged, Alarm, Short List and Read-Only settings can be overridden by double-clicking in the boxes in the 'L', 'A', 'S', 'R' columns of the Variables List.

Checking the **'Apply ... To All'** boxes will change those attributes on the same variables of ALL identical instruments in the project.

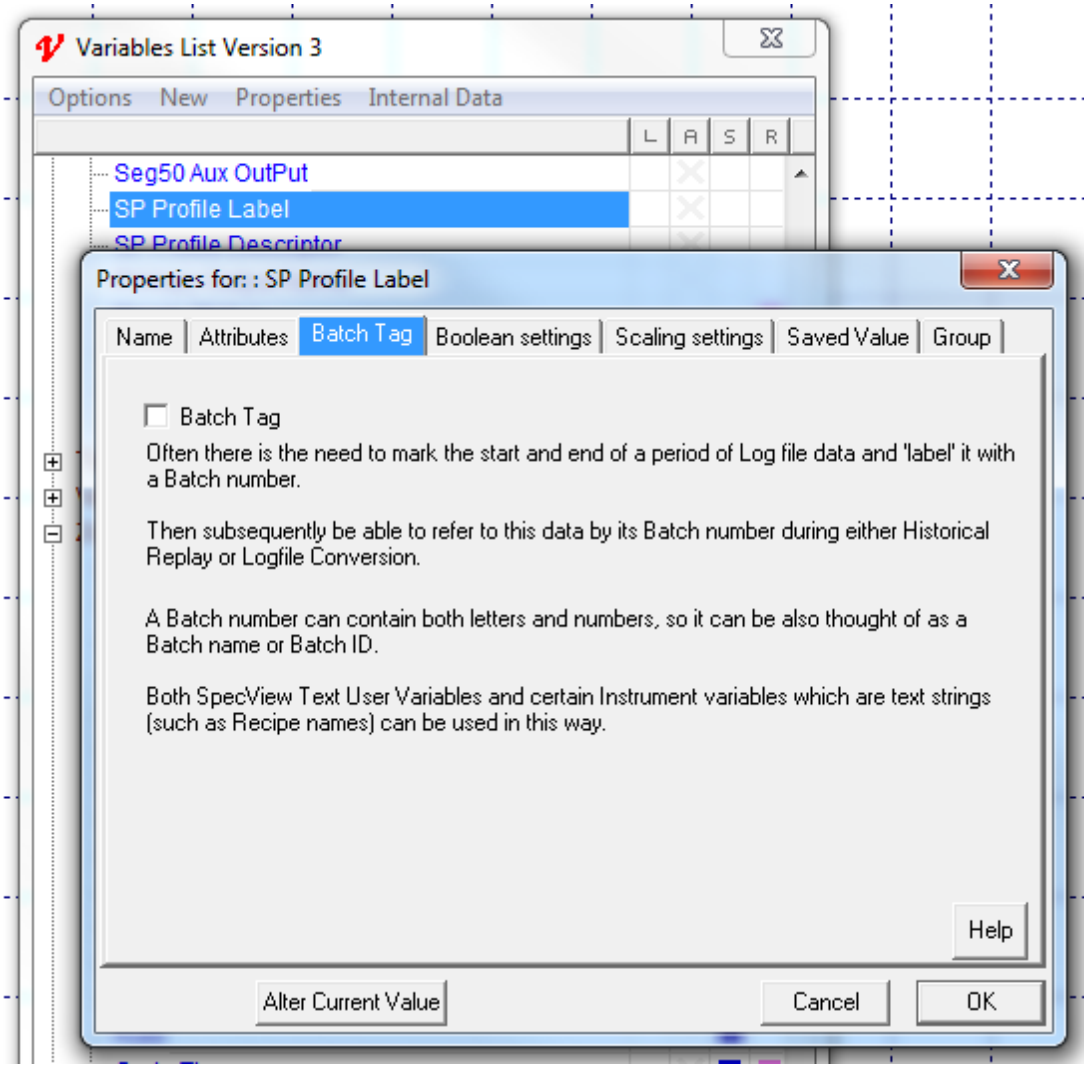
There is also an **'Automatically apply future changes via variable list columns to other similar parameters'** checkbox. When this is checked it means that double-clicking in the columns of the Variables List to set or unset an attribute will also affect the same variables of ALL identical instruments in the project



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Batch Tag

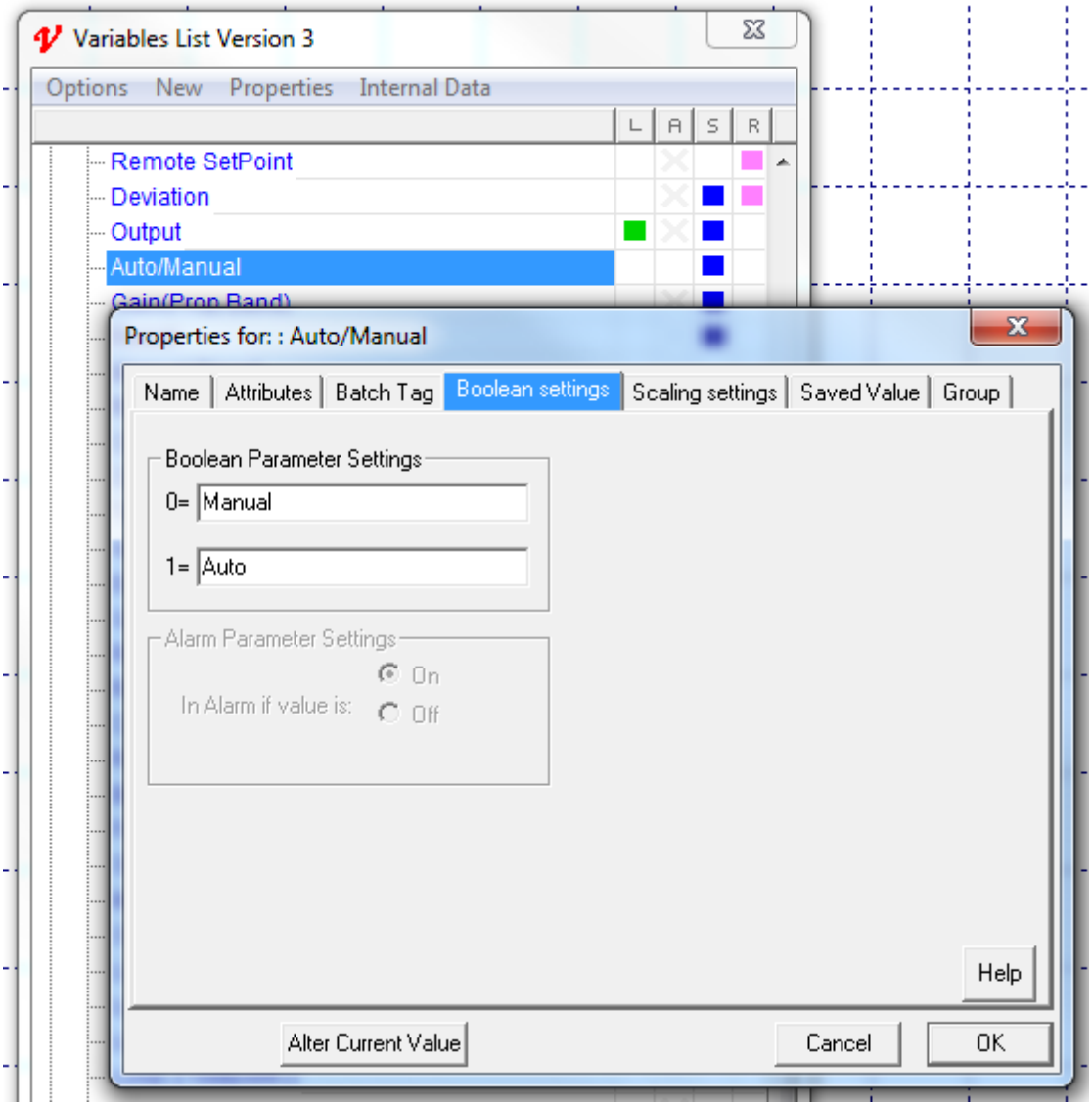
Text Variables and parameters can be marked as Batch tags [627].



Boolean settings

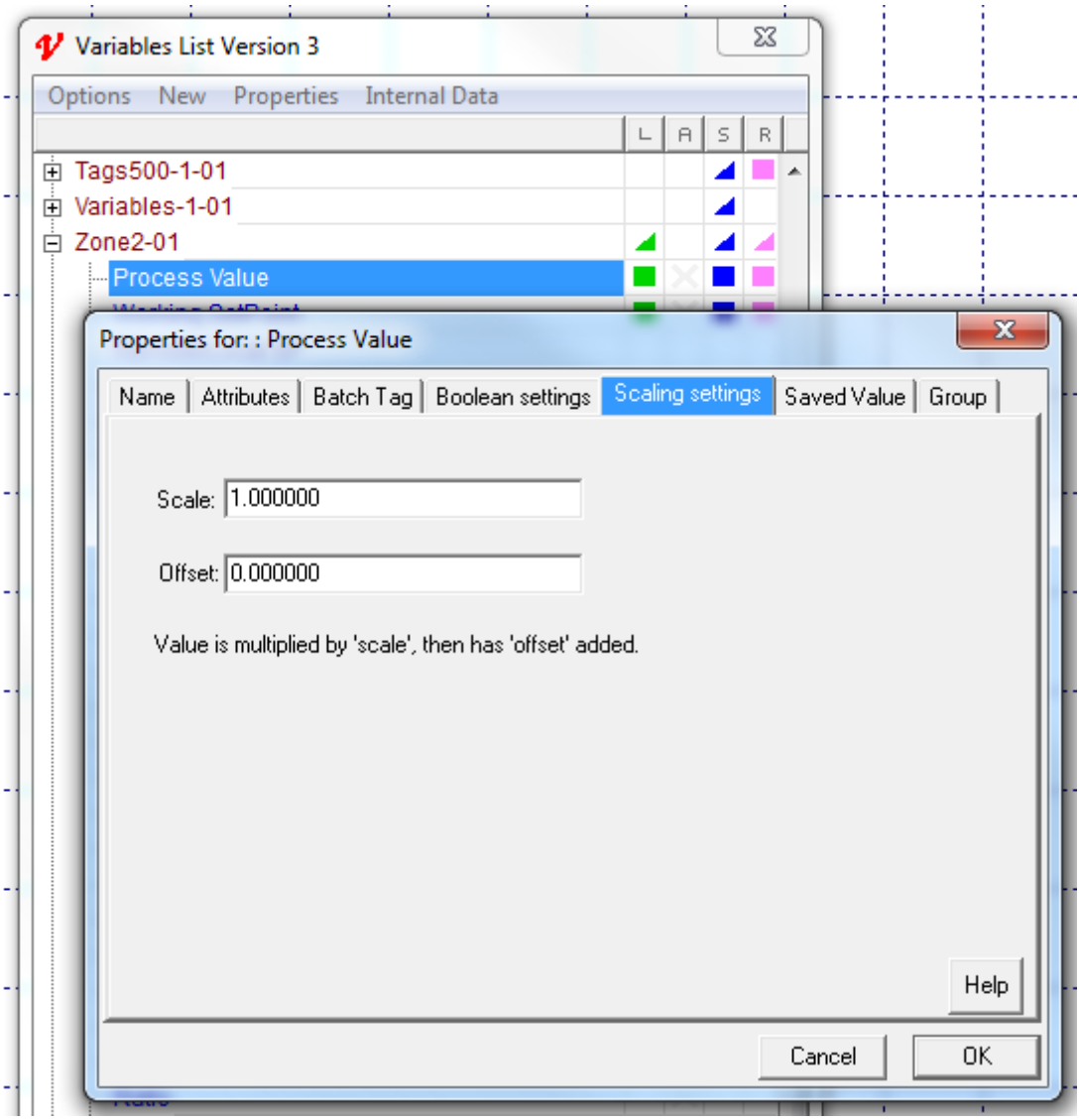
This allows the On/Off Labels (of booleans) to be changed.

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Scaling settings
Scales a number with decimals (real number) using the Variables Properties 326 box
A simple example is changing °C to °F:
Set the scale to 1.8 and the offset to 32
For a change like this it would also be appropriate to change the variable's name from, in this example, 'Temp C' to 'Temp F'.

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For more complex scaling the formulas below allow you to work out the Scale and Offset values for parameters to convert between the readings available from instrument hardware into the values seen on the screen. SpecView always takes the instrument reading, multiplies by the scale and then adds the offset.

For example, for a 4-20mA signal coming into a sensor. This sensor converts the signal into a 0 to 4095 range inside the instrument. However, the values on the screen need to show 0 to 100% for this range.

The physical signal (4-20mA in the example above) does not form part of the equation because the instrument deals with that and provides a range of values (0 to 4095 in this case).
The equations for Scale and Offset convert from the 0 to 4095 instrument range into the 0 to100 User range.

InstLo to ***InstHi*** represents the range of numbers reported by the instrument. ***UserLo*** to ***UserHi*** represents the corresponding range of displayed values in the formulas.

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$$Scale = \frac{(UserHi - UserLo)}{(InstHi - InstLo)}$$

$$Offset = \frac{-InstLo}{(InstHi - InstLo)} * (UserHi - UserLo) + UserLo$$

Other common words for InstLo and InstHi are Full Scale Low and Full Scale High readings - they are the lowest and highest readings produced by the instrument and read into SpecView. The InstLo and InstHi values can be determined empirically by setting the scale to 1.0 and the offset to 0.0 inside SpecView. Then, apply the lowest possible physical input to the instrument and note the value as InstLo. Then apply the highest possible physical input to the Instrument and note that value as InstHi.

Examples:
1) It is quite common for many Chart Recorders to read numbers in the range 0 to 65535 for the pen range. For example, a Pen's readings might be 0 to 100%, but over comms, this shows up as 0 to 65535.
InstLo = 0 InstHi = 65536 UserLo = 0 UserHi = 100
So, using the formulas above:
Scale = 0.001525902
Offset = 0.0

2) A 4-20mA input module where the 4-20mA range is represented by 0 to 4095 reading. User wants the range 0 to 100 displayed:
InstLo = 0 InstHi = 4095 UserLo = 0 UserHi = 100
Scale = 0.02442Offset = 0.0

3) Same as example 2, but user wants the actual mA signal value displayed. This can be stated as:
A 4-20mA input module where the 4-20mA range is represented by 0 to 4095 reading. User wants the range 4.0 to 20.0 displayed:
InstLo = 0 InstHi = 4095 UserLo = 4.0 UserHi = 20.0
Scale = 0.0039072 Offset = 4.0

4) As for example 2, but the instrument reports back numbers as 1 decimal place, so: A 4-20mA input module where the 4-20mA range is represented by 0 to 409.5 reading. User wants the range 0 to 100 displayed:
InstLo = 0 InstHi = 409.5 UserLo = 0 UserHi = 100
Scale = 0.2442 Offset = 0.0

5) Similar to example 2, but the Instrument is physically capable of reading the whole way down to 0mA. So, a 4-20mA input module where the 4-20mA range is represented by 820 to 4095 reading (because 0mA would read 0, but the lowest possible input signal is 4mA). User wants the range 50 to 100 displayed:
InstLo = 820 InstHi = 4095 UserLo = 50 UserHi = 100
Scale = 0.0152671 Offset = 24.96184

6) As a proof, consider converting a Centigrade figure into Fahrenheit. As we commonly know, C to F is multiply by 1.8 and add 32. In order to check this fits with the formula:
Assume the centigrade range is 0 to 100 (Freezing point to Boiling point). This is the Instrument range. We know that the equivalent Fahrenheit values are 32 and 212. This is the User range. So:
InstLo = 0 InstHi = 100 UserLo = 32 UserHi = 212

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Applying these values to the formula:

$$Scale = \frac{(212-32)}{(100-0)} = \frac{180}{100} = 1.8$$

$$Offset = \frac{-0}{(100-0)} * (212-32) + 32 = 0 * 0 + 32 = 32$$

7) Fahrenheit to Centigrade: the opposite of example 6:
InstLo = 32 InstHi = 212 UserLo = 0 UserHi = 100
Scale = 0.555555 Offset = -17.7777

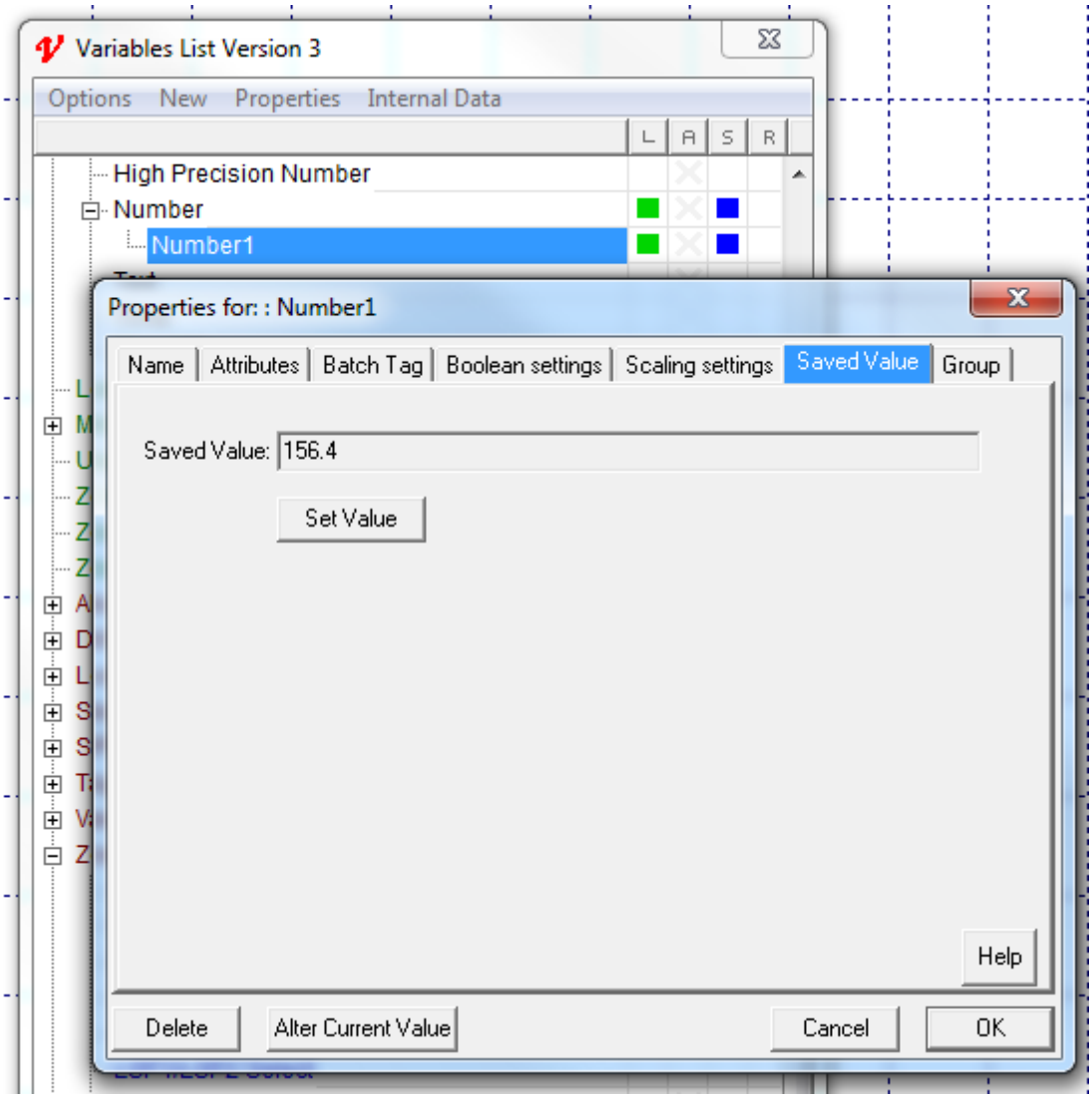
Note: It is useful to test values at both ends of the range and if any other values are known then try those too.

For example, the values produced in example 6 (C to F) are as expected, 1.8 and 32. In example 7 though, the numbers don't seem to make sense. To test that they are correct:

Note: SpecView will multiply by the scale then it will add the offset, therefore:
First, 32'F: 32 * 0.555555 + (-17.7777) = 0.0001 (which is approximately zero)
Next, 212'F: 212 * 0.555555 + (-17.7777) = 99.9989 (which is approximately 100)
And one other value that is known, -40 reads the same in C as F:
-40 * 0.55555 + (-17.7777) = -39.9997

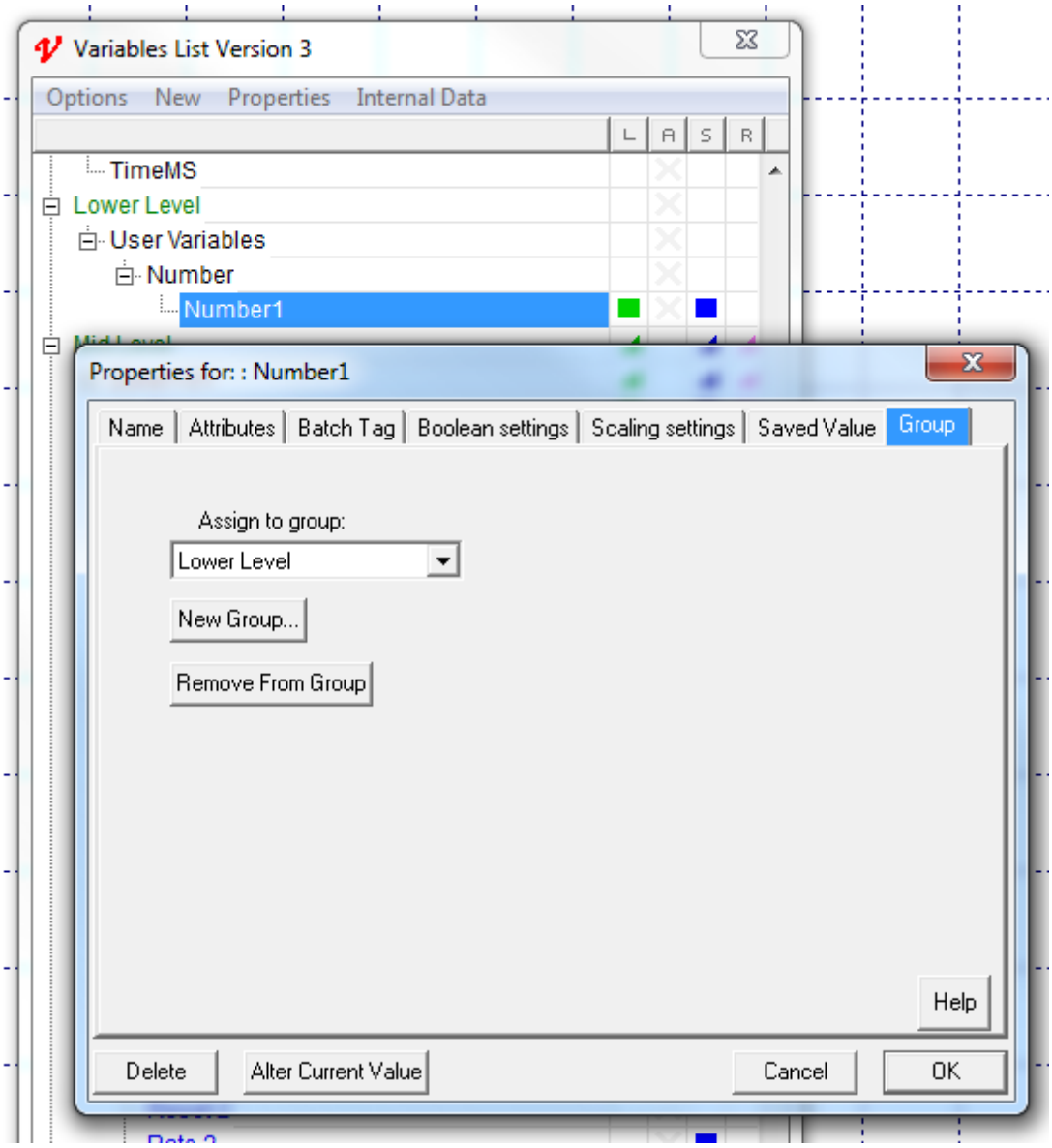
Saved Value
This tab is only shown when in Edit mode Offline (it is not shown while Online).
The frequency in seconds that values are saved is specified in SETTINGS.INI in the [RUNTIME] section as: AutoSaveUserVars=3600
(the default setting is 3600 seconds, which is once an hour).
If there are a large number of SpecView User Variables, then do not save them very often as this will slow down the system, especially on heavily loaded computers. The values are automatically saved whenever SpecView goes offline or is exited.

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Group
Instruments, parameters and variables can be assigned to a group[341] to keep them together logically:

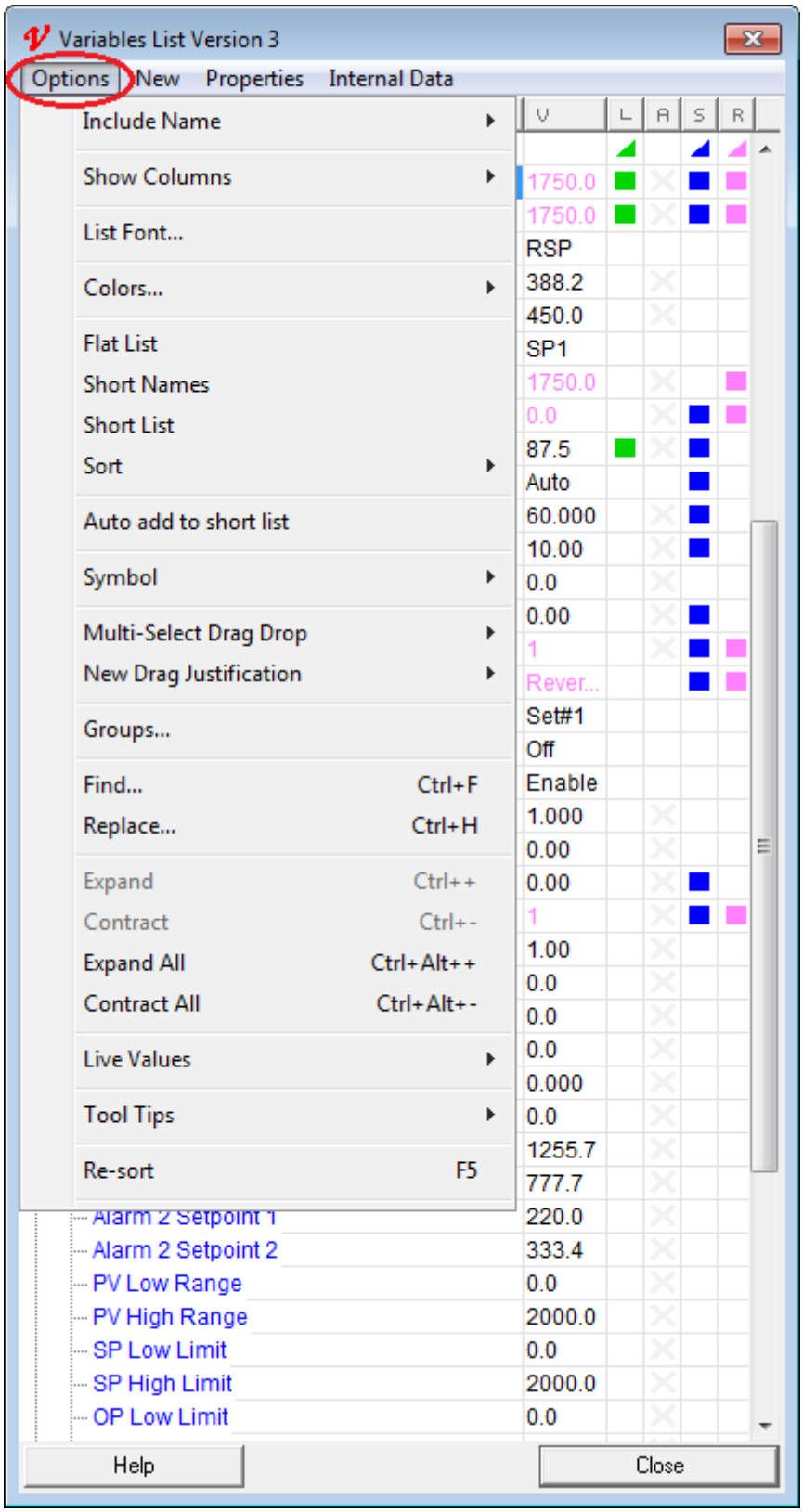
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8.2.3.4 Variables List - Options Menu

The Variables List provides a detailed menu of options:

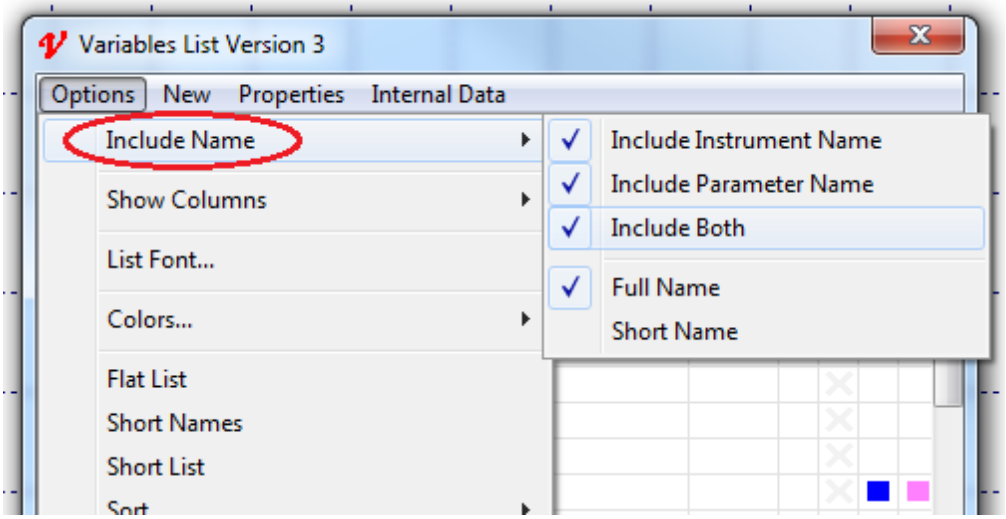
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Include Name

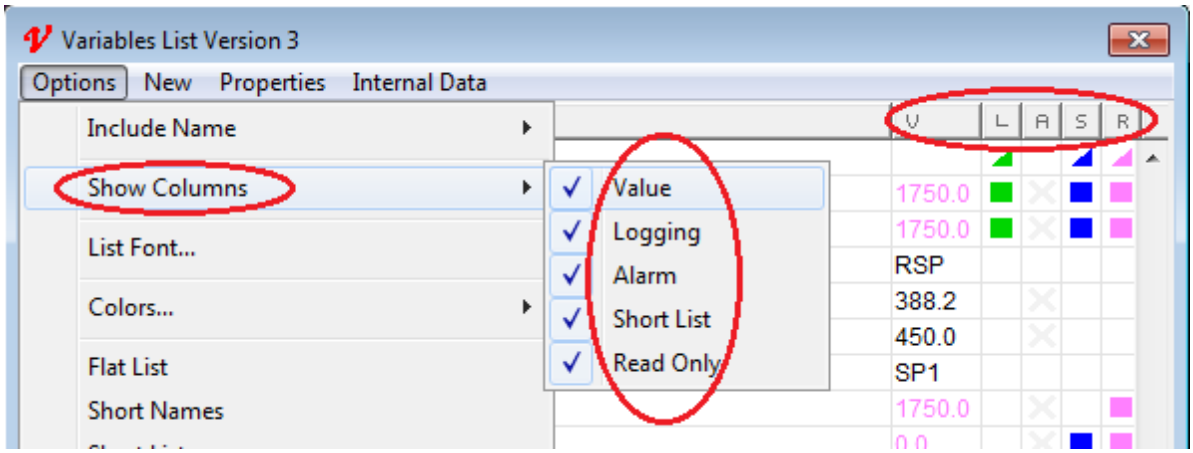
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This menu item has a sub-menu, which allows the selection of Instrument Name [505], Parameter Name [506] or both to be included when the parameter(s) or variable [514](s) are dragged out onto the GDW [311].



Each parameter (or variable) has both a Full Name and a Short Name which are defined on the Name tab of the Properties [326] box.
Use these to select which name is included when the parameter(s) or variable(s) are dragged out onto the GDW [311].

Show Columns
This menu item has a sub-menu, which allows the selection of which columns to show in the Variables List.



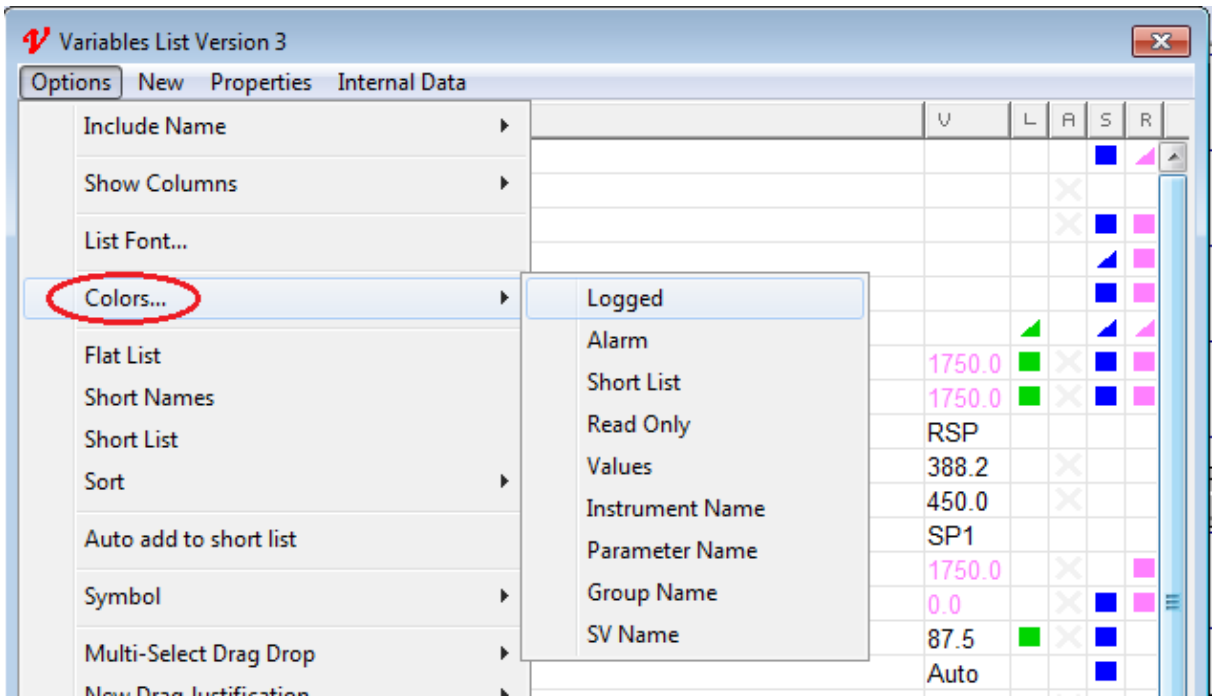
V=Value, L=Logging [496], A=Alarm [353], S=Short List [513], R=Read Only [510].

List Font
Allows the selection of the font to be used in the Variables List and in the Parameter List at Runtime. This can also be set in File->Preferences - Settings [467].

Changing other fonts [503] within SpecView.

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Colors
Allows the selection of the colors to be used in the Variables List and in the Parameter List at Runtime:



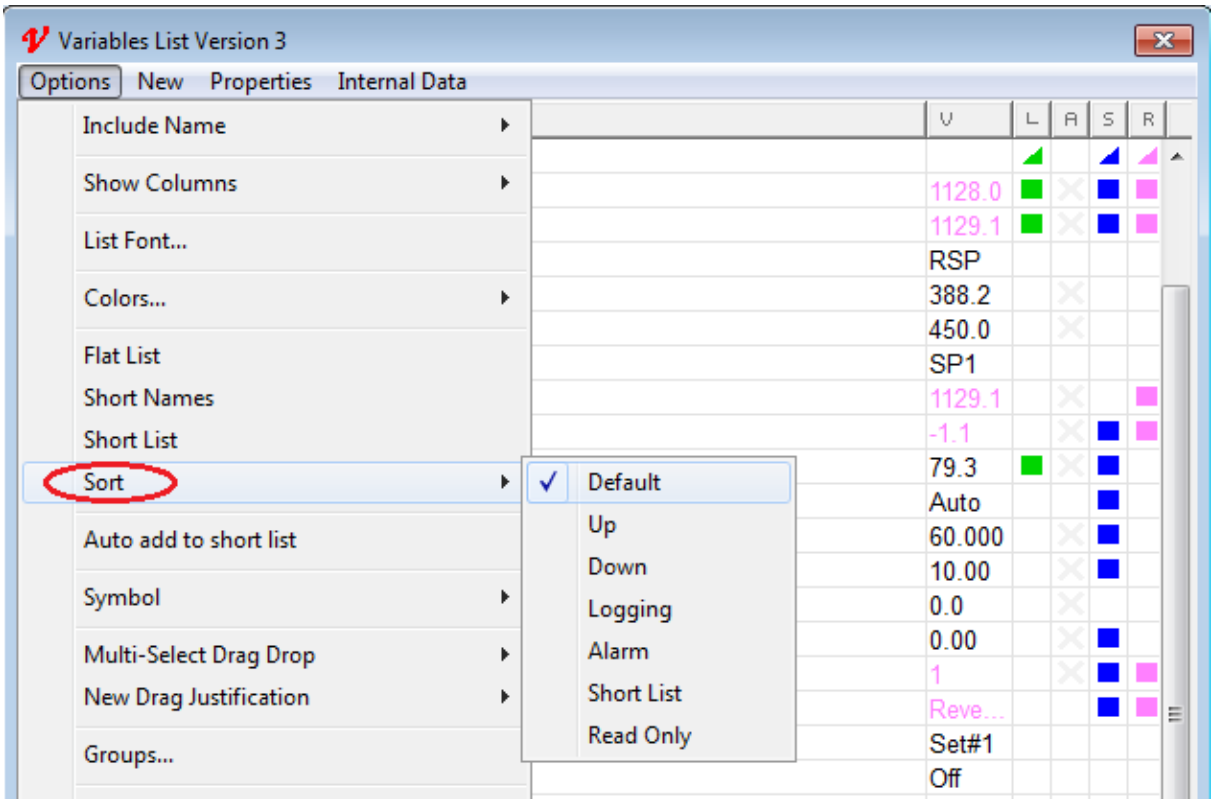
Flat List
This sorts the Variables List by parameter name which makes it easy to drag out all of the parameters of the same type from each of the Instrument Views [346].

Short Names
Allows the use of Short Names (instead of Full Names) within the Variables List.

Short List
Displays an abbreviated list of the important parameters [506] within an Instrument View [346].

Sort
Specifies the sort order:

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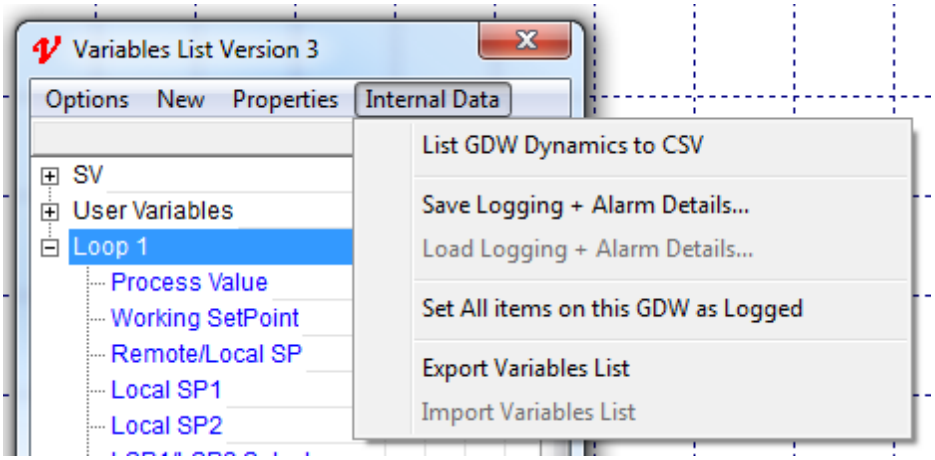


8.2.3.5 Variables List - Internal Data Menu

The **Internal Data** menu allows access to the information on variables stored in SpecView.

Open the Variables List[313] by clicking  on the toolbar

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List GDW Dynamics to CSV
Used for SpecView diagnostics only

Save Logging + Alarm Details
Used for SpecView diagnostics only

Load Logging + Alarm Details
Used for SpecView diagnostics only

Set All items on this GDW as Logged
Adds ALL the variables on ***this*** GDW into logging.

NOTE: Use this feature if you want to Historically Replay ALL the variables on this GDW

To remove any unwanted variables from logging uncheck the logging flag in the Variables List.

See Disk Space for Logging 603 for file size details, as logging more variables will increase disk space requirements.

Export Variables List
Exports a list of all the currently defined variables and their properties to a .CSV (Comma Separated Variable format) file which can then be edited using Excel and saved again as a .CSV file, then subsequently imported using the Import Variables List menu command from this menu.

This is useful if a large number of changes need to be made to the Variables List. For example, some instruments have numerous data registers, which must be accessed indirectly using an address offset. These variables will then need to be renamed accordingly, for example, registers named with numbers D000 to D255 with an offset of 2560 will need to be renamed to D2560 to D2815 which can be done quickly using the features in Excel.

Do not attempt to use this function to change the type of a variable, for example, from an Integer to a Number (with decimals).

Import Variables List
Imports a list of all currently defined variables and their properties from a .CSV file which has been edited

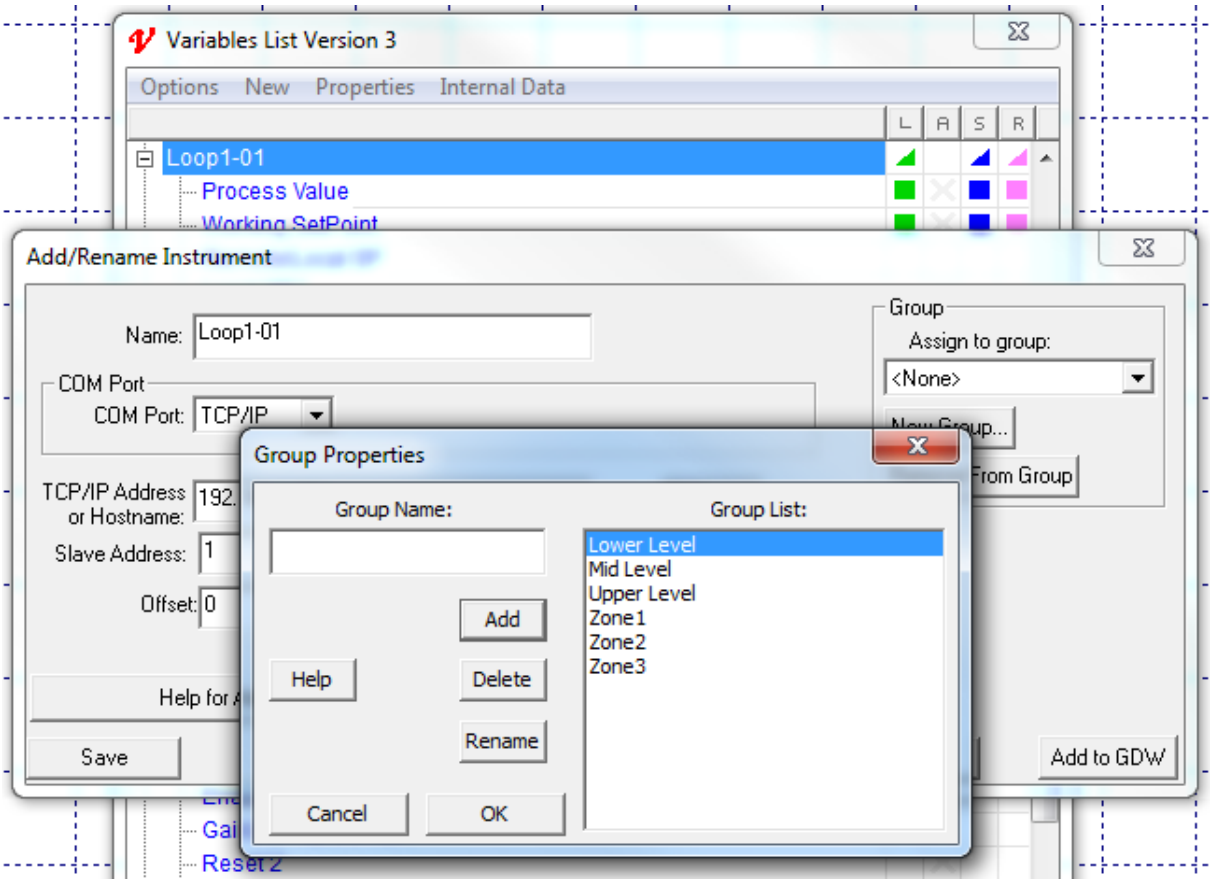
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using Excel and saved again as a .CSV file.

Note: There is very limited error checking on the import, so make a good backup of this project first before importing.

8.2.3.6 Variables List - Groups

Instruments can be assigned to a group to keep them together logically:



In the above example the factory has various levels and zones each made up of a number of instruments. The instruments in the Variables List [313] can be grouped accordingly.

To add a new group name enter a name and click the **Add** button.
To add instruments to the group choose the new group from the **Assign to group** drop-down menu from the instrument's **Properties** box.

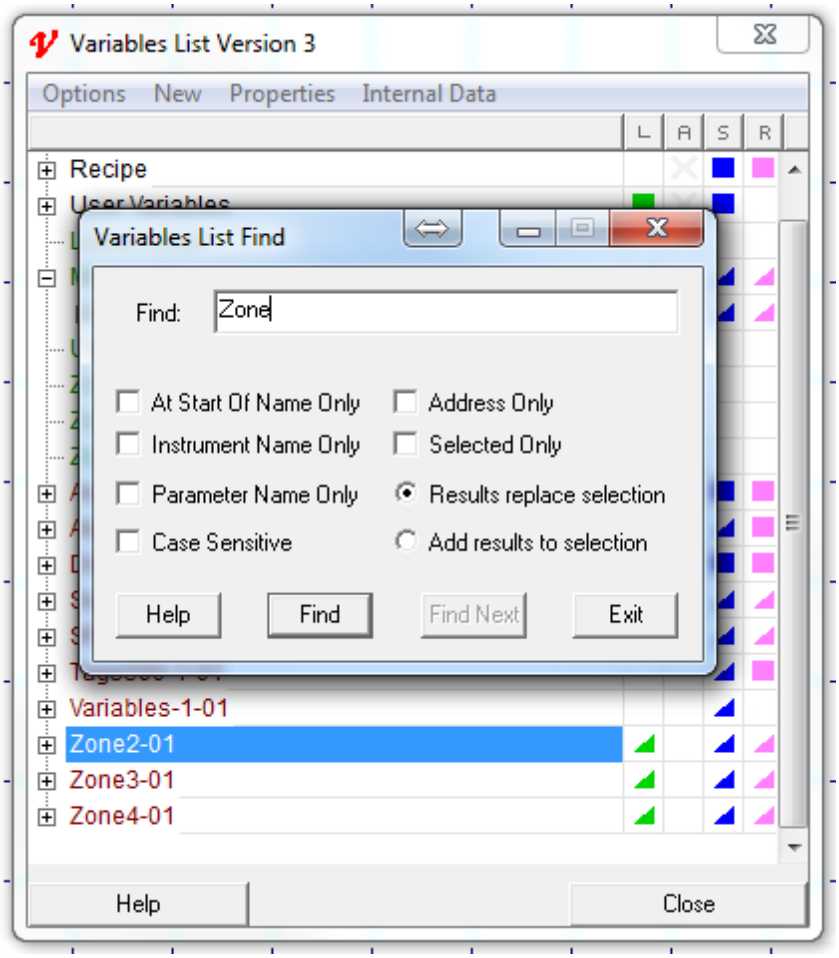
Note that the word 'group [504]' has 2 meanings in SpecView:
1. When instruments and/or parameters and/or variables are grouped together into a named logical group within the Variables List [313] as described above.
2. When objects are grouped together on the GDW so they can be moved all together.

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8.2.3.7 Variables List - Find/Replace

Items in the Variables List [313] can be searched for (Find) or substituted (Replace).
This is useful when a large number of items need to be found and/or renamed.

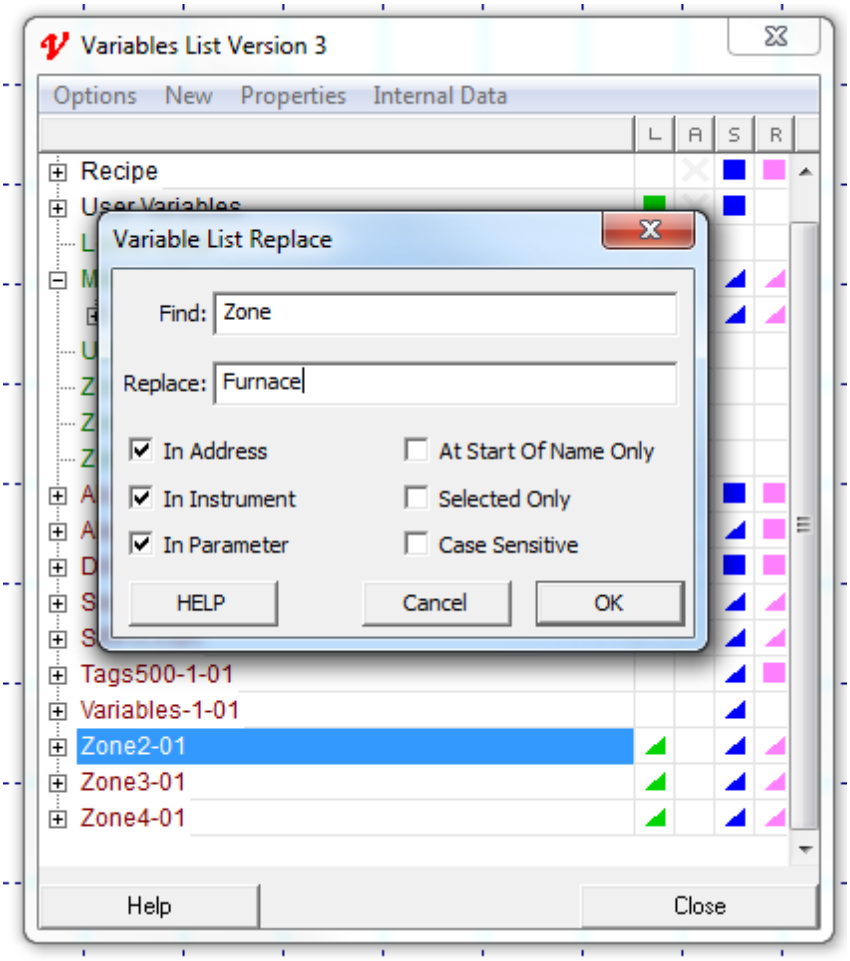
Find:



Results replace selection - unselects any items that are currently selected and instead selects the items that were found.
Add results to selection - keeps the currently selected items and adds the items that were found to the selection.

Replace:

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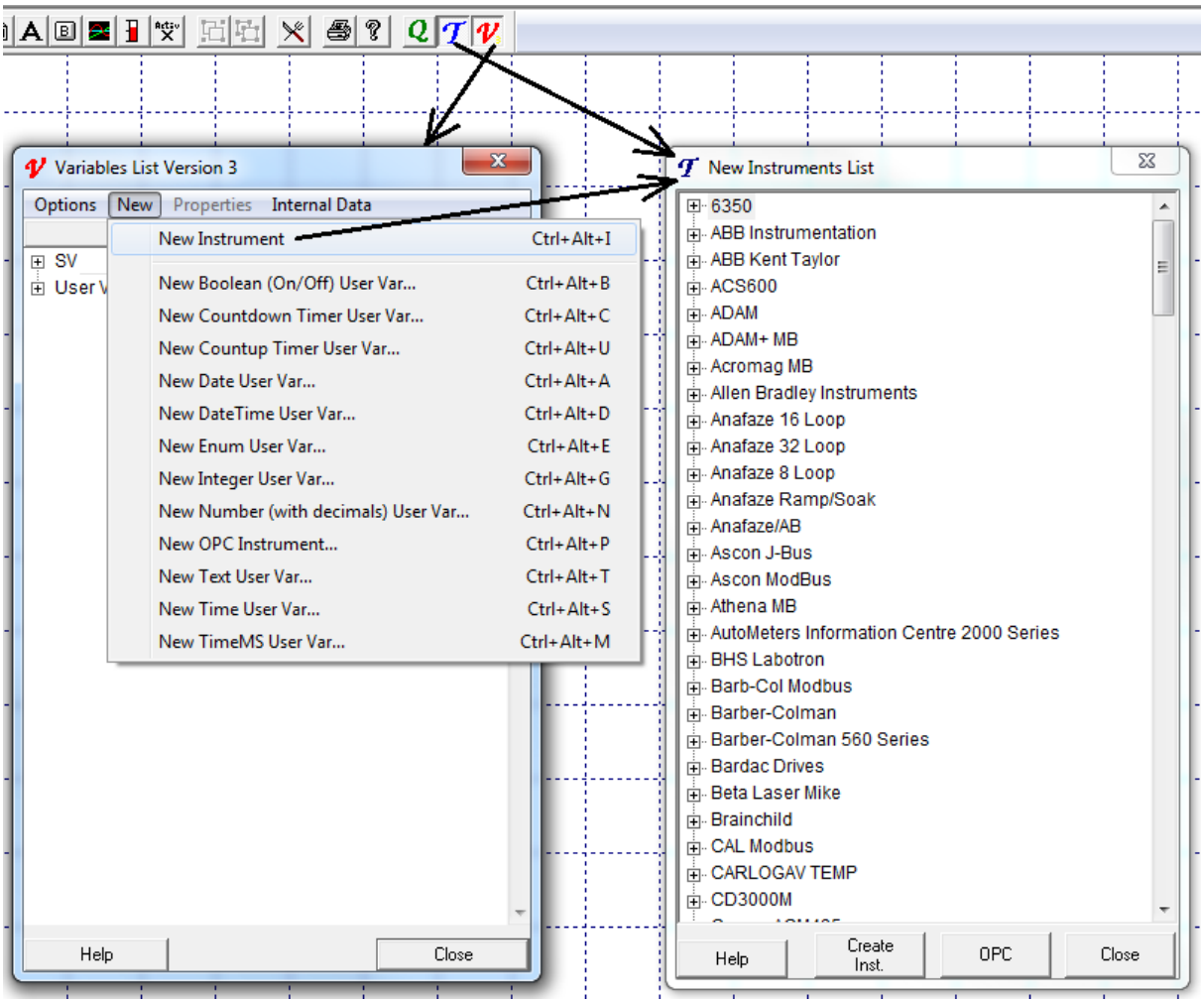
Note that the 'In Address' check-box can only be checked when SpecView is offline. This is because it is not possible to change the address of an instrument while SpecView is actively communicating with it.
To switch to 'Offline' choose 'Disable All (fully offline)' from the Online Features[307] menu.

8.2.4 Templates List

There is a separate list for new instruments, these are known as instrument Templates. The templates make up a database of instruments that SpecView recognises.
The templates contain information about the instruments' parameters, the parameter addresses and types.

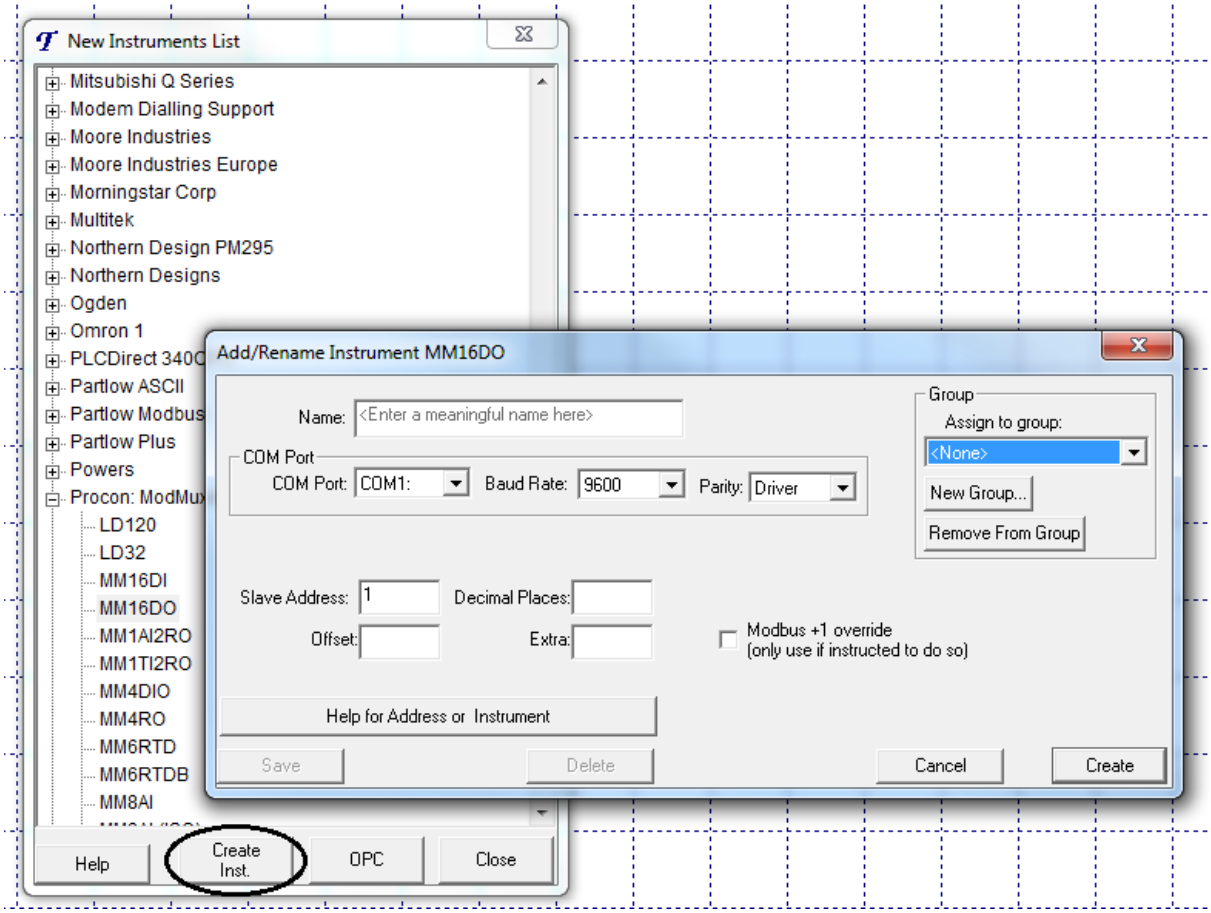
To access the Templates List press the **T** tool on the toolbar 
An alternative way to access it is via the **New** menu on the Variables List.

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Scroll down the Templates List and click the '+' by the manufacturer name, then select the module type, and click **Create Inst:**

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Instrument properties

Name: The name for the instrument, for example, Furnace 1.
COM Port: To increase the number of available COM ports set MaxPorts [458].
Baud Rate: Check the Baud rate configured on the instrument, see the instrument manufacturer's manual.
Parity: This is the 'data bits', 'parity' and 'stop bits', for example, 8N1 is 8 data bits, no parity and 1 stop bit. Check these settings on the instrument, see the instrument manufacturer's manual.
Slave Address: Check the slave address configured on the instrument, see the instrument manufacturer's manual.
Decimal Places: Specify the number of decimal places [496] required for values from this instrument, for example '123.4' is 1 decimal place.

It is important to read decimal places [496] because there are other points to note when setting this.

Offset: This is the address offset for the parameters. Click **Help for Address or Instrument** for more details. Leave blank if no offset required.
Extra: Only used by instruments like the Honeywell HC900 to access the the SPP block's Profile Descriptor Fields [245].
Assign to group: Use this to give a name to a group of instruments as required.

Note: these instrument properties cannot be changed (will be shown grayed-out) while the instrument is online [307].

Instruments that are not listed can still be supported by SpecView if they use the Modbus protocol [215], in that case SpecView's Generic Modbus template can be used. Otherwise, it may be possible for

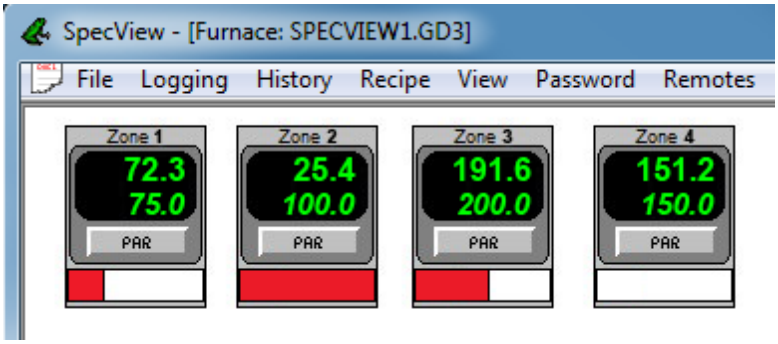
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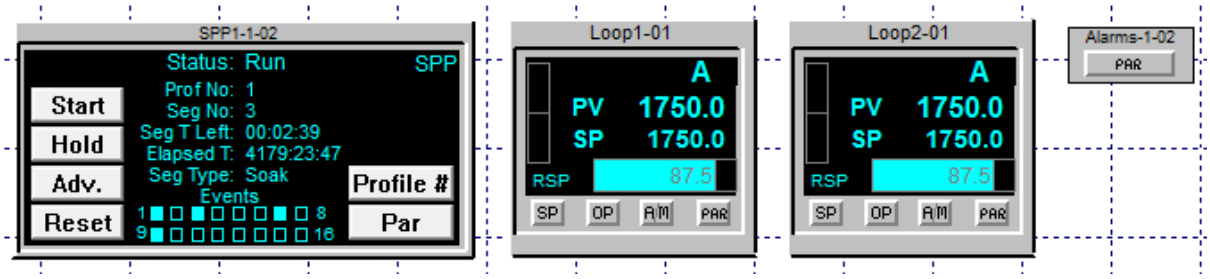
SpecView to communicate with the instrument using OPC[572].

Alternatively, please contact[798] a SpecView representative.

8.2.5 Instrument Views

Instrument Views are a pictorial representation of a connected instrument[505].
In most cases it will look like and have buttons that operate in a similar way to the actual instrument when SpecView is in Runtime Mode.





A simple measurement instrument[505] typically has a single Instrument View.
A programmable controller will have separate Instrument Views for the programmer module and the controller module.
A multi-loop controller will have separate Instrument Views for the programmer module and for each of the loops.

The individual instrument parameters[506] can typically be accessed by clicking the [PAR] button on the Instrument View.

Adding an Instrument View to a GDW
To add an Instrument View to a GDW[311] open the Variables List[313] and drag and drop the instrument's name from the list out onto the GDW.

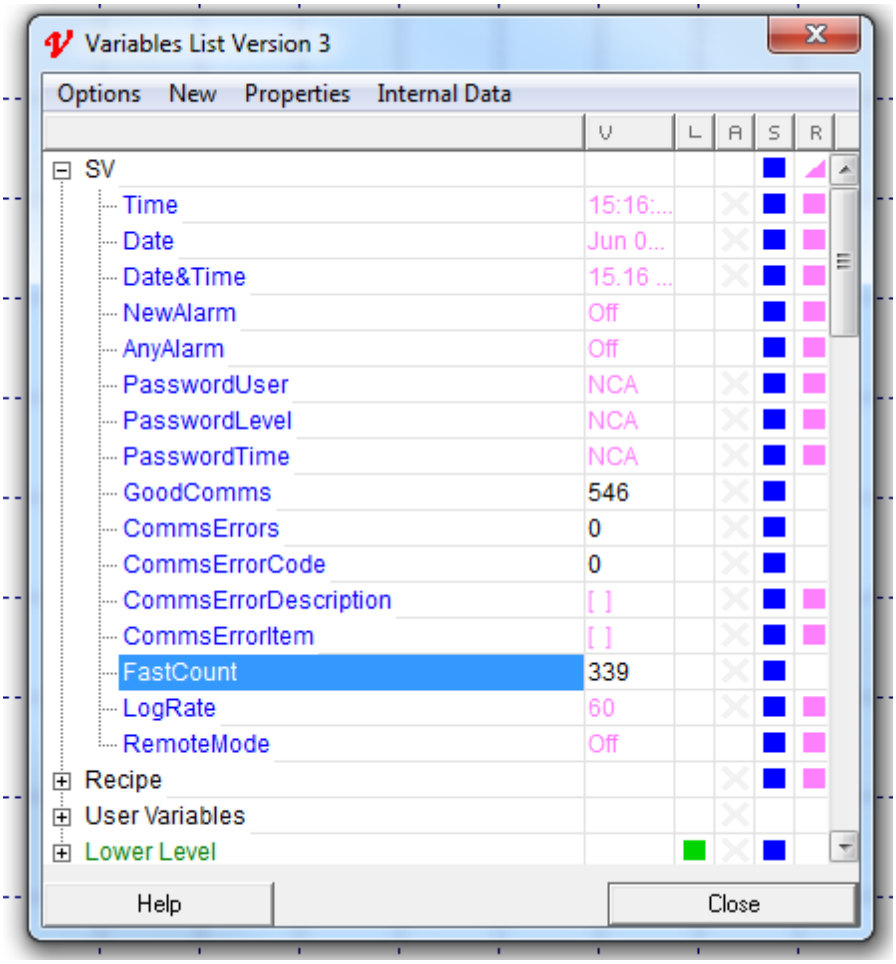
Resizing an Instrument View
An Instrument View cannot be resized on the screen.
If a larger (or smaller) Instrument View is required then the graphic can be redrawn manually, grouped and saved as a GDO[503] 'Graphical Display Object' (from the Edit menu[287]) for future use.

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However, this will not save the variables, therefore each time it is put on the screen the variables will need to be put out manually.

8.2.6 SpecView.FastCount Variable

The SpecView Pre-Defined Variable[319] called 'SpecView.FastCount' is a count up counter that counts accurately and continuously at rates up to 100 times per second.
This counter can be used as the basis for a Strategy Controller[513] Event that needs to be checked frequently.



SpecView.FastCount can be reset to Zero by writing Zero to it, but writing other values will have no effect.

The counter will count up to 4294967295 and then reset. At a rate of 10 counts per second, this will take

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about 13.5 years. At 100 per second, it will take about 500 days. The SpecView.FastCount counter is set to Zero whenever SpecView enters Runtime Mode.

The rate at which the counter counts is determined by a value in SETTINGS.INI
SpecView.FastCount will only have a value if this rate is set, otherwise it will show N/R.

In the [RUNTIME] section, add a line:
FastCountRate=MS

Where MS is a number of milliseconds.
Typical values might be:
FastCountRate=500 Twice per second
FastCountRate=100 10 times per second
FastCountRate=50 20 times per second

Note that when using the SpecView.FastCount as a Strategy Controller event, such as: 'Watch for SpecView.FastCount Changed by 0', it is possible for the Strategy Controller to miss counts if the computer is very busy and the FastCountRate is very fast. Although the Event might not trigger for every change of SpecView.FastCount, the number in SpecView.FastCount will increment at the correct rate.

A typical use of the SpecView.FastCount counter is to write values to a file using the Line Writer[452] to generate a form of 'Log File' faster than the current maximum logging rate of 1 second.

To do this, proceed as follows:

When writing a line with the Line Writer[452], it is useful to have a better idea of the time interval, since SpecView.Time is only accurate to 1 second. By setting the FastCountRate=100 will give a 10th of a second counter.

It is possible to extract the 1/10ths of a second from this as follows:

Create a SpecView Integer user variable set to -1 (e.g. SpecView.MinusOne) and Two SpecView Text user variables. (SpecView.RawCount and SpecView.LastDigit).

In the Strategy Controller, create an event that does 'Watch for SpecView.FastCount Changed by 0'
Which has the following actions:
1) Copy[429] SpecView.FastCount to SpecView.RawCount
2) Math Function[433] SpecView.RawCount MINUS SpecView.MinusOne into SpecView.LastDigit
The 1/10th digit will be in SpecView.LastDigit and this can be put into the lines written to the file.

SpecView Variables[319]

8.2.7 Adding Numeric Values to a GDW

Open the Variables List[313] by clicking  on the toolbar

To add value(s) to a GDW, first click the ⊞ by the instrument you want.
Then there are 3 ways to add a variable or parameter to a GDW:

1.Double-clicking on the variable in the Variables List.
The value will be put on the GDW in the top left corner. Note: Move objects down the screen before

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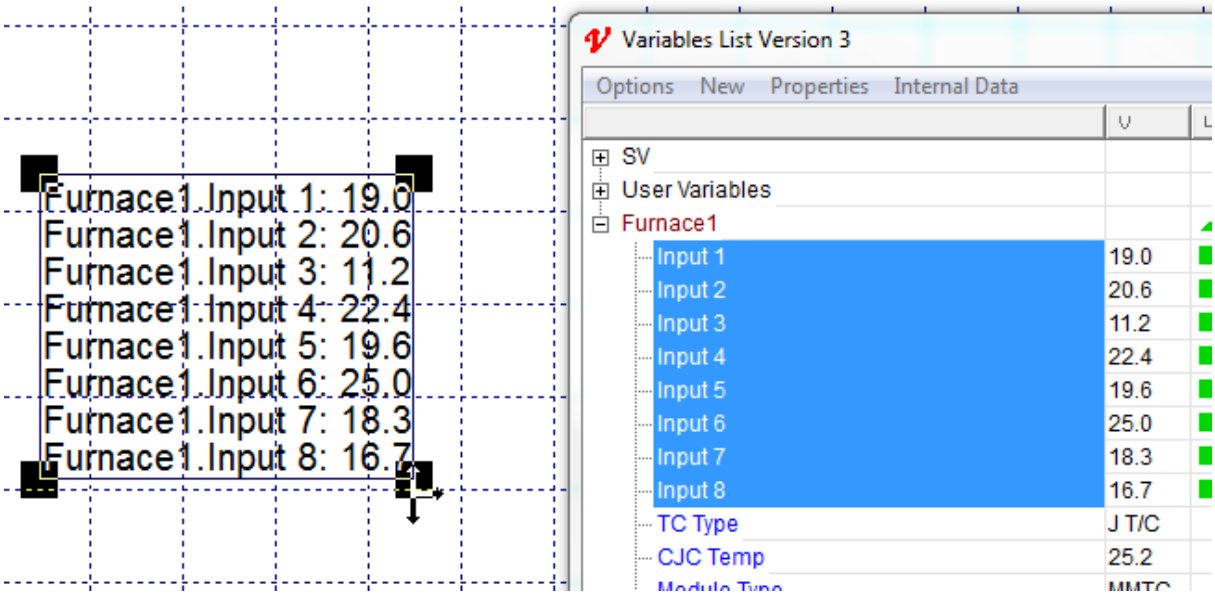
adding more values, otherwise they will all appear on top of each other.

2.Drag & Drop the variable from the Variables List to the required location on the GDW.

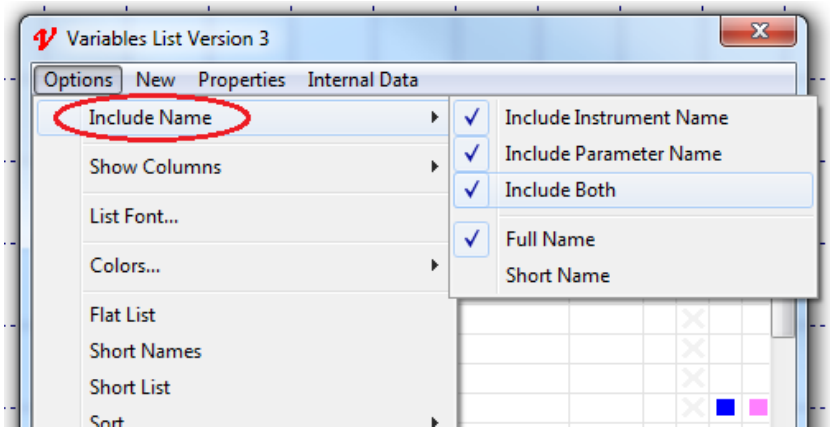
3.Multi-select and drag & drop multiple variables from the Variables List onto the GDW.

When a number of variables are multi-selected and dragged out onto the screen they are automatically in **Spread Mode** to assist when dragging out a number of variables for a table.
This is indicated by the large black square 'handles' around them. The 'handles' can be dragged to adjust the spacing, instead of just enlarging the font.
Any group of values can be put into **Spread Mode** by right clicking on the group and choosing **Spread Mode** from the popup menu.

Subsequent dragging will use the previous spacing, or use the **Reset Spacing** menu command from the **Options->Multi-Select** sub-menu.



To include the variables' name use the **Options->Include Name** menu:



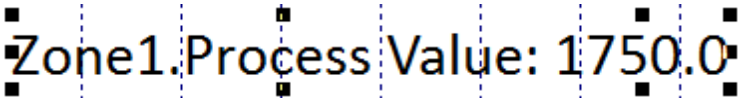
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If either **Options->Include Instrument Name** or **Options->Include Parameter Name** have been selected then:

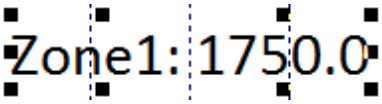
NOTE: This will mean that when a variable is first displayed on a GDW the name of the variable and its value will be separate objects with their own set of eight handles to show they are selected.
To move either of them drag from the middle of the object.
To move both of them together Group the name and value together using the 'G' or Group Tool



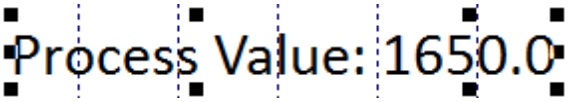
With both Instrument Name and Parameter Name:



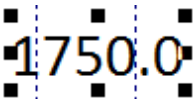
With just Instrument Name:



With just Parameter Name:

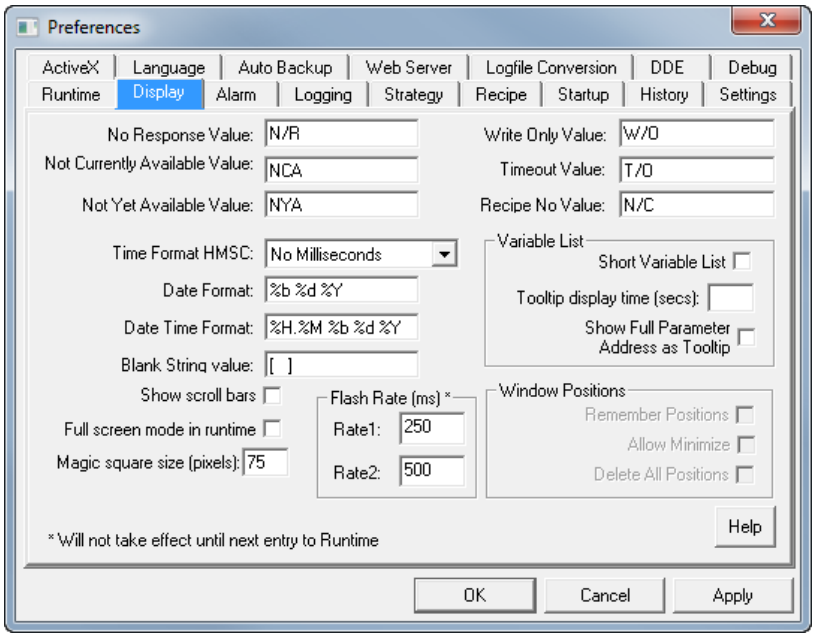


Without Name:



In either case if the value is not available (either because SpecView is in Edit Mode (Offline) or if the instrument isn't communicating for another reason) then the 'N/R' (No Response Value) will be shown. The 'N/R' (No Response Value) can be changed on the Display tab from the Preferences [461] menu command on the File menu:

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The text font and color are defined using the **Text Font** menu command on the Object menu[291]
For details on aligning text Text Justification[380]

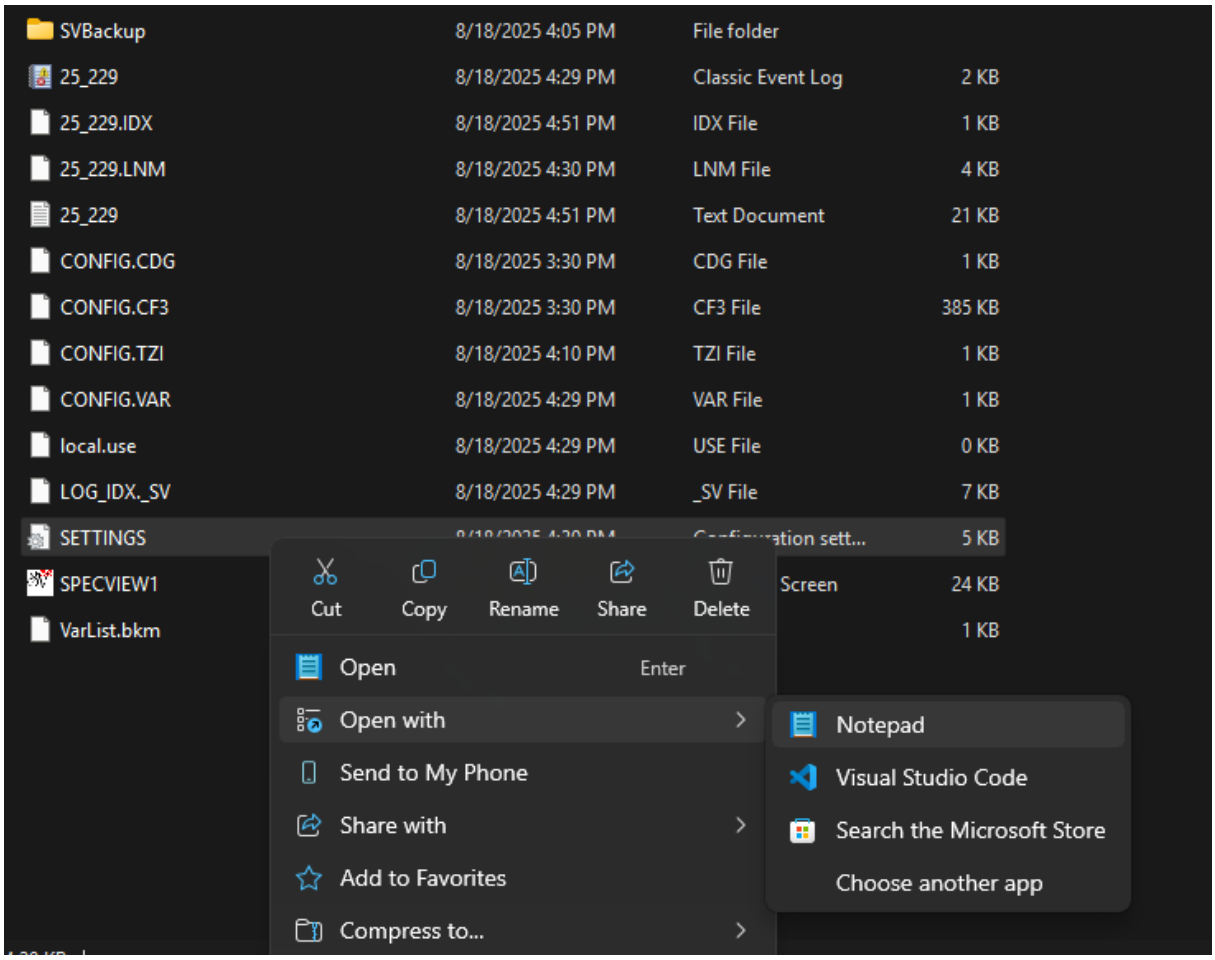
SpecView Version 3.1.259

Whenever placing instrument variables on a GDW[503], the values for the variables are requested from the instrumentation based on the order of when the variable was placed on the GDW.
For example, on a blank GDW[503], a user places first a Process Value variable and then a Set Point variable.
Assuming the Variables List[517] is closed and there is no Strategy Controller[666] involvement, then SpecView will request the appropriate instrument for the Process Variable value first and the Set Point value second.
This is because the user placed the Process variable on the GDW[503] first and the Set Point variable second.
Version 3.1.259[125] onwards, users have more flexibility in being able to control the order in which SpecView will request values on a GDW[503].
Users can have SpecView request for values on the left side of the screen first and fill in values from left to right.

This can be incredibly useful when dealing with large Recipe[637] screens that are displayed on smaller monitors.
SpecView can be programmed to populate values on the left side of the monitor first to enhance user experience.
Otherwise, SpecView will follow the default order of populating values, and it might seem disorienting for users.

1. Open the Project Folder[509].
2. Open the Settings.INI[512] file in Notepad by right clicking on the file and selecting Open with.

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3. Under the Runtime section, enter the following command, "*LeftToRightCommsOrdering=Y*".
4. Save the file using File > Save.

SpecView will now populate values from left to right on a screen.

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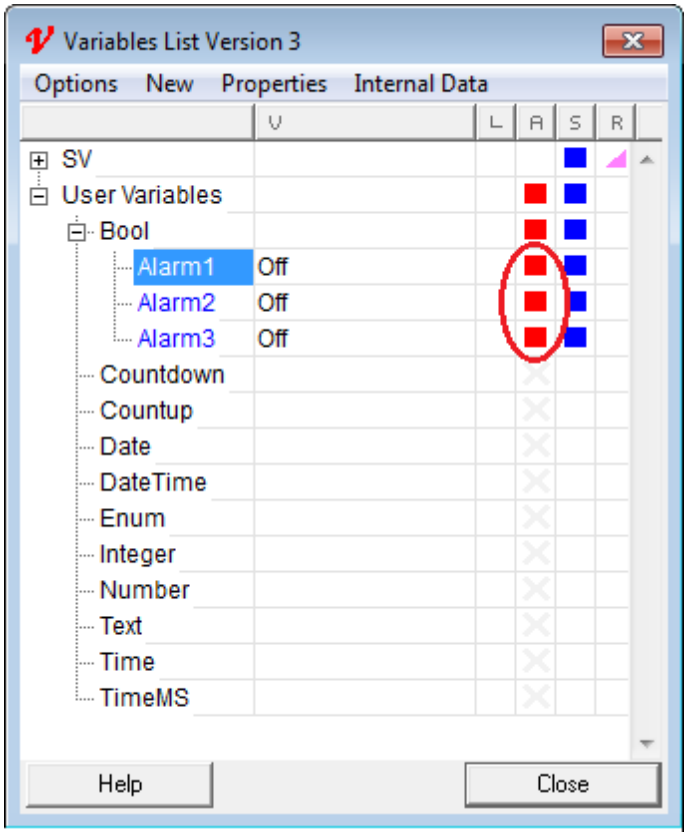
8.2.8 Alarms

An alarm is a status flag parameter within an instrument, which is typically set when a value goes beyond a Setpoint.

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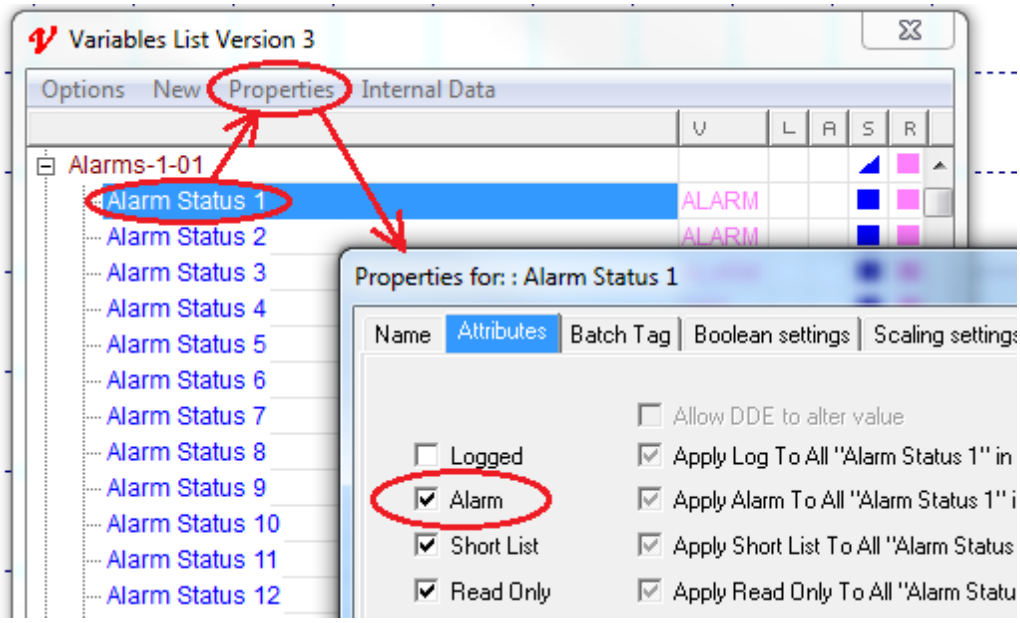
SpecView will display the Alarm box[262] and write an entry into the Alarm logfile[616] when an alarm status is received from an instrument.

SpecView Boolean User Variables[517] can also be set to be Alarms in the Variables List by double-clicking in the 'A' column for that variable:



Or alternatively, by selecting the boolean variable in the Variables List[313] and clicking the **Properties** button to display the Variable Properties[326] box and checking **Alarm** on the **Attributes tab**.

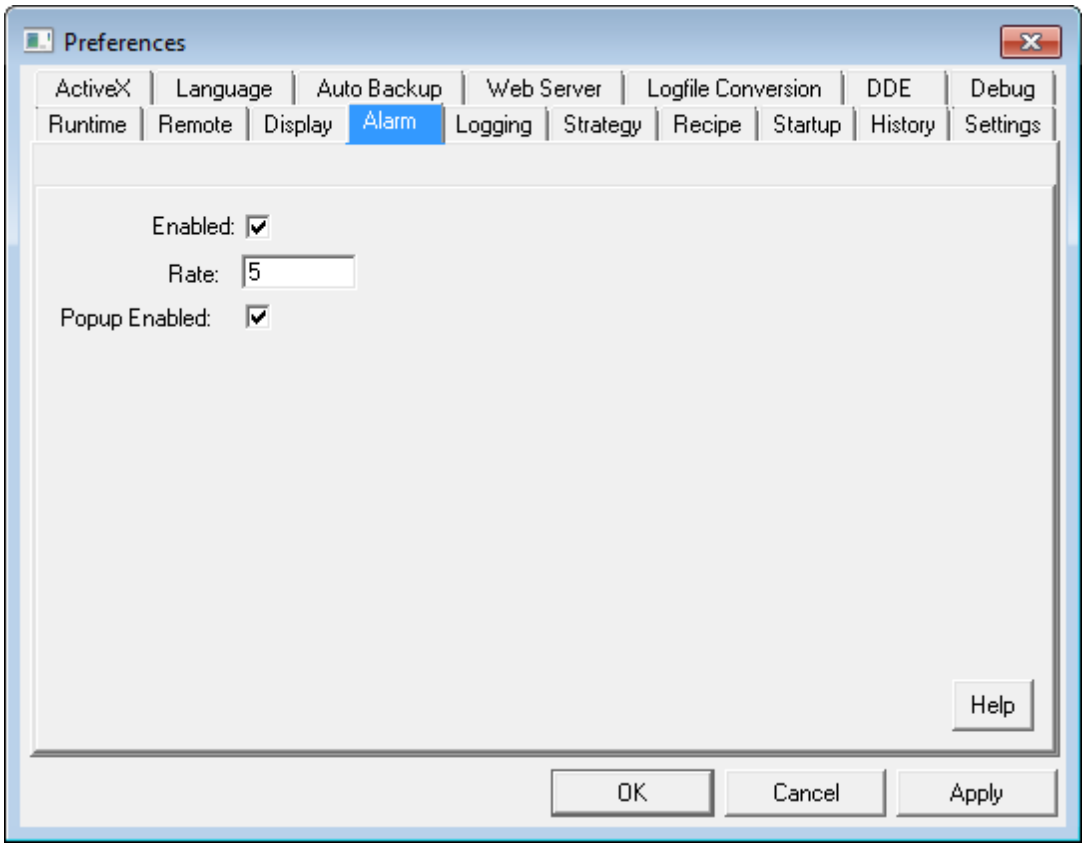
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Once an instrument parameter boolean or a Boolean User Variable has **Alarm** checked then SpecView will display the Alarm box [616] and write an entry into the Alarm logfile when this boolean variable becomes true (On).

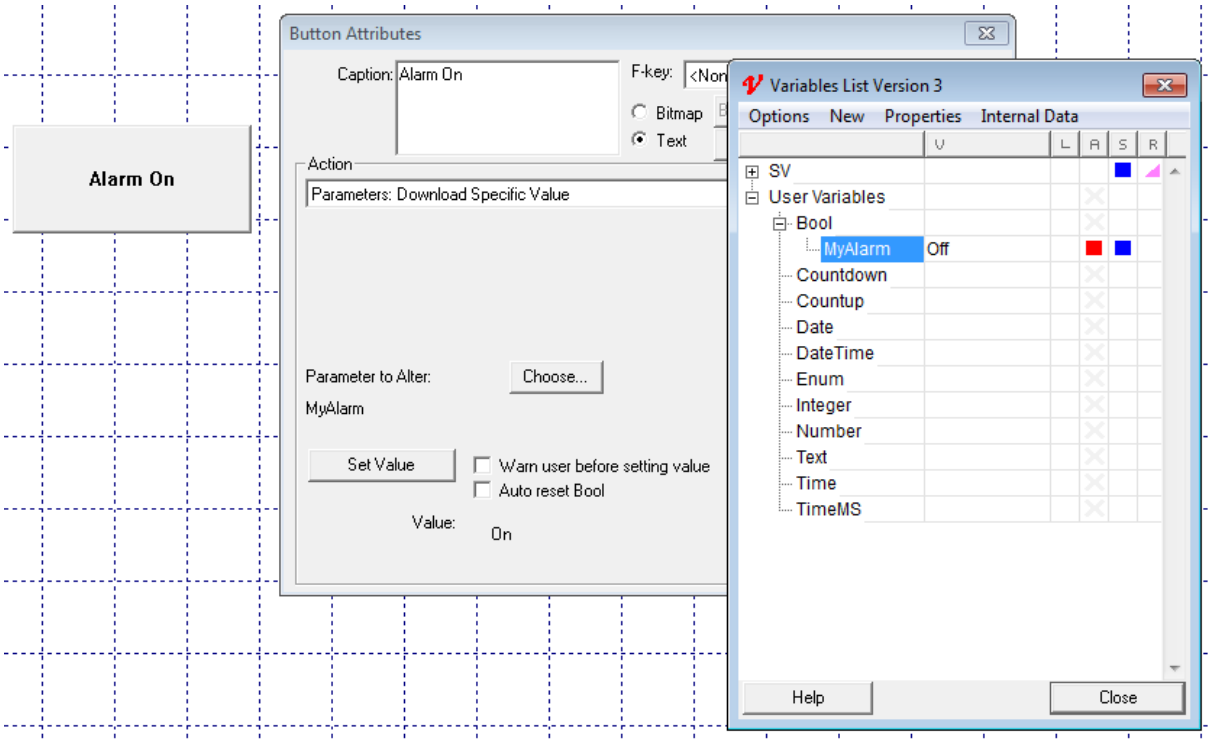
Alarms are configured using Preferences - Alarm [463]:

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In the same way as any other type of parameter - a button can be created to set an Alarm (which is just a Boolean with the **Alarm** attribute enabled):

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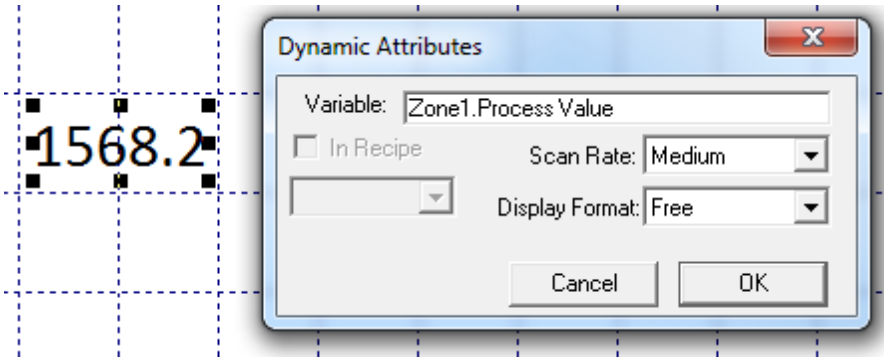
Or it can be set by a Strategy Controller[666] action.

To view the Alarm List[262] at any stage during Runtime, use either the **Alarm Window** menu command from the View menu[273] or create a button with the button action Alarms: Show Alarm List[406]

Using the Strategy Controller's Run External Program[447] it is possible to launch a program when an alarm occurs, for example, one which sends an email or SMS text msg to the operator's mobile phone, this is described in more detail in the User Guide[863].

8.2.9 Dynamic Attributes Box

This is accessed from the Dynamic Attributes menu command on the Edit menu[287].

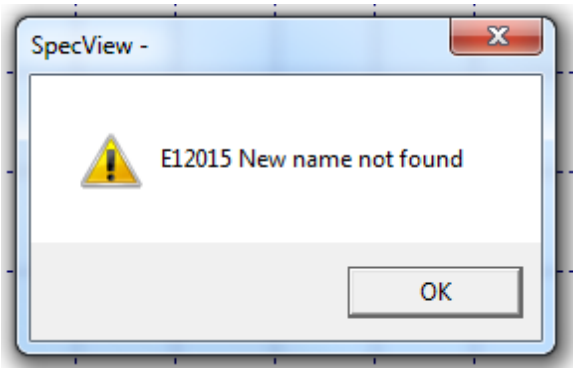


Dynamic Attributes - Variables
On a GDW values of variables have Dynamic Attributes, a Bar chart will also have the Dynamic

Attributes of the variable that it is associated with.

The Dynamic Attributes menu command on the Edit menu also allows for the setting of attributes from many objects in a selection (not a group). This allows quick changes of Recipe level or scan rate for a number of items.

Variable
The name of the variable in this box may be edited directly.
If the new name is not valid this box will appear:

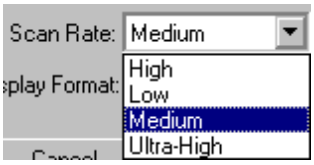


Check the exact spelling on the Variables List.

However, the preferable method for changing a variable's name is to use the Replace menu command on the Edit menu [287]. As this will change all references to this variable name on this GDW to the new name.

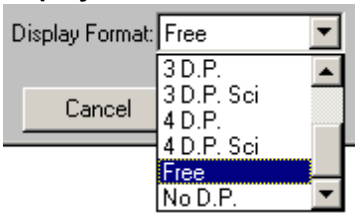
In Recipe / Level
In Recipe is checked if this variable is included in this GDW's Recipe [511] and can only be changed using the Recipe Mode [636]
The Level, can be changed and determines the ***order that the values will be sent to the instruments*** [651].

Scan Rate



Sets the rate SpecView gets the value from the instrument. Use this setting to change the rate at which the value of a variable is read over communications.
The times associated with the four settings are defined under the File Menu - Preferences [459]

Display Format



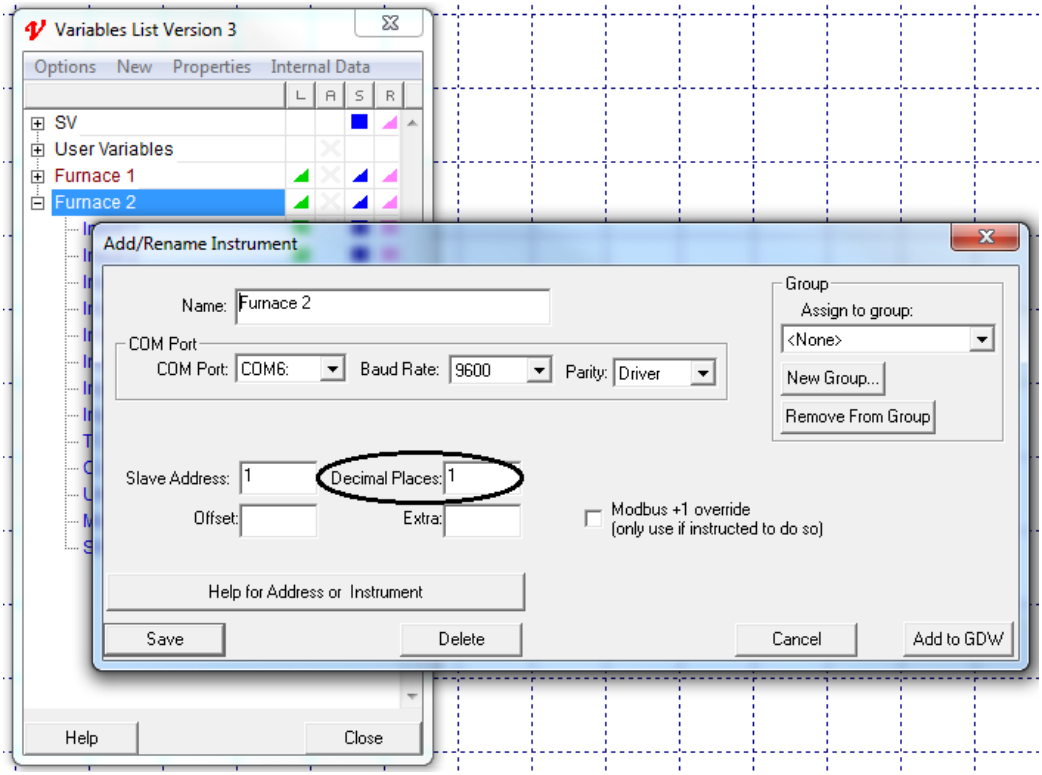
Sets the number of decimal places [496] used to display a numeric value on a GDW.
Free - means that the display will take the value reported by communications.

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D.P. Sci - means display in scientific format.
Hex - (Integers only) display in hexadecimal
Some examples are:

Process Value: 17.7
Process Value: 1.8E+001
Process Value: 1.77E+001
Process Value: 1.770E+001
SpecView.Integer1: 45
SpecView.Integer1: 2D

NOTE: Some instruments send data to SpecView with the correct number of decimal places identified. Others, such as Modbus, do not tell SpecView how many decimal places the variable has. Set the number of decimal places from the Variables List[313] Variable Properties (Add/Rename Instrument) box.



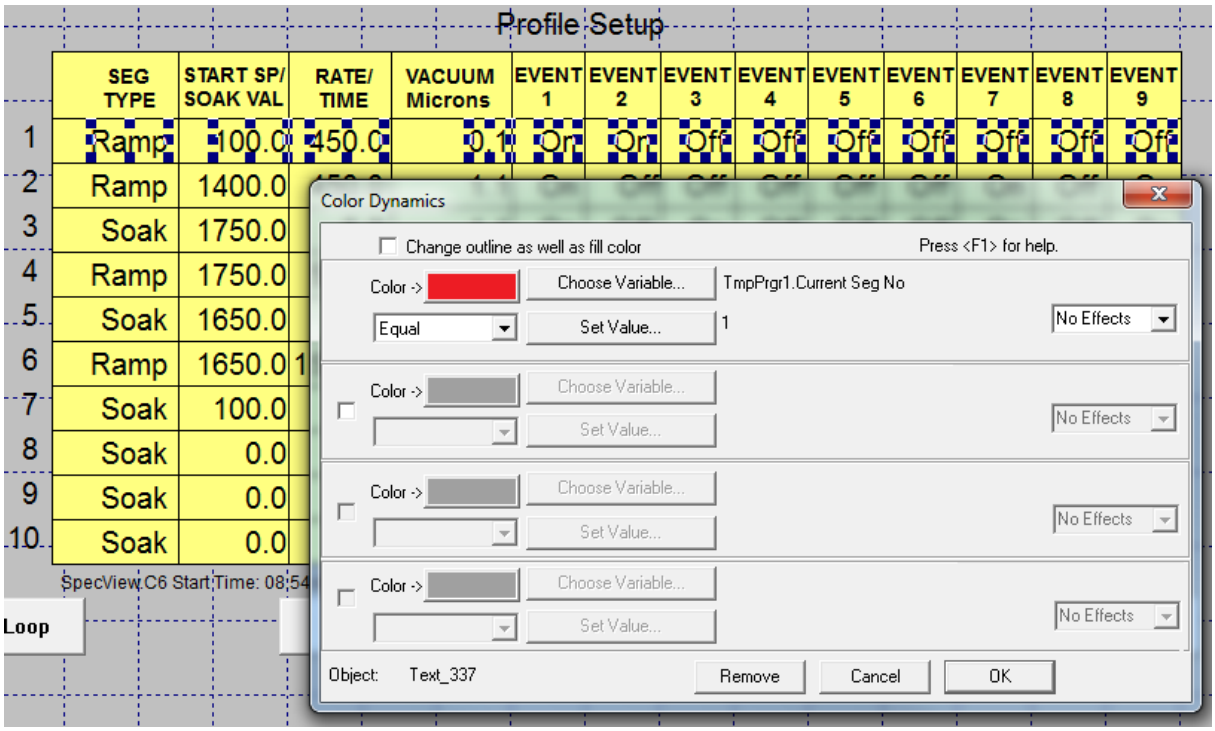
8.2.10 Color Dynamics

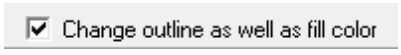
This box allows the color of objects to change based on values, these objects include:

- Value of a variable
- Button, buttons can also be 'disabled'[362].
- Graphical drawing object
- Grouped object

- Trend Charts, there are additional points to note regarding flashing and hiding [362] of charts.
- Bar Charts

These objects can also be made to hide or flash [361].





When this box is checked the outline color of the object will change to the selected color. Unchecked the outline color will stay the same.
Up to four color changes per variable can be specified so that with the default fill color a total of five colors are available.

NOTE: A different variable and test can be selected for each level. The last one defined will have priority over the others

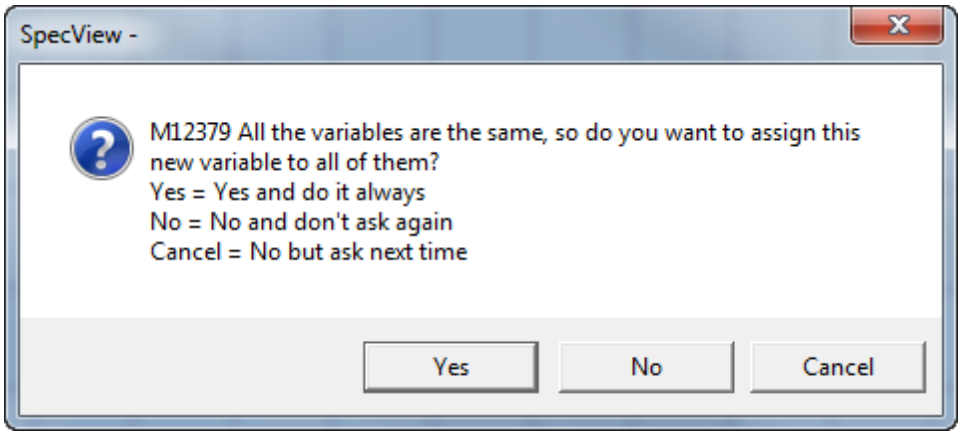
If the update rate of the Color Dynamics appears to be slow, then ensure that the actual value of a variable is on an open screen. This will ensure that the value, and hence the Color Dynamic, is regularly updated.

It is also a good idea to ensure that the items on the screen which have Color Dynamics are not Grouped [374] together with other items.

Be aware that if editing an object that has Color Dynamics whilst in 'Edit Mode (Online)' where the Color Dynamics has changed its color then clicking OK on your changes will save that color.

If a number of objects are selected which currently all have the same Color Dynamics, and then another variable is dropped into the Color Dynamics setup box then a message is displayed that allows the new variable to replace the existing variable throughout:

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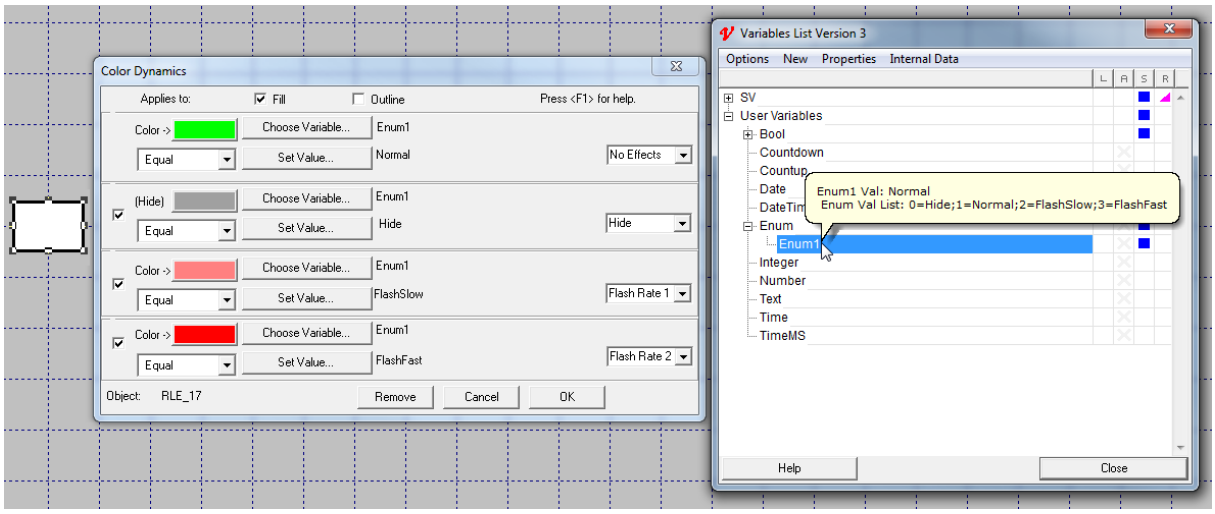


If the button clicked is either 'Yes' or 'No' then it is stored in the [Settings] section of SETTINGS.INI[512]
ColorDynamicsSameReplace=Yes
To reset it exit SpecView and delete this line.

Flashing and Hiding

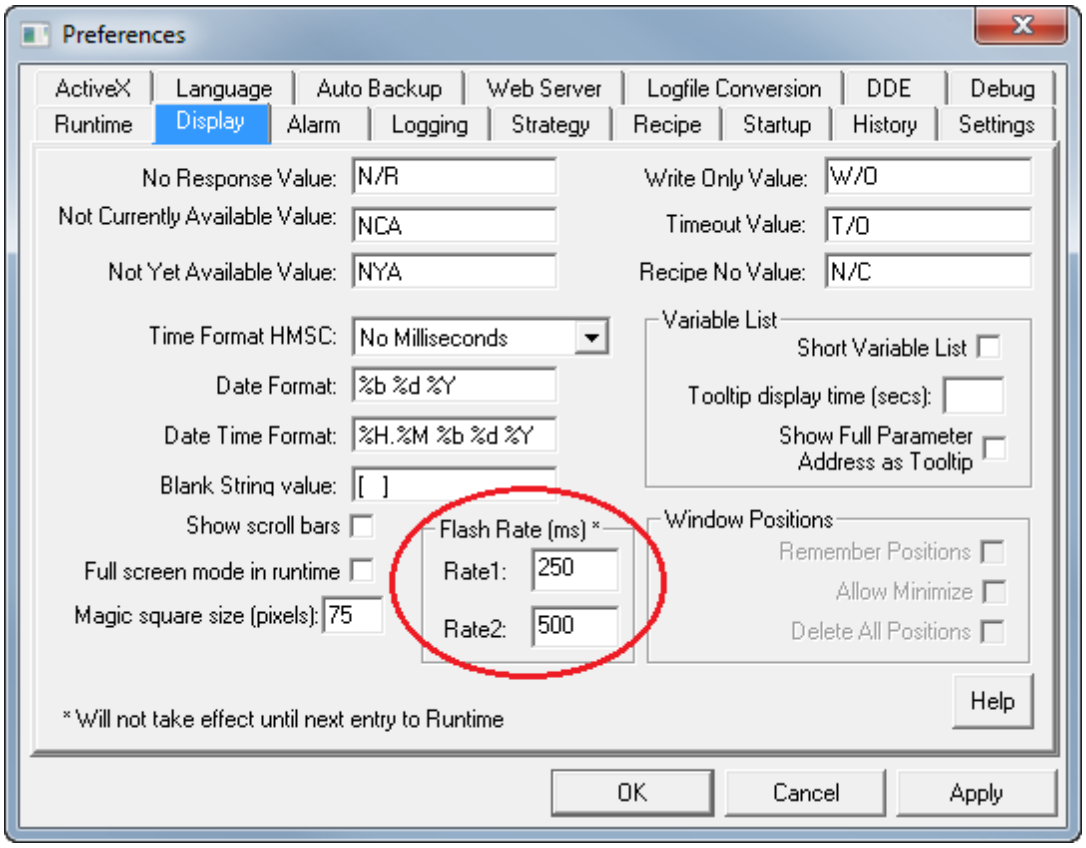
It is possible to use Color Dynamics to cause objects to flash or to be hidden. Buttons can also be disabled[362] using this.

This is done using the drop-down on the right of the Color Dynamics setup box that has 4 choices: **No Effects, Hide, Flash Rate 1 and Flash Rate 2**.
'Hide' is done by making the object (and the outline of the object) the same color as the background. Hence it is not possible to choose the color when 'Hide' is selected.



The flashing rates (**Rate1** and **Rate2**) are specified on **File->Preferences - Display**:

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By default **Rate1** is 250ms and **Rate2** is 500ms - but **Rate2** doesn't necessarily have to be greater than **Rate1**.

To make 2 objects flash alternately like railway crossing lights set **Rate1** to 500 and **Rate2** to -500. Then set one of the objects to flash at **Rate1** and the other to **Rate2** and they will flash alternately.

It is not recommended to use flashing rates of less than 250ms (a quarter of a second) as this will significantly slow the system.
It is possible (but not recommended) to use rates as fast as 100ms (a tenth of a second), but rates faster than 100ms will be forced back to 100ms.

Flashing and Disabling buttons:
Buttons can be made to change color or flash as described above, in addition they can be disabled (not clickable) using Color Dynamics.
When disabling buttons a color change still needs to be specified so that when the test succeeds, the color of the button is changed to that specified and the button is then disabled.
However, if SETTINGS.INI [Settings] HideButtonToBackground=Y is specified then the color is overridden to the color of the screen background. 'N' is the default - meaning that the color specified in the color dynamic is the color used.

Flashing and Hiding Trend Charts:
Trend Charts can be made to hide or flash like any other object on a GDW.
Be aware that making Trend Charts flash, especially if multiple charts are flashing, may affect performance as it is CPU intensive.

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Also, making a trend chart flash at the same rate as a pen line [535] is set to blink would mean that the pen line would not be visible.
However, Position Dynamics [363] cannot be used to move Trend Charts. But using Color Dynamics to hide a chart can be used instead to make a chart seem to have been moved.

For flashing the **Outline** and **Fill** checkboxes are used to specify the color:

Outline - is the outer edge of the Trend Chart.
Fill - is the surround of the Trend Chart.

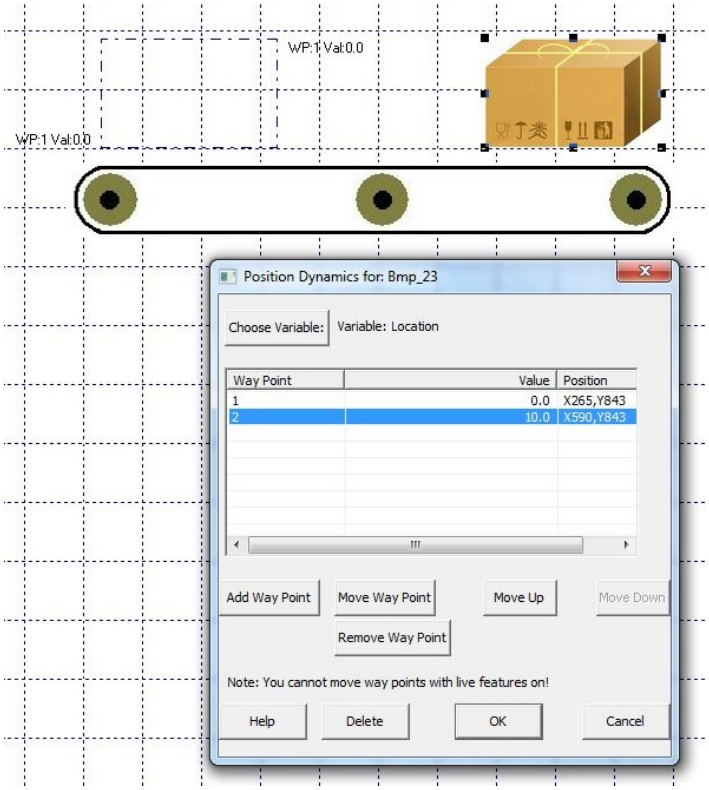
For hiding, because the color is irrelevant, the **Outline** and **Fill** and checkboxes are ignored.

8.2.11 Position Dynamics

Position Dynamics allows objects on the screen to be positioned according to the value of a variable, this is useful for animation of an object.

For example: a fan spinning or an object disappearing, etc.

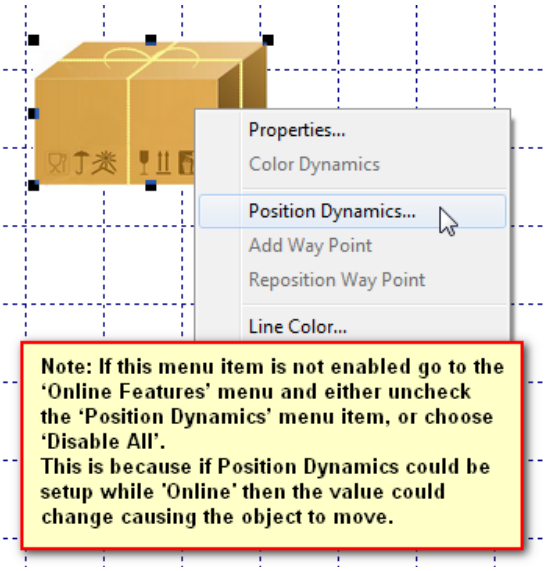
Or the progress of a product along a conveyor belt, as shown here:



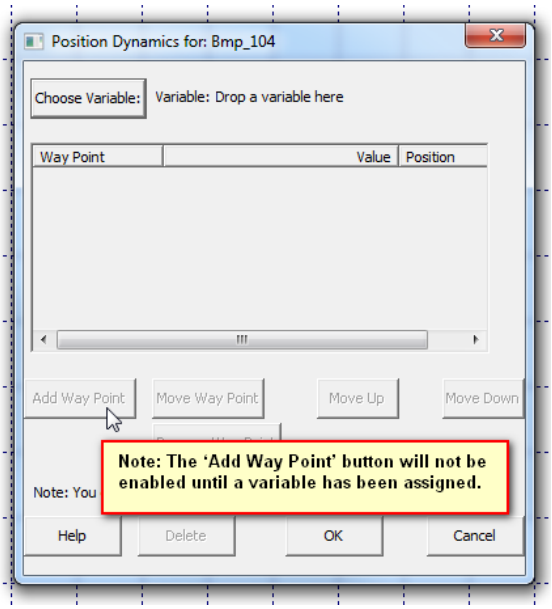
To setup Position Dynamics, for example: a carton on a conveyor belt, follow these steps:

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-From 'Edit Mode' put the object on the screen (in this example, a bitmap of a carton) and select it.
-Either choose 'Position Dynamics' from the Edit menu or right-click and choose 'Position Dynamics' from the popup menu.



-Drag and drop the variable, from the Variables List, this will be used to determine the position of the object.

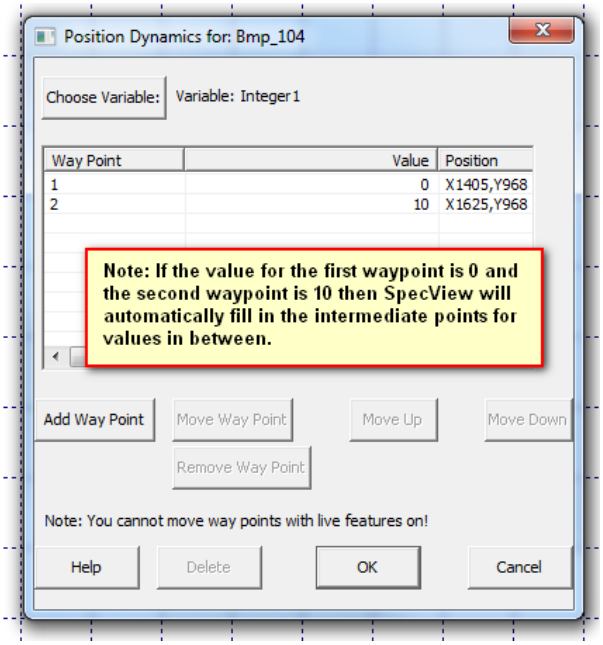


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-If the object is not in the first position then move it there by dragging, and click the 'Add Waypoint' button and enter the value for the first position into the Value cell. This will mean that when the variable has this value the object will be positioned at this location.

-Move the object to the next position required for the next waypoint and click 'Add Waypoint' and enter the Value in the cell for that position.
Etc…

-When all waypoints have been entered it is possible to verify them by clicking on each waypoint in the list in turn and see the position of the highlight change. When finished, click OK.



Once the object has the waypoints set then if the variable is an Instrument variable then when that value changes the object will move according to the waypoints.
If the variable used is a SpecView User Variable then the Strategy Controller will need to be used to change the value as required.

Position Dynamics can be setup on the following types of objects:

- Lines
- Rectangles
- Rounded rectangles
- Ellipses
- Polygons
- Bitmaps
- Text items
- Buttons
- Bar charts
- ActiveX controls
- Groups of objects
- OLE objects

However, Position Dynamics cannot be used on Trend Charts, use the Hide[361] feature in Color Dynamics instead.

The types of variable that can be used to determine the position of an object in Position Dynamics are:

- Booleans - these are good for 'On/Off' or 'disappear/appear' etc.
- Integers – these can be used for multiple positions
- Numbers
- Countdown timers
- Countup timers
- Enums
- Text items
- Dates

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Times
TimeMSs

The **Choose Variable** button re-opens the Variables List box, this is because while the Position Dynamics box is being displayed the main SpecView toolbar & menubar to access the Variables List are disabled.

Add Waypoint and **Remove Waypoint** buttons add or remove a waypoint.

Move Waypoint button – Click on a waypoint in the list to select it, then move the object to its new position and click 'Move Waypoint' to set that position as the waypoint.
Move Up and **Move Down** buttons changes the order of the waypoints in the list. The order of the waypoints is immaterial to the Position Dynamics, but having them in a logical order just makes it clearer to the user.

Note: It is not possible to setup waypoints when Online in Edit Mode, this is because if Position Dynamics could be setup while Online then the value could change causing the object to move unexpectedly. Therefore on the **Online Features** menu the **Position Dynamics** menu item should be unchecked.

8.2.12 Insert New Object

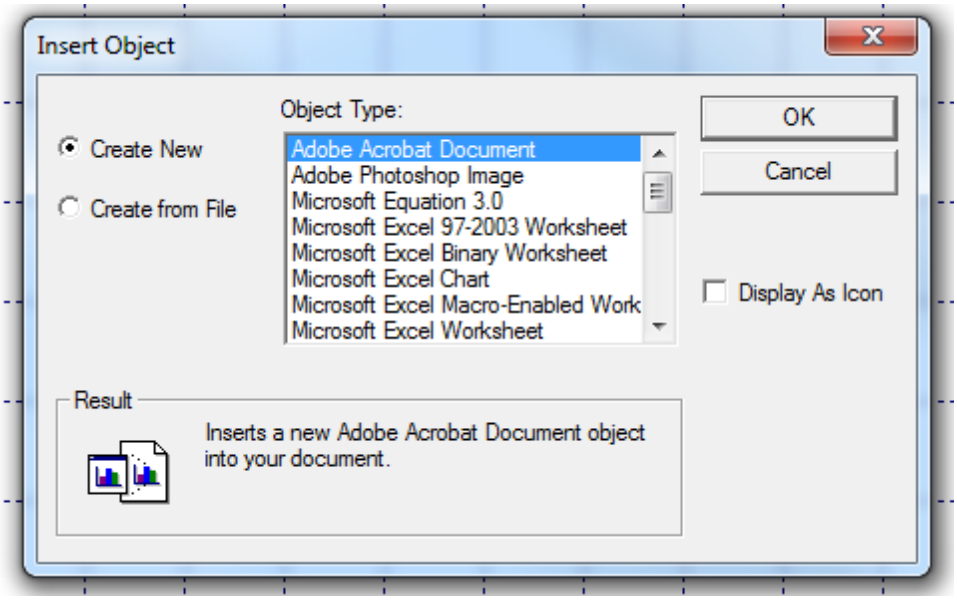
Accessed from the **Insert New Windows Object** menu command on the Edit menu [287].

NOTE: Use this command with caution. SpecView can only offer limited support as it uses features of Windows which are outside our control. This command has been known to cause problems with SpecView. Make a backup [193] of your project before proceeding. It is particularly recommended NOT to use this for inserting bitmaps.

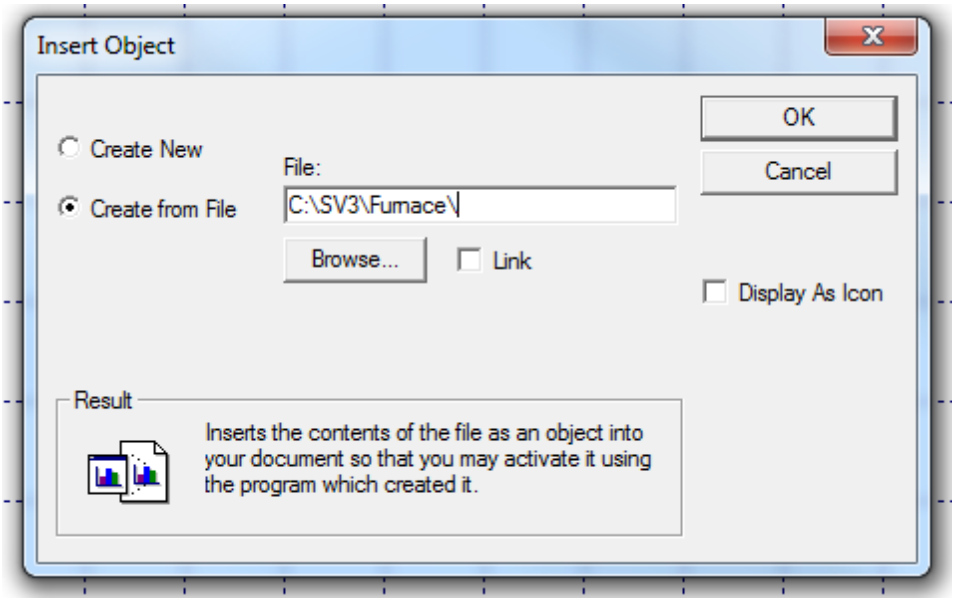
Use the  ***tool instead.***

SpecView does not allow you to access another program using this feature in Runtime Mode so it should be primarily used for graphics objects.

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This will insert a new object from another Windows program into the GDW.
The box below inserts an existing object.



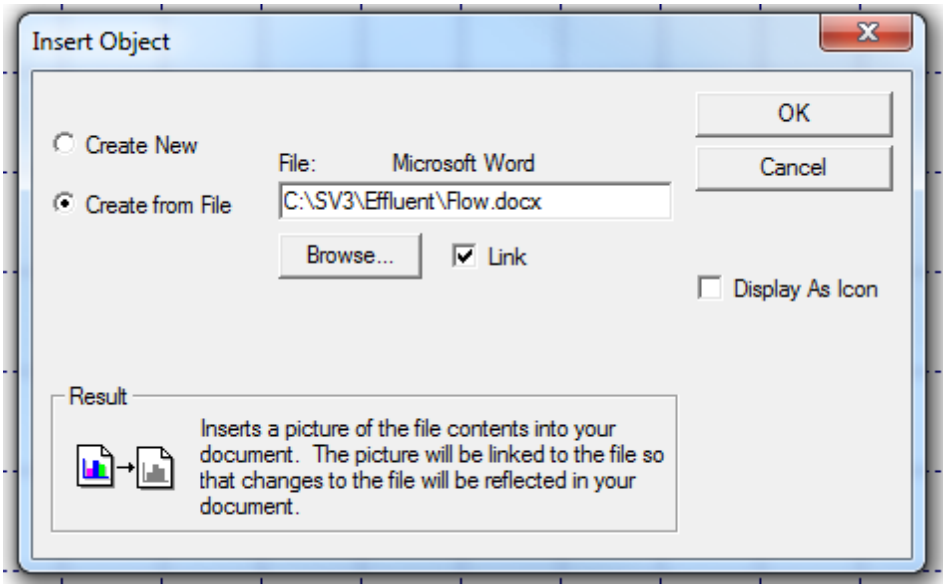
8.2.13 Edit Links

Accessed from the **Links** menu command on the Edit menu [287].

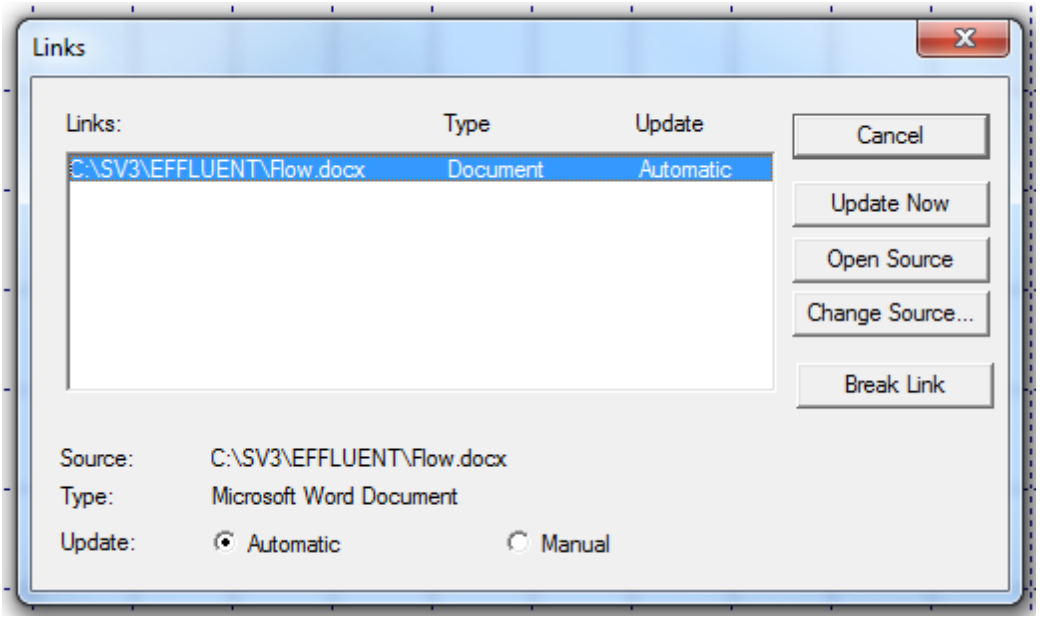
NOTE: Use this command with caution. SpecView can only offer limited support as it use features of Windows which are outside our control. This command has been known to cause problems with SpecView. Make a backup [193] of your project before proceeding

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This menu command will only be enabled if the Link checkbox was checked when inserting an object using Insert New Windows Object [366] on the Edit menu. The Windows object (for example a Word document) would then be linked to the actual document, such that should it be updated then the one shown in SpecView would be updated too.



The Links command on the Edit menu shows the Windows objects that have been linked to:



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8.2.14 Quick List Setup

The Quick List is a method of marking particularly important parameters/variables from ALL instruments and User Variables in the Variables List, such that their values can be easily accessed and modified from Runtime Mode [251].

The Quick List is opened in Edit Mode [282] by clicking the  on the toolbar, which also opens the Variables List [517].

Drag & drop variables from the Variables List into the Quick List.

Drag & drop within the Quick List to change the order of the variables.

There is only one Quick List, but the Quick List can contain variables from any instrument and any User Variables.

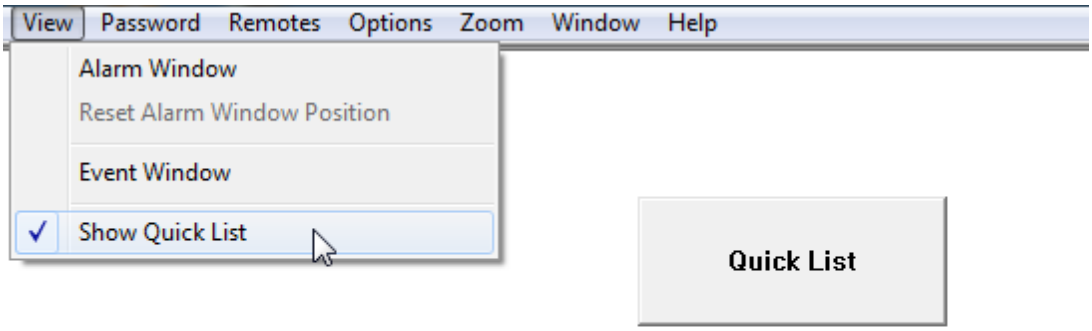
When passwords [703] are enabled access to the Quick List can be restricted.

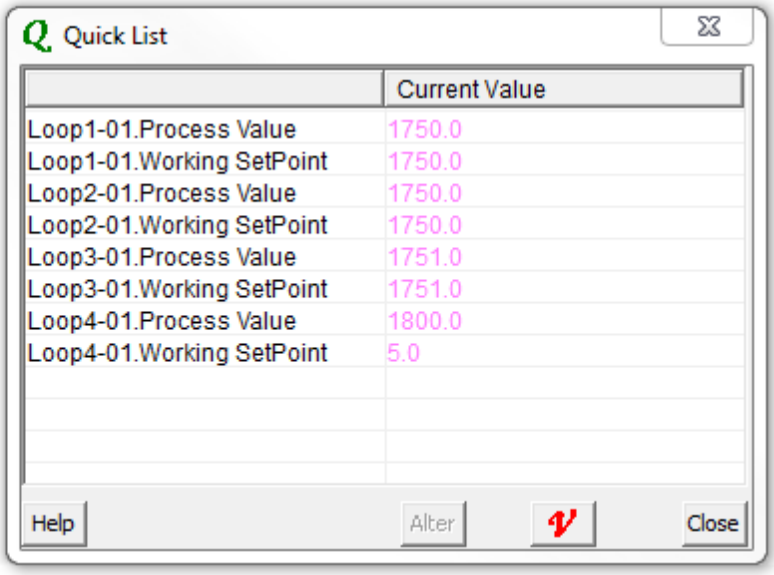
If **Screen Values** is checked on the Online Features [307] menu:

- Live values can be seen in the Quick List in Edit Mode.
- Writeable values can be changed by clicking the **Alter** button. The **Alter** button is disabled if the variable is read-only.

The Quick List can be viewed from **Runtime Mode** from the **View menu**.
There is also a Button Attribute and Strategy Controller Action [443] to invoke the Quick List List from **Runtime Mode**.

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If the Quick List window has been dragged off the screen such that it now can't be seen then its position can be reset using Preferences - Settings [467] from the File menu.

See also: Quick List in Runtime Mode [266]

8.2.15 Remember Window Positions

This is to display screens (GDWs) at specific coordinates, which can be useful when using multiple monitors.

See File->Preferences Display tab [461].

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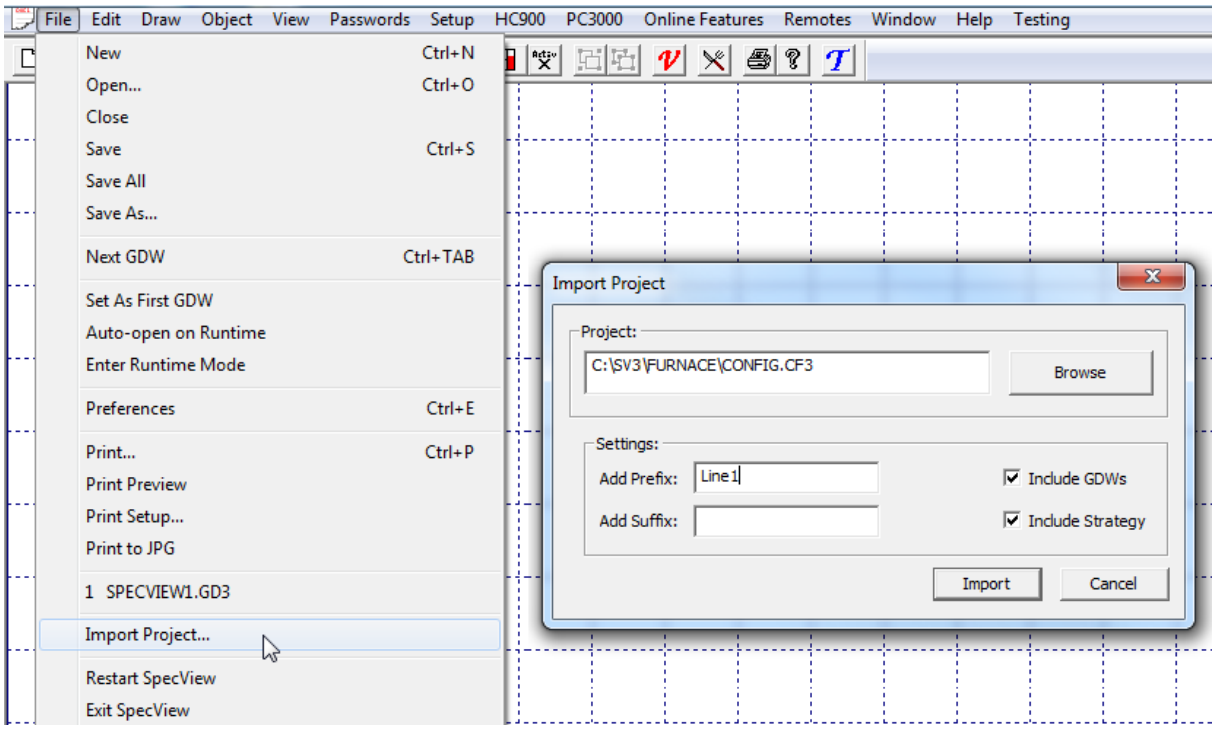
8.2.16 Import Project

This allows one project to be imported into another, possibly creating duplicates objects/screens in the process.
Duplicates can be handled by adding a prefix/suffix at the time of import, or by deleting the unwanted duplicates after the import.

This is useful for example; if there is a project with one furnace defined, with its associated Strategy. Then a project with any number of furnaces can be created by repeatedly importing the single furnace project the required number of times.

Another scenario could be that there is an elaborate screen layout in another project that needs to be added to an existing project.

To import a project open one of the projects in Edit Mode (Offline). From the File menu choose **Import Project** and browse to the project's CONFIG.CF3



A prefix or suffix can be added so that any duplicates are uniquely named.

The import process will automatically make a backup of the project.

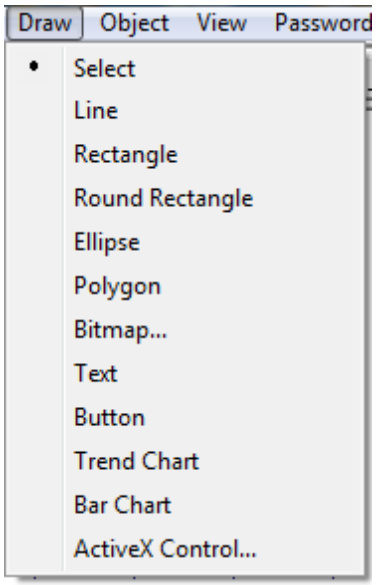
The resultant project will contain everything from both projects: Variables, Screens (GDWs) and Strategy.
However, no log files from the imported project will be included.

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8.3 Drawing Basics

The Draw menu and Tools are accessed from the Edit Mode menubar.
They are used to draw graphics on a GDW
You can also add Bitmaps [379] (.bmp files) to a GDW.

Menu:



Toolbar:



Select [377]
Line [377]
Rectangle [377]
Round Rectangle [378]
Ellipse [378]
Polygon [378]
Bitmap [379]
Text [380]
Button [384]
Trend Chart [382]
Bar Chart [383]
ActiveX [766]

SpecView uses most standard Windows rules for drawing:
Selecting, Grouping and Saving Objects [374]
Shape Properties [375]
Selecting objects in front or behind others [376]
Quick Copying of Drawing Objects [376]

NOTE: Do not use Cut, Copy and Paste (or Ctrl Copy) to move or duplicate objects that have variables. This includes Instrument Views, Trend and Bar Charts.

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Click the tool for the type of object you want

The pointer will change to  OR  OR  OR  OR  depending on the tool
Click on the screen (and HOLD DOWN THE MOUSE BUTTON) where you want the top left part of the object, and drag the mouse down and to the right.
Release the mouse button when you have the size you want.

NOTE: The POLYGON[378] tool follows different rules from lines, rectangles etc.

The cursor does not automatically change back to the pointer  after you draw the object. Use the:
Left mouse button to draw another object OR
The Right Mouse Button to get the normal pointer OR

Click the Select Tool  on the toolbar

Hold the Shift key when drawing to:

- Snap lines to vertical, horizontal etc.
- Snap rectangles to squares
- Snap ellipses to circles

NOTE: Once drawn use the Handles to adjust the object

- Use the corner ones to resize with the same aspect ratio
- Use the corner ones *while pressing the Shift key* to change the aspect ratio
- Use the side ones to adjust width/height

Drawing an Arc
To draw an arc, first draw an ellipse[378] of the required diameter, then use the polygon[378] tool to trace the part of the circle you require, then delete the circle.

Positioning and object
Use the mouse to drag an object to position it, OR use the cursor keys to nudge the object by one pixel OR hold the Shift key down while using the cursor keys to jump by one grid position.
(The size of the grid is set using **Set Grid Sizes** on the View Menu[295])
Objects can be locked[385] in position if required, to avoid them being unintentionally moved.

Color Changing
Objects can be made to change color, or flash or be hidden using Color Dynamics[359].

Moving an object automatically
Objects can be made to move automatically according to the value of another variable using Position Dynamics[363].

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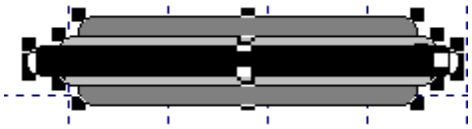
8.3.1 Selecting, Grouping, Moving and Saving Objects

Use the Select Tool [377]  OR the right mouse button to get the standard pointer
Click an object to select it
To select (or de-select) multiple objects press and hold the Shift or Ctrl key and click the object(s)
OR
Ring the selection by clicking on the background away from any object and drag the mouse while holding down the mouse button.
All objects within or touched by the dotted rectangle will be selected.

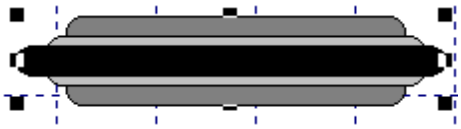
NOTE: Each object is contained within a box, even objects like diagonal lines. Touching the object means touching this box. Beware of accidentally selecting object that were not intended to be included.

When more than one object has been selected they may be Grouped using the **Object Menu - Group** or the Group tool on the toolbar  or press 'G' on the keyboard.
Note: Keyboard shortcuts (such as clicking 'G') will not work if there are ActiveX controls on the screen, this is because of possible ambiguity with keyboard inputs to the ActiveX control itself.

All objects Selected:



After Grouping:



Objects in front/behind others [376]

Grouped objects may be saved (as GDO [503] files) and reused with the Save Object and Load Object menu commands on the Object Menu [291]

UnGrouping Objects:

Select the group and use **Object Menu - UnGroup** or the UnGroup tool on the toolbar

 or press 'U' on the keyboard.

Moving Objects:

Cursor keys can be used to nudge objects, or multiple selected objects, or groups [504] of objects on a screen (GDW) by one pixel, this is very useful when aligning objects by eye.

Dragging an object on the screen using the mouse, or holding the **SHIFT** key down while using the

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cursor keys, will make the object jump by one grid increment, whichever grid size is active at the time. The position of the object relative to the grid will be preserved.

The grid sizes are specified using **Set Grid Sizes** on the View menu[295] and the grid size to be used is selected by choosing **Toggle Grid Lines** from the View menu or pressing CTRL-G to cycle through them.

To align an object with the grid use **Object->Align->Realign To Grid**.
To nudge an object by one pixel regardless of the grid, use the **cursor** keys on the keyboard (without the SHIFT key).

To move multiple objects on a GDW without grouping[504], ring the selection then hold the SHIFT key down and deselect one of the objects, keep the SHIFT key held down and click again on the same object to drag all the selected objects.

Objects can be locked[385] to prevent them being moved unintentionally.

Copying and Pasting of Objects:

Objects on a screen (GDW) can be copied & pasted or cut & pasted without losing their associations with parameters or variables or Dynamic/Color Attributes.
and will work while Live Values are enabled from the **Online Features** menu.

Copy and paste can be done using the Edit menu, or by using CTRL-C CTRL-V to copy & paste or CTRL-X CTRL-V to cut and paste.

To make a clone of an object on the screen hold both the SHIFT and CTRL keys when clicking. However, clones of objects will NOT retain their associations with parameters or variables or Dynamic/Color Attributes.

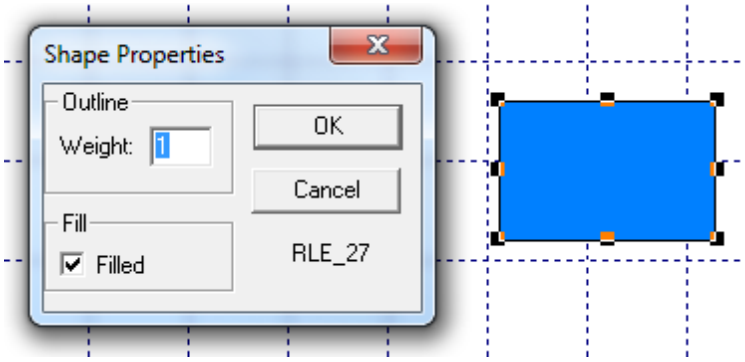
Note that the word 'group[504]' has 2 meanings in SpecView:
1. When objects are grouped together on the GDW so they can be moved all together, as described above.
2. When instruments and/or parameters and/or variables are grouped together into a named logical group[341] within the Variables List[313].

Note: Neither the delete key nor the cursor keys will not work when an ActiveX[766] control is on the screen. This is because of uncertainty as to whether these keys are being used within the ActiveX control, or on items on the SpecView screen.

8.3.2 Shape Properties

Double-clicking on an object OR right-clicking and choosing **Properties** will bring up the **Shape Properties** box

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Outline Weight changes the line thickness of the border where 0 = No Border
Check the **Filled** box to fill the object with the currently selected **Fill Color.**
To change the color use the Fill Color menu item on the the Object Menu [291]

NOTE: With no Fill, the object is transparent - you can see objects underneath.

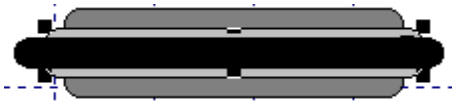
To mask objects, fill the object with the Screen Color (which is set from the View Menu [295])

8.3.3 Objects in front / behind others

Objects can be arranged in layers, one on top of another. If an object is masked by another, then it will need to be moved out of the way.

The easiest way to do this is to select the one that is in the way and then use **Move to Back** or **Move Back** from the Object menu, which will reveal the one behind.

However, an alternative way to select the object(s) underneath is to click the top object *WITHOUT MOVING THE MOUSE* click again. The object underneath will be selected *even though you might not be able to see it.* (If you hold the mouse button and drag, the object underneath will move)
Subsequent clicks without moving the mouse selects successive layers down.
This shows the second object selected:



Objects can be locked [385] to prevent them being moved unintentionally.

8.3.4 Quick Copying of Drawing Objects

To make a copy of an object (or Group of objects):
1. Press and hold both the Shift and Ctrl keys
2. Left-click the object and drag the mouse

A copy of the selected object will be made.

To copy an object between GDW's use either:

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- The Edit menu (Cut, Copy, Paste) OR
- Ctrl-X (Cut), Ctrl-C (Copy), Ctrl-V (Paste) OR
- Use the **Save SpecView Object** or **Load SpecView Object** menu items from the Object menu [291]

8.3.5 Select Tool

Use the Select menu command from the Draw menu [289] OR click 
Go to Drawing Basics for general instructions [372]

Selects the normal Pointer (or Cursor) and de-selects any drawing tool.

NOTE: The right mouse button has the same action as this function. It is a useful and quick way to de-select a drawing tool. Try drawing a rectangle and then click the right mouse button.

Click an object to select it.



Eight Handles show that the object is selected.
Moving the pointer to one of the handles allows you to re-size the object.

8.3.6 Line Drawing Tool

Use the **Line** menu item from the Draw Menu [289] OR click the Line tool  on the toolbar.
Go to Drawing Basics for general instructions [372]

The cursor changes to + Click and hold the left mouse button, then drag the line to the desired length and direction. Click the right mouse button when you have drawn all the objects you want.
Press and hold the shift key to snap the line to the nearest multiple of 15 degree angles
Use the Ctrl Copy [376] feature to make exact copies of the object
Double-Click the object to edit the Shape Properties [375]

8.3.7 Rectangle Drawing Tool

Use the **Rectangle** menu item from the Draw Menu [289] OR click the Rectangle tool  on the toolbar

Go to Drawing Basics for general instructions [372]

The cursor changes to + Click and hold the left mouse button, then drag the rectangle to the desired

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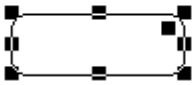
size. Click the right mouse button when you have drawn all the objects you want.
Press and hold the shift key to snap to a square.
Use the Ctrl Copy [376] feature to make exact copies of the object
Double-Click the object to edit the Shape Properties [375]

8.3.8 Round Rectangle Drawing Tool

Use the **Round Rectangle** menu item from the Draw Menu [289] OR click the Round Rectangle tool  on the toolbar

Go to Drawing Basics for general instructions [372]

The cursor changes to + Click and hold the left mouse button, then drag the rectangle to the desired size. Click the right mouse button when you have drawn all the objects you want.
Press and hold the shift key to snap to a square

 Use the extra Handle in the top right corner to change the radius of the corners
Use the Ctrl Copy [376] feature to make exact copies of the object
Double-Click the object to edit the Shape Properties [375]

8.3.9 Ellipse Drawing Tool

Use the **Ellipse** menu item from the Draw Menu [289] OR click the Ellipse tool  on the toolbar

Go to Drawing Basics for general instructions [372]

The cursor changes to + Click and hold the left mouse button, then drag the ellipse to the desired size. Click the right mouse button when you have drawn all the objects you want.
Press and hold the shift key to snap to a circle
Use the Ctrl Copy [376] feature to make exact copies of the object
Double-Click the object to edit the Shape Properties [375]

8.3.10 Polygon Drawing Tool

Use the **Polygon** menu item from the Draw Menu [289] OR click the Polygon tool  on the toolbar

Go to Drawing Basics for general instructions [372]

NOTE: This tool uses different rules from the other drawing tools.

1. At the start point of the polygon click and release the mouse button.
2. Move the mouse to the next apex and click and release again.
3. Repeat for the all the apexes.
4. To finish the polygon EITHER double-click the left button OR click the right button or press the Esc key.

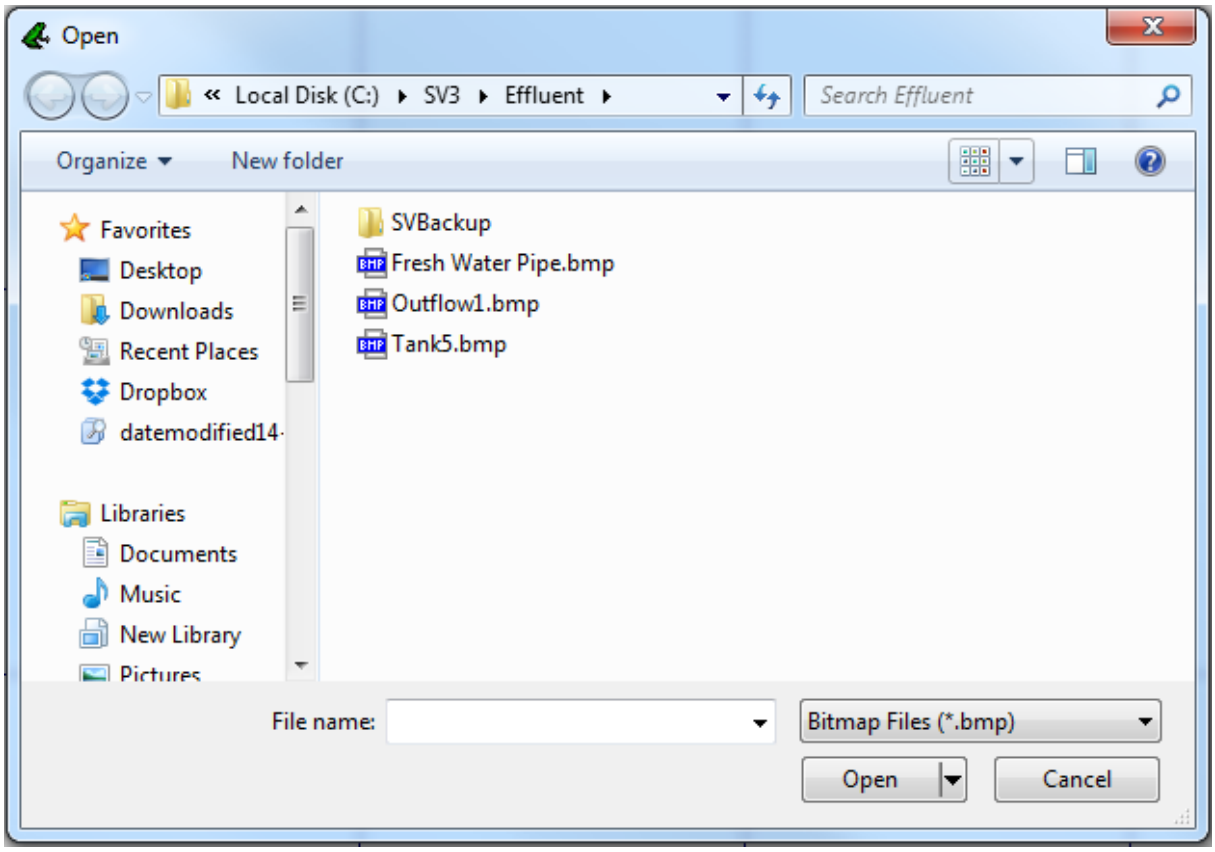
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Polygons may be re-sized by clicking on an apex and dragging the mouse
Use the Ctrl Copy [376] feature to make exact copies of the object
Double-Click the object to edit the Shape Properties [375]

8.3.11 Bitmaps on a GDW

Use the **Bitmap** menu item from the Draw Menu [289] OR click the Bitmap tool  on the toolbar

Go to Drawing Basics for general instructions [372]



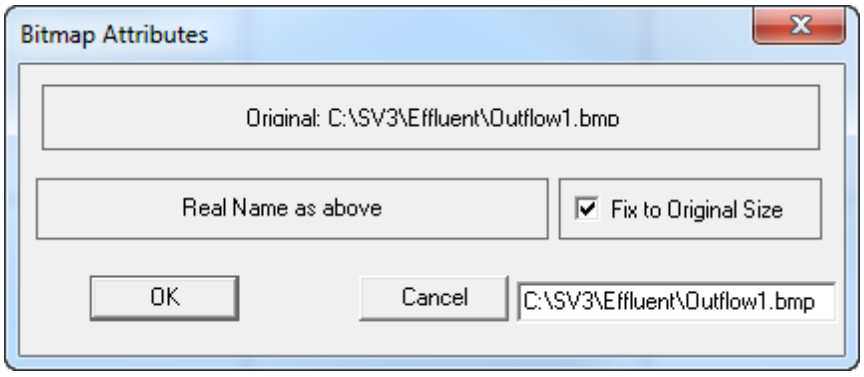
Locate the bitmap file and click **OK** and the bitmap will appear on the GDW
Double-Click the bitmap to edit its Properties [379]

8.3.12 Bitmap Properties

To see the **Bitmap Properties** (also known as Bitmap Attributes) box right-click on the bitmap and choose **Properties**.

NOTE: Some video cards are known to have problems sizing bitmaps so SpecView Bitmaps are fixed to their original size by default

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Uncheck **Fix to Original Size** then click **OK**, the bitmap can now be re-sized.

8.3.13 Text on a GDW

Use the **Text** menu item from the Draw Menu [289] OR click the Text tool  on the toolbar

Use this command to put fixed text on a GDW (so the text is NOT editable in Runtime Mode)
(To put editable text on a GDW use a SpecView Text User Variable [319])

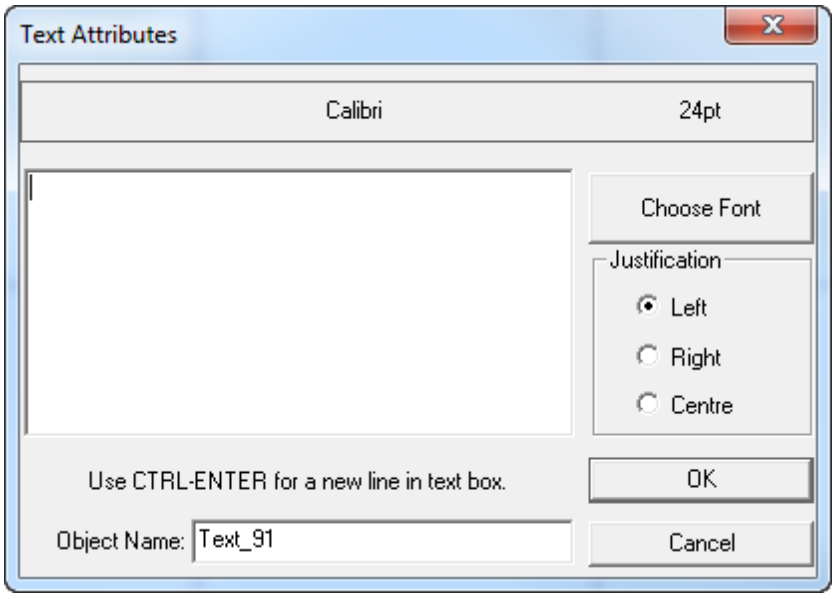
Go to Drawing Basics for general instructions [372]

The cursor changes to  . Click on the GDW where you want the text and the Text Attributes [380] box will appear
Click the right mouse button when you have added all the text objects you want.
Use the Ctrl Copy [376] feature to make exact copies of the object.
Double-Click the object to edit the Text Attributes [380]

8.3.14 Text Properties

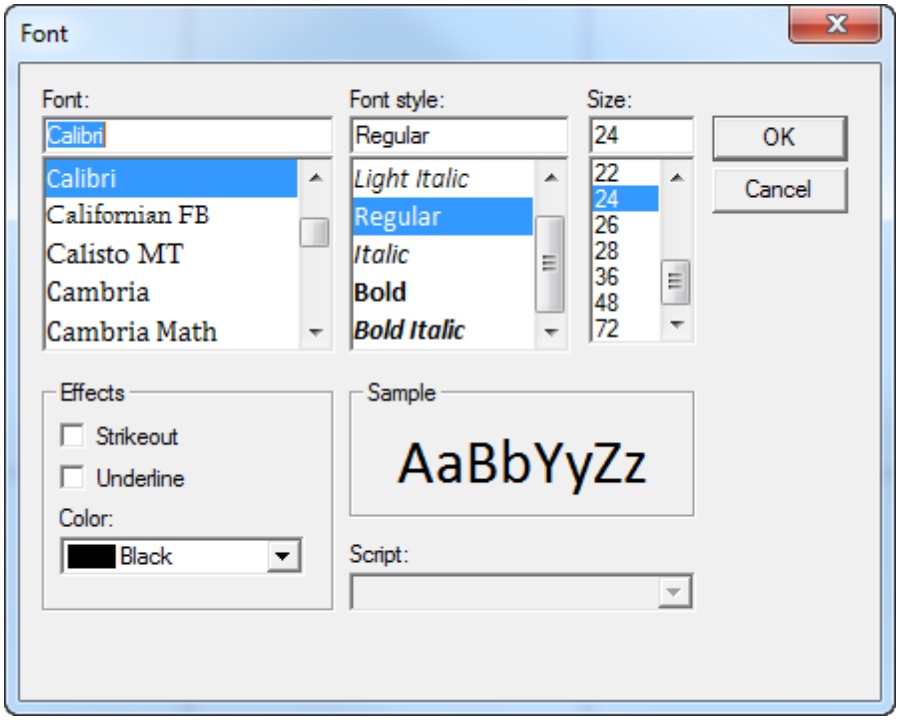
To see the **Text Properties** (also known as Text Attributes) box right-click on the text and choose **Properties**.

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Text Item
Enter the text you want to appear on the GDW.
To enter a new line hold down the CTRL key while pressing the Enter key.
To enter an ampersand '&' enter two ampersands '&&', so 'Gadgets & Widgets' should be typed 'Gadgets && Widgets'.

Choose Font
Selects the font for THIS text. To change the font for ALL text you are going to put on the GDW, use Text Font on the Object Menu [291]



Choose the Font, Style, Size and Color

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Justification
Align the text for best appearance:

Left Justified	Center Justified	Right Justified
Text aligned to the left	Text aligned to the center	Text aligned to the right

NOTE: Numeric Values added to a GDW that INCLUDE the name are LEFT justified. Numeric Values added to a GDW that DO NOT include the name are RIGHT justified

Object Name - Text
This information is for SpecView diagnostic purposes only

Windows Font Scaling
Windows has the concept of font scaling in order to make existing applications useable on very high resolution screens. Without font scaling their user interfaces would be too small to be useable.

The font scaling percentage is set via the Display settings in the Windows Control Panel. This can be accessed quickly by right-clicking on the Desktop and choosing Display. The font scaling could be set to, for example, 150% which would enlarge the fonts by one-and-a-half times.

The effect of font scaling means that when choosing a font the point size of the font will not be the value chosen. SpecView displays the font in the text font box as it will look when it is used.

8.3.15 Trend Chart Drawing Tool

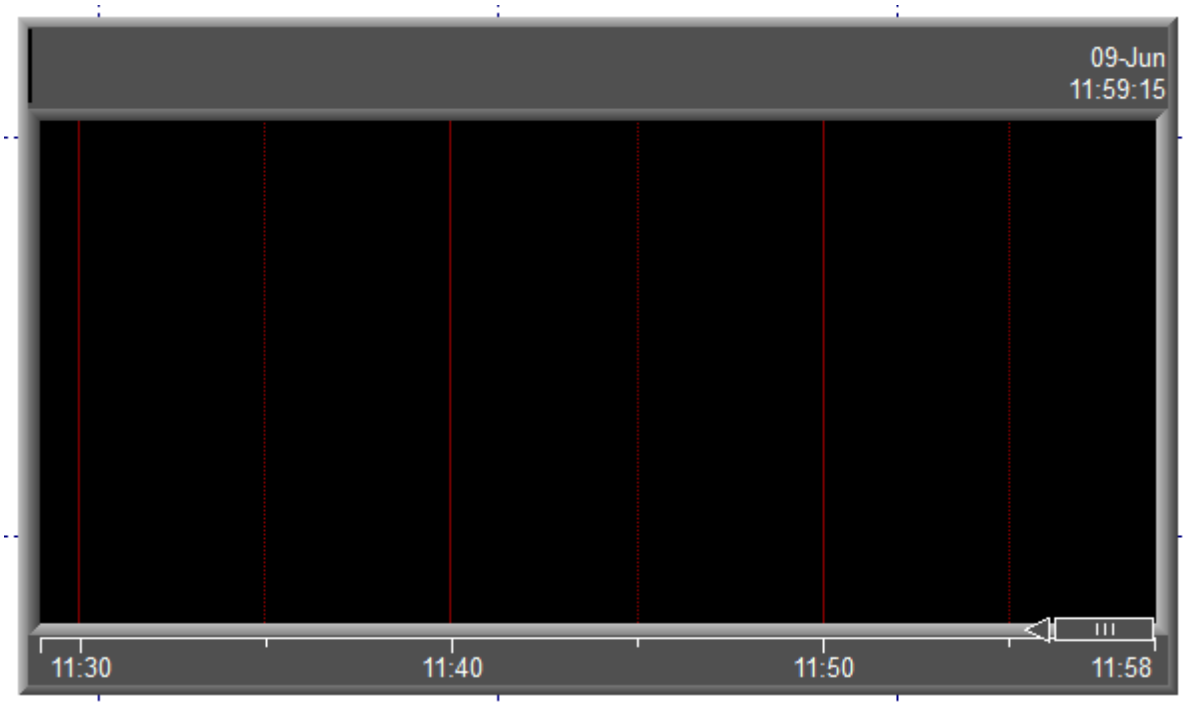
Trend charts graph (or plot) variables with respect to time.
Use the **Trend Chart** menu item from the Draw Menu 289 OR click the Trend Chart tool

 on the toolbar

Go to Drawing Basics for general instructions 372

After clicking the tool the cursor changes to 
Use the tool as you would to draw a rectangle. As you move the mouse the Trend chart appears:

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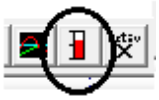


When you release the mouse button the Trend Chart Properties [397] box and the Variables List [313] are displayed. Use these to set up the Trend chart.

For further information:

Setting up Trend Charts [523]
Using Trend charts in Runtime Mode [528]

8.3.16 Bar Chart Drawing Tool

Use the **Bar Chart** menu item from the Draw Menu [289] OR click the Bar Chart tool  on the toolbar

Go to Drawing Basics for general instructions [372]



After clicking the tool the cursor changes to
Use the tool as you would to draw a rectangle.

When you release the mouse button the Bar Chart Setup [397] box and the Variables List [313] are displayed. Use these to set up the Bar chart.

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8.3.17 Buttons - Drawing on a GDW

Use the **Buttons** menu item from the Draw Menu [289] OR click the Buttons tool  on the toolbar

Go to Drawing Basics for general instructions [372]
Buttons are used for specific actions such as switching to another screen (GDW), controlling Recipes and starting other programs.

The cursor changes to + Click and hold the left mouse button, then drag the button to the desired size.
Click the right mouse button when you have drawn all the buttons you want.
Double-Click the button to edit the Button Attributes [403]

Once the Button Attributes have been defined the button can be made to change color on an event using Color Dynamics [359]

Buttons can also have multi-line text, different fonts or bitmaps on them.

To enter an ampersand '&' enter two ampersands '&&', so 'Gadgets & Widgets' should be typed 'Gadgets && Widgets'.

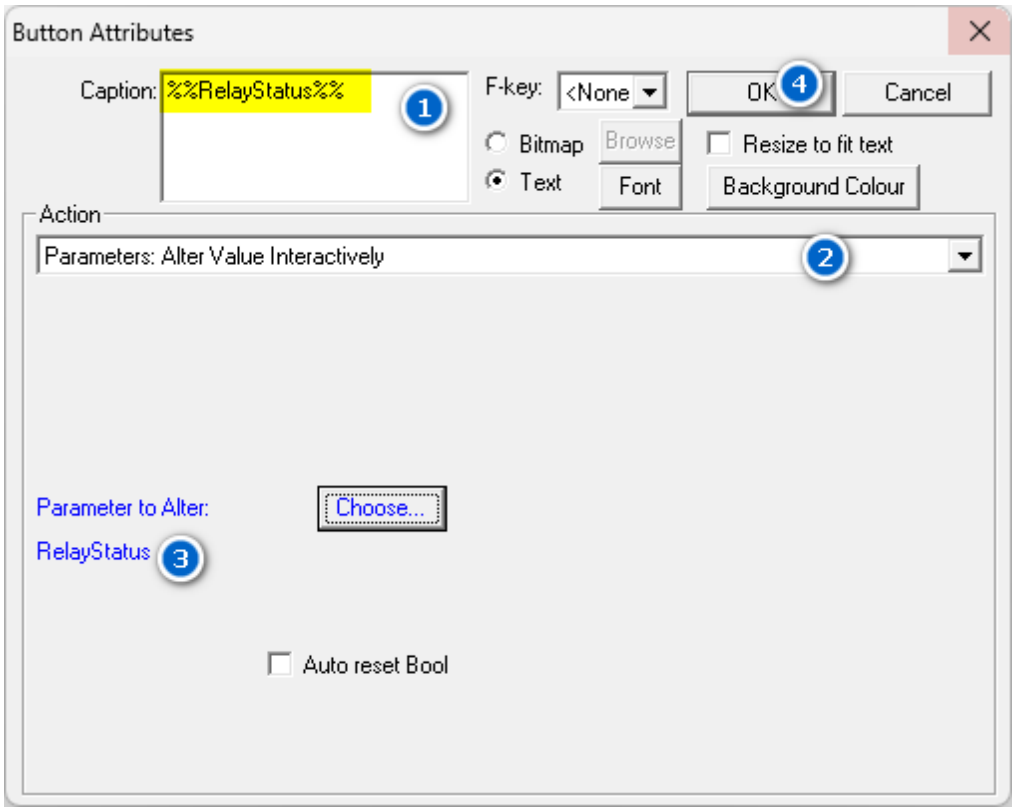
SpecView 3.1.265

As of SpecView 3.1.265 [124], SpecView buttons can display live variable values.
To display live variable values, enter the appropriate Variable Substitution String [517] in the Caption area of the Button Attributes [403] box.

Example

A user wants to display the state of a Boolean variable on a button that toggles the Boolean variable On and Off.
The full name of the Boolean variable is RelayStatus.

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1. In the Button Attributes box, write the full name of the variable as a Variable Substitution String[517]. In this case it was *%%RelayStatus%%*.
2. Select the appropriate Button Attribute[403] from the drop down menu.
3. Choose the appropriate variable from the Variables List[517].
   This step might be optional based on what Button Attribute[403] was selected in Step 2.
4. Click on OK.

The button caption will display On or Off depending on the status of the variable.

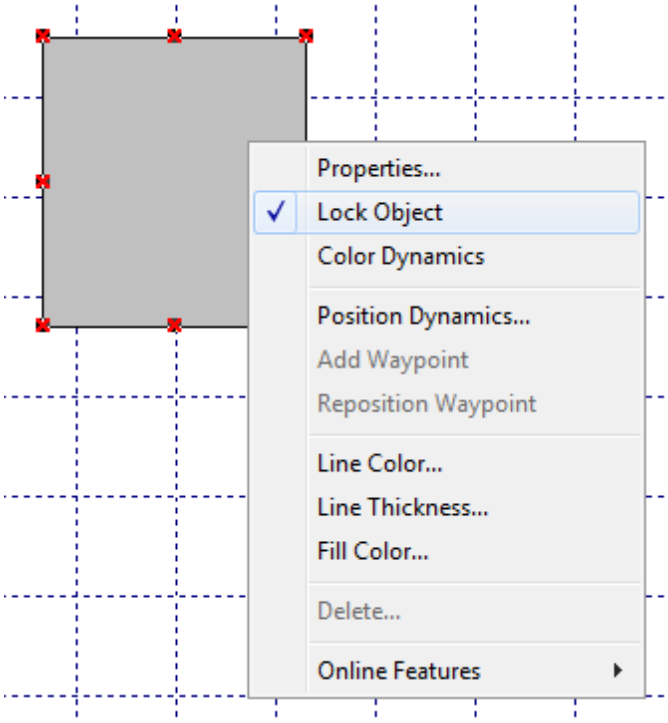
8.3.18 Locking Objects

Objects can be locked onto the screen (GDW) to prevent them from being unintentionally moved using the cursor.

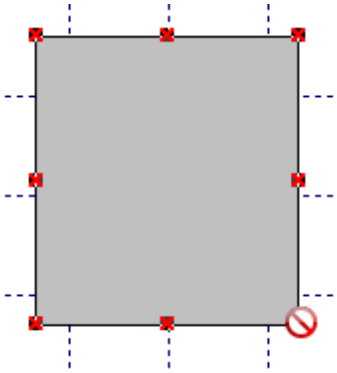
This is particularly helpful if a background graphic is being used when it is easy to inadvertently click on it and move it.

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To lock an object right-click and choose **Lock Object** from the popup menu:



Once an object is locked the handles will change to red and the 'No Entry' cursor will be displayed if an attempt is made to use the handles.



However, the cursor keys can still be used to nudge selected object(s) one pixel at a time (or while holding the SHIFT key down jump one grid increment) as described here 374.

Also, using the **Move To Front**; **Move To Back**; **Move Forward**; **Move Back** menu items from the Object menu 291 will also continue to function.

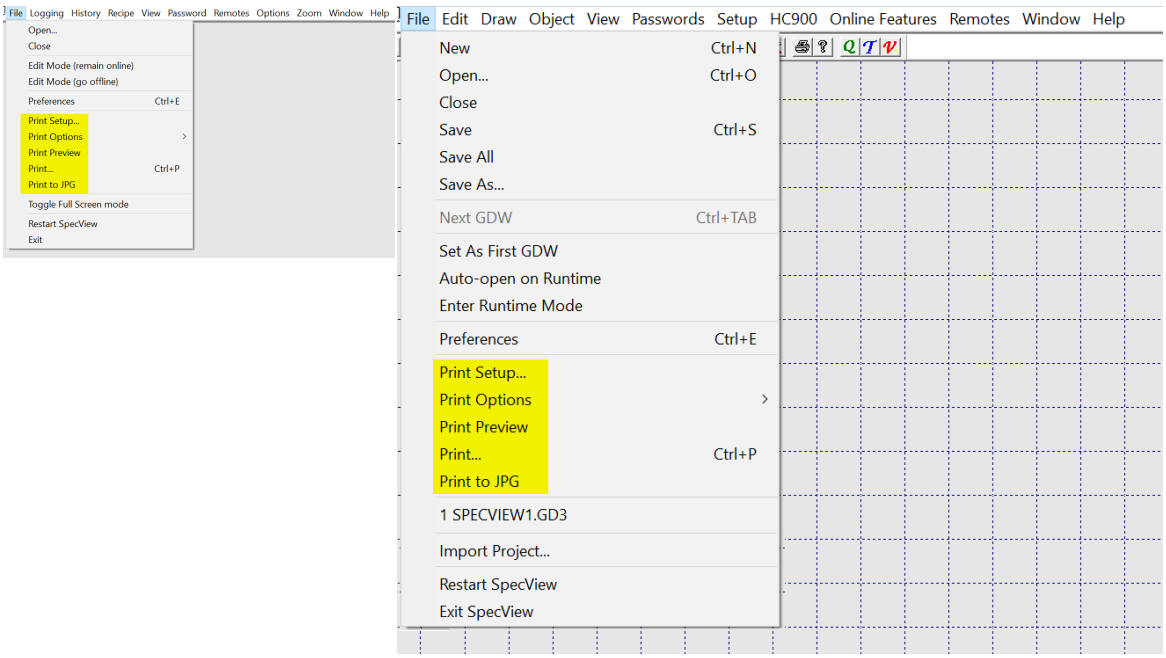
8.4 Printing

There a number of different ways to print from SpecView:

From the File menu in either Runtime or Edit Mode:

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Runtime Mode: **Edit Mode:**



Print Preview

Previews how the printed GDW will look when it is printed from Runtime mode.

Print (Edit Mode File menu)

Shortcut: Ctrl + P

Toolbar:  Prints the current GDW [503] . Use the Print Setup menu command to change your printer settings.

Printing from a button:

Printing from a button is described here [423].

Printing from Trend Charts:

- Printing using the Print [533] menu commands on a Trend Chart [528].
- Auto-printing which is setup via the Print & Batch [557] tab of the Trend Chart Properties [528] box.

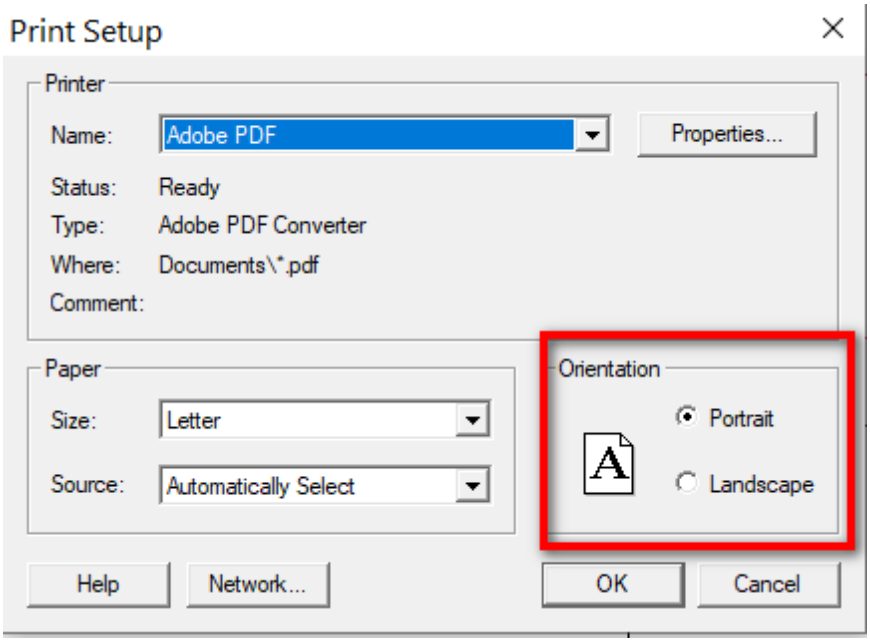
8.4.1 Print Setup

Use this menu command to edit printer settings, such as:
- Selecting an orientation.
- Using a different printer.
- Creating a PDF (Portable Document Format) file.

Selecting An Orientation

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Click on Portrait or Landscape to print in Portrait or Landscape mode respectively.

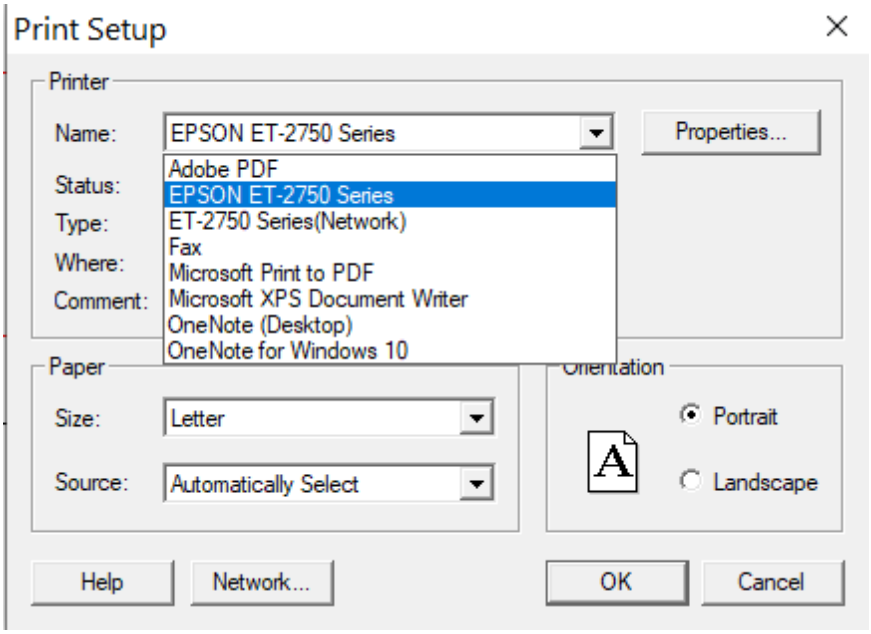


Click on OK once an orientation has been chosen and clicked on to confirm the changes.

The changes can be viewed in Print Preview to view how the screen will be printed on the paper in the chosen orientation.

Using A Different Printer

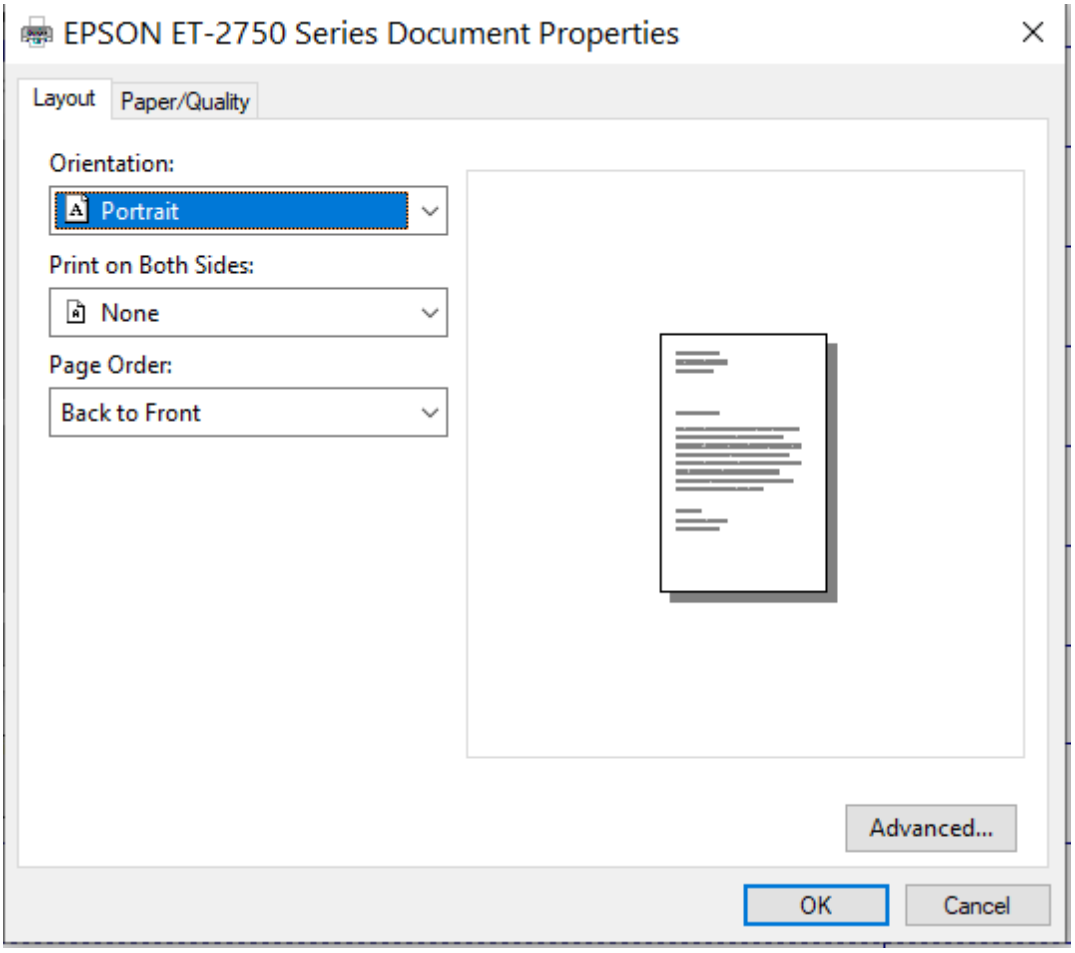
From the Name drop down menu, select and click on the appropriate printer to print out the screen.



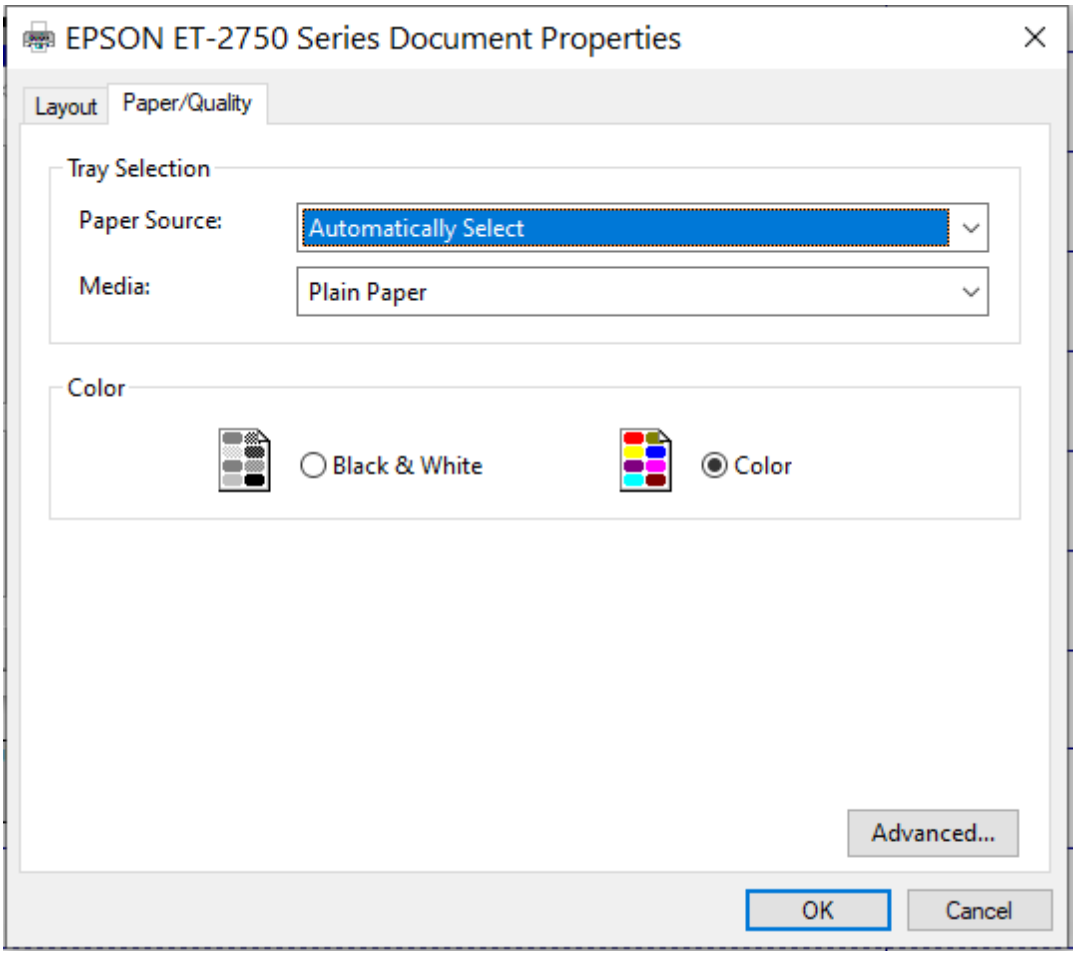
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Once the appropriate printer has been selected, the size and type of paper being printed on can be selected from the Size and Source drop down menus respectively.

The properties of the printer can be edited further by clicking on Properties. Click OK to confirm the changes made to the printer properties.

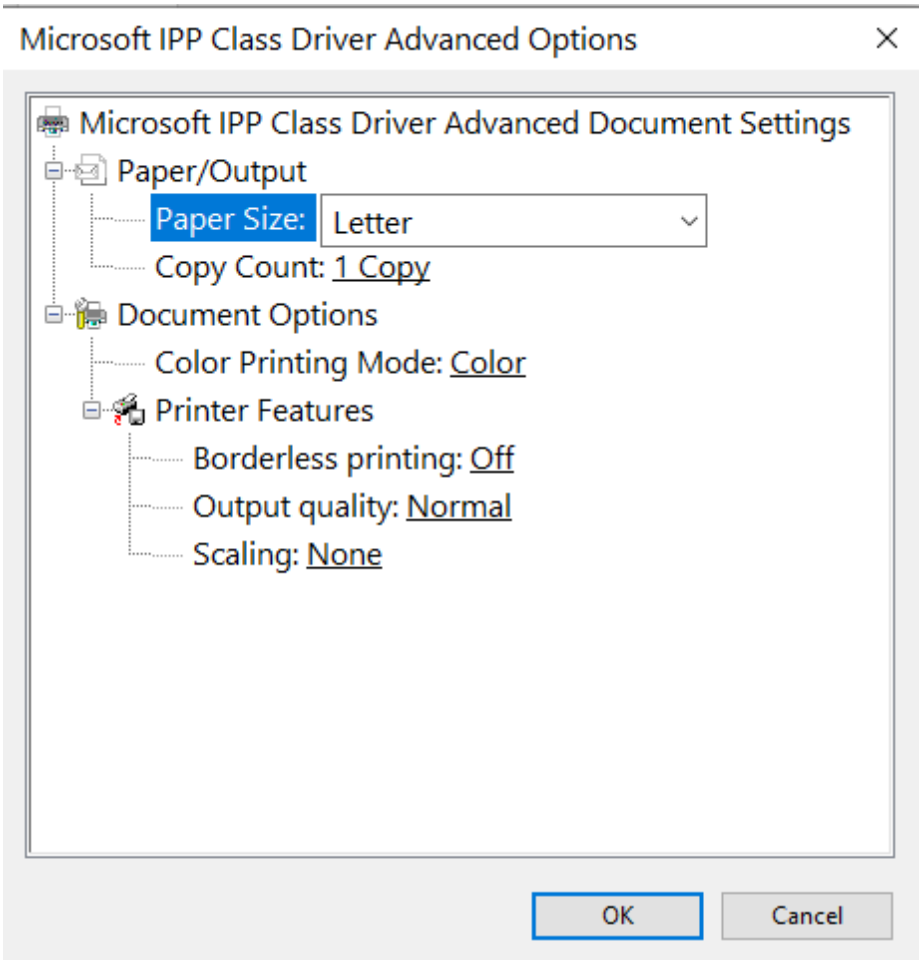


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For advanced printer properties, click on Advanced. Click OK to confirm the changes made to the printer properties.

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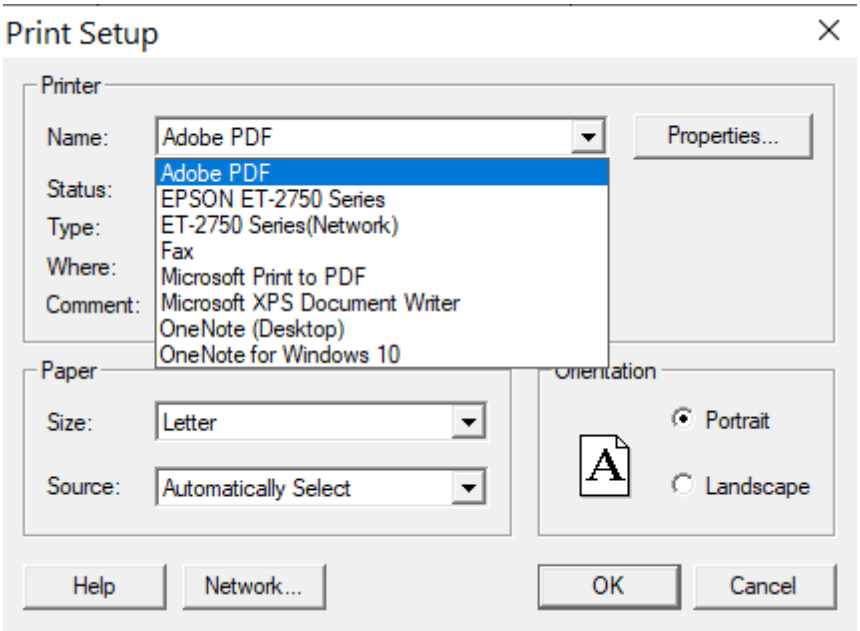
Printer properties for each printer will be different. For example, some printers might not have the capability of color printing.

Creating A PDF

To create a PDF file instead of printing out the image, select and click on PDF from the Name drop down menu in Printer Setup.

Click OK to confirm the changes.

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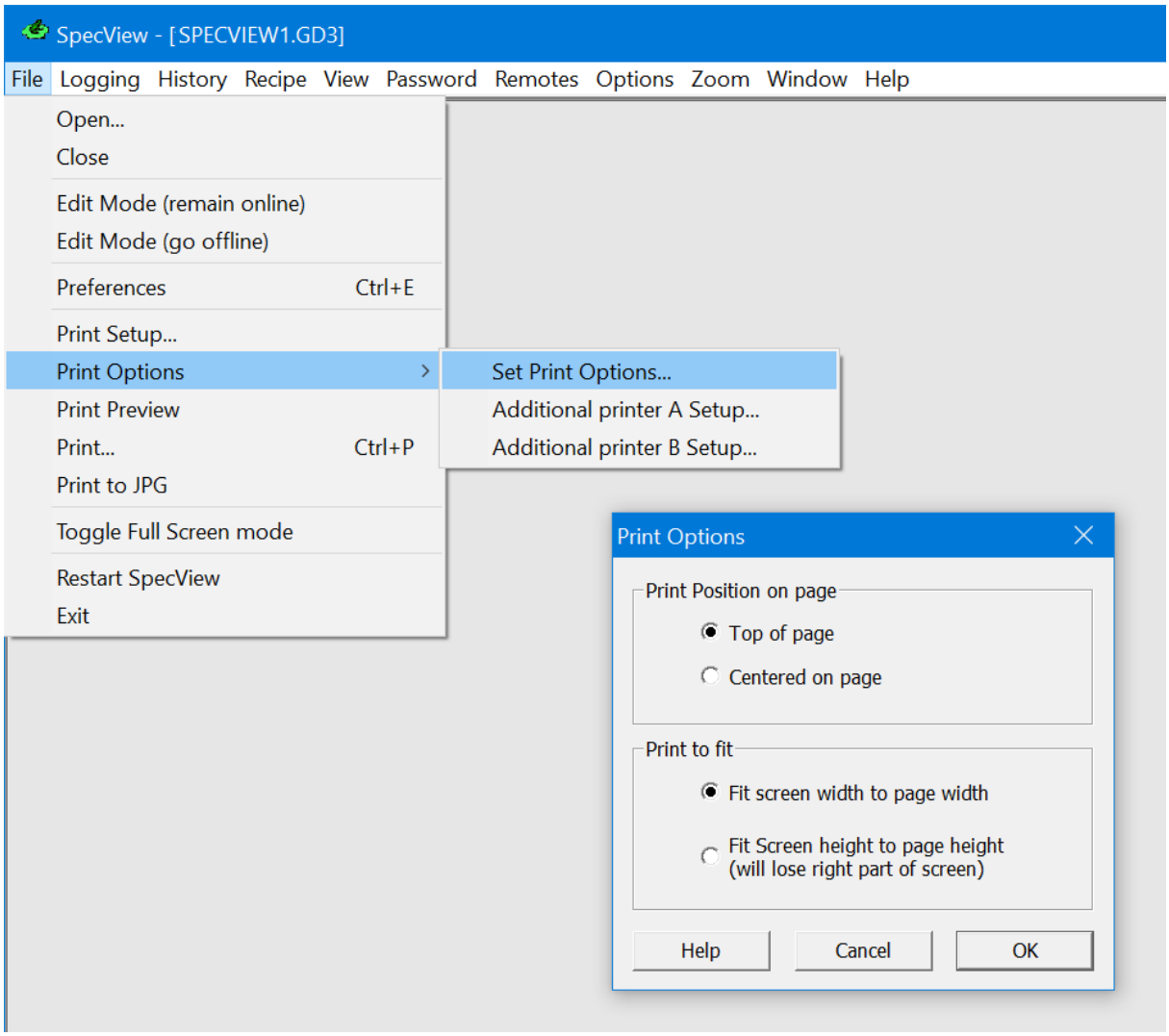
To create the PDF file, follow the printing instructions mentioned in Printing 386.

File Explorer will open to aid in selecting the destination where the PDF file should be saved and what the name of the PDF file should be.

8.4.2 Print Options

This menu command can be used to control how the contents of a screen are positioned and resized on the paper (or in the PDF file if 'Print to PDF' is being used).

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Print position on page - This controls the vertical position of the screen when printed on the paper.

Top of page - The contents of the screen will be positioned at the top of the paper.

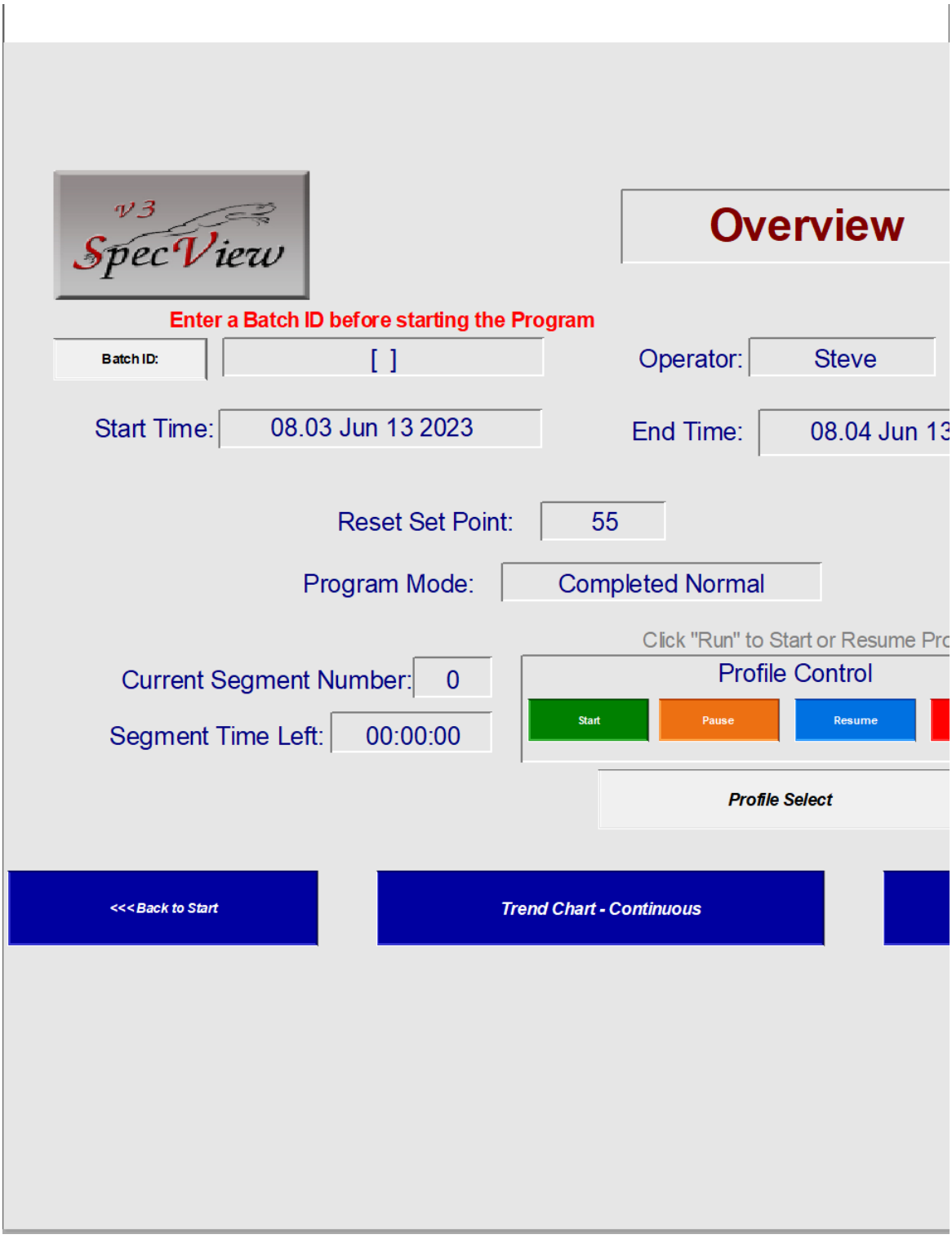
Centered on page - The contents of the screen will be positioned in the vertical center of the paper.

Print to fit - This controls the horizontal position of the screen when printed on the paper.

Fit screen width to page width - The contents of the screen will be sized to fit the width of the paper, so the whole screen will be printed.

Fit Screen height to page height (will lose right part of screen) - The contents of the screen will be left justified and enlarged to fill the height of the paper, which may mean the right-hand-side of the screen won't be printed.

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To avoid losing the right side of the screen, use Print Setup[387] to change the printing orientation to Landscape.

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Additional Printer Setup

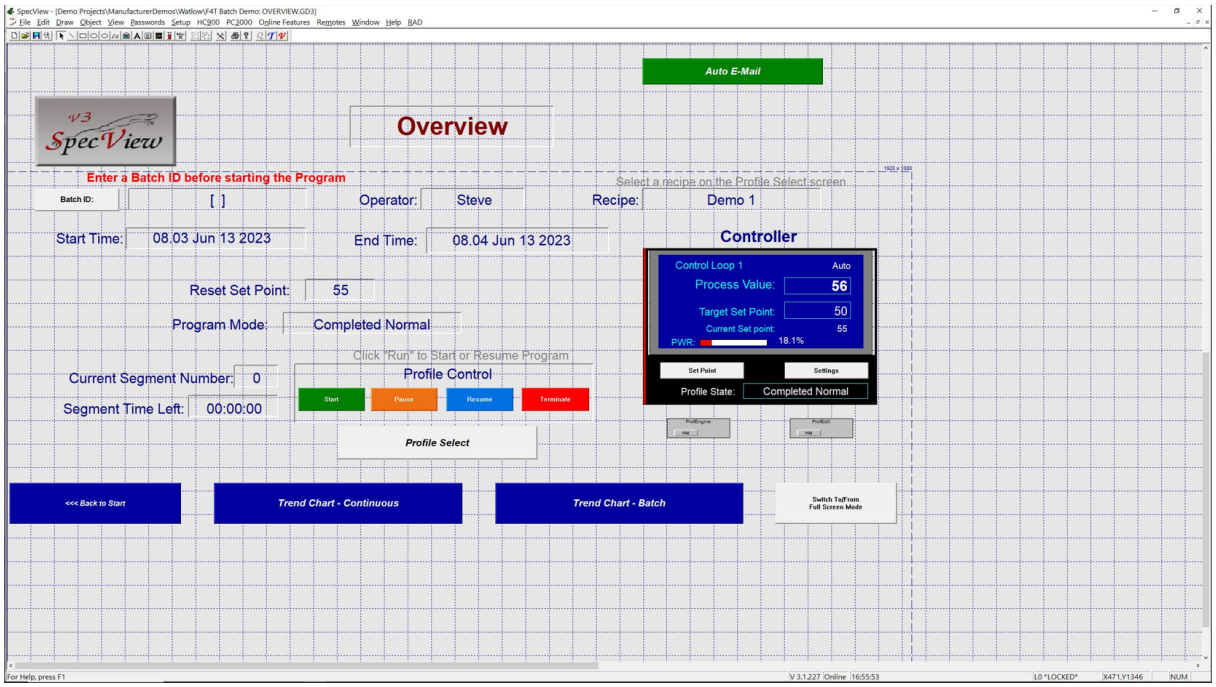
Additional Printer A Setup and Additional Printer B setup opens up the Print Setup 387 box. These two menu commands can be utilized if multiple printers are being used or multiple printing options are used. Rather than switching back and forth between the options or printers, they can be saved as Printer A or Printer B Setup.

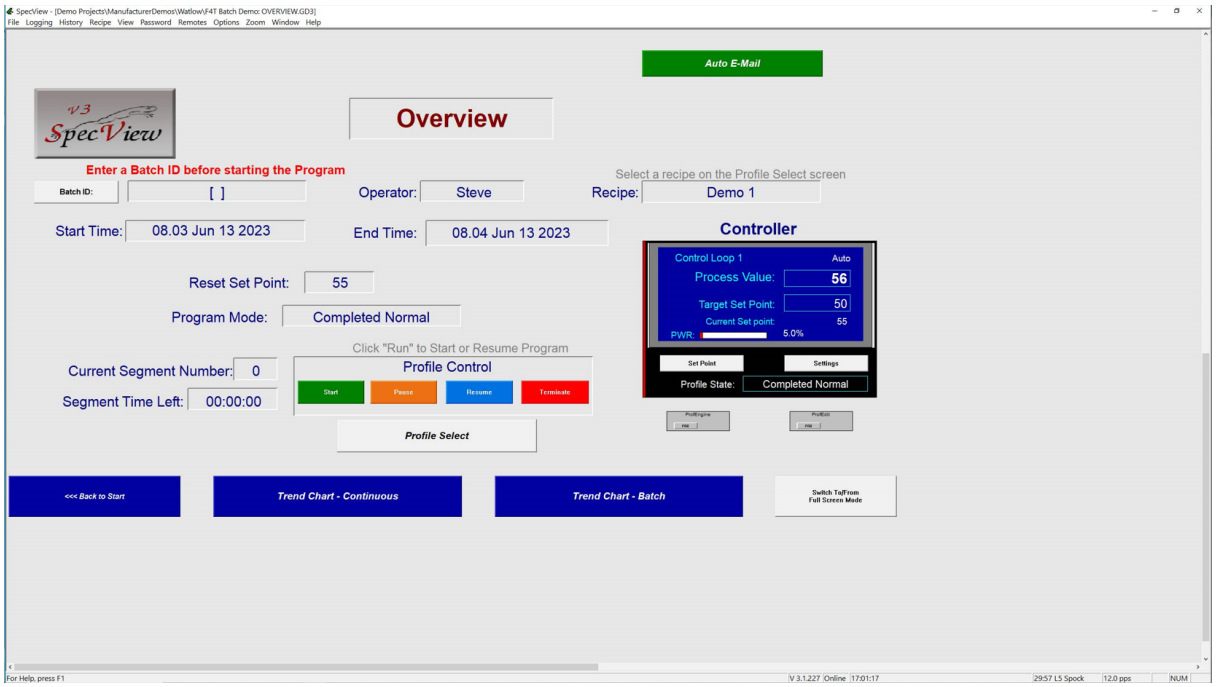
8.4.3 Print To JPG

Puts an image of the whole screen, including the Windows Taskbar if it is visible (not just the contents of the GDW) to a .JPG (Jpeg format) file.

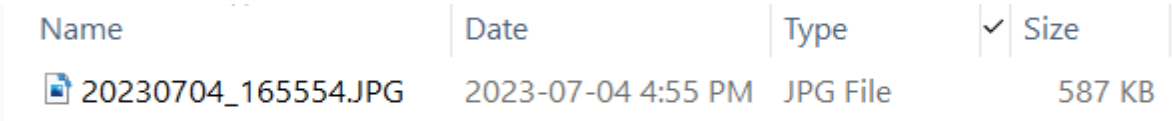
By hiding the Windows Taskbar through the Taskbar settings, a JPG image of the screen can be captured. Below is a Print to JPG command being executed in Edit Mode 282 (left) and in Runtime Mode 251 (Right) with the Taskbar hidden.

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The filename of the file that is created has the date and time in the format: YYYYMMDD_HHMMSS.JPG



The file is written to the current Project folder[491].

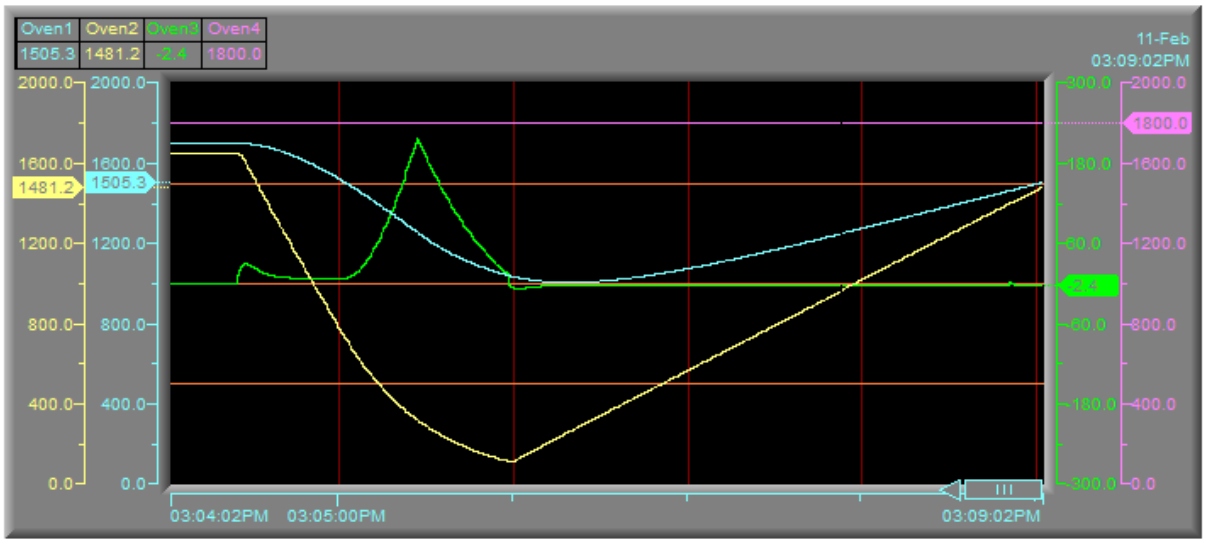
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If more than one request to 'Print to JPG' is made at the same second, then the file will be overwritten.

There is also the Button & Strategy Controller action: GDW Control: Print Screen[423] which allows 'JPG' to be selected from the list.

8.5 Trend Charts

Trend charts graph (or plot) variables with respect to time:



For details see:

Creating and Setting up Trend Charts in Edit Mode[523]
Using Trend charts in Runtime Mode[528]

8.6 Bar Charts

Bar Charts display variables as a moving vertical or horizontal bar



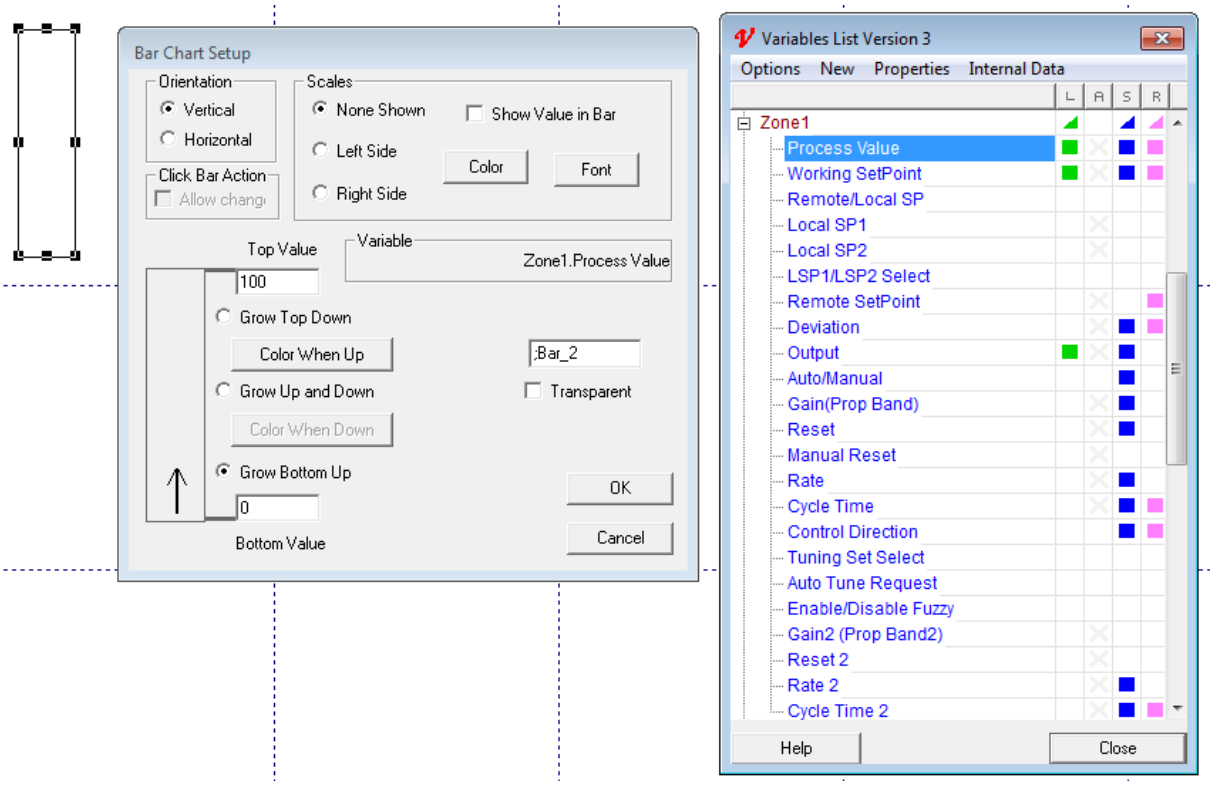
Adding a Bar Chart to a GDW[383]

The mouse pointer changes to: ┼ Click and drag a rectangle to the shape you want for the Bar chart. When you release the mouse button the Bar Chart Setup box and the Variables List[313] are displayed.

NOTE: Bar Charts can also be used with boolean (on-off) variables. Set the bottom value to 0 and the top value to 1. This can be used to indicate alarms[353].

Bar Chart Setup

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Bar Chart - Variables List
Drag and drop the variable to be displayed on the chart from the **Variables List** into the **Variable** field.

Bar Chart - Orientation
Vertical charts grow up / down with increasing values
Horizontal charts grow left / right with increasing values

Growth Direction
Determines the growth direction with increasing value
Use the Grow Up and Down check box (Left and Right) for variables that can go negative such as Deviation/Error and Output Power in heat/cool controllers

Bar Chart - Click Bar Action
If the variable is writeable [521] , checking this box will allow the variable to be changed by clicking on the chart

Bar Chart - Scales

Shows a scale on the chart:



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Bar Chart - Show Value in Bar

Shows the numeric value of the Variable in the chart:



NOTE: Use a light chart color to make the numbers more visible

Bar Chart - Font and Color

Sets the Font and outline Colors for the Border, Scales and Values shown on the chart

NOTE: To make the chart disappear when empty, set this outline color to the same as the GDW Paper Color (accessed from the View Menu [295])

Bar Chart - Fill (empty) Color

The color of the empty part of the chart is set by the Fill Color from the Object Menu [291].
Firstly ensure that the Bar Chart Setup [397] dialog does not have the Transparent box checked.== }
Single Click the chart to select it (Do NOT double-click)
On the Object Menu select Fill Color
Choose the color from the palette

Bar Chart - Top (Left) and Bottom (Right) Values

Sets the minimum and maximum values of the displayed chart
For ± Variables (Deviation, Output Power with heat/cool) set the Bottom (Right) value to a negative number

Bar Chart - Color When Up (Left) and Down (Right)

Sets the color for the value part of the chart

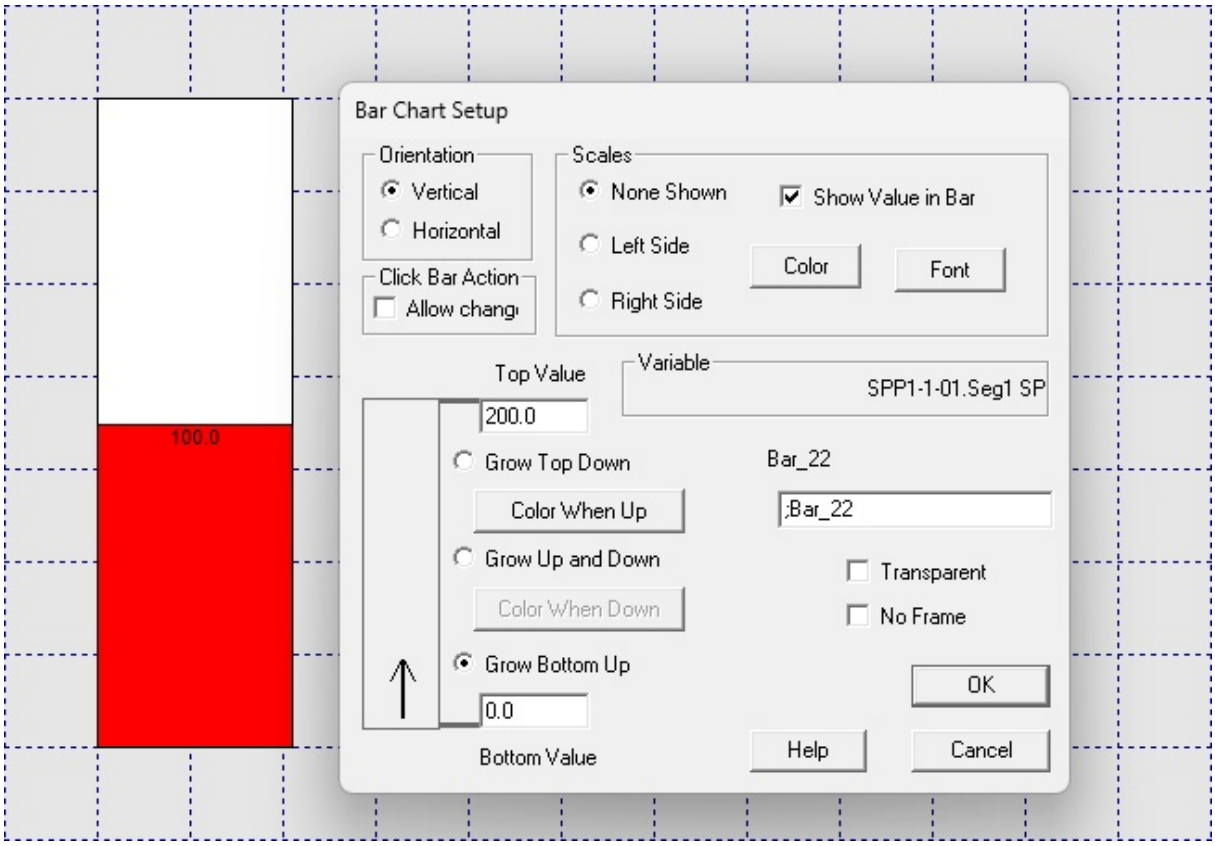
SpecView 3.1.267

As of SpecView 3.1.267 [122], users can quickly copy Bar Chart [397] attributes such as Color, Scale, Transparency, No Frame, and Click Bar Action to other Bar Charts [397].
So, for example, if users had drawn 10 Bar Charts [397] with the "*Color When Up*" being blue but later decided to change the color to red, they would not have to individually change the color on every Bar Chart [397].
This is especially useful when using Pre-Plot [590].

Follow the steps below to quickly copy Bar Chart [397] attributes.

1. Create a Bar Chart [397] and set it up with the appropriate settings.

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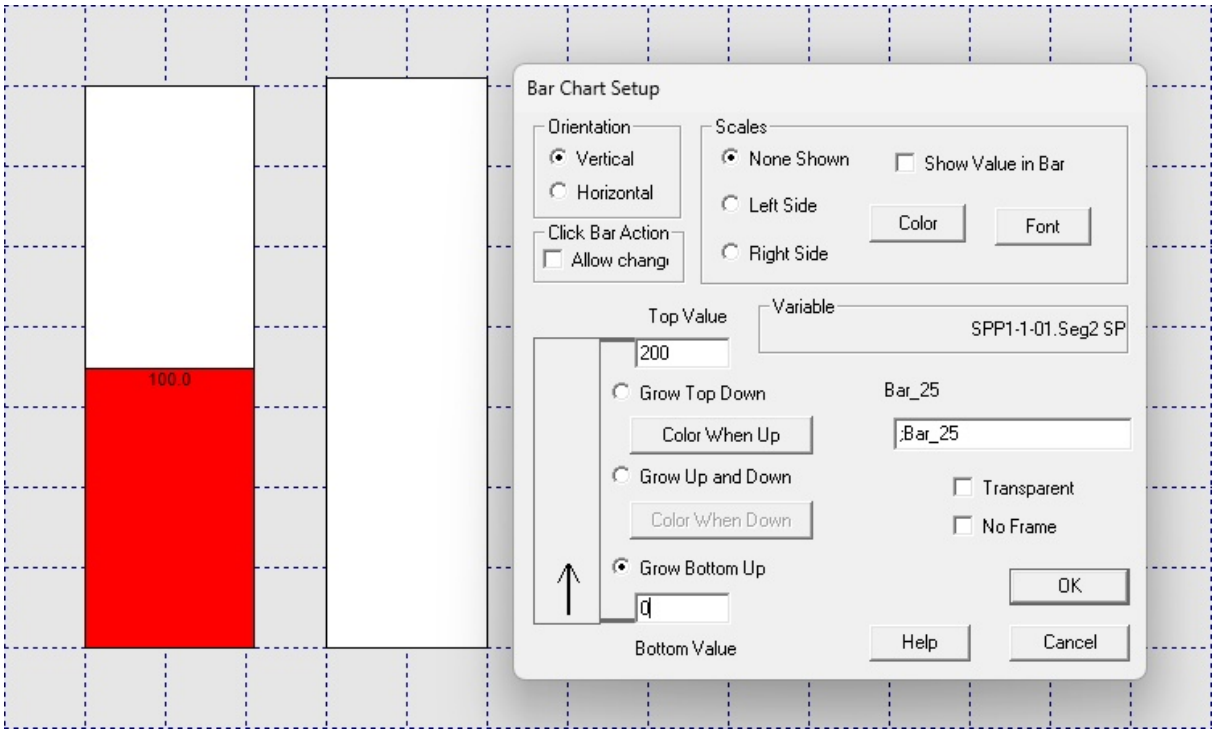


2. Add a second Bar Chart[397] next to the first one from Step 1; on the right side.

Enter the Top Value, Bottom Value, and Variable in the Bar Chart Setup[397] because these are not automatically copied across.

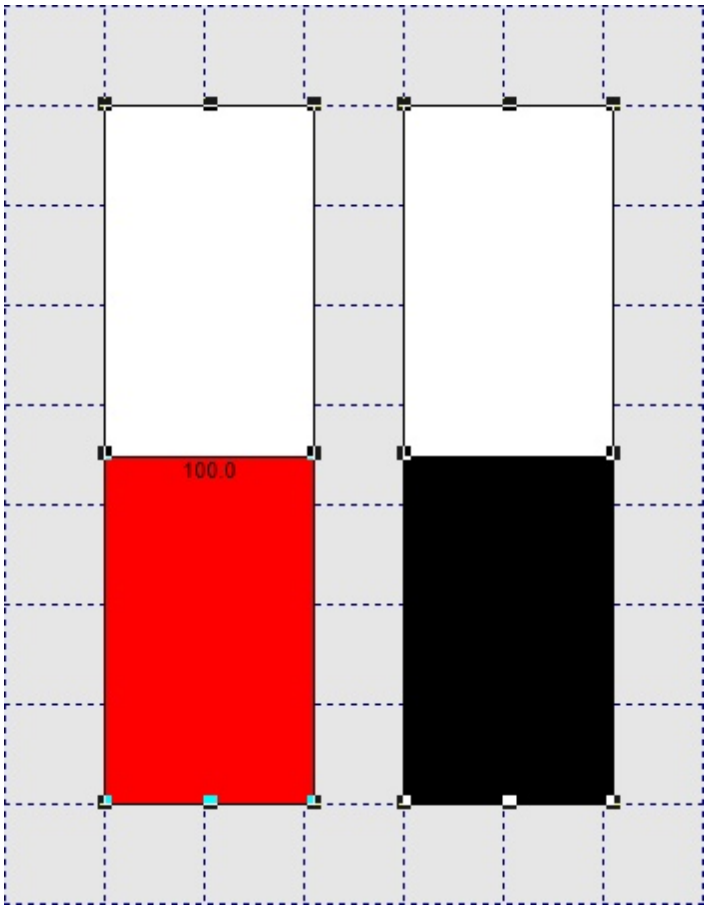
These are typically unique to each Bar Chart[397].

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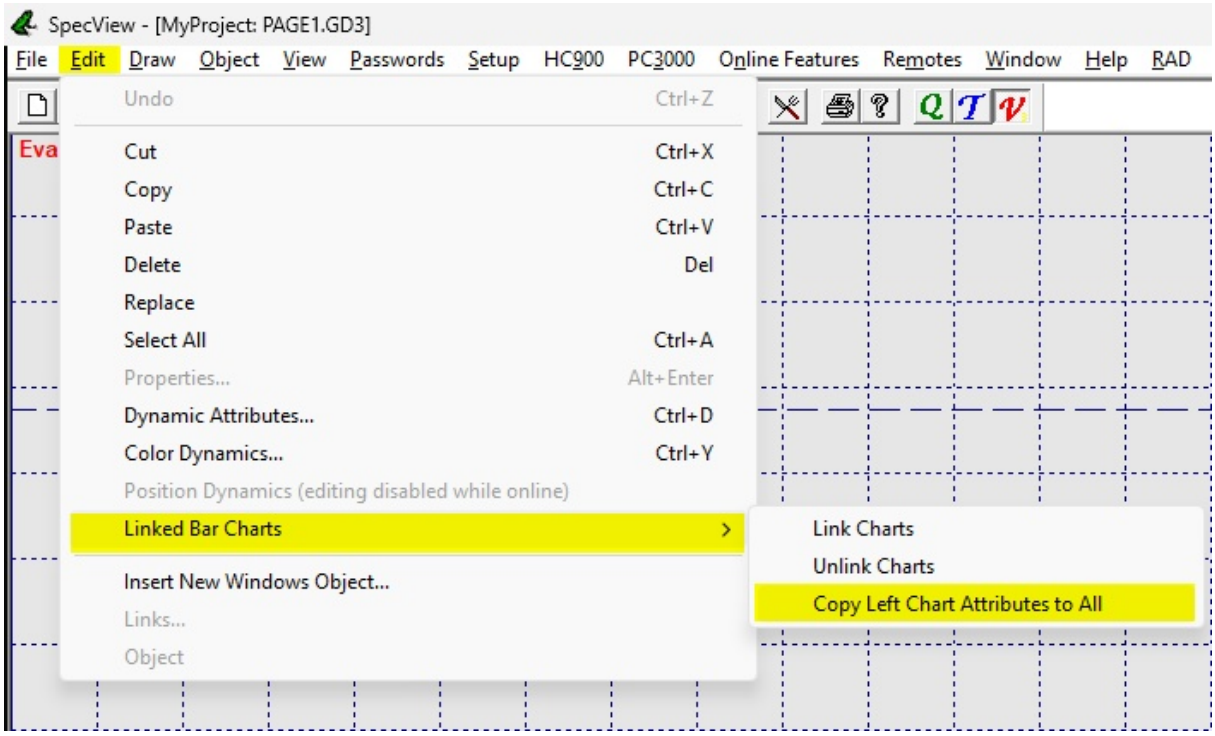
3. Select both Bar Chart[397].

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4. Click on "*Copy Left Chart Attributes to All*" from Edit > Linked Bar Charts.

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Both Bar Charts [397] will now have identical attributes.

If the options in Linked Bar Charts are gray, it means the Bar Charts [397] were incorrectly selected or there was another item that was selected along with the Bar Charts [397].
In either case, repeat Step 3 ensuring that only the Bar Charts [397] are selected.

SpecView 3.1.269

As of SpecView 3.1.269 [121], users can now inhibit the black rectangles that highlight Bar Charts [397] in Recipe [635]. Read more here [476].

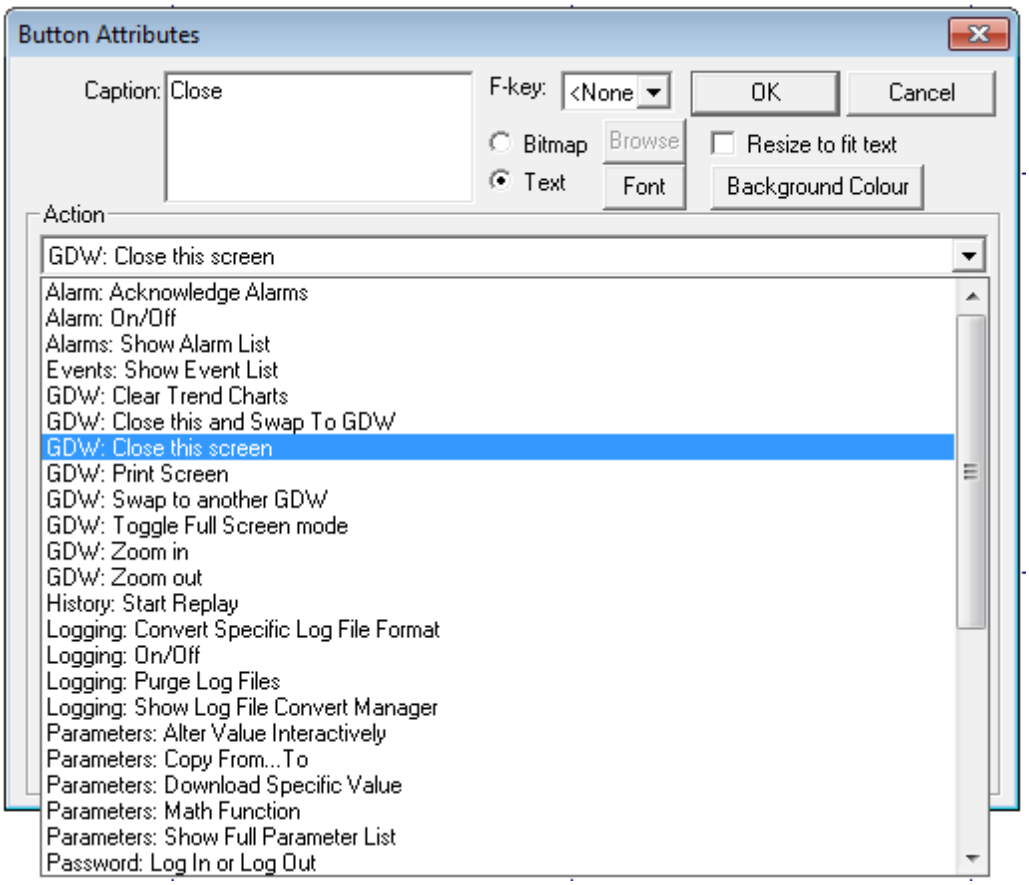
8.7 Button Attributes & Strategy Controller Actions

The same list of actions is available for both Buttons and Strategy Controller Actions [666].

This box selects the action that will happen when the button is clicked (in Runtime Mode)

NOTE: to display this box for a button double-click the button in question.

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Button Caption
This is a function of the Button Attributes box
Enter the text you want on the button

Function Keys
This is a function of the Button Attributes box
Select a Function Key to have the same action as clicking on the button

Button Bitmap and Resize to fit text check boxes
Allows the button to contain a bitmap instead of text.

Button Text, Font & Background Color
Allows the button's font and color to be defined.

Button Actions
(Those marked with an asterisk are not available from the Strategy Controller[666]):
Alarm: Acknowledge Alarms[405]
Alarm: On/Off[405]
Alarms: Show Alarm List[406]
Events: Show Event List[407]
GDW: Clear Trend Charts[422]
GDW: Close this and Swap To GDW[422]
GDW: Close this screen[423]

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GDW: Print Screen 423
GDW: Print Screen (Last Batch Values) 426
GDW: Swap to another GDW 426
GDW: Toggle Full Screen Mode 427
* GDW: Zoom in 427
* GDW: Zoom Out 427
* History: Start Replay 427
Logging: Convert Specific Log File Format 428
Logging: On/Off 428
Logging: Purge Log Files 429
* Logging: Show Log File Convert Manager 429
Parameters: Alter Value Interactively 429
Parameters: Copy From… To 429
Parameters: Download Specific Value 431
Parameters: Math Function 433
* Parameters: Show Full Parameter List 436
Password: Change Passwords 436
* Password: Log In or Log Out 437
Quick List: Show Quick List 443
Recipe: Download Specific Recipe 444
Recipe: Show Recipe Manager 445
Recipe: Show Recipe Manager (Read Only Mode) 445
Recipe: Show Recipe Manager (Read Only Send To Mode) 445
Recipe: Show Recipe Manager (Send To Mode) 445
SpecView: Display Simple Message Box 445
* SpecView: Enter Edit Mode 446
SpecView: Exit Program 446
SpecView: Maximize screen, Minimize screen, Restore screen 446
SpecView: Run External Program 447
SpecView: Write Line to file/printer 452
SpecView: Play Sound File 455

8.7.1 Alarm: Acknowledge Alarms

This Button/Strategy Controller Action will cause all outstanding alarms to be acknowledged. This will also cause the SpecView Variables 319: AnyAlarm and NewAlarm to be set to 'Off'.

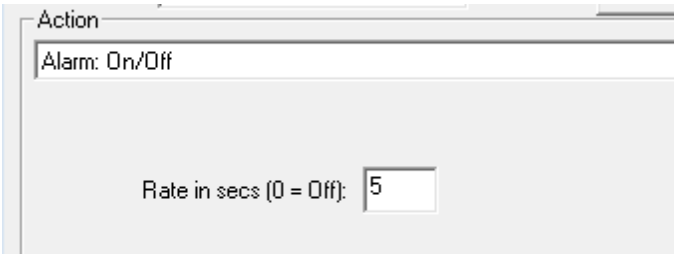
There is also an 'Acknowledge' button on the Alarm List 262.

For details on setting up alarms, see: Alarms 353

8.7.2 Alarm On/Off

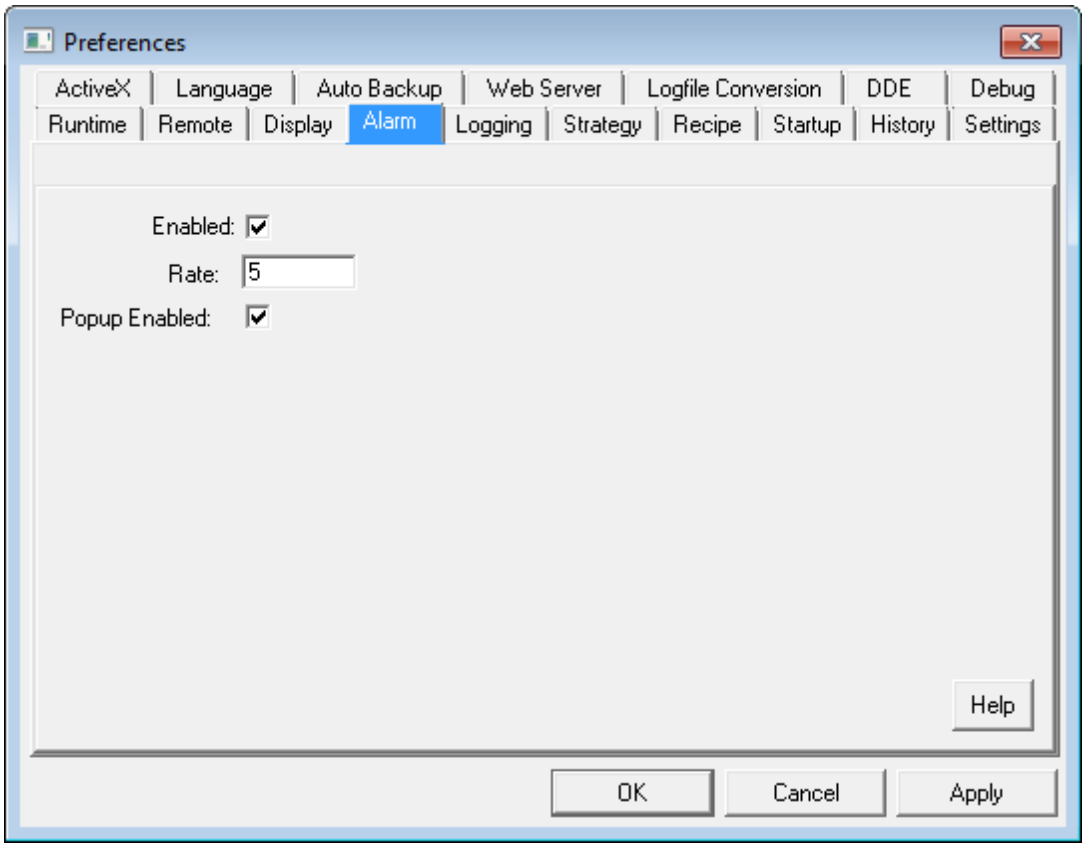
This Button/Strategy Controller Action turns alarm 353 checking On and Off and sets the rate at which alarms are checked:

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A rate of 5 seconds (the default) means that SpecView will check the booleans identified as alarms every 5 seconds.
A value of 0 seconds will disable alarm checking.

It is possible to change the default (startup) rate using: Preferences - Alarm [463]:



When an alarm occurs the Alarm List [262] will be displayed if the 'Popup Enabled' box is checked.

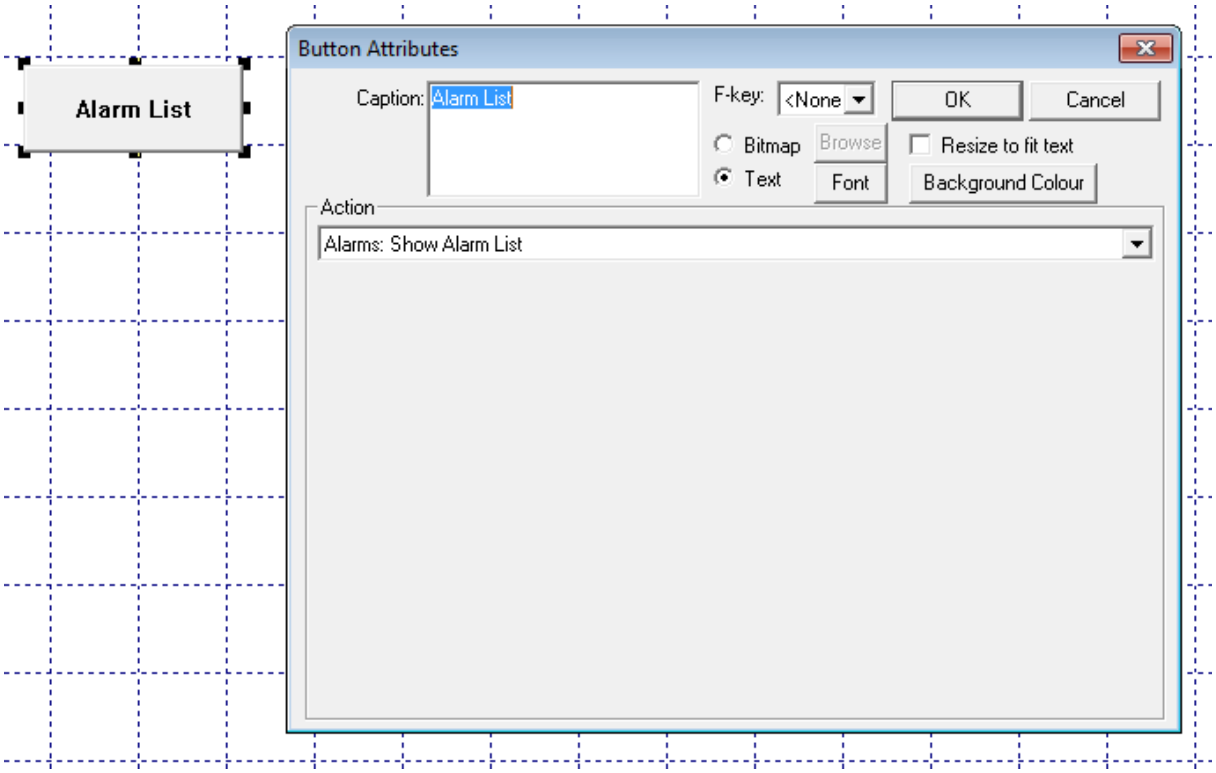
For details on setting up alarms, see: Alarms [353]

8.7.3 Alarms: Show Alarm List

This Button/Strategy Controller Action will open the Alarm List [262].

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It duplicates the function of the Alarm Window menu command on the View menu [273]



For details on setting up alarms, see: Alarms [353]

8.7.4 Events: Show Event List

This Button/Strategy Controller Action will open the Event [620] list (duplicates the function of the View Event Window menu command on the Alarm/Event [273] menu)

8.7.5 GDW: Scroll Right

This Button Attribute/Strategy Controller Action [403] will scroll the screen right.

These scroll buttons are useful when operating on small screens.
For example, if the project requires a large recipe screen but the monitor resolution is small.
A user could develop the recipe screen on a larger monitor and add the scroll buttons.
Then, transfer the project to the PC with a smaller monitor.
This way, users can utilize the scroll buttons to navigate through the large screens even though they are displayed on a smaller monitor.

Additionally, users can save space on smaller monitors with the addition of the scroll buttons because the project would no longer require scroll bars on the sides.
Scroll bars would by default appear on every screen, but a user can choose on which screens they would like to scroll on with the addition of the buttons.

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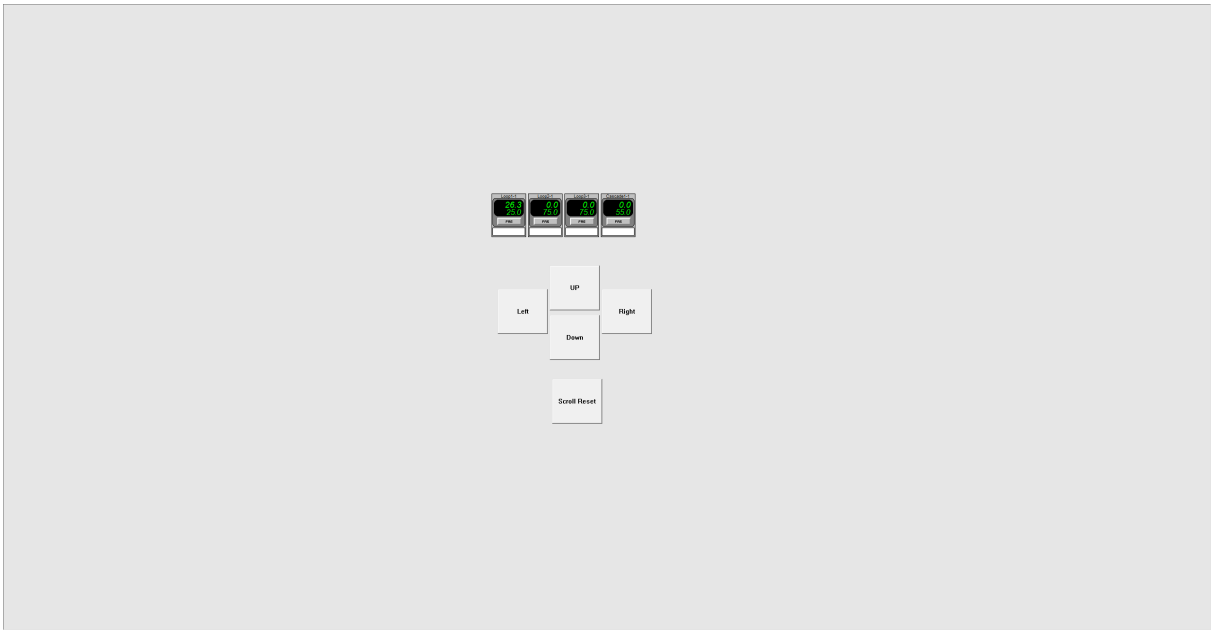


Figure 1: Original Position



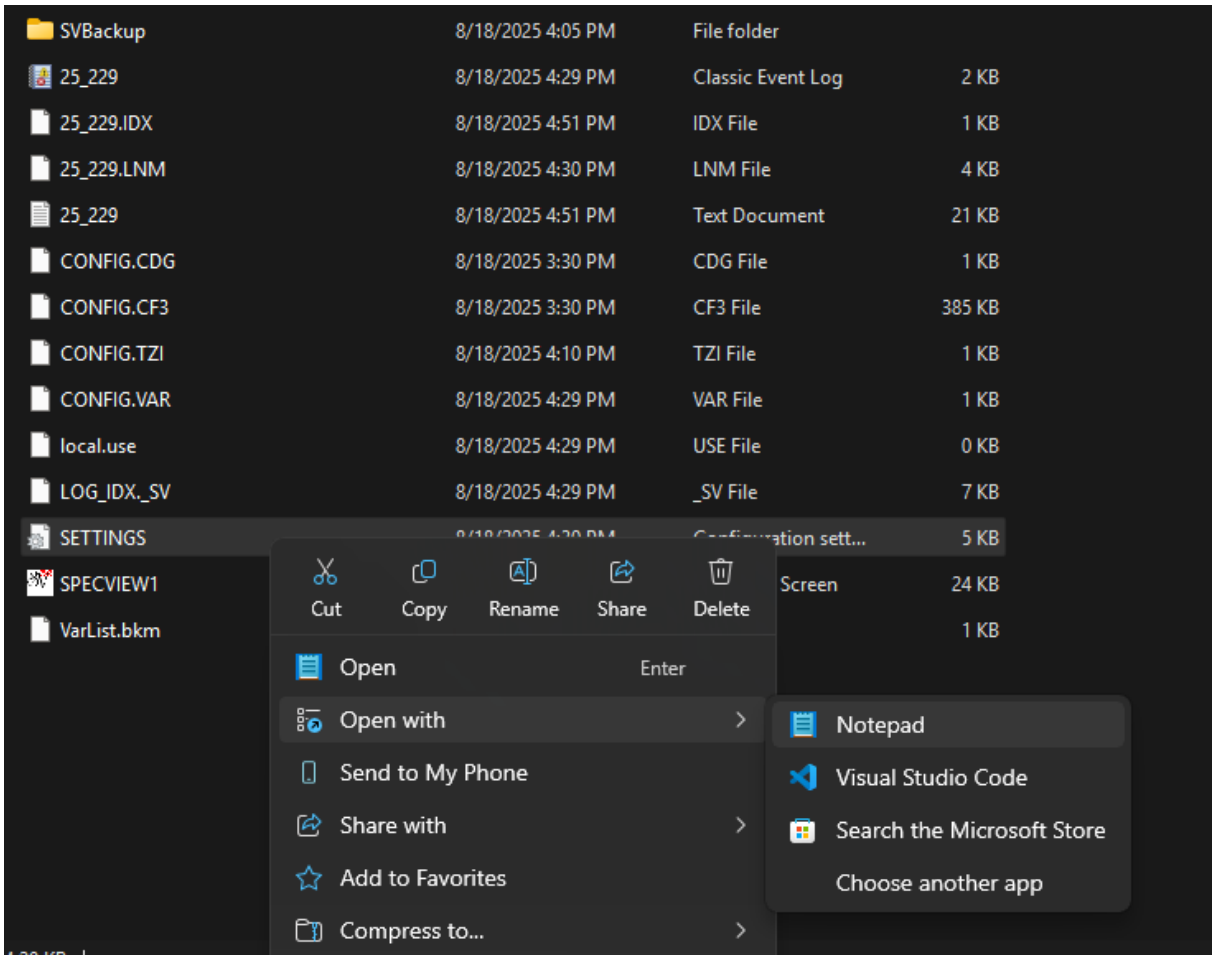
Figure 2: Screen scrolled right

Scroll Amount

The amount the Scroll Right button can scroll right is editable.
By default, the amount the Scroll Right button scrolls right is 25% of the current screen size.
To edit the amount the buttons scroll, follow the steps below.

1. Open the Project Folder[509].
2. Open the Settings.INI[512] file in Notepad by right clicking on the file and selecting Open with.

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3. In the Settings section, enter the following command, "*ButtonScrollPercent=x*".
   X is the amount the button should scroll by.
   For example, if a project requires the scroll amount to be 50% of the screen, then the command would be, "*ButtonScrollPercent=50*".

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```
Rate=M
MaximumNumberOfDataValuesKept=99
ApplyFixedValuesInConfigMode=N
OutputsWaitUntilStrategyUp=Y
OutputScansAllowedWhenPasswordsLockOut=Y
SendUnchangedValuesToInputs=N
InputsDisabledInHistoricalReplay=N
DelayOutputScanningUntilAllSvLinkedInputsFired=Y
ParameterByReference_AddEmail SmtpMail Class_Send_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SimpleSend_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendAttachmentScriptable_Param0=16396
[HISTORY]
AutoPauseShortTrend=99
AutoPauseLongTrend=99
CPUReplayLoading=10
[Settings]
ButtonScrollPercent=50
RecipeSelectIsInvert=N
ListFont=Arial
ListFontSize=9
ListFontItalic=N
ListFontWeight=0
ShowScrollBars=N
FullScreenModeInRuntime=N
MagicSquarePixelLength=75
ExitProgToRun=
AutoApplyParamPropChangesToParameters=N
```

4. Save the Settings.INI file using File>Save.
5. The buttons will now scroll by the new amount set in the Settings.INI file.

8.7.6 GDW: Scroll Left

This Button Attribute/Strategy Controller Action [403] will scroll the screen left.

These scroll buttons are useful when operating on small screens.
For example, if the project requires a large recipe screen but the monitor resolution is small.
A user could develop the recipe screen on a larger monitor and add the scroll buttons.
Then, transfer the project to the PC with a smaller monitor.
This way, users can utilize the scroll buttons to navigate through the large screens even though they are displayed on a smaller monitor.

Additionally, users can save space on smaller monitors with the addition of the scroll buttons because the project would no longer require scroll bars on the sides.
Scroll bars would by default appear on every screen, but a user can choose on which screens they would like to scroll on with the addition of the buttons.

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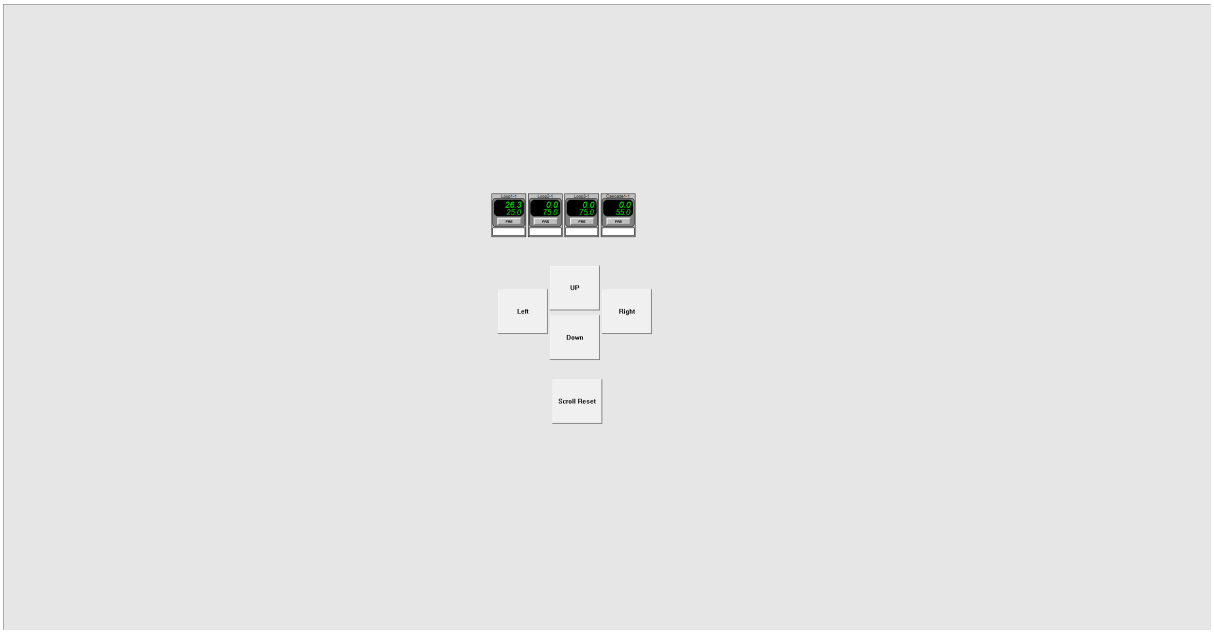


Figure 1: Original Position

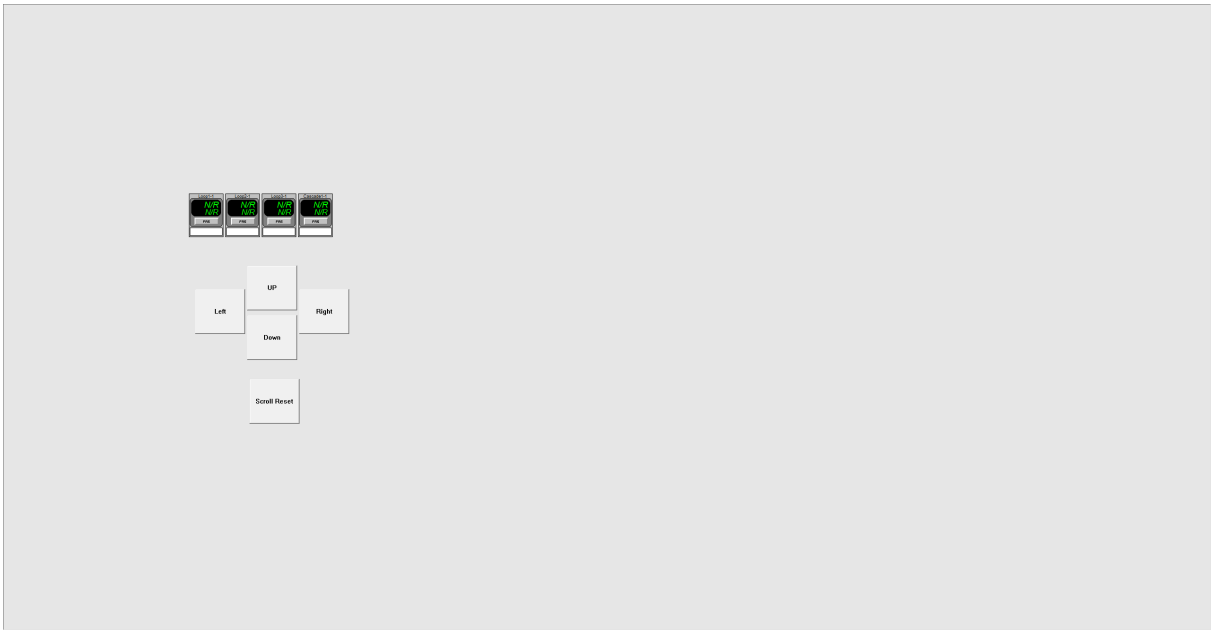


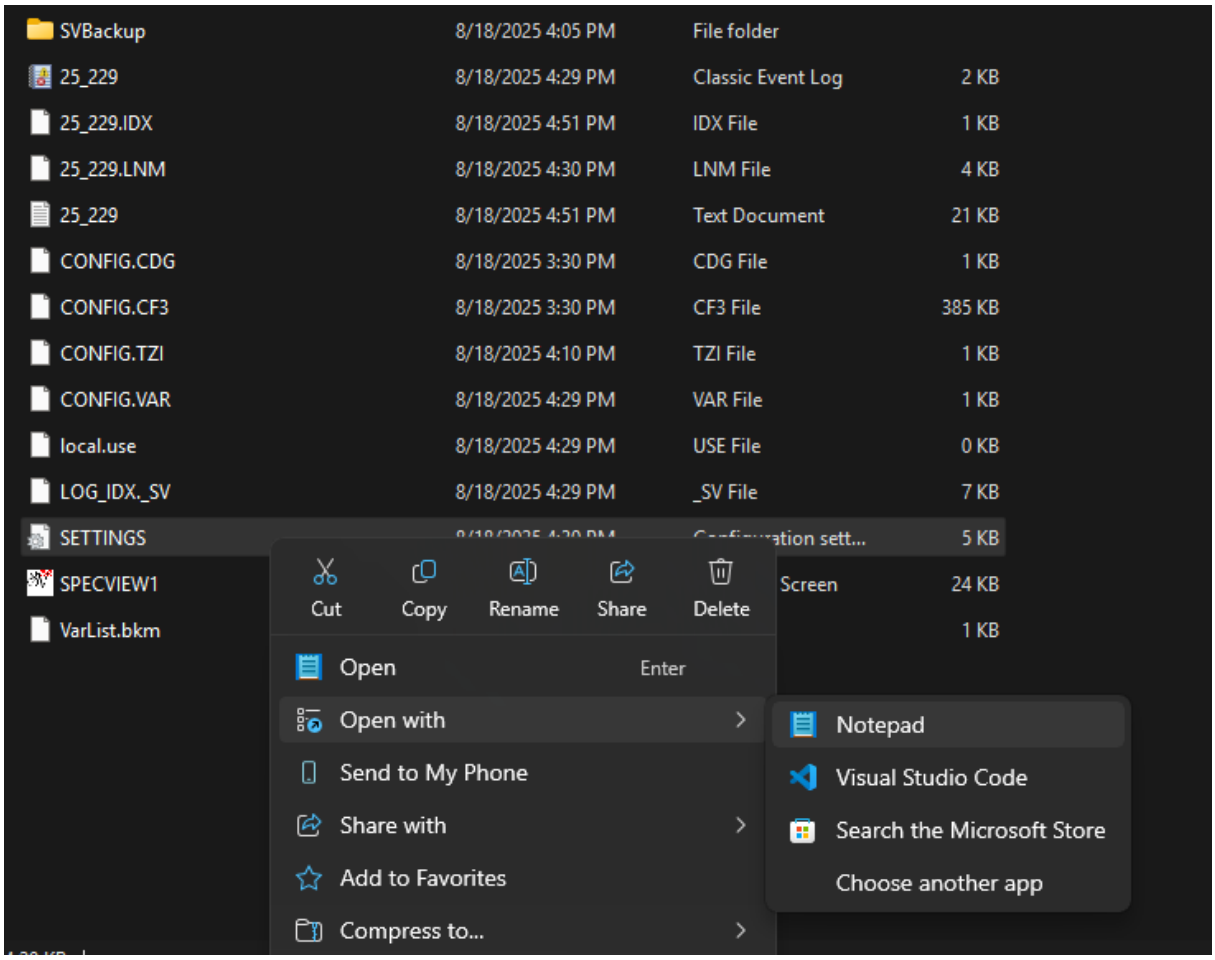
Figure 2: Screen scrolled left

Scroll Amount

The amount the Scroll Left button can scroll right is editable.
By default, the scroll amount is 25% of the current screen size.
To edit the amount the buttons scroll, follow the steps below.

1. Open the Project Folder[509].
2. Open the Settings.INI[512] file in Notepad by right clicking on the file and selecting Open with.

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3. In the Settings section, enter the following command, "*ButtonScrollPercent=x*".
   X is the amount the button should scroll by.
   For example, if a project requires the scroll amount to be 50% of the screen, then the command would be, "*ButtonScrollPercent=50*".

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```
Rate=M
MaximumNumberOfDataValuesKept=99
ApplyFixedValuesInConfigMode=N
OutputsWaitUntilStrategyUp=Y
OutputScansAllowedWhenPasswordsLockOut=Y
SendUnchangedValuesToInputs=N
InputsDisabledInHistoricalReplay=N
DelayOutputScanningUntilAllSvLinkedInputsFired=Y
ParameterByReference_AddEmail SmtpMail Class_Send_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SimpleSend_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendAttachmentScriptable_Param0=16396
[HISTORY]
AutoPauseShortTrend=99
AutoPauseLongTrend=99
CPUReplayLoading=10
[Settings]
ButtonScrollPercent=50
RecipeSelectIsInvert=N
ListFont=Arial
ListFontSize=9
ListFontItalic=N
ListFontWeight=0
ShowScrollBars=N
FullScreenModeInRuntime=N
MagicSquarePixelLength=75
ExitProgToRun=
AutoApplyParamPropChangesToParameters=N
```

4. Save the Settings.INI file using File>Save.
5. The buttons will now scroll by the new amount set in the Settings.INI file.

8.7.7 GDW: Scroll Up

This Button Attribute/Strategy Controller Action [403] will scroll the screen up.

These scroll buttons are useful when operating on small screens.
For example, if the project requires a large recipe screen but the monitor resolution is small.
A user could develop the recipe screen on a larger monitor and add the scroll buttons.
Then, transfer the project to the PC with a smaller monitor.
This way, users can utilize the scroll buttons to navigate through the large screens even though they are displayed on a smaller monitor.

Additionally, users can save space on smaller monitors with the addition of the scroll buttons because the project would no longer require scroll bars on the sides.
Scroll bars would by default appear on every screen, but a user can choose on which screens they would like to scroll on with the addition of the buttons.

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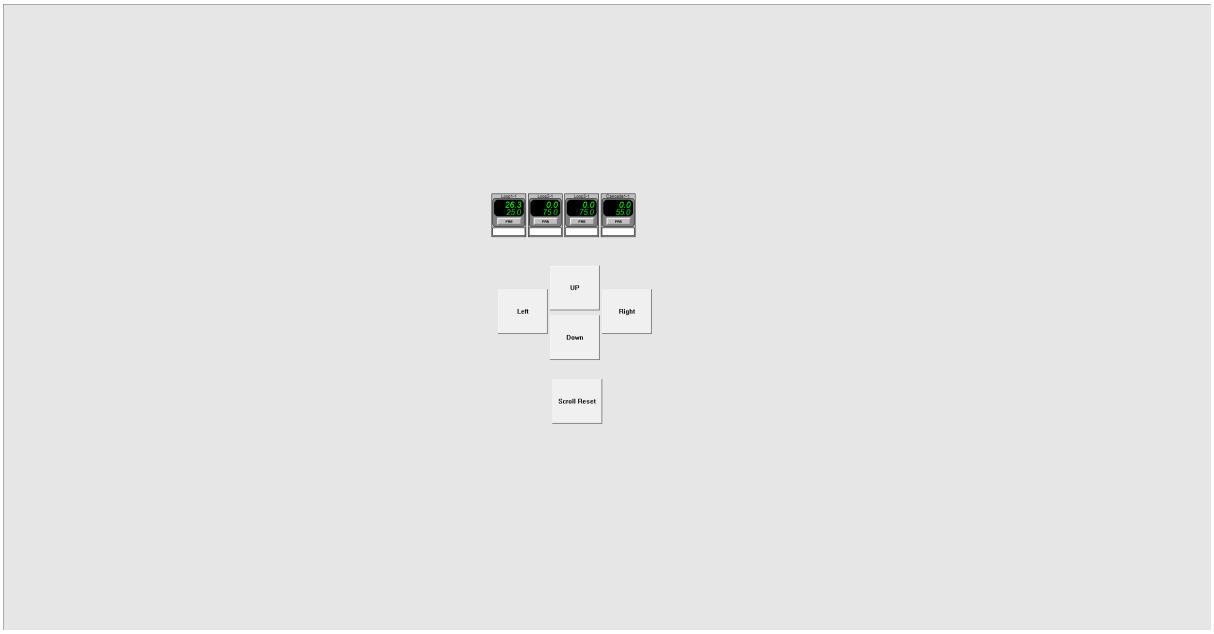


Figure 1: Original Position

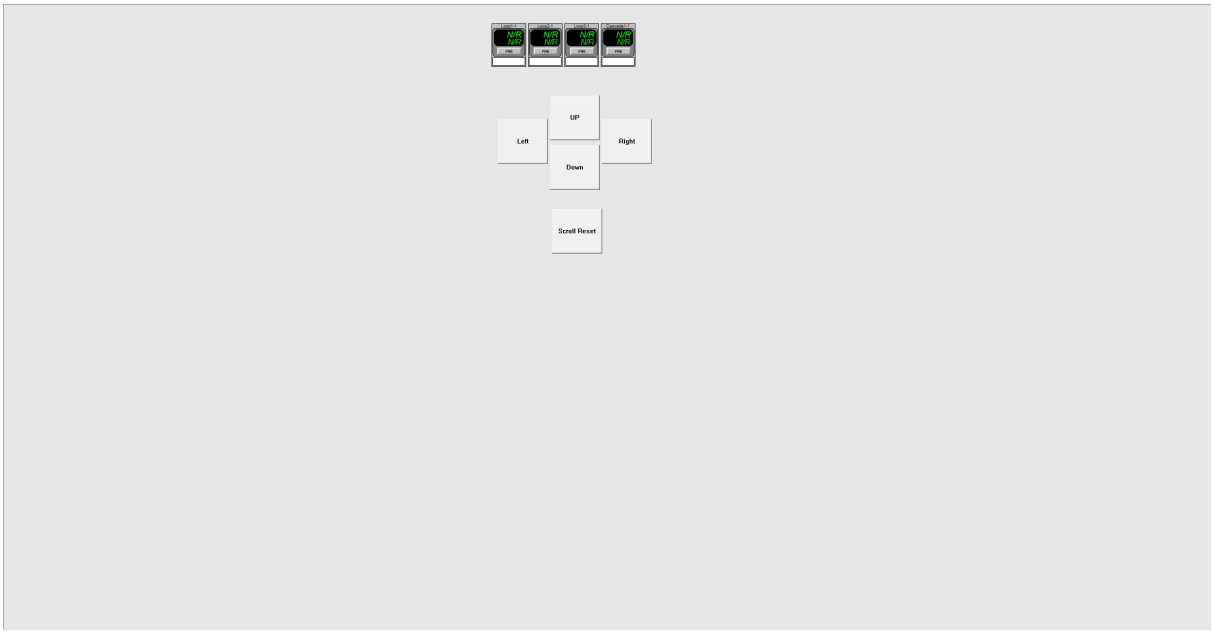


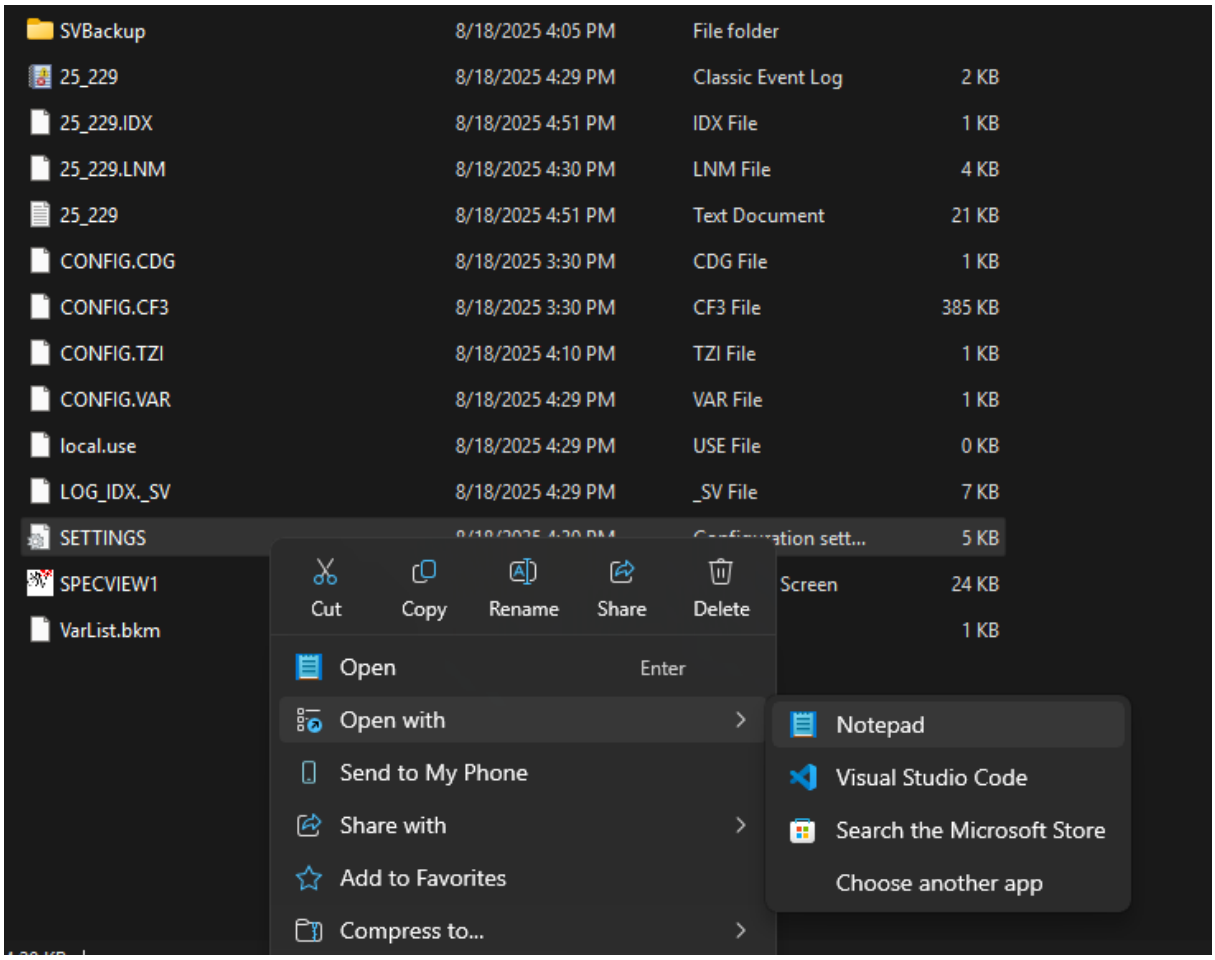
Figure 2: Screen scrolled up

Scroll Amount

The amount the Scroll Up button can scroll up is editable.
By default, the scroll amount is 25% of the current screen size.
To edit the amount the buttons scroll, follow the steps below.

1. Open the Project Folder[509].
2. Open the Settings.INI[512] file in Notepad by right clicking on the file and selecting Open with.

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3. In the Settings section, enter the following command, "*ButtonScrollPercent=x*".
   X is the amount the button should scroll by.
   For example, if a project requires the scroll amount to be 50% of the screen, then the command would be, "*ButtonScrollPercent=50*".

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```
Rate=M
MaximumNumberOfDataValuesKept=99
ApplyFixedValuesInConfigMode=N
OutputsWaitUntilStrategyUp=Y
OutputScansAllowedWhenPasswordsLockOut=Y
SendUnchangedValuesToInputs=N
InputsDisabledInHistoricalReplay=N
DelayOutputScanningUntilAllSvLinkedInputsFired=Y
ParameterByReference_AddEmail SmtpMail Class_Send_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SimpleSend_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendAttachmentScriptable_Param0=16396
[HISTORY]
AutoPauseShortTrend=99
AutoPauseLongTrend=99
CPUReplayLoading=10
[Settings]
ButtonScrollPercent=50
RecipeSelectIsInvert=N
ListFont=Arial
ListFontSize=9
ListFontItalic=N
ListFontWeight=0
ShowScrollBars=N
FullScreenModeInRuntime=N
MagicSquarePixelLength=75
ExitProgToRun=
AutoApplyParamPropChangesToParameters=N
```

4. Save the Settings.INI file using File>Save.
5. The buttons will now scroll by the new amount set in the Settings.INI file.

8.7.8 GDW: Scroll Down

This Button Attribute/Strategy Controller Action[403] will scroll the screen down.

These scroll buttons are useful when operating on small screens.
For example, if the project requires a large recipe screen but the monitor resolution is small.
A user could develop the recipe screen on a larger monitor and add the scroll buttons.
Then, transfer the project to the PC with a smaller monitor.
This way, users can utilize the scroll buttons to navigate through the large screens even though they are displayed on a smaller monitor.

Additionally, users can save space on smaller monitors with the addition of the scroll buttons because the project would no longer require scroll bars on the sides.
Scroll bars would by default appear on every screen, but a user can choose on which screens they would like to scroll on with the addition of the buttons.

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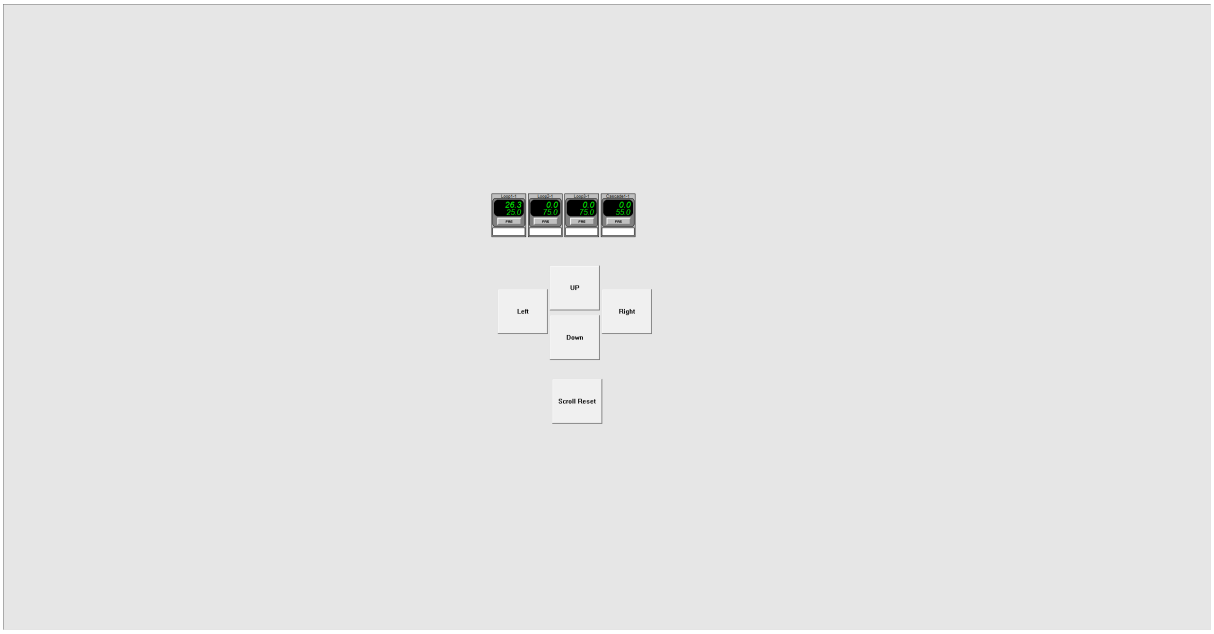


Figure 1: Original Position

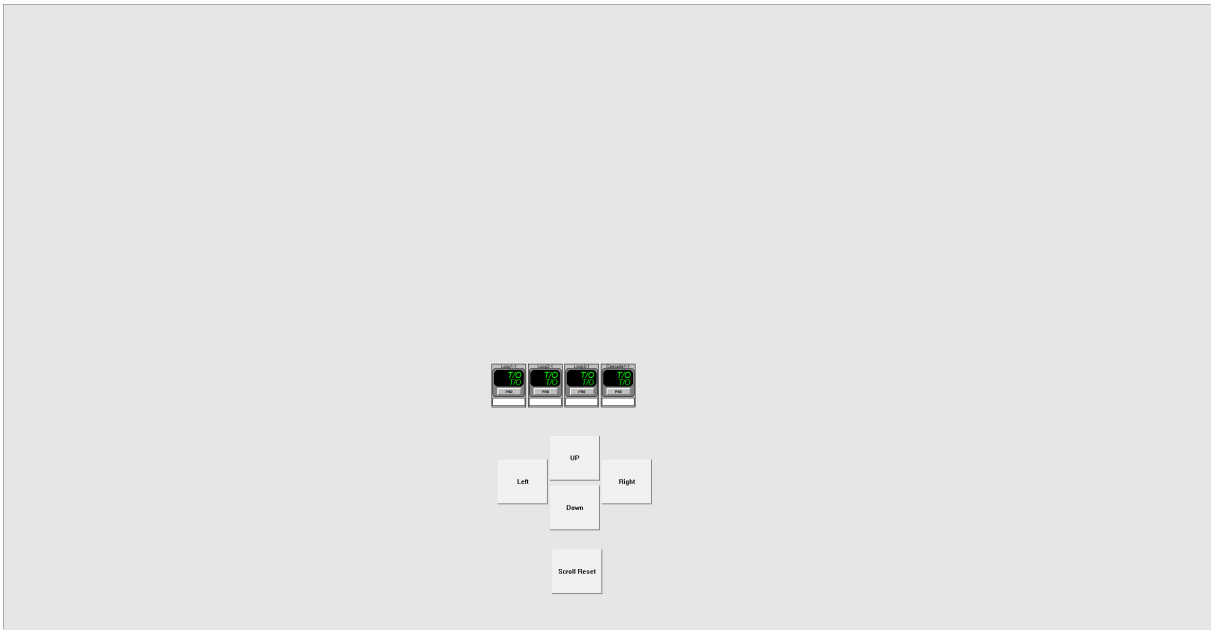


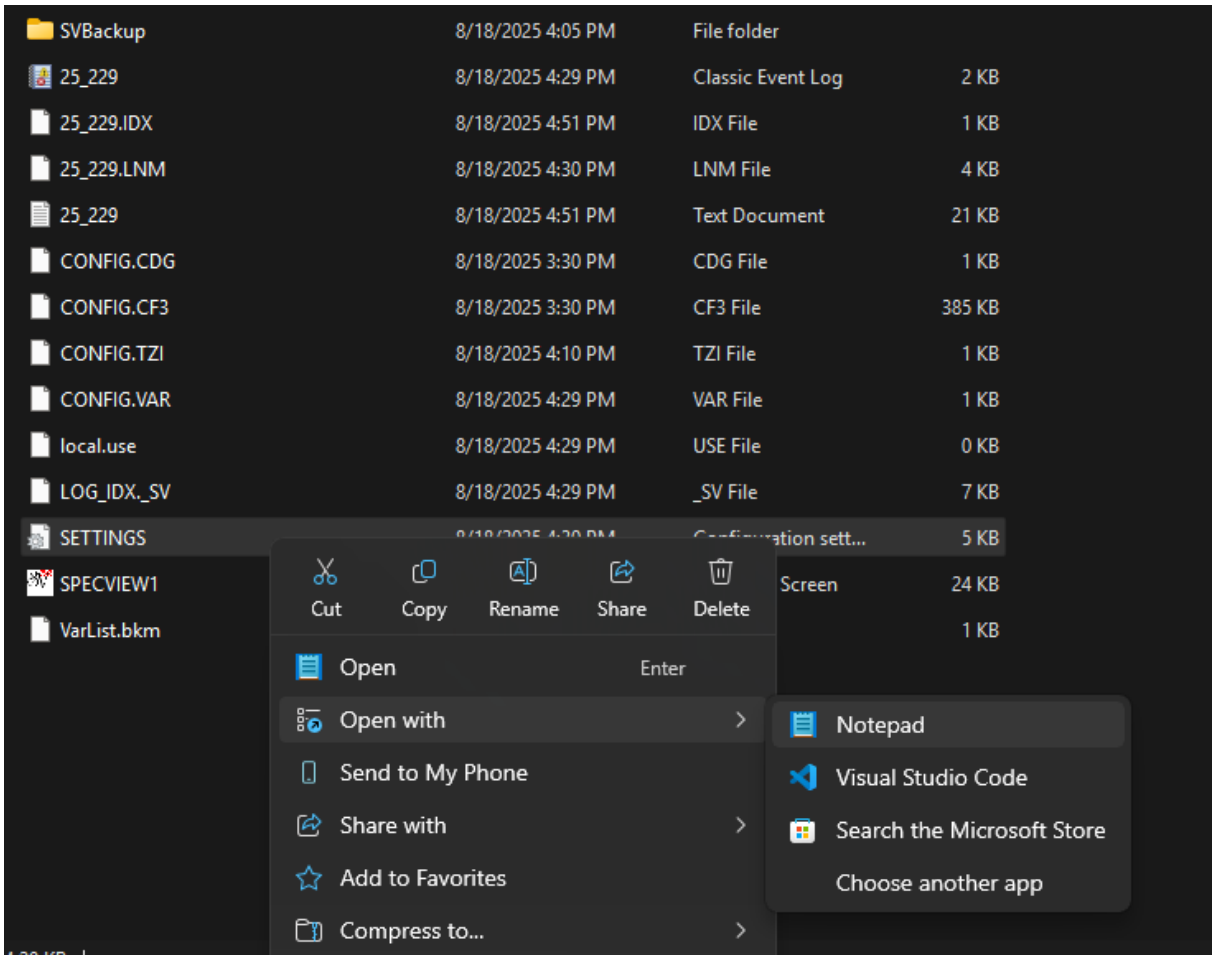
Figure 2: Screen scrolled down

Scroll Amount

The amount the Scroll Down button can scroll down is editable.
By default, the scroll amount is 25% of the current screen size.
To edit the amount the buttons scroll, follow the steps below.

1. Open the Project Folder[509].
2. Open the Settings.INI[512] file in Notepad by right clicking on the file and selecting Open with.

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3. In the Settings section, enter the following command, "*ButtonScrollPercent=x*".
   X is the amount the button should scroll by.
   For example, if a project requires the scroll amount to be 50% of the screen, then the command would be, "*ButtonScrollPercent=50*".

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```
Rate=M
MaximumNumberOfDataValuesKept=99
ApplyFixedValuesInConfigMode=N
OutputsWaitUntilStrategyUp=Y
OutputScansAllowedWhenPasswordsLockOut=Y
SendUnchangedValuesToInputs=N
InputsDisabledInHistoricalReplay=N
DelayOutputScanningUntilAllSvLinkedInputsFired=Y
ParameterByReference_AddEmail SmtpMail Class_Send_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SimpleSend_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendAttachmentScriptable_Param0=16396
[HISTORY]
AutoPauseShortTrend=99
AutoPauseLongTrend=99
CPUReplayLoading=10
[Settings]
ButtonScrollPercent=50
RecipeSelectIsInvert=N
ListFont=Arial
ListFontSize=9
ListFontItalic=N
ListFontWeight=0
ShowScrollBars=N
FullScreenModeInRuntime=N
MagicSquarePixelLength=75
ExitProgToRun=
AutoApplyParamPropChangesToParameters=N
```

4. Save the Settings.INI file using File>Save.
5. The buttons will now scroll by the new amount set in the Settings.INI file.

8.7.9 GDW: Scroll Reset

This Button Attribute/Strategy Controller Action[403] will reset the screen to its original position.

These scroll buttons are useful when operating on small screens.
For example, if the project requires a large recipe screen but the monitor resolution is small.
A user could develop the recipe screen on a larger monitor and add the scroll buttons.
Then, transfer the project to the PC with a smaller monitor.
This way, users can utilize the scroll buttons to navigate through the large screens even though they are displayed on a smaller monitor.

Additionally, users can save space on smaller monitors with the addition of the scroll buttons because the project would no longer require scroll bars on the sides.
Scroll bars would by default appear on every screen, but a user can choose on which screens they would like to scroll on with the addition of the buttons.

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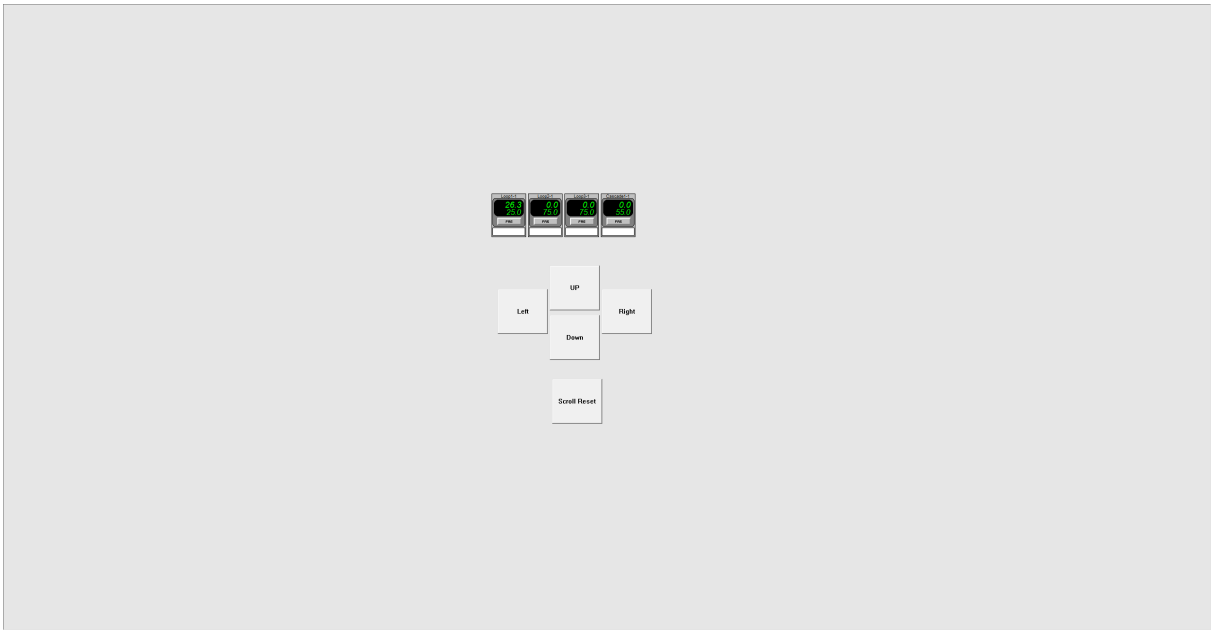


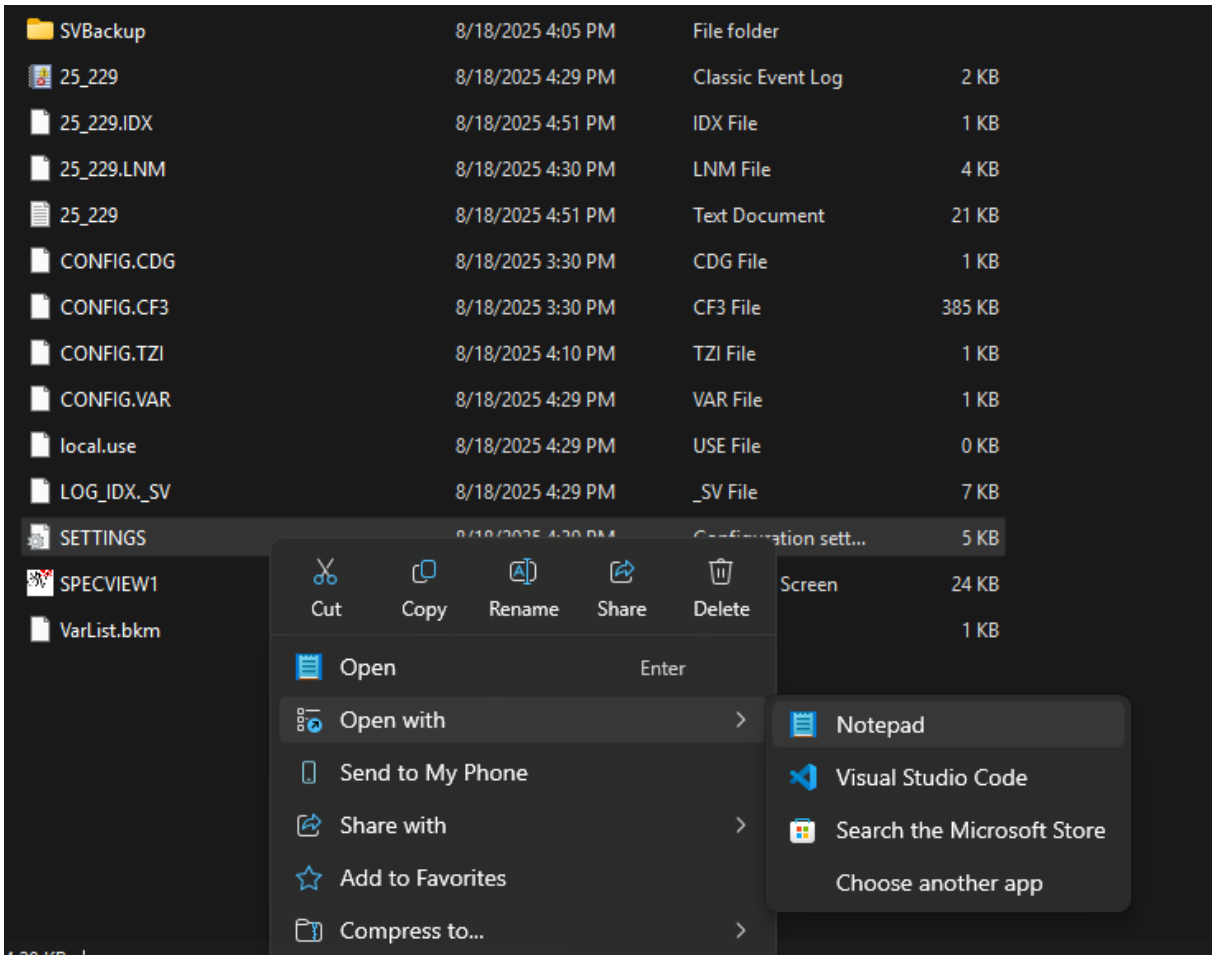
Figure 1: Original Position

Scroll Amount

The amount one of the scroll buttons can scroll is editable.
By default, the scroll amount is 25% of the current screen size.
To edit the amount the buttons scroll, follow the steps below.

1. Open the Project Folder[509].
2. Open the Settings.INI[512] file in Notepad by right clicking on the file and selecting Open with.

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3. In the Settings section, enter the following command, "*ButtonScrollPercent=x*".
   X is the amount the button should scroll by.
   For example, if a project requires the scroll amount to be 50% of the screen, then the command would be, "*ButtonScrollPercent=50*".

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```
Rate=M
MaximumNumberOfDataValuesKept=99
ApplyFixedValuesInConfigMode=N
OutputsWaitUntilStrategyUp=Y
OutputScansAllowedWhenPasswordsLockOut=Y
SendUnchangedValuesToInputs=N
InputsDisabledInHistoricalReplay=N
DelayOutputScanningUntilAllSvLinkedInputsFired=Y
ParameterByReference_AddEmail SmtpMail Class_Send_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SimpleSend_Param0=16392
ParameterByReference_AddEmail SmtpMail Class_SendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendScriptable_Param0=16396
ParameterByReference_AddEmail SmtpMail Class_SimpleSendAttachmentScriptable_Param0=16396
[HISTORY]
AutoPauseShortTrend=99
AutoPauseLongTrend=99
CPUReplayLoading=10
[Settings]
ButtonScrollPercent=50
RecipeSelectIsInvert=N
ListFont=Arial
ListFontSize=9
ListFontItalic=N
ListFontWeight=0
ShowScrollBars=N
FullScreenModeInRuntime=N
MagicSquarePixelLength=75
ExitProgToRun=
AutoApplyParamPropChangesToParameters=N
```

4. Save the Settings.INI file using File>Save.
5. The buttons will now scroll by the new amount set in the Settings.INI file.

8.7.10 GDW: Clear Trend Charts

This Button/Strategy Controller Action will clear all the pen lines from all the trend charts on a specified GDW.

If the curent GDW is not listed in the drop down list then click the Save tool  on the toolbar first.

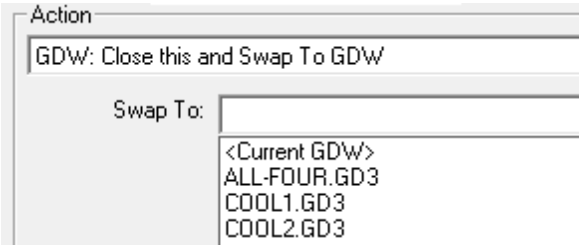
8.7.11 GDW: Close this and Swap To GDW

This Button/Strategy Controller Action will swap to another GDW and close this GDW

NOTE: Use this action when swapping from a GDW that is only used occasionally such as setup screens. This is because a GDW left open will automatically be continually refreshed in the background and this wastes communications bandwidth.

Choose which GDW to swap to from the drop down list:

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NOTE: This will clear the pen lines on any Trend chart(s) on the currently open GDW.

To swap to another GDW screen without closing and clearing the pen line(s) use GDW Control: Swap to another GDW 426

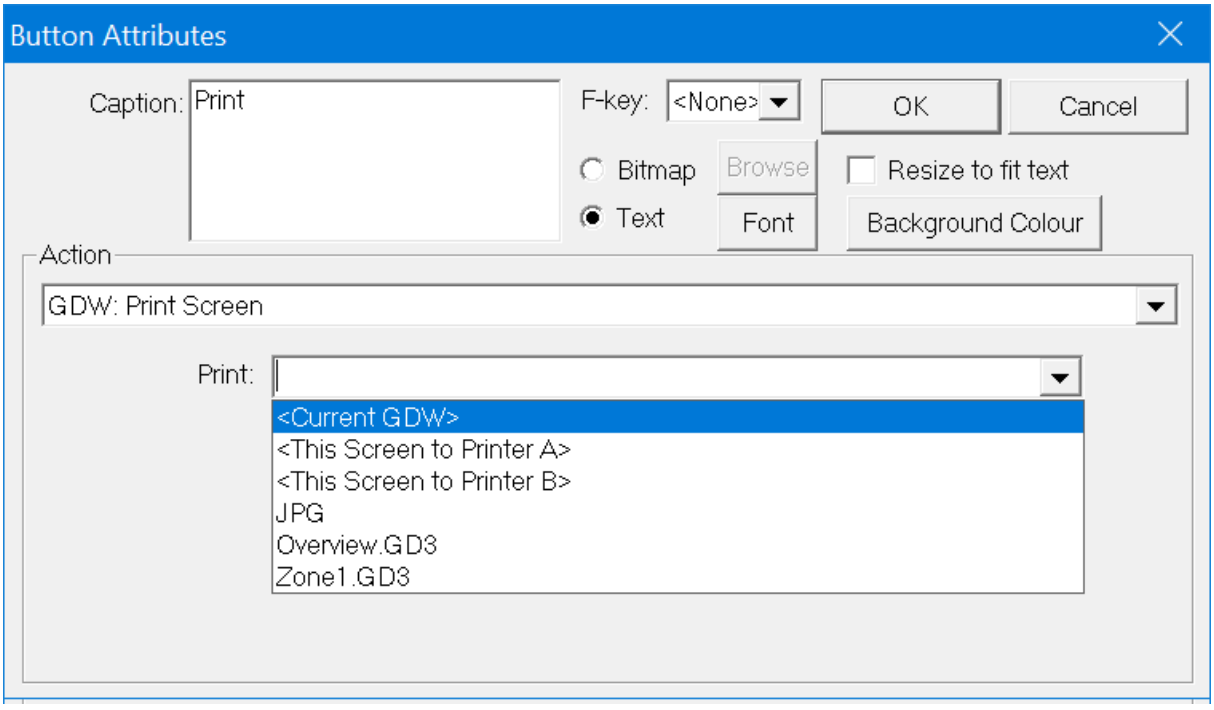
8.7.12 GDW: Close this Screen

This Button/Strategy Controller Action will close this GDW.

Note: The last GDW cannot be closed.

8.7.13 GDW: Print Screen

This Button/Strategy Controller Action will cause the selected GDW to be printed.



Selecting a GDW from the list will cause just the contents of that GDW to be printed.

Selecting <Current GDW> will cause just the contents of the currently displayed GDW to be printed.

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Selecting JPG will put an image of the whole screen, including the Windows task bar if it is visible (not just the contents of the GDW) to a .JPG (Jpeg format) file.
The filename of the file that is created has the date and time in the format:
YYYYMMDD_HHMMSS.JPG
The file is written to the current Project folder[491].
If more than one request to print 'JPG' is made at the same second, then the file will be overwritten.

When this command is used as an Action in the Strategy Controller[690], then SpecView will force File->Auto-open on Runtime[284] for that GDW.

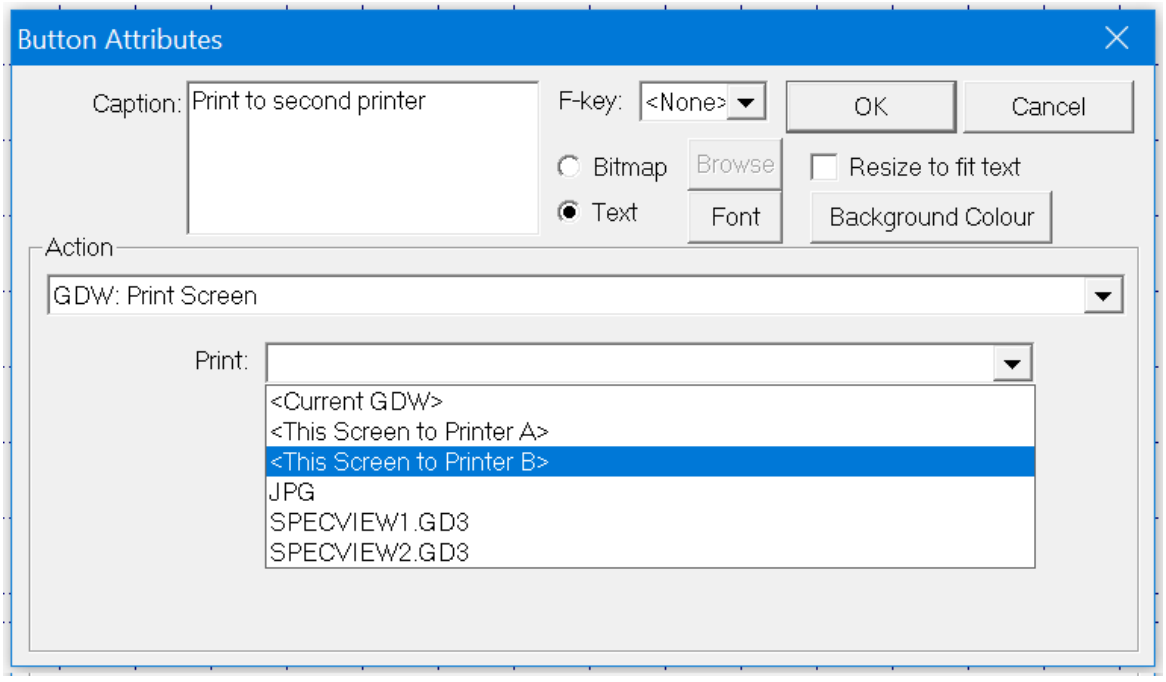
See also the Runtime mode menu commands: 'Print...' and 'Print to JPG' on the File menu[269]
and the Edit mode menu commands: 'Print Preview' and 'Print to JPG' on the File menu[284].
and the Print Options[386] that can be used to control how the contents of a screen are positioned and resized on the paper (or in the PDF file if 'Print to PDF' is being used).

Printer A and Printer B:

When printing from a Button there are 2 additional printers Printer A and Printer B that can be selected from the Button Action **'GDW: Print Screen'**.

These are both in addition to the 'Default' printer.

The drop down menu for the Button Action 'GDW: Print Screen' has <This Screen to Printer A> or <This Screen to Printer B>.



To control the how the contents of a screen are positioned and resized on the paper (or in the PDF file if 'Print to PDF' is being used) use the **Print Options** menu command on the **File** menu.

Note that Printer A and Printer B are only applicable to the Button Action **'GDW: Print Screen'**.
They are not currently applicable to these methods of printing:

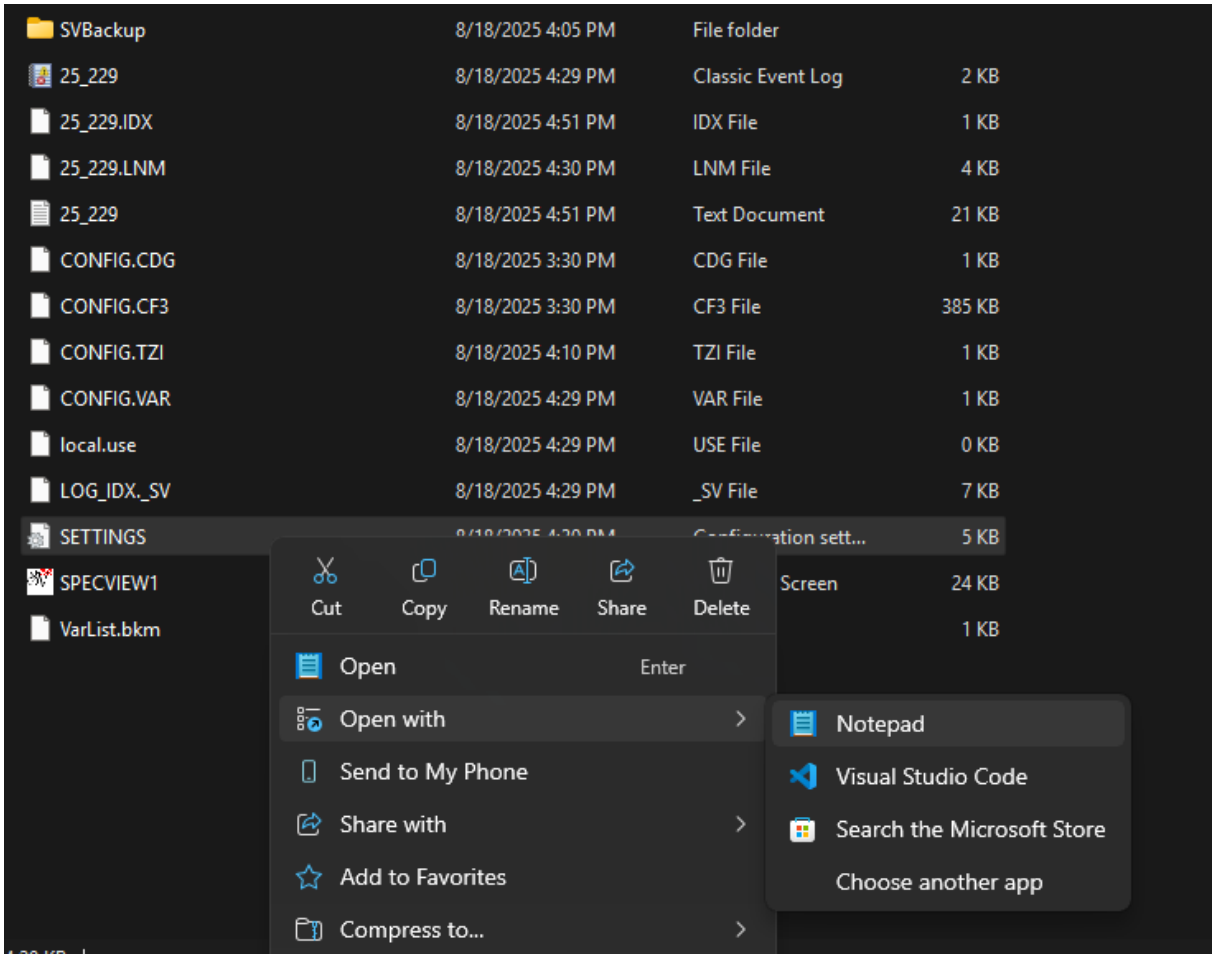
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- From the **Print** menu command on the **File** menu.
- Strategy Action: **'GDW: Print Screen'**
- Printing using the **Print** menu commands on a Trend Chart or auto-printing which is setup via the **'Print & Batch'** tab of the **Trend Chart Setup** box.

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It is now possible to use Strategy Controller[666] to print either to Printer A or Printer B.
This is done in the Settings.INI[512] file in the Project Folder[509].

1. Right click on the Settings.INI[512] file to open the file with Notepad.



2. In the Strategy section, enter the command "*PrintTo=A*" to print to Printer A or enter "*PrintTo=B*" to print to Printer B.

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3. Save the file using File > Save.

Other methods of printing from SpecView are described here[386].

8.7.14 GDW: Print Screen (Last Batch Values)

This Button/Strategy Controller Action will print the selected GDW, and if a Batch ID[627] is on the screen then the previous value of the Batch ID will be printed.

Printing a screen after a Batch has ended will mean that the Batch ID will have been changed or cleared, so the print will not show the previous Batch ID.

Otherwise this operates in the same way as GDW: Print Screen[423].

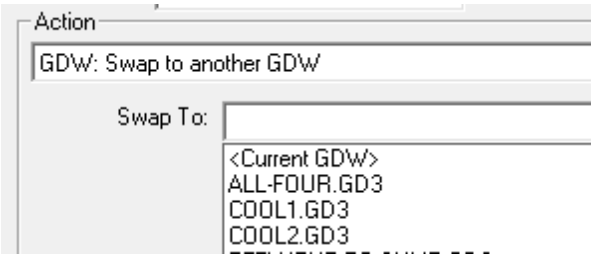
Other methods of printing from SpecView are described here[386].

8.7.15 GDW: Swap to another GDW

This Button/Strategy Controller Action will swap to the GDW selected in the drop down box.

NOTE: Use this action when swapping from a GDW that is used frequently, especially those with Trend charts. All variables on a GDW left open will be updated in the background.

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8.7.16 GDW: Toggle Full Screen Mode

This Button/Strategy Controller Action enables & disables Full Screen Mode[476]

Once Full Screen mode has been enabled there will be no menus accessible, therefore it is STRONGLY recommended that a button with this action should be added to the GDW to reverse the command. (This button may be placed on another GDW accessed by a button with the action: GDW Control: Swap to another GDW[426]).

8.7.17 GDW: Zoom in

This Button Action will zoom in, enlarging the size of the graphics & text within the GDW.
This duplicates the function Zoom - Up on the Zoom menu[277]
This action is not available from the Strategy Controller[690].

This command will not affect the size of bitmaps or Instrument Views on the GDW.

Note: This action is not available from the Strategy Controller[666].

8.7.18 GDW: Zoom Out

This Button Action will zoom out, decreasing the size of the graphics & text within the GDW.
This duplicates the function Zoom - Down on the Zoom menu[277]
This action is not available from the Strategy Controller[690].

This command will not affect the size of bitmaps or Instrument Views on the GDW.

Note: This action is not available from the Strategy Controller[666].

8.7.19 History: Start Replay

This Button Action will start Historical Replay[623] on *this* GDW.

This action is not available from the Strategy Controller[690].

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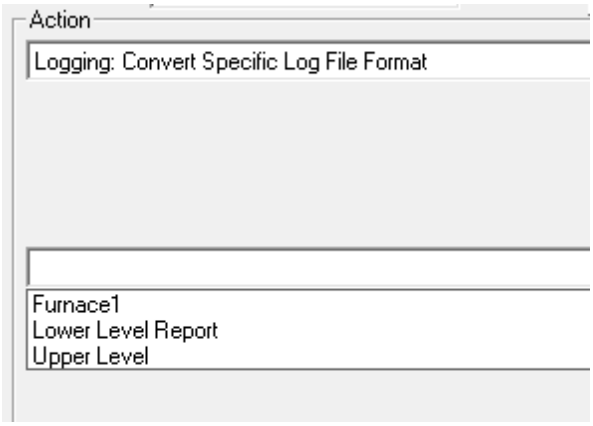
8.7.20 History: Find Batch

This Button Action will start Historical Replay[623] on *this* GDW and open the Find Batch Number[624] box.

This action is not available from the Strategy Controller[690].

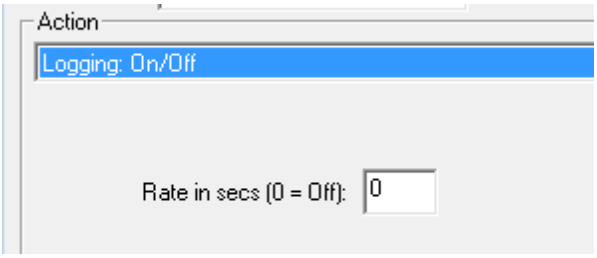
8.7.21 Logging: Convert Specific Log File Format

This Button/Strategy Controller Action will convert a specific log format[608]



8.7.22 Logging: On/Off

This Button/Strategy Controller Action turns data logging On and Off. It is usually used as an Action in the Strategy Controller[666]
The logging rate will be changed to this value when the button is clicked
A value of 0 seconds turns off data logging



The current value for the logging rate is stored in the SpecView Variable[319] LogRate.
This variable's initial value when entering Runtime mode will be the value set from Preferences - Logging[464]
The variable is Read-Only and cannot be changed during Runtime mode, other than by using this action.

NOTE: This button action only changes the logging rate for THIS Runtime session. To change the default log rate use Preferences - Logging[464].

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8.7.23 Logging: Purge Log Files

This Button/Strategy Controller Action will cause the log files older than the specified number of days to be TOTALLY deleted.
This will also delete any Batch Tag[627] information associated with those log files.
Logging can be enabled/disabled and the logging rate specified using the action Logging: On/Off[428]

NOTE: Ensure there is a reliable backup stored elsewhere before using this button action - this action is irreversible.

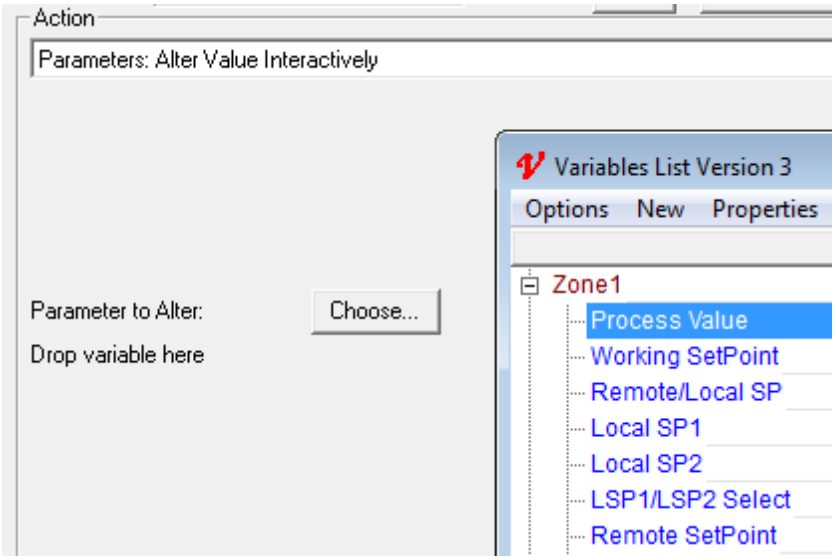
8.7.24 Logging: Show File Convert Manager

This Button Action displays the Log Report Setup[608] box.
This has the same effect as the Convert Log File menu command on the Logging menu[273]

This action is not available from the Strategy Controller[690].

8.7.25 Parameters: Alter Value Interactively

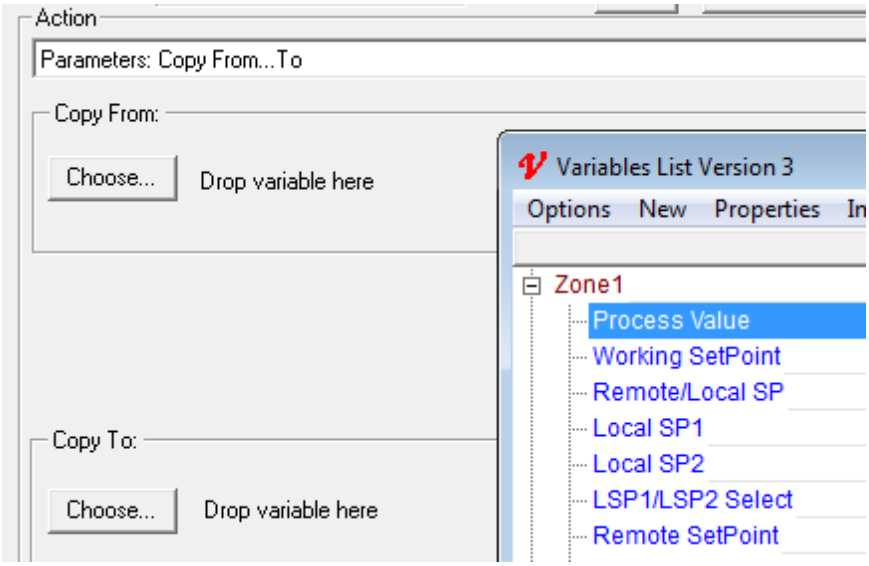
This Button/Strategy Controller Action will have the same action as clicking on the variable.
Choose the desired variable from the Variables List[313]



8.7.26 Parameters: Copy From.. To

This Button/Strategy Controller Action will value of the first variable to the second variable
In the example below the setpoint of Barrel Zone 2 will be copied to Barrel Zone 3:

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The Copy Value Button attribute (or Strategy Controller action) will copy a value from one parameter to another. In general, the source and destination of the copy should be the same type, but some type conversions are allowed, as below:

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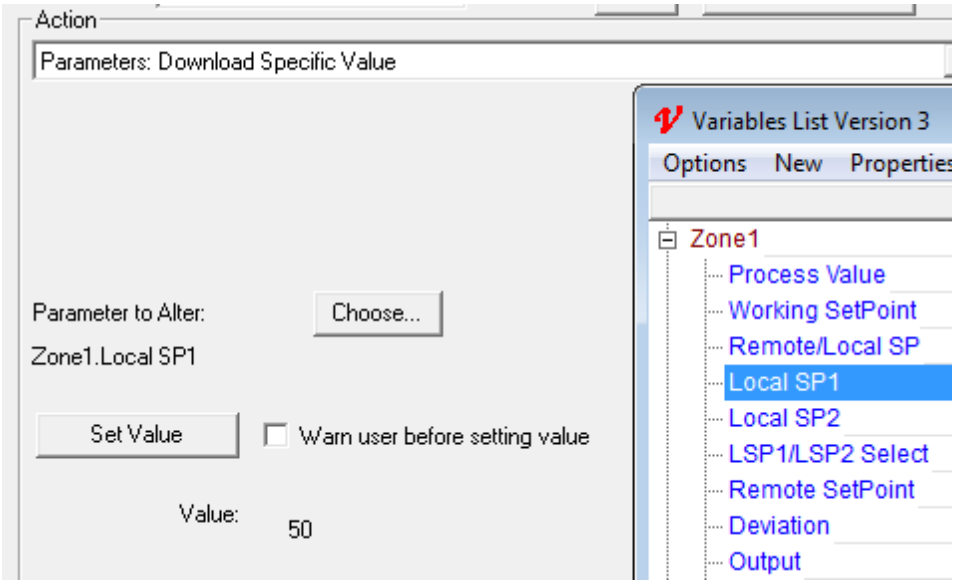
Copy FromType	Copy To Type	Result
Number (with decimals)	Integer	Decimals are truncated
Time/Countdown/ Countup	Number (with decimals)	Number of seconds is used, for example, copying 00:01:02 gives 62.0
Number (with decimals)	Time/Countdown/Countup	Number of seconds is used, opposite of above
Any Type	Text	The Text is setup with what would normally be displayed on a GDW for the Copy From type. For example, copying a time might give text with the contents '00:01:02'. Copying a boolean type might result in the word 'Manual' in a Text variable. A DateTime might give 'Sunday, July 8, 1997 08:00:00'
Text	Number (with decimals)	The first number found in the text is used. For example, if the Text contains '66.1', then 66.1 is used. If the text contains '4 5', then 4.0 is taken. If the text has '1.2Fred', then 1.2 is taken.
Text	Integer	See above, but no decimals are used.
Date	DateTime	Only affects the 'Date' part, leaves the 'Time' unaffected.
Time	DateTime	Only affects the 'Time' part unless the time is greater than 23:59:59 then the 'Date is incremented accordingly.
Enum	Integer	The numeric value is copied
Integer	Enum	The numeric value is copied

Note: Other type conversions not listed above will not work as expected.

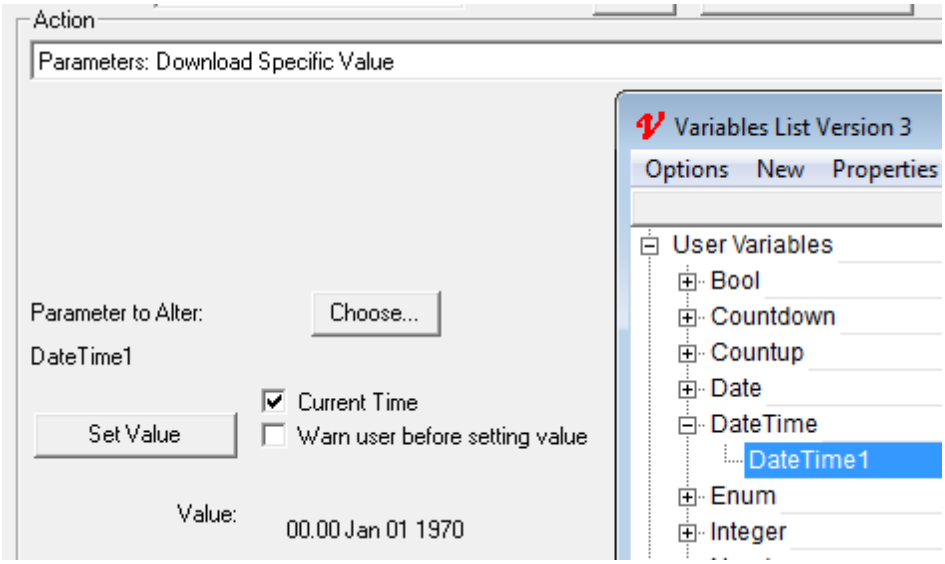
8.7.27 Parameters: Download Specific Value

This Button/Strategy Controller Action will *immediately* download the value to the instrument
The settings below will cause the Zone1 instrument's Local SP1 to be set to 50.0:

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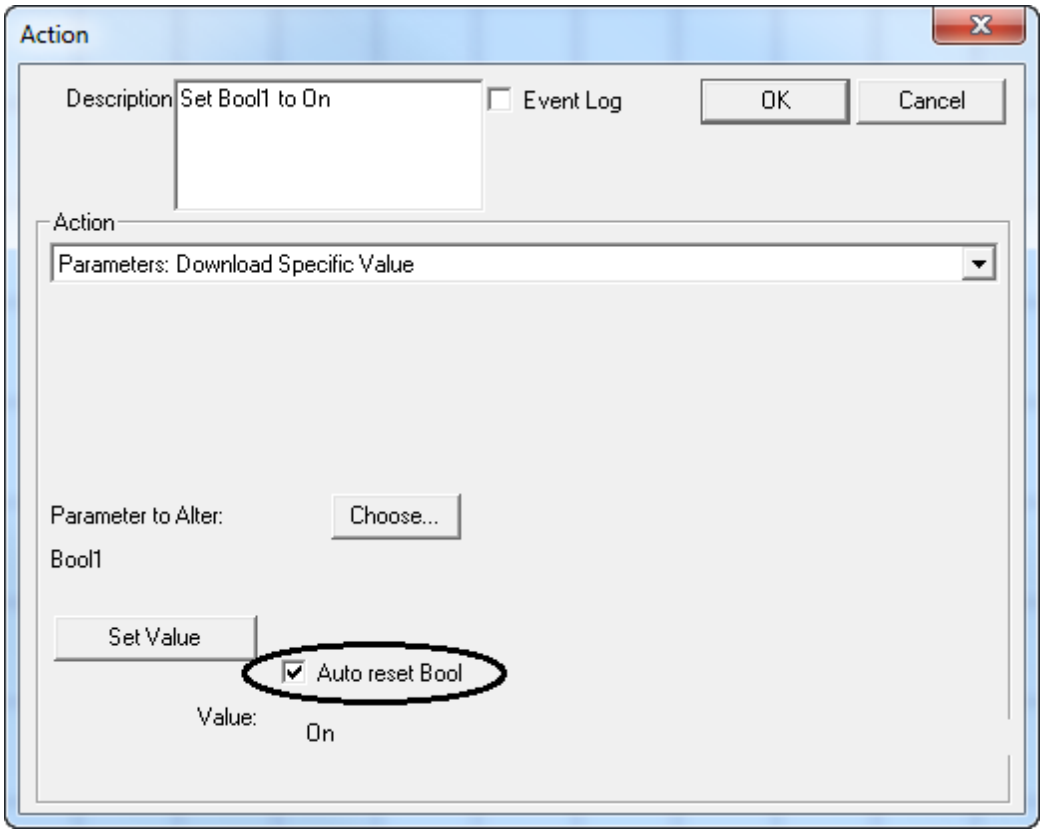


The box below shows how to set a SpecView DateTime1 User Variable to the current computer date and time:



In the Strategy Controller if the type of the variable that has been selected is a Boolean then this action has an 'Auto reset bool' checkbox:

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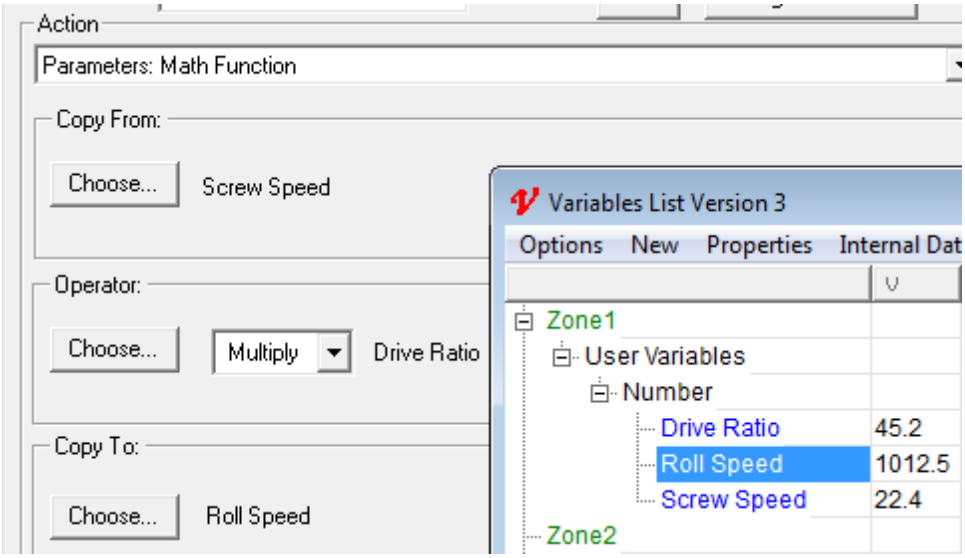
The **'Auto reset bool'** checkbox changes the behavior of the button so that the value is only changed for as long as the button is held down.
When the Button is clicked DOWN, the specified value is sent (for example, 'On') and when the button is released UP, the Auto-Reset happens and the opposite value is sent (for example, 'Off').
This is could be used for a button to set a digital output just for the duration of the button press.

8.7.28 Parameters: Math Function

This Button/Strategy Controller 666 Action allows limited amounts of mathematical and other operations to be performed on Parameters.

Math functions always take the form of:
'Copy From Parameter' <Math Function> 'Operator Parameter' -> 'Copy To Parameter'
The settings below will write the value of Screw Speed x Drive Ratio to Roll Speed

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The parameters chosen for the 'Copy From', 'Operator' and 'Copy To' fields should usually be of the same type. For example, you cannot take a date, divide it by a boolean and put the result into a text type. There are however, some exceptions listed in the table below. If you need to do math on items of different types not listed below, then use the Copy[429] function to copy the value(s) to the correct type first.

NOTE: This feature can be used to extract part of the text, such as part of a barcode from a barcode reader.

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<table>
<tr><th>CopyFrom Type</th><th>MathFunction</th><th>Operator Type</th><th>CopyTo Type</th><th>Comments</th></tr>
<tr><td>Time</td><td>Any</td><td>Number (with decimals)</td><td>Time</td><td>Appropriate math is done on the time, e.g Multiply a time by 2.0</td></tr>
<tr><td>Text</td><td>Add</td><td>Text</td><td>Text</td><td>Concatenation. Use to add 2 pieces of text together.</td></tr>
<tr><td>Text</td><td>Subtract</td><td>Integer</td><td>Text</td><td>Left or Right function. If the Integer is positive, the Left-most 'x' characters are taken. If the integer is negative, the Right-most 'x' characters are taken.
Examples:'ABCDE' Subtract 2 -> 'AB'
'ABCDE' Subtract -2 -> 'DE'</td></tr>
<tr><td>Text</td><td>Divide</td><td>Integer</td><td>Text</td><td>Mid function. The characters from the 'x'th position onward are taken, until the end of the text (First position is 0).
Example:'ABCDE' Divide 2 -> 'CDE'</td></tr>
<tr><td>Text</td><td>Multiply</td><td>Text</td><td>Integer</td><td>Find function. The integer is setup with the position of the first occurrence of "Operator Text' in the 'Copy From' text. If the text is not found, -1 is used.
Example:'ABCDE' Multiply 'BC' ->
1'ABCDE' Multiply 'FRED' -> -1</td></tr>
<tr><td>Bool</td><td>Add</td><td>Bool</td><td>Bool</td><td>AND function:
There are 4 possible combinations:
<table>
<tr><th>Copy From</th><th colspan="2">Operator</th><th>Copy To</th></tr>
<tr><td>Off</td><td>Off</td><td>Add</td><td>Off</td></tr>
<tr><td>Off</td><td>On</td><td>Add</td><td>Off</td></tr>
<tr><td>On</td><td>Off</td><td>Add</td><td>Off</td></tr>
<tr><td>On</td><td>On</td><td>Add</td><td>On</td></tr>
</table></td></tr>
<tr><td>Bool</td><td>Subtract</td><td>Bool</td><td>Bool</td><td>NOT function. Note that the Operator Parameter is not used, but must be specified. Use the same parameter for the Copy From and the Operator. The 'Copy To' boolean is setup with the opposite state of the 'Copy From' boolean.</td></tr>
<tr><td>Bool</td><td>Multiply</td><td>Bool</td><td>Bool</td><td>OR function.
There are 4 possible combinations:
<table>
<tr><th>Copy From</th><th colspan="2">Operator</th><th>Copy To</th></tr>
<tr><td>Off</td><td>Off</td><td>Multiply</td><td>Off</td></tr>
<tr><td>Off</td><td>On</td><td>Multiply</td><td>On</td></tr>
<tr><td>On</td><td>Off</td><td>Multiply</td><td>On</td></tr>
<tr><td>On</td><td>On</td><td>Multiply</td><td>On</td></tr>
</table></td></tr>
<tr><td>Bool</td><td>Divide</td><td>Bool</td><td>Bool</td><td>XOR (eXclusive-OR) function:
There are 4 possible combinations:
<table>
<tr><th>Copy From</th><th colspan="2">Operator</th><th>Copy To</th></tr>
<tr><td>Off</td><td>Off</td><td>Multiply</td><td>Off</td></tr>
<tr><td>Off</td><td>On</td><td>Multiply</td><td>On</td></tr>
<tr><td>On</td><td>Off</td><td>Multiply</td><td>On</td></tr>
<tr><td>On</td><td>On</td><td>Multiply</td><td>Off</td></tr>
</table></td></tr>
</table>

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The following three math functions use variables of type integer or number (with decimals):

- The Abs Math Function takes the first Copy From value and puts into the Copy To variable the absolute value (the positive value) of it. However, it is also necessary to specify the second Copy From variable so set it to be the same variable name as the first.
- The Max Math Function takes the two Copy From values and puts the higher value into the Copy To variable.
- The Min Math Function takes the two Copy From values and puts the lower value into the Copy To variable.

The following three math functions use ONLY variables of type number (with decimals):

- The Power Function takes the two Copy From values (x and y) and puts x^y into the Copy To variable.
- The Log_10 Function is to base 10. This is also known as the common logarithm and has many applications in science and engineering.
  This Math function takes the two Copy From values (x and y) and puts the result into the Copy To variable.
- The Log_e Function is the natural logarithm with 'e' as its base (where e ≈ 2.718).
  This function takes the two Copy From values (x and y) and puts the result into the Copy To variable.

Doing math on types not listed above or not of the same type will usually result in no action being performed. Occasionally however, unpredictable results may occur. To avoid confusion, only perform math on items of the same type, or those listed above.

8.7.29 Parameters: Show Full Parameter List

This Button Action will display the parameter list[260] of the selected instrument.

Whether the full list or short list will be displayed is determined by the Options[276] menu.

This action is not available from the Strategy Controller[690].

To display a list of selected variables either customize which ones are included in Short List[313], or use the Quick List[443].

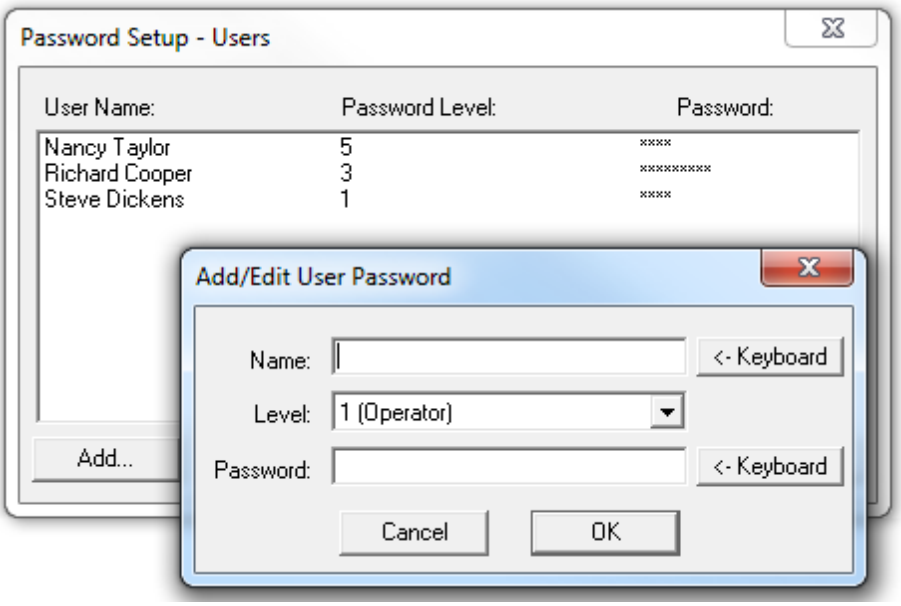
8.7.30 Password: Change Passwords

This Button Action will display the box for changing passwords[710].

This action is also available from the Strategy Controller[690].

This allows passwords to be changed from Runtime mode without having to go into Edit mode.

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8.7.31 Password: Log In or Log Out

This Button Action will display the Password login dialog from the Password menu [274].

This action is not available from the Strategy Controller [690].

8.7.32 Password: Specific User Login

As of SpecView Build 3.1.249 [134], it is possible to login as a specific user using a Button Attribute or Strategy Controller Action.

The purpose of this Button Attribute or Strategy Controller Action is to enable users to have an easier method to log in to their password protected SpecView projects.

Possible applications of this feature are as follows:

1. Logging in with an external input. [437]
2. Logging in with a Button Attribute. [438]
3. Logging in by scanning a specific barcode. [439]
4. Logging in with a hidden password. [441]

Logging in with an external input

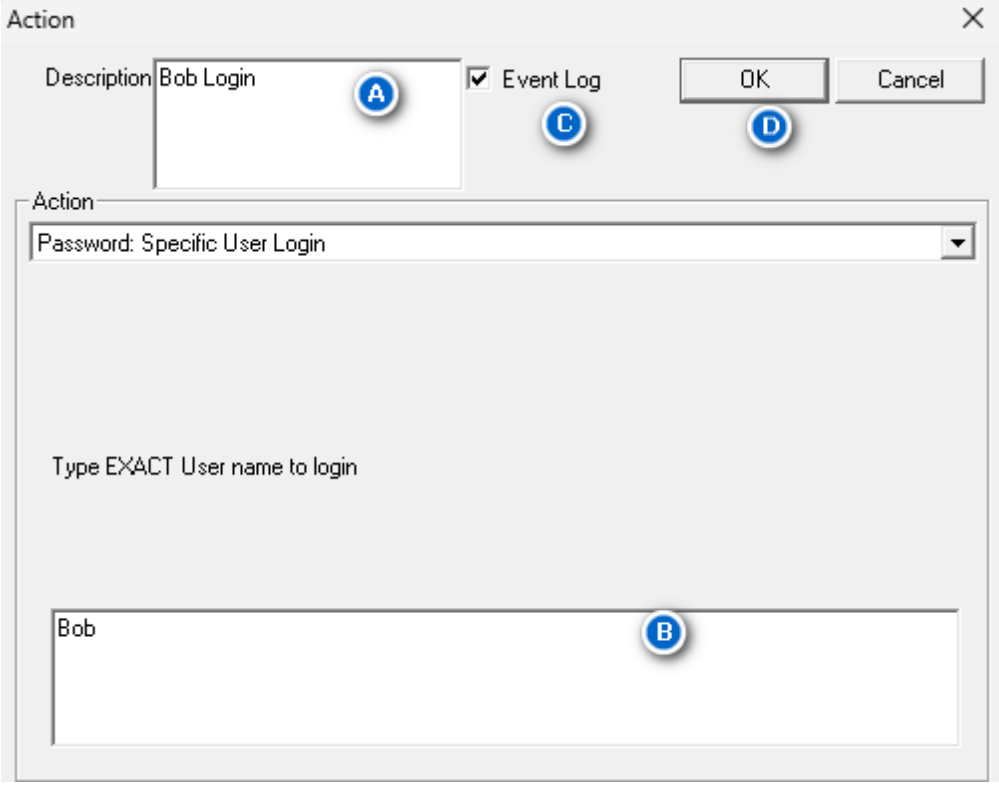
It is possible to log in as a specific user by enabling or disabling a boolean on an instrument or having the instrument's parameters meet a certain criteria.
For instance, a user can log in when an output or boolean is turned on in an instrument or when another parameter such as the PV (Process Value) of a system has crossed a certain threshold.

1. Open up the SpecView project that has passwords [703] enabled.
2. Enter the appropriate login credentials to allow for editing of the project.
3. Enter Edit Mode [501] through File > Edit Mode (remain online) or File > Edit Mode (go offline).
   If the Menu Bar is not visible at the top of the SpecView screen, then the project is in Fullscreen

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mode [476].
Exit Fullscreen mode [476] *and attempt Step 3 again.*

4. Go to Setup > Strategy Controller to have the Strategy Engine Setup Box appear.
5. Please read SpecView's help on Strategy Controller [666] to set up a Variable Based Event [690] and its associated Action [690].
6. For the Action, select Password:Specific User Login.
   A. Enter an appropriate name for the Action in the Description field.
   B. Enter the user name of the specified user exactly as it is in the SpecView Password System [703], in the field below.
   C. It is highly recommended to have have this Event and Action Logged as it is associated with the SpecView Password System [703].
   D. Click on OK.



Strategy Controller [666] will now watch for the event to occur, and log in the specific user mentioned in the Step 6.

Logging in with a Button Attribute

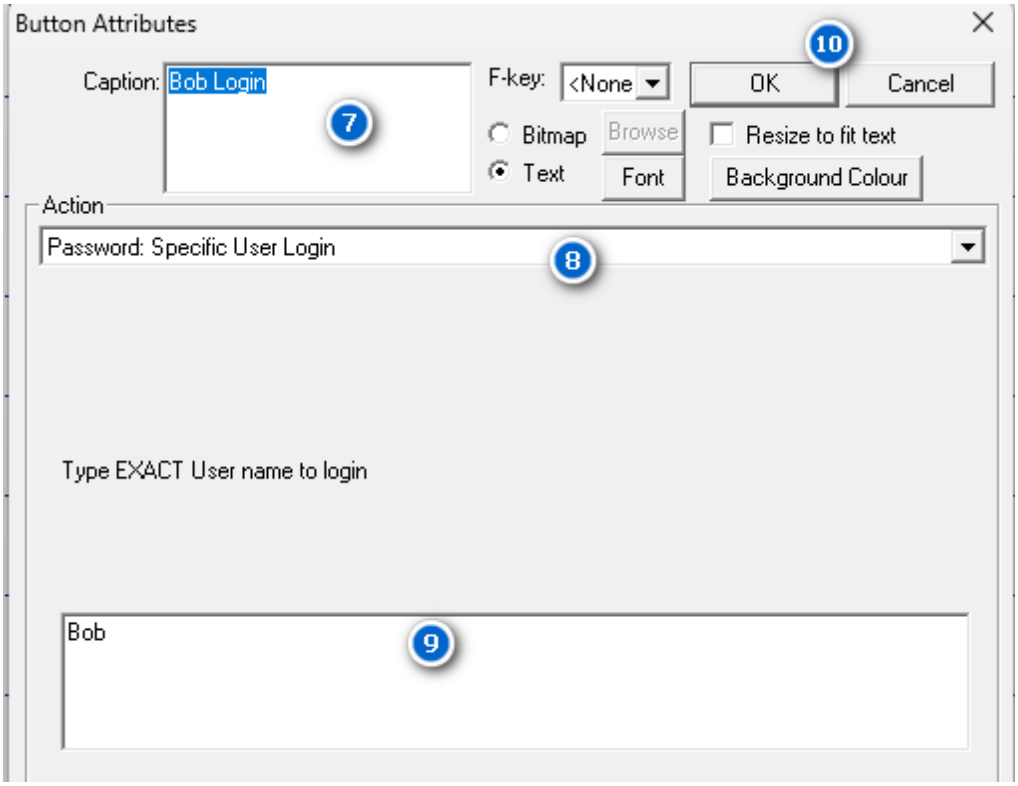
It is possible to log in as a specific user by clicking on a button.

1. Open up the SpecView project that has passwords [703] enabled.
2. Enter the appropriate login credentials to allow for editing of the project.
3. Navigate to the appropriate GDW that will contain the button for logging in.
4. Enter Edit Mode [501] through File > Edit Mode (remain online) or File > Edit Mode (go offline).
   If the Menu Bar is not visible at the top of the SpecView screen, then the project is in Fullscreen mode [476].
   Exit Fullscreen mode [476] *and attempt Step 3 again.*
5. Draw a button on the GDW. For help on drawing buttons, please read Buttons - Drawing on a GDW

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384.

6. Double click on the button to open up the Button Attributes box.
7. Give the button an appropriate name in the Caption field.
8. From the Action drop down menu, select Password: Specific User Login.
9. Enter the user name of the specified user exactly as it is in the SpecView Password System 703, in the field below.
10. Click OK.



Now every time a user clicks on that button in Runtime, the specific user mentioned in Step 9 will be logged in.
The button can not be actionable in Edit Mode 287.

Logging in by scanning a specific barcode

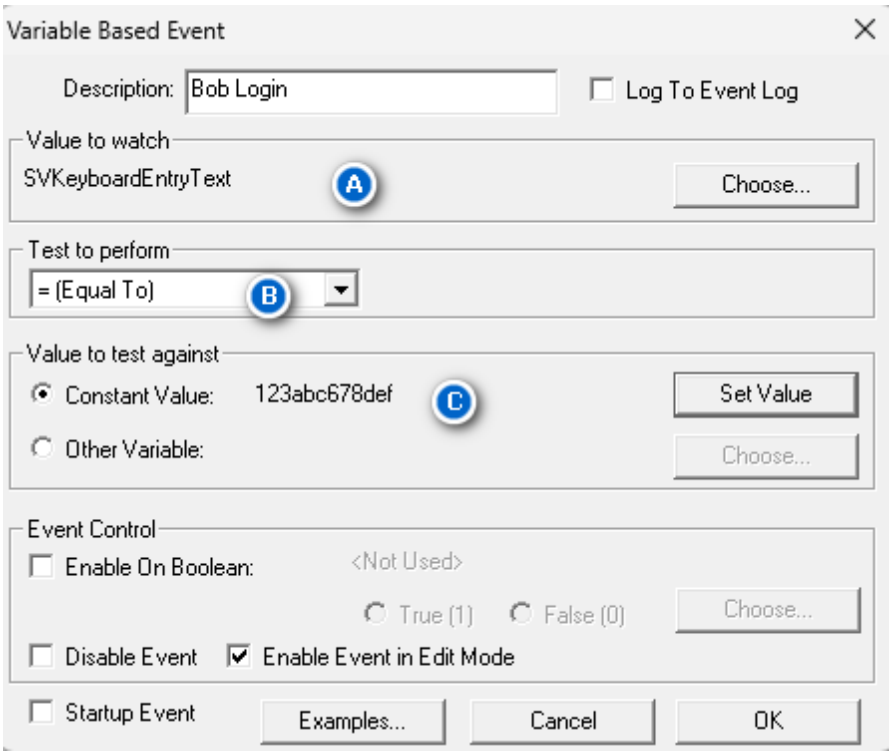
It is possible to log in as a user by scanning a barcode.
For example, a user can scan a barcode that is on their name tag which SpecView can read.
Then, SpecView can log the user in without requiring additional credentials.

1. Open up the SpecView project that has passwords 703 enabled.
2. Enter the appropriate login credentials to allow for editing of the project.
3. Enter Edit Mode 501 through File > Edit Mode (remain online) or File > Edit Mode (go offline).
   If the Menu Bar is not visible at the top of the SpecView screen, then the project is in Fullscreen mode 476.
   Exit Fullscreen mode 476 and attempt Step 3 again.
4. Set up unsolicited keyboard entry for the project.
   For help on how to do this, please read In Series with a Keyboard (Keyboard Wedge) - Unsolicited keyboard entry 213.
   Ensure to set up Strategy Controller 666 to prevent SpecView from appending two scanned barcodes

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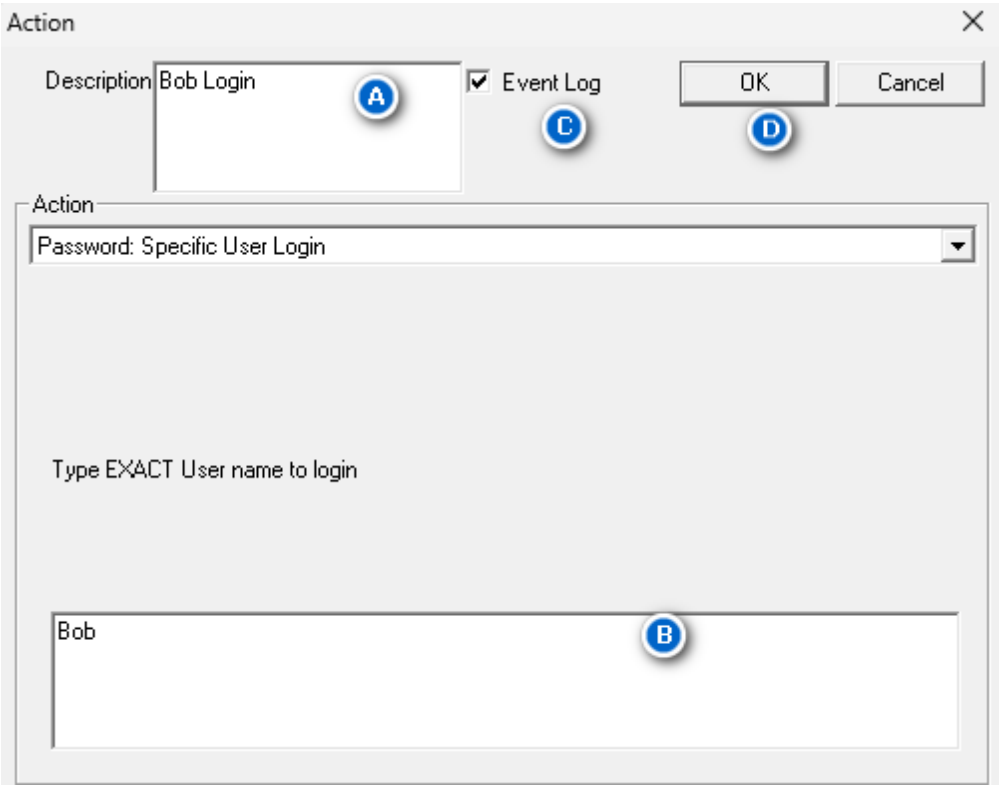
by using the parameter 'SVKeboardEntryEnter' as mentioned in the help.

5. Go to Setup > Strategy Controller to have the Strategy Engine Setup Box appear.
   Please read SpecView's help on Strategy Controller[666] to set up a Variable Based Event[690] and its associated Action[690].
   A. For the Variable Based Event, the Value to watch will be 'SVKeyboardEntryText' mentioned in In Series with a Keyboard (Keyboard Wedge) - Unsolicited keyboard entry[213].
   B. The Test to perform will be '=(Equal to)', which is selected from the drop down menu.
   C. The value to test against will be a constant piece of text that the barcode is a representation of.
      If that constant text value is unknown, it is recommended to scan the barcode using software such as Notepad.
      Open up Notepad on the PC, and scan the barcode.
      Notepad should display the text value the barcode represents.



6. For the Action, select Password:Specific User Login.
   A. Enter an appropriate name for the Action in the Description field.
   B. Enter the user name of the specified user exactly as it is in the SpecView Password System[703], in the field below.
   C. It is highly recommended to have have this Event and Action Logged as it is associated with the SpecView Password System[703].
   D. Click on OK.

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Strategy Controller will now watch for when a user scans a barcode.
If that barcode text value matches the text value entered in Step 5, then the specified user mentioned in Step 6 will be logged in.

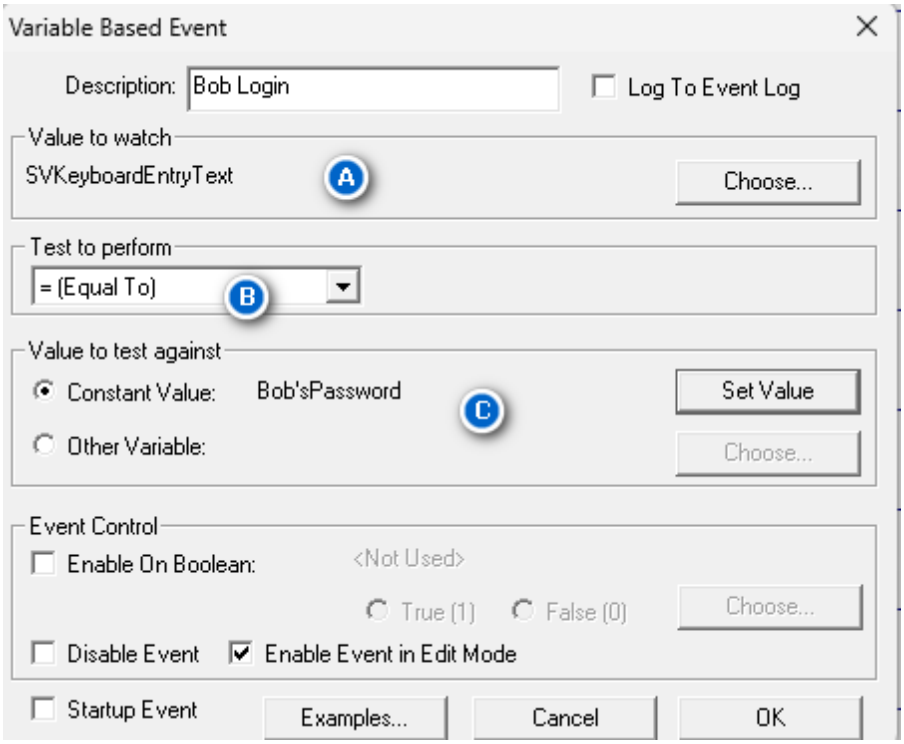
Logging in with a hidden password

Similar to logging in with a specific barcode, users can enter specific text to log in to a SpecView project that is password[703] protected.
There is no need to log in using the usual way, which is Password > Log In in Runtime.
A user could just type in their password and be logged in.

1. Open up the SpecView project that has passwords[703] enabled.
2. Enter the appropriate login credentials to allow for editing of the project.
3. Enter Edit Mode[501] through File > Edit Mode (remain online) or File > Edit Mode (go offline).
   If the Menu Bar is not visible at the top of the SpecView screen, then the project is in Fullscreen mode[476].
   Exit Fullscreen mode[476] and attempt Step 3 again.
4. Set up unsolicited keyboard entry for the project.
   For help on how to do this, please read In Series with a Keyboard (Keyboard Wedge) - Unsolicited keyboard entry[213].
   Ensure to set up Strategy Controller[666] to prevent SpecView from appending two scanned barcodes by using the parameter 'SVKeboardEntryEnter' as mentioned in the help.
5. Go to Setup > Strategy Controller to have the Strategy Engine Setup Box appear.
   Please read SpecView's help on Strategy Controller[666] to set up a Variable Based Event[690] and its associated Action[690].
   A. For the Variable Based Event, the Value to watch will be 'SVKeyboardEntryText' mentioned in In Series with a Keyboard (Keyboard Wedge) - Unsolicited keyboard entry[213].

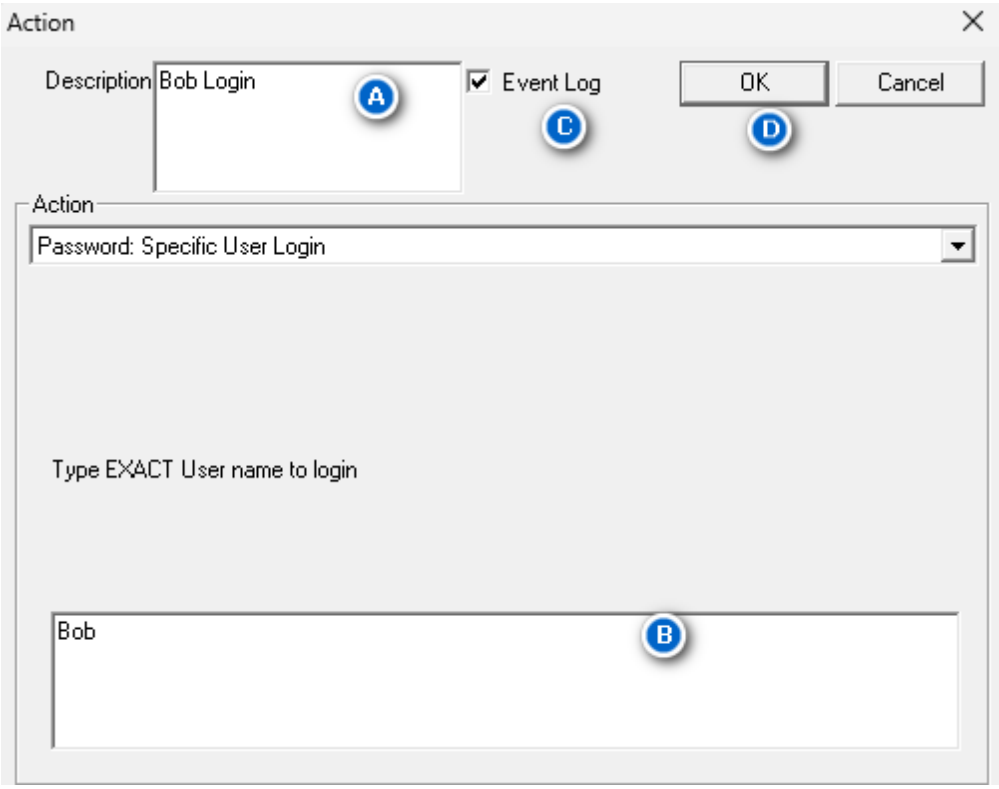
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B. The Test to perform will be '=(Equal to)', which is selected from the drop down menu.
C. The value to test against will be the desired password of the user attempting to log in.



6. For the Action, select Password:Specific User Login.
   A. Enter an appropriate name for the Action in the Description field.
   B. Enter the user name of the specified user exactly as it is in the SpecView Password System, in the field below.
   C. It is highly recommended to have have this Event and Action Logged as it is associated with the SpecView Password System [703], and can aid with ensuring accountability of the users.
   D. Click on OK.

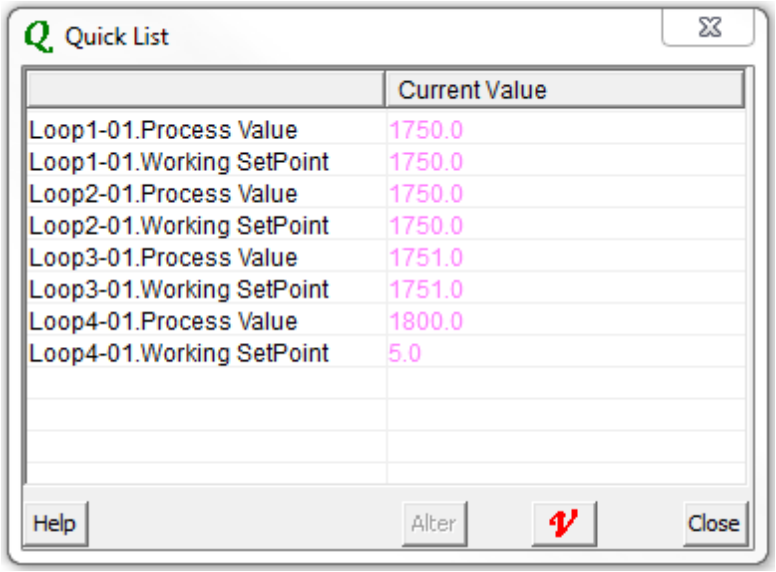
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A user can now walk up to a SpecView project, type in their password on the keyboard and hit Enter.
They will be logged in to the appropriate User Profile.
They do not need to log in by having to pull the the Password Entry box and enter all of their credentials.

8.7.33 Quick List: Show Quick List

This Button/Strategy Controller 666 Action will cause the Quick List to be displayed.



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See: Setting up a Quick List in Edit Mode [369]

8.7.34 Recipe: Download Specific Recipe

This Button/Strategy Controller Action will download the selected Recipe. It allows you to download a Recipe from any other GDW. It is often used from the Strategy Controller [666].

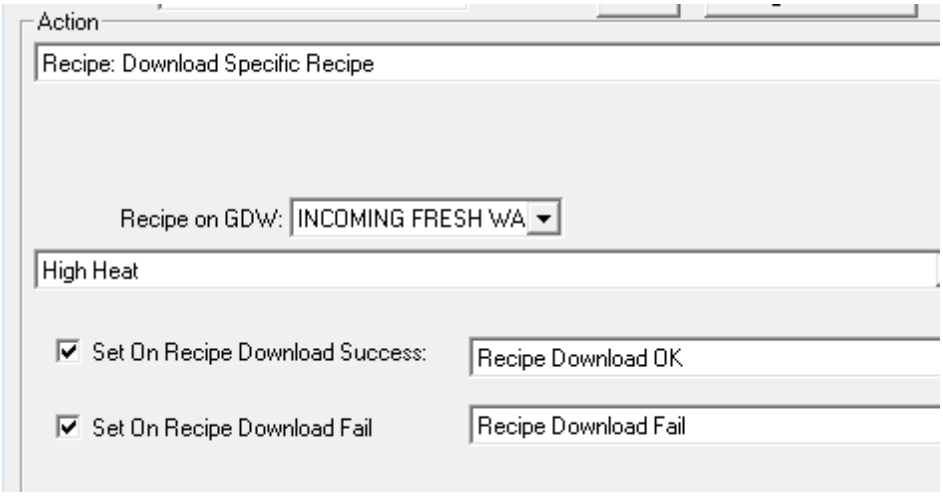
Follow these steps:

- In Edit Mode [282] put the variables that are going to be changed by the recipe onto the GDW from the Variables List [313].
- On the required GDW select the variables for recipe using the Recipe [637] tool  on the toolbar.

  Note: This tool won't work if the objects are grouped together - so remember to un-group them



- Create the boolean variables [319] to use to indicate success/failure of the recipe download.
- From Runtime Mode create the named set(s) of recipe values using the Recipe Manager [273] and save them.
- Then back in Edit Mode it will now be possible to select the GDW the Recipe is on from the drop-down list, then choose the specific Recipe, as shown:



Recipe Download Booleans

SpecView User Variables (booleans) can be set on success or fail of a Recipe download.
This most often used when a Recipe is downloaded unattended using the Strategy Controller [666]

NOTE: The user must arrange for the booleans to be turned off, either manually or using the Strategy Controller

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8.7.35 Recipe: Show Recipe Manager

This Button/Strategy Controller[666] Action will display the Recipe Manager[637] (This is the same action as the **Recipe Management** menu item on the Recipe[273] menu)

The steps to setup a recipe are described briefly here[444] or in more detail here[635]

8.7.36 Recipe: Show Recipe Manager (Read Only Mode)

This Button/Strategy Controller[666] Action will display the Recipe Manager[637] in the Read-Only mode, this prevents the user from being able to change or create new recipes.

The steps to setup a recipe are described briefly here[444] or in more detail here[635]

8.7.37 Recipe: Show Recipe Manager (Read Only Send To Mode)

This Button/Strategy Controller[666] Action will display the Recipe Manager in the Read Only - Send To[649] mode. This is used when there is more than one identical instrument that the recipe could be sent to, and allows the instrument(s) to be chosen. This will only send instrument variables to the specified instrument, it will not affect SpecView User Variables.
This also prevents the user from being able to change or create new recipes.

The steps to setup a recipe are described briefly here[444] or in more detail here[635]

8.7.38 Recipe: Show Recipe Manager (Send To Mode)

This Button/Strategy Controller[666] Action will display the Recipe Manager in the Send To[649] mode. This is used when there is more than one identical instrument that the recipe could be sent to, and allows the instrument(s) to be chosen. This will only send instrument variables to the specified instrument, it will not affect SpecView User Variables.
The user is able to change or create new recipes.

The steps to setup a recipe are described briefly here[444] or in more detail here[635]

8.7.39 Recipe: Recipe Compare

This Button/Strategy Controller[666] Action will display SpecView's Recipe Compare mode.
The purpose of Recipe Compare is to compare current values with 'Baseline' Recipe values.
To know more about Recipe Compare please read the Recipe Compare[659] section.

8.7.40 SpecView: Display Simple Message Box

This Button/Strategy Controller[666] Action will display a message box.

This allows a message to be displayed in a box

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It allows a message to be specified which will be displayed in a box with an 'OK' button that must be clicked on for the user to continue interacting with SpecView.

The value of variable(s) can be included in the message by putting the name of the variable surrounded by double percent signs, for example:

%%SpecView.Date%%
%%Zone1.ProcessValue%%

NOTE: The variable(s) MUST be on an open screen (GDW) somewhere.
Otherwise the name of the variable followed by 'Val not found' will be displayed.

Simple formatting can be done using: **\r** for return and **\t** for tab.

The text can be thousands of characters long if required.

Using this command from a button has limited usefulness beyond testing that a message appears as expected.
The main use is where the command is used in a Strategy Controller[666] Action.

Limitations:

- The message box (when invoked from the Strategy Controller) will not be displayed on any Remotes - although it is hoped to add this functionality in future releases.
- Neither the message box title nor the icon inside the box can be specified.
- The message box will always be displayed in the center of the screen, if it is moved it will not remember its position the next time, returning to central position.

8.7.41 SpecView: Enter Edit Mode

This Button Action will go from Runtime Mode into Edit Mode[282] mode with all Online Features[307] enabled.

8.7.42 SpecView: Exit Program

This Button/Strategy Controller[666] Action will cause SpecView to exit

8.7.43 SpecView: Maximize screen, Minimize Screen, Restore Screen

This Button/Strategy Controller[666] Action will Maximize, Minimize or Restore the screen.

SpecView: Maximize screen - Enlarge the GDW to use the whole screen.
This is not the same as Full Screen Mode[476]

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SpecView: Minimize Screen - Removes SpecView from the view, but leaves it running.
The icon on the Windows toolbar across the bottom of the screen can be used to restore it.

SpecView: Restore Screen - Restore the GDW to its original size.

These three actions have the same function as the Windows control buttons on the top right hand corner of all windows.

8.7.44 SpecView: Run External Program

This Button/Strategy Controller 666 Action will start another program.

SpecView can only run programs with the filename extension .EXE, .COM or .BAT and the program's filename must be specified in full including the extension. SpecView cannot run shortcuts (which are of type .LNK).

This command has the ability to accept the name of variables in the line. Each variable should be enclosed in double-percents, like this, showing an example of using SpecView.Time:
%%SpecView.Time%%

Another example, run the program 'C:\TEST.EXE' passing in the number contained in 'Zone1.PV':
C:\TEST.EXE %%Zone1.PV%%

You can have multiple variables, as long as they are always enclosed in the double-percents

If a program is specified without the full pathname then SpecView will first assume the program is in the current project's folder, for example, C:\SV3\Furnace
If it is not there, then it will use the PATH setting to find the program, alternatively specify the full path, see examples below.

NOTE: Put double-quotes around any commands or commandline parameters that contain spaces.

Some examples of these are:

```
MyCommandFile.bat MyData.CSV
'C:\My Utilities\SendText.EXE' -n07777555666 'The furnace is overheating'
C:\WINDOWS\COMMAND\XCOPY32.EXE 'C:\My Documents\Sample.doc' C:\Temp
```

Program Launch Failed; WExec error code = 2
This error will occur during Runtime mode if the program name has been incorrectly specified.
WExec error code = 3 - The path for the file has been incorrectly specified.
WExec error code = 11 - The file specified is not in valid EXE file format.

NOTE: Programs will be run minimized by default, see below:

The reason that the default setting is Minimized is because this command was originally added in order to run programs to, for example, play a sound file, where it would be inappropriate to display the program's window.
It is possible to change this in the SETTINGS.INI file in the project's folder:

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[Settings]
RunExtProgDispMode=M

Where the choices are:
M - means start Minimized, which is the default
F - means start using Full screen
N - means start in a Normal window
This setting will affect all programs run by SpecView from that project.

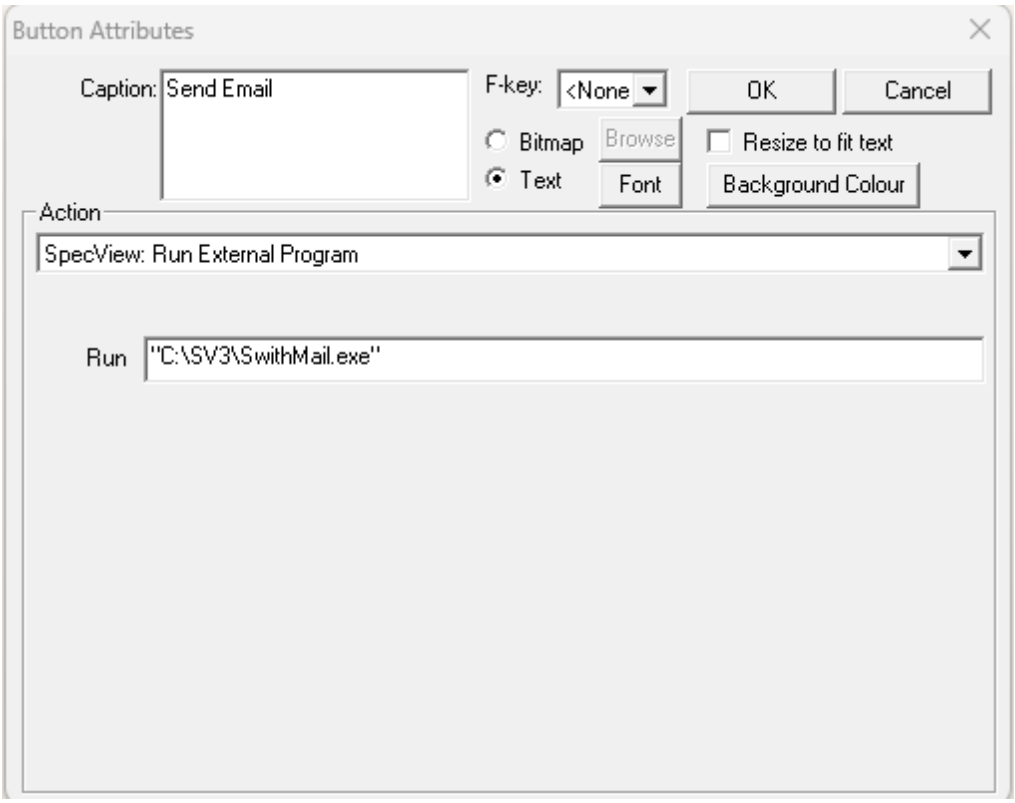
Version 3.1.253 Update

As of Version 3.1.251, it is possible to specify the path to the SV3 folder with, "%%SpecViewInstalledPath%%, and the path to the project folder[509] with, "%%SpecViewProjectPath%%. For example, "C:\SV3\CriticalAlarm2.wav" can be replaced with, "%%SpecViewInstalledPath%%CriticalAlarm.wav".
This is convenient for when SV3 is not installed on the Local C drive of the PC but else where.

%%SpecViewInstalledPath%%

This string is a special case of a Variable Substitution[517].
This string will prompt SpecView to look for the external program in the installed location.
For example, a user intends to use SwithMail.exe[848] to send emails.
The user can do this in SpecView with the Button Attribute or Strategy Controller Action of Run External Program.
In the Run field of Button Attribute or Strategy Controller Action, the path to SwithMail.exe would be entered.
If SpecView was installed on the Local C drive of the PC, then the path would be "C:\SV3\SwithMail.exe".

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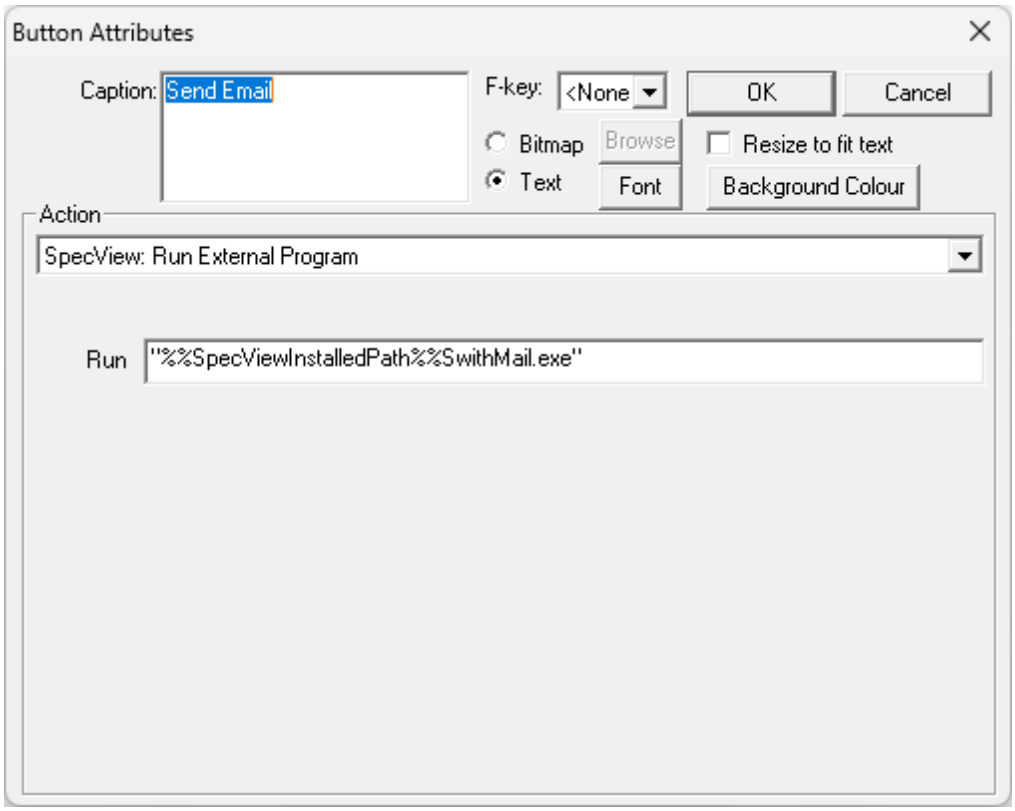


However, SpecView does not always get installed to the Local C drive.

Users can alter the location of SpecView's installation.

In situations like this, it is preferable to use the string %%SpecViewInstalledPath%% to point SpecView to the SV3 folder in the installed location.

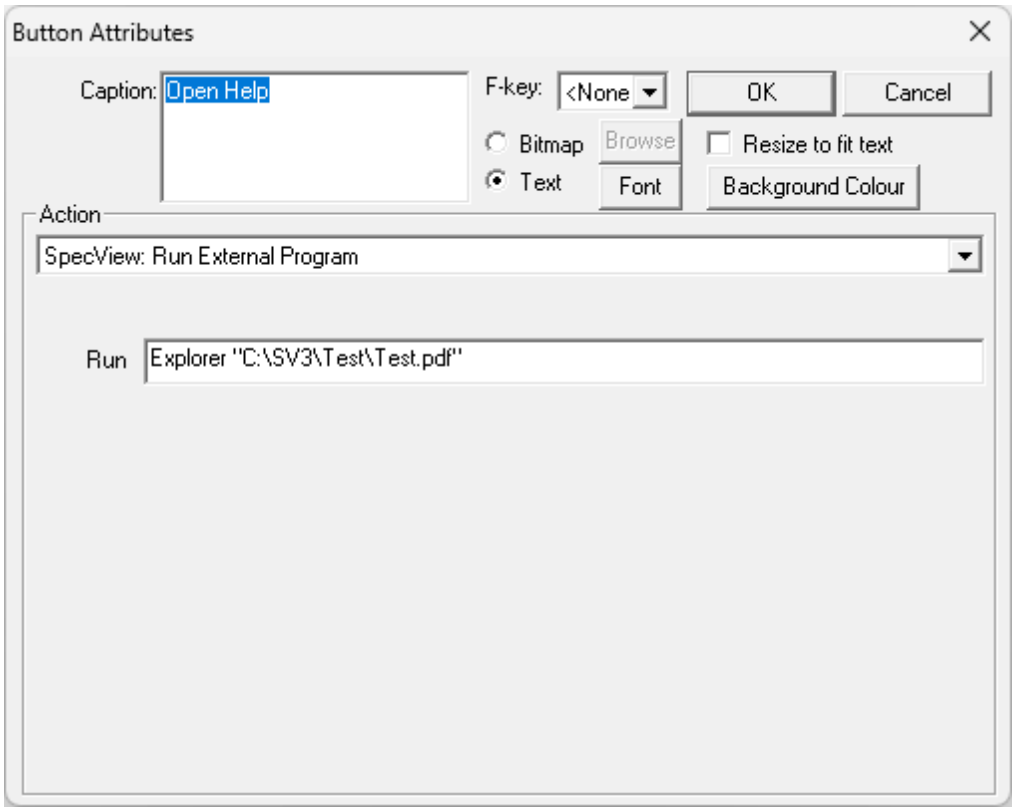
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%%SpecViewProjectPath%%

This string is a special case of a Variable Substitution[517].
This string points to the Project Folder[509] within the SV3 folder.
For example, a user wants to open a PDF that contains help for the current project in SpecView.
The PDF is stored in the Project Folder[509].
The user can do this in SpecView with the Button Attribute or Strategy Controller Action of Run External Program.
In the Run field, the path to the PDF would be required along with the Explorer command.
If SpecView was installed in the Local C drive of the PC, then the path would be "C:\SV3\Test\Test.pdf".
The name of the project is Test.

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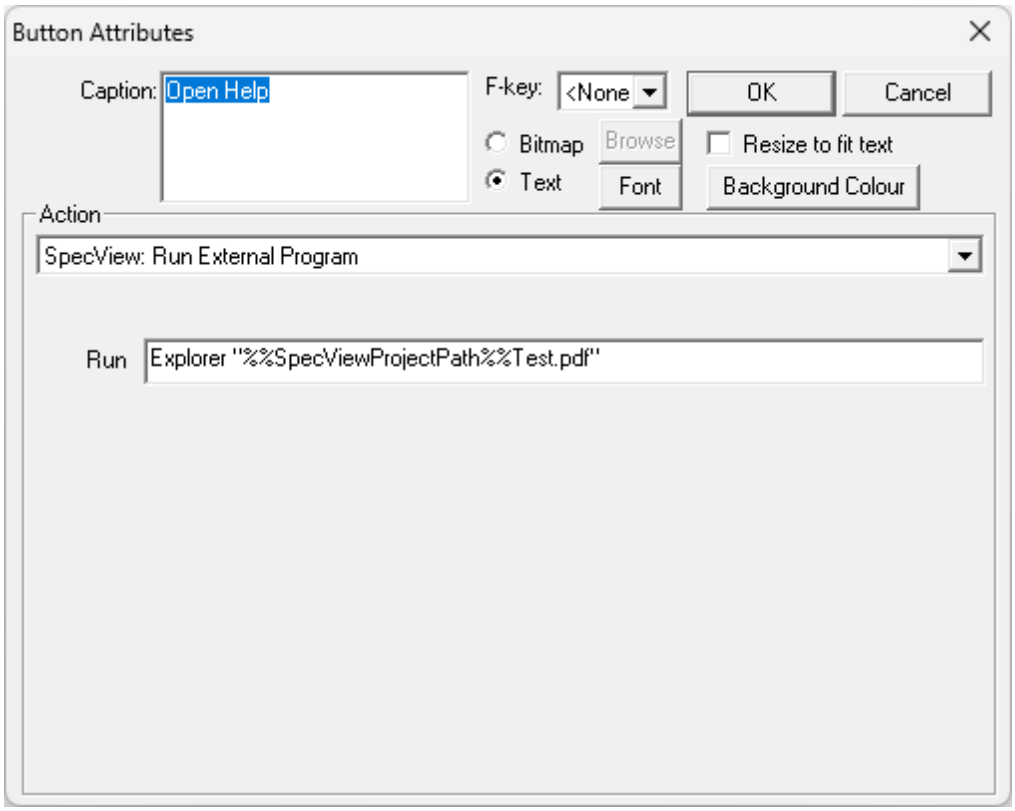


However, SpecView does not always get installed to the Local C drive.

Users can alter the location of SpecView's installation and therefore alter the location of the Project Folder[509].

In situations like this, it is preferable to use the string %%SpecViewProjectPath%% to point SpecView to the Project Folder[509].

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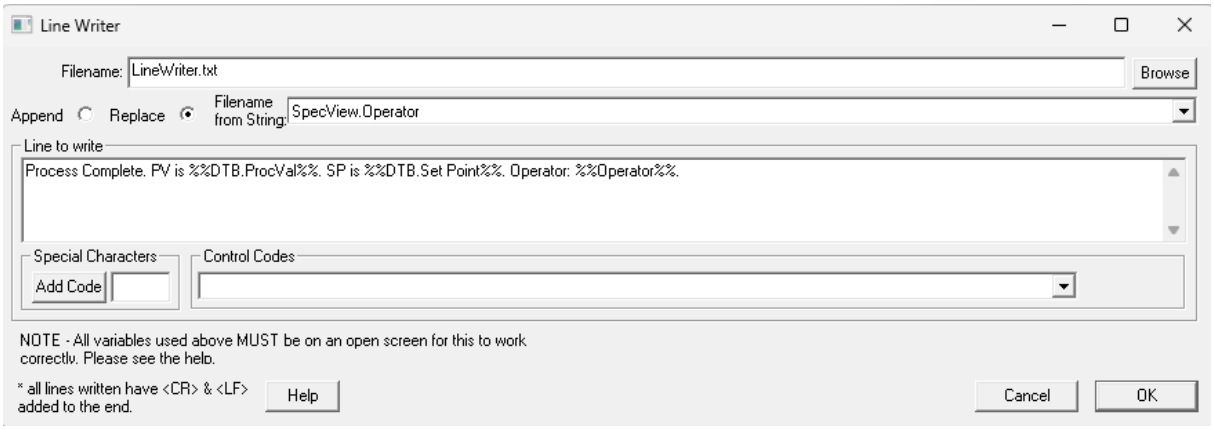


8.7.45 SpecView: Write Line to file/printer

This is also known as 'The Line Writer'.

This Button/Strategy Controller[666] Action will write a line of text allowing the writing of fixed text and SpecView variables into files. Files can be appended to or recreated each time.

Click the **Visual Editor** button to edit the line to be printed:



Either specify a filename to write to in the Filename box or use a SpecView Text variable from the list of

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currently defined Text variables for the filename.
NOTE: The filename must not contain spaces.
To write to a filename which is specified by the date, see below.

On some printers it is possible to print directly to the printer by setting the filename to the name of the printer, for example, 'LPT1:', or for a network printer '\\print server\epson' a Form Feed can be added to the end of the text using the Control Codes drop down menu, described below.

It is also possible to write to a COM port by setting the filename to, for example 'COM2:'.

Check the Append box to append to an existing file, or check the Replace box to overwrite or create a new file.

The Command box defines the line(s) to be written to the file. Any text can be entered together with variable names, which are added using the **Choose** button. These will be enclosed in a pair of percent signs, such as: %%varname%% and will be substituted at runtime. These enclosed strings are called Variable Substitutions 517.

The number of decimal places 496 to be used for Numbers (with decimals) is specified in Preferences - Runtime 459 under Line Writer DP. This setting will then apply to all Numbers (with decimals).

NOTE: The Line Writer requires that any variables you include in the %% items are on a screen (GDW) that is always open.

Otherwise the name of the variable followed by 'Val not found' will be displayed.

If instead of the value of a variable the file contains the error: **Val not found** then the problem is likely to be that the variable needs to be on an open GDW.
Certainly all SpecView Pre-defined variables or User Variables that are to by written to a file by the Line Writer need to be on an open GDW.
For instrument variables this is also important because the last known value for the variable must be available at the time the Line Writer needs to write the line. The Line Writer cannot read the value over comms because this may take several seconds (or minutes in cases of timeouts with bad comms). By putting the value on a GDW, SpecView will usually have the value available.

The line written always has a <CR> and <LF> automatically added to the end, but these can also be added at any point in the line to generate multiple lines.

Use the **Control Codes** drop down menu to add typical control codes such as <HT> (Horizontal Tab) but for the more obscure codes, type the decimal code into the Special Characters box and click **Add Code**. These codes may be required, for example, for printer control or for other non-SpecView software to pick up and process such as Visual Basic programs.

See below for a list of ASCII special characters (or search the web for 'ASCII character codes')

Dec Code	Dec Code
00 NUL	16 SLE
01 SOH	17 CS1
02 STX	18 DC2
03 ETX	19 DC3
04 EOT	20 DC4
05 ENQ	21 NAK
06 ACK	22 SYN

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07 BEL	23 ETB
08 BS	24 CAN
09 HT	25 EM
10 LF	26 SIB
11 VT	27 ESC
12 FF	28 FS
13 CR	29 GS
14 SO	30 RS
15 SI	31 US

To specify the Decimal Places written by the Line Writer

The default setting for decimal places for values written to a file using SpecView's Line Writer[452] is specified using **Line Writer DP** on Preferences - Runtime[459]

To set the decimal places for specific values written to a file using SpecView's Line Writer[452] (if the default setting above is not appropriate for a value), then use CVTSETTINGS.INI[492]

To write to a filename which is specified by the date

As already stated; the filename used by the Line Writer must not contain spaces, commas or colons.
The filename would contain spaces and commas if the date format was left as: '%A, %B %d, %Y' the date would be, for example: 'Wednesday, 7 January, 2014' and the spaces and commas would cause problems.
Therefore, in order to use the date for the filename, for example: %%SpecView.Date%%.CSV to create, say: 14_006.CSV then the date format needs changing to: '%y_%j' from Preferences - Display[461].

To add some text as a prefix or suffix to the filename copy SpecView.Date into a Text User Variable and create another Text User Variable containing the prefix or suffix then use the Strategy Action Parameters: Math Function[433] to add (concatenate) the Text variables together.

Making your own 'Log Files'

Making a form of .CSV file is easy with the Line Writer. These three separate Line Writer commands illustrate the concept - note the commas between the %% to cause commas to be output in the file.

Call the file, for example LOG.CSV, and append to it each time:

```
+LOG.CSV Time,Zone1,Zone2
+LOG.CSV %%SpecView.Time%%,%%Zone1.PV%%,%%Zone2.PV%%
+LOG.CSV %%SpecView.Time%%,%%Zone1.PV%%,%%Zone2.PV%%
```

Provided that the last 2 lines are done independently by the Strategy Controller, the file may look like this:

```
Time,Zone1,Zone2
12:10:34,560.1,580.0
12:11:34,560.2,579.9
```

The above example shows writing a CSV (Comma Separated Values) format file, just like SpecView's Log Reports.
The reason for using the Line Writer instead of Log Reports would be if a line was required to be written to the file only occasionally, for example, when a fault occurred.

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8.7.46 SpecView: Play Sound File

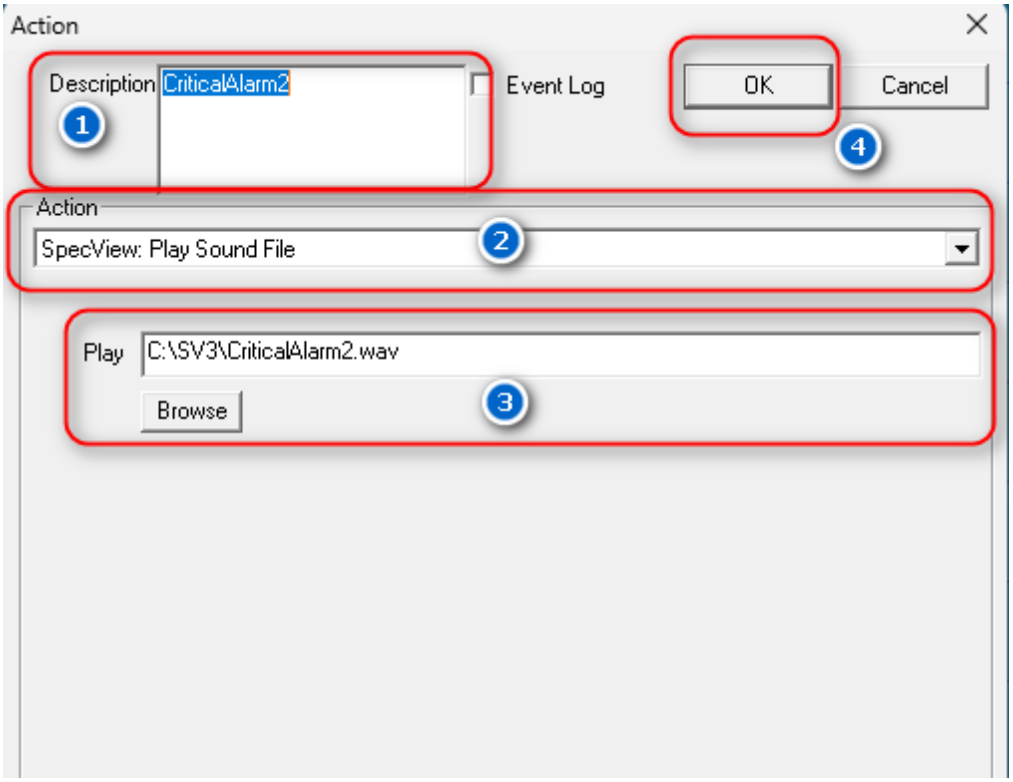
This Button/Strategy Controller[666] Action will play a WAV file.
Only the WAV file format is accepted, not MP3, although there are many third-party tools available to convert MP3 files into WAV files.

After navigating to the Strategy Controller Action[690] or Button Attributes[403] box, follow the steps below to play a WAV file from SpecView.

1. Enter a description for the Strategy Controller[666] Action or a Caption for the Button Attributes[403].
2. Select SpecView: Play Sound File from the Action drop down menu.
3. Select the WAV file to be played by entering the path to the file.
   Additionally, the WAV file can be selected by clicking on the Browse button, which opens File Explorer, and navigating to the location of the file.
   For the sake of organization, it is better to save the WAV files within the SV3 folder or within the Project Folder[509].
   To efficiently navigate to the SV3 folder or the Project Folder[509], use the strings %%SpecViewInstalledPath%%[448] or %%SpecViewProjectPath%%[450].

   As of Version 3.1.251, it is possible to specify the path to the SV3 folder with, "%%SpecViewInstalledPath%%, and the project folder[509] path with, "%%SpecViewProjectPath%%.
   For example, "C:\SV3\CriticalAlarm2.wav" can be replaced with, "%%SpecViewInstalledPath%%CriticalAlarm.wav".
   This is convenient for when SV3 is not installed on the Local C drive of the PC but else where.

4. Click OK.



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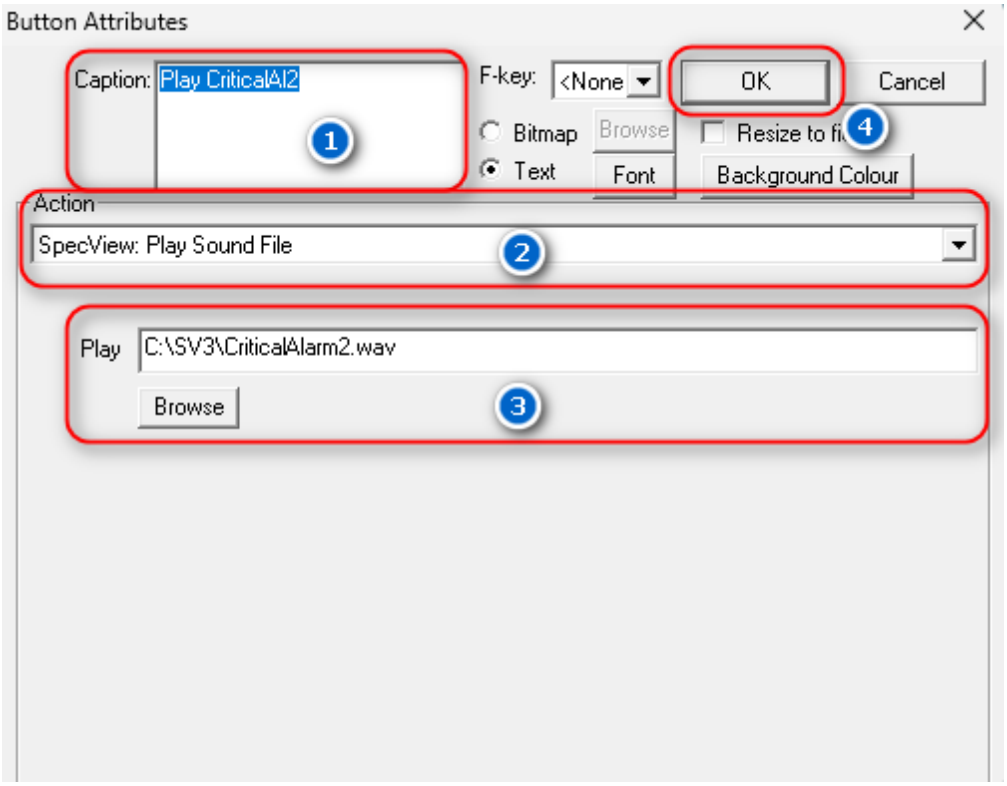


Figure 1: Strategy Action Box (left) and Button Attributes box (right).

Assuming steps 1 to 4 have been correctly executed, then the next time the associated Strategy Controller Event[667] occurs or the associated Button is clicked on, SpecView should play the WAV file.

If the WAV file is not heard, ensure the following:

- System audio is audible and not being muted
- The path to the WAV file is correct.
- The logic for the Strategy Controller[666] event is correct and not being interfered with by other Strategy Controller Events[667].

8.7.47 SpecView: Write Text to another Text String

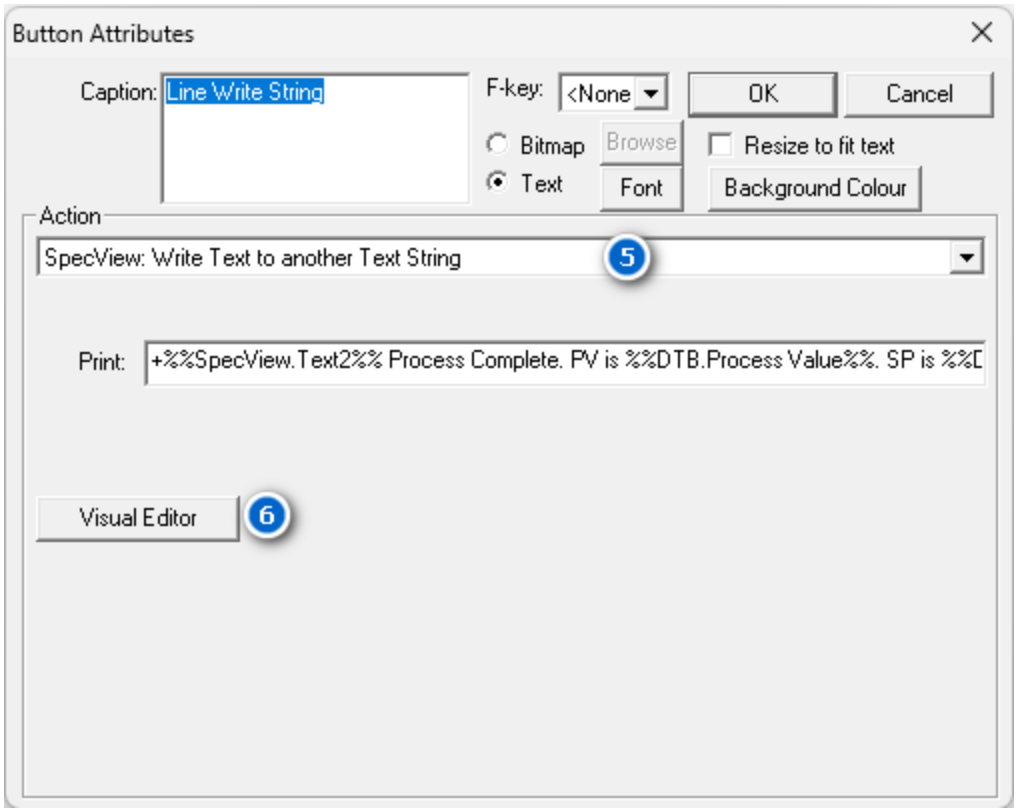
This Button/Strategy Controller Action[403] will append or replace a piece of text to a designated Text parameter[517].

Follow the steps below to action Write Text to another Text String.

1. Enter Edit Mode[501] via File > Edit Mode (remain online) or Edit Mode (go offline)[282].
   If the Menu bar[283] is not visible at the top, then Fullscreen Mode[476] is enabled for that project.
   Exit Fullscreen Mode[476] by using the appropriate button on the screen or by using the Magic Square[476].
2. Open up the Variables List[517].
3. Create a Target String (Text Variable) to write to by using SpecView's User Variables[322].
   If a Target String is already present, then skip Step 3.
   For more details on how to create a User Variable please read Variables List - SpecView

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Variables 322.
4. Navigate to the Strategy Controller Action 690 or Button Attributes 403 box.
5. Select Write Text to another Text String from the Action drop down menu in the Strategy Controller Action 690 or Button Attributes 403 box.
6. Click on Visual Editor.



7. Click on Append to append a string to the Target String or Replace to replace the contents of the Target String.

Appending to the Target String can be dangerous as there is a 20,000 character limit on the Target String.

8. Select the Target String from the Target Text String drop down menu.
9. Enter the desired text in the Line for target text string field.

To add a new line, press Ctrl+Enter.

There are two ways to add live parameter values.

A. Drag the parameter into the Line for target text string field from the Variables List.

B. Enter the full instrument and parameter name encapsulated in %% as seen in the image below.

For example, the instrument name is DTB and the parameter name is Process Value.

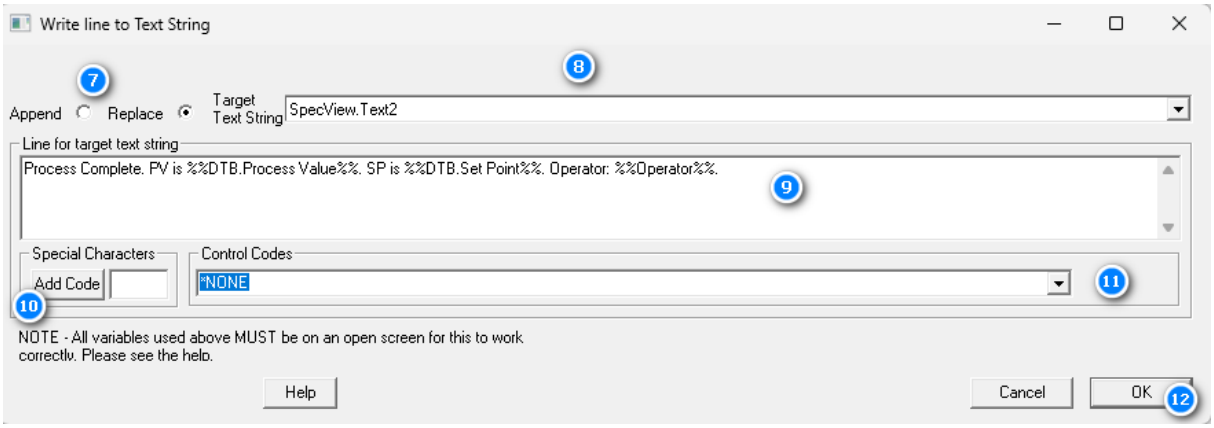
To acquire the live value of the parameter for the Target Text String, the following has to be entered into the Line for target text string field, "%%DTB.Process Value%%".

This is called a Variable Substitution 517.

All variables used in the Target Text String must be on an open GDW 503 to ensure proper operation of this Button/Strategy Controller Action 403.

10. Add special characters if needed by entering the characters to the Special Characters field and clicking on Add Code.
11. Select a Control Code from the Control Code drop down menu.
12. Click OK.

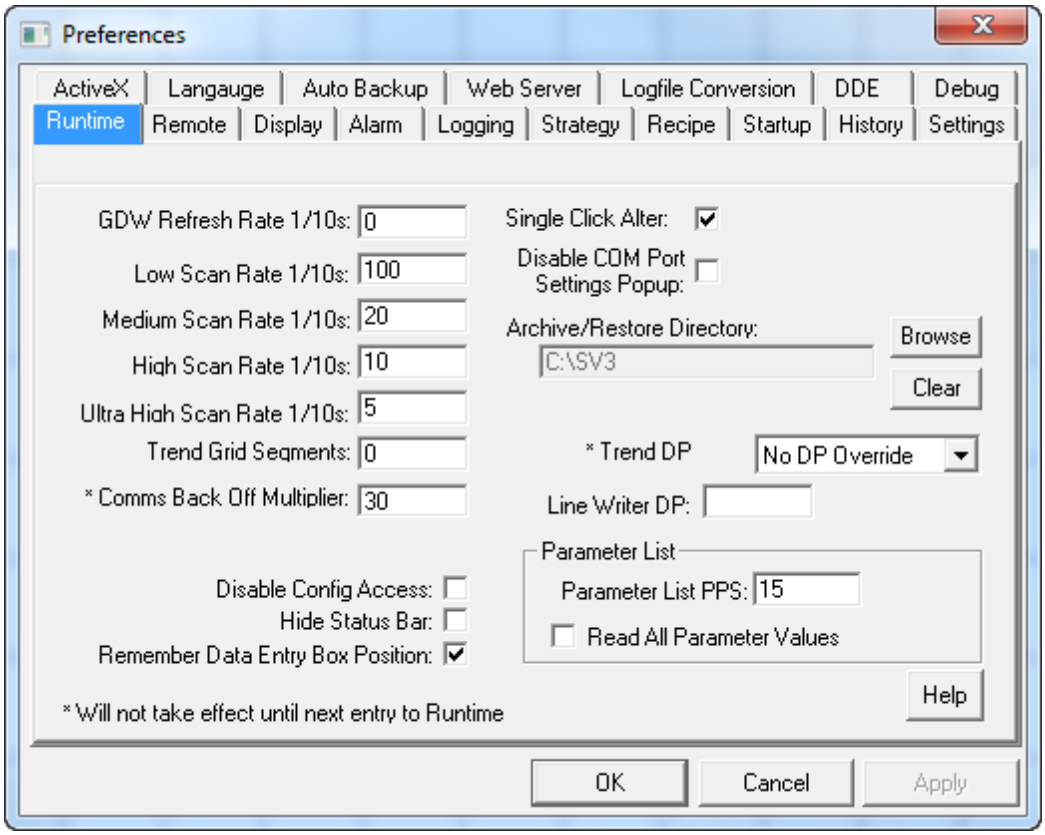
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Assuming the steps above were followed correctly, when the Button is clicked on or the Strategy Controller Event has been triggered, the text entered in the Line for target text string field should appear in the Target Text String parameter.

8.8 Preferences

In earlier versions of SpecView modifications to SpecView's program settings had to be done by hand by editing the Settings.ini file. It is now strongly recommended to use Preferences... from the File menu instead.



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The Preferences box, accessed by Preferences on the File menu [284], allows modification of almost all the configurable items in Settings.ini (This file is in the Project's sub-folder within the installation folder, which is by default C:\SV3).
The exceptions are listed here [473] and these will need to be entered manually into the SETTINGS.INI file.

For further details on the Preferences box tabs:
(the default is also shown for each setting)
Preferences - Runtime [459]
Preferences - Remote [460]
Preferences - Display [461]
Preferences - Alarm [463]
Preferences - Logging [464]
Preferences - Strategy [465]
Preferences - Recipe [465]
Preferences - Startup [465]
Preferences - History [466]
Preferences - Settings [467]
Preferences - ActiveX [468]
Preferences - Language [469]
Preferences - Auto Backup [469]
Preferences - Web Server [470]
Preferences - Logfile Conversion [470]
Preferences - DDE [470]
Preferences - Debug [470]

8.8.1 Preferences - Runtime

GDW Refresh Rate 1/10s: 0

The rate at which values on a GDW page are redrawn

Low Scan Rate 1/10s: 100

The speed of this Scan rate at which values are obtained over the wire.

Medium Scan Rate 1/10s: 20

The speed of this Scan rate at which values are obtained over the wire.

High Scan Rate 1/10s: 10

The speed of this Scan rate at which values are obtained over the wire.

Ultra High Scan Rate 1/10s: 5

The speed of this Scan rate at which values are obtained over the wire.

Trend Grid Segments: 0

Puts in horizontal lines to divide into this number of segments
(for example, 4 = divide into quarters)

***Comms Back Off Multiplier: 30**

If a value can't be accessed over comms, then this number is multiplied by the scan rate of the parameter and used as a 'delay' factor before retrying.
The values for Low/Medium/High Scan Rates are specified above. Which of these is being used for a given parameter is defined in Dynamic Attributes [357].
When any two parameters from an instrument cause consecutive timeouts, that whole 'instrument' is treated as gone (all parameters revert to N/R), and a special 'primary parameter' (usually the Process Value) is requested. If this primary parameter can be acquired over comms, then the whole

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instrument is returned to active comms use. However, if the Primary Parameter still times out, it is 'backed off' as before. Then (Comms Back Off Multiplier x Scan Rate) seconds later, the primary parameter *only* is retried and the process, detailed above, starts again. The effect of this is that instruments that are switched off will cause very little effect on comms to other daisy-chained instruments that are still communicating.

Disable Edit Mode: Disabled

Used to Disable access to Edit Mode.

Hide Status Bar: Disabled

Used to Hide the Status Bar to maximize screen space.

Single Click Alter: Enabled

In Runtime Mode this is used to determine if values can be changed by just a single-click or a double-click. This is useful if Maximized is disabled on the Startup tab (see below), and there are other windows on the screen to click between, as single clicking on a variable by accident will popup the variable change box.

Disable COM Port Settings Popup: Disabled

Used to Disable COM Port Settings box

Archive/Restore Directory:

This defaults to the folder that SpecView is installed in, but it can be set to any drive and folder.

***Trend DP Override:**

Allows the number of decimal places [496] used by Trend Charts to be set.

Line Writer DP:

The Line Writer [452] is either a button or Strategy Controller action type. This specifies the number of decimal places to be used.

Parameter List

Parameter List PPS: 15

When the Instrument View's parameter list button is clicked in Runtime Mode, this is the number of values read per second (Points Per Second) in order to display the parameter list.

Read All Parameter Values: Disabled

This forces SpecView to read ALL the parameters in the Variables List (or Parameter List). When unchecked only the visible parameters will be read, significantly improving the update rate on those parameters.

NOTE: * indicates: A change will not take effect until next entry to Runtime Mode

Full list of Preferences [458]

8.8.2 Preferences - Remote

Preferences for Remote [740]:

The devices shown are those which have already been configured in Windows.

- Port - Network IP Port Number
- Timeout: seconds

The devices listed are those which have already been configured in Windows.

Click the Port Number to change it, but this should only be changed with caution.

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Click the Timeout to change. The timeout for Modems is the the time before redialing, This is set by default to 50 seconds because many modems require some time to clear-down and so therefore a rapid redial will not succeed, so we recommend caution before changing this.

SpecView Remote 740
SpecView Networking via Modem 756

Full list of Preferences 458

8.8.3 Preferences - Display

No Response Value: N/R

N/R stands for **No Respose**. This is what is used to represent the variable's value in Edit Mode (offline) or
when the value cannot be read 790 from the instrument in Runtime Mode.

Not Present Value: NPV

NPV stands for **Not Present Value**. This will be shown if the value isn't appropriate at this time - for example, if the Segment type is set to 'Time' then the 'Rate' value would be NPV. Or if a thermocouple goes out of range. If NPV is shown erroneously then set the driver command 206 NPV = -1 (minus one) this will show the underlying value, instead of NPV.

Not Currently Available Value: NCA

NCA stands for **Not Currently Available.** All values are set to NCA when online before they are filled in, but those that have no values, such as PasswordUser when passwords are not enabled will stay as NCA.

Time Format HMSC: No Milliseconds

(Other options: 1 Millisecond place/2 Millisecond places/3 Millisecond places)
Whether or not to display Milliseconds in time variables.

Date Format: %b %d %Y

The % sequence used to format date variables, see below.

Date Time Format: %H.%M %b %d %Y

For the % sequences used to format date and time variables, see Date and Time Formatting 462.

Blank String value: [ ]

What is displayed when a text value is blank

Show scroll bars: Disabled

Enables/disables the displaying of scroll bars in Runtime Mode

Full screen mode in runtime: Disabled

Enables/disables Full Screen Mode 476 in Runtime

Magic square size (pixels): 75

In the case where Full Screen Mode 476 is enabled in Runtime, but without a button somewhere on

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the GDW which has the action: **GDW Control: Toggle Full Screen Mode** [427] the menus are inaccessible. To resolve this there is a special invisible square in the bottom left-hand corner of the screen (this number of pixels in size). To use this *magic* square, double-click inside it, click once outside it and then once inside it again, all within a short space of time. Then return to Edit Mode and put a button somewhere on the GDW which has the action: **GDW Control: Toggle Full Screen Mode** [427].

Write Only Value: W/O

W/O stands for **Write Only**. This is when a variable can be written to but not read.

Timeout Value: T/O

T/O stands for **Time Out**. This is when a request for an instrument's parameter times-out over comms, for example if the instrument was switched off.

Recipe No Value: N/C

N/C stands for **No Change**. It is only possible to have one set of Recipe variables per GDW, but each Recipe can have many sets of values (Max 1295). However, not all of the variables will need to be set in each set of values, so this is what is used to indicate the variables which are not to be set.

Variables List:

Short Variable List: Disabled

This makes the Variable List only show the variables that are marked in the Short List [326] column in the Variables List.
This is used to keep the Variables List to a manageable size and prevent access to variables that are not relevant or which may confuse the user.

Tooltip display time (secs): 30

To specify the number of seconds that tooltips [514] are displayed for.
But it is better instead to set this from the Options menu on the Variables List itself and choose 'Tool Tips->Show Time'.

Show Full Parameter Address as Tooltip: Disabled

Shows the variable or parameter's address as a tooltip [514], this is particularly useful when developing a configuration for a new type of instrument to check the address of the parameter that SpecView is accessing against the comms manual for that instrument.

Window Positions

Remember Positions: Disabled

Remember Window Positions [370] is used to display screens (GDWs) at specific coordinates, which can be useful when using multiple monitors.

Allow Minimize: Disabled

This is to allow the minimize button to be disabled. This is useful when using Remember Window Positions [370].

Delete All Positions: Disabled

This clears the saved locations of windows. This is only relevant when using Remember Window Positions [370].

Full list of Preferences [458]

8.8.3.1 Date and Time Formatting

The % sequences used to format date and time variables:

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%a Abbreviated weekday name
%A Full weekday name
%b Abbreviated month name
%B Full month name
%c Date and time representation appropriate for the language (locale)
%d Day of month as decimal number (01 – 31)
%H Hour in 24-hour format (00 – 23)
%I Hour in 12-hour format (01 – 12)
%j Day of year as decimal number (001 – 366)
%m Month as decimal number (01 – 12)
%M Minute as decimal number (00 – 59)
%p Current language's (locale's) A.M./P.M. indicator for 12-hour clock
%S Second as decimal number (00 – 59)
%U Week of year as decimal number, with Sunday as first day of week (00 – 53)
%w Weekday as decimal number (0 – 6; Sunday is 0)
%W Week of year as decimal number, with Monday as first day of week (00 – 53)
%x Date representation for current language (locale)
%X Time representation for current language (locale)
%y Year without century, as decimal number (00 – 99)
%Y Year with century, as decimal number
%z, %Z Time-zone name or abbreviation; no characters if time zone is unknown
%% Percent sign

For example:

Time Format: No Milliseconds

Date Format: %b %d %Y

Date Time Format: %H.%M %b %d %Y

Gives:

Time: 11:44:30
Date: Jun 16 2014
Date&Time: 11.44 Jun 16 2014

8.8.4 Preferences - Alarm

Preferences for Alarms [353]:

Enabled: Enabled

Whether alarms [353] are enabled

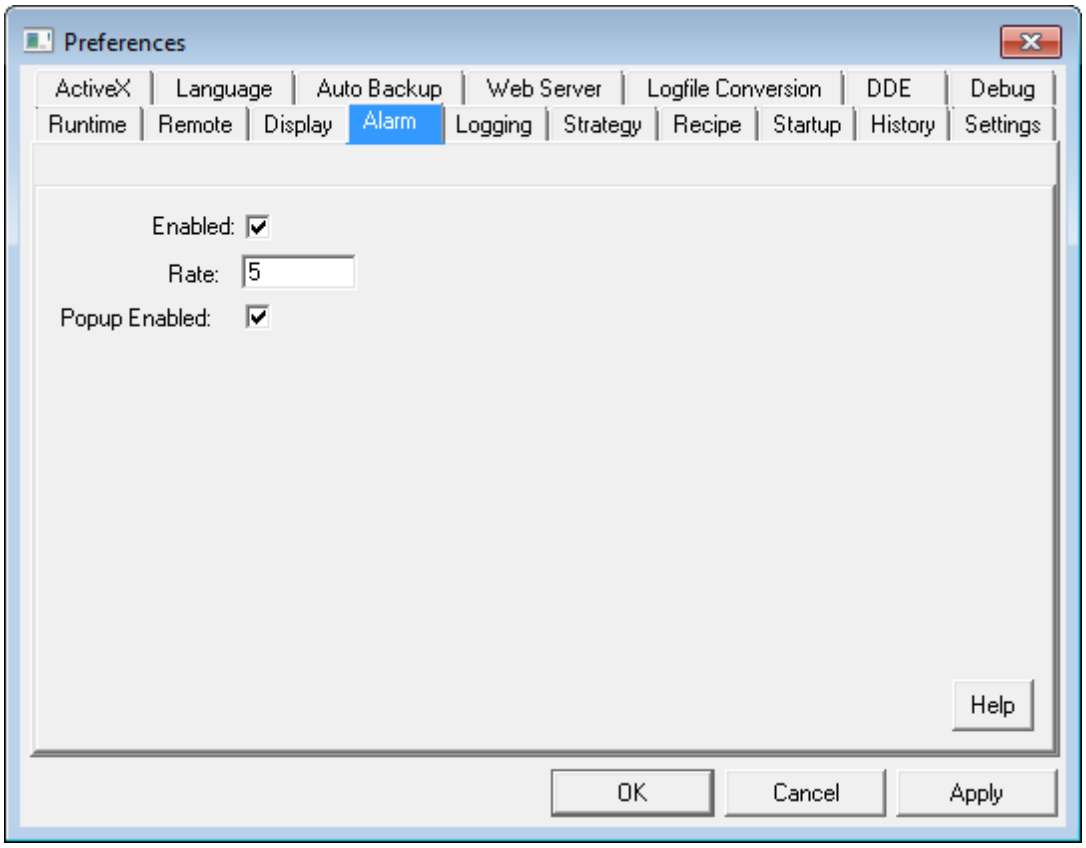
Rate: 5

The alarm rate

Popup Enabled: Enabled

Whether an alarm displays the Alarm List [262]

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Full list of Preferences [458]

8.8.5 Preferences - Logging

Preferences for Data Logging [589]:

Enabled: Enabled

Whether logging is enabled

Rate (secs): 60

The default logging rate which will be used when Runtime mode is started.

Report DP: No DP Override

The number of decimal places to be logged.

During Runtime mode the rate can be changed using the action: Logging: On/Off [428]
The current value for the logging rate is stored in the SpecView Variable [319] LogRate.
This variable is Read-Only and cannot be changed other than by using the Logging: On/Off [428] action.

Full list of Preferences [458]

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8.8.6 Preferences - Strategy

Preferences for the Strategy Controller[666]:

Enabled: Enabled

Whether or not the Strategy Controller is enabled

Rate: Medium (Low/Medium/High/Ultra-High)

The speeds for these settings are defined on the Runtime tab.

Full list of Preferences[458]

8.8.7 Preferences - Recipe

Preferences settings for Recipe[637]:

Recipe Level Delay 1/10s: 5

The delay between downloading each of the 99 Recipe levels

Recipe Retries: 1

The number of times a Recipe download is attempted before reporting failure.

Sequence Recipe Directory (PC3000 Only):

The folder where the sequence Recipes are stored

Select Invert: Disabled

In Edit Mode when the 'knife and fork' button  is clicked the Recipe values are highlighted by a box being drawn around each of them. However, on a very complex GDW screen layout the boxes may overlap too much. So this feature has been provided to highlight the values using reverse video rather than a box. This setting will also affect the highlight style used when selecting objects for Password access from the GDW Setup[707] dialog.

Full list of Preferences[458]

8.8.8 Preferences - Startup

Maximized: Enabled

Whether or not SpecView starts with its window using the whole screen.

***Project Timeout: 20**

The number of seconds to countdown on startup

***Port: 1**

The default printer port on which to detect the dongle[498]

***Timing: 0**

This is a timing value for the dongle. It is not recommended to change this

***Auto Update of Parameter Lists: Enabled**

Whether or not SpecView will read new values added to an instrument's definition. It is not recommended to change this

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***Title screen delay: 5**

The duration that the copyright logo splash screen is displayed during start-up while instrument definitions are being loaded

NOTE: * indicates: A change will not take effect until SpecView has been restarted

Full list of Preferences 458

8.8.9 Preferences - History

Preferences for Historical Replay 622:

Auto Pause on Short Trend charts: Enabled

Historical replay will be paused when the Trend chart line(s) hits right-hand edge of the Trend chart on the GDW with the shortest overall duration on the horizontal axis

Auto Pause on Long Trend charts: Enabled

Historical replay will be paused when the Trend chart line(s) hits right-hand edge of the Trend chart on the GDW with the longest overall duration on the horizontal axis

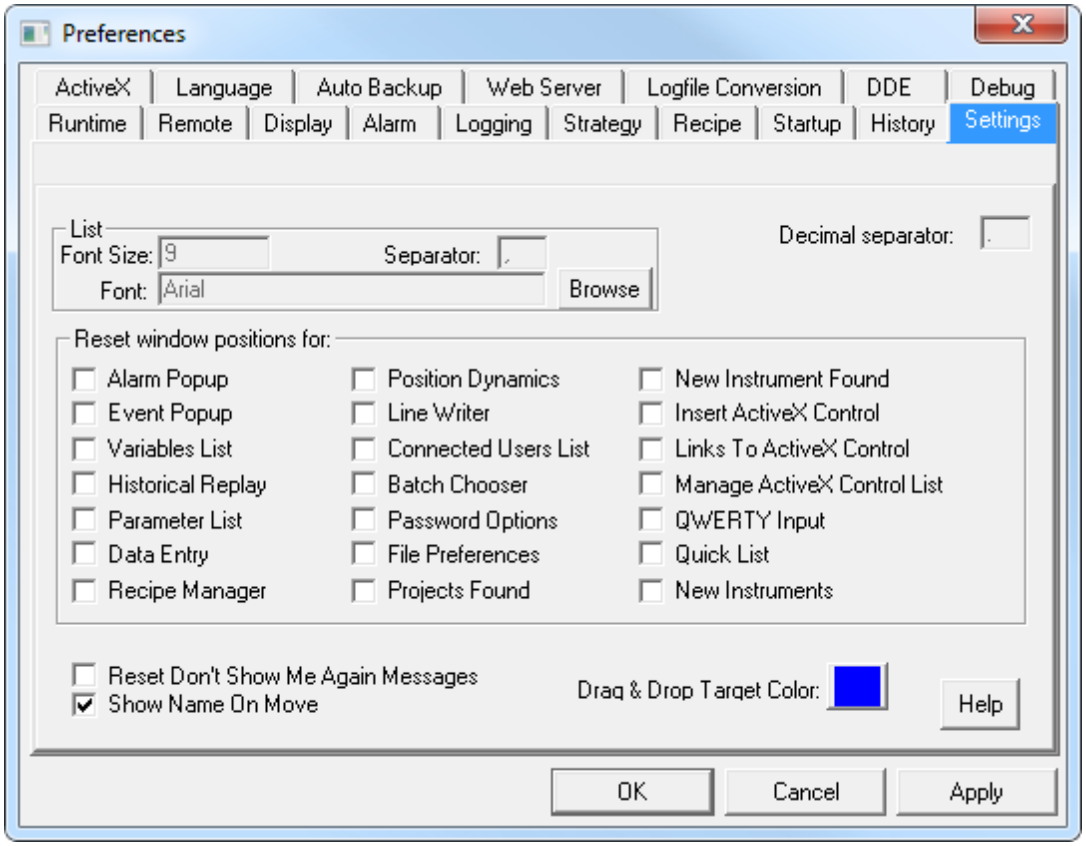
CPU Replay Factor: 10

A number (where the units are undefined) which defines how much CPU is used by Historical Replay. The bigger the number the more CPU and hence the faster it goes, but the slower other functions in SpecView will run while a Historical Replay is in progress

Full list of Preferences 458

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8.8.10 Preferences - Settings



List

Font Size: 9

The font size to be used

Separator: comma

This is the character used by the current language to delimit .CSV files.
This setting cannot be changed from within SpecView, it must be changed from the Regional Settings in the Windows Control Panel.
It is used by Logfile Convert 606, Recipe Export/Import 647 and Export/Import variables list on the Setup menu 305 .

Font: Arial

The font to be used

Decimal separator: full stop

This is the character used by the current language to be used as the decimal point.
This setting cannot be changed from within SpecView, it must be changed from the Regional Settings in the Windows Control Panel.

Reset window positions for:

Alarm Popup

Event Popup

Variables List

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Historical Replay
Parameter List
Data Entry
Recipe Manager
Position Dynamics
Line Writer
Connected Users List
Batch Chooser
Password Options
File Preferences
Projects Found
New Instrument Found
Insert ActiveX Control
Links to ActiveX Control
Manage ActiveX Control List
QWERTY Input
Quick List
New Instruments

Resets the position of the respective box on the screen, this is useful if using different sized monitors and the box is displayed too high or too far to the right where it can't be seen.

SpecView 3.1.267

As of SpecView 3.1.267, Trend Chart[523] Properties and Strategy Controller[666] boxes' positions can also be reset.

Reset Don't Show Me Again Messages:

This unsets all of SpecView's warning message boxes which have a checked 'Do not show me again' checkbox, so that they will then subsequently be shown.

Show Name On Move: Enabled

In Edit Mode moving an N/R (or the value if Online[307]) shows the name of the variable on the status bar.

Drag&Drop Target Color:

This text color is a visual aid to assist in showing where to drop a variable being dragged into a box.

NOTE: * indicates: A change will not take effect until next entry to Runtime Mode

Full list of Preferences[458]

8.8.11 Preferences - ActiveX

Preferences for ActiveX[766]:

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Enabled: Enabled
Whether ActiveX controls are enabled so that they can receive and send parameter values.

Rate: Medium
The rate that ActiveX controls are scanned.

Apply fixed value in Edit mode
The values which are linked to ActiveX controls (either fixed values or the values of variables) are not applied until SpecView goes online, this checkbox will force the fixed values to be applied while offline.

Delay Output scan until Strategy Running
This allows the Strategy Controller time to fully initialize before outputs from the ActiveX controls are used.

8.8.12 Preferences - Language

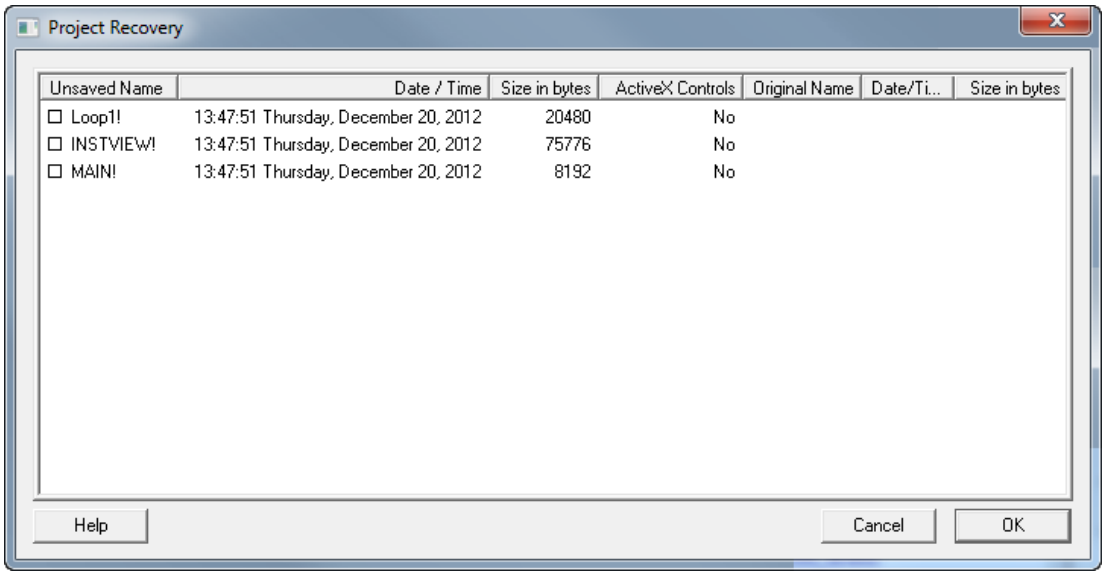
The **Language** tab allows the language that SpecView is running in to be changed.

NOTE: Any change will not take effect until SpecView is exited and restarted

8.8.13 Preferences - Auto Backup

Specifies the backup interval (default 1 min).

Auto save & recovery of screens (GDWs) will save changes for later recovery in the event of failure. In this case, a list of saved items will be displayed so the items to be recovered can be selected:



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8.8.14 Preferences - Web Server

Preferences for SpecView's built-in Web Server[716] option.

8.8.15 Preferences - Logfile Conversion

Preferences for Logfile Conversion[606]:

Thread Priority: Slow

This is how much CPU priority is given to logfile conversions

Inhibit Progress Display: Disabled

Whether or not to display the Progress box for logfile conversions

Full list of Preferences[458]

8.8.16 Preferences - DDE

Preferences for DDE[582] (Dynamic Data Exchange):

***Application Name: SpecView (DDE application name[582])**

***Variable Topic: var (DDE topic name[583])**

NOTE: * indicates: A change will not take effect until SpecView has been restarted

Full list of Preferences[458]

8.8.17 Preferences - Debug

NOTE: Do not change any of these settings unless under the direction of a SpecView representative[798]

Debug Mode: 0

This will be a specific number given to you by a SpecView representative that is appropriate to debug the problem you have encountered.
When this is set to zero, the 'File Size' and 'No of files' detailed below are ignored because no debug files will be generated.

File Size: 0 Mb

This is the maximum file size of the Debug files created in Mb.
A good size to use is 20Mb

No of files: 0

This is the maximum number of Debug files of the above size that will be created.
A good number to specify is 10.

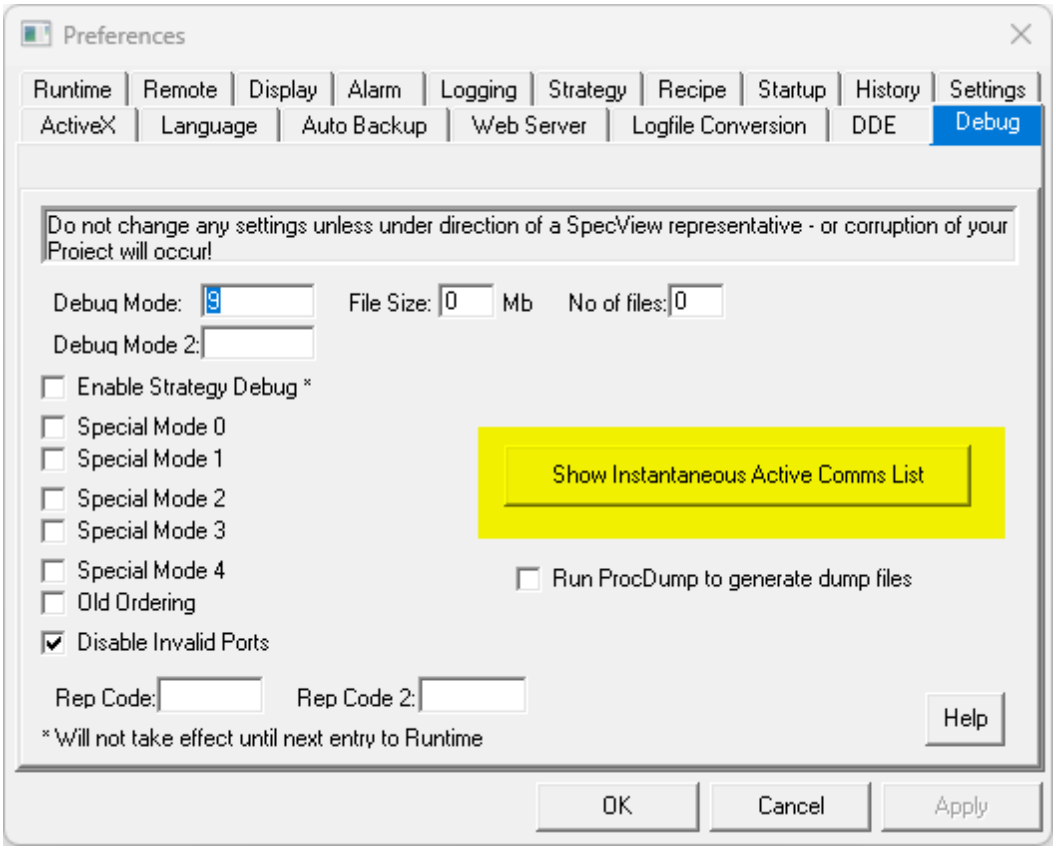
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Debug Mode 2: 0

This will be a specific number given to you by a SpecView representative that is appropriate to debug the problem you have encountered.

Enable Strategy Debug: Disabled
Special Mode 0: Disabled
Special Mode 1: Disabled
Special Mode 2: Disabled
Special Mode 3: Disabled
Special Mode 4: Disabled
Old Ordering: Disabled
Disable Invalid Ports: Enabled
Run ProcDump to generate dump files[797]

As of SpecView version 3.1.253, Rep Code 568 has been replaced with the Show Instantaneous Active Comms List button.



Clicking on the button will create and open a text file called LoggerState.txt.
An example of LoggerState.txt can be seen in the image below.

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Items highlighted in yellow are unique parameter ids.

Items highlighted in green are full parameter names.

Items highlighted in blue are the addresses of the parameters.

Items highlighted in pink are how often the parameters are requested in seconds.

For instance, the first parameter in the text file is Control Loop.Process Value.

The parameter has a unique id of 10010.

The parameter is requested every 0.2 seconds.

The item highlighted in orange is the approximate points per second (pps) required to retrieve the values for the parameters seen in the text file.

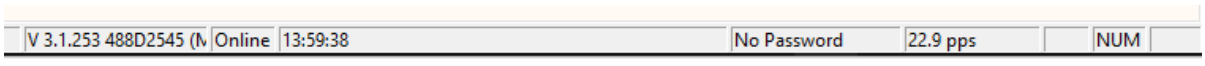
The parameters in the text file are all the parameters that are being requested by SpecView the moment the Show Instantaneous Active Comms List is clicked.

The approximate pps required in the image above is 23.1.

This value can be compared to the acual pps of the current project.

The actual pps is visible on the bottom right hand corner of the SpecView window.

The actual pps of the project was 22.9 as seen in the image below.



As the approximate pps requred and the actual pps of the project are similar, there are no major issues in communication between SpecView and the instrumentation.

If there is a large discrepancy between the approximate pps and the actual pps, then it may cause issues in communication.

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As a user, one can avoid large discrepancies by requesting fewer parameters.

This can be achieved by ensuring unused GDWs remain closed, minimizing the amount of parameters that are currently open on the GDW, and minimizing the amount of parameters that are currently being logged.

Also, decreasing the Logging Rate and ensuring efficient Strategy Controller programming can ensure a small discrepancy.

If there is a problem with SpecView, call a SpecView representative, they may ask you to set the Debug Mode to a specific value and set **File Size** & **No of files** to appropriate values.

Then do whatever it was that you did previously to cause the problem & then immediately EXIT SpecView.

Send your SpecView Representative 798 all the files that have a name starting with 'SVData' from C:\SV3\

Rep Code:
Rep Code 2:

These rep codes are only to be used under advice from a SpecView representative.

Note: It is important to remember to set Debug Mode back to zero afterwards.

Full list of Preferences 458

8.8.18 Preferences in SETTINGS.INI

The SETTINGS.INI file is a file of project specific settings which is read by SpecView when a project is read.
It is located in the project folder (C:\SV3\<project_name>\SETTINGS.INI)

There are some Preferences which apply to a project that cannot be changed using the Preferences box and will therefore need to be entered by hand into the SETTINGS.INI file.

To edit the SETTINGS.INI file use a text editor such as Notepad to edit the file (carefully!) while SpecView is NOT running.
Be sure to check the spelling because they must be exact, and there must NOT be any spaces around the equals signs, or at the end of the lines.

See also: SV3.INI 513 and CVTSETTINGS.INI 492

The SETTINGS.INI file has the following sections:

[ActiveX]

[ALARM]

[COMMS]

[DDE]

[HISTORY]

[LiveFeatures]

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[LOGFILECONVERSION]
[LOGGING]
[Networking]
[Recipe]
[Remote]
[RUNTIME]
[Settings]
[STARTUP]
[STRATEGY]
[Trend]
[TrendInhibitNotesOn]
[V3GD3sSaved]
[VarList]
[WindowsPos]

It is important that the settings below are added under the correct section heading in the file:

- MaxPorts (default: 9) set in the [COMMS] section of SETTINGS.INI.

  Allows support for COM10 (and above). This is initially set to 9, but can be increased up to 40 to allow the use of com ports from COM1 to COM40. Note that changing the COM port settings (BAUD rate, etc.) will need to be done 'by hand' by editing Settings.ini using Notepad, this is because the 'Setup COM Ports' box (from the Setup menu [305]) only has space for up to 9 ports.

- AutoSaveUserVars (default: 3600) set in the [RUNTIME] section of SETTINGS.INI.

  To alter the rate (in seconds) at which SpecView saves the values of User Variables while it is running.
  The default 3600 is every hour. If there are a large number of SpecView User Variables, then do not save them very often as this will slow down the system, especially on heavily loaded computers. The values are automatically saved whenever SpecView goes offline or is exited.

- RunExtProgDispMode (default: M) set in the [Settings] section of SETTINGS.INI

  This specifies whether programs run using the action SpecView: Run External Program [447] are started with the program's window minimized/normalized or maximized.
  Where the choices are:
  M - means start Minimized, which is the default
  F - means start using Full screen
  N - means start in a Normal window
  This setting will affect all programs run by SpecView from that project.

- InputsDisabledInHistoricalReplay (default: N) set in the [ActiveX] section of SETTINGS.INI

  See details here [783].

- ScrollbackAutoCancelSecs (default no timeout) set in the [Trend] section of SETTINGS.INI

  This example will auto-cancel Scrollback after 5 minutes:

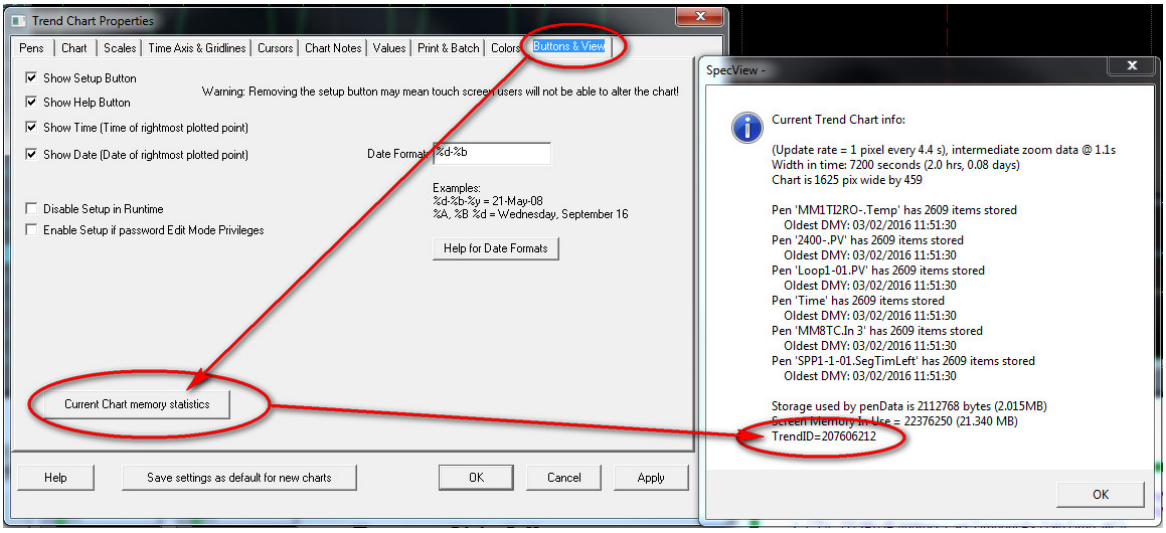
  [Trend]
  ScrollbackAutoCancelSecs=300

  This setting will apply to all charts in this project.
  Moving the scrollback-thumb-tag thing resets the timer, it is only if it is left alone that it will time-out.

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- Trend Chart ID (default all chart notes are displayed) set in the [TrendInhibitNotesOn] section of SETTINGS.INI

  For the Trend Chart for which no NO chart notes should be displayed, choose **Setup chart** and go to the **Buttons & View** tab and press the [Current Chart memory statistics] Button:



  Make a note of 'TrendID' number, in this example it is: 207606212.
  Use Notepad to open the SETTINGS.INI file that is in the Project folder.
  Find the [TrendInhibitNotesOn] section, or if it is not there then add this section header and the ID followed by =1, as shown:

  [TrendInhibitNotesOn]
  207606212=1

  Be sure to enter the correct ID as shown for your Trend Chart.
  If there is more than one chart that needs the chart notes inhibited, then add them on further lines.
  Then save the SETTINGS.INI file.
  The inhibit will only work when the Trend Chart Screen is opened, so if SpecView was still running during these steps, then close the screen and re-open it, or just Restart SpecView.
  To display the chart notes again, delete the line(s) you added or change them to '=0' instead of '=1'.

SpecView 3.1.267

As of SpecView 3.1.267 [122], users can enable their SpecView project to automatically abort after encountering an error in a Strategy [666] invoked Recipe [635] download. This means that users no longer must be present to abort the Recipe [635] download.

1. In the Project Folder, open the Settings.INI file in the Notepad application.
2. Under the [Recipe] section, type in "*StrategyAutoContinue=N*".

```
[Recipe]
StrategyAutoContinue=N
RememberMostRecentRecipeName=RAD:NULE:7
```

3. Save and close the SETTINGS.INI [512] file.

Strategy invoked Recipe downloads will now automatically abort when it encounters an error.

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Additionally, entering "*DownloadToReadOnly=Y*" enables users to download values to read-only variables [514] using Recipe [635].

SpecView 3.1.269

As of SpecView 3.1.269 [121], users can now inhibit the black rectangles that highlight Bar Charts [397] in Recipe [635].
Under the [Recipe] section, enter the command "*InhibitRecipeBarChartOutlines=Y*".
In this mode, the value inside the Bar Charts [397] will have square brackets around it.

8.9 Full Screen Mode

Full Screen mode in Runtime is where a GDW fills the monitor's whole screen, there is no title bar or menubar across the top of the screen or Windows toolbar along the bottom of the screen.
It can be enabled/disabled by using these methods:

- Setting Full screen mode from the Preferences - Display [461] tab. This will cause Full Screen mode to be enabled automatically when entering Runtime Mode
- Via the 'Toggle Full Screen mode' menu command on the File menu [269] during Runtime
- Via the 'Switch to Full Screen' menu command on the File menu during Historical Replay [622]

However, once Full Screen mode has been enabled there will be no menus accessible, therefore a button should be added to the GDW to reverse the command with the action GDW Control: Toggle Full Screen Mode [427]. (This button may be placed on another GDW accessed by GDW Control: Swap to another GDW [426]).

NOTE: When this mode is enabled there are no menus accessible, therefore it is STRONGLY recommended to add a button somewhere on the GDW which has the action: GDW Control: Toggle Full Screen Mode. If there is no such button then SpecView will display a warning before exiting Edit Mode. However, there is an emergency method of getting out of Full Screen mode, read 'Magic Square' in Preferences - Display [461]

Also note that when Passwords [703] are used in conjunction with Full Screen Mode it is important to ensure that there are buttons on the GDW for Login and Logout.

8.10 SpecView Error Codes

There are four types of error codes within SpecView:

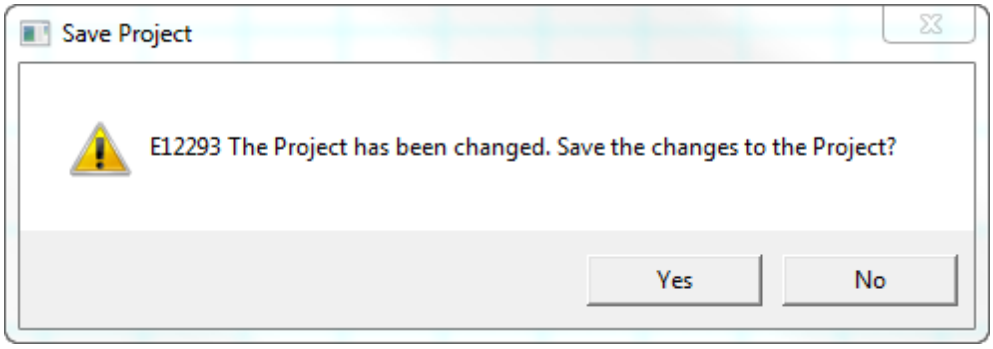
Error message numbers [477] which start with an 'E' (for Error messages) or an 'M' (for informational Messages) or 'W' (for Warning messages).
Write Errors [479]
Generic Errors [480]
Protocol Specific Errors [481]
Soft License Errors [53]

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8.10.1 Error Message Numbers

All messages in SpecView have a number which starts with either an 'E' (for Error message) or an 'M' (for informational Message) or 'W' (for Warning message).
This number uniquely identifies the message, which is particularly useful when SpecView has been translated into another language, as it allows us to understand which message is being displayed.

For example:



Some messages require further explanation, see below:

Messages	Warnings	Errors
M12337 477	W12380 477	E12086 478 E12272 478 E12310 478 E12313 478 E12314 478 E12315 478 E17022 478 E17813 484

M12337 WARNING! Editing this project without a dongle connected will mean that it will not subsequently run with a Runtime-Only dongle, or some other systems.
When SpecView is run with a Runtime-Only license it will only allow projects to be used that were last saved with a full (not Runtime-Only) license.
This is to prevent projects from being edited by removing the license (dongle). If in any doubt or to update the license to a full license please contact your SpecView Representative.

W12380 This project uses some features that are not supported by this build of SpecView.
The message then lists the feature(s), followed by:

> "The project will run, but these new features will not operate correctly, or may cause unexpected results.
> Please update your version of SpecView."

SpecView projects are typically backwards compatible, which means that a project developed using the latest build (or release) would work with previous builds.
(That is within a given major version, which means that Version 3 projects are **not** backwards compatible with Version 2).

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Therefore to allow new features to be added to SpecView this message has been added.
The first new features relevant to this were the addition of flashing and hiding to Color Dynamics [359].
The information about new features is stored in the [NEW] section of the SETTINGS.INI [512] file.

E12086 This GDW was not defined in this project. To prevent misleading values appearing, all dynamic items have been removed.

This is typically caused by users copying files from one project folder to another. It is important to remember that all the files in a project folder are interconnected and so cannot be copied from one project folder to another.
However, if this error occurs and it is believed that files have not been intentionally copied then please make an Archive [193] of the project. It is important to check the 'SpecView backups' box, and uncheck the 'Include Log files' box. Then email the Archive to SpecView's Technical Support [798].

E12272 Devices found on the Remote tab that are not present on this PC. To remove them click OK, to keep them click Cancel.

This means that this SpecView Project was originally from a different PC, which was running as a SpecView Local.

For example, if there were two PCs with IP addresses 1.1.1.1 and 2.2.2.2 and a Project is setup on the PC 1.1.1.1 as a SpecView Local, it would be 'listening' on IP address 1.1.1.1

If this Project was then moved/copied/archived onto PC 2.2.2.2 then (so long as this PC only has the one network card) SpecView would just use the IP address of the network card, so it would 'listen' on 2.2.2.2.

But going into File->Preferences would cause SpecView to notice that this Project was originally setup to listen on 1.1.1.1, so it would display this message.

Clicking OK would remove the reference to 1.1.1.1, whereas Cancel would keep the reference, this is so that if this Project was then subsequently put back on PC 1.1.1.1 it would work without the need for further change.

E12310 WARNING: The Delete key has been disabled for deleting this type of ActiveX control.

Instead please use the Delete menu item on the Edit menu.
The reason for this is because it is unclear whether it should delete something within the control, or delete the control itself.

This warning message will be displayed when the delete key is used to delete an ActiveX control which has a data entry field within it. This is because the meaning of delete key becomes ambiguous in this context. So to delete the contol use the Delete menu item on the Edit menu.

E12313 ERROR: ActiveX controls cannot be registered or unregistered because you are not running as an Administrator
E12314 ERROR: ActiveX environment is not setup
E12315 ERROR: ActiveX controls cannot be registered because you are not running as an Administrator
The 3 errors above are detailed here [784].

E17022 Could not write namePacket to log file (9) (or a similarly worded message)

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All the time that SpecView is in Runtime mode it is writing to the log data files [589]. These files are stored in the Project's sub-folder, which is within the folder where SpecView was installed (this is usually C:\SV3\ unless this was specifically changed during the installation).

This error will occur if SpecView is unable to write the log data files. There are a number of possible reasons for this:

- The computer may have run out of disk space [603] to store the log data files. Please check the amount of free disk space available to the folder where SpecView is installed.

- The project subfolder has been copied onto this computer from a CD. When files are put onto a CD they are automatically made Read-Only, and they have to be manually made writeable again for the log data files to be written to. Instead use SpecView's Archive [193] feature to archive & restore projects.

- The user has logged into the computer but doesn't have sufficient privileges to access and write files to the project's subfolder.

- The folder where the log files are put has been specifically changed to a different folder, which is now either non-existent or inaccessible to this user.
It is possible to specify a different folder to write the log files to by setting 'Path=C:\MyPath\' in the [Logging] section of SETTINGS.INI. However, it is VERY IMPORTANT that specified folder is on this computer, not on a network drive, in case of network failure.

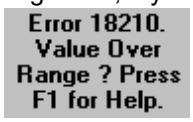
E17813 Invalid Entry 2024/MM/DD HH:MM:SS

There is a date problem with SpecView Log Reports and Historical Replay in 2024 which gives the error, for example: *E17813 Invalid Entry 2024/01/02 08:25:00*

For additional details, please read through the following page, E17813 Invalid Entry [484].

8.10.2 SpecView Write Errors

In general, if you get an error code in a data entry box such as



SpecView has failed to write the value correctly. The most common cause is that the value being sent is outside the acceptable range for that parameter. Check that any limits are not being exceeded for that instrument. (Try entering the value on the instrument itself) The error codes below may help. Contact your SpecView distributor if you cannot resolve the problem.
There are also generic Error Codes [480]
These error codes can be returned when attempting to write data to a parameter:
3 Timeout - Response not received from instrument
18000 Internal IDF Error - Seek advice from SpecView
18001 Address too long - Too many Characters in the address field
18002 Address too short - Not enough typed in
18003 Address is invalid for this Protocol
18004 Incorrect information after the comma
18005 Precision specification is incorrect
18006 Parity Error at Instrument end
18007 Rx Overflow on Instrument
18008 Rx Overrun at Instrument end

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18009 Instrument message was corrupted
18010 Tx Buffer overflow at Instrument
18011 Instrument message was corrupted
18012 Parameter value was incorrect for this parameter
18013 Internal IDF Error - Seek advice from SpecView
18014 Rx Buffer overflow at Instrument
18015 Instrument message was corrupted
18016 Write to read only parameter
18017 Internal Instrument Error (Yokogawa) RJC error
18018 Internal Instrument Error A/D Converter Failure
18019 Parameter value was incorrect for this parameter

NOTE: With Yokogawa UT550 and UT750 the setpoint is a read only variable. To change the SP you must edit Target SP 1-8, which are available on the parameter list.

18020 Parameter value was incorrect for this parameter
18021 Internal IDF Error - Seek advice from SpecView
18022 Rx Buffer overflow at Instrument
18023 Internal Instrument Error - Controller Busy
18024 Data Over Range
18025 Data Under Range
18026 Internal Instrument Error - Burn Out
18027 Internal Instrument Error - Unknown - Seek Advice
18028 Channel or Loop Number incorrect, or Internal IDF Error - Seek advice from SpecView
18029 CPU Number Invalid
18030 Operator Panel Address Invalid
18031 Invalid Delimiter
18032 Invalid Time To Live
18033 Read To Write Only Parameter
18034 Protocol Type Invalid
18035 Invalid Time
18036 SV ValueNotPresent: Some controllers (notably Eurotherm) return 0x8000 or 0x80008000 as a value when the parameter has not been set-up or is not present in this particular model. Therefore this is a warning rather than an error.
18037 SV No Comms Back Off: Some drivers such as the Modbus & OPC drivers report errors but 'know' that new values are imminent, therefore they are really just warnings, hence this 'error' does not cause a Comms Back Off[459]

18200-18500 Protocol Specific Error Codes[481]

8.10.3 SpecView Generic Error Codes

These are generic Error codes. There are also Errors that apply specifically to writing variables to instruments. They are listed here[479].

3 Timeout
1460 Timeout - Response not received from instrument (check the wiring connection)
10001 Cannot Open Comms - Port In use
10002 Cannot Open Comms - Port Setup Error
10003 Cannot Open Comms - Port Characteristics Error
10004 Failed Write
10005 Incorrect Baud Rate
10006 Cannot Initialize Windows Comms Subsystem
10007 Cannot Save Project

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10008 Cannot Start System Timer
10009 Cannot find Folder
10010 Invalid Parameter
10011 Invalid Function
10012 Address Out of range
10013 Data Out of Range
10014 Parameter Write protected
10022 Cannot Find Required DLL - If this error code is given with a message about TCP/IP; then check the IP address that is selected on the Preferences - Remote 460 tab.
10023 Historical Replay: There is no logged data for the day specified

Program Launch Failed; WExec error code = 2
This error will occur when the SpecView: Run External Program 447 action is being used to launch a program for which the file name has been incorrectly specified. Similarly:
WExec error code = 3 - The path for the file has been incorrectly specified.
WExec error code = 11 - The file specified is not in valid EXE file format.

18000 - 18199 Write Errors 479
18200 - 18500 Protocol Specific Error Codes 481
20000 - 21000 Error codes from the Local computer when using SpecView Networking.

Specific error codes:
20022 This error is shown in the Event Window when a Remote connection has failed because the versions of SpecView running on the Local & Remote are not compatible. Please update them accordingly.

32002 This error is shown when using SpecView Remote to connect to a Local which has not had the networking server started from Preferences. This is detailed in Setting up SpecView Networking 736
This can be confirmed by using the menu command View Connected Users from the Local's Remotes menu 275 during Runtime mode, which would show "Server NOT Running'

84036 (and values above) These are OPC 572 errors when the value being returned from the OPC server cannot be relied on. In this case please contact your OPC Server supplier.

8.10.4 Error Codes - Protocol Specific

Error codes in the range 18200 to 19103 are reserved for Protocol Specific errors returned by the equipment connected. Subtract 18200 to get the error code and then consult the Protocol or Instrument manual for details.

Modbus:
For example, a Modbus Instrument could return Error Code 18208. Thus, the Modbus error is 8, which is 'Parameter to be modified is write protected'.
For Instruments using the Modbus Protocol here is a list of the standard Modbus errors:
1 (18201) ILLEGAL FUNCTION - Indicates a driver problem, contact your SpecView Rep.
2 (18202) ILLEGAL DATA ADDRESS - Indicates either:
A. If using the Generic Modbus driver, then the address being used is invalid.
B. If using a Modbus driver written for a specific instrument, then it indicates a problem with the instrument definition file.
3 (18203) ILLEGAL DATA VALUE - The value being used is out of range for this parameter.

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4 (18204) SLAVE DEVICE FAILURE - Contact your SpecView Representative.
5 (18205) ACKNOWLEDGE - Device is busy, setting the Driver Command 206: ECR=5 may help.
6 (18206) SLAVE DEVICE BUSY - Setting the Driver Command 206: ECR2=6 may help.

1460 standard timeout. If TCP connection then driver command TCPTOMS controls this timeout. If not TCP then the ordinary T driver command controls this timeout.
10004 is a TCP/IP error which Microsoft's documentation states "Interrupted function call.
10013 is a TCP/IP error which Microsoft's documentation states "Permission denied.
10014 is a TCP/IP error which Microsoft's documentation states "Bad address.
10022 is a TCP/IP error which Microsoft's documentation states "Invalid argument.
10024 is a TCP/IP error which Microsoft's documentation states "Too many open files.
10035 is a TCP/IP error which Microsoft's documentation states "Resource temporarily unavailable.
10036 is a TCP/IP error which Microsoft's documentation states "Operation now in progress.
10037 is a TCP/IP error which Microsoft's documentation states "Operation already in progress.
10038 is a TCP/IP error which Microsoft's documentation states "Socket operation on non-socket.
10039 is a TCP/IP error which Microsoft's documentation states "Destination address required.
10040 is a TCP/IP error which Microsoft's documentation states "Message too long.
10041 is a TCP/IP error which Microsoft's documentation states "Protocol wrong type for socket.
10042 is a TCP/IP error which Microsoft's documentation states "Bad protocol option.
10043 is a TCP/IP error which Microsoft's documentation states "Protocol not supported.
10044 is a TCP/IP error which Microsoft's documentation states "Socket type not supported.
10045 is a TCP/IP error which Microsoft's documentation states "Operation not supported.
10046 is a TCP/IP error which Microsoft's documentation states "Protocol family not supported.
10047 is a TCP/IP error which Microsoft's documentation states "Address family not supported by protocol family.
10048 is a TCP/IP error which Microsoft's documentation states "Address already in use.
10049 is a TCP/IP error generated when trying to talk to 0.0.0.0
10050 is a TCP/IP error which Microsoft's documentation states "Network is down.
10051 is a TCP/IP error which Microsoft's documentation states "Network is unreachable.
10052 is a TCP/IP error which Microsoft's documentation states "Network dropped connection on reset.
10053 is a TCP/IP error generated when Host Computer Software caused connection abort
10054 is a TCP/IP error generated as the Connection reset by peer
10055 is a TCP/IP error generated when the socket not found
10056 is a TCP/IP error which Microsoft's documentation states "Socket is already connected.
10057 is a TCP/IP error which Microsoft's documentation states "Socket is not connected.
10058 is a TCP/IP error which Microsoft's documentation states "Cannot send after socket shutdown.
10060 is a TCP/IP error generated when the socket connect timed out
10051 is a TCP/IP error generated when the socket was trying to connect to a turned off instrument when we got this error
10061 is a TCP/IP error generated when the socket connection was dropped by target device
10064 is a TCP/IP error which Microsoft's documentation states "Host is down.
10065 is a TCP/IP error generated when the socket was trying to reach and unreachable host
10067 is a TCP/IP error which Microsoft's documentation states "Too many processes.
10091 is a TCP/IP error which Microsoft's documentation states "Network subsystem is unavailable.
10092 is a TCP/IP error which Microsoft's documentation states "Winsock.dll version out of range.
10093 is a TCP/IP error which Microsoft's documentation states "Successful WSAStartup not yet performed.
10101 is a TCP/IP error which Microsoft's documentation states "Graceful shutdown in progress.
10109 is a TCP/IP error which Microsoft's documentation states "Class type not found.
11001 is a TCP/IP error which Microsoft's documentation states "Host not found.
11002 is a TCP/IP error which Microsoft's documentation states "Nonauthoritative host not found.
11003 is a TCP/IP error which Microsoft's documentation states "This is a nonrecoverable error.
11004 is a TCP/IP error which Microsoft's documentation states "Valid name, no data record of requested type
18036 Value Not Present warning. This is a warning, for example, if requesting a Ramp-Rate for a segment of type Dwell - use Modbus driver command NPV=-1 if this is occurring in error.
18210 With Barber-Colman Series 7 controllers first click the REM button on the Instrument View to enable writing to any variable.
18211 If using a Lantronix TCP to Serial converter then turn the following setting off inside the Lantronix: "Use MB/TCP 0x0B/0x0A Exception Responses (1=No 2=Yes)" as it is imposing a 5 second timeout above the actual devices
18517 FGH_Error_Block + 317 Phantom read error, see debug files
18625 Value Not Present error for a Scaling Of Numbers parameter
18858 ExtraData issue, check the MBI especially the enum values to see if they are correct!
18773 Code specified in codes box of config tool is illegal
18775 HoneyWell Sub Function 9 not returning the 9 so corrupt message or failed read!
18969 Block start address is wrong when used in "M" ModBus protocol as it is negative e.g. 1,1M where the parameters block is 0;12;0
18977 Failed to Tx via WriteFile. If USB COM Port then suspect faulty driver/hardware.

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18979 BUFFER OVERFLOW - Over 750 bytes of data received over comms, which is likely to be caused by faulty wiring.
18991 Exception thrown from getOriginalTcpIpMode() as the slave address could not be found in the unique slave address table
19018 InitWinSock() WSAStartup() failed, Wrong COM Port selected ? e.g. IP address specified on COM1: Or resource limit reached e.g. out of memory or not able to create more threads
19037 is a TCP/IP transaction id mis-match i.e. the instrument did not return the same transaction id as the one we requested. Could be a firmware fault on the instrument
19089 is a TCP/IP error generated when GetLastError() returned -1 (0xFFFFFFFF) after read() failed on socket
19097 is a TCP/IP error generated when multiple requests are XXX'd back to SpecView because the socket has closed
19099 is a CRC low byte failure for serial comms
19100 is a CRC high byte failure for serial comms
19101 is a CRC failure when issuing a SetParam
19102 is a TCP/IP failure where the connect retries have exhausted
19103 is a TCP/IP failure where the read has had no data for 24 seconds or driver command TCPRTOMS
19104 is a TCP/IP failure to replace -2 when shutting down TCP/IP threads
19105 is a TCP/IP failure to replace -3 when closing the socket for shutting down TCP/IP threads
19106 is a TCP/IP failure where connect retries have been exhausted. Driver command TCPLCTOR has a default of 2 - actual number
19109 is a TCP/IP failure where a LAN device timed out on a read via a pended read. Driver command TCPLRTOMS has a default 5000 milli-seconds
19110 is a TCP/IP failure where a LAN device timed out on a read via a 0 on_read_complete. Driver command TCPLRTOMS has a default 5000 milli-seconds
19111 is a TCP/IP failure where the outstanding requests that could not be moved to the redundant IP address are error'd back to SV
19113 is a TCP/IP failure where the outstanding requests are XXX'd back if the they have exhausted the number of socket recreates
19114 is a TCP/IP NON failure where socket is being shut down, so this is a normal closure code NOT AN ERROR
19115 is a TCP/IP failure where the TcpIpThreadData->asyncSocketState does not match the asyncIoTimeoutActive
19116 is a TCP/IP failure where the TcpIpThreadData instance is not a valid address
19117 is a TCP/IP failure where the TcpIpProcessRequestObject::ProcessUidToIncludedRequestsList() fails to find the data in the TTL buffers via foundInTtlBuffersAndProcessedIt()
19118 is a TCP/IP Tx but no Rx and so has timed out controlled by TCPRTOMS driver command
19119 is a serial Read CRC low byte failure for serial comms
19120 is a serial Write CRC low byte failure for serial comms
19121 is a serial Read CRC high byte failure for serial comms
19122 is a serial Write CRC high byte failure for serial comms
19132 is a DateTime from IEEE that is NAN (Not A Number)
19139 is a DateTime from IEEE that is NAN (Not A Number)
19140 is a DateTime from IEEE that is NAN (Not A Number)
19141 is a DateTime from IEEE that is NAN (Not A Number)
19142 is a DateTime from IEEE that is NAN (Not A Number)
19143 is a DateTime from IEEE that is NAN (Not A Number)
19144 is a DateTime from IEEE that is NAN (Not A Number)
19154 Illegal time from device in 6 register Time Date type format
19156 is a TCP/IP failure where the connect() retries are exhausted
19157 is a TCP/IP failure where the read has had no data for 24 seconds or driver command TCPRTOMS
19158 is a TCP/IP failure where a LAN device timed out on a read via a 0 on_read_complete. Driver command TCPLRTOMS has a default 500 milli-seconds
19161 Logger host name lookup failures
19162 Logger host name lookup failures
19163 Logger host name lookup failures
19164 Logger host name lookup failures
19165 Logger host name lookup failures
19177 West ProVU parameter Wrong type specified in config tool for this West ProVU parameter check IDF/MBI
19178 West ProVU parameter Incorrect/unknown type from config tool for this West ProVU parameter check IDF/MBI compared to Driver
19244 West ProVU parameter Create Profile Next available profile number < 0
19245 West ProVU parameter Create Profile Next available profile number > 63
19246 West ProVU parameter Create Profile Profile name to create is empty
19247 West ProVU parameter Write to enum Write to read only
19248 West ProVU parameter Delete Profile Profile number to delete < 0
19249 West ProVU parameter Delete Profile Profile number to delete > 63
19255 West ProVU parameter Invalid Profile
19291 is a TCP/IP failure where a LAN device timed out on a read via a pended read. Driver command TCPLRTOMS has a default 5000 milli-seconds
19463 MBI error Missing the number after the POF in the config tool!

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19476 is a TCP/IP failure where socket closed due to inactivity? Also device closed socket e.g. power off
19154 A problem with the Watlow F4T Time type
19156 is a TCP/IP failure where connect attempts to a socket are exhausted
19291 is a TCP/IP failure where connect attempts to a socket are exhausted
19309 West ProVu Send mode was set to Off when it should have been set to Send to issue the stored writes
19475 is a TCP/IP failure the socket is not up for the Tx to be issued
19476 is a TCP/IP failure the socket was closed, this is the default error code
19490 Invalid Time of Day parameter write value (SetParam)
19494 is a TCP/IP failure where the connect() has timed out

OPC:
84036 (and values above) These are OPC [572] errors when the value being returned from the OPC server cannot be relied on. In this case please contact your OPC Server supplier.

8.10.5 E17813 Invalid Entry

There is a data entry validation problem when manually creating a log report starting or ending in 2024, or when starting Historical Replay starting in 2024, which gives the error
for example: *E17813 Invalid Entry 2024/01/02 08:25:00*

For Log Reports (Log File Conversion):

The logged data itself is OK, it is manual log reports that are affected. Automatic log reports from buttons and from Strategy Controller are unaffected.

For Historical Replay:

This only affects doing a replay from a manually entered start time - or selecting a line from the list of log files. Batch replays are unaffected.

This error can be resolved by updating to SpecView 3.1.237 [136] or a later version.

The link to SpecView's website to download the latest version is here.

Please ensure the Update Subscription [76] of your SpecView license is up to date before downloading the latest version of SpecView.

For assistance with the Update Subscription [76], please contact your local SpecView representative or SpecView Technical Support [798] directly.

Workarounds for builds older than 3.1.237:
Where it is not possible to update immediately, there are workarounds, but ultimately updating should be scheduled:

For Historical Replay:
A short-term workaround is to use the buttons such as [-24h], or start Historical Replay by specifying a start date & time in 2023 and replay from there. A longer-term solution could be done using Batch Tags [627].

For Log Reports (Log File Conversion):

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A button can be used to create a log report where DateTime User Variables are used to specify the start and stop - to do this:

In summary:

1. From Edit Mode (or Configuration Mode) - Open the Variables List and create two 'DateTime' User Variables called, for example: StartDateTime & StopDateTime and put them on the screen.
2. From Runtime Mode - Edit the Log Report Format to go from 'StartDateTime' to 'StopDateTime'.
3. From Edit Mode (or Configuration Mode) - Create a button to do 'Logging: Convert Specific Log File Format' of that format.

In detail for **Version 3:**

1. Go into Edit Mode by choosing 'Edit Mode' from the File menu.
   Open the Variables List by clicking the red 'V' on the toolbar.
   Click the '+' by 'User Variables' to expand it.
   Double-click DateTime and enter a name such as StartDateTime.
   Double-click DateTime again and enter a name such as StopDateTime.
   Drag both StartDateTime and StopDateTime out onto the GDW.
   Save the Project by clicking the 'Save' tool on the toolbar.

2. Go into Runtime Mode by clicking the 'Running Man' tool on the toolbar
   Choose 'Convert Log File' from the Logging menu.
   Select the log format from the drop-down list and click the Edit button.
   At the bottom of that box under 'Start Time' check the 'Var' checkbox and choose 'StartDateTime'.
   And under 'Stop Time' check the 'Var' checkbox and choose 'StopDateTime'.
   Click the 'Replace Format' button at the top to save.

3. Go into Edit Mode by choosing 'Edit Mode' from the File menu.
   Create a button by clicking the 'Button' tool on the toolbar and click and drag out a button on the screen.
   In the 'Button Properties' box choose 'Logging: Convert Specific Log File Format' and choose the logfile format that was changed in '2' above.

Then to use this in Runtime Mode first set the StartDateTime and StopDateTime as required then click the button.

In detail for **Version 2.5**:

1. Go into Configuration Mode by choosing 'Configuration Mode' from the File menu.
   Open the Variables List by clicking the red 'V' on the toolbar.
   Click the 'Show New' button.
   Click the '+' by 'SpecView Variables' to expand it.
   Double-click DateTime and enter a name such as StartDateTime – you don't need to give it a value at this stage.
   Double-click DateTime again and enter a name such as StopDateTime – this also does not need a value yet.
   Click 'Show Defined'
   Click '+' by SpecView to expand it, and also expand 'User Variables' and 'DateTime'

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Double-click StartDateTime to add it to the GDW and drag it down to a good position on the GDW.
Double-click StopDateTime and drag that down too.
Save the Configuration by clicking the 'Save' tool on the toolbar.

2.

Go into Runtime Mode by clicking the 'Running Man' tool on the toolbar
Choose 'Convert Log File' from the Logging menu.
Select the log format from the drop-down list and click the Edit button.
At the bottom of that box under 'Start Time' check the 'Var' checkbox and choose 'StartDateTime'.
And under 'Stop Time' check the 'Var' checkbox and choose 'StopDateTime'.
Click the 'Replace Format' button at the top to save.

3.

Go into Configuration Mode by choosing 'Configuration Mode' from the File menu.
Create a button by clicking the 'Button' tool on the toolbar and click and drag out a button on the screen.
In the button properties box choose 'Logging: Convert Specific Log File Format' and choose the logfile format that was changed in '2' above.

Then to use this in Runtime Mode first set the StartDateTime and StopDateTime as required then click the button.

8.11 Glossary of Key Terms used in SpecView

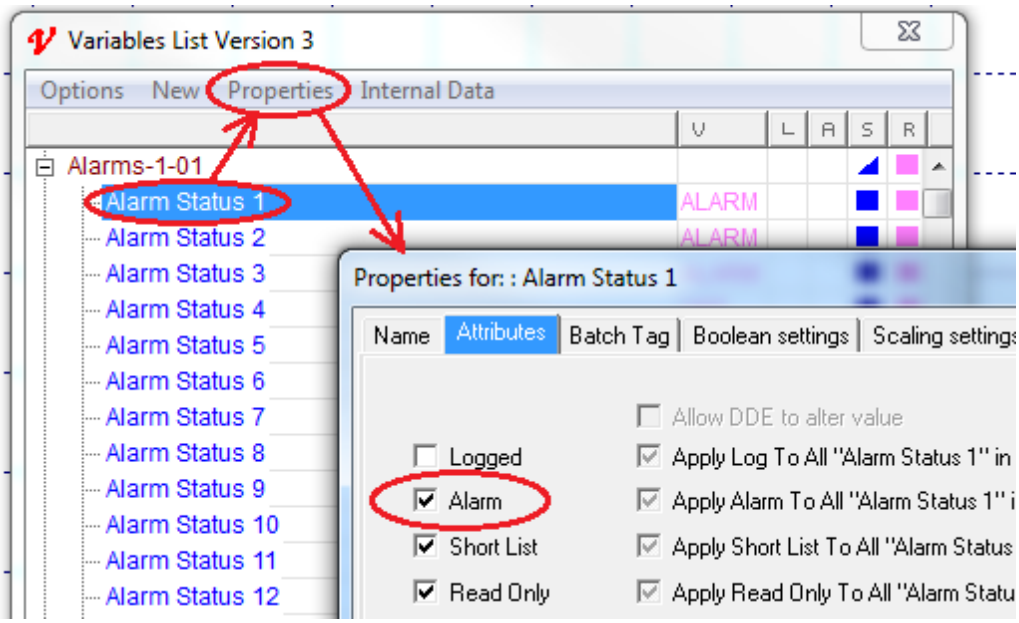
ActiveX Controls 766
Alarm 487
Alarm List 487
Boolean 488
Communications Ports 'Com Port' 490
Communications Protocol 491
Configuration 491
Configuration Mode 501
CVTSETTINGS.INI 492
Daisy-chain 495
Data Logging 496
Decimal Places 496
Dongle 498
Dynamic Attributes 501
Edit Mode 501
GDO - Graphical Display Object 503
GDW - Graphical Display Window 503
Instrument 505
Instrument Views 346
Log Report 507
Multiport Option 507
Radio Buttons 509
Read Only Variable 510
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Runtime Mode 512
Strategy Controller 513
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Tooltips 514
Variable - Definition 514
Variable Types 517
Variables List 517
Web Server Option 520
Windows file-naming rules 521
Writeable Variable 521

8.11.1 Alarms

An Alarm 353 is an On/Off status parameter within an instrument, or a boolean User Variable which has the Alarm attribute enabled.



Setting up an alarm, see: Alarms 353

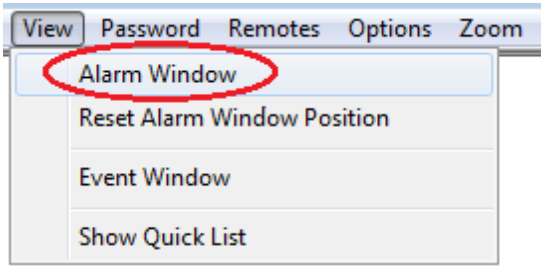
When an alarm occurs SpecView will display the Alarm List 262 and write an entry into the Alarm logfile 616.

8.11.2 Alarm List

Alarms 353 are 'Boolean' (On/Off) instrument parameters or User Variables that are marked as being significant by setting the Alarm attribute.

The Alarm List 262 (also known as the Alarm Window) can be displayed from the View Menu:

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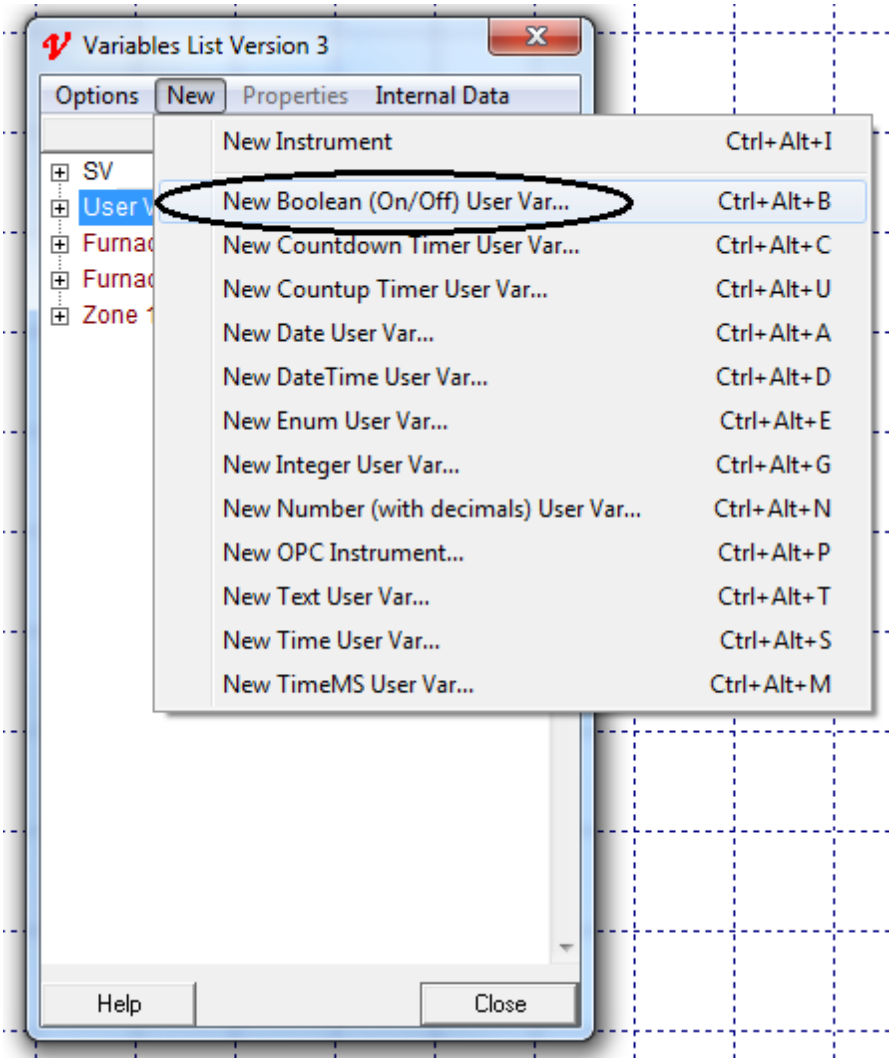
Or by clicking on a button that has been created with the button action: Alarms: Show Alarm List[406]

8.11.3 Boolean

A Boolean variable is an Instrument Variable or a SpecView User Variable which has only two possible values **On** or **Off**.

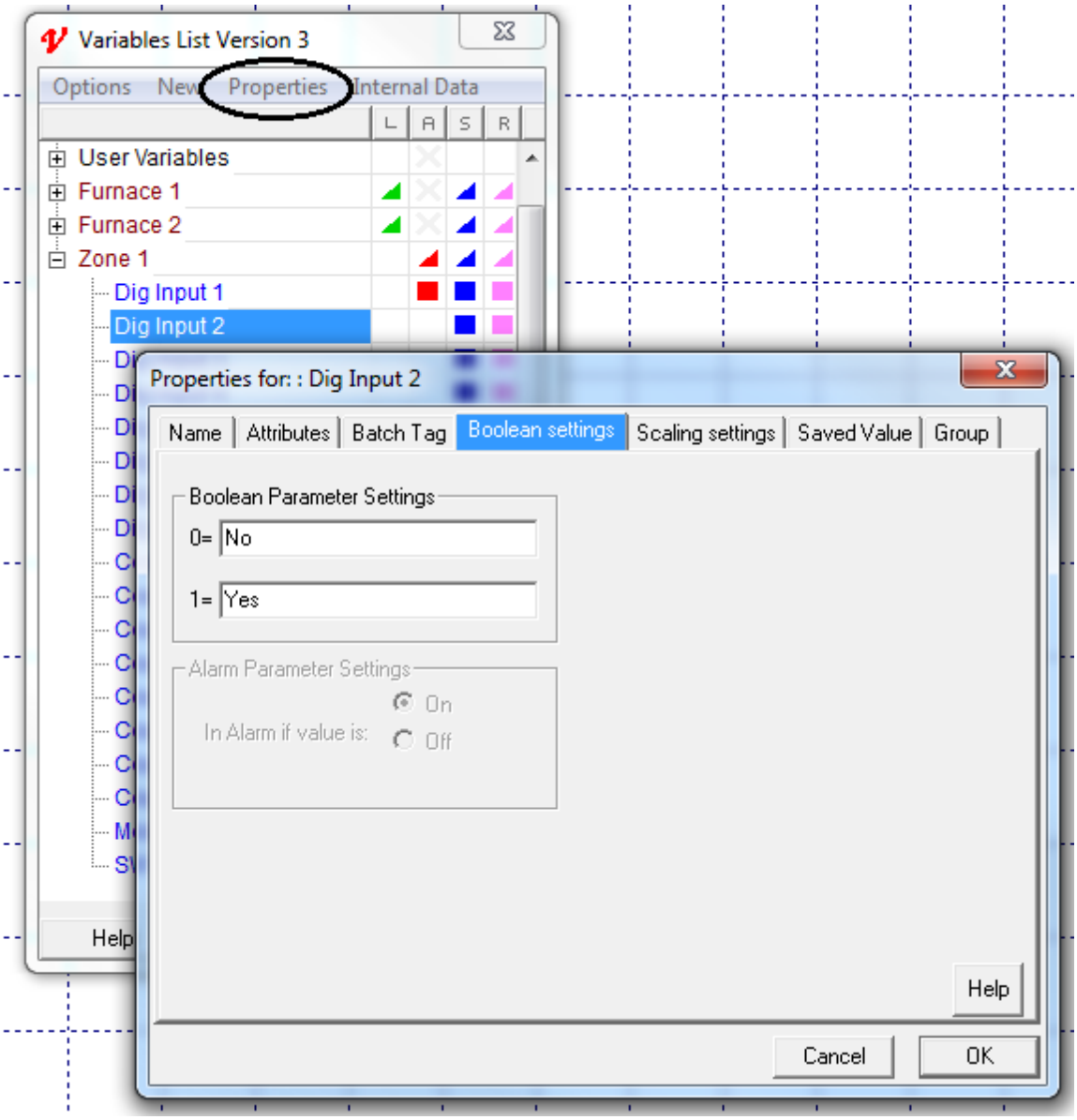
To create a Boolean User Variable use the New menu on the Variables List:

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A SpecView Boolean User Variable is not significantly different to a SpecView Integer User Variable except that its values can be given different names [326] such as: **Yes**/**No**, **Auto**/**Manual**, etc.

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8.11.4 Communications Ports "Com Port"

The Communications port (or COM port) is a serial port on the computer, usually USB, but can be a 9-pin RS232 connector.
Instruments which have a serial connection typically use RS422 or RS485, therefore a convertor is required to convert, for example, USB to RS485.

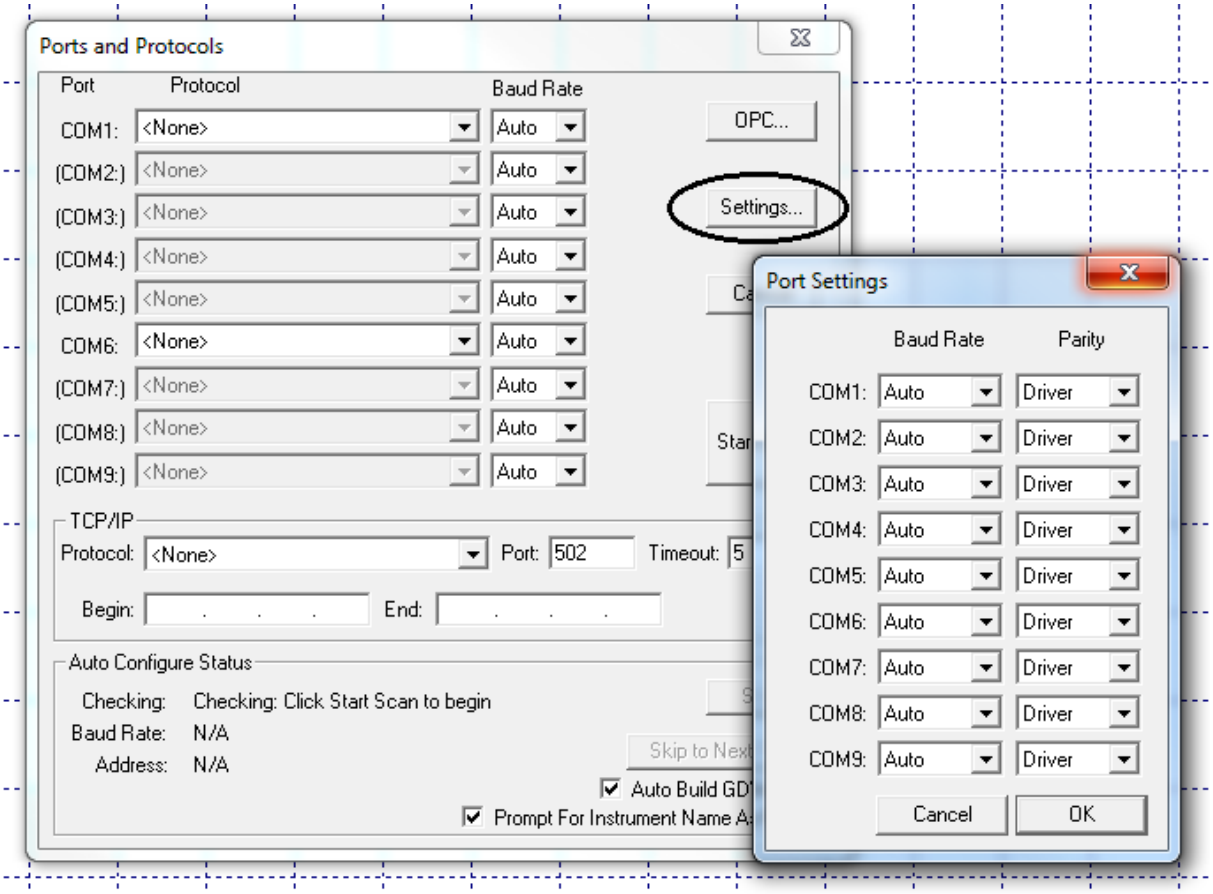
Or sometimes special cards may be used that have RS422 or RS485 ports.

Windows identifies ports with the term COM1, COM2 etc. SpecView supports by default up to COM9, but it is possible to increase this limit up to 40 by setting MaxPorts [458].

Communication Ports are a hardware item in the computer and should not be confused with Communications Protocol.

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A Communications Protocol can be thought of as the 'language' used by the instrument to send/receive values to/from the computer.



8.11.5 Communications Protocol

The communication standard used by the instrument, for example Modbus. This is how the *software* communicates with the instrument and is not related to the type of communications standard used by the port (RS232, RS485 etc.).

To communicate with instruments that use different communications protocols SpecView's Multiport [507] option will be required.

The Communications Protocol can be thought of as the 'language' used by the instrument to send/ receive values to/from the computer.

8.11.6 Configuration

In SpecView Version 3 a Configuration is now called a Project [509] and Configuring is now called Editing a Project [282].

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8.11.7 CVTSETTINGS.INI

The CVTSETTINGS.INI file is where additional control can be specified when logged data is '**C**on**V**er**T**ed' into a Log Report.
These control the following:

- Duplicate Data [492] specify in the [SETTINGS] section of CVTSETTINGS.INI
- Suppress Blank Lines [493] specify in the [SETTINGS] section of CVTSETTINGS.INI
- Error String [493] specify in the [SETTINGS] section of CVTSETTINGS.INI
- Repeated Value String [493] specify in the [SETTINGS] section of CVTSETTINGS.INI
- Show Error Codes [493] specify in the [SETTINGS] section of CVTSETTINGS.INI
- Decimal Places [493] specify in the [DP] section of CVTSETTINGS.INI
- Headings [494] specify in the [NAMES] section of CVTSETTINGS.INI
- Suppress Instrument Name [495] specify in the [LOGFILECONVERSION] section of SETTINGS.INI

Note that this file does not exist initially, so if there is a need to specify any of these settings then this file will need to be created. Ensure that the file type of this file is 'Configuration settings' not 'Text Document'.

These new features are controlled by a new INI file (in addition to SV3.INI [513] and SETTINGS.INI [512]) called CVTSETTINGS.INI which must be in the same folder as the log data itself (where the .LOG, .IDX and .LNM files are).
This file can be created using Notepad and has the two sections detailed below: (See the end of this topic for an example of a CVTSETTINGS.INI file).
Be sure to check the spelling because they must be exact and there must NOT be any spaces around the equals signs, or at the end of the lines.
Also, the lines added to the [NAMES] section are case sensitive.

Suppress Duplicate Data
Normally, SpecView's Log File Conversion creates one line per log interval fully populated with the latest data at the time, or blank cells if there is a data error (such as a loss of comms).

If the value does not change much, then there are multiple duplicate values for that item in the final CSV file.

Create a section called [SETTINGS] and add entries to it as follows:

SuppressDuplicateData=Y
SuppressBlankLines=Y
ErrorString=Err
RepeatedValueString=
ShowErrorCodes=

SuppressDuplicateData=Y forces the Log File Convert process to leave out data that does not change on consecutive lines. This means that there will be blanks cells in the CSV file, and so the ErrorString should be used to change how errors are reported.
When this setting is on, the first and last lines of the file will be fully populated with data, even if it has not changed, but in the main body of the file, data is left out. Valid values of **SuppressDuplicateData=** are Y, N, 1, 0.

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SuppressBlankLines=Y tells the Log File Convert process to omit the whole line if all the cells would be blank (i.e. no data has changed at all since the last log interval).

ErrorString=Err tells the Log File Convert process to put the string 'Err' in cells where the value could not be obtained from the devices connected to SpecView. Choose this String with care, depending on what will be reading the resulting CSV file. If it is only read by a Human, then "Error" or "Comm Fault" are OK, but if some other computer software is reading the file, then take care to use something that will be interpreted correctly.
Do not use a comma in this String.

RepeatedValueString= replaces a repeated value with a known string. Used for BlueStreak integration.

ShowErrorCodes=Y tells the log file conversion to put the Error code into the log file instead of a blank cell. If 'ErrorString' has not been specified, then the error will look like:

Error: 1460

otherwise the Error String is used with a space and the code, eg, if ErrorString is 'Err=' then

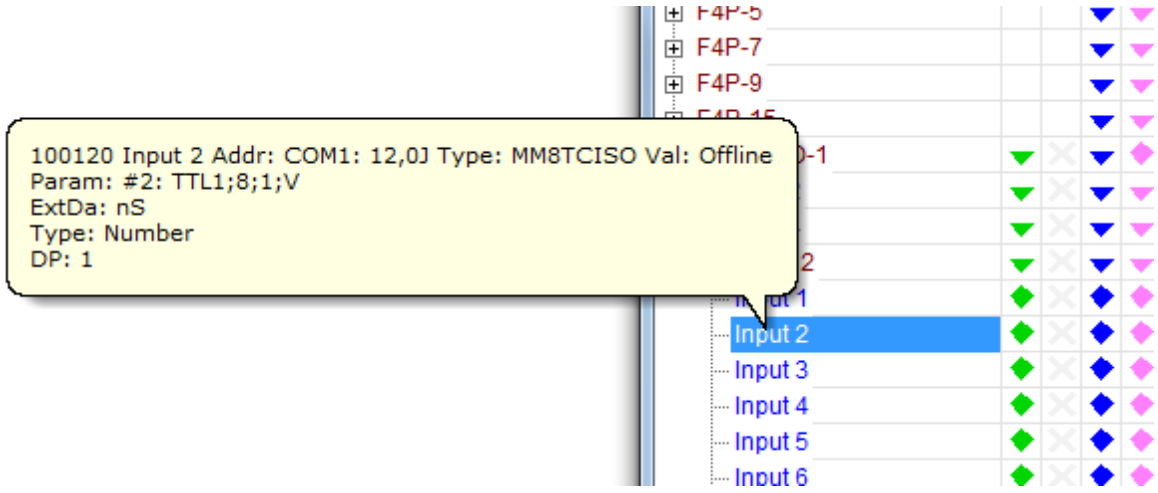
Err= 1460

will occur in the log file.

Controlling Decimal Places:

The number of decimal places [496] in the CSV file is determined either by the parameter's address setting, or by the 'Log Report DP' override setting (In File->Preferences), which is global to all values in the CSV file.

However, the number of decimal places used for each value in the CSV file can be specified. This mechanism relies on knowing the 'Unique ID' of a parameter inside SpecView. To find the UniqueID, open the Variables list and choose the '**Options -> ToolTips -> Show detailed info**' menu items. Then, hover the cursor over the parameter. the UniqueId is the large number at the beginning of the tooltip, as shown here:



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In this example, ‘Input 2’ has a uniqueId of 100120.

Find all the UniqueIDs of all the parameters that need their DP setting changed and then in the CVTSETTINGS.INI file, add a section [DP] listing all the Uniqueids and the number of decimals, as follows:

[DP]
100120=2

This example shows setting the ‘Input 2’ in the above example to 2 Decimal Places.
The DP settings are: 0,1,2,3 or 4 for normal representation and -1,-2,-3,-4 for Scientific Notation.
Examples: Suppose ‘Input 2’ has a value of 123.45678, then:
100120=2 would show 123.46 in the CSV file
100120=4 would show 123.4568
100120=-4 would show 1.2346E+02

If a Unique ID is specified in the CVTSETTINGS.INI file, that overrides the LogReportDP setting from File->Preferences, so use this mechanism to speicy the exceptions to the norm.

Here is a complete example CVTSETTINGS.INI file:
[SETTINGS]
SuppressDuplicateData=y
SuppressBlankLines=1
ErrorString=Error
RepeatedValueString=_
[DP]
11840=0
11830=2
10022=3
10010=-1

Controlling the headings in Log Report files:

The names used in the header row of the Log Report CSV file can be changed as follows:

In CVTSETTINGS.INI add a section called: [NAMES] and add pairs of parameter names and their replacements like this:

[NAMES]
Controller1.ProcessValue=C1.PV
Controller2=C2

In the above example, the first line replaces the whole of a specific parameter name with a shorter one, and the second line replaces all Controller2 with C2 wherever it occurs in any parameter name.

Important Notes:

- The lines in this section are CASE SENSITIVE.

- The replacement text can be blank, e.g. **Controller=**

- The replacement can be a partial match, e.g. **Process=Temp** will change 'Process Value' to 'Temp

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Value'.

- These replacements apply globally to all parameters in ALL Report Formats

- Only one replacement is made per parameter - for example, if there were two lines in the [NAMES] section as follows:

Controller=Kiln
Kiln.PV=Kiln.Temp

where the intention is to 'rename' the Controller to Kiln and then rename specifically the PV to Temp, then only one of them would work because the first one to substitute will end the replacements for that parameter. It is not possible to specify the order, so the actual replacement will be either only Kiln.PV (because the replace of Controller with Kiln got there first) or no change (where Kiln.PV got there first, but the parameter is still called Controller). To deal with situations like this, rename every parameter in full instead of relying on partial replacements. In this example Controller.PV=Kiln.Temp would do that.

There is also another relevant setting in SETTINGS.INI (Note: that this is ***not*** CVTSETTINGS.INI)

[LOGFILECONVERSION]
SuppressInstrumentName=Y

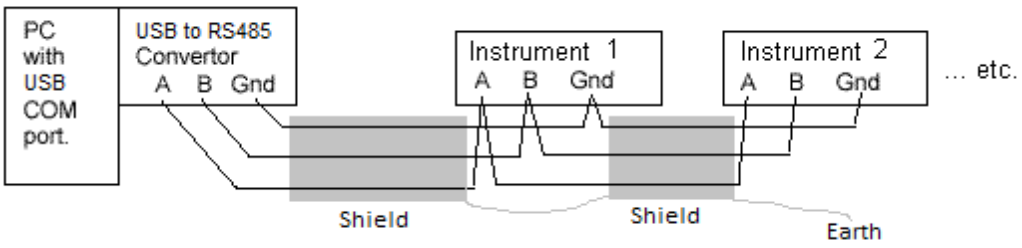
Strips off ALL instrument names in the CSV files, so for example, where the name is 'Controller.PV' it will be replaced by just 'PV'.

Note that can also be done via CVTSETTINGS.INI as described above using:
[NAMES]
Controller.=
Which replaces the name and the dot with nothing, however, SuppressInstrumentName=Y does it across all instruments.

See also: SV3.INI 513 and SETTINGS.INI 512

8.11.8 Daisy-chain

Multiple instruments connected on serial comms can be daisy-chained together, see Instrument Installation and Wiring 565



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8.11.9 Data Logging

Storing on disk the value of selected variables at a pre-set time interval.
Data Logging in detail 589

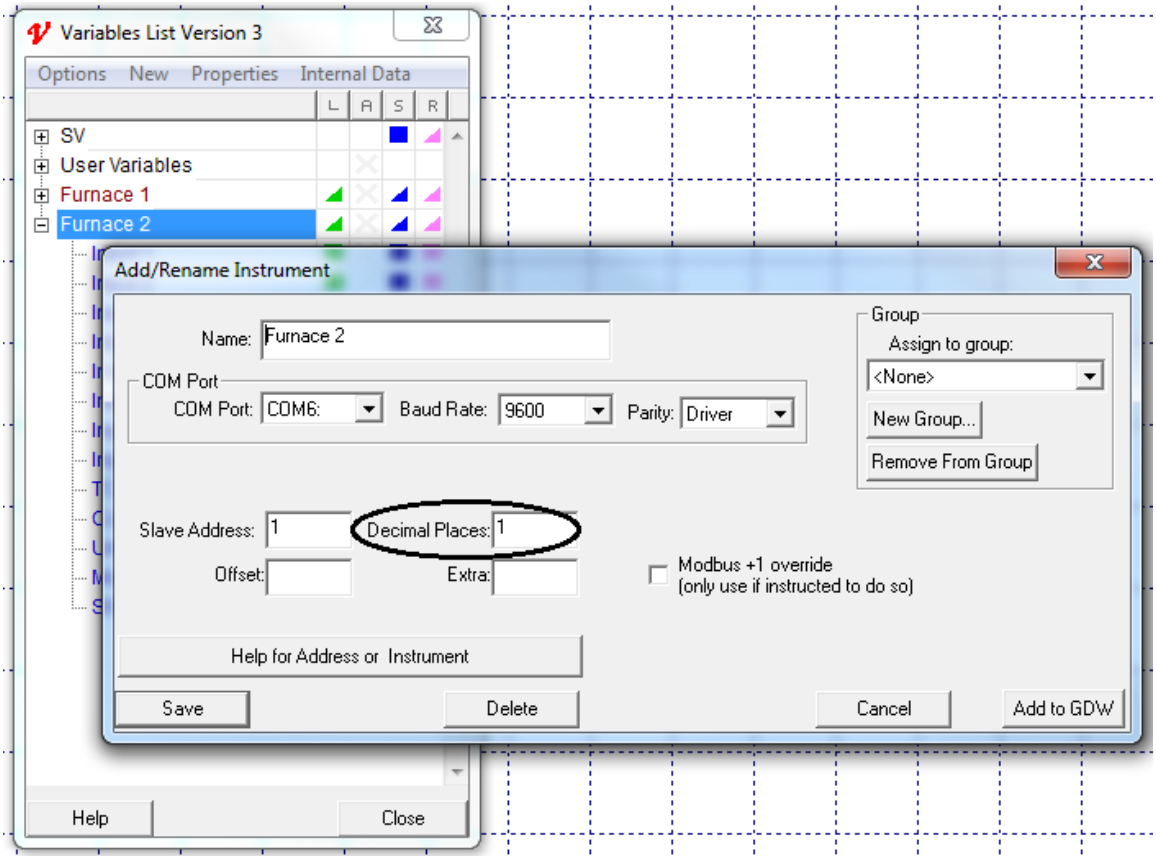
8.11.10 Decimal Places

Some protocols (examples include Modbus 215, Red Lion and Yokogawa Green Series) do not provide the computer with information about decimal places. Therefore when SpecView auto detects instruments it will have to make assumptions, for example, it assumes NO decimal places for Modbus and Red Lion, and ONE decimal place for Yokogawa Green series.

Specifying the number of decimal places for Variables is done in a number of places:

For Instrument Variables:

The decimal places for instrument parameters are specified in the instrument definition:



Also ensure the instrument variables are using the correct scaling 326.

For any Variables being displayed on a GDW:

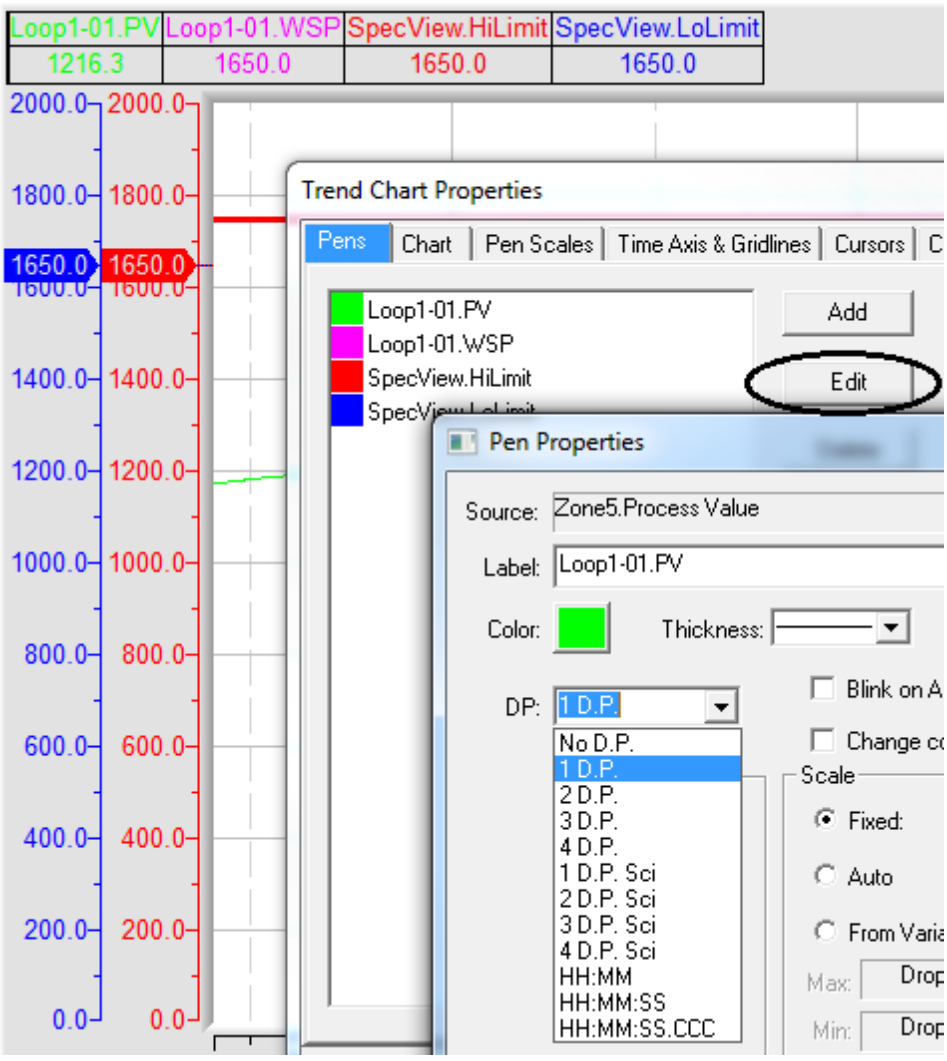
Select the value on the GDW, just the 'N/R' which may need to be un-grouped 291 from its neighbor.
Then use the Dynamic Attributes menu command from the Edit menu 287.
This will need to be done for EACH occurrence of a variable on EACH GDW.

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In Log Report (CSV) files:
To set the default setting for the decimal places used for values in a Log Report **Report DP** on Preferences - Logging [459]
This is detailed under Log Reports - Specifying decimal places [615]

To set the decimal places in Log Reports for specific values (if the default setting above is not appropriate for a value), then use CVTSETTINGS.INI [492]

On Trend Charts:
The decimal Places required for each pen are specified in the Pen Properties:

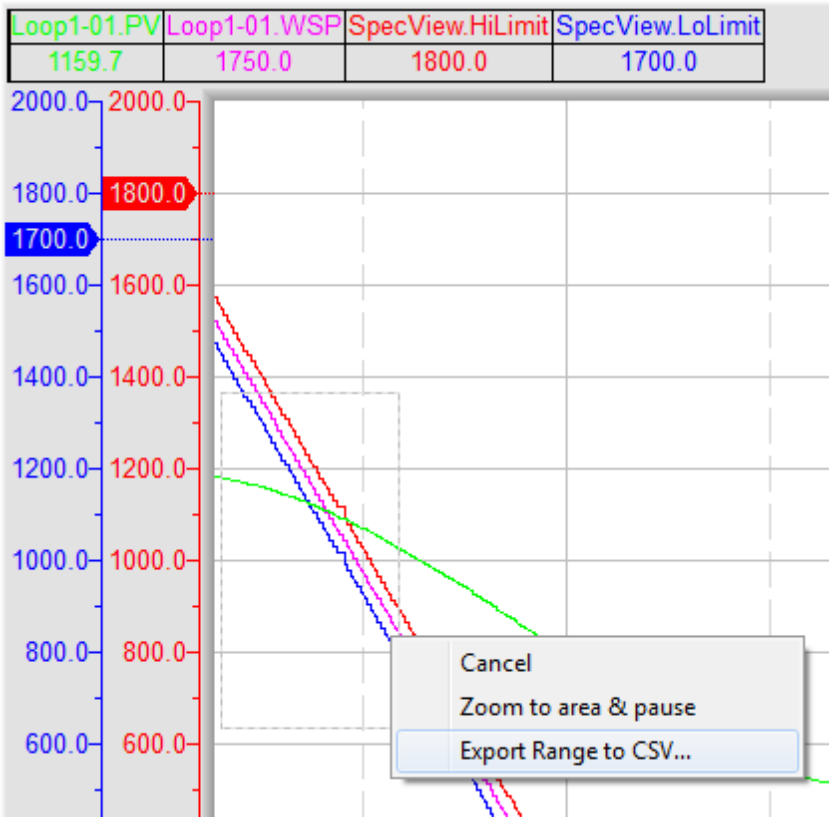


On Trend charts which are still in 'Version 2/2.5' format:
To display more than one decimal place for values on a 'Version 2/2.5' format Trend chart use **Trend DP Override** on Preferences - Runtime [459]

In Trend Chart export to CSV:
The decimal places for the values in the CSV file created by selecting an area of a Trend Chart and

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exporting the values to a CSV file are always the full resolution of the value that SpecView obtained from the instrument. The decimal places shown in the resultant spreadsheet when loaded into Excel can be limited using Excel's column format.



In The Line Writer:

The default setting for decimal places for values written to a file using SpecView's Line Writer[452] is specified using **Line Writer DP** on Preferences - Runtime[459]

To set the decimal places for specific values written to a file using SpecView's Line Writer[452] (if the default setting above is not appropriate for a value), then use CVTSETTINGS.INI[492]

8.11.11 Dongle

The dongle is a copy protection key used by the SpecView software which is required for all versions of SpecView.

There are 3 types of dongle available:

- **USB** - For connection to a USB port.
- **Parallel** - For connection to the parallel (printer) port of the computer. It will not affect the operation of the printer port.
- **Soft Dongle** - No physical key. This is described in more detail under Soft Dongles.

The dongle contains the information about the SpecView options which have been purchased. The dongle

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may be upgraded [64] to add further options at any time.

Although the dongle is connected to either a USB port or the printer port, and is not in any way connected to the instrument, SpecView will search for the presence of the dongle for licensing purposes.

Without a dongle SpecView will run in Demo Mode, this is described in more detail under Licensing.

Troubleshooting
If SpecView has a problem reading the dongle & gives an error, or if it doesn't detect the dongle & continues to run in Demo mode; displaying the box:

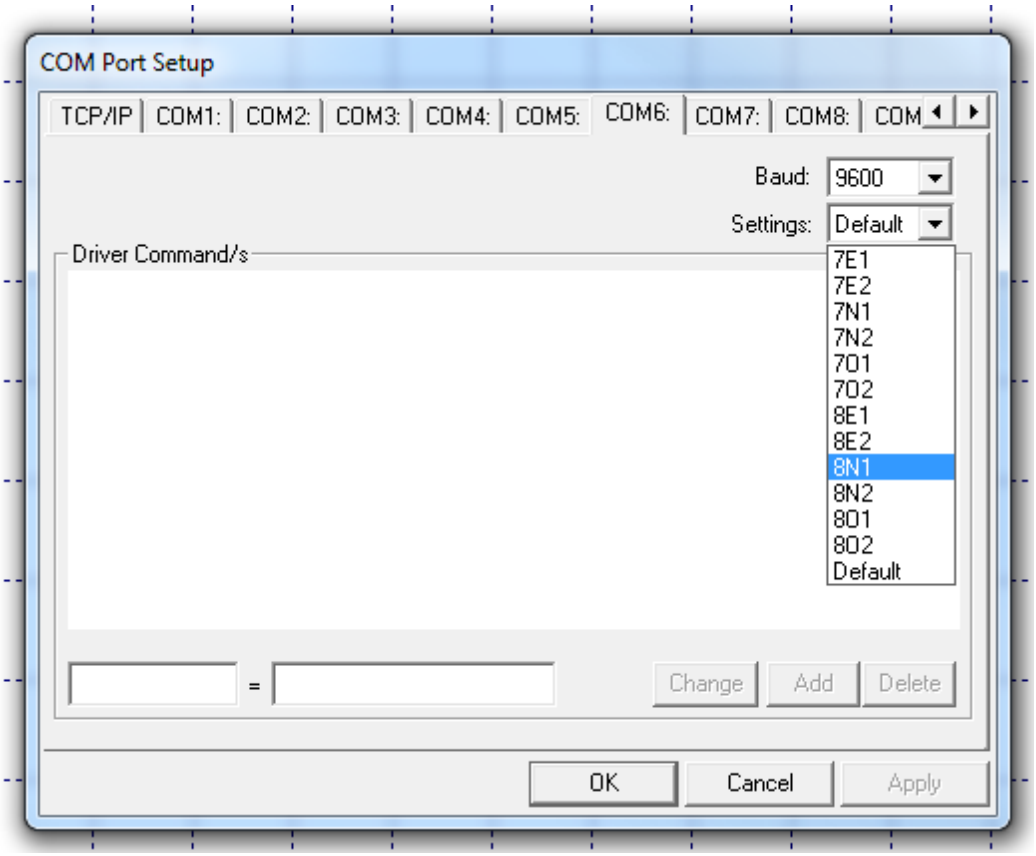


Then on the SpecView Installation CD there is a folder containing the program SuperproMedic, which may help resolve the problem.
This program is also available for download from SpecView's FTP site; access www.specview.com then click the Download link and click FTP-site.

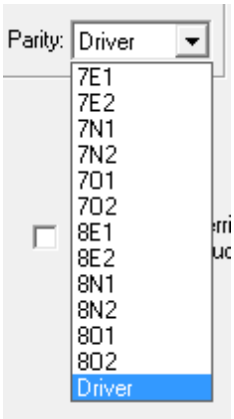
8.11.12 Driver

Driver default settings:

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On the 'Settings' or 'Parity' drop-down, ideally leave as 'Default' or 'Driver' to use the driver defaults which will be the 'factory default' for that instrument, otherwise, if the settings on the instrument have been changed then choose accordingly:



The meanings are listed below:

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	Data bits	Parity	Stop Bits
7E1	7	Even	1
7E2	7	Even	2
7N1	7	None	1
7O1	7	Odd	1
7O2	7	Odd	2
8E1	8	Even	1
8E2	8	Even	2
8N1	8	None	1
8N2	8	None	2
8O1	8	Odd	1
8O2	8	Odd	2

8.11.13 Dynamic Attributes

These attributes are associated with a variable on a GDW. They are:

- Scan Rate - The rate at which this value is read from the instrument
- Recipe - Whether or not the variable is included in the Recipe
- Recipe Level - The order in which the Recipe values are downloaded
- Decimal Places - The number of decimal places shown for this variable

Dynamic Attributes [357] box

Note that Dynamic Attributes won't work if the selected object is grouped, so it is necessary to ungroup the object using the Ungroup tool  on the toolbar.

8.11.14 Edit Mode

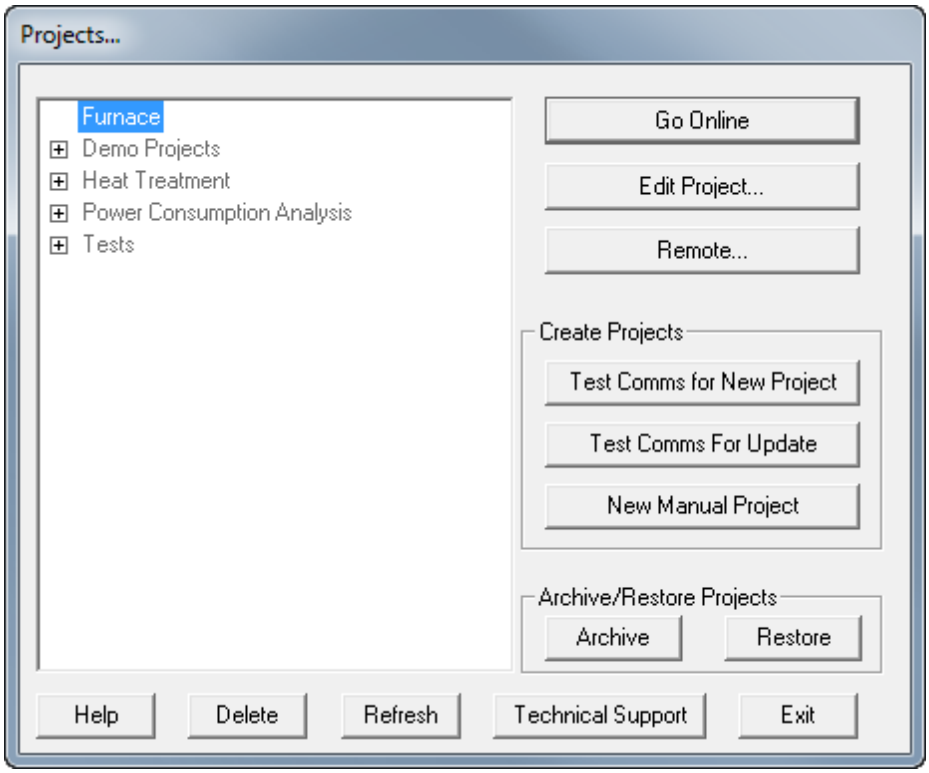
SpecView has two modes of operation: Edit Mode and Runtime Mode.
GDW's [503] are created or edited in the Edit Mode, read Creating and Editing GDW's [311]
When in Runtime Mode use the File - Edit Mode [284] menu command to return to Edit Mode.

When starting SpecView it is possible to shortcut directly into Edit Mode on the last used project (missing Runtime Mode) by holding the **Shift** or **Control** key down while clicking the **Start** button on the Splash Screen:
Hold the Shift key down and click Start to go directly into Edit Mode with online features enabled.
Or hold the Control key down and click Start to go directly into Edit Mode offline.

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To edit an alternative project click the **Select/Create Project** button to display the **Projects** box, then select the required project from the list and click the **Edit Project** button.



While in Edit Mode use the Online Features [307] menu to select which parts of SpecView are online, for example while editing Position Dynamics [363] ensure that Position Dynamics are not online.

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8.11.15 Fonts

Fonts can be specified in SpecView as follows:

- Dialog box fonts (text, buttons and title bars) and menu text are changed via the **Windows Control Panel**
- Trend Chart [523] fonts are changed via:
  - Values font in the Values [555] tab;
  - Chart Notes font in the Chart Note [550] tab;
  - Scale font in the Time Axis & Gridlines [546] tab
- Bar Chart fonts are changed from the Bar Chart Setup [397] box
- Button fonts are changed from the Button Attributes [403] box

8.11.16 GDO - Graphical Display Object

Graphics made with SpecView's drawing tools can be grouped [374] and saved as GDO's using the Save Object menu command on the Object menu [291]. The saved GDO's can be re-used (using the Load Object menu command) any number of times in any GDW in any copy of SpecView.

NOTE: Do not include variables (or Trend charts or Bar Charts or ActiveX controls) in saved objects

The default folder to save the object to (and load the object from) is SymbolLibrary in SpecView's installation folder (so typically this would be: C:\SV3\SymbolLibrary). However, GDOs can be saved to & loaded from any folder.

8.11.17 GDW - Graphical Display Window

The window (or screen) used to display data from the connected instruments. Graphics drawings are used so that the data may be arranged in a logical and unambiguous format. SpecView may have as many GDW's as disk space and Windows limitations will permit.
Creating and Editing GDW's [311]

In SpecView version 2.5 (builds 820 and above) GDW's have been renamed GD3's following the addition of the ability to add ActiveX [766] controls to SpecView's screens.

Throughout this text the words: '**screen**', '**GDW**' and '**GD3**' all have the same meaning. This is because the content of a 'screen' layout is saved to a file with a .GDW or .GD3 filename extension.

NOTE: Files with the .GDW or .GD3 filename extension cannot be used alone. Consequently they cannot be used by SpecView if they have been separated from the other files in the Project subfolder that they were created in.

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8.11.18 Grayed out (disabled) menu items and buttons

Menu items and buttons can be grayed (grayed) out or not enabled (disabled) if they are not available for use in a particular context.

In SpecView's menus and boxes:
If the required menu-item in, for example, the Variables List is not enabled (grayed-out) then go to the Online Features menu[307] and choose Disable All (fully offline). This is because some of the menu-items, such as changing instrument details can't be done while online[282].

Other reasons for seeing menu items or buttons that are greyed-out are, for example, if the SpecView license is a Runtime Only[78] license both **Edit Mode (remain online)** and **Edit Mode (go offline)** will not be enabled on SpecView's File menu[269].

The popup Trend Chart Properties menu and the menus in the Variables List can also have menu items not enabled while 'Online'.

On a GDW:
When configuring a SpecView project it may useful to make a button unavailable in a certain context, for example a 'Start Batch' button should not be available until the Batch ID has been entered.

This can be done using Position Dynamics[363] to move the button off-screen (outside the visible part of the screen) until a Boolean is set by the Strategy Controller[666] to indicate that the Batch ID has been entered.

8.11.19 Group

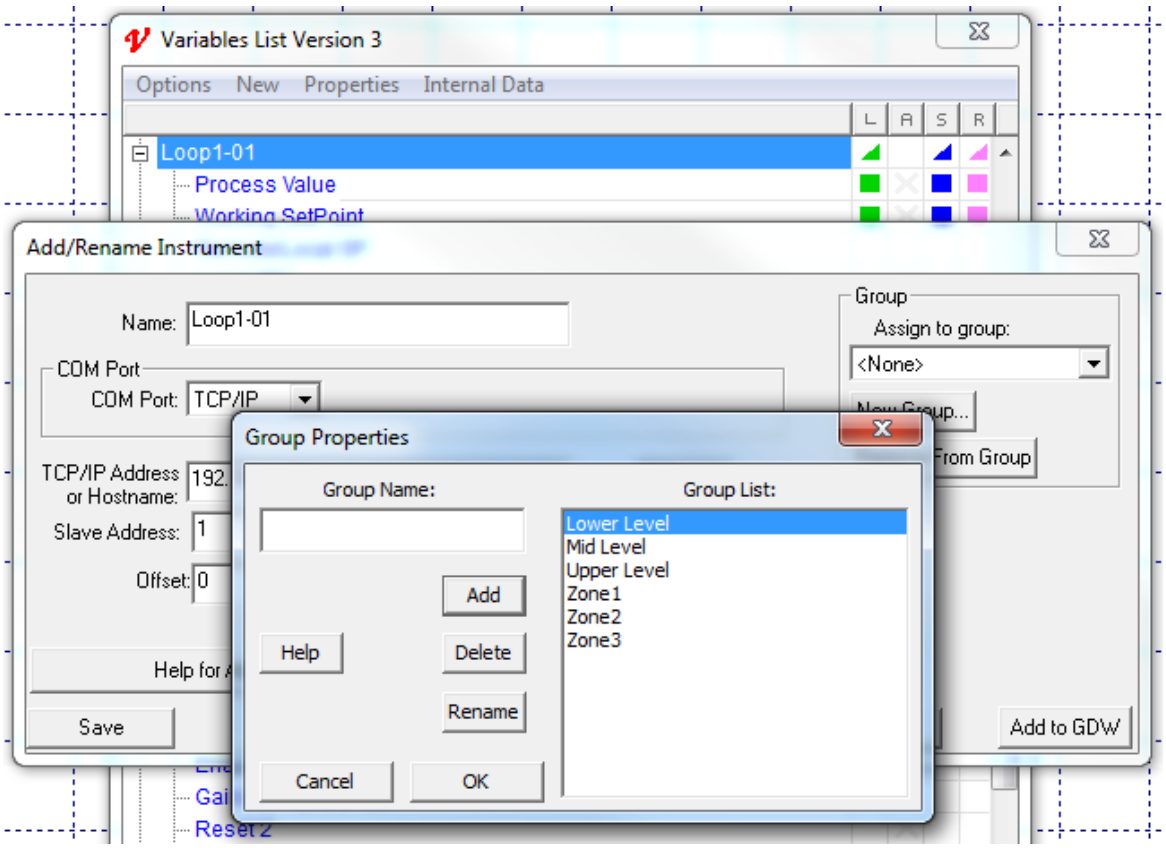
The word 'group' has 2 meanings in SpecView:

1. When objects are grouped together on the GDW - so they can be moved all together.
   For this the **Group** tool  and the **UnGroup** tool  on the toolbar are used.
   Note that there are 2 functions that won't work if the selected object is grouped, these are Dynamic Attributes[501] on the Edit[287] menu and the Recipe[637] tool  so to use these it is necessary to ungroup the required object.

2. When instruments and/or parameters and/or variables are grouped together into a named logical group

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341 within the Variables List 313.



8.11.20 Instrument

An instrument is a complete device connected at a unique address 208 on the communications link.

This could be a controller (such as a temperature controller), an indicator, a process controller, a PLC, or a control system.
These are all considered to be Instruments by SpecView.
Each Instrument has a number of parameters 506.

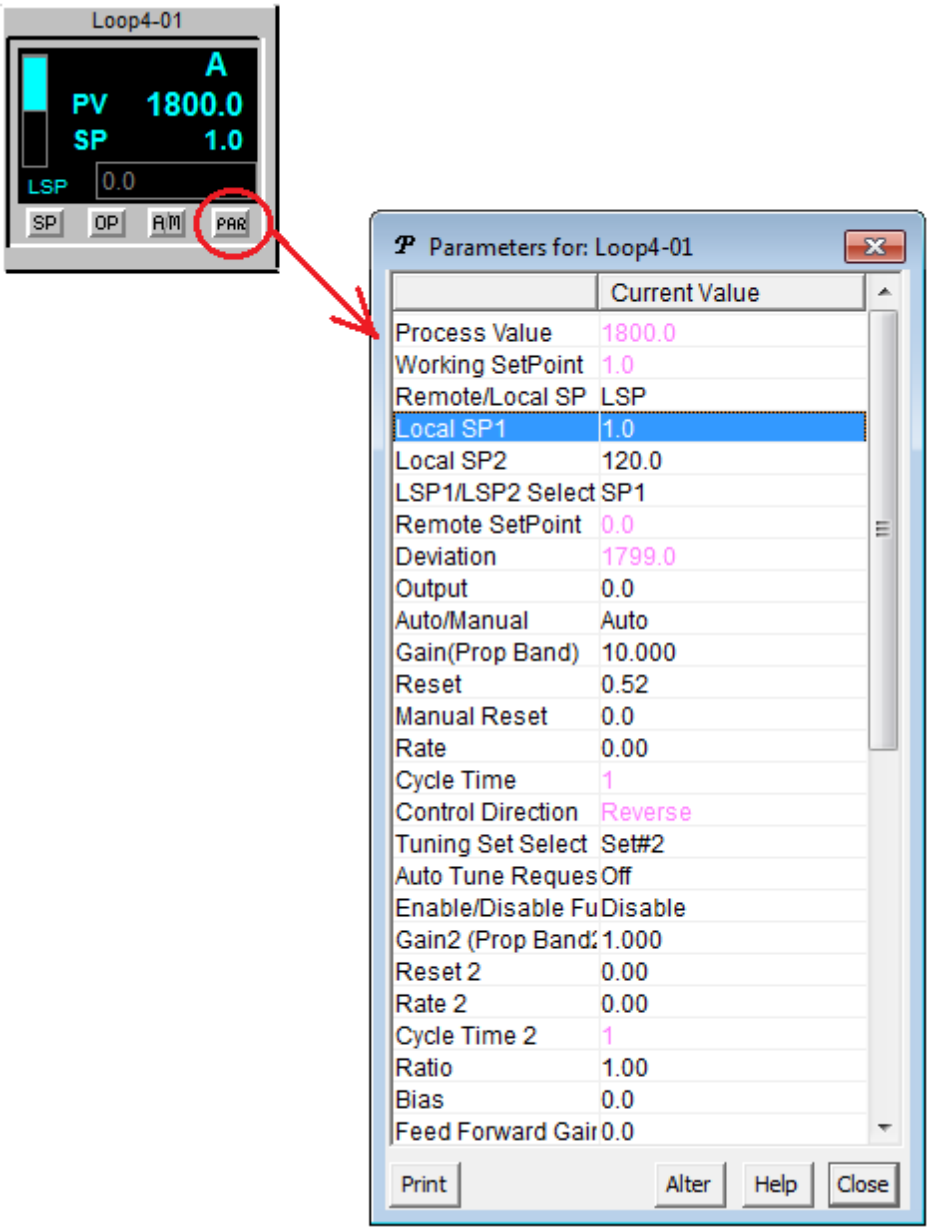
In the case of complex instruments, where there are a very large number of parameters, or where it makes sense to divide the parameters up into logical groups, then the parameters are grouped into Instrument Views 346.
For example:

- A programmable controller will have separate Instrument Views for the programmer module and the controller module.
- A multi-loop controller will have separate Instrument Views for the programmer module and for each of the loops.

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8.11.21 Instrument Parameter

An instrument parameter is a value that can be read (and/or written) on the instrument. Examples of these are: 'Process Value', "Setpoint", "Output Power"



Instrument parameters can be of different types: Numeric, Boolean, Text, etc.

Instrument parameters can be Read-Only [326] (such as a Process Value).

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Boolean Parameters can be set as Alarms [353].

Note:
In SpecView's Help the word 'variable [514]' is used when referring to any of: a SpecView Pre-defined variable [319] or a SpecView User Variable [322] or an instrument parameter.
Whereas the word 'parameter' is only used when referring to instrument parameters.

8.11.22 Log Report

A text file containing the values of selected variables over a time period. The file is in a CSV (Comma Separated Variable) format. This means that the data fields are separated by commas. This format is intended to be imported into a spreadsheet program such as Excel.
Viewed with a text editor:

```
Time,Zone 1 Output Power,Zone 2. Process Value,Zone 1.Setpoint
07/06/2013 12:31,68.9,72.7,90
07/06/2013 12:32,69.2,72.7,90
07/06/2013 12:33,69.1,72.7,90
```

The same file opened in Excel (use Type of File: Text Files (.prn .txt .csv)

	A	B	C	D
1	Time	Zone 1 Output Power	Zone 2. Process Value	Zone 1.Setpoint
2	07/06/2013 12:31	68.9	72.7	90
3	07/06/2013 12:32	69.2	72.7	90
4	07/06/2013 12:33	69.1	72.7	90

Log Reports in detail [606]

8.11.23 Multiport Option

SpecView's Multiport [571] option would be required on the license [33] in the following circumstances:

- For a large number of instruments
- When instruments which use different communications protocols are being used
- For greater speed [569] of response
- When using OPC [572]

8.11.24 Multi-Select

Parameters (or variables) in the Variables List can be multi-selected in the standard way for Windows. Using SHIFT-Click to select a block. Or using CTRL-Click to add to the selection.

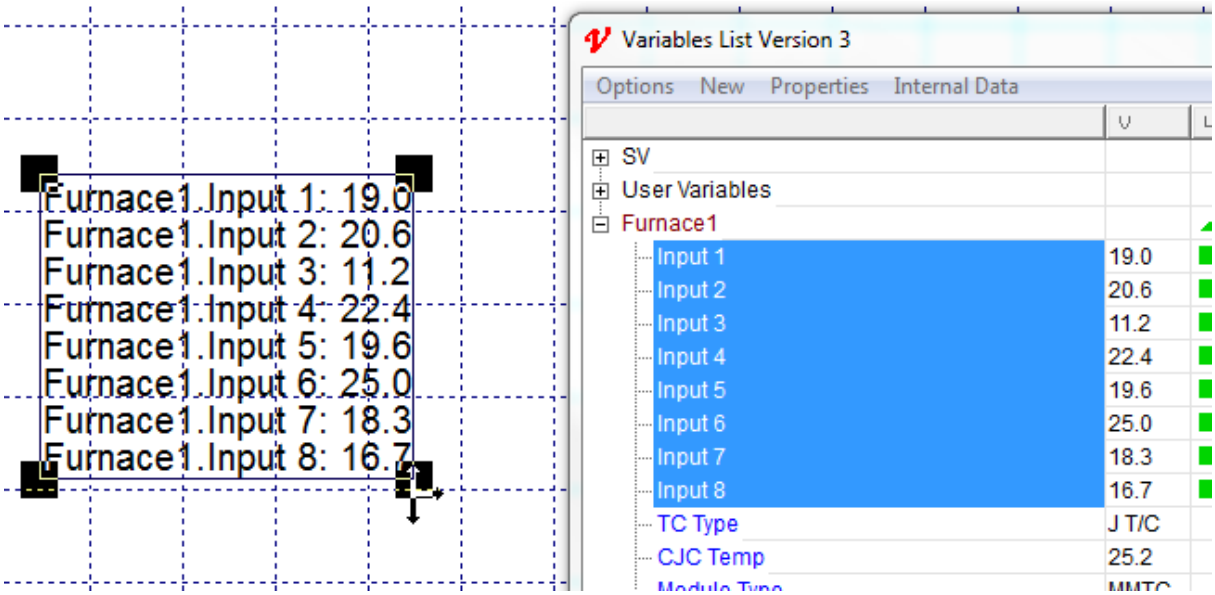
The order in which the Parameters (or variables) are dragged out onto the screen (GDW) is determined

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by the selection order.

Whether or not the parameters' names (and/or instrument names) are included in the drag is chosen on the Options menu 'Include Name' sub-menu.

Spread mode



The large 'handles' represent 'Spread Mode'. These allow the parameters to be dragged in the direction of the cursor arrows to spread them out evenly.

The spacing will be the same for the next group of parameters dragged out, unless 'Reset Spacing' is chosen from the Options menu 'Multi-Select' sub-menu.

Spread mode can be re-enabled on a group of parameters by right-clicking and choosing 'Spread Mode' from the popup menu.

8.11.25 Parameter

Also known as an Instrument Parameter[506].

Note:

In SpecView's Help the word 'variable' is used when referring to any of: a SpecView Pre-defined variable[319] or a SpecView User Variable[322] or an instrument parameter.

Whereas the word 'parameter' is only used when referring to instrument parameters.

Further explanation can be found at Variables[514]

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8.11.26 Port

The word 'port' has multiple meanings in SpecView:

- SpecView's Multiport [571] option is the license option which is required when communications with instruments needs to be done over more than one serial comms connection or a mix of serial comms and TCP/IP and/or OPC.
- SpecView's communications over TCP/IP with instruments uses port 502 [490]
- SpecView Networking [713] which works over TCP/IP uses port 3413

8.11.27 Project / Project Folder

A project is a saved collection of information about instruments, graphical screens (GDW's [503]), Recipes [637], logging [589] details etc.
The project name is saved as the name of a sub-folder (also known as a project folder) under the SpecView installation folder (usually C:\SV3\).

For example, if the project was called: 'Furnace' and SpecView was installed in the default location of C:\SV3\
then the project folder would be C:\SV3\Furnace\

All of the files that make up a project must be kept together as in the project folder because they cross-reference each other, so cannot be separated.

Projects can be Archived and Restored [193].

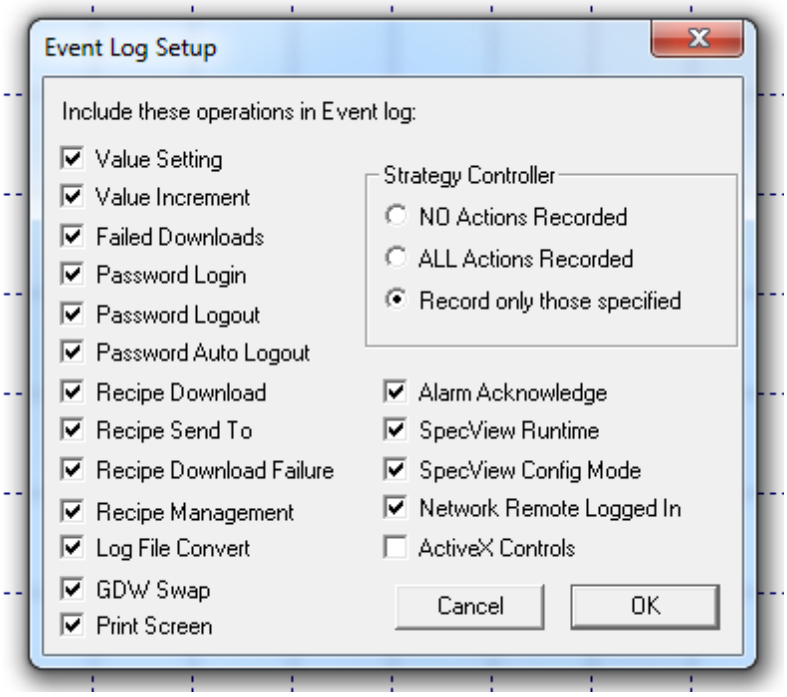
(In previous versions of SpecView 'Projects' were known as 'Configurations'.)

8.11.28 Radio Buttons

Radio buttons are like check boxes but there is usually more than one of them and only button in the group can be selected (On) at any one time.
Rather like a radio can only be on one channel at any one time.
A radio button is circular, whereas a checkbox is square. Checkboxes are different to radio buttons because many of them can be checked at once.

An example of a set of radio buttons can be seen in the 'Strategy Controller' section of the **Event Log Setup** box,
which is displayed from the Event Logging [620] menu command on the Setup menu:

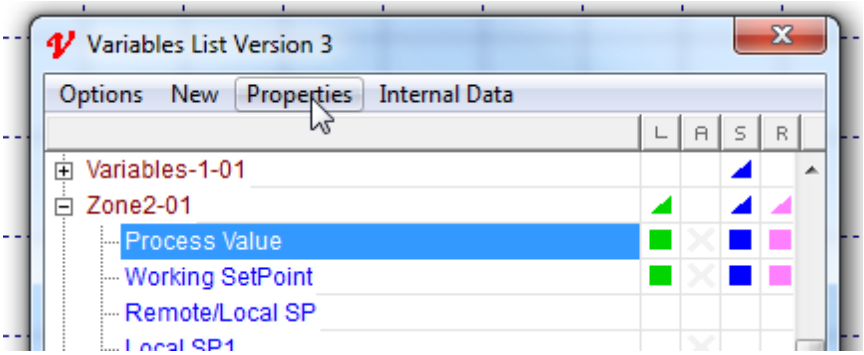
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8.11.29 Read Only Variable

A Read-Only variable is either an instrument variable[514] that cannot be changed over communications, for example, a measurement,
or another instrument variable (or a SpecView User Variable[319]) that has specifically been set to Read-Only so it cannot be accidentally changed.

The Variables List[313] has an 'R' column which shows which variables are Read-Only:



The 'R' column of the Variables List shows which parameters are Read-Only and double-clicking in the box in the 'R' column will set (or unset) this.

Alternatively select the parameter and click **Properties** and use the **Attributes** tab to set (or unset) whether the parameter is Read-Only.

However, parameters on an instrument that cannot be changed are always read-only (for example a measurement), consequently these cannot be unset.

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Read-Only variables can be changed by the Strategy Controller, but when specifying an Action that sets a Read-Only variable, uncheck the 'Read-Only' attribute in the Variables List and setup the Strategy logic first and then set the variable back to Read-Only.

8.11.30 Recipe

This is a set of variables on a GDW [503] which need to have their values set.
The values of which are saved on disk under a Recipe name. This Recipe file can then be run by SpecView to set the variables to those values.

Only variables on the instrument that are writeable (changeable by the user) can be included in Recipes.

Every Recipe associated with a certain GDW refers to the same set of variables which means that all the recipes associated with the GDW contain exactly the same set of variables.

A recipe can be composed of up to 1295 different sets of values for a given GDW.
A set of values defines the values given to each of the variables in recipe.
Two different sets of values can give two different values to the same variable in recipe.
If in one set of values you want to ignore a variable, you give it a 'N/C' (No Change) value.

Therefore it is appropriate to include in recipe all the variables that will be needed to be set by any set of recipe values.

More information is in the Recipes [635] chapter.

Note that the Recipe [637] tool  won't work if the required object is grouped, so it is necessary to ungroup it using the **UnGroup** tool  on the toolbar.

8.11.31 Running SpecView as an Administrator

This is necessary because administrator privileges are required in order to initially install SpecView, and subsequently to register and unregister [773] ActiveX controls [766] and to restore [193] projects that contain ActiveX controls which have not yet been registered.

See ActiveX Need To Be Administrator [784].

On Windows XP:

Right-click the SpecView icon on the desktop and choose ‘Run As…’ from the popup-menu and enter an administrator username and password.

On Windows Vista or Windows 7 or Windows Server 2008:

Right-click the SpecView icon on the desktop and choose ‘Run As Administrator’ from the popup-menu.

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NOTE: Ensure that the Administrator has setup suitable user access rights to the folder that SpecView was installed in.

8.11.32 Runtime Mode

SpecView has three modes of operation: Runtime Mode, Edit Mode (go offline) and Edit Mode (remain online).

Runtime Mode is also referred to as On-Line, this is SpecView's normal mode of operation - SpecView is communicating with the connected instruments.

Read Runtime Mode - Using SpecView [251].

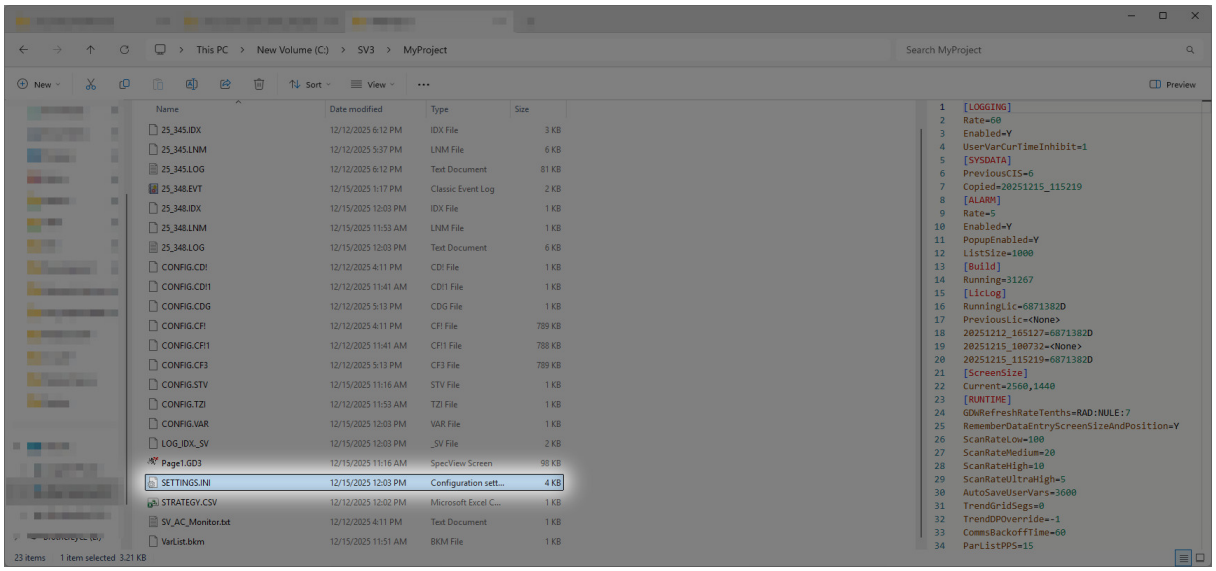
When in Edit Mode use the Enter Runtime Mode menu command from the File menu or the



tool to return to Runtime Mode.

8.11.33 SETTINGS.INI

The SETTINGS.INI [512] file is a file of project specific settings which is read by SpecView when a project is read.
It is located in the project folder (C:\SV3\<project_name>\SETTINGS.INI)



Values in it can be changed from Preferences [458] or manually by using a text editor such as Notepad to edit the file (carefully!) while SpecView is NOT running.

See also: SV3.INI [513] and CVTSETTINGS.INI [492]

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8.11.34 Short List

The Short List is an abbreviated list of the important parameters [506] within an Instrument View [346].

8.11.35 Strategy Controller

(This is an optional feature of SpecView. Without the option enabled on your dongle [498] you are limited to two events)
A logic engine based on Events associated with Actions
Events can be based on either Time/Date or the value of a Variable
Strategy Controller [666]

8.11.36 SV3.INI

The file SV3.INI is a file of SpecView settings which is read by SpecView when it is started.
It is located in the SpecView installation folder, which by default is: C:\SV3\SV3.INI

There are also the files SETTINGS.INI [512] and CVTSETTINGS.INI [492] which also contain Project specific settings which are read by SpecView when the Project is opened.
These are in the Project folder, for example: C:\SV3\MyProject\SETTINGS.INI

The settings in these files can be changed from Preferences [458] or manually by using a text editor such as Notepad to edit the file (carefully!) while SpecView is NOT running.

Be sure to check the spelling because they must be exact, and there must NOT be any spaces around the equals signs, or at the end of the lines.

The SV3.INI file can be deleted to restore the settings back to the values as they were when SpecView was installed as it will be recreated when SpecView starts if it doesn't exist.

Note: When making an Archive of a project to move to another computer there may be settings in the SV3.INI file which are important to the functionality, but which won't get included in the Archive. The SV3.INI file may need to be backed-up separately.

8.11.37 Toggle

Toggle is a general term for a button or menu command which allows a setting to be turned off and turned on. When a menu command is used as a toggle, choosing the menu command will swap the option from off to on, or vice versa. A tick indicator will show whether the setting is on or off.

An example of a toggle menu command in SpecView is the 'Show Logging in Variables List' menu command accessed from the Database sub-menu on the Setup menu [305].

An example of a toggle button command in SpecView is the 'GDW Control: Toggle Full Screen mode' [427]

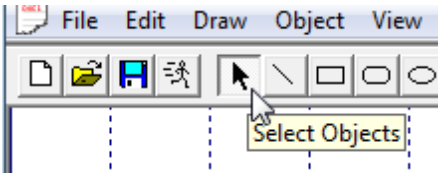
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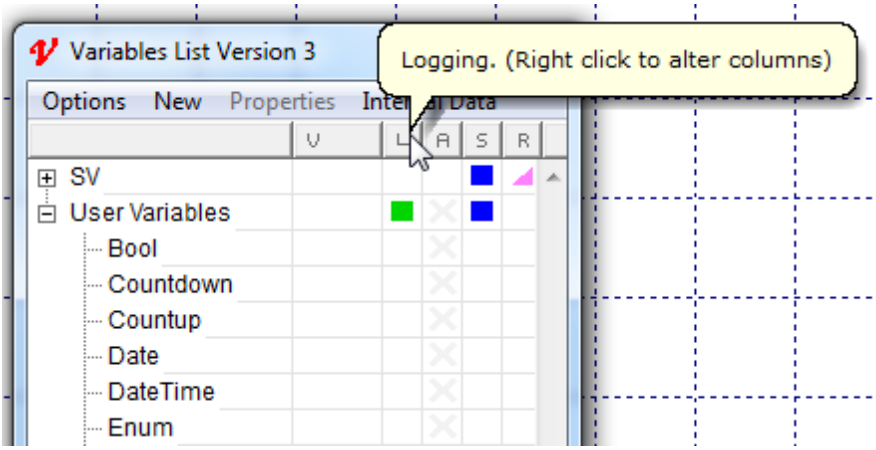
To setup a toggle button on a GDW, such that successive clicks will toggle a boolean variable On/Off/On/….

Set the button action to do a Math Function[433] and subtract the Boolean from itself and store the answer in itself, for example:
Copy From: Bool1
Subtract: Bool1
Copy To: Bool1

8.11.38 Tooltips

Tooltips are small information boxes which appear when the mouse is over a button or box. The text typically describes the purpose of the button or box, some examples are:





8.11.39 Variable

Note:
In SpecView's Help the word 'variable' is used when referring to any of: a SpecView Pre-defined variable[319] or a SpecView User Variable[322] or an instrument parameter[506].
Whereas the word 'parameter' is only used when referring to instrument parameters.

A parameter is a specific piece of information within an instrument.
The full name (in order to be unique) is made up of two parts: **<name of instrument>.<name of parameter>**
Examples:

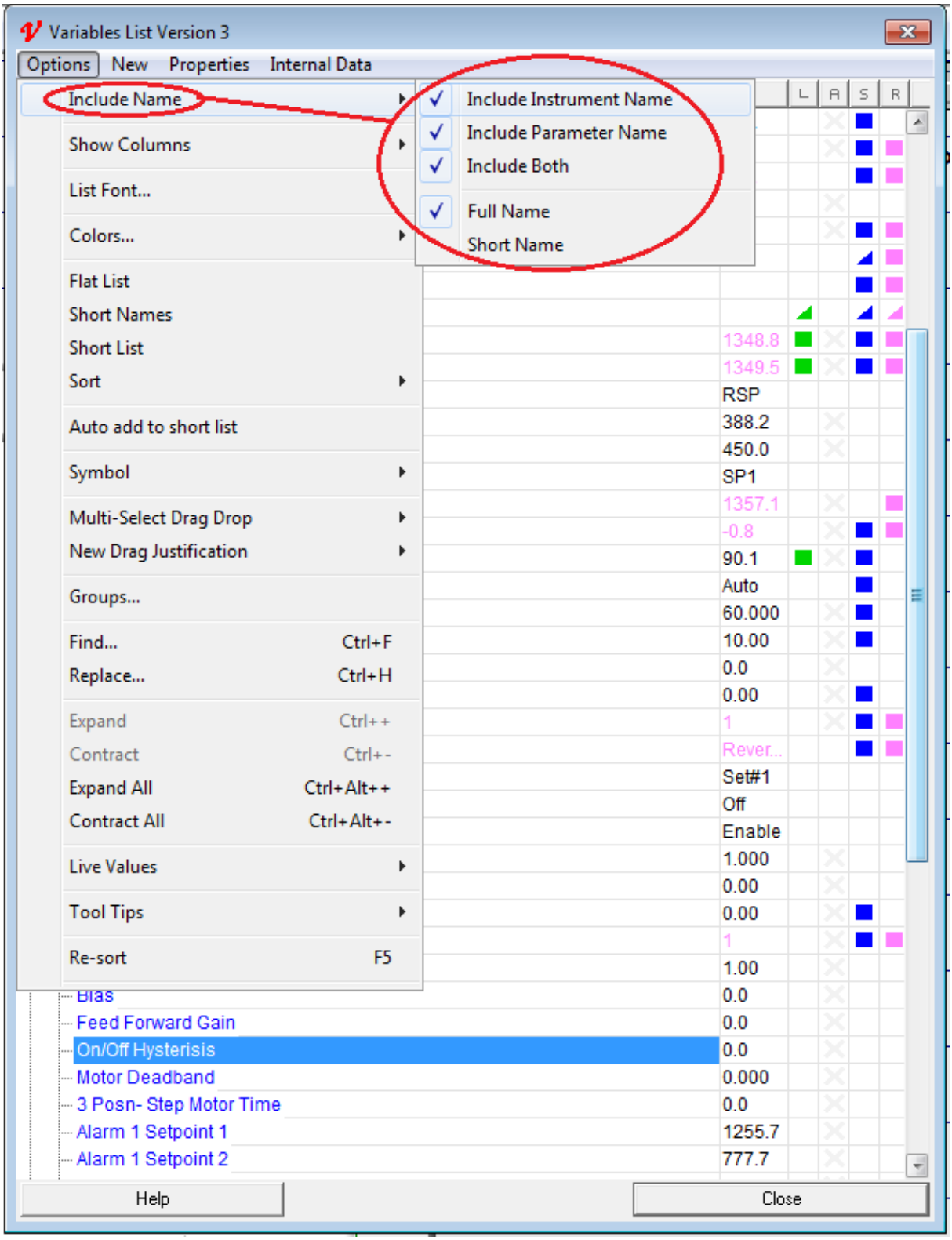
Barrel Zone 1.Setpoint
Furnace 3.Process Value

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Variables may be selected and placed anywhere on a GDW, used as a Pen on a Trend chart, as a value in a Bar chart or selected to be included in a Recipe [635] or data logging [589].
There are several Variable Types [517]
The Properties [326] of a variable can be changed.

When dragging variables from the Variables List onto a GDW the Options->Include Name menu can be used to specify which names to include:

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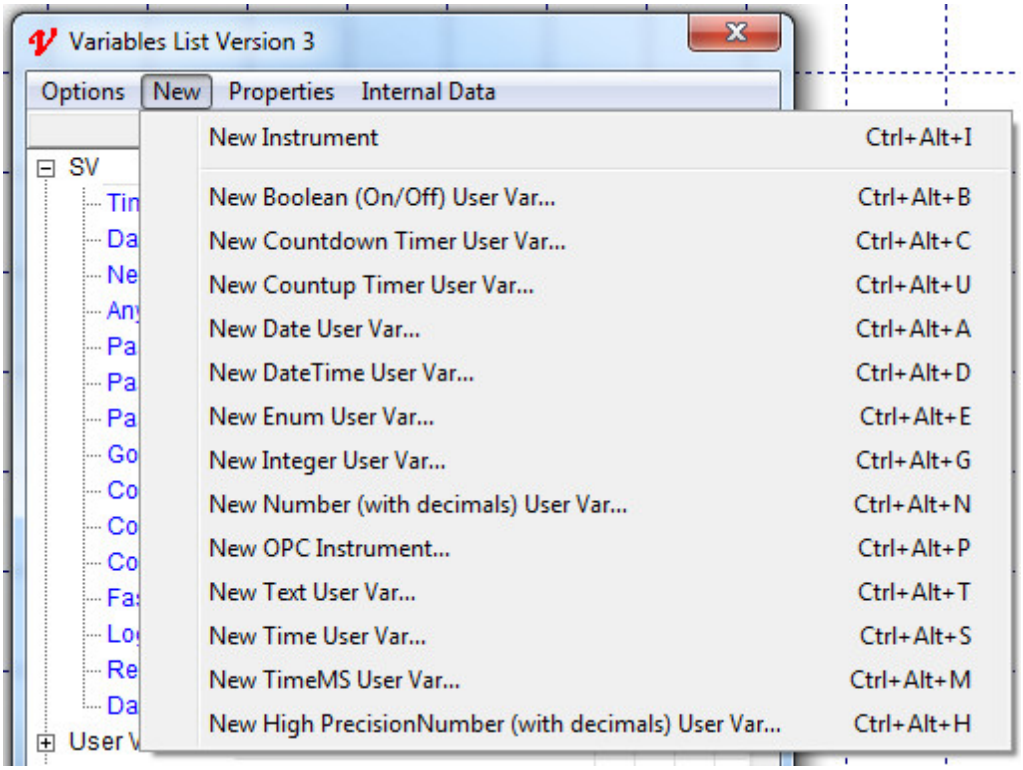


For those who are familiar with the abbreviated parameter names used by the instrument's control panel SpecView also has the concept of variable Short Names. Read Parameter List 260

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8.11.40 Variable Types

These are the types of User Variables that can be created in SpecView:



For more details see SpecView User Variables [319]

8.11.41 Variables List

Accessed by clicking  on the Toolbar while in Edit Mode, it is a pop-up box listing all the variables of all the instruments in the current project.
To display a variable (name and value) on the GDW Double-Click the variable within the Variables List [313] box.

SpecView Variables [319]

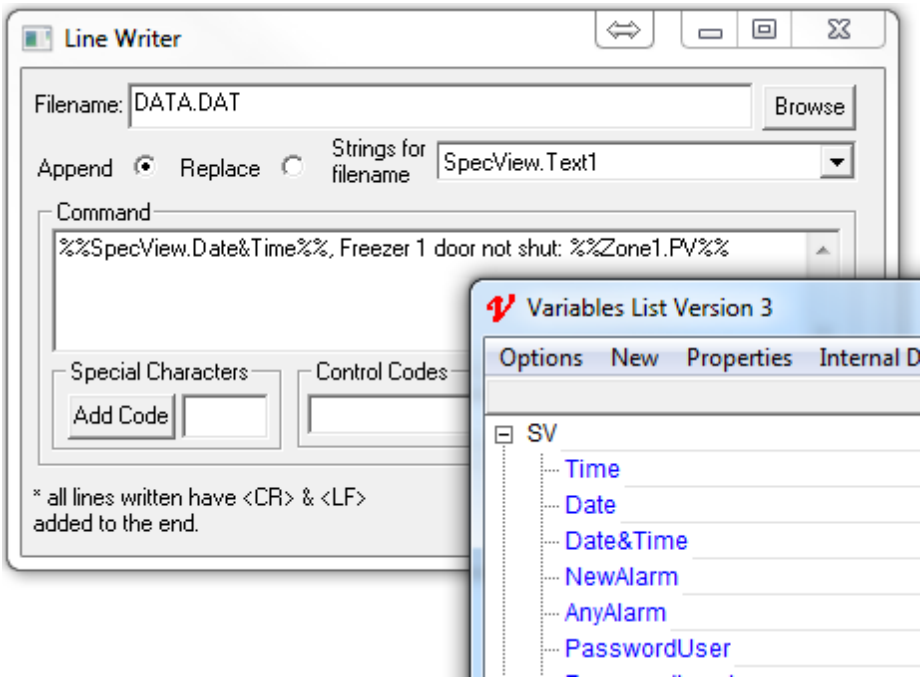
8.11.42 Variable Substitution Strings

These strings represent variables when using Button Attributes [403] or Strategy Controller Actions [690] such as Write Line to file/printer [452] and Write Text to another Text String [456].
They are enclosed in a pair of percent signs.

The parameter needs to be on an open GDW, for the values to update correctly.

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For example, %%SpecView.Date&Time%% will display the live value of the SpecView Date&Time parameter when the Write Line to file/printer[452] Button Attribute[403] or Strategy Controller Action[690] is enabled.
Also, %%Zone1.PV%% will display the live value of the PV parameter from the instrument named Zone 1.



Two special kinds of Variable Substitutions are "%%SpecViewInstalledPath%%[448]" and "%%SpecViewProjectPath%%[450]".
These strings point towards SpecView's installed path and the project path respectively.
These strings will mostly be used when utilizing SpecView's Write Line to file/printer[452] Button Attribute[403] or Strategy Controller Action[690].

SpecView 3.1.265

As of SpecView 3.1.265[124], Variable Substitutions can be altered to display values in different formats such as: scientific, signed, unsigned, hex, and binary.
Additionally, SpecView Date, Time, and Date&Time values can be displayed in alternate formats as seen in Date and Time Formatting[462]

The modifiers are added after the Variable Substitution.
The format of the modifiers is ##<size><type>##.
The <size> value is the precision; the number of decimal places or the number of leading zeroes in the value.
The <type> value is the type of modifier such as: E for scientific, S for signed numbers, U for unsigned integers, H for hexadecimal, and B for binary.

Date, Time, and Date&Time will have the modifier ##<type>## where the value for type can be found in Date and Time Formatting[462].

The values must be present on an open screen (GDW[503]).

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For instance, if adding modifiers to the Date&Time variable, then Date&Time needs to be on an open window in the project.

Scientific Format Example

If the variable Furnace 1.Process Value needs be to displayed in the scientific format with 4 decimal places, then the format of the Variable Substitution would be %%Furnace 1.Process Value%%##4E##. Therefore, if the Furnace 1.Process Value was 0.000000012345, then the Variable Substitution would display 1.2345 E-08.

Furnace 1.Process Value must be on an open GDW 503 if using modifiers.

Signed Format Example

If the variable Furnace 1.Process Value needs be to displayed as a signed number with 3 decimal places, then the format of the Variable Substitution would be %%Furnace 1.Process Value%%##3S##. Therefore, if the Furnace 1.Process Value was 12345, then the Variable Substitution would display 12.345.

Also, the value can be padded with leading zeroes.
To add leading zeroes, the format of the Variable Substitution must be %%Furnace 1.Process Value%%##08S##.
Therefore, if the Furnace 1.Process Value was 12345, then the Variable Substitution would display 00012345.
Three leading zeroes were added to ensure 8 numbers as per the ##08S## modifier.

Furnace 1.Process Value must be on an open GDW 503 if using modifiers.

Unsigned Format Example

This format is valuable when displaying values over 32767.

If the variable Furnace 1.Process Value needs be to displayed as an unsigned number with 3 decimal places, then the format of the Variable Substitution would be %%Furnace 1.Process Value%%##3U##. Therefore, if the Furnace 1.Process Value was 12345, then the Variable Substitution would display 12.345.

Also, the value can be padded with leading zeroes.
To add leading zeroes, the format of the Variable Substitution must be %%Furnace 1.Process Value%%##08U##.
Therefore, if the Furnace 1.Process Value was 12345, then the Variable Substitution would display 00012345.
Three leading zeroes were added to ensure 8 numbers as per the ##08U## modifier.

Furnace 1.Process Value must be on an open GDW 503 if using modifiers.

Hexadecimal Format Example

This is used to display integers in the hexadecimal format.

If the variable Furnace 1.Process Value needs be to displayed in the hexadecimal format with 4 leading zeroes, then the format of the Variable Substitution would be %%Furnace 1.Process Value%%##08H##. Therefore, if the Furnace 1.Process Value was 12345, then the Variable Substitution would display

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00003039.
Four leading zeroes were added to ensure 8 numbers as per the ##08H## modifier.

Furnace 1.Process Value must be on an open GDW [503] if using modifiers.

Binary Format Example

This is used to display integers in the binary format.

If the variable Furnace 1.Process Value needs be to displayed in the binary format with 16 digits, then the format of the Variable Substitution would be %%Furnace 1.Process Value%%##16B##.
Therefore, if the Furnace 1.Process Value was 11, then the Variable Substitution would display 0000000000001011.
Twelve leading zeroes were added to ensure 16 digits as per the ##16B## modifier.

Furnace 1.Process Value must be on an open GDW [503] if using modifiers.

Date Example

The current format of the SpecView Date variable is the abbreviated month name followed by the day of month as a decimal number (0-31) and the year with century (2025).
However, this variable can be displayed as a month in decimal numbers (0-12) followed by a day of the month in decimal numbers (0-31) and the year with the century when used elsewhere such as creating Log Report File Names [877].
To do this, the Variable Substitution must be %%Date%%##%m%d%Y##.
Therefore, if the current date is Nov 15, 2025, the value displayed will be 11152025.

Additional modifiers can be found in Date and Time Formatting [462].

Date needs to be on an open GDW [503] if using modifiers.

Date&Time Example

The current format of the SpecView Date&Time variable is displayed as military time with no seconds, followed by the abbreviated month name, day of month as a decimal number (0-31), and the year with century (2025).
However, this variable can be displayed as a with the date first followed by the time when used elsewhere such as creating Log Report File Names [877].
To do this, the Variable Substitution must be %%Date&Time%%##%Y%m%d_%H%M##.
Therefore, if the current time is 14:10:00 and the date is Nov 17, 2025, then the value displayed will be 20251117_1410.

Additional modifiers can be found in Date and Time Formatting [462].

Date&Time needs to be on an open GDW [503] if using modifiers.

8.11.43 Web Server Option

SpecView offers an integrated Web Server [716] feature, available as an option in the dongle (license).
Please read through Web Server [520] help pages for additional details.

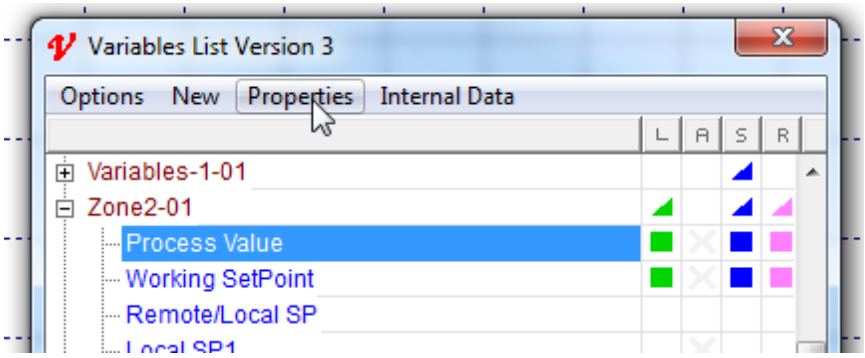
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8.11.44 Windows Filenaming Rules

A file name can contain up to 215 characters, including spaces. However, it is not recommended that you create file names with 215 characters. Most programs cannot interpret extremely long file names. File names cannot contain the following characters:
| \ ` ¬ ! " £ $ % ^ & * ( ) + = { } [ ] : @ ~ ; ' # < > ? , . /

8.11.45 Writeable Variable

An instrument variable[514] that can be changed over communications, for example, a setpoint
NOTE: Some variables can be both Writeable AND Read-Only[510], for example, output power in a controller can be writeable when the Instrument is in 'Auto' and be Read-Only when the controller is in 'Manual'.



The 'R' column of the Variables List shows which parameters are Read-Only and double-clicking in the box in the 'R' column will set (or unset) this.

Alternatively select the parameter and click **Properties** and use the **Attributes** tab to set (or unset) whether the parameter is Read-Only.

However, parameters on an instrument that cannot be changed are always read-only (for example a measurement), consequently these cannot be unset.

Read-Only[510] variables can be changed by the Strategy Controller[666], but when specifying an Action that sets a Read-Only variable, uncheck the 'Read-Only' attribute in the Variables List and setup the Strategy logic first and then set the variable back to Read-Only.

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Part 9

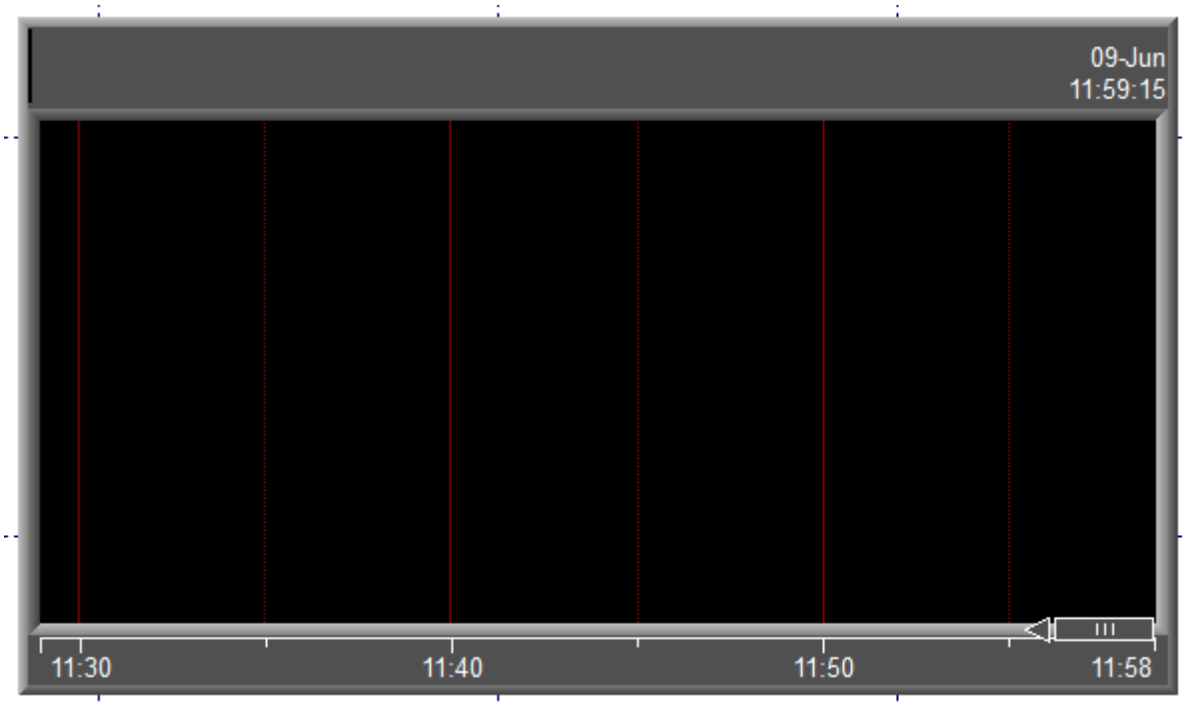
9 Trend Charts

Trend charts graph (or plot) variables with respect to time.

Use the **Trend Chart** menu item from the Draw Menu [289] OR click the Trend Chart tool  on the toolbar

Go to Drawing Basics for general instructions [372]

After clicking the tool the cursor changes to
Use the tool as you would to draw a rectangle. As you move the mouse the Trend chart appears:



When you release the mouse button the Trend Chart Properties [523] box and the Variables List [313] are displayed. Use these to set up the Trend chart.

Note: Charts from previous versions of SpecView can be converted [527].

For details on Runtime functionality see: Using Trend charts in Runtime Mode [528]

The features of Trend Charts are:

- Back-fill [528] of historical data when the screen (GDW) is opened. This is independent from Historical Replay.

Note: The data points for back-fill are from logged data, so the resolution of the points is in

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accordance with the data logging rate.

- Scrollback [541] using the scrollback thumb to view up to 10 chart widths of previous data:



- Chart Notes [550] to mark significant points on a chart.

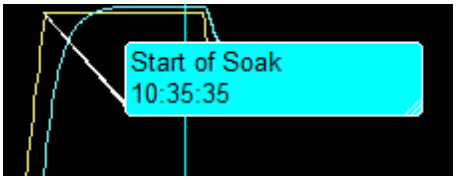


Chart Notes can be setup to be added automatically [550].

- Zoom [528] - Drag an area of the chart to expand X and Y axes. The popup-menu includes options to export data in zoomed area to a CSV file. The number of intermediate values is specified on the **Chart** [541] tab.

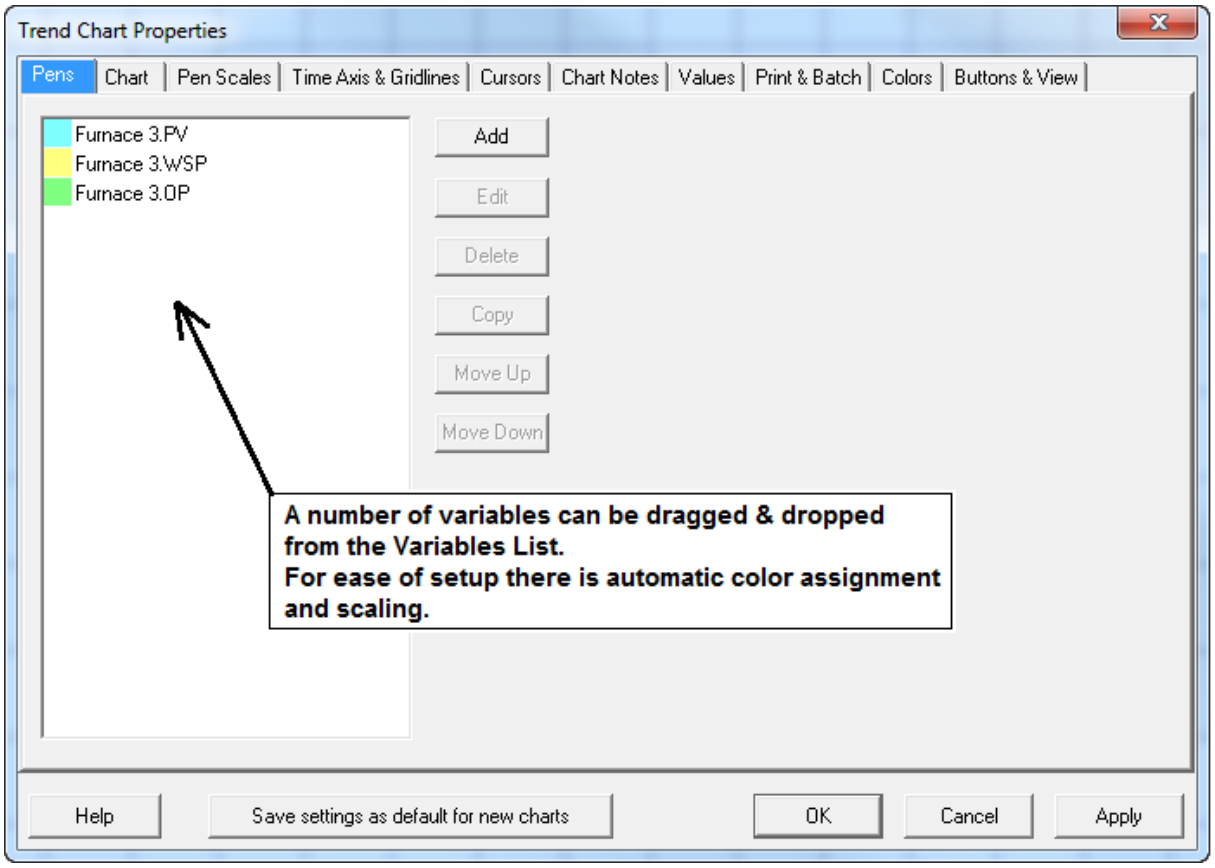
- Multiple scales [544] on the left or right of the chart, for some or all of the pens, with optional value pointers.

- Popup menu - Trend charts now have a popup menu that can be accessed from Runtime Mode using either the left or right mouse buttons, for compatibility with touch-screens which don't have a 'right' mouse button. In Edit Mode [501] the popup menu is only available using the right mouse button. This is because the left button is used to select the Trend Chart for moving and resizing.

The new **Trend Chart Properties** box is accessed by either choosing **Setup Chart** from the popup menu or clicking the **Setup** button (if it is enabled) from Runtime Mode.

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The **Setup** button is enabled from the **Buttons & View** [560] tab.



Settings can be saved for future use by clicking the **Save settings as default for new charts** button.

A quick way to assign variables for the pens is to multiselect a number of variables from the Variables List [313] and drag & drop them into the pens box on the **Pens** [535] tab.

Pens are assigned default colors [559] according to the whether the chart background is a light or a dark color. To change the color and settings of a specific pen select it in the pens [535] box and click the **Edit** button to open the Pen Properties [535] box, with the following tabs:

Pens & Pen Properties [535]

- Thickness setting for each pen
- Decimal point [496] setting for each pen
- Preset tolerance band. Example: draws ±10° lines relative to the Working Setpoint to check for deviation. This is not currently implemented, see alternative method. [866]
- Pen trace can blink and/or change color on alarm
- Automatic or fixed scaling with logarithmic option
- Optional pointers for each pen on scales
- Y-Axis auto scaling

Chart [541]

- Smooth Scroll – the chart scrolls to the left or downwards*; the latest value will be always shown at the right or bottom* of the chart (* depends on horizontal or vertical chart)
- Jump Scroll (like SpecView Version 2) – when the last segment is full, the chart will jump one

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segment
- No Scroll – the chart will keep expanding the time axis to fit all the data. This means the chart will show all the data, which is useful if the duration of the batch process is unknown
- Time span selections (from 30 seconds to 60 days) with scroll-back management settings
- Vertical scrolling chart option for compatibility with paper chart recorders

Pen Scales[544]
- Scales for any pens, left or right

Time Axis & Gridlines[546]
- Secondary elapsed time display, which is useful for batch processes

Cursors[547]
- 2 cursors showing the exact values of the pens and the differences in values between the 2 cursors

Chart Notes[550]
- Chart notes to mark significant points on a chart. Chart Notes can also be setup to be added automatically

Values[555]
- The pen values along the top of the chart can have additional information and be formatted in different ways.

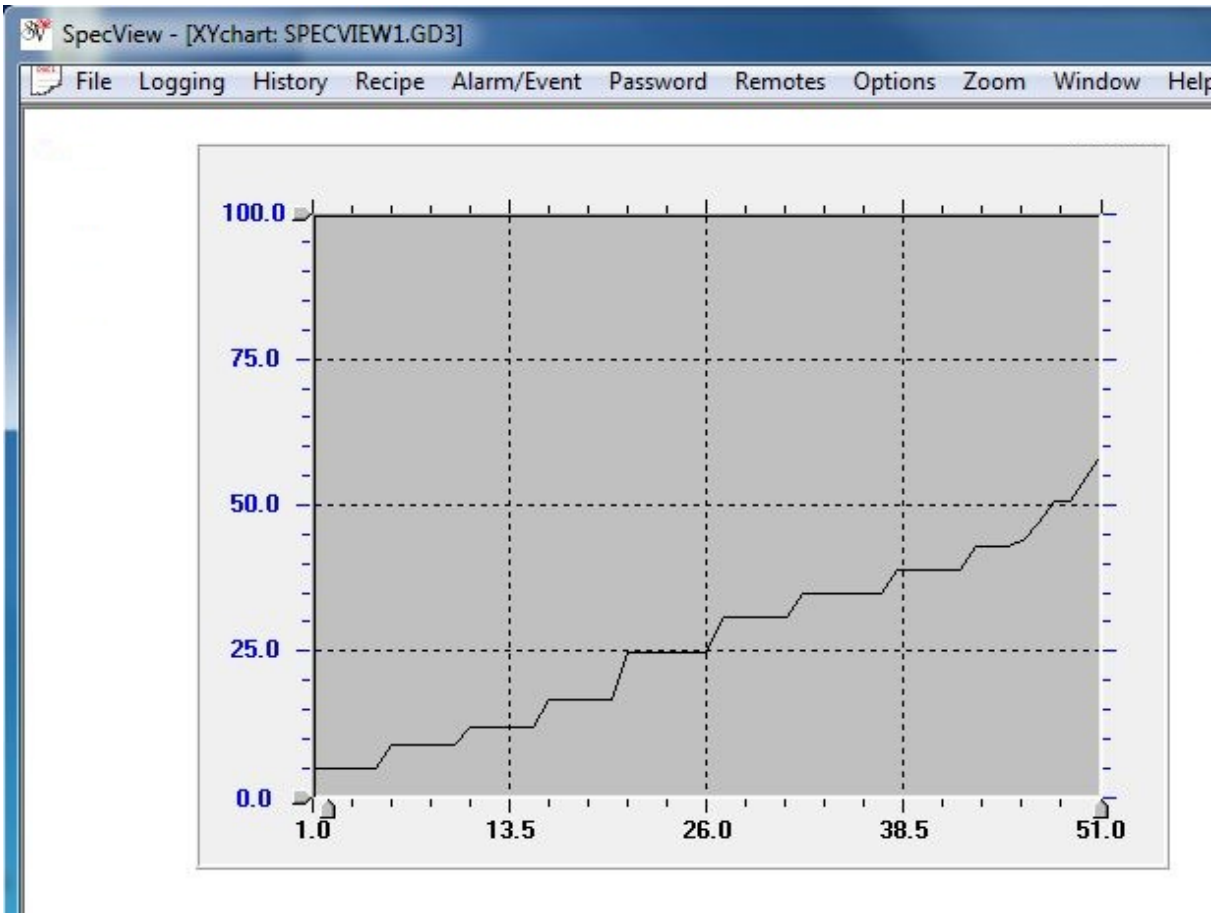
Print & Batch[557]
- Chart print and screen print options
- Page print to printer or JPG
- File name selection – fixed or from a SpecView variable
- Display the chart with a dark background for clarity on the screen, but when printing use a white background to save ink

Colors[559]
- Automatic pen color assignment

Buttons & View[560]
- Flexibility of items displayed in the top right corner of the Trend Chart

It is also possible have a chart which plots X with respect to Y (as opposed to X with respect to Time) by using an ActiveX[766] control, for example, by buying an ActiveX XYChart from Century Soar, see here: http://www.cstsoft.com/english/trend-gdiplus.htm. This may look similar to this:

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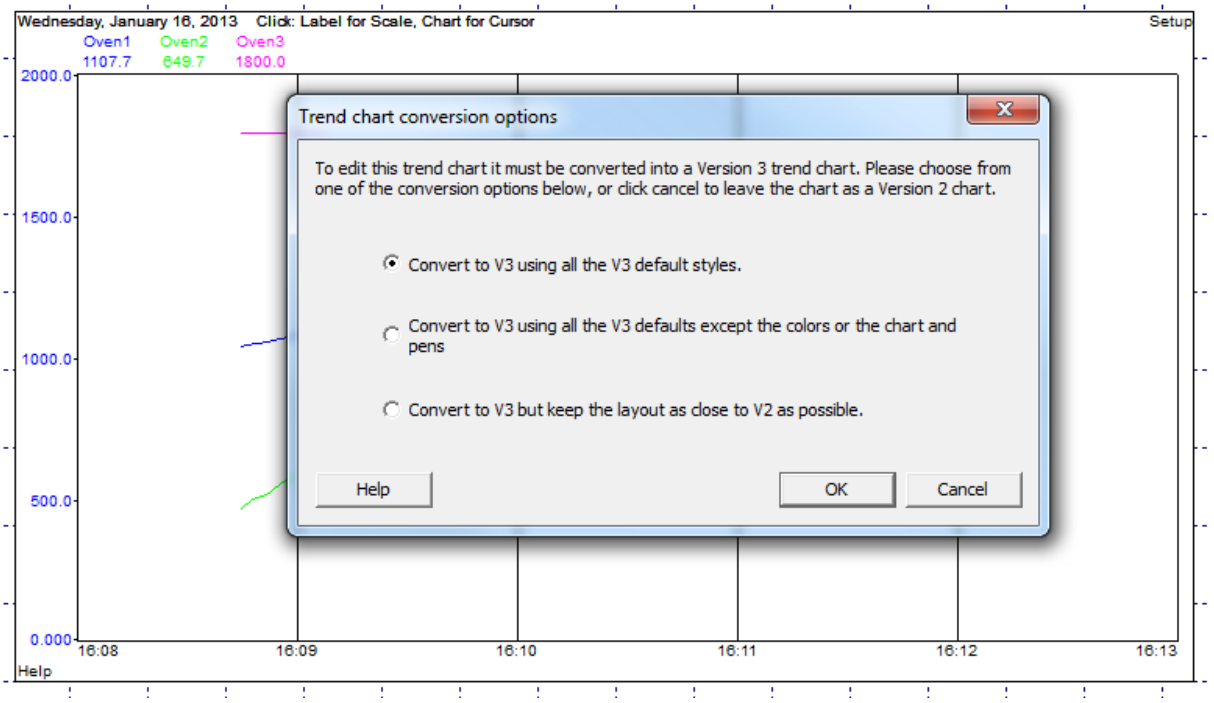


Flashing and Hiding Trend Charts:
Trend Charts can be made to hide or flash using Color Dynamics [359] like any other object on a screen (GDW).
Be aware that making Trend Charts flash, especially if multiple charts are flashing, may affect performance as it is CPU intensive.
Also, making a trend chart flash at the same rate as a pen line [535] is set to blink could mean that the pen line wouldn't be visible.
However, Position Dynamics [363] cannot be used to move Trend Charts. But using Color Dynamics to hide a chart can be used instead to make a chart seem to move.

9.1 Trend Chart Conversion

Old Version 2/2.5 charts can be converted by just clicking to open the **Trend Chart Properties** box and choosing the method of conversion:

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To quickly convert many charts setup the first one as required, then click the **Save settings as default for new charts** button.
When the others are converted it will use those defaults saving setup time.

Note: That it is not possible to convert a chart back to Version 2 or 2.5 format from Version 3.

9.2 Trend Chart Runtime Mode

Trend Chart features available in Runtime Mode include:

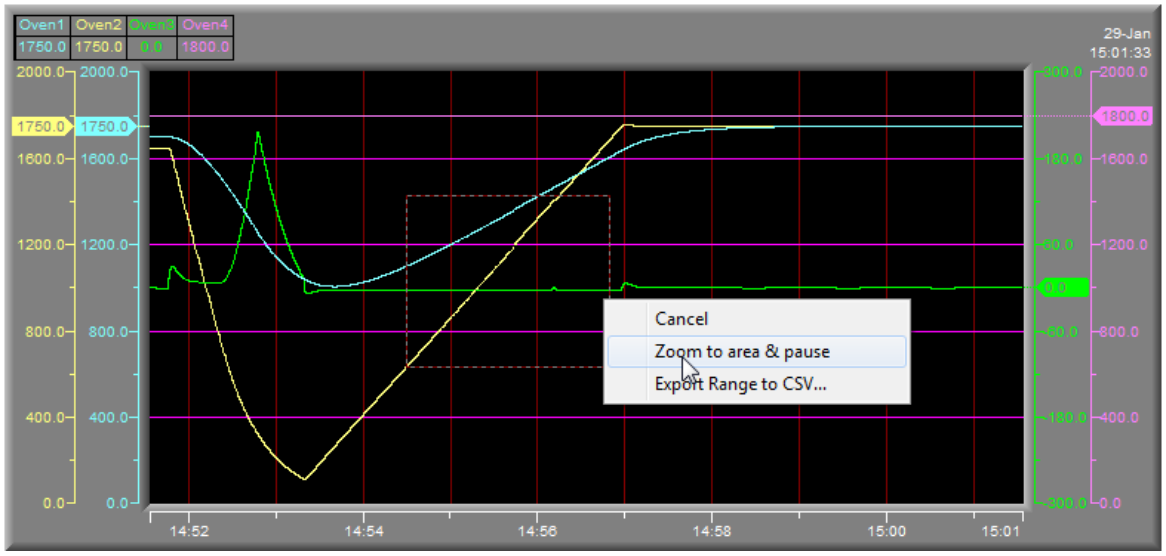
Pause

- To pause the chart right-click and choose **Pause Chart** from the popup menu. The scroll-thumb will scroll as the pens are drawn. However, the chart will resume when the scroll-back screens have been filled.

Zoom

- Click and drag an area of the chart to expand X and Y axes, and choose **Zoom to area & pause** from the popup menu.

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- The number of intermediate values used to fill in the pen trace lines when the chart is zoomed is specified on the **Chart** 541 tab of the **Trend Chart Properties** box.
- The chart will pause until scrollback space is full.
- The popup-menu includes Export Range to CSV 563 to export the data in the zoomed area to a CSV file. The CSV file will be full resolution including the intermediate values.
- The zoomed chart will pause until the chart and any scrollback screens are filled, at which point the zoomed chart will continue scrolling automatically. The reason for this is to conserve computer memory.
- To un-zoom a chart click and choose **Zoom->Back** from the popup menu.
- The difference between real-time & Historical Replay is that zooming a chart while in Historical Replay will not fill in the intermediate values, because these are ***not*** logged. Therefore the resolution of the chart will be the data logging rate as opposed to using the intermediate values stored for zooming.

Note: Zooming a Trend Chart is separate from zooming a GDW. This is because zooming a GDW will not expand the trend chart and fill in the zoomed pen traces with the intermediate values.

An example of zooming:

If the chart is 2 hours wide with 10 scrollback screens which is currently showing data from 10:00 to 12:00 and the part of the trend to be zoomed is the 10 minutes from 10:15 to 10:25, then the middle of the this range is therefore 10:20.

The Scrollback thumb will be repositioned to the middle of that range, which in this example is 10:20, and there will be 5 scrollback screens to the left of center, going back 5 x 10 mins to 09:20, and 5 scrollback screens to the right of center, going forward 5 x 10 mins = 11:10.

Therefore, when zoomed-in there are +/- 5 screens to the left/right of the center of the zoomed time period.

To see the detail beyond those 5 screens, exit zoom to go back to normal and re-zoom elsewhere.

However, there are exceptions to this:

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Assuming the same 2 hour chart as described above, 10:00 to 12:00 with a current time of 12:00

To zoom in on the final 10 minutes - 11:50 to 12:00, there are no screens to the right as there is no data available yet, so the 10 scrollback screens will be positioned to the left.

*Note: The number of scrollback screens in Zoom mode is the **same as the number of scrollback screens in un-zoomed** mode. Therefore, if there are 6 scrollbacks, then there will be +/- 3 around the center. However, if the Realtime chart has **less than 3 scrollbacks (e.g. 0) a new value of 4 is used** for the duration of zooming (so there will be +/- 2).*

Back fill

- Trend charts are back filled with logged data when they are opened. It is necessary to select **Start on Right** on the Trend Chart Properties Chart [541] tab for the back-filling to work.

Note: A Trend Chart will only be able to be 'back filled' if there is some logged data.

*Note: If there are no scroll-back screens specified on the Chart [541] tab and if the chart is set to **Start on Left**, then back filled data will not be seen.*

Scrollback

- Trend charts can be scrolled back using the scrollback thumb along the time axis. The settings for this are specified on the Chart [541] tab of the **Trend Chart Properties** box.

Cursors

- Trend chart cursors are 2 cursors that can be positioned on the chart to show the exact values of the pens and the differences in values between the 2 cursors.
- Cursors can be placed by a single right-click on the chart to place the first cursor and double-right-click to place the second cursor.
- Alternatively use left-click on the chart and choose 'Place cursor 1' or 'Place Cursor 2' from the popup menu
- To clear the cursors left-click on the chart and choose 'Remove cursor(s)' from the popup menu

Chart Notes

- Chart notes are used to mark significant points on a chart. Chart Notes can also be setup to be added automatically
- Chart notes that are not assigned to a pen will be seen on all trend charts.

Trend Chart Pen Scales

- If the trend chart only has one value scale [544], then to see the scale of any of the other pens, click the pen labels along the top. However, this will only become noticeable if the Pens have different scales and/or colors because the scale and color will change too.

Note: If, for example, there are 4 pens but only 3 scales have been added then it will not be possible to see the scale of the 4th pen. Therefore either have just one scale, or have a scale for each pen.

Auto-open on Runtime

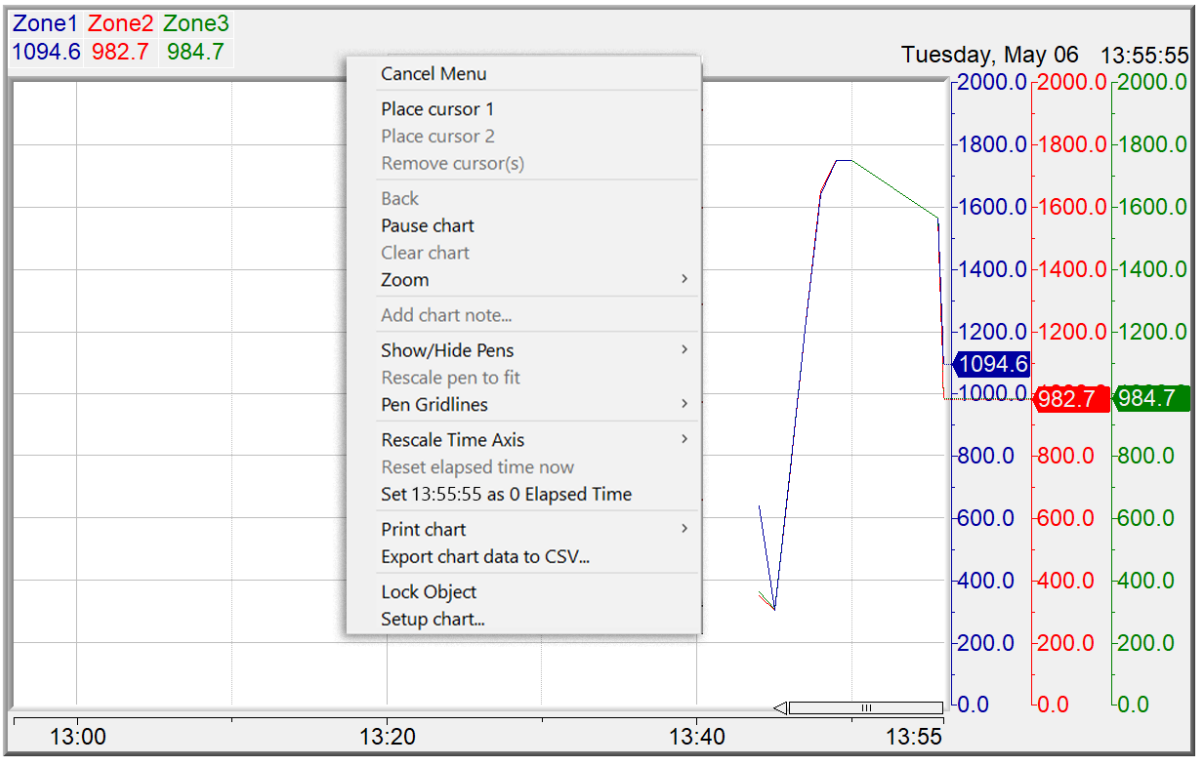
This menu command on the Edit Mode File menu [284] should be used if a project has more than one GDW defined which contain Trend Chart(s).
In this case the menu command should be used on each of the GDW's to ensure that their traces start whenever SpecView goes into Runtime Mode.

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NOTE: Be sure to click this menu command if the GDW has a Trend chart. If you do not, the GDW will have to be opened in Runtime Mode before the Trend chart will start.

9.3 Trend Chart Menu

Clicking on either the frame or plot area of a Trend Chart with the left mouse button. Or if in Edit Mode with the right mouse button will show display the pop up menu:



Cancel menu - closes the popup menu, clicking somewhere else on the GDW also closes the popup menu.

Place cursor 1/2 - Cursors are described here[547].

Pause chart - Temporarily pauses the Trend Chart at the current time.

The Trend Chart will resume by:
- Closing and reopening the GDW the Trend Chart is on.
- Opening up the Trend Chart Menu and clicking on Pause chart again.

Clear chart - Clears the Trend Chart.

Zoom - Enables zooming out of the scales by 20%.

Add chart note - Chart Notes are described here[550].

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Show/Hide Pens - Temporarily hide or show certain pens in real time or in Historical Replay.

The pens will be reset to their native state by:
- Closing the GDW the trend chart is on.
- Changing of states of the boolean variable associated with the Enable on boolean pen property [535].

For example, if there is a pen called PV on a trend chart. PV can be hidden through the Show/Hide Pens menu by clicking on the pen name (PV) in the Show/Hide Pens menu.
However, if the GDW that has the trend chart on it is closed while the pen PV is being hidden on the trend chart, then the next time the GDW is opened the pen PV will reappear on the trend chart.

Also, the Enable on boolean pen property [535] takes precedence over the Show/Hide Pens menu.
For example, if there is a pen such as PV being hidden or shown on a trend chart through the Show/Hide Pens menu.
If the boolean associated with the Enable on boolean pen property [535] for the pen has changed states from 'Off' to 'On' or vice versa, then the pen PV will be shown or hidden on the trend chart based on the boolean state irrespective of the selections made in the Show/Hide Pens menu.

Showing or hiding a pen in real time has no effect on the pen appearing on a Trend Chart while in Historical Replay.
Also, showing or hiding a pen while in Historical Replay has no effect on the pen appearing on a Trend Chart in real time.

Additionally, the Show/Hide Pens menu is accessible by clicking on the pen values visible on the top left corner of the Trend Chart frame.

There is a video on SpecView's YouTube channel that illustrates the Show/Hide Menu functionality here: 4120 Trend Chart Pen Enable and Disable details.

Rescale pen 'XXXX' to fit - Adjusts the scale automatically to fit the pen's values. Therefore, the values of the pen will never be outside the range of the scale.

Pen Gridlines - Can remove pen gridlines or show all the pen gridlines.

Rescale Time Axis - Temporarily rescale the time axis.

The time scale will reset to its native duration by closing the GDW the Trend Chart is on.
To permanently rescale the time axis, change the duration in Trend Chart Properties > Chart. [541]

Rescaling the time axis temporarily in real time has no effect on the time axis duration in Historical Replay.
Also, rescaling the time axis temporarily while in Historical Replay has no effect on the duration of the time axis in real time.

Reset elapsed time now - Sets the current time as 00:00:00 in the Elapsed Time X Axis [546].

Set 'XX:XX:XX' as 0 Elapsed Time - Sets 'XX:XX:XX' as 00:00:00 in the Elapsed Time X Axis [546].

XX:XX:XX is defined by the area on the Trend Chart where the mouse click was registered to open the Trend Chart Menu.
For example, while in Runtime Mode, there is a left click on the Trend Chart to open up the Trend Chart Menu.

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The area where the left click occurred is aligned on time axis to 14:20:23.
'XX:XX:XX' will be defined as 14:20:23.

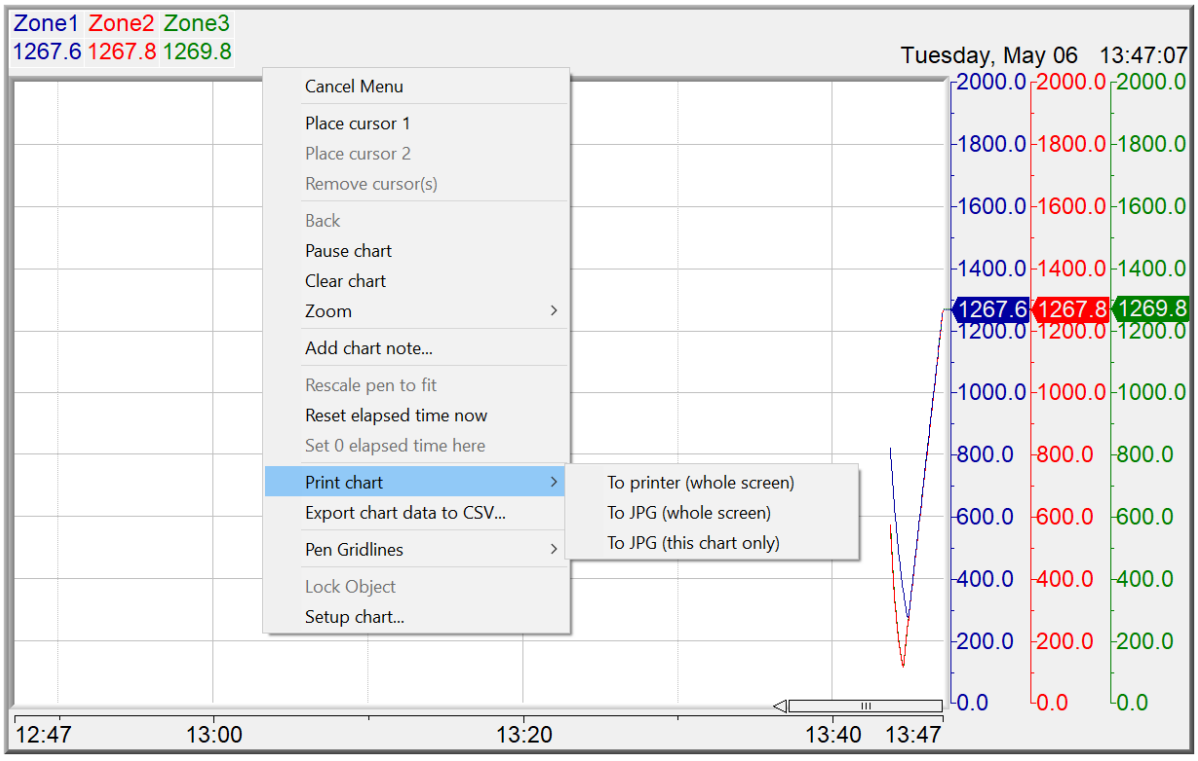
Print chart - The Print chart sub-menu is described here[533].

Export chart data to CSV - this is the same as Export Range to CSV[563] but includes all the data visible on the chart (not including scroll-back data). There is additional information on the CSV file produced here[563].

Setup chart - opens the Trend Chart Properties[528] box.

9.3.1 Trend Chart - Printing from menu

The Trend Chart menu has a sub-menu for printing:



To printer (whole screen):
Printing the whole screen is the same as choosing **Print** from the File menu[269].

To JPG (whole screen):
Printing the whole screen to JPG is the same as choosing **Print to JPG** from the File menu[269].

To JPG (this chart only):
Printing this chart only to JPG is the same as above, but it just prints the chart, see the File menu[269] for details on the filename used.

Automatic printing can be setup using the Print & Batch[557] tab on the Trend Chart Properties[528] box.

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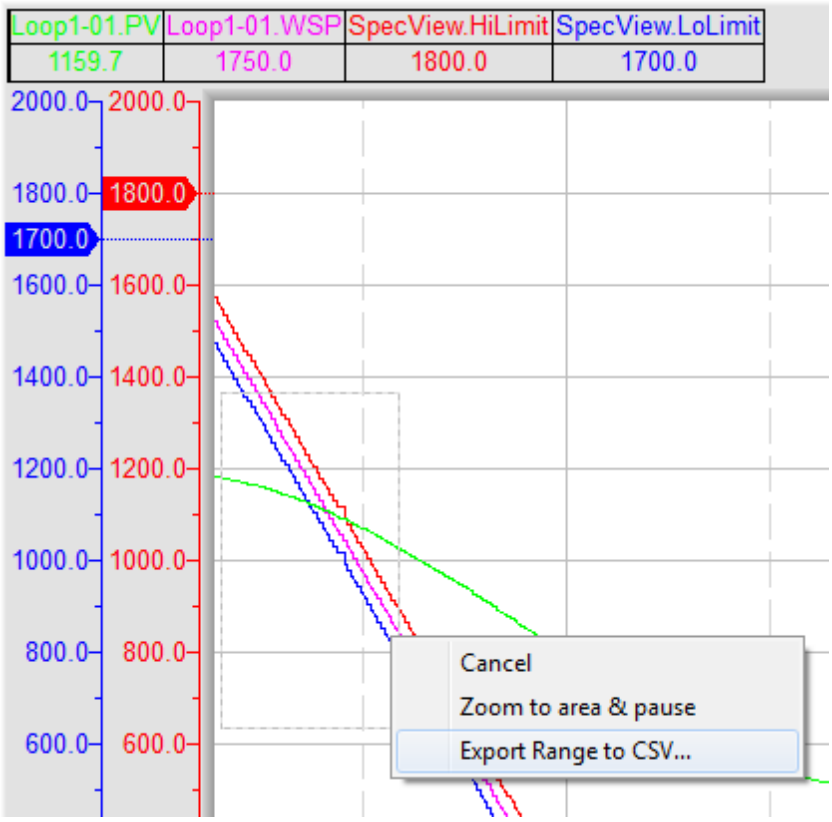
Other methods of printing from SpecView are described here [386].

9.4 Trend Chart Runtime - Export Range to CSV

Select an area of the chart and choose 'Export to CSV' from the popup-menu. This will create a CSV file containing the values of ALL the variables on the chart between the time at the left of the box to the time at the right of the box.

This is similar, but not the same as, doing a 'Log Report' of those variables between that 'Start Time' and 'Stop Time'. The amount of data stored is not the same as the data logging rate – because more data is stored for a trend chart to be used for zooming in 'real time'.
The CSV file will also have an additional column for milliseconds to give more time precision. This column can be disabled if it is considered more important to have the same columns as in a Log Report than to have the time precision.

[TREND]
CSVExportDateTimeSeparated=1
CSVExportSuppressMS=1



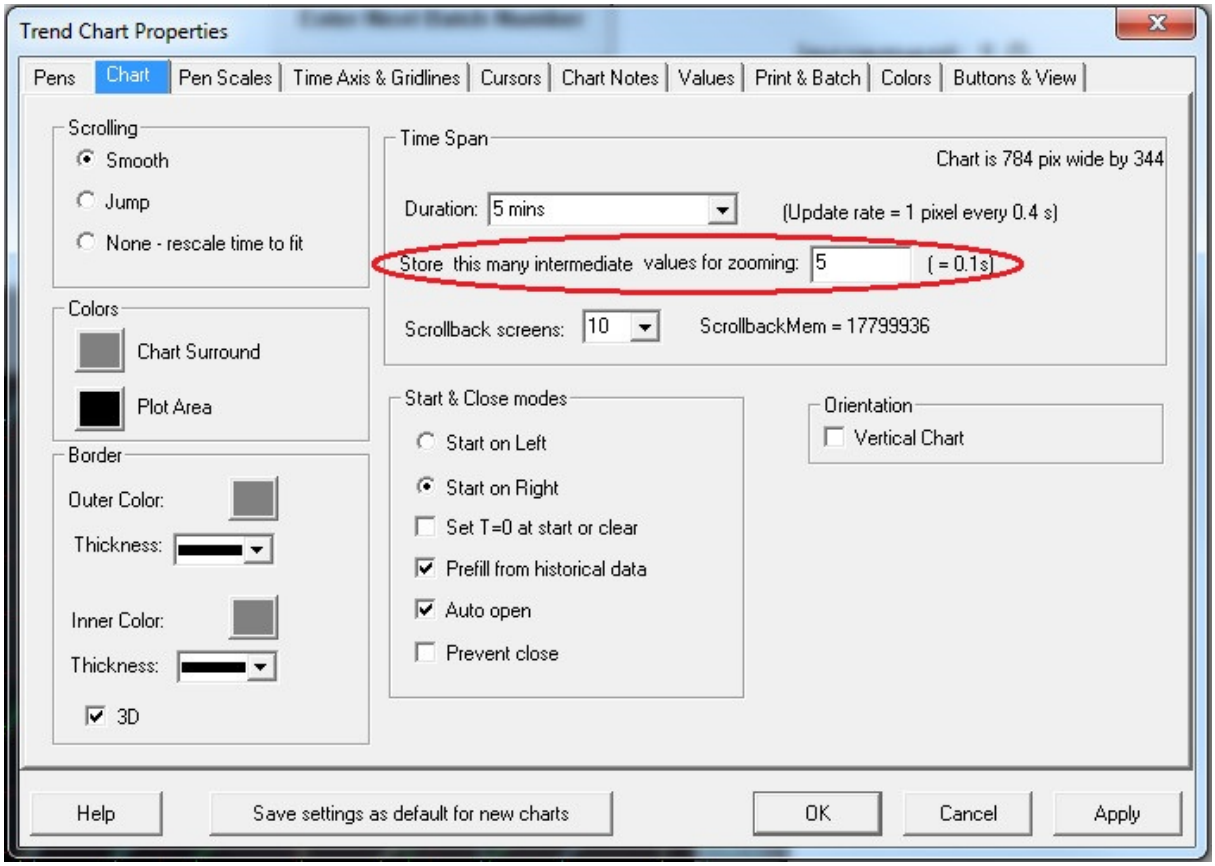
To set the amount of data data stored use the Chart tab on the Trend Chart Properties.

The width of the chart in pixels and the duration of the chart determines the update rate of the chart.

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The number of intermediate values gives added detail (precision) for zooming and for export to CSV file.

In this example the 0.1s means that the CSV file will contain about 600 lines for each minute.



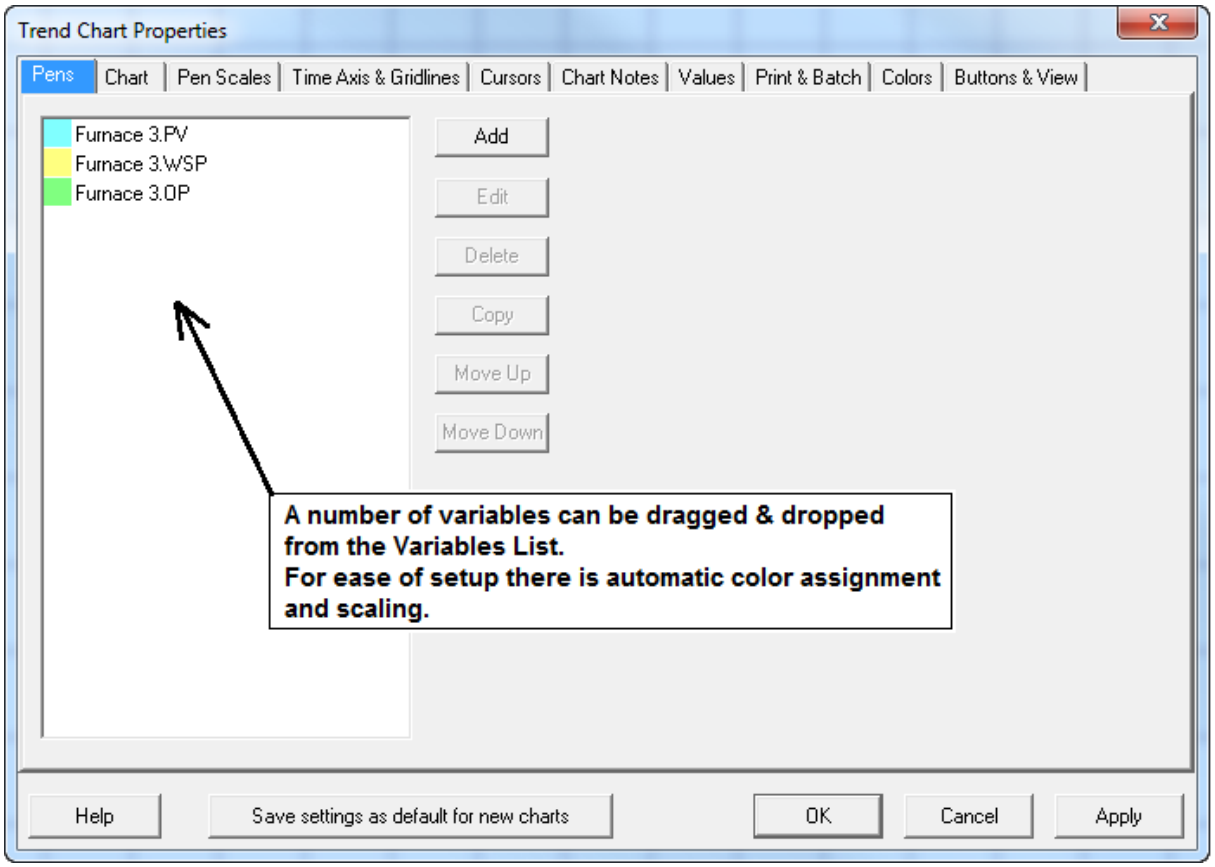
To have the same number of lines in the CSV file (for a given duration) as in a Log Report over the same duration, set the number of intermediate values to zero.
However, in this case zooming-in will not give any greater resolution on the data.

There is additional information on the CSV file produced here[563].

9.5 Trend Chart Properties - Pens

The pens on a Trend Chart are setup using the **Pens** tab on the **Trend Chart Properties** box. Variables can be assigned by selecting (or multi-selecting) in the **Variables List** and dragging & dropping directly into the Pens box.

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Note: If a variable that that is not currently being logged is added to a Trend Chart then logging is automatically enabled for this variable. This can be disabled by subsequently un-checking the logging checkbox in the Variables List.

Maximum number of Trend chart Pens

There is no limit to the number of pens on a Trend chart BUT the number of labels that can be shown is limited by:

- The length of the label
- The width of the chart
- The size of the Font selected for the chart

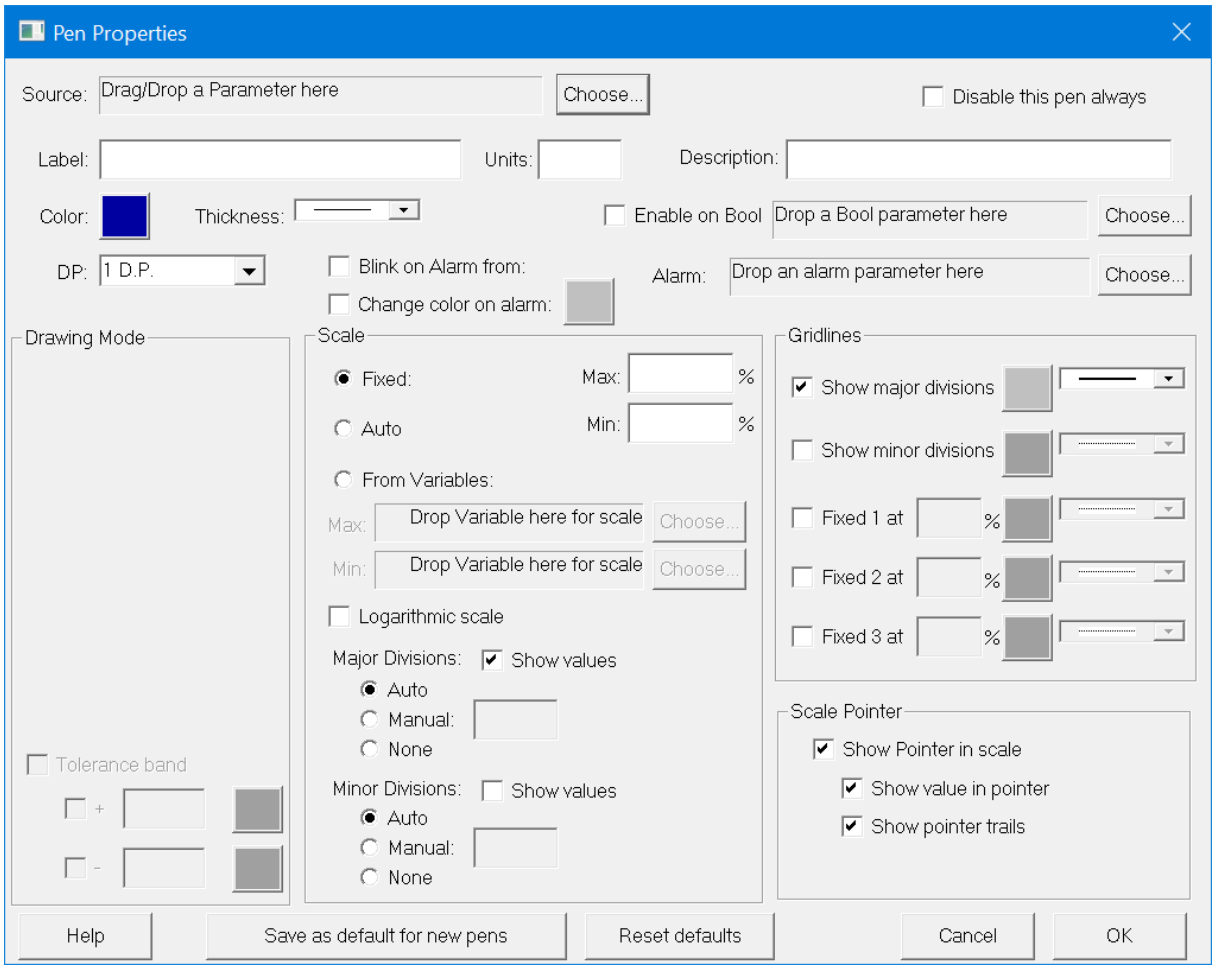
If more pens are defined than can be shown on the top line of the chart:

- A '>' symbol to the right of the last label indicates that not all of that label is displayed
- A '+' sign to the right of the last numeric value indicates that not all of the defined pens are shown

The **Move Up** and **Move Down** buttons set the order of the pens along the top of the chart. They also determine the priority of each pen trace, with the highest priority pen at the top of the list, such that if a pen trace overlaps another then the higher priority pen trace will be drawn on top.

Clicking the **Add** or **Edit** buttons opens the **Pen Properties** box:

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- If a variable isn't already assigned then drag and drop from the **Variables List**, or click the **Choose** button.
- The pen **Label**, **Units** and **Description** can be entered. Check the boxes on the **Values** tab to see the **Units/Description** on the Trend Chart.
- **DP** is used to set the decimal places, up to 4 DP and also in scientific notation. Or in the case of plotting a time variable, the precision of it.
- The appearance of the pen trace can be made to change (color and/or blink) based on a boolean alarm.

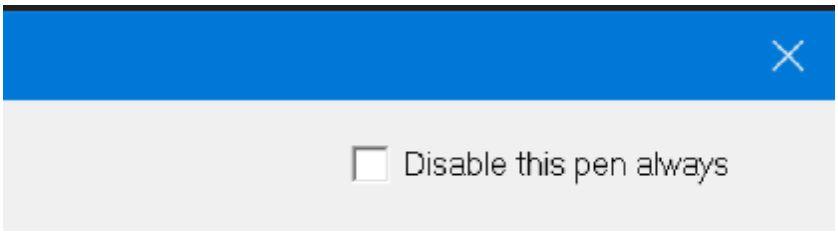
Disable this pen always:

- When checked, this options will hide the pen and its associated scale irrespective of other pen properties.

  For example, if Disable this pen always is checked and the boolean variable associated with Enable on Bool is 'On', then the pen and its associated scale will still be hidden.

  Additionally, if Disable this pen always is checked, the pen will not appear as an option on the Show/Hide Pens pop up menu or in Historical Replay.

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Blink on Alarm from:

- When checked, the pen will blink when the associated Alarm is 'On'.
  Drag an alarm parameter to the Alarm parameter field to have it be associated with the pen.
  For example, if an Alarm named Alarm1 is 'On' and associated with a pen, then the entirety of the time that Alarm1 is on, the pen will blink on the trend chart.
  If Alarm1 is on from 10:00:30 to 13:01:00, then the pen will blink on the trend chart from 10:00:30 to 13:00:01.
  The pen will stop blinking on the chart if Blink on Alarm from is unchecked.

Change color on alarm:

- When checked, the pen will change color to the chosen color (grey by default) from its native color when the associated Alarm is 'On'.
  Drag an alarm parameter to the Alarm parameter field to have it be associated with the pen.
  Choose the color that the pen will change to by clicking on the grey box beside the Change color on Alarm property.
  For example, if an Alarm named Alarm1 is 'On' and associated with a pen, then the entirety of the time that Alarm1 is on, the pen will be the chosen color on the trend chart.
  If Alarm1 is on from 10:00:30 to 13:01:00, then the pen will change from its native color to its new chosen color on the trend chart from 10:00:30 to 13:00:01.
  The pen will not change colors or display different colors if Change color on Alarm is unchecked.



Enable on Bool:

- If this boolean variable is 'On' then the pen line will be shown with its associated scale (if the scale for this pen is checked on the Scales tab), and similarly if this boolean variable is 'Off' then the pen line will not be shown with its associated scale.
- By default any Boolean variable used in this way will be marked for logging, this is so that when playing the chart back in Historical Replay the pen(s) will enable and disable based on the values of the boolean(s) at the time.
- If the value of the Bolean cannot be determined, such if it is an instrument value that is not available, then the pen will be shown.
- Export chart data to CSV [531] and Export Range to CSV [534] will always include the data for all pen lines.



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Drawing Mode:

- Tolerance Band would allow 2 lines to be drawn (+/-), one either side of a process value making it easy to see when the process value goes outside the tolerance band. This is not currently implemented, see alternative method. 866
- Other drawing modes will be available in a future version.

Scale:

- The **Scale** box works in conjunction with the **Pen Scales** tab. Use the **Pen Scales** tab to specify which parameters have a scale, and whether they are shown on the left or right.
- By default, scales are set to **Auto.** This means that the scale will automatically adjust according to the value.
- The scale can also be **Fixed** to a **Max** and **Min**, or set **From Variables**, for example, Lo Range and Hi Range instrument variables. If the scale is **From Variables** and these values are not available over comms the **Fixed Max** and **Min** will be used for the scale.
- The scale can also be **Logarithmic**, which is useful for pressure and vacuum measurements. Note that scientific notation is available on the **DP** drop-down-menu for very big or small values. There are also math functions 433 (Power, Log-10 and Log-e).



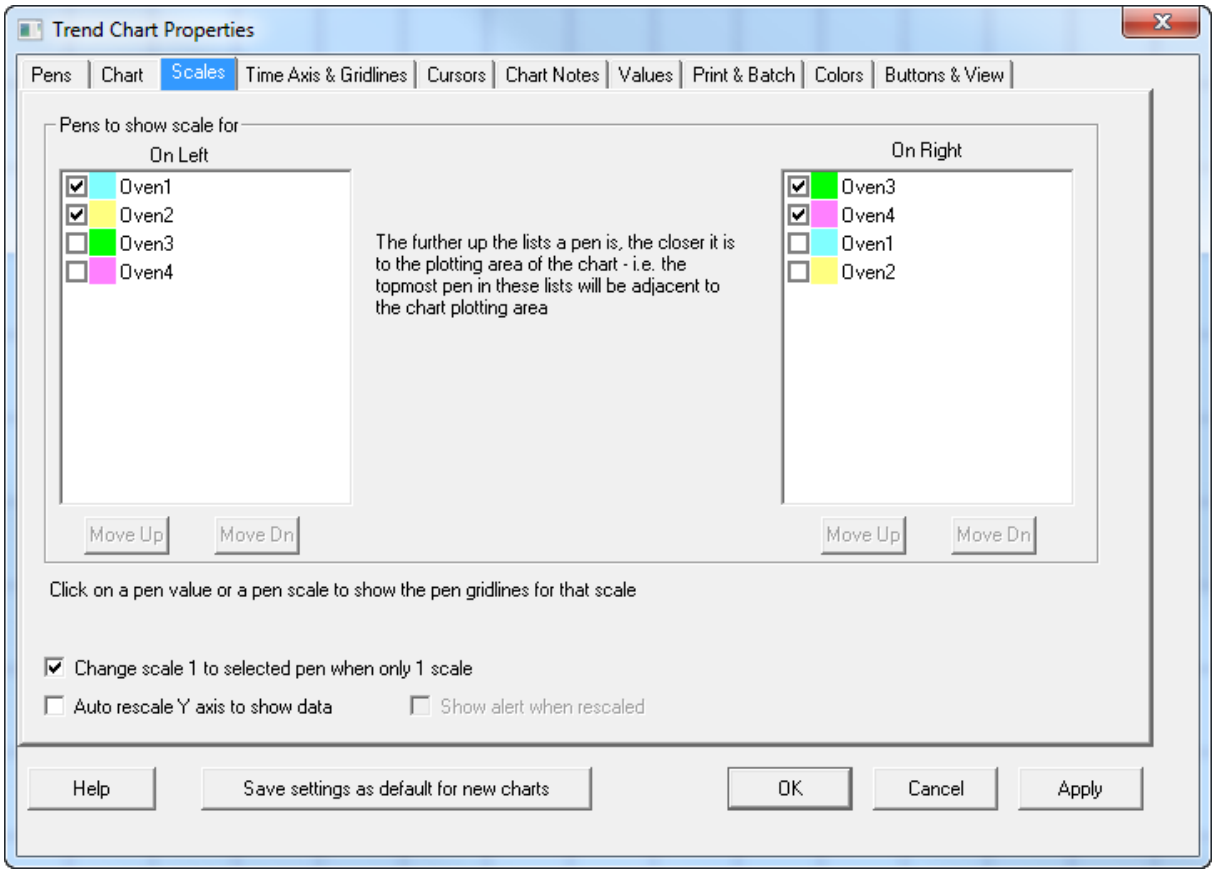
- The scales can have **Major Divisions/Minor Divisions** shown either as just tick-marks or with **Show Values**.
- If the divisions are set to **Auto** then the **Minor Division** will be half the **Major Division**.
- Use round numbers if using fixed scales (such as numbers that end in a 0 or a 5); this allows the divisions to be better placed for clarity.

Gridlines:

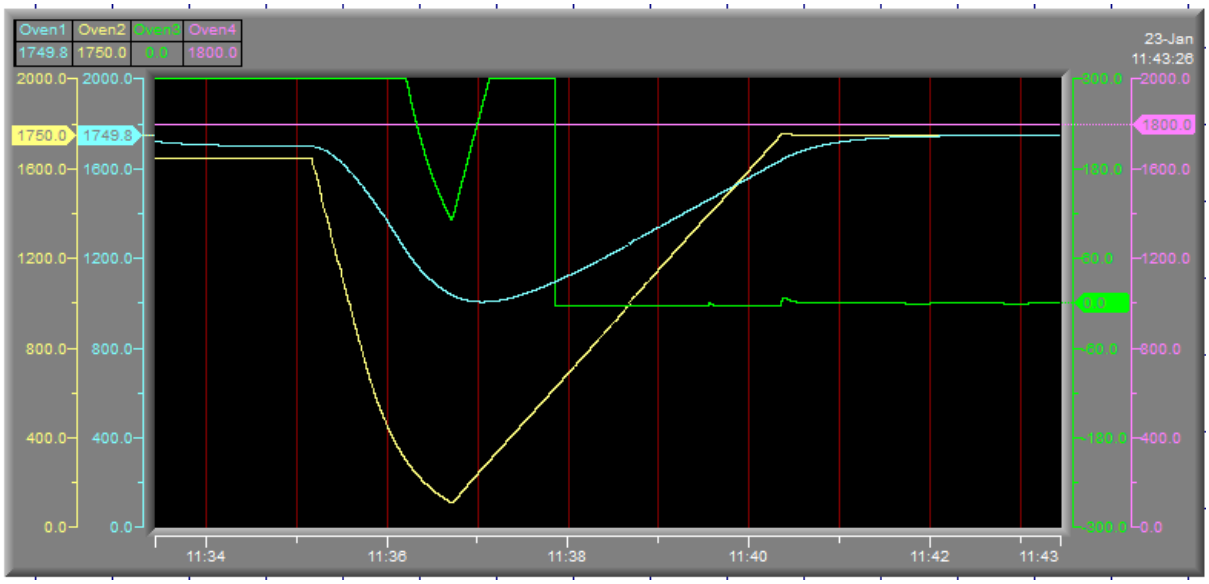
- When the orientation of the chart is horizontal (as specified in the Chart 541 tab) then the gridlines will be horizontal.
- Fixed lines can be set in addition to the Major and Minor division lines.
- If the gridlines for the **Major Divisions** and/or the **Minor divisions** are setup on more than one pen trace, and those gridlines happen to overlap, then the gridlines for the pen nearest the top of the list of pens on the **Pens** tab will take precedence (be drawn on top).

Scales for any pens, left or right:

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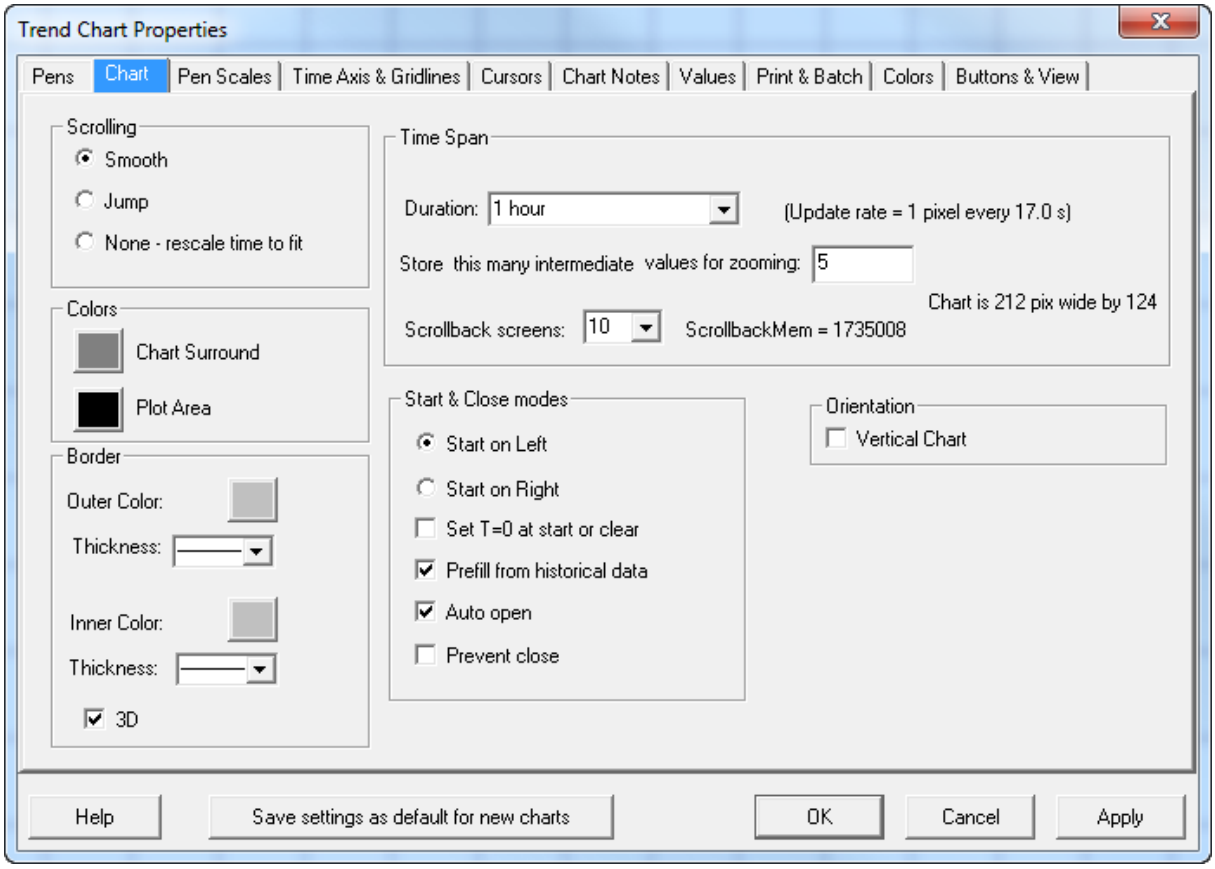
This chart has 2 scales on the left and 2 on the right:



The further up the list a pen is, the closer it is to the plotting area of the chart, hence the topmost pen in these lists will be adjacent to the chart plotting area. So in the example above the scale for Oven 1 is shown nearest the chart plotting area.

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9.6 Trend Chart Properties - Chart



Determining the resolution of a Trend Chart
SpecView will draw one pixel on the Trend Chart pen line according to the time span of the chart & the width of the chart in pixels. Therefore if the time span of the chart is 28 days & the chart is 1000 pixels wide then one pixel will be drawn and every 40 minutes. This also applies to the rate at which the values shown along the top of the chart will be updated.
To ensure the current values can be seen put the values out onto the screen from the Variables List 313.

Time Span
Trend charts can have a scrollback thumb along the time axis to allow the chart to be scrolled back to view up to 10 chart-widths of previous data.
This data is independent of Data Logging and Historical Replay 622. Therefore, scrollback will still work even if Logging is disabled and if there is no Historical Replay option on the dongle.

Note: When there is no Historical Replay option on the dongle then scroll-back is limited to ONE chart-width only.

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- **Duration** is the width of the time-axis of the visible chart. The rate that pixels will be added to a pen trace on the chart can be calculated by taking the actual width of the chart in pixels on the screen, and dividing by the chart **Duration.** For example, a chart with a duration of 30 mins (1,800 seconds) that is 400 pixels wide, will have one pixel added to each pen trace every 4.5 seconds.

- **Scrollback screens** specify the amount of previous data, as a multiple of the duration, that can be accessed using the scrollback thumb. For example, if the Duration is 30 minutes, and there are 10 **Scrollback screens** then the total amount of previous data that can be viewed using the scrollback thumb is 300 minutes. The number of scrollback screens cannot be set if **Scrolling** is set to **None**, this is because all the data is visible in the plot area.

  Note: Beware of memory usage. This is because, for example, a 30 minute chart with 10 scrollback screens, storing 10 ***Intermediate values****, would use about 26Mb of memory.*

  Note: When there is no Historical Replay option [622] on the dongle then scroll-back is limited to ONE chart-width only.

- **Store this many intermediate values for zooming** - is the number of additional data values that are stored (but not Logged) between pixels and can be used to fill in the pen trace lines when the chart is zoomed. For the chart in the example above, where a pixel is added to the pen traces every 4.5 seconds, if the **Intermediate value for zooming** was 8, then a point would be stored every half second. These extra points would be seen when the chart is zoomed. However, these intermediate values are only stored in memory and are not logged to disk for use in Log Reports and Historical Replay.

  Note: To avoid compromising the performance of the system, it is important that the speed of these intermediate values is not too high, otherwise comms could be overwhelmed.

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Note: It is not possible to zoom a chart in Edit Mode[501] as clicking to drag out a zoom rectangle would conflict with clicking to drag the chart to move it.

Colors

- **Chart Surround** and **Plot Area** - choose colors that have good contrast with the text and the trace line colors. The Colors[559] tab is where the default pen colors are set for both dark and light background charts. Dark background charts are considered to be easier to read on a screen, and light background charts are used for printing to save ink.

Border

- **Outer Color**, **Inner Color** and **Thickness -** choose colors that compliment the **Chart Surround** and **Plot Area** colors.
- **3D** gives the edges of the Trend Chart a beveled appearance, however it needs to be thick enough for the edge to be visible.

Start & Close modes

- **Start on Left/Right -** indicates whether the pen trace should start on the left or the right of the plot area.
- **Set T=0 at start or clear** - sets the elapsed time (T) to zero when the chart starts or is cleared. To clear a chart right-click and choose **Clear Chart** from the popup menu. The elapsed time (T) can be displayed along the time axis from the Time Axis & Gridlines[546] tab.
- **Prefill from historical data** - note that the prefilled data will only be seen if the chart is set to **Start on Right** and/or scrollback screens are defined.
- **Auto open** - begins filling this chart (GDW) as soon as communications start. This happens when going into Runtime Mode, or in Edit Mode when **Online Features** are enabled from the menu.
- **Prevent close** - to avoid the operator from closing the chart and stopping it from being updated.

Orientation

- **Vertical Chart** will make the chart scroll in a way that looks similar to paper chart recorders.

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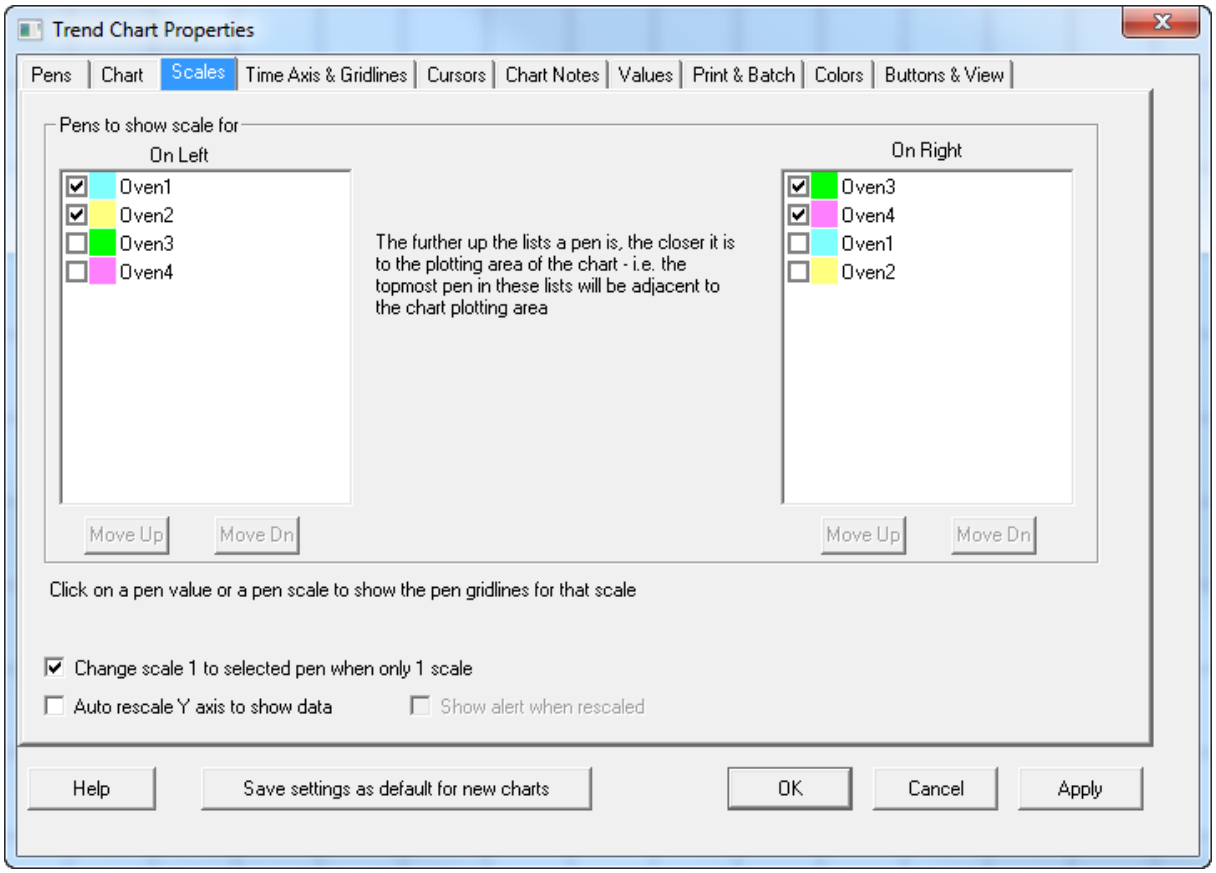
Scrolling

- **Smooth** - (continuous) scrolling charts are better visually, but be aware of CPU usage as this feature makes heavy use of the CPU.
- **Jump** - charts that jump use less CPU, because they are redrawn less frequently, which is useful when optimal performance is required.
- **None - rescale time to fit** - these charts will also jump, which makes efficient use of CPU. These are ideal for batch processes when the whole batch needs to be viewed at once. However, it is not possible to scroll-back a chart in this mode because all the data is visible in the plot area.

9.7 Trend Chart Properties - Pen Scales

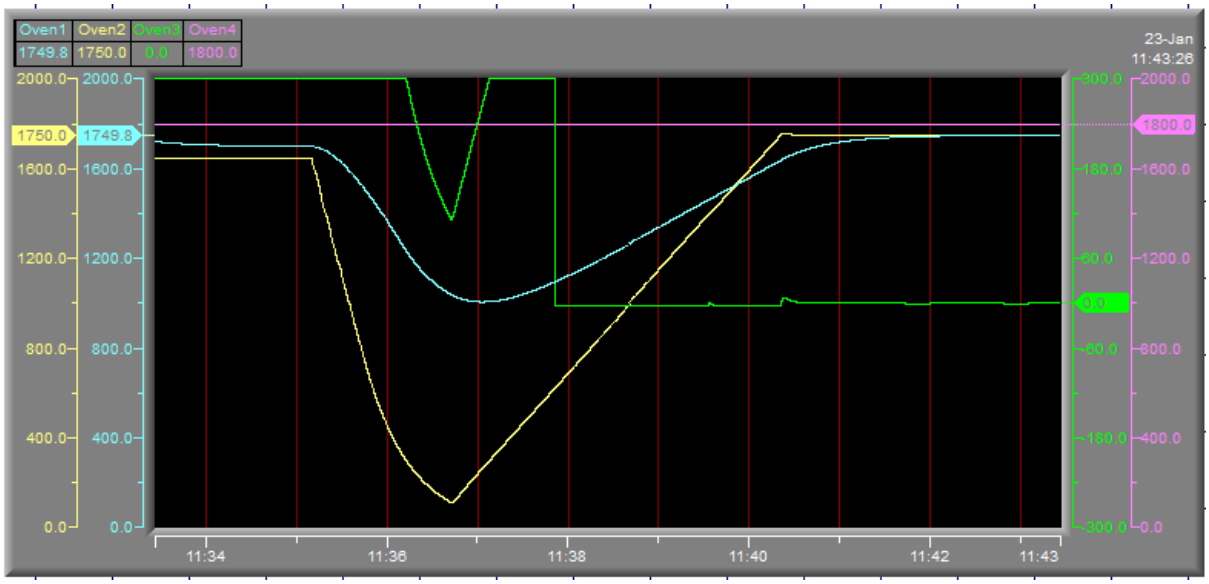
This tab specifies which pens should have scales, and whether they should be on the left or right of the Trend Chart.
Or, in the case of a vertical chart [541], at the top or the bottom.

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The pens nearest the top of each list will have their scales nearest the plot-area of the chart.

Hence in this example, the scale for Oven1 is nearer to the plot-area than the scale for Oven2.



Change scale 1 to selected pen - this will only take effect while in Runtime Mode (not in Edit mode)

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and only if there is just one scale. Clicking the pen values will switch the scale to show the scale for the selected pen.

If the trend chart only has one value scale[544], then to see the scale of any of the other pens, click the pen labels along the top. However, this will only become noticeable if the Pens have different scales and/or colors because the scale and color will change too.

Note: If, for example, there are 4 pens but only 3 scales have been added then it will not be possible to see the scale of the 4th pen. Therefore either have just one scale, or have a scale for each pen.

Auto rescale Y axis to show data - Instead of using the **Min** and **Max** specified for the scale, it will automatically adjust to fit the values. Therefore, values will never be outside the range of the scale.

9.8 Trend Chart Properties - Time Axis & Gridlines

This tab is used to setup the time axis and its gridlines[561].

Choose colors that contrast with the background, and ideally which are different to the colors of the pen traces.

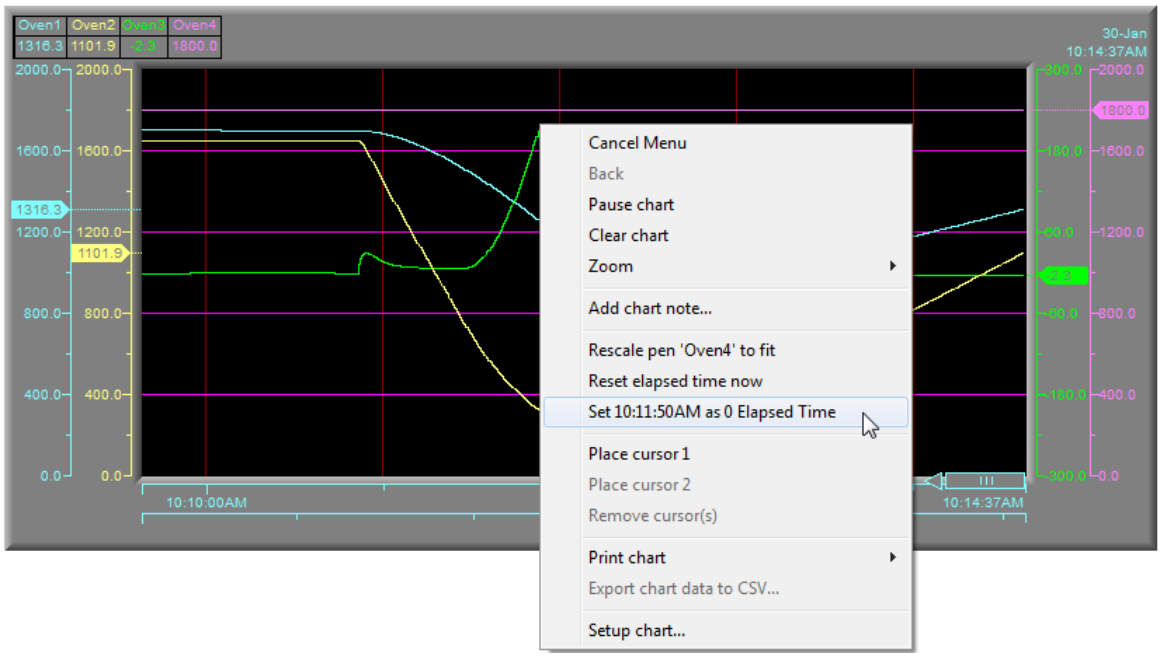
Selecting Auto for **Time Axis Major Divisions** and/or **Time Axis Minor Divisions** will mean that the Time Span of the chart will be used to calculate appropriate time intervals for these divisions.

The **Show real time X axis** shows the current time along the time axis, and depending on whether the **Use 24 hour clock** box is checked either shows, for example 16:32:59 or 04:32:59PM.

The **Show elapsed time X axis** shows the time that has elapsed since T (Elapsed Time) was last set to zero.
This axis will commence updating once T has been set to zero.
T can be set to zero in one of 3 ways:

1. From the Chart[541] tab use **Set T=0 at start or clear**, one or more of these can be specified
2. Clicking on the chart and choosing **Set <current time> as 0 Elapsed Time** from the popup menu:

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3. The **Automatic Batch Interaction** on Print & Batch [557] tab can monitor batch interactions, and will set T=0 whenever the specified text variable (with the batch tag property) is given a value to start a batch.

These actions to set T=0 can be performed as often as required.

The current elapsed time will always be recorded, and cannot be removed. Such that the Elapsed time can be seen in Historical Replay if the Elapsed Time axis is being displayed.

9.9 Trend Chart Properties - Cursors

Trend Chart cursors are used to display the values of the pen traces at 1 or 2 positions.

When 2 cursors are on the chart then the difference in values is shown.

From Runtime Mode:

Place the cursor by a single right-click on the chart and double-right-click to place the second cursor.
Alternatively use left-click on the chart and choose **Place cursor 1** or **Place Cursor 2** from the popup menu.
To clear the cursors left-click on the chart and choose **Remove cursor(s)** from the popup menu.

From Edit Mode (Online):

Right-click on the chart and choose **Place cursor 1** or **Place cursor 2** from the popup menu.
To clear the cursors right-click on the chart and choose **Remove cursor(s)** from the popup menu.

Use the cursor keys '->' or '<-' on the keyboard to nudge the selected cursor left or right.
The selected cursor is indicated by a '><' at the top, whereas the cursor with a 'V' at the top is not the selected cursor.

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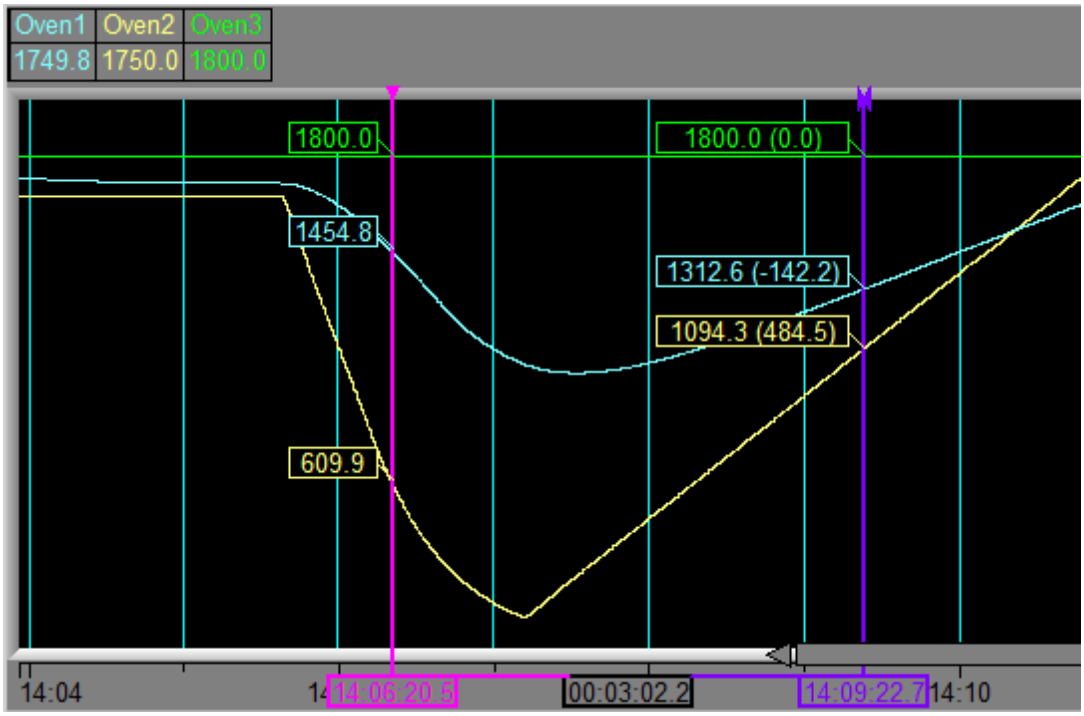
The cursor keys will skip the cursor to the next data point, so it may be necessary to press the cursor keys many times on a dense chart, or it may jump a large distance, when data points are further apart, such as when in Historical Replay.

So the best method of positioning a cursor is to click and place the cursor as close as possible to the required position and then fine-tune with the cursor keys.

To select the other cursor, in order to be able to move it with the cursor keys, it is necessary to 'place' it again, and it will become the selected cursor, indicated by a '><' at the top.

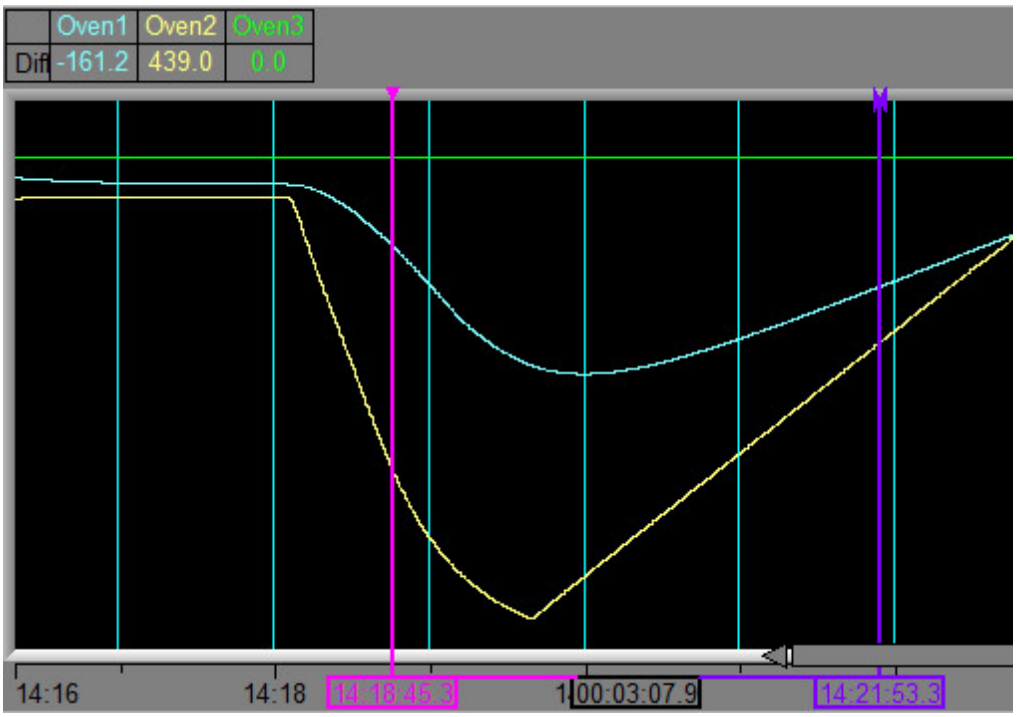
The style, thickness and color of both cursors can be specified from the **Cursors** tab on the **Trend Chart Properties** box.
The location on the chart to show the values at the cursors can also be specified, in the following ways:

1. **Show in-chart**:
   The values and differnce between the values are shown in the plotting area:



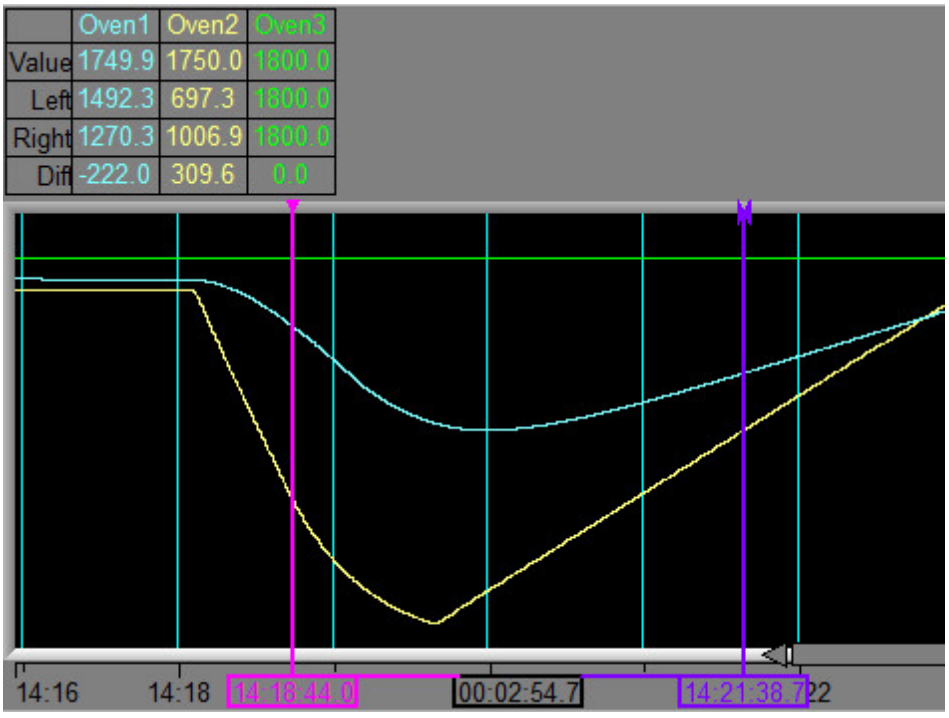
2. **Override pen labels**:
   When only one cursor has been placed then the values shown will be the values at the cursor.
   When both cursors have been placed, the values shown will be the difference between the values at the cursors.

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3a. **Auto expand values area to show cursor values** - and when **Horizontal** is selected on the **Values** tab.

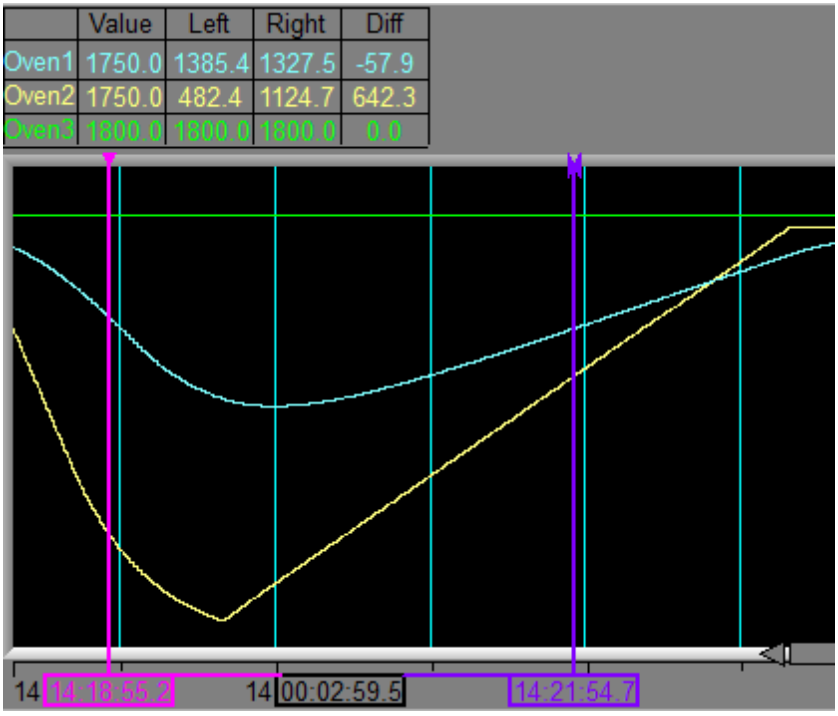
This shows all the required information at a glance, but reduces the available space for the chart itself:



3b. Or, **Auto expand values area to show cursor values** - and when **Vertical** is selected on the **Values** tab.

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This uses screen space more efficiently especially when many other boxes are checked on the **Values** tab:



9.10 Trend Chart Properties - Chart Notes

Chart Notes allow the user to add annotations to the chart:

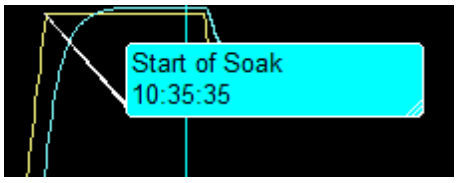
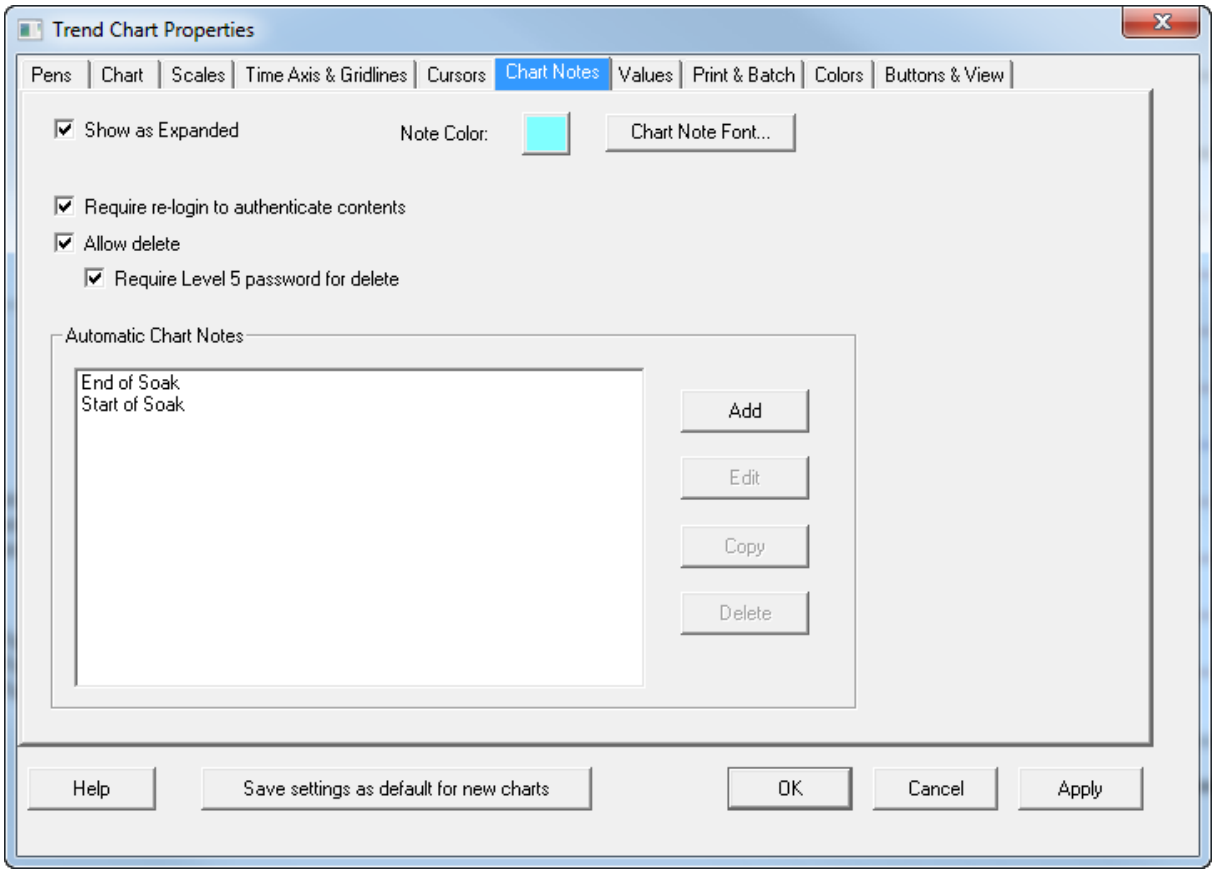


Chart Notes are setup initially on the **Chart Notes** tab of the Trend Chart Properties box:

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Note Color and Font:

The color and font of the expanded Chart Note. The color of the push pin is set on the 'Add Chart Note' box.

Show as Expanded:

Chart Notes will initially be shown expanded by default. Un-checking this checkbox will mean that Chart Notes will initially be shown collapsed (as a 'Push Pin').
Chart notes can be collapsed at any time by clicking on the Chart Note itself and choosing 'Collapse Note' from the popup menu.

Require re-login to authenticate contents:

If passwords [703] are enabled then this will prompt the user for their password before they can create a Chart Note.

Allow delete:

Controls whether or not Chart Notes can be deleted.

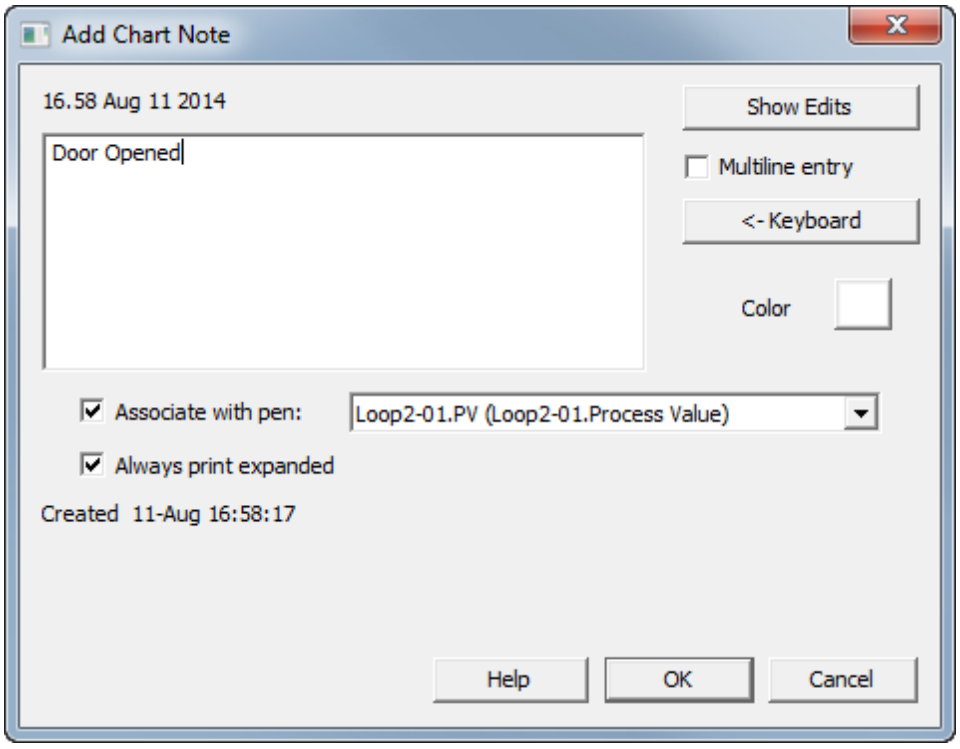
Require Level 5 password for delete:

If passwords [703] are enabled then this will only allow a Chart Note to be deleted if a 'Level 5' user is logged in.

Automatic Chart Notes:

For details on adding Chart Notes automatically see Automatic Chart Notes [552]

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The Color is the color of the Chart Note's Push Pin and also the border color of the Chart Note when it is expanded.

Note: The color of the Chart Note when it is expanded is set using 'Note Color' on the Chart Notes tab of the Trend Chart properties box.

Associate with pen:
When a Chart Note is associated with a pen the value of that pen is shown in the expanded Chart Note together with the note's text and time.

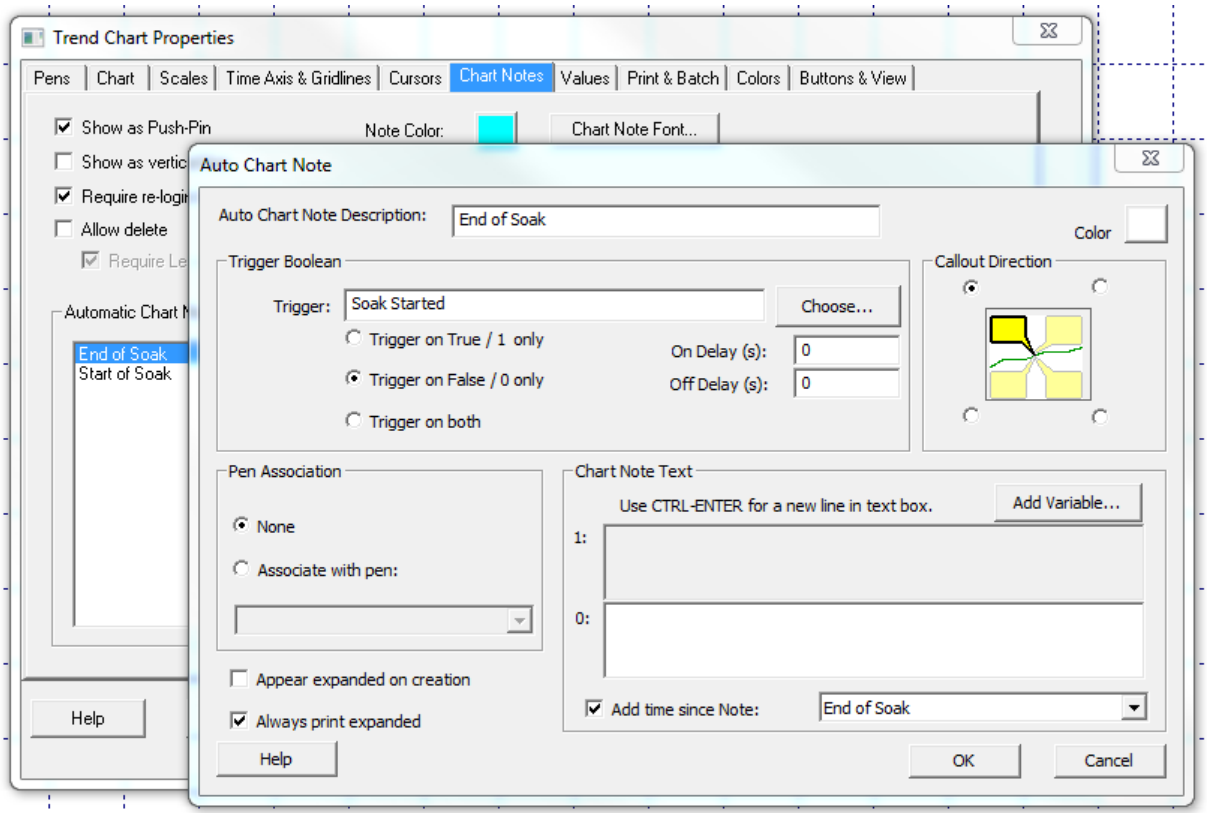
Always print expanded:
This forces the Chart Note to be printed in its expanded form (not just as a Push Pin) using the color as defined by 'Note Color' on the Chart Notes tab of the Trend Chart properties box.

For details of how information added as Chart Notes to Trend Charts can be saved see Log Report 622.

9.10.1 Automatic Chart Notes

Chart notes can be added automatically to the chart based on events in the process, without relying on manual intervention.

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Click the **Add** button under **Automatic Chart Notes.**
A boolean variable can be assigned, and the chart note text specified for the annotation when that boolean variable changes.
Note: It is advisable to keep the text for chart notes concise.

Automatic chart notes can be used, for example, to mark when doors are opened on furnaces and to mark batch endings.

A chart note can be triggered when a boolean is On and/or Off by using **Trigger on True**, **Trigger on False** or **Trigger on both**.

If a chart note is associated with a pen, the chart note will appear on the pen trace.
Note: If the pen associated with a chart note is on multiple charts then the chart note will automatically be added to all charts with that pen.

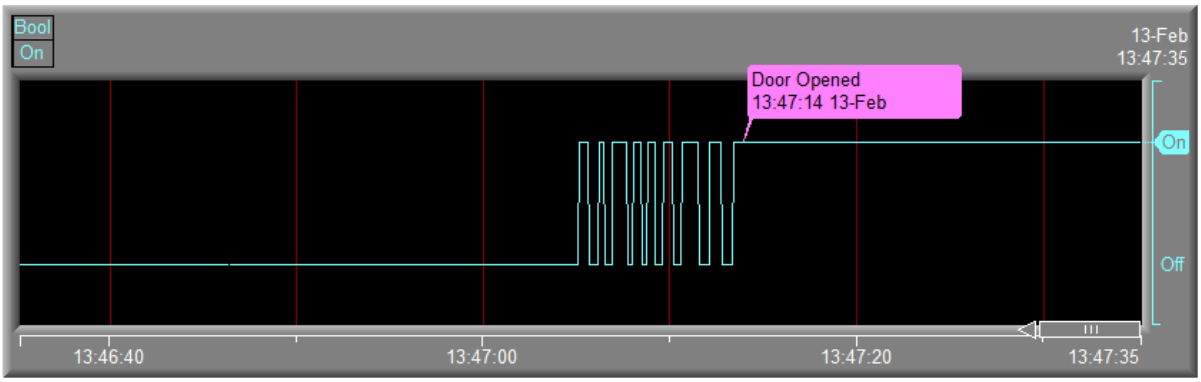
If the chart note is *not* associated with a pen (**Pen Association** is **None**), the chart note will appear along the edge.
Note: If there are multiple charts then the chart note will automatically be added to ALL charts containing one or more of the pens on this chart.

Optionally, the time between selected notes can be added to the annotation:
If using **Trigger on True** or **Trigger on False** then checking **Add time since note** adds the elapsed time since the last time the specified automatic chart note was created. This can be specified as **<This One>** meaning this automatic chart note.
This is useful where an auto-note is signaling the end end of a batch, in this case, the duration is automatically calculated.

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If using **Trigger on both** then checking **Add time in '1' state** adds the duration that it was in the 1 state.
This is useful where an automatic chart note is, for example, marking the end of a batch. The duration of the batch is automatically calculated.

The **On Delay** and **Off Delay** are useful when a value fluctuates causing a boolean to flicker on and off before stabilizing.
For example, a boolean indicating whether the Process Value has reached a Setpoint could flicker as the process value approaches the Setpoint.
This delay will mean that the position of the chart note will be at the beginning of the first time it stays **On** for this delay:



Without the **On Delay** and **Off Delay** the automatic chart note would keep recurring during the stabilization period of the value.

The color of the chart note should be set to a color that contrasts with the chart background color.

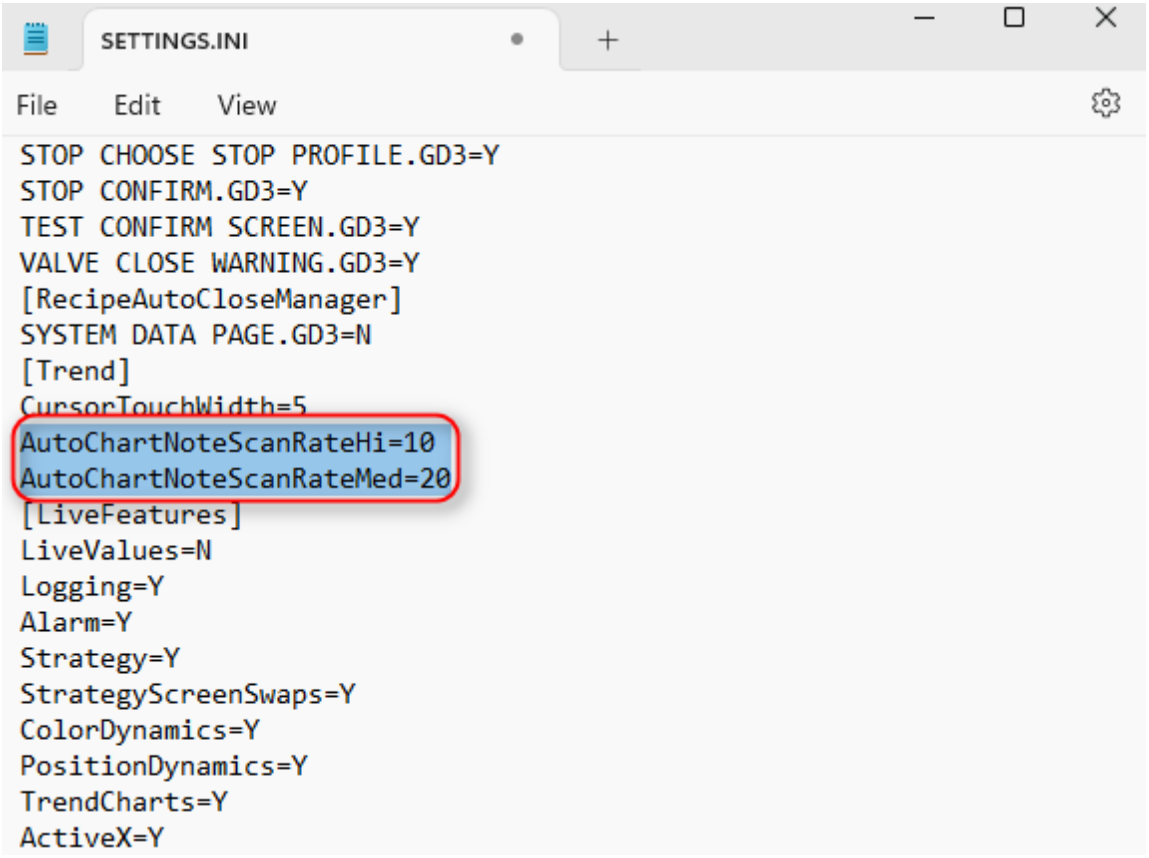
There is no limit to the number of automatic chart notes that can be defined on a chart.

As of SpecView Build 3.1.249 [134], it is possible to edit the the Scan Rates of the Boolean parameters associated with the Automatic Chart Notes.

To do this, open the Settings.INI folder [512] in the Project Folder [509].
Under the Trends section, enter the following, AutoChartNoteScanRateHi=X and AutoChartNoteScanRateMed=Y.
Where X and Y by default are 10 and 20 respectively.
Booleans are scanned at the high rate and all other parameters are scanned at the medium rate.
So, by default Booleans are scanned once every second and other parameters are scanned once every two seconds.

To increase the scan rate, decrease the value of X and Y.
To decrease the scan rate or to slow things down, increase the values of X and Y.

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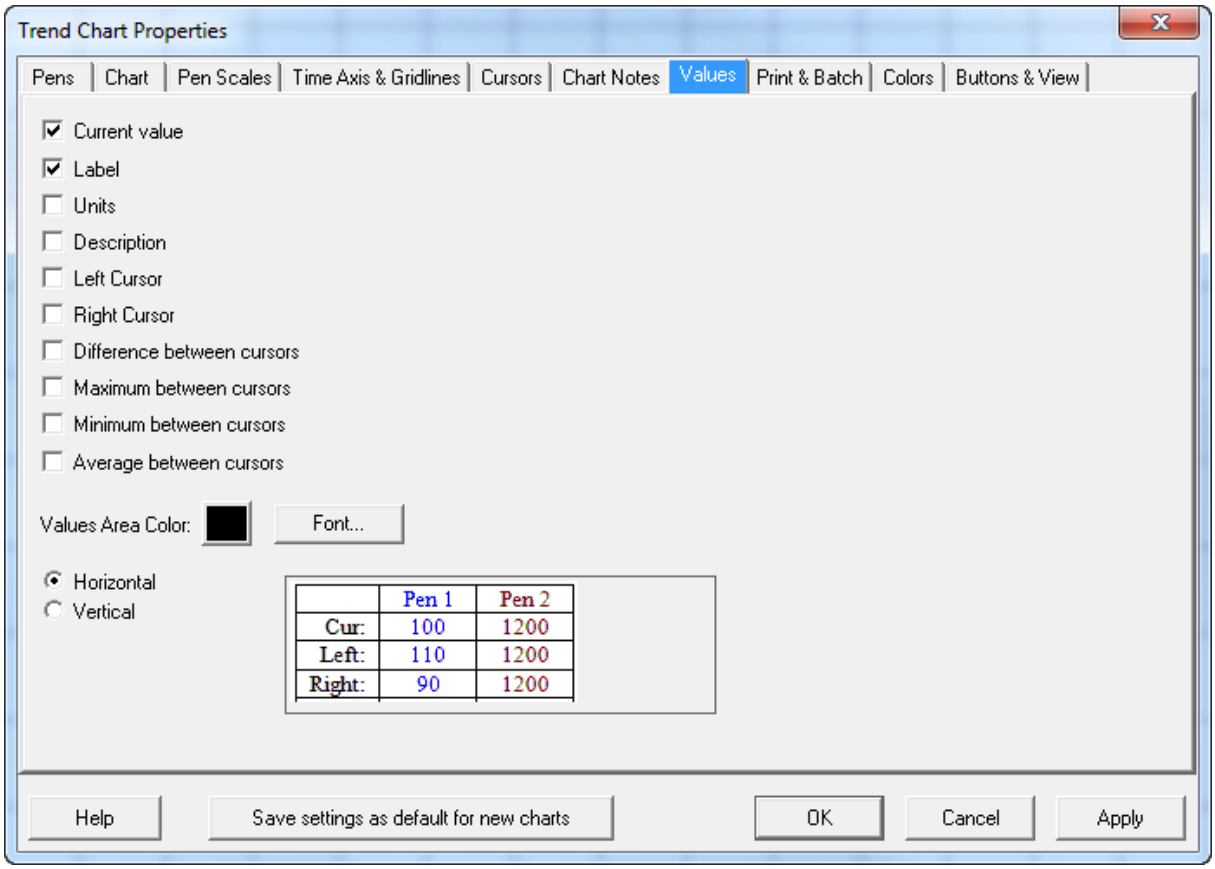


9.11 Trend Chart Properties - Values

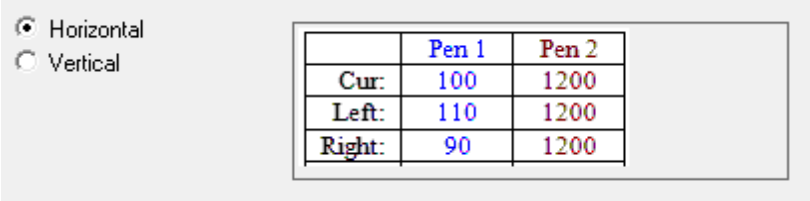
This tab of the Trend Chart Properties box controls what is shown in the 'Values' area of the chart. The 'Values' area is along the top of the chart, which by default contains the **Current value** and **Label** for each pen.

Additionally it is possible to show other information:

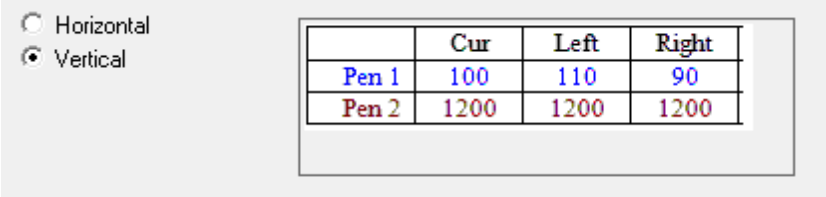
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Horizontal - the information for each pen is shown as a horizontal table - with the pens going across, which uses screen space more efficiently when there are many pens:



Vertical - the information for each pen is shown as a vertical table - with pens going down, which uses screen space more efficiently when many of the other other boxes are checked on this tab.

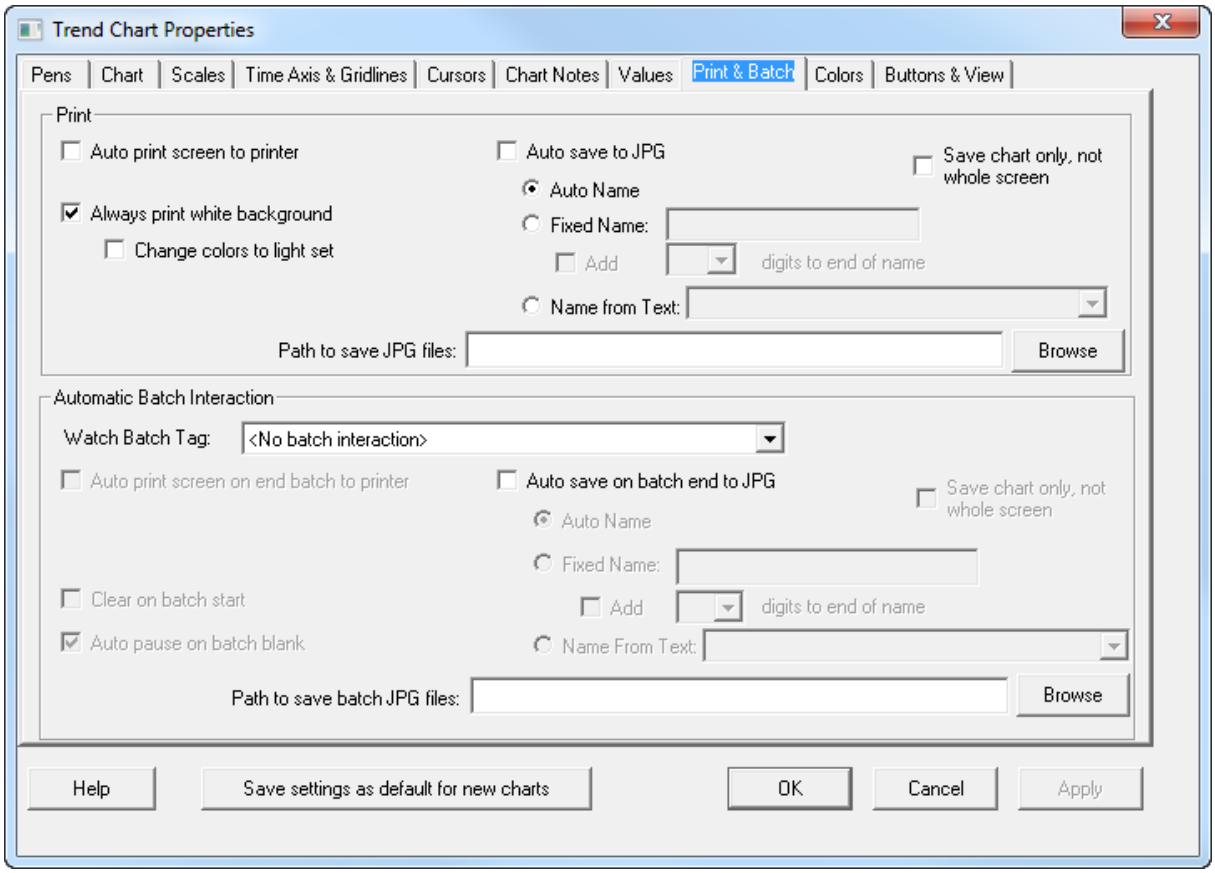


The information about cursors can also be influenced by what is checked on the Cursors[547] tab.

The **Values Area Color** is usually kept the same as the **Chart Surround** color on the Chart[541] tab.

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9.12 Trend Chart Properties - Print & Batch



Auto print screen to printer:
When the chart is full auto print the whole screen.

Auto save chart to JPG:
When the chart is full auto save the chart to a JPG file.
File name selection – fixed or from SpecView variable
Display the chart with a dark background for clarity on the screen, but when printing use a white background to save ink. The pen colors for the white background can be made to automatically switch appropriately, as defined on the Colors 559 tab.

Always print white background:
This is a setting to save printer ink.

Auto Name:
The filename of the JPG file will be the name of the GDW followed by the date and time, for example: SPECVIEW1.GD3_20140812_150430.JPG

Automatic Batch Interaction
This can monitor text variables which have their Batch Tag 627 property set, and will set elapsed time (T) to zero whenever the batch variable is given a value to start a batch.
To see elapsed time (T) enable **Show elapsed time X axis** on the Time Axis & Gridlines 546 tab.

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Note that the **Path to save JPG files** for Trend Charts is separate from the path that is used when choosing **Print to JPG** to print the whole screen from the File menu[269].

Remote Redirect Paths

As of SpecView build 3.1.257[127] JPG files produced at the end of batches can be stored locally on Remote PCs[740] when the **Path to Save JPG files** is pointing to a network drive.
This is to prevent Remote PCs[740] from replacing the JPGs produced by the Local PC[737] on a network drive.

For instance, there is a Local PC[737] that is connected to instrumentation and is running a batch.
At the end of the batch, if the **Auto Save on batch end to JPG** is selected, SpecView will save a screenshot of the GDW[503] with the Trend Chart[523] and save it to the desired location specified in **Path to save batch JPG files**.
This desired location can be a network drive.
So, the Local PC[737] will save its screenshot to the network drive.

Now, when a Remote PC[740] logs in to the Local[737], it will have a copy of that GDW[503] with the Trend Chart[523].
The Trend Chart[523] will have the exact same **Automatic Batch Interaction** settings and will save its copy of the screenshot on the network drive as well.

So, if a Remote user[740] logs in to the Local[737] sometime during a batch run and fails to log out before the end of the batch, then the Remote[740] will also produce a screenshot and save it on the network drive.
The Remote's[740] screenshot will overwrite the existing screenshot that the Local[737] would have created moments ago.
Also, the Remote's[740] screenshot will contain incomplete batch information as the Remote[740] was only started after the batch began.
Therefore, the Remote's[740] screenshot will be missing information about the start of the batch.

To prevent this, follow the steps below.
The steps are to be executed on the Local PC[737].

1. Exit SpecView.
2. Navigate to the Project Folder[509].
3. Open the file Settings.INI.



4. Find the *[Trend]* section.
5. In the *[Trend]* section type the following command, "RedirectRemotePaths=Y".



6. Save the file.
7. Open SpecView and navigate to the project.

Screenshots created on the Remote PCs[740] by **Automatic Batch Interaction** will now be saved locally.
The screenshots can be found in the Remote PCs[740] Project Folder[509], under a subfolder called

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Remote Trends.

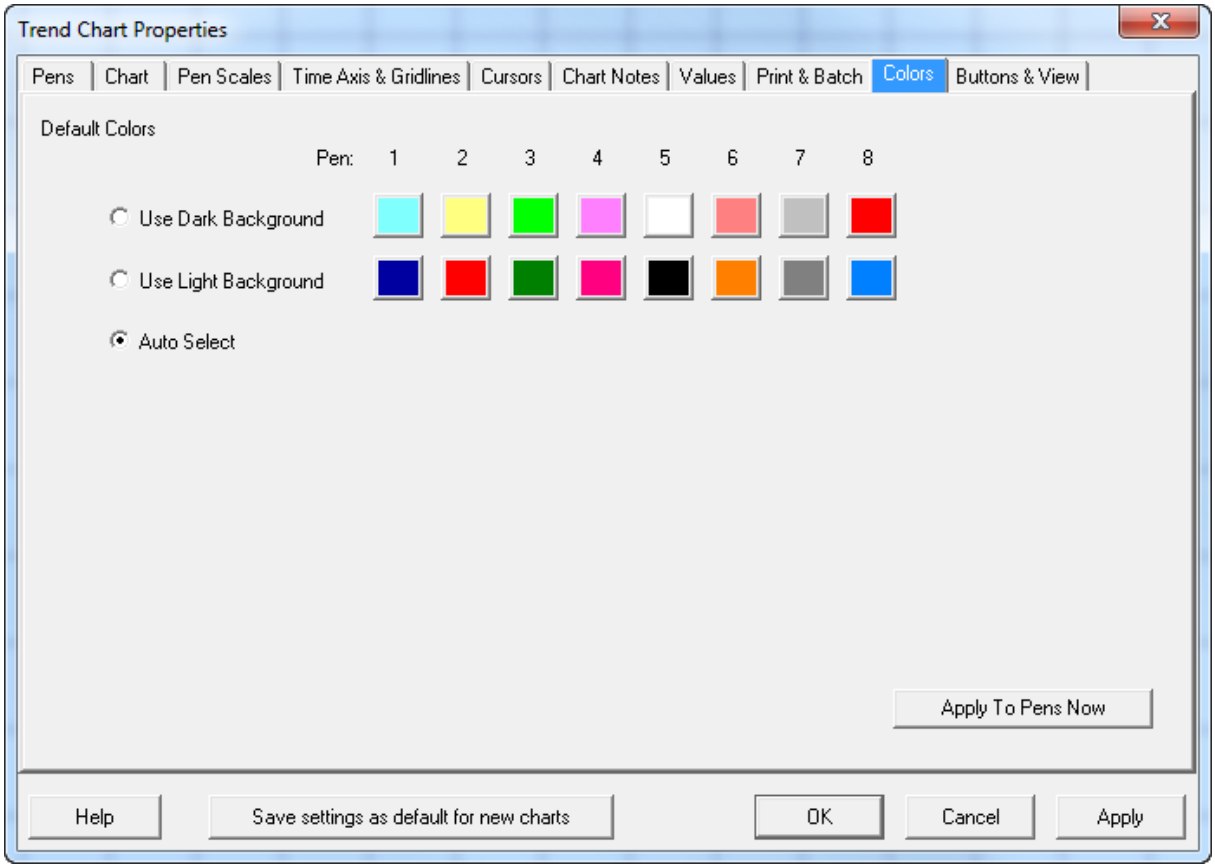


9.13 Trend Chart Properties - Colors

A chart with a dark or gray background in the plot area is normally easier to see on a screen (less strain on the eyes).

However, when printing, to save ink it is recommended to use a white background for printing Trend Charts and bold colors for the pens so they stand out more.

The Trend Chart setup box has a Tab for setting up the colors for printing:



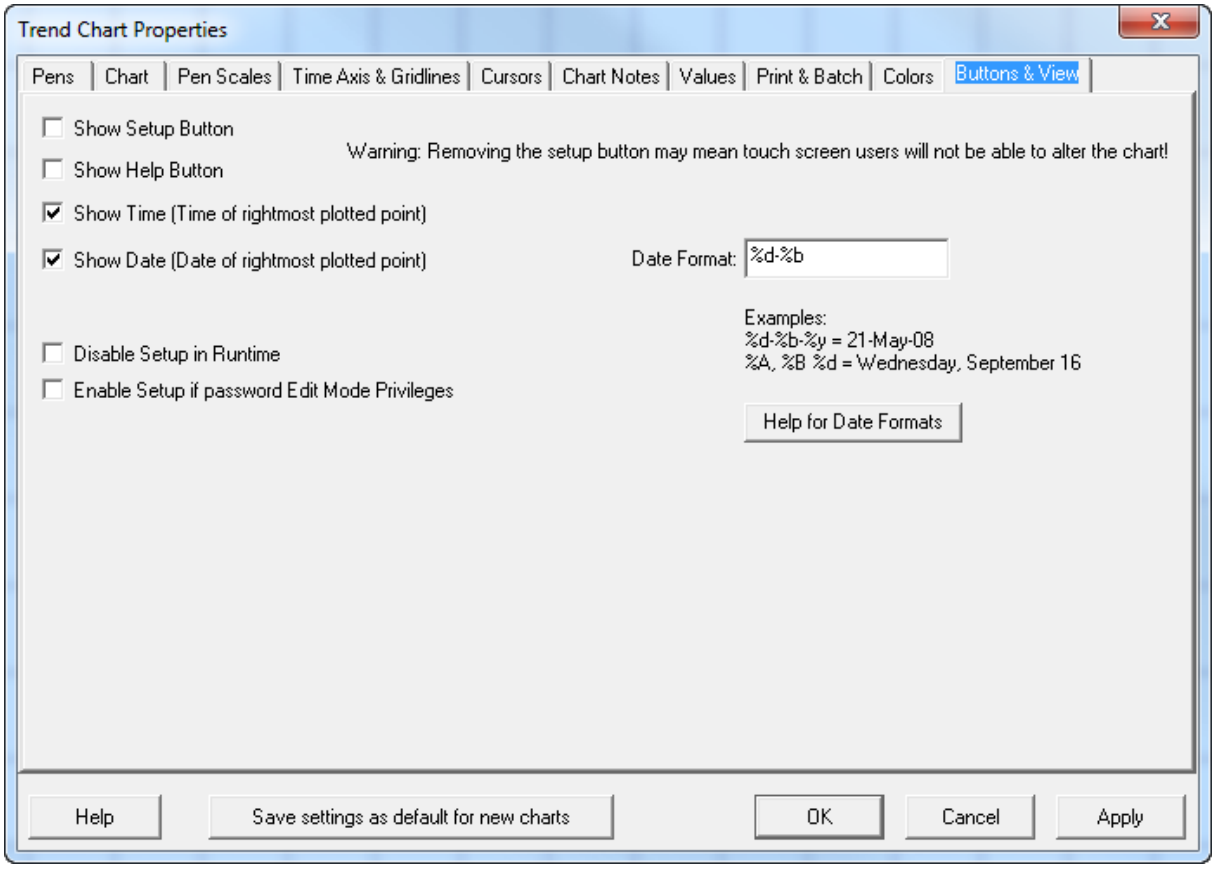
Default Colors

- These colors are the default colors of the pens unless the pen color is overridden in the Pens Properties [535] box.
- Choosing **Auto Select** means that SpecView will asses the color specified for the **Plot Area** on the Chart [541] tab and automatically determine if that color is dark or light and choose the set of default pen colors accordingly.
- The pen colors for printing [557] with a white background can be made to automatically switch as

appropriate on the Print & Batch[557] tab.

9.14 Trend Chart Properties - Buttons & View

This tab sets up the items displayed in the top right corner of the Trend Chart.



Show Setup/Help Button

These enable the respective buttons.
However because chart space is limited in the top right corner these buttons obscure the date.
Therefore it is recommended to either have the Date or the **Setup** and **Help** buttons.
If the date is also required then put the SpecView Variable **SpecView.Date** out onto the screen and position it near the chart.

To access the **Trend Chart Properties** box in Runtime Mode, if there is no **Setup** button, it is necessary to click on the chart and choose **Setup chart** from the popup menu. For touch screens, or laptops with touch pads, it is more convenient to use the **Setup** button.

Date Format:

For the % sequences used to format date variables see Date and Time Formatting[462].

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9.15 Trend Chart Gridlines

Horizontal and Vertical gridlines on Trend Charts are specified differently depending on whether the chart's orientation is Vertical or Horizontal.

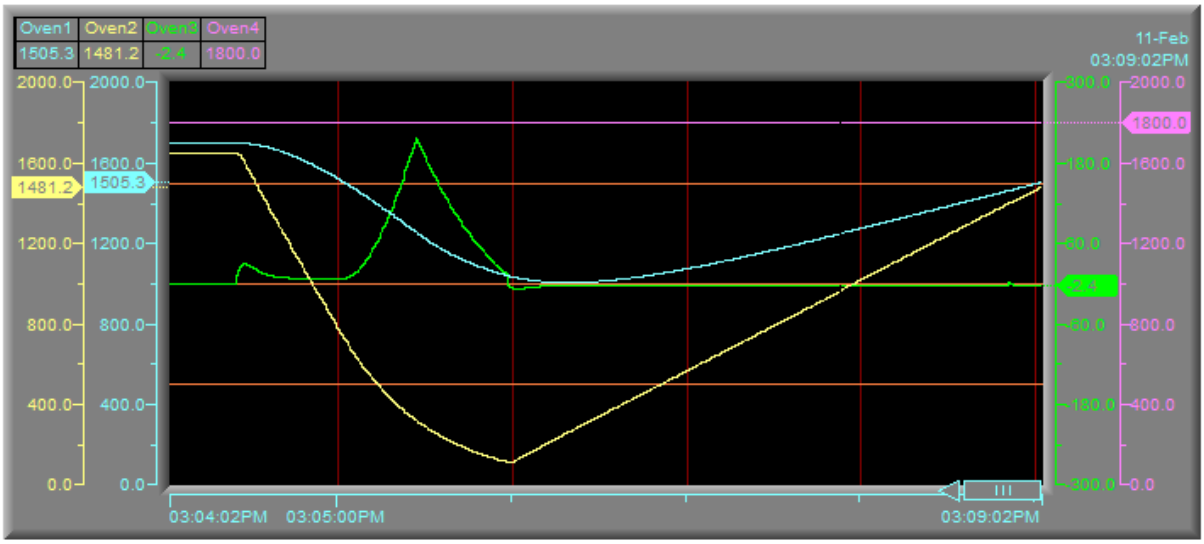
The orientation of a chart is specified on the Chart [541] tab:

- Horizontal orientation:
  - X axis is the time - time gridlines are vertical
  - Y axis is the value - value gridlines are horizontal
- Vertical orientation:
  - X axis is the value - value gridlines are vertical
  - Y axis is the time - time gridlines are horizontal

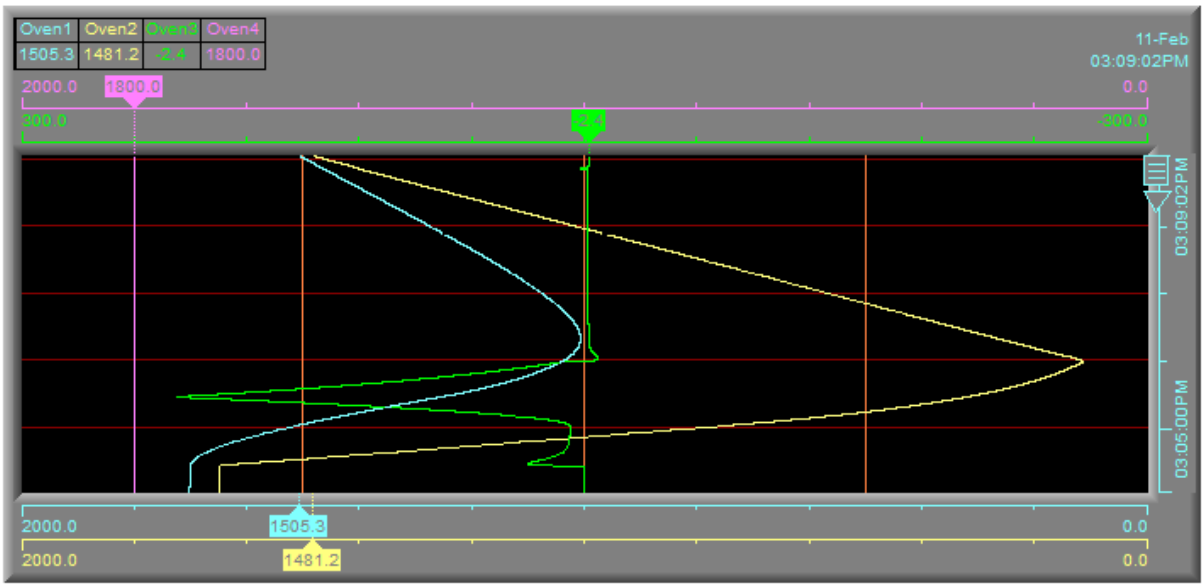
Value gridlines - are defined from the Pens [535] tab by clicking the **Edit** button for the selected pen to open the Pen Properties [535] box.
Time gridlines - are specified on the Time Axis & Gridlines [546] tab.

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Horizontal Chart



Vertical Chart



9.16 Trend Chart Fonts

The font for both the 'pen scales' axis and the 'time' axis is specified in the Time Axis & Gridlines [546] tab.

The font for the values along the top of the chart is specified in the Values [555] tab.

The font for the Date and Time on a Trend Chart (if it needs to be different to the Values [555] font) can be specified using OverrideDateTimeFont and OverrideDateTimeFontSize in the [Trend] section of SETTINGS.INI

For example - to set the font for the Date and Time on the Trend Chart to Arial size 10:

In the file SETTINGS.INI in the Project folder, in the [Trend] section of that file, add the lines:

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OverrideDateTimeFont=Arial
OverrideDateTimeFontSize=10

This will apply to all Trend Charts in that Project.

9.17 Trend Chart - CSV Export

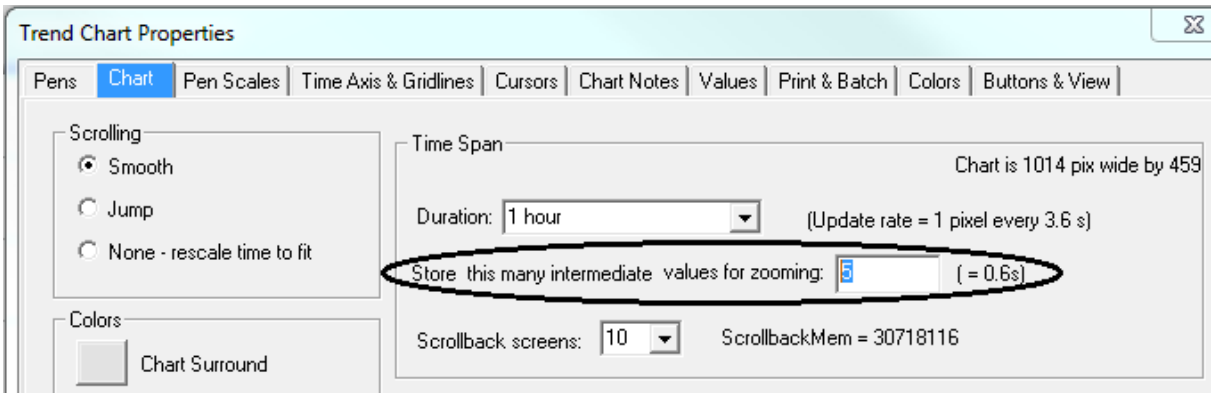
When exporting a chart or part of a chart to a CSV file there are some options that can be set in the Settings.INI file in the '[TREND]' section (add this section header if it's not already there):

To separate Date & Time into 2 separate columns instead of having date and time in one column:
CSVExportDateTimeSeparated=1

To disable the MS (Milliseconds) column:
CSVExportSuppressMS=1

To set the granularity in seconds, so that the number of rows can be adjusted, for example, setting this to 60 will mean there will be one row every minute.
CSVExportGranularity=
Note that when doing a CSV Export on live data in a Trend Chart check the pixel rate for 'Store this many intermediate values for zooming' as setting the granularity to a faster rate than that will have no effect on the resultant CSV file. Similarly, when in Historical Replay setting the granularity to a faster rate than the Logging Rate [604] will have no effect on the resultant CSV file.

The reason the MS (Milliseconds) column was added is because when the chart is exported from live data (as opposed to data which has been read from Logged Data) then there is additional data which is stored for zooming which can give greater than 1 second resolution, and which will be in the exported file, hence the need for milliseconds to give a more precise time stamp.



Whereas, when the chart is exported from data which has been displayed on the chart from previously recorded as Logged Data using Historical Reply or chart backfill then there is no need for milliseconds because the fastest logging rate is once per second.

See also Decimal Places [496]

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Part 10

10 Instrument Connectivity

For the latest list of supported instruments see the SpecView website: http://www.specview.com/html/instruments.html

Instrument Installation and Wiring 565
Instrument Settings 567
RS422 (EIA422-A) Instruments 567
RS485 (EIA485) Instruments 568
Ethernet and TCP/IP 568
Communications Protocol 568
Increasing Speed of Instrument Communication 569
Multiport Option 571

OPC Client Support 572
DDE (Dynamic Data Exchange) 582

See also:

Troubleshooting Instrument Communication 790
Connections for SpecView Networking 735

10.1 Instrument Installation and Wiring

NOTE: If communications cannot be established between SpecView and the connected instruments first check the instrument manufacturer's manual for correct wiring instructions. For further assistance please contact the instrument manufacturer. They may have test programs that will check your converter and connections.

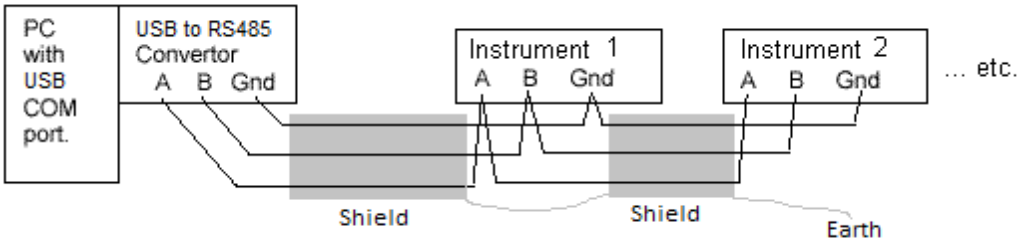
Serial comms - USB (or old style COM ports RS232 9-pin) to RS422/RS485
If the intention is to use RS422 567 or RS485 568 serial comms wiring to connect the instrument, then an external converter from USB (or RS232) to either RS422 or RS485 (as appropriate) must be used. When purchasing a converter note that there are very low cost converters available, however, these are typically not optically isolated and are therefore are not suited to an industrial environment.

SpecView recommends converters made by B&B Electronics.
The reason B&B devices are recommended is because they are optically isolated and have 'Automatic Send Data Control', this automatically switches from transmit to receive and so works very well with SpecView.

For connecting instruments which have a 2-wire RS485 connection:
It is best to use a 2-wire converter, otherwise in order to use a 4-wire converter a dip-switch to set ECHO to OFF is required. This is because to convert 4-wire to 2-wire the Transmit has to be looped to the Receive (in accordance with the converter manufacturer's instructions), which causes requests to be echoed back up the wire and conflict with the reply.

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RS422 and RS485 allow multiple instruments to be daisy-chained together, here is an example of this:



A suggested cabling specification is Belden 9533, which is a 3-core shielded (screened) cable.

Please note that RS422/485 connections should be terminated correctly,
Particularly if the cable run is more than about 5 metres then it is likely to require a termination resistor on the end.
See the instrument manufacturer's instructions, as to whether a resistor is required to terminate the daisy-chain.

In order to prevent signal interference on the serial comms it is necessary to use cables which are shielded.
(The shield is a wire-mesh inside the outer plastic coating of the cable.)
The shield of each section of cable making up the daisy-chain needs to be connected (twisted) together and then earthed at one end - typically at the instrument end, by connecting to the outer-casing of the instrument rack or housing which should itself be correctly earthed.

The signal-grounds (GND) need to be connected all the way down the chain and NOT to Earth.

Note: GND and Earth are not the same thing: GND is 'signal ground' whereas Earth is the same as the 'Earth' pin on a 3 pin plug.

We recommend using internal COM ports and external optically isolated converters.
See also: Troubleshooting Communications 790
We strongly caution against using internal 422/485 cards instead of a converter.

The number of controllers that can be connected to SpecView is only limited by the available addresses on the controllers. Most instruments go to 99 addresses and SpecView supports up to 49 COM ports as standard and can be increased to 40 ports 458.

RS422 and RS485 would need repeaters if there are more than 16 or 32 instruments respectively. Please see the instrument manufacturer's instructions or the converter's manual.

RS232
Some computers have built in standard RS232 (9-pin) ports specified as:

Pins	Code	Description	Input/Output
1	DCD	Data carrier detect	Input
2	RXD	Receive data	Input

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3	TXD	Transmit data	Output
4	DTR	Data terminal ready	Output
5	GRND	Ground	N/A
6	DSR	Data set ready	Input
7	RTS	Request to send	Output
8	CTS	Clear to send	Input
9	RI	Ring indicator	Input

If the intention is to use RS232 wiring to connect the instrument, then the wiring and the connection to the instrument will be specified by the instrument's manufacturer.

RS232 is point-to-point, therefore it has a maximum of a single instrument connection.

Each serial port MUST operate with its own interrupt unless special interrupt sharing cards and software are used.
Serial ports using 16550 UARTS or above are strongly recommended, especially if BAUD rates above 9600 are going to be used. They are required for instruments that use block mode data reading.

For more information also:
Instrument Settings 567
RS422 (EIA422-A) Instruments 567
RS485 (EIA485) Instruments 568
Ethernet and TCP/IP 568
Troubleshooting Instrument Communication 790
Connections for SpecView Networking 735

10.2 Instrument Settings

SpecView has help available for several makes of instruments:
The Ports and Protocols 198 box (which is accessed by clicking the **Test Comms for New Project** button on the **Projects** box) is used for automatic detection of connected instruments.

On this box when a protocol 568 is chosen, for a given port a **Help** button appears for that port. Each port can use a different protocol if required, but the Multiport 571 dongle option will be required.

Clicking the **Help** button will open a separate help file specifically for that protocol. Refer to it for details on setting your instruments.
This help can also be accessed by double-clicking on the instrument name in the Variables List 313 by clicking the Variables List tool 

10.3 RS422/EIA422

RS422 this is a 4 wire connection and has a maximum cable length of 1.2 km and a maximum of 10 instrument connections.

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All four wires MUST be used. Follow the instrument manufacturers instructions carefully, paying attention to shielding in electrically noisy environments.
The converter will have two Transmit (sometimes called Send) and two Receive connections
These are marked either '+' & '-' or 'A' & 'B' (or both)

- In general, the Transmit connections on the converter go to the Receive connections on the instrument.
- In general, the Receive connections on the converter go to the Transmit connections on the instrument.
- In general, the '+' or 'B' connections on the converter go to the '+' or 'B' connections on the instrument.

NOTE: Most instruments made by Eurotherm Controls DO NOT follow this convention. In most cases connect Converter T+ (or B) to Instrument R-, Converter T- (or A) to Instrument R+ and so on. Please check this in Eurotherm's Instrument Manual.

10.4 RS485/EIA485

RS485 this is a 2 wire connection and has a maximum cable length of 1.2 km and a maximum of 32 instrument connections.

Although this is normally a two wire connection some instruments use four wires.
Follow the instrument manufacturers instructions carefully, paying attention to shielding in electrically noisy environments.
Two wire converters will have connections marked 'A' or '-' and 'B' or '+'. These go to the corresponding connections on the instrument.
If the instrument has four connections you should ***use a converter with four connections***.
If you are told by your instrument manufacturer that you can use a two wire converter, ***on the controller*** jumper the Transmit + (or B) to the Receive + (or B) and the Transmit - (or A) to the Receive - (or A). This leaves you with one '+' (or B) connection and one '-' (or A) connection to make to the converter.
Four wire converters will have two Transmit (sometimes 'send') and two Receive connections.
If your instrument has four connections read the RS422/EIA422 [567] help
These marked either '+' & '-' or 'A' & 'B' (or both)
If your ***instrument*** has two connections, ***on the converter*** jumper the Transmit + (or B) to the Receive + (or B) and the Transmit - (or A) to the Receive - (or A). This leaves you with one '+' (or B) connection and one '-' (or A) connection.

10.5 Ethernet and TCP/IP

SpecView also supports communications via modbus/TCP through Window's TCP/IP networking, or by external TCP converter modules.

Further information on addressing is detailed in Modbus addressing

10.6 Communications Protocol

A communications protocol is the specification of the bits and bytes that go between the computer and

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instrument.

Many instrument manufacturers have in the past defined their own proprietary protocols.
SpecView has drivers for many of these proprietary protocols. Although some of them are an additional driver dongle option charge.

Modbus

There are 3 types of Modbus protocol: Modbus RTU, Modbus TCP and Modbus ASCII.
Many manufacturers are now using Modbus RTU and Modbus TCP protocols which are industry standards.
SpecView's Modbus driver (for both Modbus RTU and Modbus TCP) is included as a standard driver in the base product.

Note: SpecView does not support the Modbus ASCII protocol.

OPC

Some instruments, typically PLCs (Programmable Logic Controllers), use OPC and the manufacturer supplies and OPC server for it.
OPC is used to 'translate' the proprietary protocol into a format that can be understood by an OPC Client.
SpecView's OPC Client 572 is a dongle option.

10.7 Increasing Speed of Instrument Communications

To improve the performance of instrument communications so that the rate that instrument variables are updated is increased:

For values on the screen adjust the Medium scan rate using File->Preferences: Runtime 459 tab.

SpecView's maximum rate of update of a value on the screen is once every 1 tenth of a second.
SpecView's maximum rate of update of a Trend chart is once a second. However, check the resolution 541 of the Trend Chart.

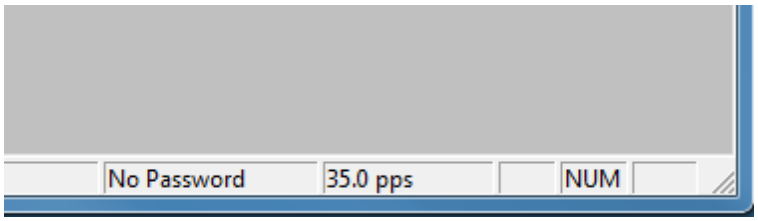
The fastest rate that values can be logged to SpecView's Data Log files is once per second. Although it is possible to write values to a separate file at a faster rate using FastCount 347.

However, the different parts of SpecView request values at rates that are specified below:

Screen	Preferences - Runtime 459 - Medium scan rate (default 20 tenths of a sec). To adjust the rate at which individual variables on a GDW are sampled edit the Dynamic Attributes 357.
Data Logger	Preferences - Logging 464 - Rate (default 60 secs, maximum 1 sec).
Parameter List	Preferences Runtime 459 - Parameter List PPS (Points Per Second, default 15).
Strategy	Preferences - Strategy 465 - Rate (default Medium, as defined above).
DDE	DDE 582 (default Medium, as defined above).

When the mouse isn't being moved the rate that instrument variables are being read is displayed in Points Per Second (PPS) in the 'status bar' along the bottom of the screen (GDW).

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If the instrument is using the Modbus protocol[215] then the maximum points per second (PPS) that SpecView can obtain from a single COM port at 9600 baud is about 30 individual points & at 19200 baud the maximum is between 40 & 50 PPS.

The maximum speed that SpecView can obtain over a good TCP/IP connection from a fast Modbus instrument can be many hundreds of points per second. However, the 'bottleneck' is often the instrument itself.

However, SpecView also has to read Alarms[353] & request all variables marked for logging[589] as well as anything which is being used by the Strategy Controller[666]. So the 30 PPS isn't just reading the ProcessValue of each instrument.

SpecView's Instrument Views & Parameter lists have been designed to request data in blocks where possible to increase comms throughput. The amount of time that a block of data is stored can be changed using the Driver Command[206] 'TTL' (Time To Live). The difficulty is tuning the setting of Time To Live; too long & the data on the screen won't get updated from the current instrument values; but too short & the block could have timed out before SpecView has had a chance to use the data in the block & so will have to re-request it. This is especially the case if a number of instruments are turned off, or if there is a poor comms connection.

It is well worth creating a 'test' Project with just one or two instruments defined & just the minimum number of parameters out on a screen, together with GoodComms, CommsErrors, CommsErrorCode, CommsErrorItem & CommsErrorDescription, as detailed below, and noting the PPS rate.

The load can be spread over more than one COM port by using SpecView's Multiport option[571].

When SpecView fails to read a parameter the 'Comms Back Off Multiplier' (default value 30) is used as a delay factor before retrying. This is set from Preferences - Runtime[459]. If instruments are intentionally turned off then to avoid SpecView repeatedly checking them set the 'Comms Back Off Multiplier' to a high value, such as 200. Although this will mean that when they are then switched back on SpecView will take longer to notice.

To see whether SpecView is having trouble reading instrument values because of a poor communications link, put these SpecView Pre-defined variables[322] onto a screen:

SpecView.GoodComms
SpecView.CommsErrors
SpecView.CommsErrorCode
SpecView.CommsErrorItem
Specview.CommsErrorDescription

CommsErrors should be showing zero for a good communications link. Any error codes can be referenced in Error Codes[476].
More detail can be found in Troubleshooting Instrument Communications[790].

While a Project is being developed, & so maybe not all the instruments are available, the 'missing' instruments can be re-addressed in SpecView to those instruments which are present, for example, if

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only 2 instruments are available (which are Modbus instruments at addresses 1 and 2):

```
1,0J
2,0J
3,0J   readdress to  1,0J
4,0J   readdress to  2,0J
5,0J   readdress to  1,0J
etc…
```

This will allow the Project to run at full speed rather than wasting time trying to gather data from instruments that are not connected. Remember to set the addresses back when all the instruments are connected.

The design of a Project can effect the apparent speed of variable update, as the more parameters which are on 'open' screens (GDWs) then the more data requests are made by SpecView. Consider whether the buttons which are being used to navigate between screens should use the action:
GDW Control: Swap to another GDW [426]
or:
GDW Control: Close this & swap to another GDW [422]
The 'Swap to' action leaves screens open, so these continue to request data for the variables which are on them. Whereas 'Close this & swap to' will close the screen, so use this to ensure that only the necessary screens are left open. Although, screens which contain Trend charts [523] should be left open so that the charts continue to update.

Similarly, check which screens have 'Auto-open on Runtime' enabled on them from the File menu [284].

The rate that variables update when using SpecView Remote [736] can be altered by editing the Remote connection [740] and changing: Update rate, Packet size, Packet timeout & Packet count.

For OPC [572] connections the OPC Server itself can be tuned, please refer to the documentation supplied with your OPC Server.

If all these items have been checked & yet the update rate is still inadequate then contact your SpecView Representative. They will be able to check that the driver commands [206] in SpecView's communications driver, such as the timeout & number of retries, are correctly set for the specific instrument(s) being used. This is done by using the Setup COM Port menu command from the Options menu [276].

The fastest rate that values can be logged is once per second.
If a faster rate of logging is required then the SpecView variable FastCount [347] can be used together with the Line Writer [452].

10.8 Multiport Option

SpecView's Multiport dongle [498] option allows the use of more than one COM port and is required in the following circumstances:

1. For a large number of instruments:
If the number of instruments exceeds the maximum number of instruments for communication via a single COM port [490]. For RS485 the maximum number is typically 32 instruments. However, more can be connected if the electrical connection is very clean & if a fast response time is not particularly necessary (this may require the use of RS485 repeaters).

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The number of controllers that can be connected to SpecView is only limited by the available addresses on the controllers. Most instruments go to 99 addresses and SpecView supports up to 40 ports [458].

2. When instruments which use different protocols are being used:
This is because a single COM port can only communicate using one protocol [568]. For example, if a number of instruments are all using the Modbus protocol, then they can all share a COM port, but if other instruments are added that use, say, a proprietary ASCII protocol then they would need to be connected via a separate COM port.

3. For greater speed of response:
When many instruments are being used in an application for which speed of response is very important then more COM ports can be used to optimize the speed of communications.

SpecView's maximum rate of update is once every 1 tenth of a second. However, the maximum logging rate is once per second. (Although FastCount [347] can be used to simulate a faster logging rate.)

4. When using TCP (ethernet):
When a number of instruments are connected via TCP using different IP addresses the Multiport option is **not** needed - **unless** there are also other instruments connected by serial comms or OPC.

5. When using OPC:
The Multiport option will be required if it is necessary to communicate with more than one type of OPC server.

6. When using multiple instruments that use different BAUD rates or driver settings:
If these differ between instruments connected to the same COM port then they will conflict. Therefore they will need to be connected to different COM ports and the Multiport option will be needed.

10.9 OPC Client Support - Overview

OPC stands for: Open Platform Communications - Data Access.
The most recent OPC Server standard is OPC UA (Unified Architecture).

SpecView works with most OPC servers - the reason we cannot say 'all' is because we haven't tested them all, but if they comply with the standard then they should work.
SpecView supports OPC Servers that provide an OPC Data Access standard 1 or 2 interface.
OPC UA has been made backwards compatible and therefore should work with older OPC Clients like SpecView. If in doubt then check with your SpecView representative.

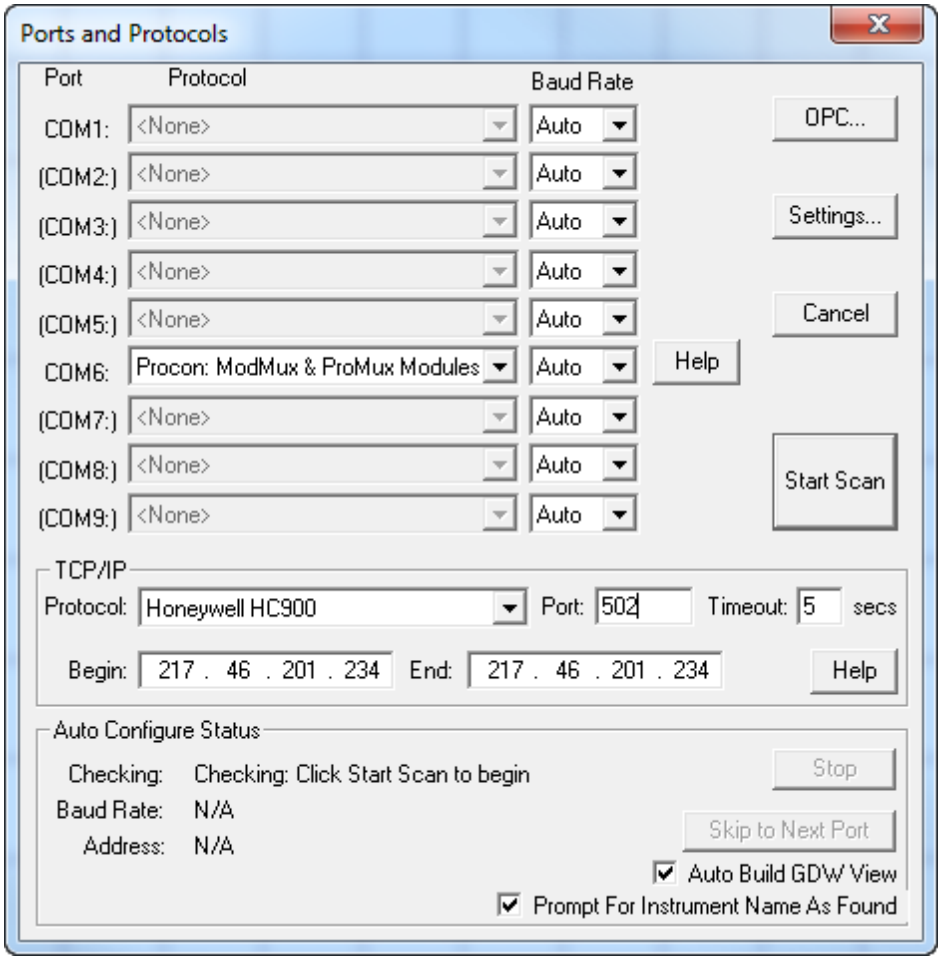
SpecView's OPC Client can communicate with an OPC Server on this computer or running remotely on another computer.

In order for OPC to function the OPC Client option must be enabled [64] on the dongle.

Since OPC is treated within SpecView as another ‘channel’; you can mix OPC ‘instruments’ with COM port and TCP/IP based ‘instruments’.
However, in this case the Multiport option [571] is required on the dongle.

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OPC is implemented in SpecView in both Edit Mode and Runtime Mode. In Edit Mode you can use SpecView's OPC Browser to view all of the OPC Servers currently available.
This is achieved either by using the Test Comms for New Project[198] button, then clicking the **OPC** button, for example:

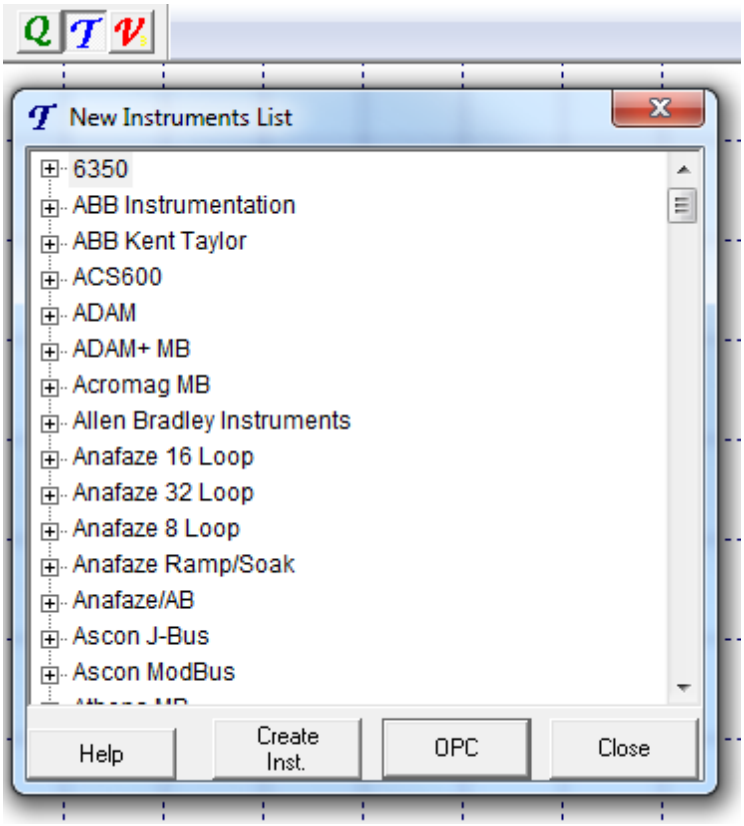


or the New Manual Project[204] button, then clicking the Template List[343] tool on the toolbar



and clicking the **OPC** button at the bottom of that box.

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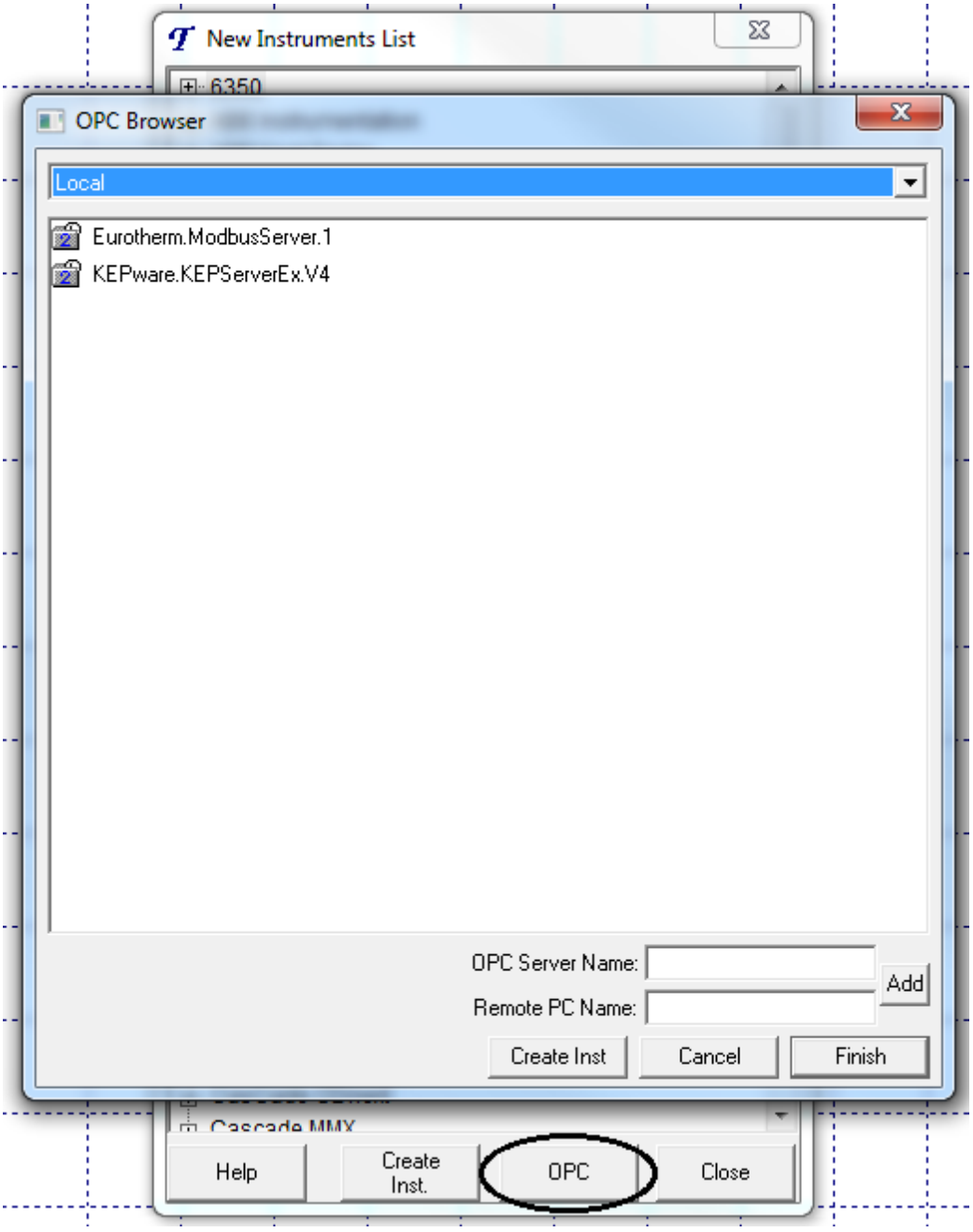


OPC Browser 574
Supported OPC Servers 576
OPC - Frequently Asked Questions (FAQs) 579
OPC - PC Specification/Performance 580

10.9.1 OPC Browser

SpecView's OPC Browser will list the available OPC Servers, see below. If your OPC Server is not listed, then it may not be running, if so click the **Cancel** button on the OPC Browser screen, start up the OPC Server and then restart the OPC Browser. If you wish to use SpecView to monitor/control an instrument/ controller (via an OPC Server) that has access levels in it, then you should set the required access level in the instrument/controller before you start up the OPC Browser. If this is not done, then when you try to create a SpecView instrument you may find that SpecView cannot retrieve the parameter(s), or tag(s), that you require.

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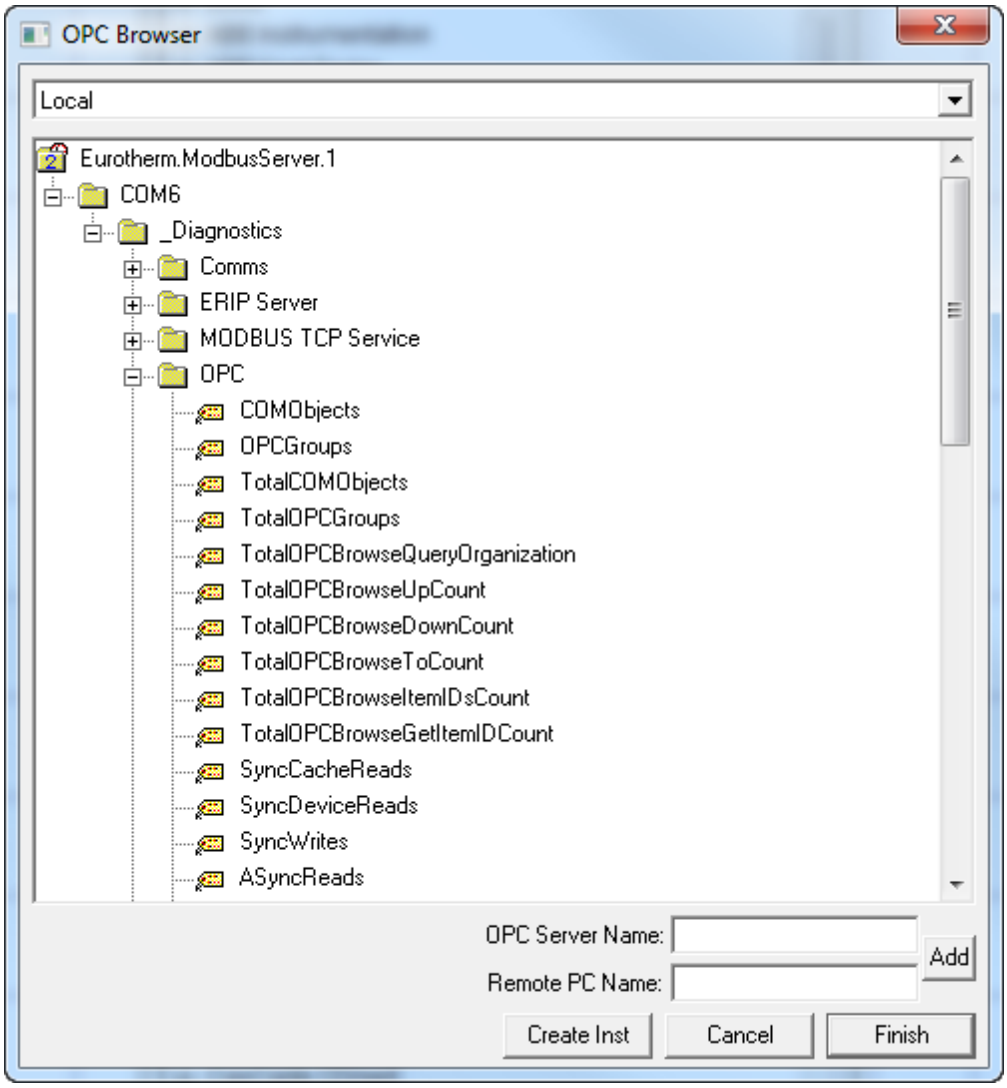


When you click an OPC Server SpecView will contact that Server and retrieve a list of 'Groups' and ultimately 'Item IDs', **this process can take a long time.**

If the required OPC Server isn't listed because it is running on another PC then enter the name of the OPC Server into the 'OPC Server Name:' box, being careful to type the name accurately & enter the network name of the Remote PC into the 'Remote PC Name:' box & click the Add button.

The 'Groups' and 'Item IDs' are pre-programmed and stored in a hierarchy by the OPC Server's manufacturer. SpecView will then display this hierarchy.
Click the individual 'Groups' to open them up to see further 'Groups' or a list of their 'Item IDs', for example:

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Create a SpecView 'instrument' from any of the 'Groups' listed. If you have the Multiport[571] option enabled on your license[33] then you can have 'Groups' from multiple OPC Servers. To create a SpecView 'instrument' you just click the 'Group' you wish to select and then click the **Create Inst** button. You will then be asked to give your new SpecView 'instrument' a name (one will be suggested using the group hierarchy, but you can override it). Once you have typed in a new name and clicked **OK** then SpecView will again contact the OPC Server to retrieve details about the 'Item ID' that it requires to build a SpecView 'instrument'. As a result of this process you will be informed if there are any 'Item IDs' that are not supported by SpecView (see below).

10.9.2 Supported OPC Servers

CALServer
This server allows you to monitor/control CAL controllers – see http://www.cal-controls.com/. You should be aware of the following issues:
- If you want to run this server alongside another OPC Server then start this server first as it does not like contending for COM ports with other software.

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- You must set the access list to the level that you want to retrieve parameter/tags for e.g. if you wish to see Level 3 Registers and below then you must set the access level to 3.
- Most 'Item IDs' are supported as Strings, which appear to be writeable, however the server accepts no writes. Numerics are writeable.
- If any of your PC software crashes whilst this server is running then you will have to reboot your PC to get this server working again.

Hexatec
This server allows you to monitor PC disc space – see http://www.hexatec.com/.
There are no known issues with this server.

Honeywell HMX RAE OPC Servers
There are 2 OPC Servers that SpecView will find:
- The "Hmx.RaeServer_I" is an "in process" server, which SpecView will not communicate with.
- The "Hmx.RaeServer_O" Use SpecView build #770 and later to use this OPC server with SpecView.

TrendServer Pro
This server will work with SpecView but has the following limitations:
If the instrument being monitored by the OPC Server is very busy then it's communications may not be current and the OPC Server will report back "bad" values which appear as 'N/R's in SpecView
- There is a limit of 100 items per SpecView Update Rate in the OPC Server. If your variable is constantly showing 'N/R's then change it's Update Rate in SpecView
- Ensure that you are running version 1.0.0.23 or later of the OPC Driver (SVOPC) as a fix was applied to correct Strings which are shown as constantly changing inside SpecView but in reality are constant in the OPC Server.

iTools
This server allows you to monitor/control Eurotherm instrument/controllers – see http://www.eurotherm3.com/itools/.
The only known issue with this server is running it on a different operating system than that of your OPC Client. If you have this situation then open iTools ModBus Server, goto Edit-Server Settings-Advanced. Check Bypass NT COM/DCOM security settings. This must be a solid black check, not grayed out.

KEPServerEx
This server allows you to monitor/control a wide variety of instrument/controllers/PLCs – see http://www.kepware.com/.
There are no known issues with this server when using build #702 onwards; prior to this build not all of the groups/items were visible.

MSI.Modbus.OPCServer
This server allows you to monitor/control a Marathon Sensors (aka Marathon Monitors) Inc instrument/controllers.
There are no known issues with this server, aside from possibly having to register the OPC Server to Windows if it does not appear in the Local OPC Servers list (this is covered in the OPC Servers manual but the command line is "MSIModbusOPCServer /RegServer").

MSL Datascan
See http://www.msl-datascan.com
If you are using version 1.11 or later of this server then it will work with all SpecView builds. If you are using an older version e.g. 1.10 then you must use SpecView build #755 or later; prior to this build this server was NOT supported.

OPC.SimaticNet
This server is supplied by Siemens and works with their PLCs. By default it will NOT put items into groups (which is what SpecView requires!) and so will NOT work with SpecView. You have to copy/program your inputs, outputs etc into a local dbase and then import them using the supplied OPC Scout into groups. Once you have done this then SpecView will see the

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groups and you can then create SpecView instruments from them.
SpecView build #810 or later will allow you to create a SpecView instrument from the top-level OPC Server group in the tree list. This version also fixes previous problems when talking to the OPC.SimaticNet OPC Server.

RSLinx OPC Server
This server is an integral part of RSLinx. It only becomes available to clients when an activation key is installed that enhances it to one of the following RSLinx versions:
- Single Node (1 local client, no remote clients)
- OEM (local clients, no remote clients)
- SDK (local clients, no remote clients)
- Professional (local clients, no remote clients)
- Gateway (local clients, remote clients)

You will need to have installed SpecView build #812 or later to use this OPC Server. Since release 2.43.00 of RSLinx OPC Server SpecView builds #812 and 813 will report error:
E12179 Failed to retrieve any groups from the OPC Server 'RSLinx OPC Server'. Ensure that the OPC Server is running and correctly configured.
Only SpecView builds #814 and later are compatible with release 2.43.00 of RSLinx OPC Server. You will need to update your copy of SpecView to be able to connect to release 2.43.00 of RSLinx OPC Server.
If you have an older version of RSLinx OPC Server than 2.43.00 and you get the E12179 error message from SpecView builds #814 and later then there is a workaround that provides compatibility with older versions of RSLinx OPC Server. You will need to shutdown SpecView and add the following lines to the SV3.INI in the SpecView installed folder:

```
[OPC]
BrowseRSLinxOPCServerHierarchically=Y
```

Restart SpecView and try to browse the RSLinx OPC Server again.

Signatrol SL400
This server works with SpecView aside from one problem area. The Signatrol SL400 OPC Server will report values as having a bad quality when it is in “sleep” mode, SpecView will report such values as 'N/R's since they are clearly in an undetermined state! The only way to force SpecView to treat the good value as the current value is to setup a strategy event and action to copy the OPC parameter upon change of value. In this way SpecView will only copy the good value and ignore the bad value.
It should be noted, however, that SpecView does not approve of using such a process as it fools the end-user into thinking that the current value is the last good value which could be considerably out of date!

Software Toolbox TOP Server
This server allows you to monitor/control a wide variety of instrument/controllers/PLCs – see http://www.softwaretoolbox.com/store/item_pages/itempage_929.asp from http://www.softwaretoolbox.com.
There are no known issues with this server.

Sunware’s OPC Servers
- Allen Bradley SLC500 (DF1 Protocol) OPC Server

As yet untested with SpecView
- Mitsubishi A Type OPC Server

As yet untested with SpecView
- Mitsubishi FX Type OPC Server

As yet untested with SpecView
- Modbus (RTU/ASCII) OPC Server

As yet untested with SpecView
- Nudam OPC Server

As yet untested with SpecView
- Omron C Series OPC Server

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This server allows you to monitor/control Omron C Series instrument/controllers – see http://www.sunware.com.tw/.
You must have SpecView/32 build #694 and onwards to use this server. There are no known issues with this server.

10.9.3 OPC - Fequently Asked Questions (FAQs)

I cannot see any OPC buttons anywhere in SpecView.
You need to update to the latest build of SpecView, go to http://www.specview.com

The OPC Server I want does not appear in SpecView's OPC Browser.
You should cancel out SpecView's OPC Browser and then start up the OPC Server; then go back into SpecView's OPC Browser. If the OPC Server still does not appear in SpecView's OPC Browser then try reinstalling the OPC Server.

The SpecView 'instrument' I created does not have all of the 'Item IDs' in it that were listed in SpecView's OPC Browser.
This is either because:

- The access level in the instrument/controller is not set high enough so that the 'Item IDs' can be accessed.

Or:

- Not all of the 'Item IDs' data types are supported (see **Supported Data Types** below).

'N/R's are shown for some 'Item IDs' but not all.
The OPC Server is returning the value back for the 'N/R' 'Item IDs' as ***bad***, hence SpecView shows them as 'N/R's. Consult the OPC Server manufacturer for the cause of the ***bad*** value.

I cannot connect to a remote server that I know exists and is running.
Check that the case of the OPC Server and PC name you have typed in is correct and try again.
If you are still having problems then it could be an authorization issue. Does the 'remote' PC, with the OPC Server running, have authorization for the PC with SpecView running on it. In other words, the user logged onto the PC with SpecView running must be setup as a user (with the same password) of the PC with the OPC Server running on it and possibly even logged in and running the OPC Server. This is all dependent upon which version of Windows you are running.
NOTE: The following steps are taken at your own risk, beware that you will be editing registry settings; possibly losing personalized settings and rebooting your PC several times. Read these instructions through VERY CAREFULLY before trying them:
If you are still having problems then it could be that DCOM has not been configured on the OPC Server PC to "Enable remote connection"; to do this is rather involved and may require reboot(s) of your PC. What you have to do is to run DCOMCNFG.EXE (which is normally found in your Windows SYSTEM folder). This in itself may require you to go to the **Network** icon in the **Control Panel** and set **User-level access control** under the **Access Control** tab (and the **Obtain list of users and groups from:** to be your **Computer Name:** from the **Identification** tab) before DCOMCNFG.EXE will run. ***NOTE: This step will cause your PC to lose its Shares and personalized settings for all users.*** DCOMCNFG.EXE has a tab called **Default Security.** Go there and check that **Enable remote connection** is checked. If it is enabled then you have a separate problem; if it is not checked then check it and (probably after a reboot) go back to the **Network** icon in the **Control Panel** and set **Share-level access control** under the **Access Control** tab on your OPC Server. This whole process will have removed any Shares that you had setup on the OPC Server PC, so reset them as the last step.
If you are still having problems then ensure that the following registry entry has the value 1 (this is documented in Microsoft's article **Q174024 "DCOM95 Frequently Asked Questions"**):

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HKEY_LOCAL_MACHINE\Software\Microsoft\Ole\LegacyAuthenticationLevel

NOTE: If you are still having problems then consult the OPC Server manufacturer.
If you still have a problem then consult SpecView's website http://www.specview.com

I am experiencing problems with an OPC Server such that the OPC Server crashes or runs up and then disappears.
Try adding the following to SV3.INI, which may solve the problem:
[OPC]
OPCServersToBeTraversedByBranch1=<OPC Server Name>=1
OPCServersToBeTraversedByBranch2=<OPC Server Name>=1
etc.

Replacing <OPC Server Name> with the OPC Server Name

For example:
OPCServersToBeTraversedByBranch1=MSL.Datascan=1

Supported Data Types
Currently SpecView only supports the following OPC data types:

VT_BOOL
VT_BSTR
VT_DATE
VT_FILETIME
VT_I1
VT_I2
VT_I4
VT_INT
VT_R4
VT_R8
VT_UI1
VT_UI2
VT_UI4
VT_UINT

If your SpecView instrument does not contain the 'Item IDs' that you expect, then check with the OPC Server's manufacturer to see if it is a type in the above list.

10.9.4 OPC - PC Specification/Performance

To provide some idea of the overhead that OPC puts on a PC we ran SpecView (build #693) and created project that included a Eurotherm 2404 connected to running iTools running on the same PC.

Operating System	Processor	Memory (Mb RAM)	Time taken to for OPC Browser to appear	Time taken to load up the Eurotherm.ModbusServer.1 with Groups and Items in the OPC Browser	Time taken to create an instrument for the 2404 with 4,438 parameters
Windows XP	AMD Athlon 1100	256	< 1 second	< 1 second	16 seconds
Windows 2000	Pentium III 450	380	3.3 seconds	3.8 seconds	34.1 seconds

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Windows 98	Pentium I 100	48	5.8 seconds	1 minute 39 seconds	3 minutes 54 seconds

The above test was used to give a worse case scenario – it is doubtful that any user would put 4,438 parameters on open GDW's. However it is good at pointing out that using a good specification of PC is worthwhile.

Debugging

SpecView can generate debug messages for errors generated by the OPC Browser. To turn debugging on or off use Preferences - Debug [470] from the File menu.

SpecView Error Codes

You will see these if you have turned debugging on and look at the debug.txt file in your project folder e.g. C:\SV3\Furnace

Error code	Description	Meaning
18219	OPC Server status cannot be obtained	The OPC Server must be shutdown and restarted.
18229	OPC Server status indicates not running normally	The OPC Server must be shutdown and restarted.

The explainations for other codes are in Error Codes [480] and Error Codes Protocol Specific [481].

OPC Error Codes

You will see these if you have turned debugging on and look at the svdata.txt file in your SpecView installation folder e.g. C:\SV3

Error code (in hex)	Description	Meaning
0004000D	OPC_S_UNSUPPORTEDRATE	The OPC Server cannot handle the scan rate in your project. Change the scan rates in File->Preferences under the Runtime tab and retry.
80010108	RPC_E_DISCONNECTED	The OPC Server has gone off line. Go into Edit Mode or exit SpecView. Then OPC Server must be shutdown and restarted. Then go online to SpecView.
80040154	REGDB_E_CLASSNOTREG	Update to build #693 or above. If you are using a build of #693 or above then contact your SpecView representative to pass on your svdata.txt.
800706BA	RPC_S_SERVER_UNAVAILABLE	OPC Browser is trying to connect to remote OPC Server. OPC Browser cannot connect to remote OPC Server as either it is not running or you do not have security access to it or access to DCOM.
800706D3	RPC_S_UNKNOWN_AUTHN_SERVICE	OPC Browser is trying to connect to remote OPC Server. OPC Browser cannot connect to remote OPC Server, as you do not have security access to it or access to DCOM.
C0000005	Unknown	Shutdown and restart your OPC Server.

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C0040007	OPC_E_UNKNOWNITEMID	Contact your SpecView representative to pass on your svdata.txt.
C004000C	OPC_E_DUPLICATENAME	Contact your SpecView representative to pass on your svdata.txt.

Further information
http://www.opcfoundation.org/
http://www.opceurope.org/
Microsoft's article Q174024 "DCOM95 Frequently Asked Questions"

10.10 DDE (Dynamic Data Exchange) - Overview

The SpecView DDE Server allows the retrieval and setting of Instrument parameters across the Windows DDE Interface.

NOTE: DDE is an option for SpecView. If the option has not been purchased DDE will not function. To find out if it is available see the list under Help - Registration Info [309]
You can upgrade [64] your copy of SpecView by phone. Contact your SpecView distributor for details.

DDE Application Name [582]
DDE Topic Name [583]
DDE Status Topic [583]
SpecView DDE Restrictions [583]
Getting data from SpecView via DDE (DDE Read) [583] and Example [587] of getting data
Setting data into SpecView via DDE (DDE Poke) [584] and Examples [585] of setting data

The SpecView DDE Interface is somewhat unorthodox in its implementation due to practical considerations. as follows:
Normally, a DDE server would 'register' a whole set of topics and items for which conversations can be transacted. For SpecView, this would mean that each and **every** variable in the SpecView Variables List [313] would have to be registered, and furthermore, each one would have to be requested over the comms link to supply any DDE Client that happened along. This is clearly unfeasible.
Consequently, the SpecView DDE Server registers **no** variables by default - nor does it request anything from the comms. When a DDE request comes in from a DDE Client, if it is the name of a variable or parameter that SpecView understands, then that variable begins to be requested over comms. In the meantime, SpecView **must** have answered back to the DDE Client to allow the client to continue processing. SpecView can only answer back that the request succeeded - even if the instrument is down or the comms link has failed - this is because it could be up to 3 or 4 seconds before the comms engine knows (due to re-tries etc.) that the variable is not online.

10.10.1 DDE Application Name

This setting defines the name that the SpecView DDE Server registers when SpecView starts.
It is defined in Preferences - DDE [470]
Although you can choose anything for the application name, it is recommended that this setting be left as 'SpecView'.
Return [582] to DDE help topics

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10.10.2 DDE Topic Name

This setting defines the topic for which SpecView's DDE Server will 'listen' for requests for real time data on.
It is defined in Preferences - DDE [470]
By default it is set to 'var', meaning variables.
The fixed Status topic [583] is not affected by this setting.
Return [582] to DDE help topics

10.10.3 DDE Status Topic

There are 3 items that SpecView registers for DDE under the Status topic:

LastError	The last reason for failure of a DDE request.
ErrorItem	The item that caused the above failure
PokeStatus	The running Status of the current (or last) poke command.

NOTE: The upper/lower case of the requests is significant (unlike the variables).

Examples:
1) Suppose a request is made for 'Specview|var!ANameThatDoes.NotExist'.
This will cause 'LastError' to be set to 'Unknown Variable' and
'ErrorItem' to be set to 'ANameThatDoes.NotExist'.
2) A DDEPoke request to set a setpoint above the Setpoint High Limit for that particular instrument might result in the final PokeStatus being 'Write Error 18023'.
Return [582] to DDE help topics

10.10.4 SpecView DDE Restrictions

For reasons explained in the Introduction to DDE [582], SpecView only supports the getting of data using the DDE Advise [583] (or 'Hot' Link method).
DDE Request is not supported for one-off conversations.
Data can be Set into Instruments using the DDEPoke [584] mechanism.
DDEExecute is not supported.

NOTE: The CF_TEXT format is the only format supported by SpecView. All data is sent in this text form.

SpecView must be in Runtime Mode and showing a GDW for DDE Server activity. If the SpecView is taken out of Runtime Mode, then all DDE links are terminated.
SpecView DDE can support multiple simultaneous clients, requesting the same data items, and at different speeds.
Return [582] to DDE help topics

10.10.5 Getting data from SpecView DDE

SpecView supports the DDE Advise mechanism for supplying DDE Clients with data. (restrictions [583]).
Read the DDE Read Example [587]
SpecView listens on the 'var' topic [583] (or that setup by the user in Preferences - DDE [470]) for an item that is the name of the variable you want to read. The format of the item is:

Instrument <dot> parameter <comma> rate(optional)

All items are not case sensitive, and the parameter can be either the short or long name of the

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parameter.
The rate can be omitted, in which case 'medium' is assumed, or can be specified as M,L,H or U, meaning Medium, Low, High, Ultra-High rate. The actual rate used depends on the settings 459 for the project.
For example:

Zone1.pv	Gets process value at medium rate
Zone1.Process Val	The same
Zone1.PV,m	The same
zOnE1.PROCess VAL,M	Still the same.
Zone1.PV,U	Gets the PV at the Ultra High Rate.

When a request for a new variable comes in via the DDEAdvise mechanism, it is checked by SpecView to see that the variable exists. If it does exist, then SpecView begins to request that variable over comms and from then on supplies the Client with the data at the given rate (or faster), until the Client signals that data is no longer required. If the variable does not exist, then the SpecView DDE Status information 583 reflects this.

NOTE: Due to the potentially long startup time of any given request, a blank answer is sent back to the DDE Client first. Thus, the very first item of data from SpecView should be ignored for each new item that is requested.

In the event of comms errors or missing instruments, no data is sent across DDE.
Return 582 to DDE help topics

10.10.6 Setting data into SpecView DDE

Data can be sent down to the Instrument using the DDEPoke command.
Read the DDEPoke Examples 585
Due to the fact that (A) there can be a significant time delay before the data is sent, and (B) the data may not be accepted by the instrument (over-range etc.), the SpecView DDE Server reports back immediately that the DDEPoke succeeded. It is the responsibility of the Client to only make one Poke request at any time.
The Status of the write process is reflected in the SpecView DDE Status Information 583. These DDE items can have one of the following values:

- Idle
- Writing
- Written
- Write Error X

When a Client makes a DDE Poke request, it should monitor the PokeStatus item. This will be changed as the state changes. The Client will only know that the Poke request actually gave data to the instrument if the PokeStatus shows 'Written'. If 'Write Error X' is shown, then the write failed for the reason given.
'Idle' is shown before the very first Poke request is actioned, and never afterwards (because 'Written' or 'Write Error' is shown after any Poke.
Data is sent to SpecView using the CF_TEXT format, and SpecView formats it to the correct type depending on the variable prior to sending. This may or may not require more or less decimal places 496 for numbers that is supplied. SpecView will add or truncate as necessary, so it is always best to send the full resolution (all decimal places) to be written.
Return 582 to DDE help topics

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10.10.7 DDEPoke Examples

The following example shows just the Poke section of making a DDEPoke request - the client program should include code to monitor the status of the Poke using the Status Hot Links provided by the SpecView DDE Status Information 583
For Microsoft Excel and Microsoft Access, a small piece of BASIC code is required to be written.
For Excel, a Macro (module) can be associated with a button (show me how to do this 585) and the following code assigned to that macro:
This example uses 4 cells to define what and where to write to

```
Set appToPoke = Worksheets('Sheet1').Range('B3')
Set topicToPoke = Worksheets('Sheet1').Range('C3')
Set itemToPoke = Worksheets('Sheet1').Range('D3')
Set valuetopoke = Worksheets('Sheet1').Range('E3')
On Error Resume Next
Dim Chan
Chan = DDEInitiate(appToPoke, topicToPoke)
If Err Then
    Exit Sub
End If
DDEPoke Chan, itemToPoke, valuetopoke
If Err Then
    Exit Sub
End If
DDETerminate (Chan)
```

For **Microsoft Access**, a button on a form can be used to cause a similar effect:
This example assumes a small form with 4 input fields has been defined, and a button to call this.

```
On Error Resume Next
Dim Chan
Chan = DDEInitiate(Me![App], Me![Topic])
If Err Then
    Exit Sub
End If
DDEPoke Chan, Me![Item], Me![Value]
If Err Then
    Exit Sub
End If
DDETerminateAll
```

Return 582 to DDE help topics

10.10.8 Setting up an Excel DDE Poke Example

This example is for **Excel 2000**:

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This is a simple example that sends the contents of Cell A1 on Sheet1 to the SpecView User variable called SpecView.Number1

1. Open a new Sheet inside Excel
2. Show the Forms Toolbar
3. Choose the Button tool from the Forms Toolbar
4. Draw out a button on the sheet
5. When the Assign Macro box appears, click **New**
6. Type (or paste) the following lines of code in between the 2 lines, for example:

```
Sub Button1_Click()

End Sub

channelNumber = Application.DDEInitiate(app:='SpecView', topic:='var')
Set rangeToPoke = Worksheets('Sheet1').Range('A1')
Application.DDEPoke channelNumber, 'SpecView.Number1', rangeToPoke
Application.DDETerminate channelNumber
```

7. Save and close Microsoft Visual Basic
8. Click on the button with MB2, choose Edit Text to modify the button's label.
9. Set A1 to, for example 20.5
10. Click your button to do the Poke.

For a slightly more complex example which allows the name of the variable as well as the value to be defined by a Cell, follow points 1 to 5 above, then:

6. Type (or paste) in the example code from the previous help section 585 in between the 2 lines, for example:

```
Sub Button1_Click()

End Sub
```

7. Save and close Microsoft Visual Basic
8. Click on the button with MB2, choose Edit Text to modify the button's label.
9. Then set the cells to, for example, as follows:
   - Set B3 to: SpecView
   - Set C3 to: var
   - Set D3 to the variable to be set, for example: 'Zone1.Setpoint
   - Set E3 to, for example: '20.5
10. Click your button to do the Poke.

This example is for **Excel 97**:

1. Open a new Sheet inside Excel
2. Show the Drawing Toolbar
3. Choose the Button tool from the Drawing Toolbar
4. Draw out a button on the sheet
5. When the Assign Macro box appears, choose New Macro
6. Type in the example code from the previous help section 585
7. Save the Macro
8. Then set the cells to, for example, as follows:
   - Set B3 to: SpecView

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Set C3 to: var
Set D3 to the variable to be set, for example: 'Zone1.Setpoint
Set E3 to, for example: '20.5

9. Click your button to do the Poke.

Return 582 to DDE help topics

10.10.9 DDE Read Example

An example of Excel reading some items from an Instrument called 'Zone1' follow.
See the important note at the bottom of this section.
Type these formulas into cells on the Spreadsheet:

=SpecView|Status!LastError	To get the Error Reason in case of an error.
=SpecView|Status!ErrorItem	To get the Item for which the last error ocurred.
=SpecView|var!Zone1.pv	Get the Process Val at medium rate
=SpecView|var!Zone1.OP	Get the Output Power at medium rate
=SpecView|var!'Zone1.pv,h'	Get the PV at the high rate. The quotes allow Excel to not treat the comma as part of some strange formula.
=SpecView|var!'Zone1.Output Power'	Get the OP, using its full name.
=SpecView|var!SpecView.Number1	To get the SpecView User Variable called Number1

Since you are typing this into Excel as a formula, there are certain restrictions you must observe. In particular, where the name of an Instrument or variable contains any character likely to affect Excel's formula engine, then the item must be enclosed in quotes so that Excel does not see it. For example, suppose (hypothetically) you had named an instrument 'Zone + 2'. If you just type in:
=SpecView|var!Zone + 2.pv
Then this is a formula that takes 'SpecView|var!Zone' and adds two to it.
To get Excel to correctly read the formula, you need to put quotes in:
=SpecView|var!'Zone + 2.pv'
This applies particularly to the following cases:
'Output Power' - has a space.
'Auto/Manual' - has a slash - could be seen as a divide.
'inst.param,RATE' - the comma will confuse - so if a rate is specified, use the quotes.

Return 582 to DDE help topics

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Part 11

11 Data Logging

Data logging functions in SpecView are in two parts:
1 Specifying which items to log to the hard disk
2 Using the logged data to create reports and replay logged data on screens (GDWs) using Historical Replay. (Historical Replay is a dongle[498] option.)

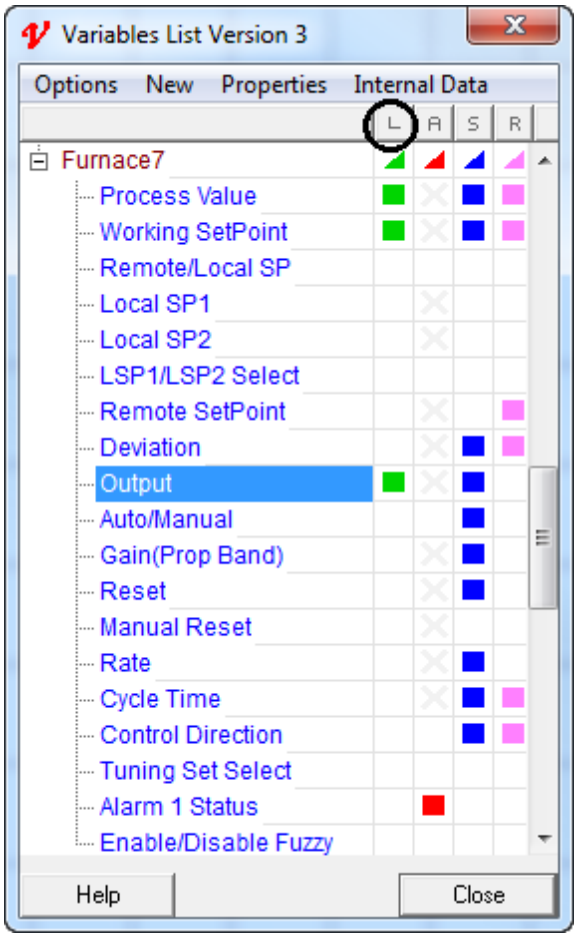
NOTE: Data Logging is a background function. Variables do not have to be on an open screen (GDW) to be logged. Conversely, a variable on an open GDW may not be logged.

Three types of data may be logged:
- Variables[601] This is the saving of the values of all variable types (numbers, booleans, text, dates, times, etc.). Both instrument variables and user variables can be logged
- Alarms[616] SpecView time stamps and saves all items (of type boolean) which are marked as alarms[353]
- Events[620] SpecView records actions as specified in Event Logging[305]

Data logging is **active** by default (at a rate of 60 secs) when SpecView is started. To de-activate use Preferences - Logging[464] or adjust the Logging Rate[604] to zero.

The instrument variables that are logged by default have been pre-configured by SpecView as part of the instrument's definition.
Typically for control instruments, the variables that are logged by default are: Process Value, Set Point and Output Power.
For indicators or data acquisition modules, just the Process Value is logged by default.
To see which variables are being logged see the 'L' column of the Variables List:

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The logged data is used for two purposes:

1. Historical Replay [623] of a screen (GDW)
2. Creating a text file Log Report [507] which can be stored on any drive/folder in your system. Log Reports can also be generated from the Remote [740] computer, which is detailed in Log Reports from the Remote [610].

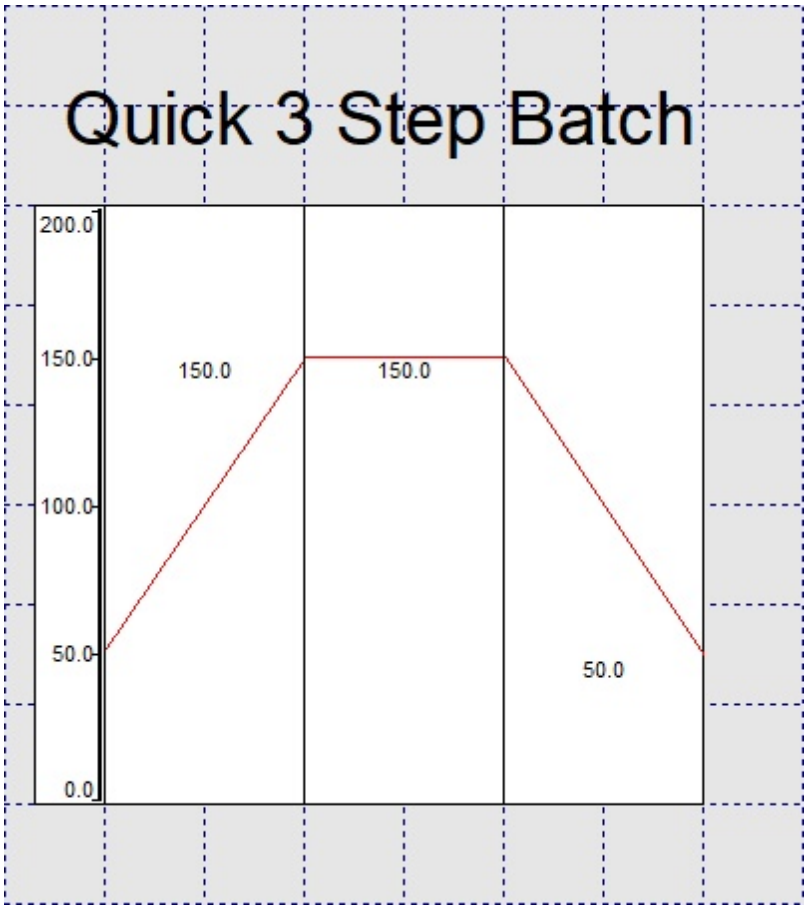
NOTE: If an item is not available when using Historical Replay or when creating a log report it is probably not included in logging. Add the variable to logging as described in Data logging - Variables [601]

Read Disk Space for Logging [603] for file size details
Changing the Logging Rate [604]

11.1 Pre-Plot

As of SpecView 3.1.267 [122], users can now utilize Pre-Plot [590] to analyze and validate batch profiles before running them.

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1. Setting up Pre-Plot [591]
2. Editing the Pre-Plot [597]
3. Multiple Pre-Plots on the same graph [599]
4. Adding Pre-Plot to Recipe [600]

Setting up Pre-Plot

1. Read SpecView's help on Bar Charts [397].
2. Create a Bar Chart [397] for every step of the batch or profile and have the Bar Charts [397] reflect the appropriate Target Set Points.

The Color of the graph lines used when Bar Charts [397] are linked is set from the "*Color when up*" option of Bar Chart Setup [397].

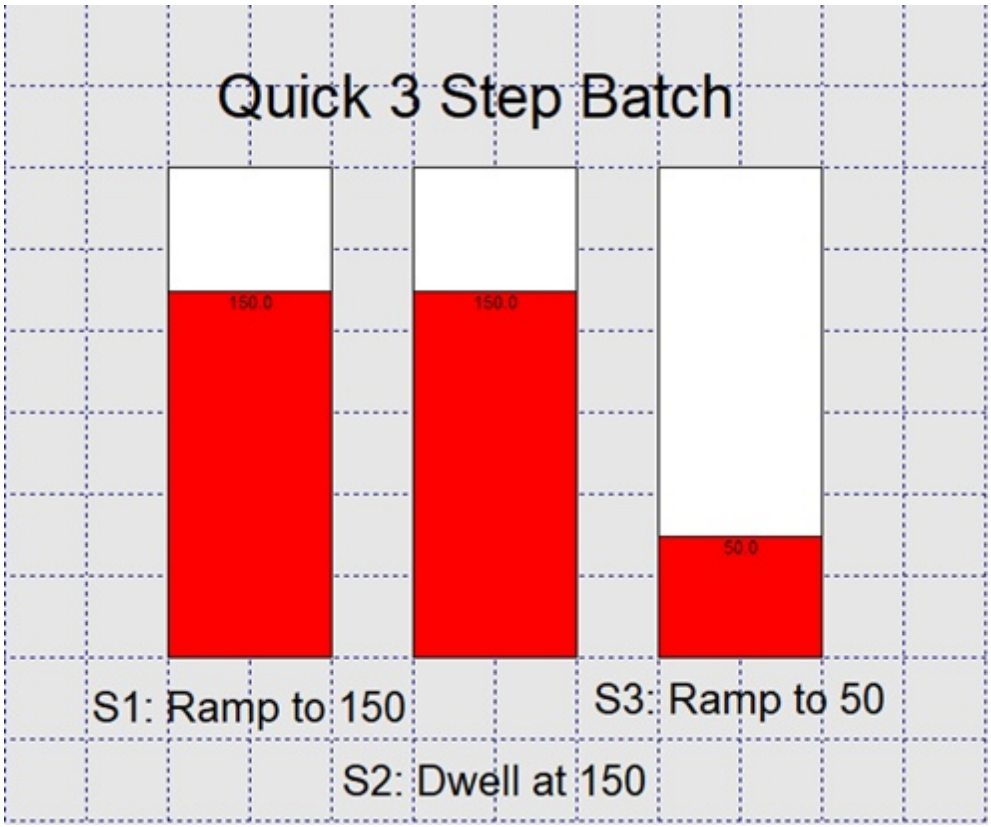
Users can quickly copy over certain Bar Chart [397] attributes to new Bar Charts [397]. Read more here [399].

The Line Thickness [291] of the line drawn can be changed by selecting one or more of the Bar Charts [397], then using Object menu [291] -> Line Thickness [291] to set the thickness.

This also changes the thickness of the frame around the Bar Chart [397].

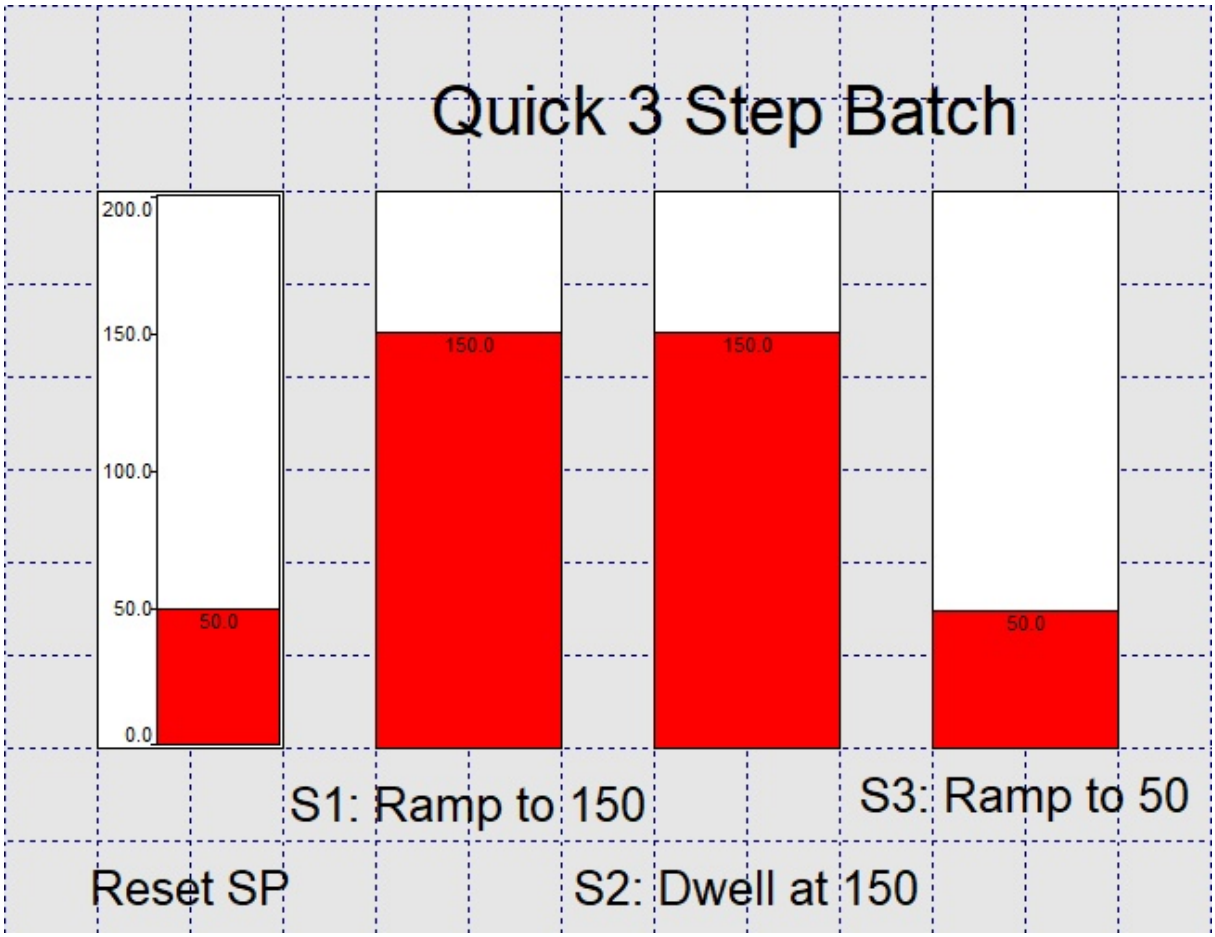
To remove the exterior frame from the Bar Charts [397], check the "*No frame*" option when creating the Bar Charts [397].

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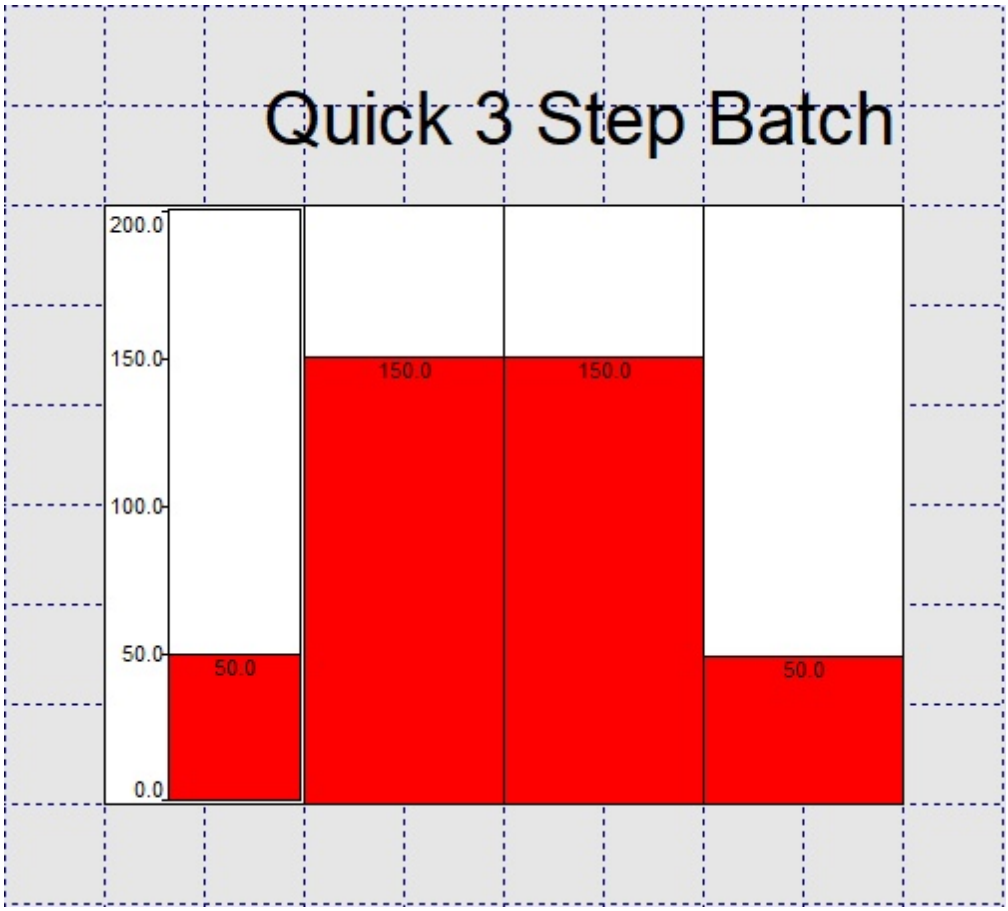
3. Create an additional Bar Chart [397] to the left of the existing Bar Charts [397] in Step 2.
   This Bar Chart [397] signifies the starting point of the Pre-Plot [590].
   Additionally, it could be beneficial to display Scale on the left side of this Bar Chart [397].

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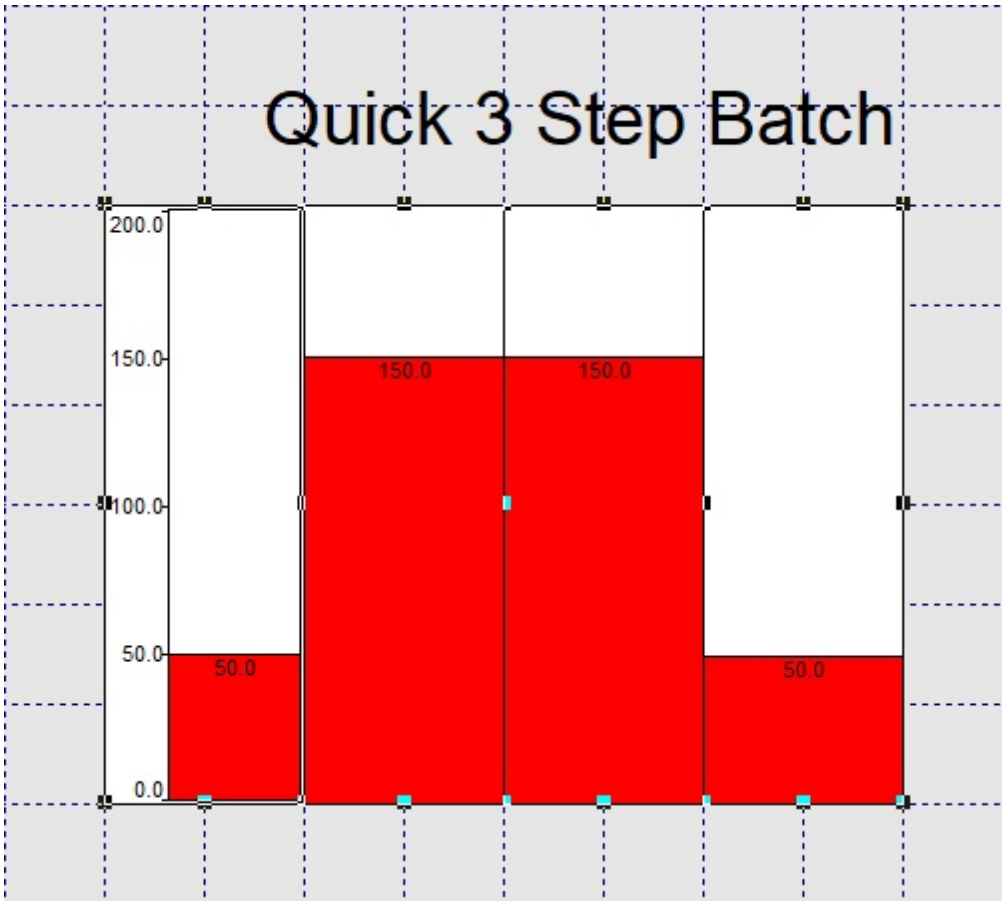
4. Ensure the Bar Charts [397] are next to each other with no gap in between them.

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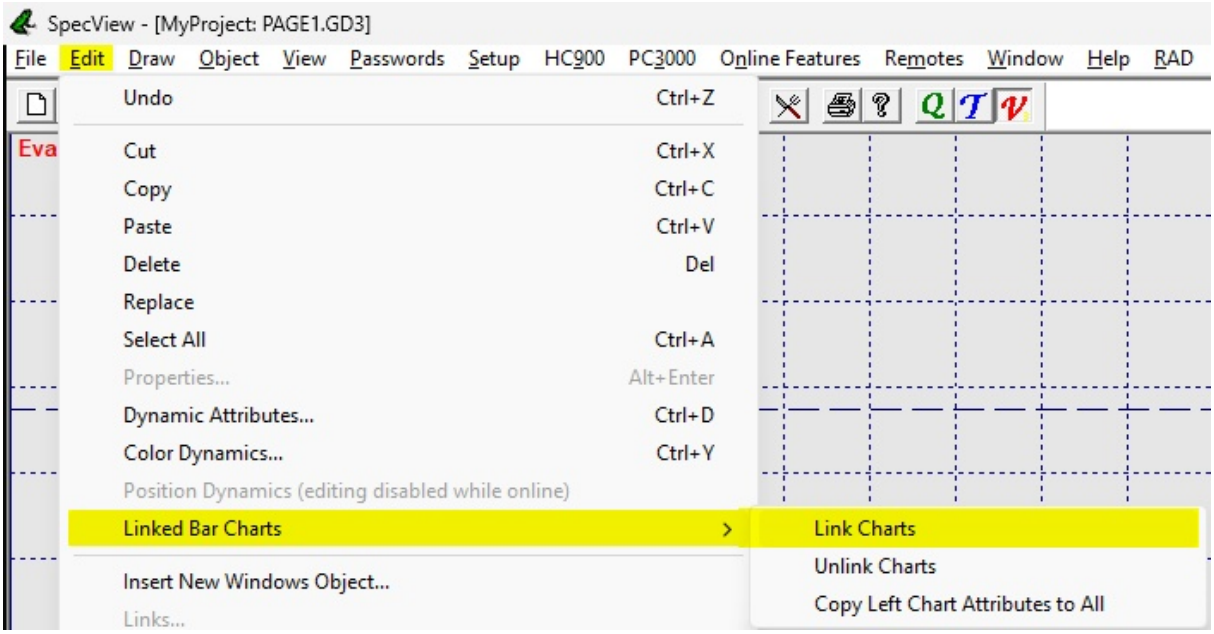


5. Select the Bar Charts [397].

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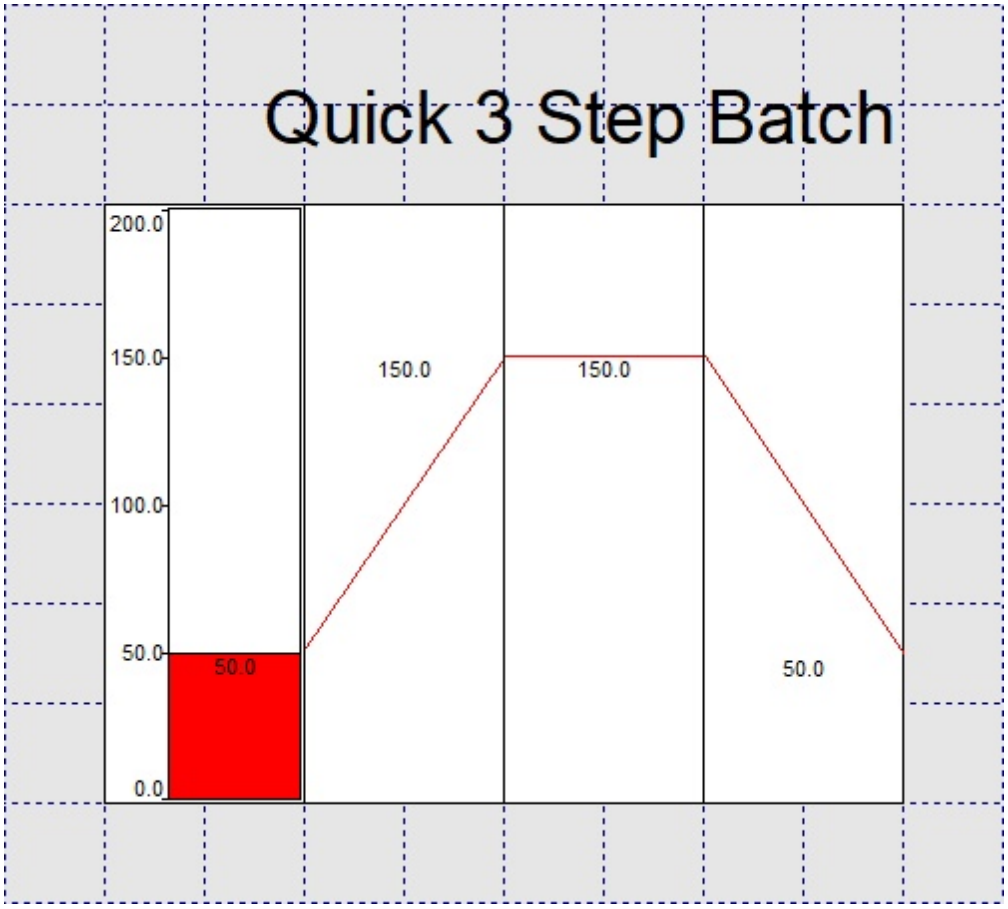


6. Click on "*Link Charts*" from Edit[287] > Linked Bar Charts.



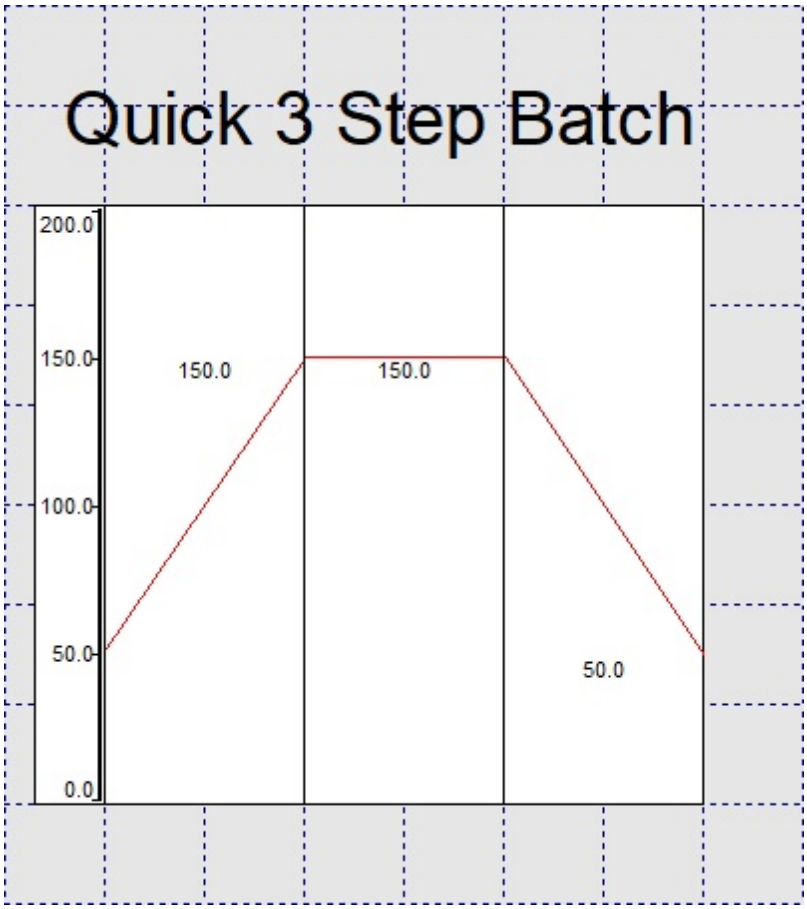
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7. Save the project and enter Edit Mode [287] (Offline).
8. Enter Runtime [512].
9. The Bar Charts [397], except for the furthest left Bar Chart [397], should now be displayed as a continuous line graph that plots out what the profile or batch to be run should look like.



10. Back in Edit Mode [287], shrink the Bar Chart [397] on the far left so that only the scale is visible or so that the Bar Chart [397] disappears.

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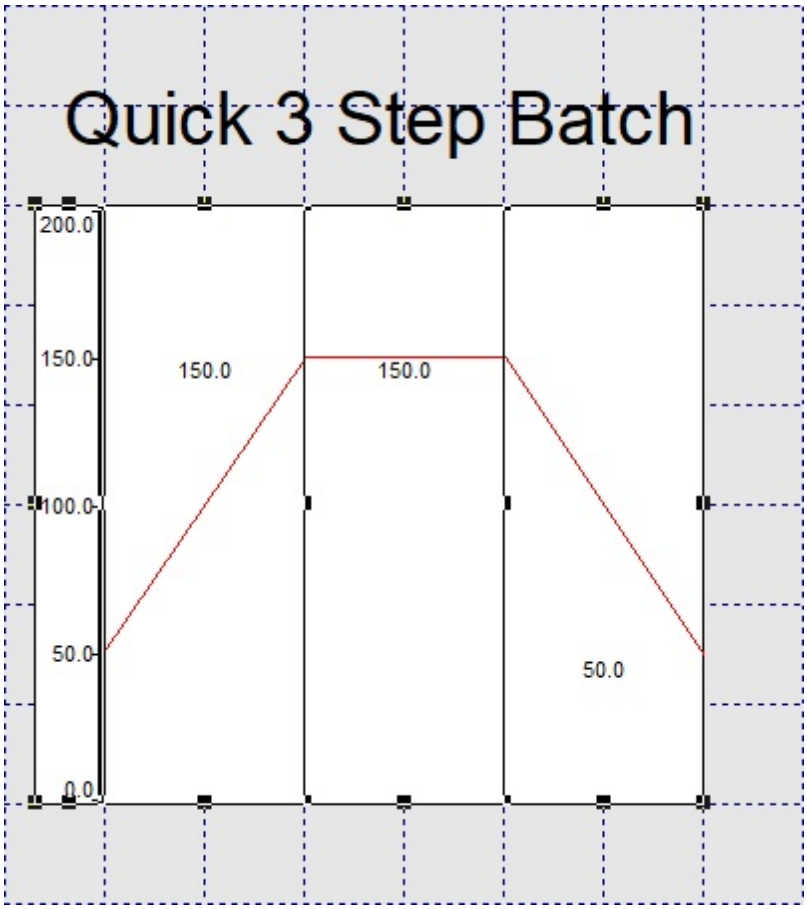


Editing the Pre-Plot

To make any changes to the variables [514] used to drive the Bar Charts [397], unlink the Bar Charts [397]. Follow the steps below to unlink the charts.

1. Select the linked Bar Charts [397].

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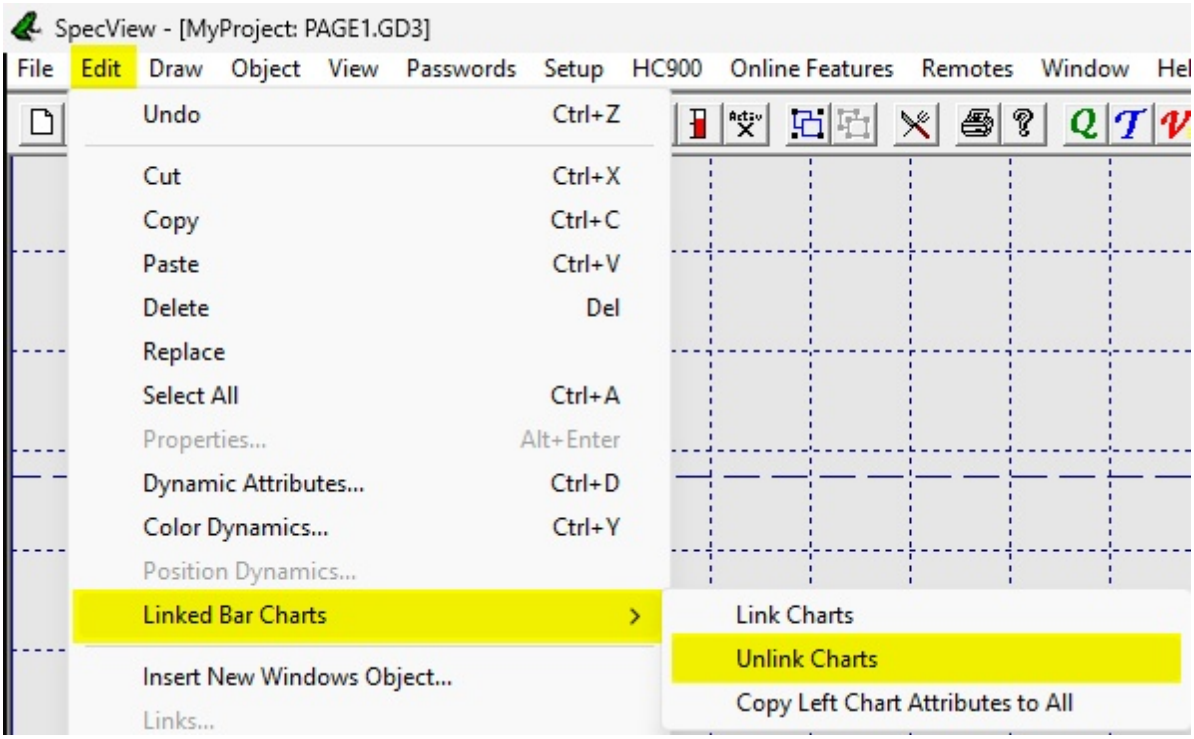


2. Click on "*Unlink Charts*" in Edit[287] > Linked Bar Charts.

To make changes to colors and Line Thicknesses[291], do those changes to the left-most Bar Chart[397].

Then select all the Bar Charts[397] and choose Edit[287] > Linked Bar Charts > Copy Left Chart Attributes to All.

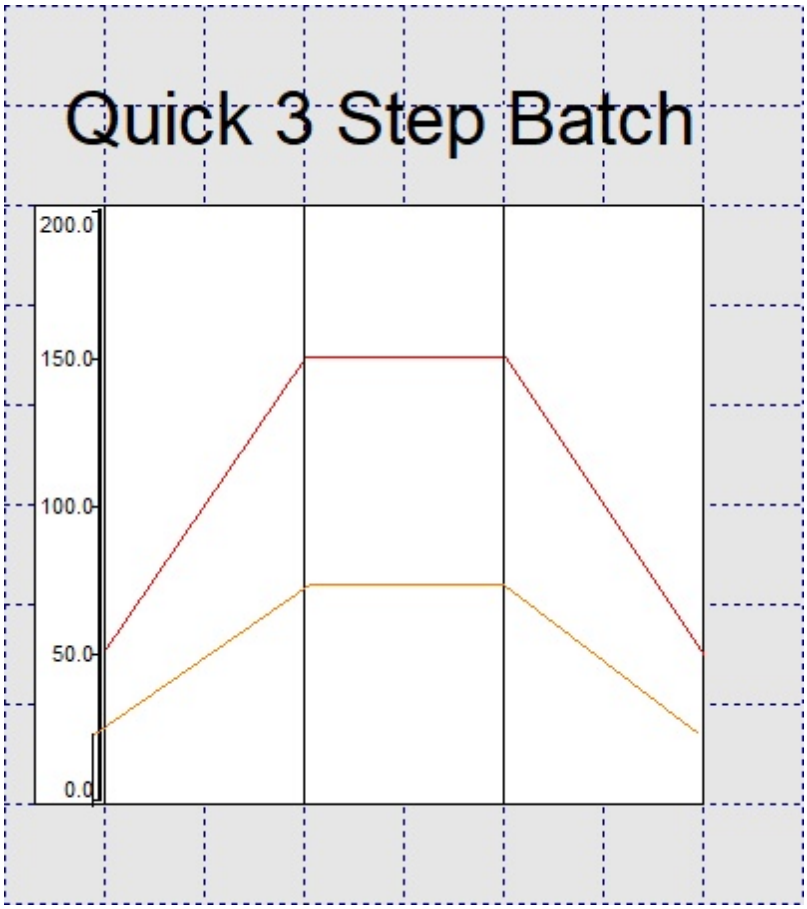
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Multiple Pre-Plots on the same graph

Additionally, if users are measuring more than one process variable, Pre-Plot[590] can display more than one value by overlaying graphs on top of each other where the graphs are set to transparent.
The image below displays the outcome.
Users will need to follow steps 1-10 mentioned above, and make the second and subsequent Pre-Plot Bar Charts[590] transparent to overlay them on the existing Pre-Plot[590].
To make the Bar Charts[397] transparent, check the "*Transparent*" option in Bar Chart Setup[397].

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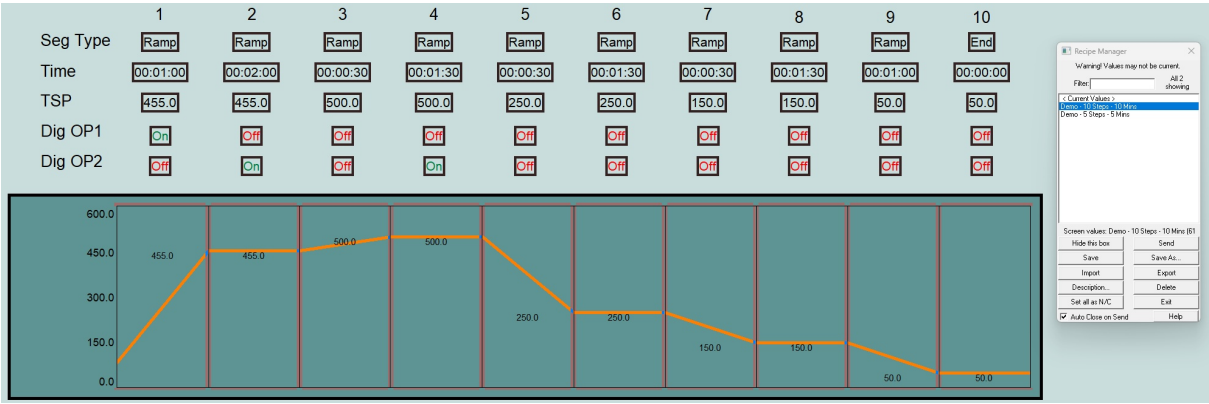


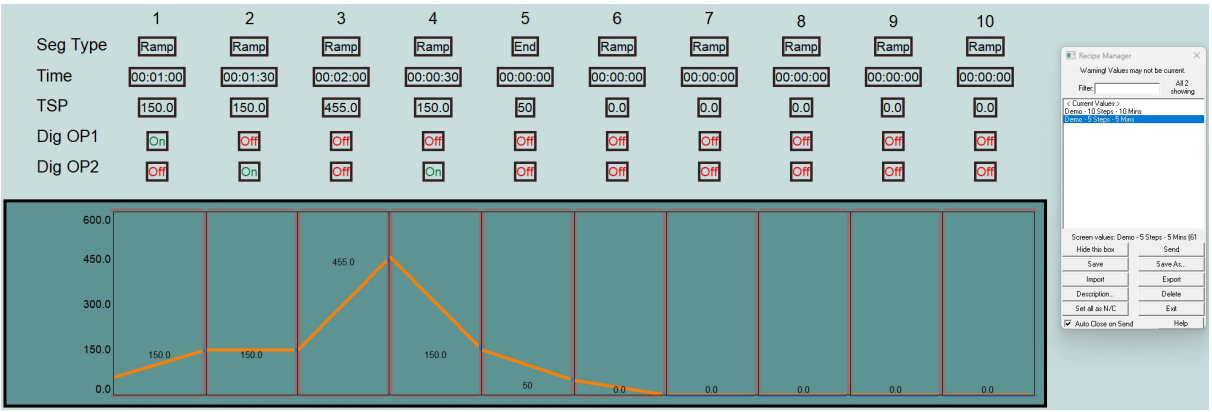
Adding Pre-Plot to Recipe

It is possible to add the Pre-Plot [590] to Recipe [635].
So, when selecting a new Recipe [635], the Pre-Plot [590] will automatically change to display the new values.
Users can add the Bar Charts [397] of Pre-Plot [590] to Recipe [635] the same as adding any other object in SpecView to Recipe [635].
For more information, please read through Recipes [635].

For example, the images below from the Batch Demo display how Pre-Plot [590] will change based on the Recipe [635] selected.

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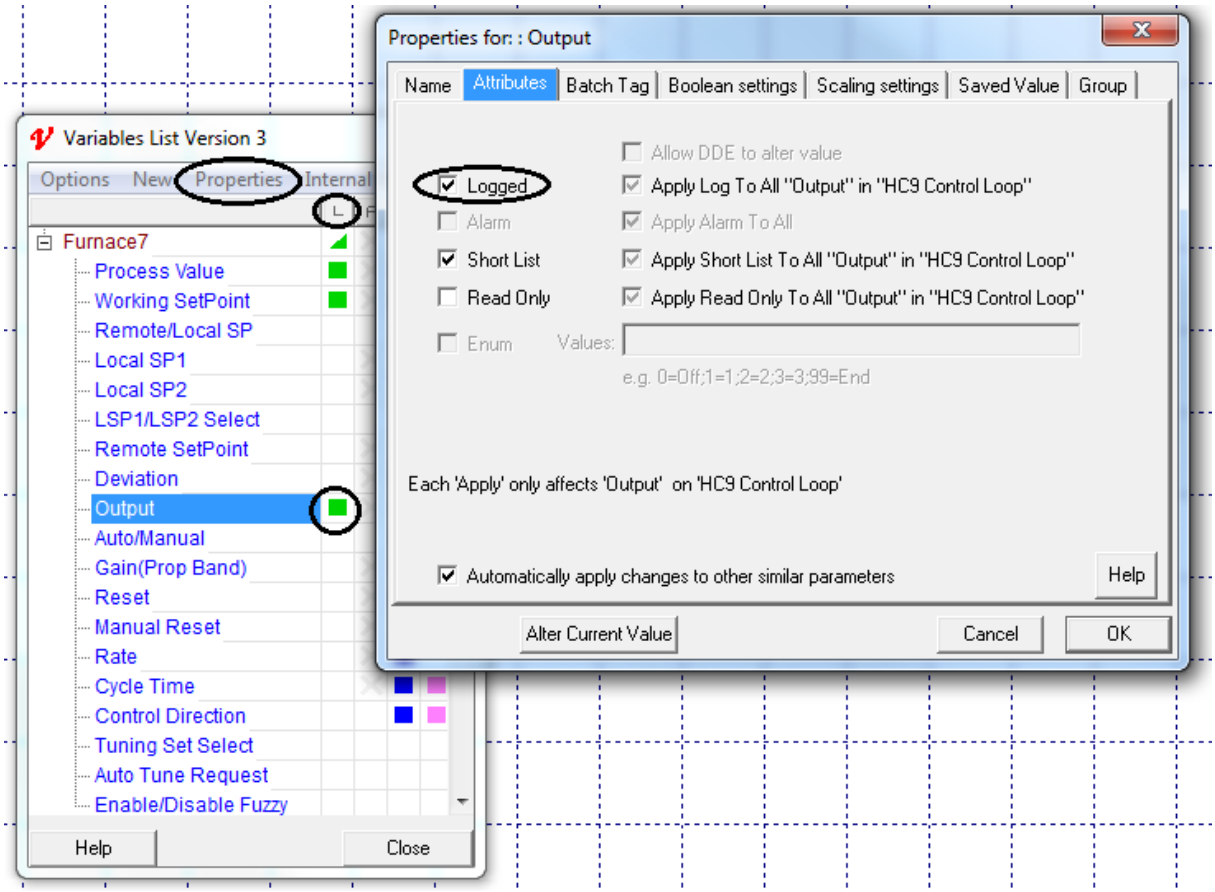


11.2 Data Logging - Variables

Variables are any items in the Variables List. Types include numbers, integers, boolean (on/off), date, time and text. This topic tells you how to see what variables are being logged and how to add or remove a variable to/from logging.

NOTE: Only variables that have been selected for logging will be available for Log Reports and Historical Replay.

Which variables will be logged can be selected using the Variables List 

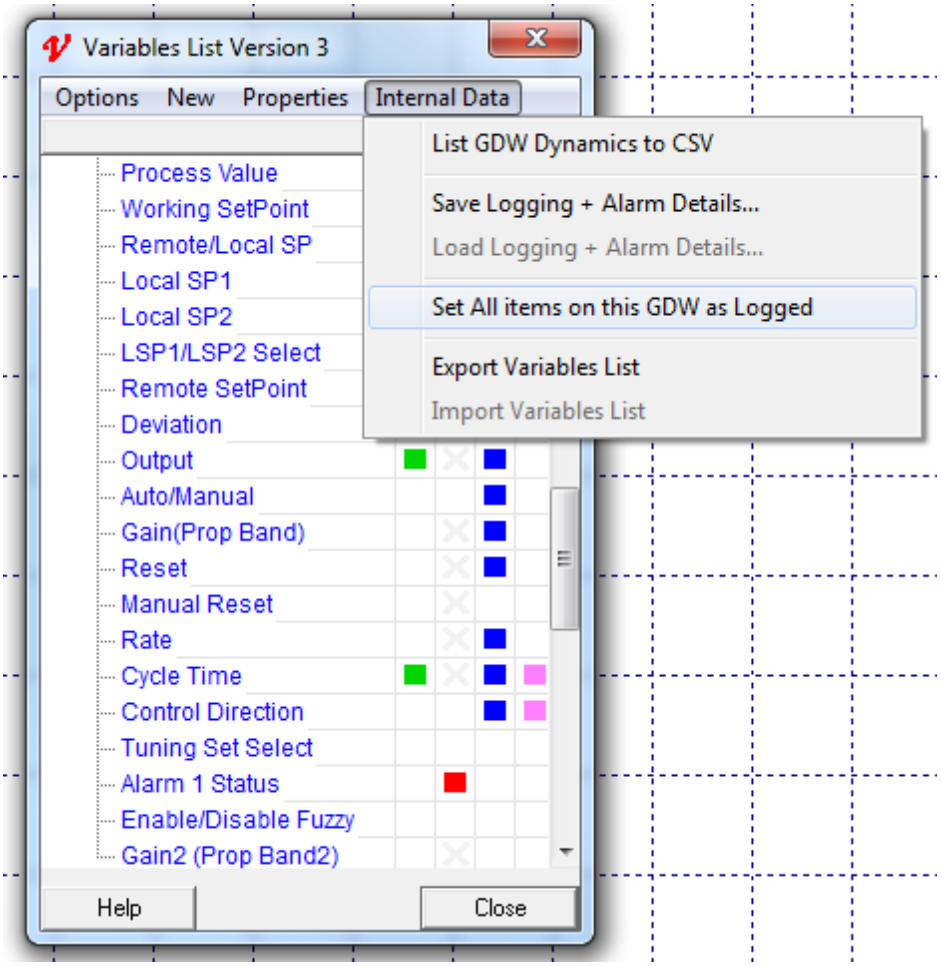


Double-clicking in the 'L' column will add/remove this parameter from logging.
Alternatively, select the parameter and use **Properties** to add/remove the Logging Attribute.

NOTE: The Properties box should be used when needing to select the same variable in multiple instruments. For example, if there are a large number of the same type of instrument and you want to add Working Setpoint to logging for each of them then you should check 'Automatically apply changes to other similar parameters' on the Properties box.

All the variables on a GDW can be added to logging with a single command using the 'Set All items on this GDW as Logged' menu command:

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This will set as logged only those instrument variables which have been specifically put onto the current GDW.
This feature is most useful when a GDW is frequently used with Historical Replay[622] and it is desired that all the variables replay. This is typical of an Overview screen.

NOTE: However, use caution. For example, if used on a GDW that has several hundred items for a ramp/soak program, all those items can be added to logging with a single mouse click. But once selected, the only way to remove them from logging is by double-clicking in the boxes in the 'L' column, as described above.

Creating Log Reports[606]

11.3 Data Logging - Disk Space Requirements

The data is stored by SpecView in the Project Folder[491]. This location is can be changed, but only with care, read User Guide: Changing Log Data location or folder[878].

NOTE: Log files are usually stored in the Project folder. To store the files in another location on the same computer, set the Path as described in User Guide: Changing

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Log Data location or folder [878]***. To backup the files to a network drive use a Logfile Conversion*** [606] ***triggered by a Strategy Controller event, the Strategy Controller*** [666] ***topic gives an example.***

The amount of space taken up by log files depends on how often data is logged [604] and how many variables have been selected for logging. Each numeric value logged to the files uses 14 bytes.

The SpecView logging system uses up to 7 files per day, all with the prefix YY_DDD
(Where YY is the year number, e.g. 03 for 2003, and DDD is the day within the year so 1st January is: 000 and the 1st February is: 031):

.LOG file - Variables data
.IDX file - Index file used in report conversion and Historical Replay [622]
.LNM file - Names of the logged variables
.ALM file - Alarm data [616]
.EVT file - Event data [620]
.BTC file - BatchTag data [627]
.CHN file - Chart Notes [550]

Note: Not all of these files may be present for a given day, but all the files for that day MUST always be kept together as a set. These MUST also be kept in the same folder as their associated project files in order to be used.

The exact size of log files depends on the type of variables logged (for example, text strings take more space than integers). A typical variable logged every minute (which is the default rate) will take about 25KB of disk space per day. Therefore, 100 variables will take about 2.5MB per day.

Logged data should be Archived [193] together with the Project.

Old logged data can be deleted using the button action: Logging: Purge Logfiles [429]

11.4 Data Logging - Rate

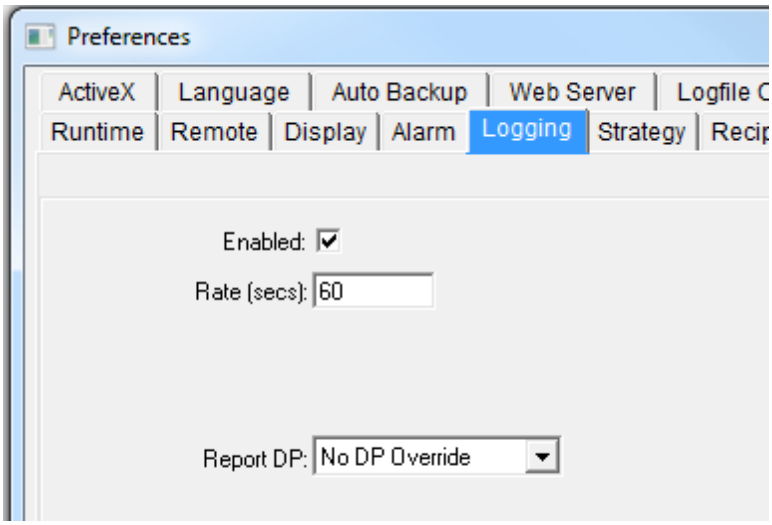
By default data logging is running whenever SpecView is in Runtime Mode [512] or when Online Features [307] are enabled in Edit mode.
SpecView stores values of the selected variables [601] at the Logging Rate.

The default rate is 60 seconds. The rate may be changed using:

1. The Preferences [464] box Logging tab.
2. The Button (or Strategy Controller) action Logging: On/Off [428]

The Preferences box is used to change the default rate. It is accessed from the File menu in either Runtime Mode or Edit Mode.

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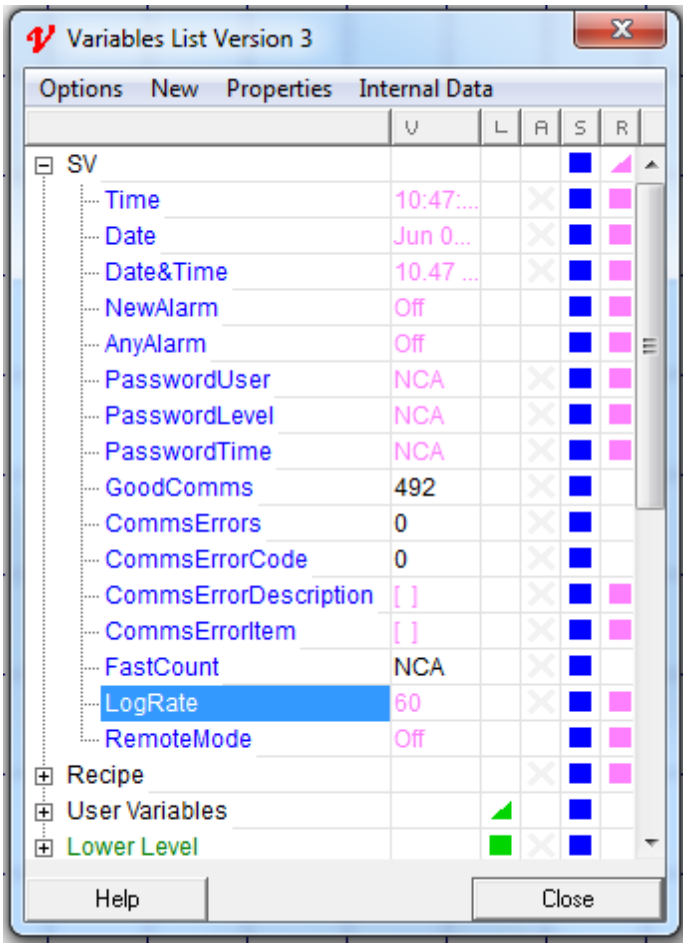
Logging can be turned off by:

- Unchecking the **Enabled** checkbox on the Preferences[464] box
- Setting the rate to 0 on the Preferences[464] box
- Using the Button (or Strategy Controller) action Logging: On/Off[428]

Using a Button Attribute[403] or Strategy Controller[666] event to change the rate is a *temporary* change. The next time the Runtime Mode is entered the rate will return to that specified in the Preferences box.

The current value for the logging rate is stored in the SpecView Variable LogRate[319].

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The LogRate variable's initial value when going online will be the value set from Preferences - Logging[464]

The LogRate variable is Read-Only and cannot be changed during Runtime mode other than by using the action: Logging: On/Off[428]

NOTE: Use caution when adjusting the rate. Disk space[603] is not expensive. If you forget to change the value back then you may have logging at the wrong rate (or turned off) without realizing it.

It is recommended that:

- For continuous processes (for example, monitoring storage freezer temperatures) - leave the logging rate the same throughout.
- For batch processes that have a long duration between batches - turn off or decrease the logging rate between batches using the Strategy Controller[666].
- For batch processes that have a short duration between batches - leave the logging rate the same throughout.

11.5 Log Reports

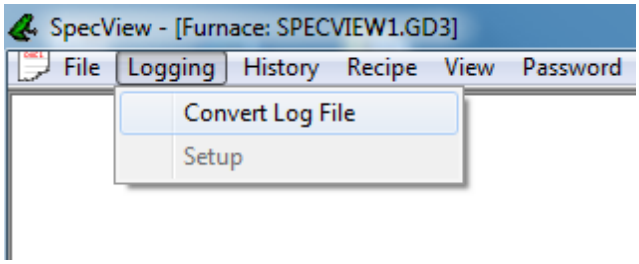
A Log Report[507] is a text file in CSV (Comma Separated Variable) format. Most Windows operating

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systems have this file type registered to Excel. This means that double clicking on a file of this type will automatically start Excel and open the file into it. For help in using this type of file please consult your Windows advisor.

NOTE: To be available for inclusion in a Log Report a variable must be selected for Data Logging[601].

Use the Logging menu:



OR an on-screen button, if one has been defined to do the Button Attribute Logging: Show Log File Convert Manager[429]

The Log Report Setup[608] box will be displayed.
There are two steps to generating a log report:

1. Choosing the Report Format[611]
2. Choosing a Start & Stop date/time[669] for the report. Or by choosing the relevant Batch[627].

The default number of decimal places[615] written to a Log Report can be specified, and additionally decimal places can be specified on a per-value basis.
These settings are detailed under Log Reports - Specifying decimal places[615]

There are other settings that can be changed on the Preferences - Logfile Conversion[470] tab.
Whether or not also produce a Report of Alarms[616] and/or Events[620].

The CSV Files will be delimited by the Windows settings for Decimal separator and List separator. The current settings for these are typically determined by the language being used. They can be viewed (but not changed) from Preferences - Settings[467]

Information added as Chart Notes[622] to Trend Charts will be saved as a Log Report.

Log Reports can also be generated from the Remote[740] computer, which is detailed in Log Reports from the Remote[610].

Below are examples showing: a Log Report (.CSV) file, an Alarm[616] Report (.CSA) file and an Event[620] Report (.CSE) file all opened in Excel:

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Example logged data converted to .CSV and opened in Excel

	A	B	C	D	E	F	G
1	Time	Zone1.PV	Zone2.PV	Zone3.PV	Zone3.PV	Mixing Temp	Chiller1.Temp
2	19/11/2015 10:55	26.7	21.9	80.3	71.6	24.2	2.8
3	19/11/2015 11:00	26.7	22.0	81.9	71.1	24.3	1.7
4	19/11/2015 11:05	26.8	22.0	81.1	74.1	24.3	1.1
5	19/11/2015 11:10	26.9	22.0	82.2	76.1	24.4	1.9
6	19/11/2015 11:15	27.0	22.2	83.8	75.6	24.5	2.6
7	19/11/2015 11:20	26.9	22.2	84.3	75.6	24.5	2.6
8	19/11/2015 11:25	26.9	22.2	84.3	77.6	24.5	2.4
9	19/11/2015 11:30	26.9	22.3	85.2	79.6	24.5	1.6
10	19/11/2015 11:35	26.9	22.4	85.4	78.1	24.7	2.6
11	19/11/2015 11:40	27.0	22.4	84.8	78.1	24.7	3.3
12	19/11/2015 11:45	27.0	22.5	85.5	77.6	24.7	1.3

Example alarm data converted to .CSA

	A	B	C	D
1	Variable	Time Occurred	Time Cleared	Time Acknowledged
2	Furnace1.High Alarm	07/07/2014 13:41	NA	NA
3	Furnace1.High Alarm	07/07/2014 13:40	07/07/2014 13:41	NA
4	Furnace1.High Alarm	07/07/2014 13:40	07/07/2014 13:40	NA
5	Furnace1.High Alarm	07/07/2014 13:39	07/07/2014 13:40	07/07/2014 13:39

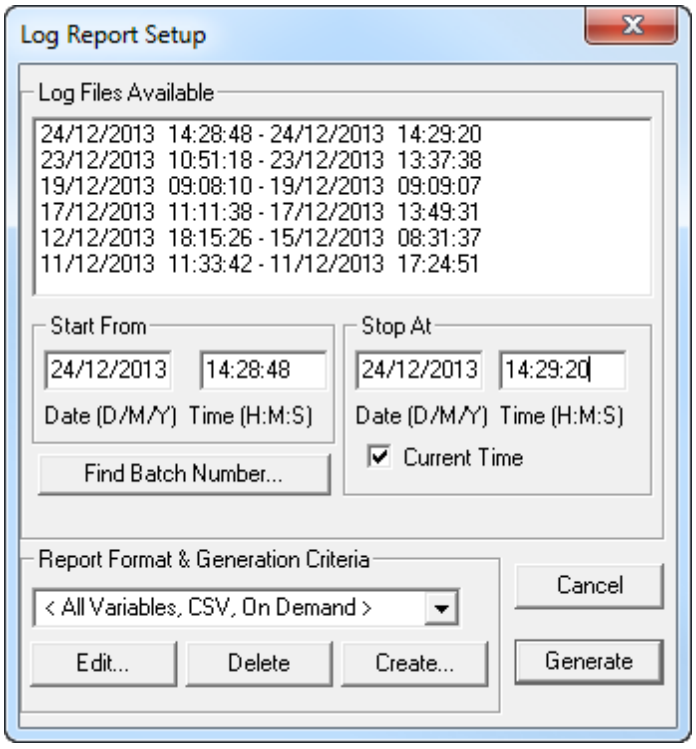
Example event data converted to .CSE

	A	B	C	D
1	09/30/13 09/30/13 14:39:54	Value Set	Zone 1.Setpoint	77
2	09/30/13 09/30/13 14:39:56	Alarm Ack		
3	09/30/13 09/30/13 14:40:03	Value Set	Zone 1.Setpoint	92
4	09/30/13 09/30/13 14:40:35	Value Set	Zone 1.Alarm SP1	25
5	09/30/13 09/30/13 14:40:42	Value Set	Zone 1.Proportional band	1
6	09/30/13 09/30/13 14:41:24	Log file Convert		

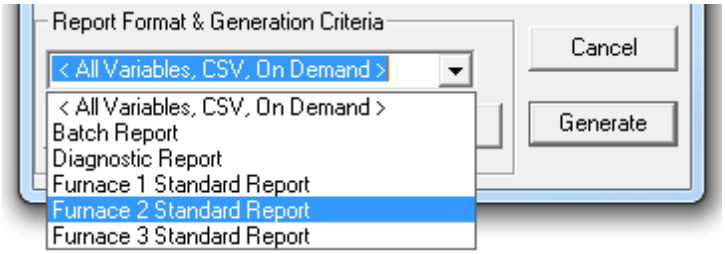
11.6 Log Report Setup

This box is used to convert logged data into a Log Report:

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Step 1: Choose a Report Format (or create a Log Report Format[611] by clicking the **Create...** button)



Step 2: Enter the 'Start From' Date and Time and 'Stop At' Date and Time
(If you click on one of the 'Log Files Available' in the list shown then the start and stop times of that day will be entered automatically.)
Alternatively click the **Find Batch Number** button to select the Start and End time based on a Batch Tag[627].

It is important not to change the Report Format after doing Step 2 as this will affect how the since 'Last Conversion of this format' will operate.

When you have chosen the Report Format & Start/Stop Time click the **Generate** button.

Log Files Available
A list of all log files available on the system is shown in the list box. They include start date and time and end date and time of the files. A file is created every day.

Start From - Stop At
Enter the time & dates for the start and stop times of the desired report.
If a report has been previously generated, SpecView will use the stop time & date of the previous report as a suggested start time for the next report.

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By checking the **current time** box the current date and time will be entered in the Stop At boxes.

A Log Report can also be generated from the Remote[740] computer, which is detailed in Log Reports from the Remote[610].

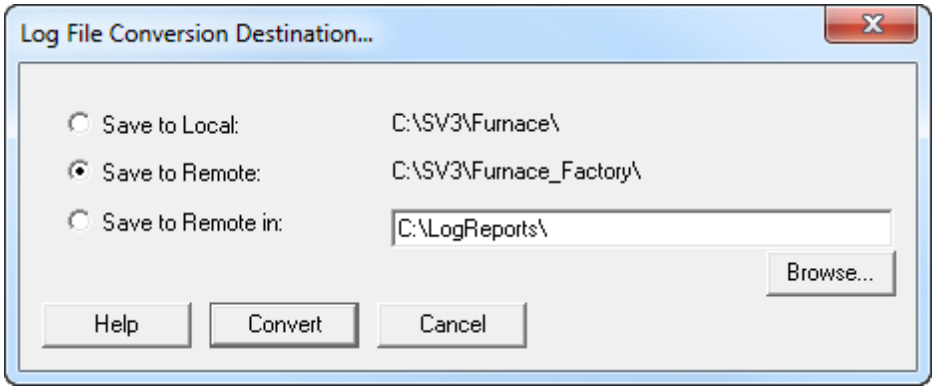
Below is an example of a Log Report .CSV file opened in Excel:

	A	B	C	D	E	F	G
1	Time	Zone1.PV	Zone2.PV	Zone3.PV	Zone3.PV	Mixing Temp	Chiller1.Temp
2	19/11/2015 10:55	26.7	21.9	80.3	71.6	24.2	2.8
3	19/11/2015 11:00	26.7	22.0	81.9	71.1	24.3	1.7
4	19/11/2015 11:05	26.8	22.0	81.1	74.1	24.3	1.1
5	19/11/2015 11:10	26.9	22.0	82.2	76.1	24.4	1.9
6	19/11/2015 11:15	27.0	22.2	83.8	75.6	24.5	2.6
7	19/11/2015 11:20	26.9	22.2	84.3	75.6	24.5	2.6
8	19/11/2015 11:25	26.9	22.2	84.3	77.6	24.5	2.4
9	19/11/2015 11:30	26.9	22.3	85.2	79.6	24.5	1.6
10	19/11/2015 11:35	26.9	22.4	85.4	78.1	24.7	2.6
11	19/11/2015 11:40	27.0	22.4	84.8	78.1	24.7	3.3

11.7 Log Reports from the Remote

Generating a Log Report using the Log File Convert Manager[608] or by using the Button[403] action: Logging: Convert Specific Log File Format[428] may be done from the Remote[740].
However, it is not possible to create or edit a Log Report Format[611] from the Remote, so those buttons have been disabled.

When the **Generate** button is clicked, the Log File Conversion Destination box is displayed.
It allows the user to decide whether the resultant Log File Report should be stored on the Local or the Remote computer. If saving to the Remote then the folder may be specified.
It is also possible to save the Log File Report to a network drive.



In this example the name of the Remote connection[740] is 'Factory' and the SpecView project on the Local computer is called 'Furnace'.
When the project is copied by SpecView to the Remote it is named <ProjectName>_<ConnectionName>, hence the name: 'Furnace_Factory'.

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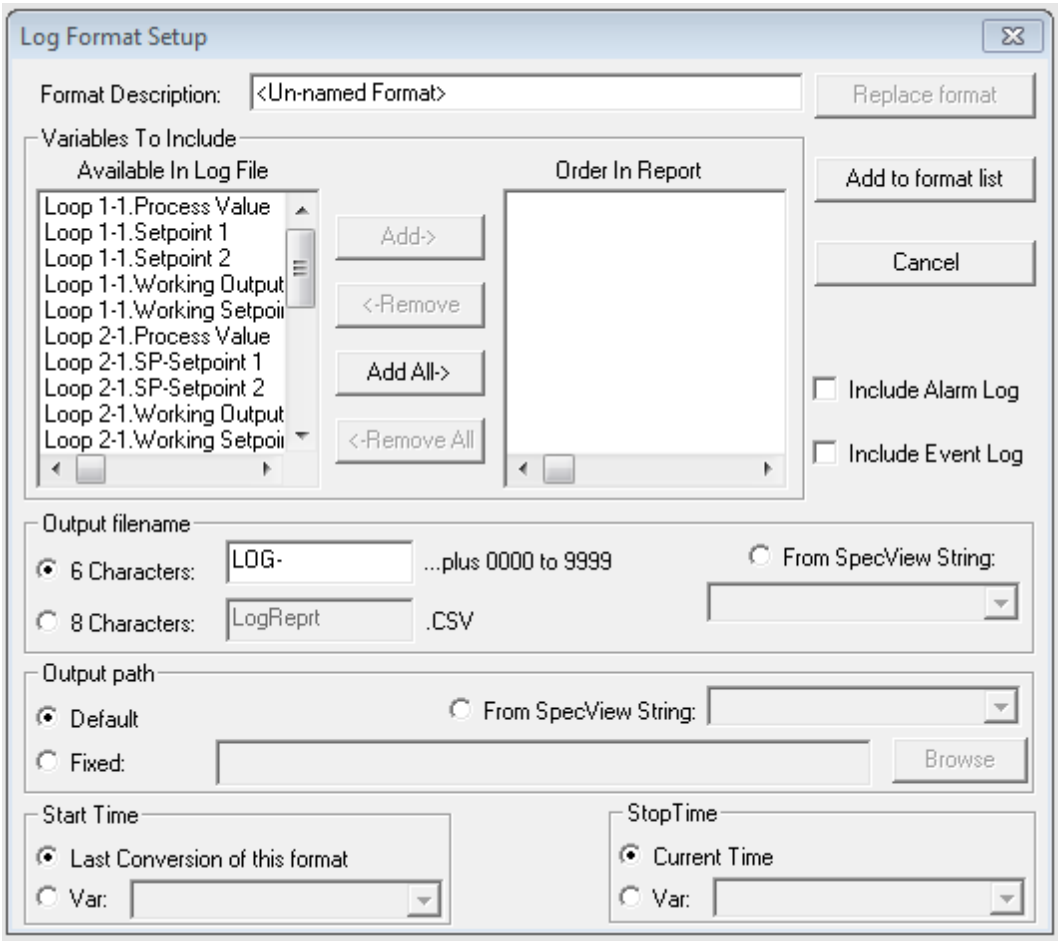
The filename is determined from the selected Log Report Format[611].

If the Output filename in the selected Log Report Format[611] has the '6 Characters' box checked (where SpecView adds a number to the name automatically), then SpecView will create the next file in the sequence, depending on which files already exist in that particular folder, and that may be different on the Local and Remote.

If a Button is used to perform the action: Logging: Convert Specific Log File Format[428] using a Log Report Format[611] for which the Output Path has **not** been specifically defined, then the path for 'Save to Local' will not be displayed, although it will function as expected and save to the SpecView Project folder on the Local.

11.8 Log Report Format

This box sets up:
- The variables that will be included in this report
- The name of the file generated and where it is to be stored
- The start/stop times of the Report



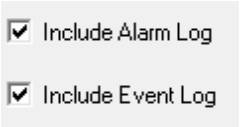
Format Description

Name the format for easy identification, some examples are: 'Line 1 - PV's only', 'Line 2 Barrel Zone diagnostics', 'Furnace 3 Run Data'.
An unlimited number of report formats can be defined.

Replace Format and Add to format list
These buttons save the report format
When creating a new format click **Add to format list**
If you edit an existing format you can save the edits by clicking **Replace Format** OR save as a new format by editing the name and clicking **Add to format list**

Choosing Variables
Select the variables you want in ***this*** report: Click on the ones you want and then click **Add->** If you select one you do not want, click on it again to de-select it. The order in the 'Order In Report' window is the order of columns in the text file produced when the report is 'generated'.
Note that if the intention is to load the Log Report into Excel, older versions of Excel (before Excel 2007) have a limit of 256 columns. In newer versions this limit has been increased to 16,384.

Log Report: Include Alarm/Event Log
To get a printable report of either the event log[620] or alarm log[616] check these boxes:



Each will generate a Comma Separated Variable file using the same name as defined in the 'Output File Name' but with the filename extension .cse (events) & .csa (alarms). The files will be in the location specified in the 'Output File Path'.

Output File Name

NOTE: Standard file naming conventions[521] must be followed. Long file names are supported if the name is taken from a SpecView text variable. All log files are in the format 'Comma Separated Variable' format.

Filename extensions used are: **.csv** for values; **.cse** for events; **.csa** for alarms

Option 1 (default) - Select (up to) the first six characters of the file name

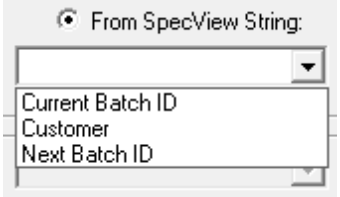
Choose any characters: e.g. LOG- or Furn1- but we strongly recommend that **the fewer characters used the better**, because this name will be padded out to 8 characters with digits, resulting in the report files having names such as: **LOG-0002.csv**; **Furn1-05.cse**
If all 6 characters are used in the name, then only 2 digits will be used to number the reports created, therefore: Furn1-01 to Furn1-99 (giving only 99 log reports before log reports are overwritten).
Whereas, if just 2 characters are used in the name, then 6 digits will be used to number the reports created, for example: LR000001 to LR999999 (giving 999999 log reports).

Option 2 - Select the specific file name

The file will always use the same name, and the previous file will be overwritten.

Option 3 - Get the name from a SpecView string User Variable

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The value entered by the operator for 'Current Batch ID' will be the filename for the log/alarm/event report(s).

Log Report: Output File Path
Specifies where to put the log files. This can be any folder on any drive available to the SpecView computer - i.e. it can be any drive on a network.



Default selects the project folder.

Start Time / Stop Time
This area defines the Start and Stop Time and Date of a report.

Manual Report Generation:
The radio buttons[509] for 'Last Conversion of this format' and 'Current Time' are selected as the default values. These are typically used when reports are being generated manually. When a report is generated manually (as opposed to via the Strategy Controller[666]) the stop time is remembered. When the Log Report Setup box is next selected, the previous stop time is automatically used as the 'Start From' date and time.
The manual generation of a log report requires the user to select the Log Report Setup box (either from the Logging menu or from a Button Attribute) and clicking the **Generate** button.

NOTE: The 'Last Conversion of this format' feature is disabled when the report is generated automatically by either a Button Attribute (Logging - Convert specific log format[428]) OR by a Strategy Controller action. When using these features the Start and Stop time must be obtained from SpecView Date/Time User Variables (see below, or from a Batch Tag[627].

Automatic Report Generation:
One of the most popular features of SpecView is to generate log reports automatically when an event occurs. ***The Strategy Controller option[64] is needed to achieve this.***
The two most common are:

1. At a fixed time period (every day; every shift; every week etc.)
2. At the end of a batch process

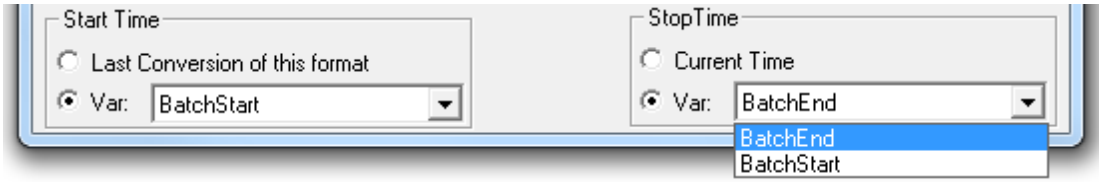
To do this it is necessary to define two SpecView Date/Time User Variables. One is used as the Start time and one as the Stop time.
To define the User Variables:

1. Open the Variables List (click 'V' on the toolbar)
2. Click the **New** menu and select **New Date/Time User Var**
3. Enter a name for the first variable ('Batch Start') and click **OK**
6. Click Close on the default data entry box

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7 Repeat these steps to create the second variable ('Batch End')

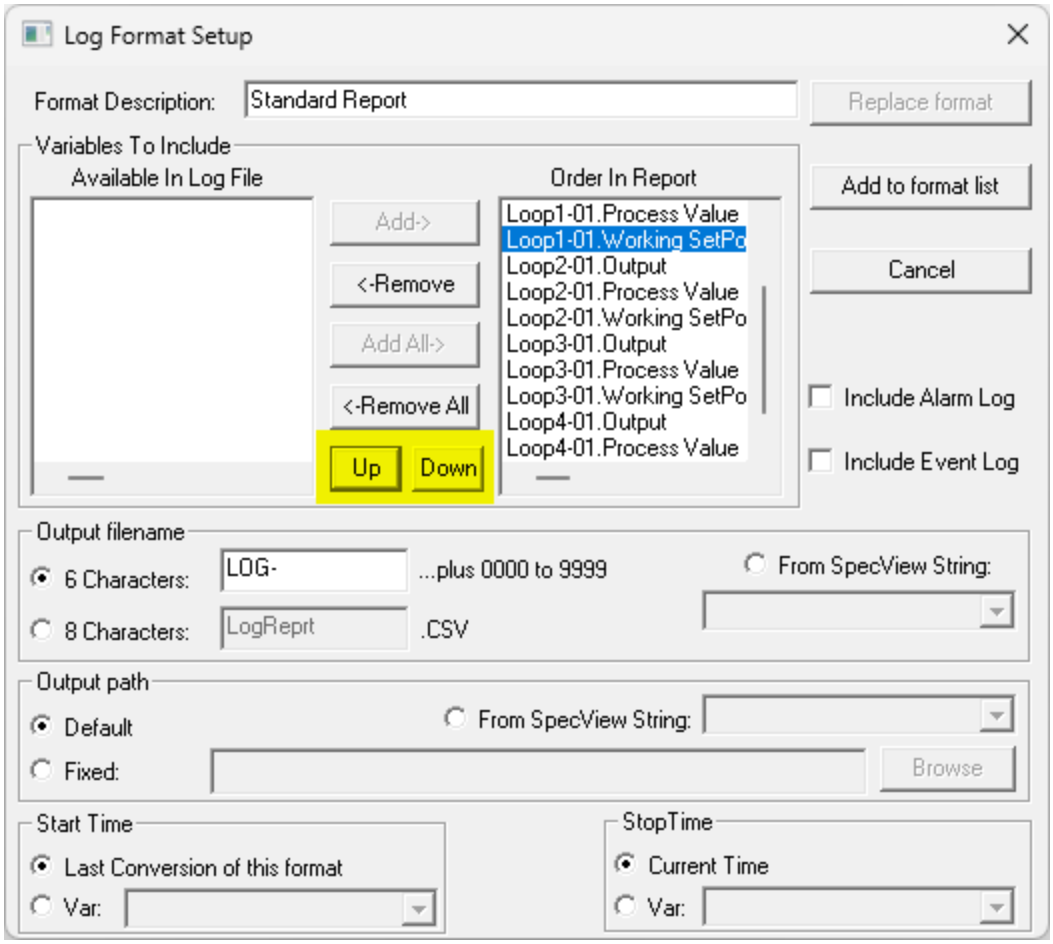
On the **Log Format Setup** box click the **Var:** radio buttons[509]: and select the User Variables that have just been created:



It is then up to the actions defined in the Strategy Controller to get the desired values into these BatchStart and BatchEnd User Variables. Read Strategy Controller[666] for examples of doing this.

SpecView 3.1.267

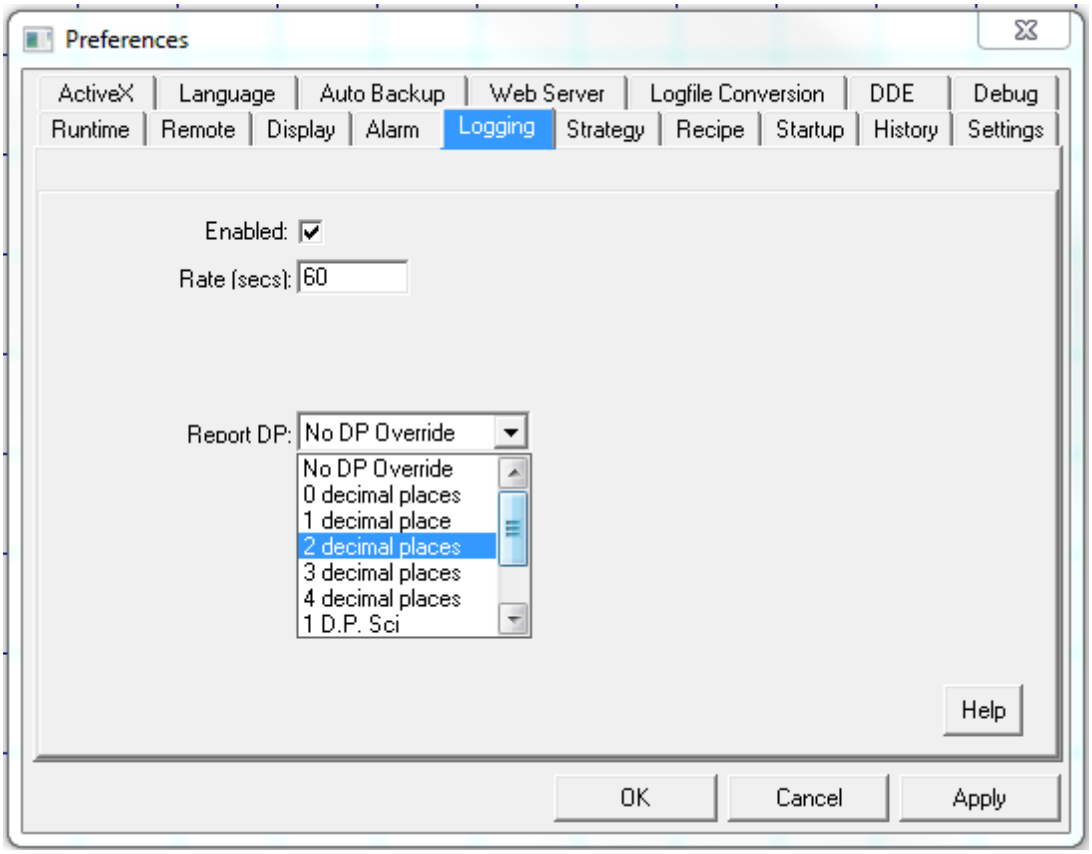
As of SpecView 3.1.267[122], Up and Down buttons have been added to help users change the order of the variables in the "*Order in Report*" list.
Multiple items may be selected in the list and they will all be moved up or down in the list.



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11.9 Log Reports - Specifying decimal places

If the default number of Decimal Places [496] (DP) for the values in the converted log files (.CSV) needs to be changed then use Preferences from the File menu, and click the Logging [464] tab:



NOTE: This forces the DP setting of ALL floating point numbers in the log file reports (CSV files), regardless of the individual parameter's DP as known to SpecView, and will apply to ALL log file reports generated. Therefore it should be used with caution. (To specify the DP for individual parameters see CVTSETTINGS.INI [492] below).

It does not affect the underlying precision with which the data is logged - data is logged including its whole precision, so, in the event that a report has too few DP, it can be run again with a higher DP setting and no information will be lost.

The settings are as follows:

0 decimal places	Produces Zero DP, e.g. 0.
1 decimal place	Produces 1 DP, e.g. 0.1
2 decimal places	Produces 2 DP, e.g. 0.12
3 decimal places	Produces 3 DP, e.g. 0.123
4 decimal places	Produces 4 DP, e.g. 0.1234
1 D.P. Sci	Produces 1 DP Scientific Notation, e.g. +1.1E+000
2 D.P. Sci	Produces 2 DP Scientific Notation, e.g. +1.12E+000
3 D.P. Sci	Produces 3 DP Scientific Notation, e.g. +1.123E+000

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4 D.P. Sci	Produces 4 DP Scientific Notation, e.g. +1.1234E+000

To set the decimal places in Log Reports for specific values (if the default setting above is not appropriate for a value), then use CVTSETTINGS.INI [492]

Further information:
Log Reports [606]
Decimal Places [496]

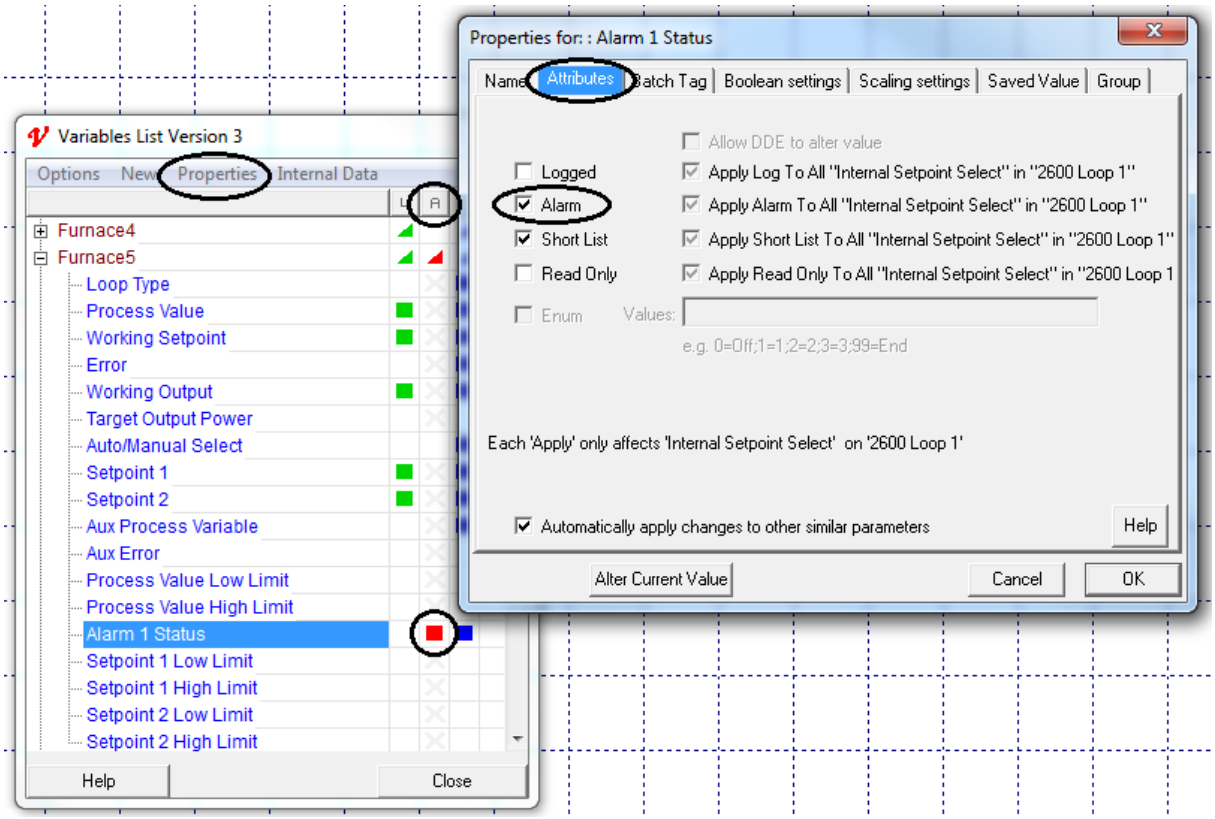
11.10 Data Logging - Alarms

CAUTION: SpecView's alarm monitoring MUST IN NO WAY be used as a safety feature! Use fully redundant approved safety devices only!

To specify which boolean [517] variables are monitored as alarms use the Variables List [313], in a similar way to selecting/removing variables from logging:

The Variable List's 'A' column will show which variables SpecView is checking as alarms:

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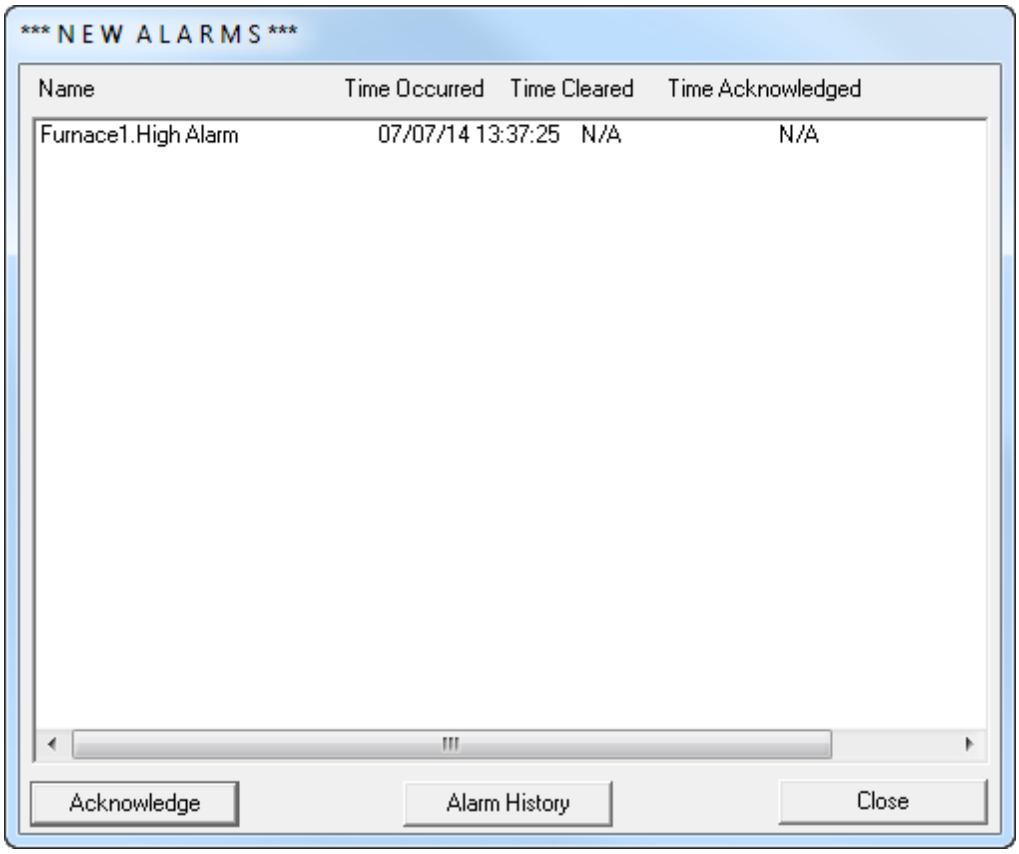
Double-clicking in the 'A' column will set/unset this parameter as an alarm (only boolean[517] variables can be selected, the gray 'X' indicates those that can't be selected).
Alternatively, select the parameter and use **Properties** to set/unset the Alarm Attribute.

The rate at which they are checked is defined on the Alarm tab of the Preferences[463] box.
The default value is every 5 seconds.

If instrument(s) are disconnected from communications by either being removed or turned off, alarm checking can cause excessive slow-down of communications to the remaining instruments. It may be necessary to set a slower rate for alarm checking, turn it off (remove the 'enable' check) or remove specific variables from alarm checking.

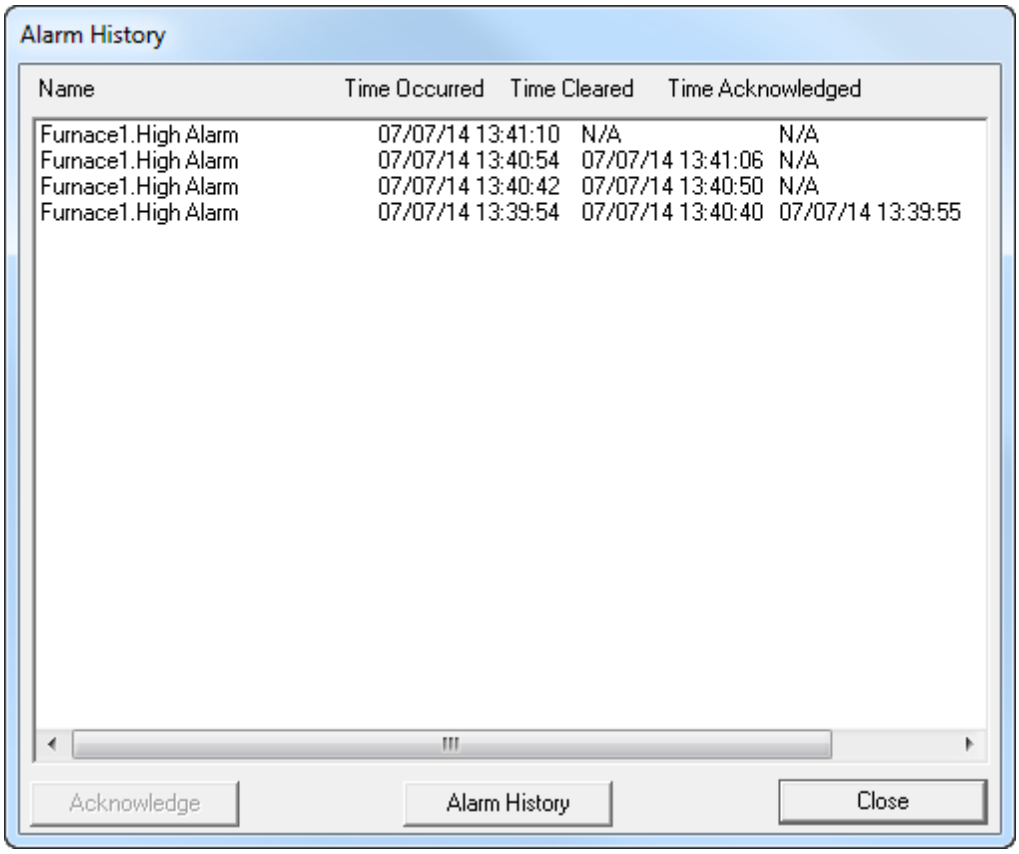
When an alarm condition is detected the **New Alarms**[262] window appears:

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Clicking the **Acknowledge** button time stamps the **Time Acknowledged** column for all unacknowledged alarms and displays the Alarm History [262] window:

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Pressing the spacebar on the keyboard once will Acknowledge the Alarms, pressing it again will close the window. This is a quick way to Acknowledge & Close the window.

The Alarm History 262 window shows all the alarms since Runtime was last entered. If SpecView is just re-started (either the program or by coming from Edit Mode) then all of TODAY's alarms are shown (up to a maximum of 1000 lines).

There is no way to clear or delete alarms

This window cannot currently be printed

To get a printable report of the alarms, convert any log format 611 for the time span required, with the **Include Alarm Log** checked.
This will create a file with the same name as the log report, but with a filename extension of .CSA (i.e. Comma Separated Alarms).
Note that it is necessary to have at least one variable in the log report in order for the .CSA file to be generated.

Below is an example of a .CSA file opened in Excel:

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	A	B	C	D
1	Variable	Time Occurred	Time Cleared	Time Acknowledged
2	Furnace1.High Alarm	07/07/2014 13:41	NA	NA
3	Furnace1.High Alarm	07/07/2014 13:40	07/07/2014 13:41	NA
4	Furnace1.High Alarm	07/07/2014 13:40	07/07/2014 13:40	NA
5	Furnace1.High Alarm	07/07/2014 13:39	07/07/2014 13:40	07/07/2014 13:39

NOTE: Event log[620] reports are generated in a similar way, by checking the Include Event Log check-box,which creates a .CSE (i.e. Comma Separated Events).

11.11 Data Logging - Events

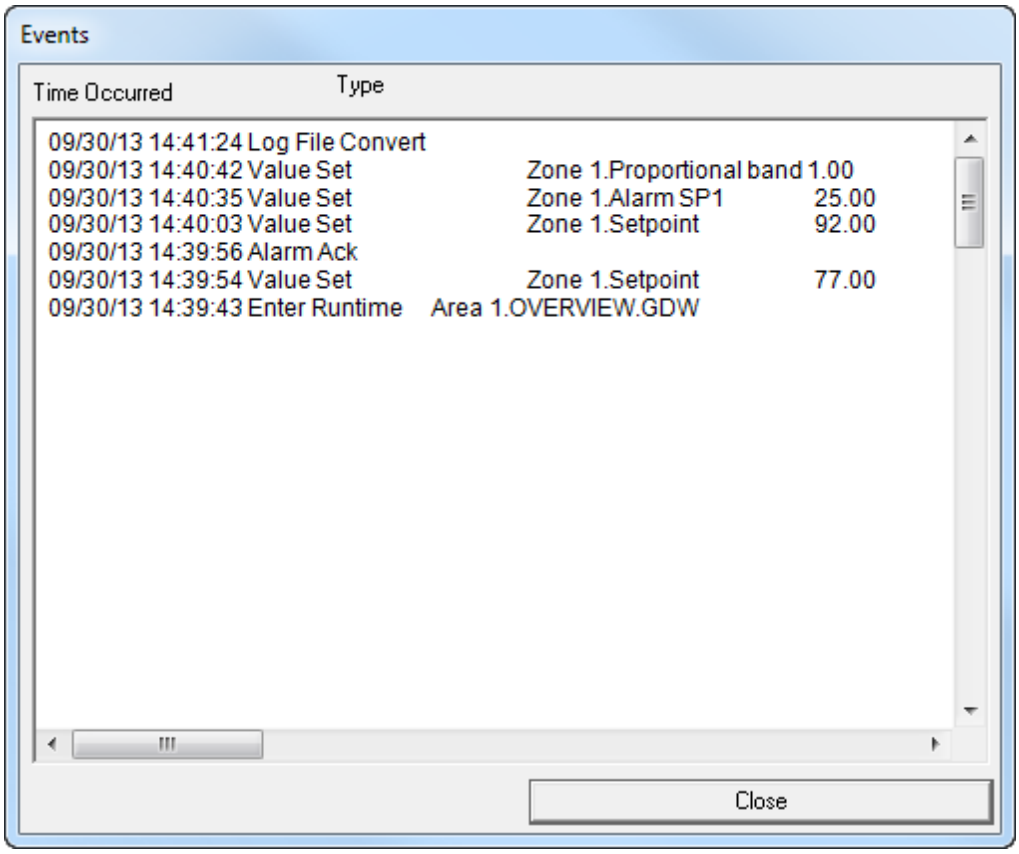
A very powerful feature of SpecView is to record all specified actions made by the user in Runtime Mode. Any changes made to the connected instruments are logged.
Which events are logged is set up using the Event Logging menu command on the Setup menu[305]

These are the default settings.
As of Version 3.1.233, Trend Chart Interactions such as adding or editing Chart Notes[550] and Trend Chart Clear[422] can be logged as well.

NOTE: there are separate settings available for the Strategy Controller[666]. This is a very powerful tool for helping to debug complex strategy events and actions.

To view the Event list in Runtime choose **Event Window** from the View menu[273].

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The event list shown will include all the events since SpecView went online was entered. If SpecView is closed or goes offline the current days events will be shown.

This window cannot currently be printed

To get a printable report of the events, convert any log format [611] for the time span required, with the **Include Event Log** checked.
This will create a file with the same name as the log report, but with a filename extension of .CSE (i.e. Comma Separated Events).
Note that it is necessary to have at least one variable in the log report in order for the .CSE file to be generated.

Below is an example of a .CSE file opened in Excel:

	A	B	C	D
1	09/30/13 09/30/13 14:39:54	Value Set	Zone 1.Setpoint	77
2	09/30/13 09/30/13 14:39:56	Alarm Ack		
3	09/30/13 09/30/13 14:40:03	Value Set	Zone 1.Setpoint	92
4	09/30/13 09/30/13 14:40:35	Value Set	Zone 1.Alarm SP1	25
5	09/30/13 09/30/13 14:40:42	Value Set	Zone 1.Proportional band	1
6	09/30/13 09/30/13 14:41:24	Log file Convert		

NOTE: Alarm log [616] reports are generated in a similar way, by checking the Include Alarm Log checkbox,which creates a .CSA (i.e. Comma Separated Alarms).

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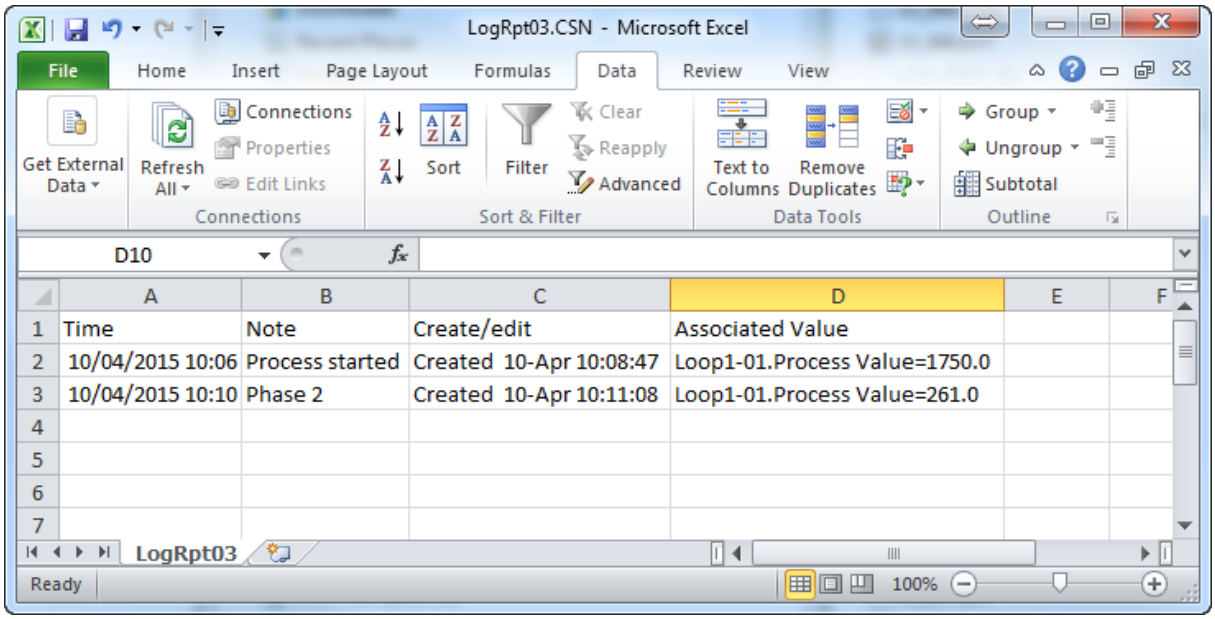
11.12 Data Logging - Chart Notes

Log Reports and Chart Notes:

When a Log Report[606] is generated from logged data if any Chart Notes[550] have been defined during that time interval then an additional text file will be automatically produced with a CSN filename extension (CSN = Comma Separated Notes), for example, LOGRPT01.CSN

This file is a text file so it can be opened using, for example, Notepad

Or it can be opened in Microsoft Excel (the filename extension .CSN will need to be associated with Excel), then once loaded into Excel select Column A and use **Text to Columns** on the **Data** tab to split Column A into separate columns (Delimited by commas).



11.13 Historical Replay Option

This is accessed from the History[273] menu during Runtime mode.Historical Replay[623] is an option for SpecView. If the option has not been purchased you are limited to replaying the last 4 hours of data.

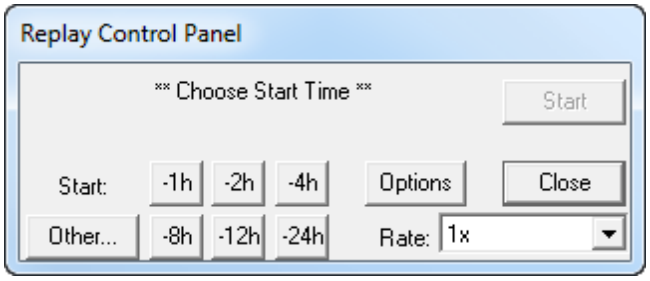
Historical Replay Control Panel[623]
Historical Replay - Start Time[623]
Historical Replay - Find Batch Number[624]
Historical Replay - Rate[626]
Historical Replay - Options[626]

You can upgrade[64] your copy of SpecView by phone. Contact your SpecView distributor for details.

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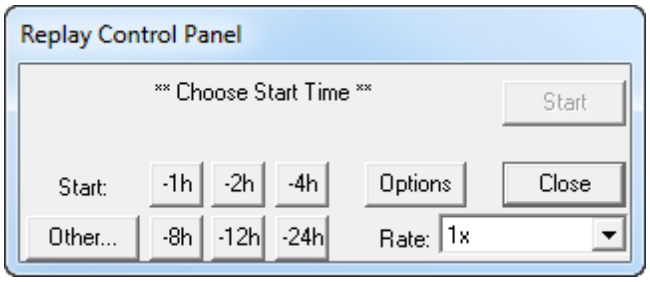
11.14 Historical Replay - Control Panel

When Historical Replay is started from the History [273] menu during Runtime; SpecView makes a copy of the current GDW and shows the Replay Control Panel:



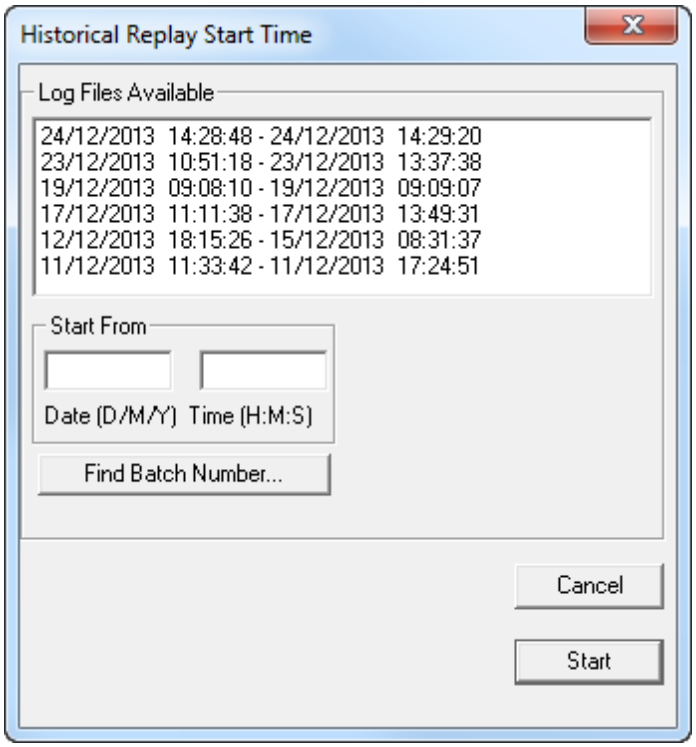
Historical Replay - Start Time [623]
Historical Replay - Find Batch Number [624]
Historical Replay - Rate [626]
Historical Replay - Options [626]

11.15 Historical Replay - Start Time



The six '**-XXh**' buttons set the start time at 1 to 24 hours back from the current computer time
The **Other...** button lets you choose the start date & time from the log files in the project.

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Enter a start date & time into the boxes

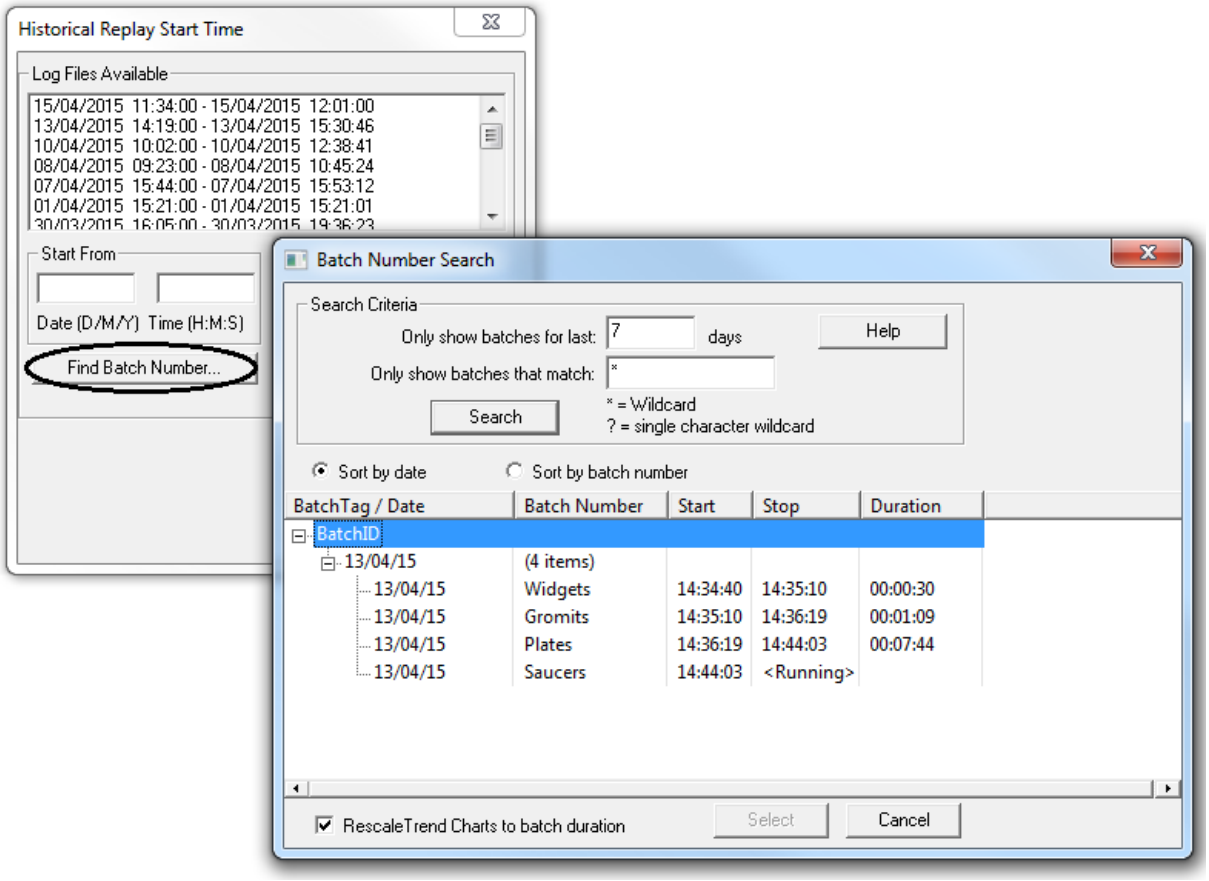
NOTE: Click on any of the 'Log Files Available' and the start time of that file will be inserted automatically

Or click **Find Batch Number** to find a named batch which will set the **Start From** to the start time of that batch.

11.16 Historical Replay - Find Batch Number

The Start time can also be set by clicking the **Find Batch Number...** button to find a set of data based on its Batch Tag[627].

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Enter the number of days batches to show.

Either enter the exact name of the batch, or use the 'wild card' characters to find batches:
'*' to match any (or zero characters) characters. For example, to find all batches that start with 'abc' enter 'abc*'.

SpecView Version 3.1.259

Searching for batches with a blank search field will lead to the same results as searching for batches with a blank search field.
For example, in the image above, searching for batches with a blank search field will produce the exact same results.
or
'?' to match a single character - this can be thought of as a blank tile in the game of Scrabble to match batch names.

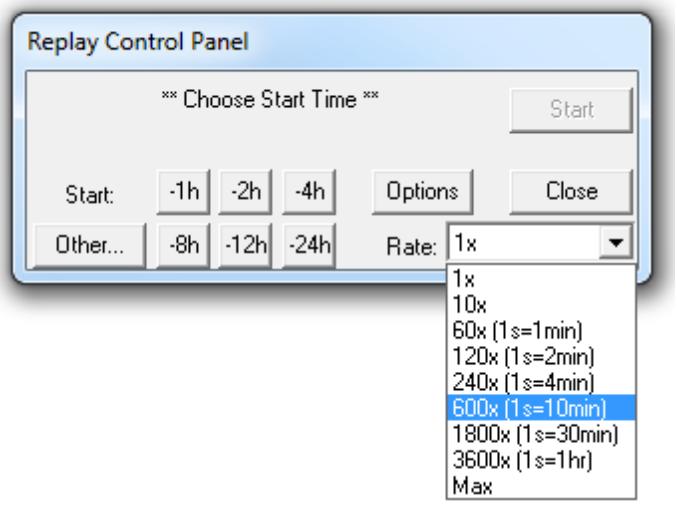
The search is always case sensitive.

Click the ⊞ to expand the list of available batches.

Use the **'Rescale Trend Charts to batch duration'** checkbox to show the whole batch on the chart.

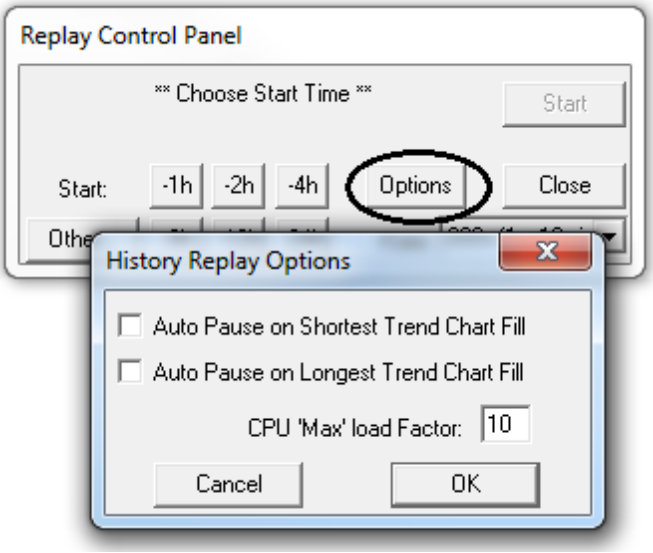
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11.17 Historical Replay - Rate



1x to **240x** sets the rate at a multiple of real time. If data has been logged [464] every minute (default) 60x will give one point per second on the replay GDW.
'Max' should only be used for trend chart replay. Numeric items & Bar Charts are not refreshed at this rate.

11.18 Historical Replay - Options



Auto Pause will stop the Historical Replay when the Trend Chart has filled with new data.
If there are two (or more) charts on the GDW that have different time spans, as specified in the Trend Chart Properties [397] box, check the box for the one you want to pause the replay.

The **CPU 'Max' load Factor** (default value: 10) allocates the amount of CPU time to be used for

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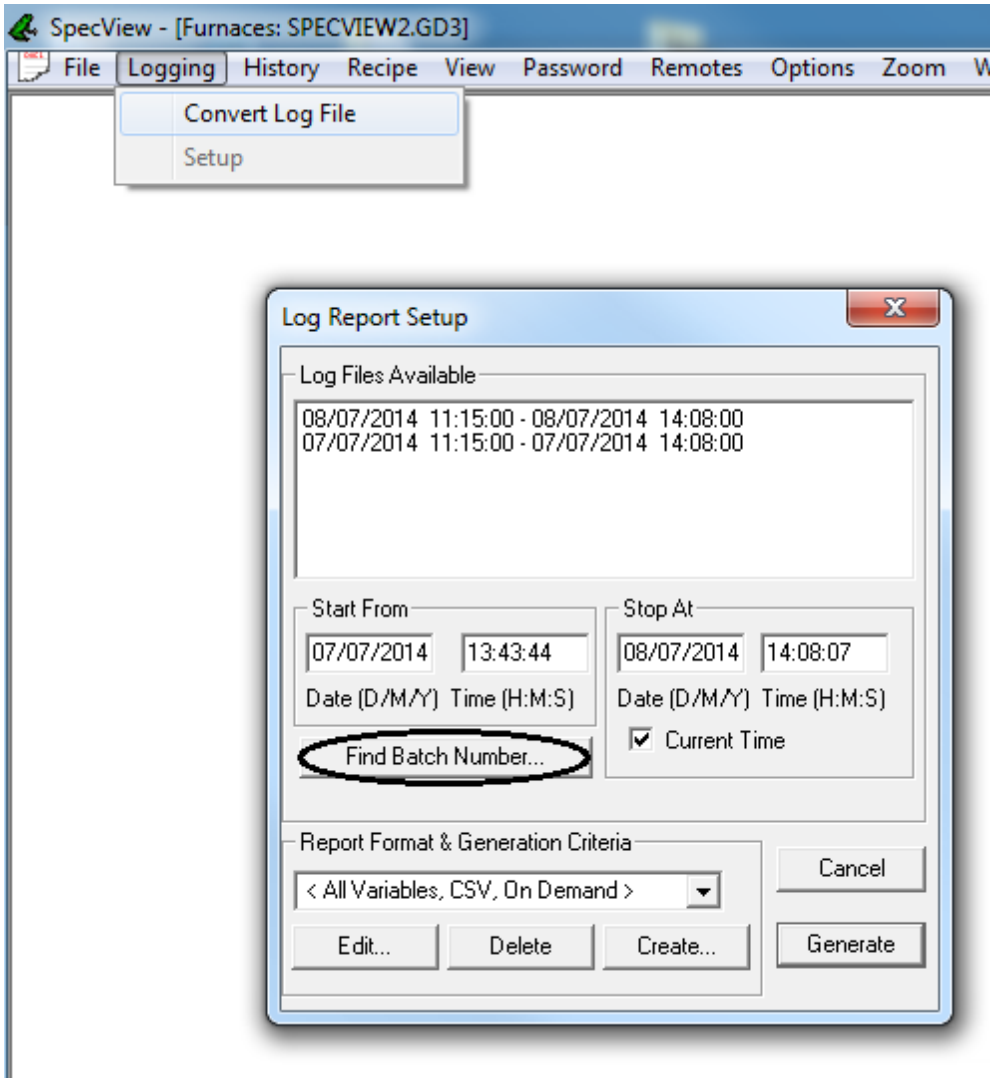
Historical Replay activity. The bigger the number the faster the Trend Chart(s) will fill, but other computer activity will slow. Experiment to get the best performance for your computer.

11.19 Batch Tags

Often there is the need to mark the start and end of a period of Log file data and 'label' it with a Batch number. Then subsequently be able to refer to this period of data by its Batch number during either Logfile Conversion [606] or Historical Replay [623].

Logfile Conversion

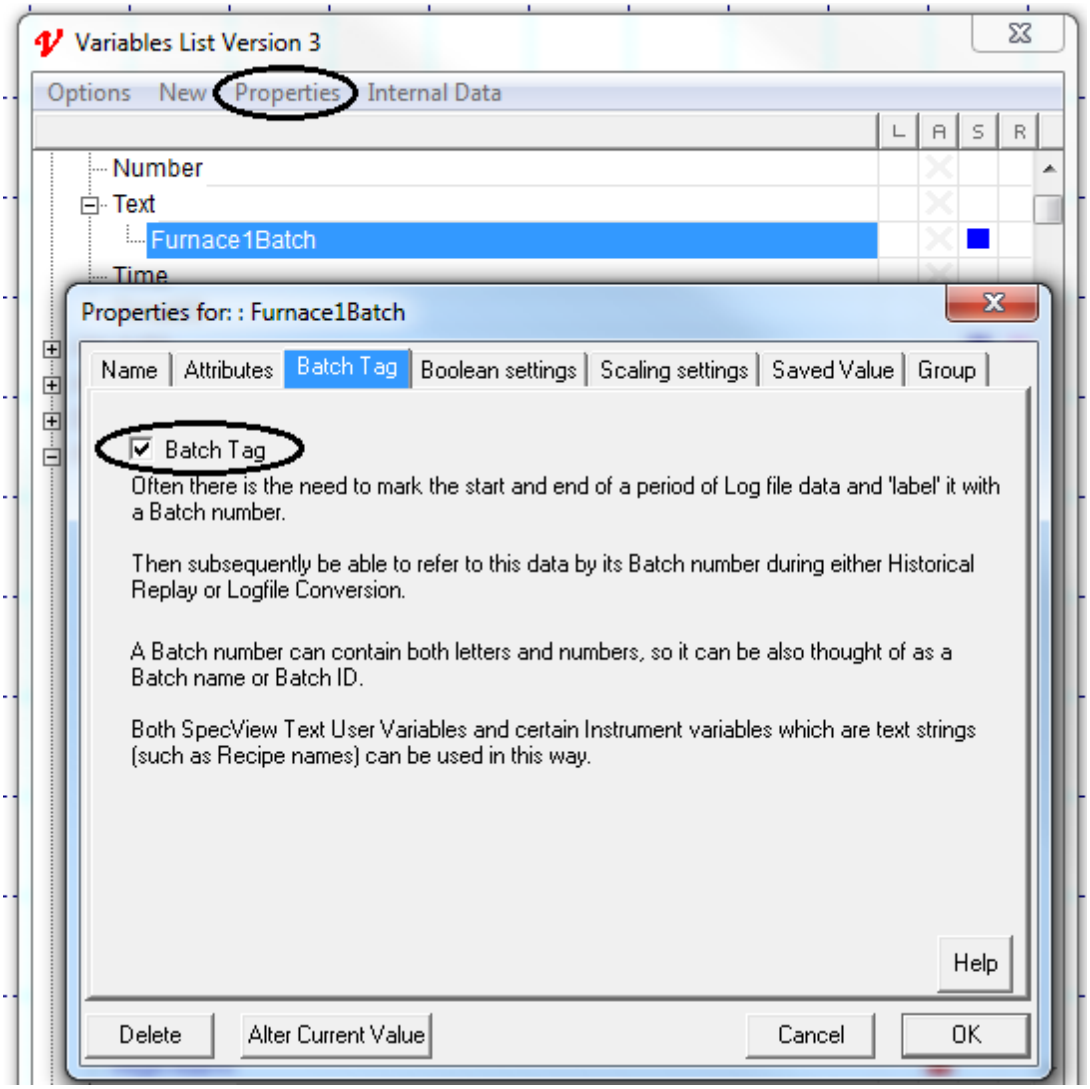
To select a Batch for Logfile Conversion click the **Find Batch Number...** button from the Log File Convert Manager [608].



A Batch number can contain both letters and numbers, so it can be also thought of as a Batch name or Batch ID.

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Both SpecView Text User Variables and certain Instrument variables which are text strings (such as Recipe names) can be used in this way.
Once a variable is marked as a Batch Tag from the Variables Properties 326 box, when SpecView is online any changes to the value are recorded, together with the date and time of the changes.



Changing a Batch Tag from one value to another value effectively marks the end of one batch and the start of another batch.

Setting a Batch Tag to an **empty string** (in other words clearing it so that it contains no characters) will mark the end the batch without marking the start of another.
Note that an **empty string** will be displayed as '[ ]' by default, this can be changed from Preferences - Display 461.

A batch is not considered complete until its Batch Tag has been changed either to another Batch number or to an **empty string**. As the values of SpecView's User Variables are saved when it goes offline, a batch can continue when SpecView is back online.

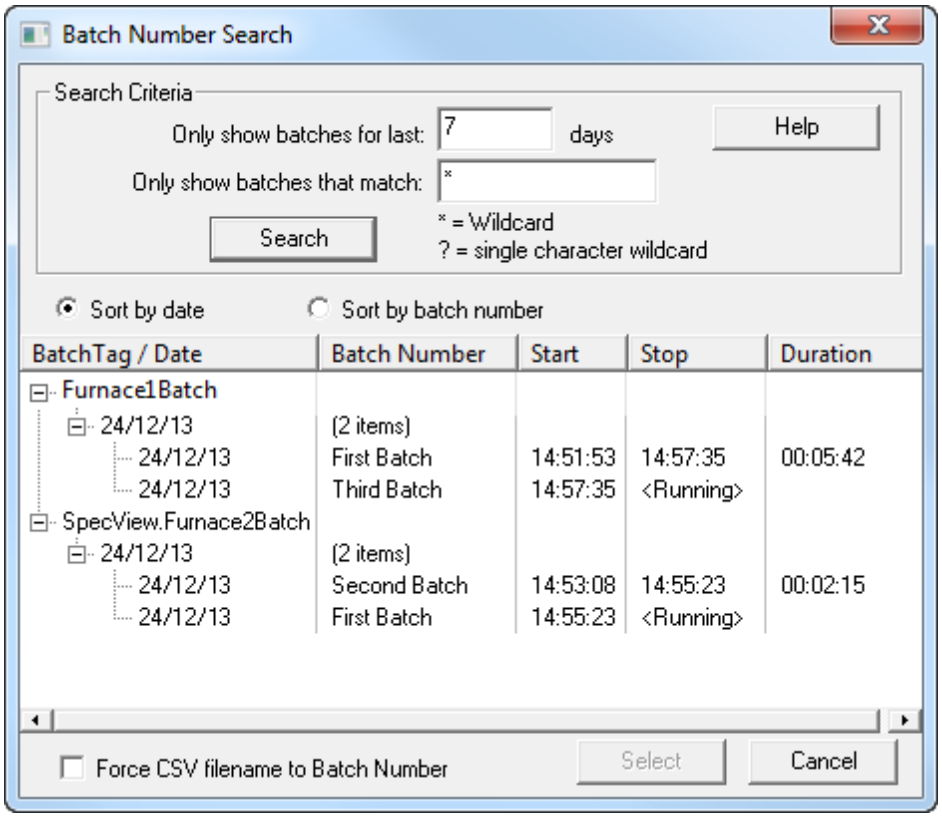
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For example, if SpecView was monitoring multiple furnaces, then create a SpecView Text User Variable to use as the Batch Tag for each furnace, such as SpecView.Furnace1Batch, SpecView.Furnace2Batch, etc.

Here is some sample data showing 3 batches:

	A	B	C	D	E	F
1	Time	Furnace1Batch	Furnace2Batch	Base Temp	Core Temp	Hi Temp
2	24/12/2013 14:52	First Batch		119.1	255.2	278
3	24/12/2013 14:53	First Batch		119.2	255.3	278
4	24/12/2013 14:54	First Batch	Second Batch	119.3	255.4	278
5	24/12/2013 14:55	First Batch	Second Batch	119.4	255.5	278
6	24/12/2013 14:56	First Batch	First Batch	119.5	255.6	278
7	24/12/2013 14:57	First Batch	First Batch	119.6	255.7	278
8	24/12/2013 14:58	Third Batch	First Batch	119.7	255.8	278
9	24/12/2013 14:59	Third Batch	First Batch	119.8	255.9	278

This data would be listed as:



Only show batches for last: (days)
Enter the number of days to find batches for, any number from 0 to 10,000 days, as there could have been many hundreds of batches.

Only show batches that match:
Either enter the whole Batch number (which is case sensitive) or use wildcard characters to filter out all

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occurrences of a particular batch from potentially many hundreds of batches.
Some examples of the use of wildcard characters are:

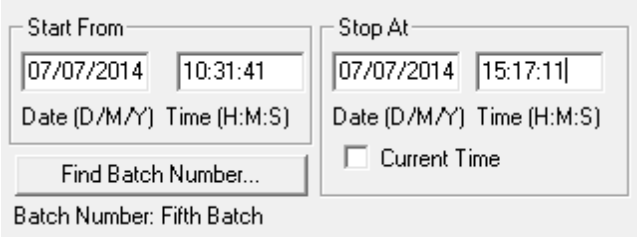
Wildcard:	Means:	Would match:
*	All	Anything
*Hot	Ends with 'Hot'	Hot, VeryHot, MediumHot, 123Hot
Hot*	Begins with 'Hot'	Hot, Hotter, Hottest, Hot6789
H?t	'H' one character 't'	Hot, Hxt, H9t
H??t*	'H' two characters 't'	Heat, Heater123, Hoot
Hot	Has 'Hot' anywhere in it	Hot, 123Hot456, VeryHotInHere

Force CSV filename to Batch Number:
This checkbox is only shown when finding batches for Logfile Conversion.
This overrides the filename that the specified format would normally produce, replacing it with the name of the selected batch.
Any characters in the Batch number which don't fit with the Windows Filenaming Rules [521] are converted into underscores.

There is no way to delete batch information from SpecView's data Logfiles without also deleting the data Logfiles themselves. The action Logging: Purge Log Files [429] also purges batch information.

Note: In order to ensure that a batch contains all the relevant data it is necessary to ensure that the Batch Tag is changed (to mark the start of the batch) before the batch starts for real. Similarly the batch run must have completed before the Batch Tag is changed (to mark the end of the batch).

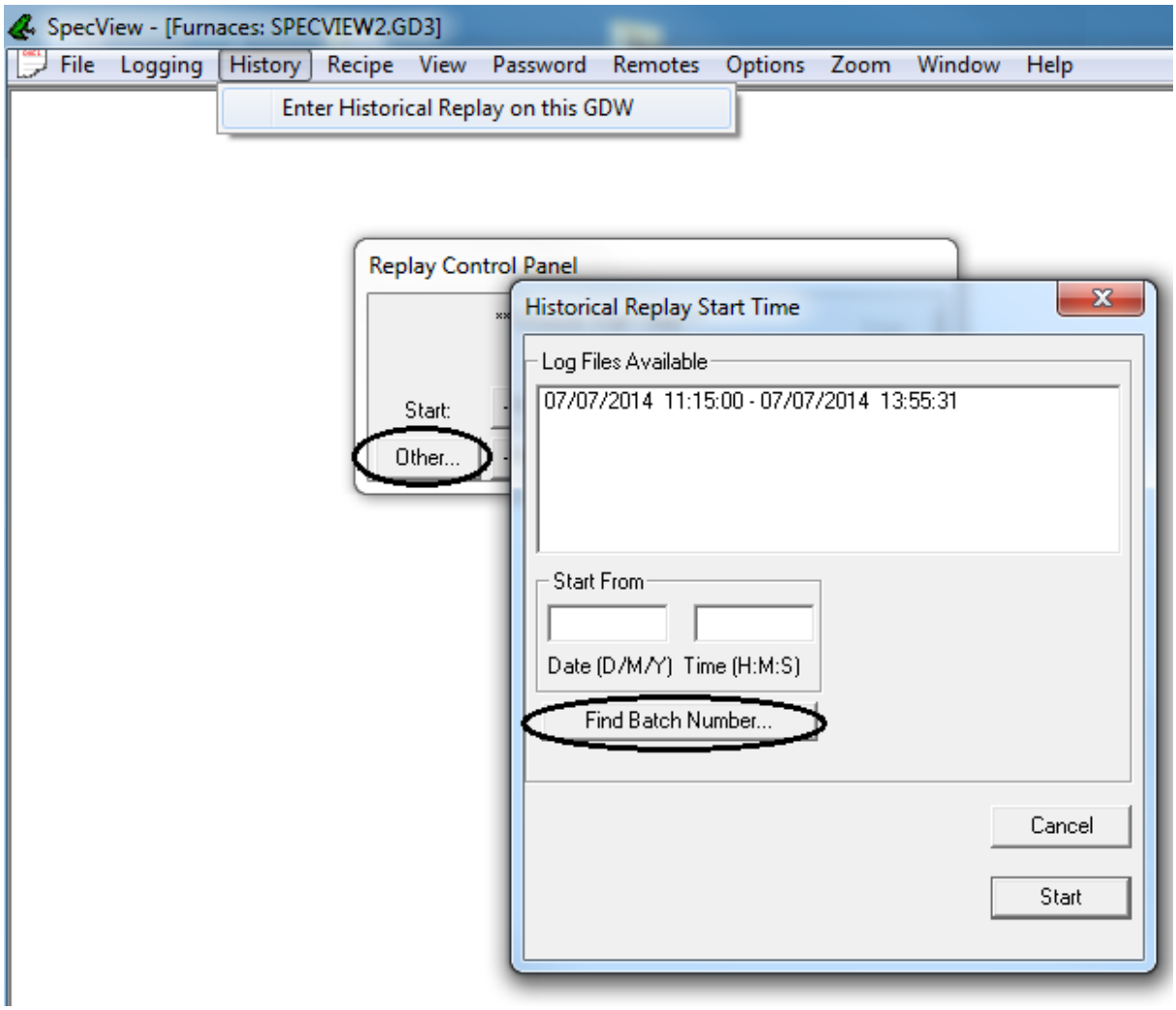
When a Batch has been selected for Log File Conversion:
The Start From/Stop At dates & times will be set according to the Batch and the Batch number will be shown in the Log Report Setup box:



When a Batch has been selected for Historical Replay:

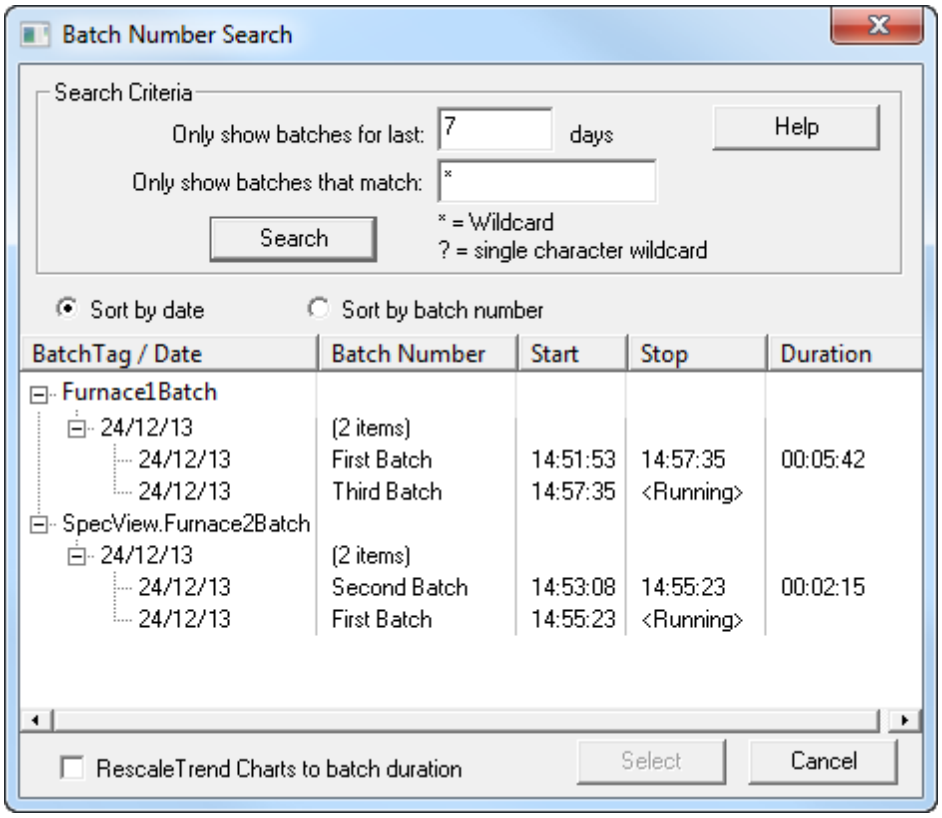
To select a Batch for Historical Replay click the **Other...** button on the Historical Replay Control Panel [623] then **Find Batch Number... (see below)**

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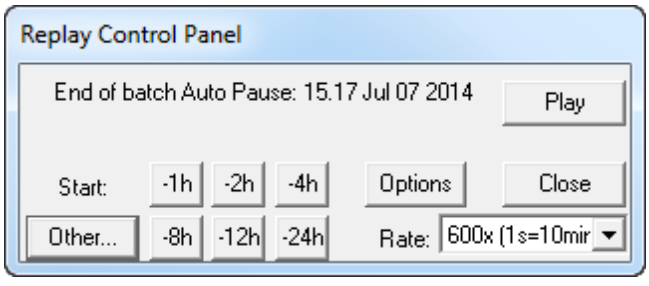
Will display this box:

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Rescale Trend Charts to batch duration:
This checkbox is only shown when finding batches for Historical Replay.
This will rescale the Trend Chart's time span to be appropriate for the duration of the batch. For example if the batch is 3 minutes long then it will use a 5 minute time span.
The chart will be drawn as a 'best fit' between the fixed graduations of time along the X axis.
Note: that there is no link between a GDW & a batch, so ensure the correct screen is open to display the relevant Historical data.

Select the required batch, then the **Start From** date & time will be set according to the Batch and the Historical Replay will run according to the rate set.
If there is a Trend chart on the GDW and **Auto Pause** has been selected in the **Options**, then it may pause when the Trend Chart is full.
At the end of the replay of the Batch data it will show **End of batch Auto Pause** in the Control Panel:



Clicking **Play** will then continue the Historical Replay beyond the end of the selected Batch.

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Hints & Tips:

- An example of the use of Batch Tags could be where the Strategy Controller[666] is used to watch a 'Profile running status' and when the profile (or recipe, or program) has reached its end state, then a Strategy Controller Action sets the Batch Tag to blank to signal the end of the batch.

- If a batch number is to be entered manually then it is useful to put a Text User Variable on the screen (which is not marked as a Batch Tag) for the number of the next batch (For example, SpecView.NextFurnace1Batch).
Then when the batch is ready to be started the first action is to immediately copy the NextFurnace1Batch to Furnace1Batch to start the batch before performing the other actions necessary to start the batch.

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Part 12

12 Recipes

A Recipe is when SpecView saves the values of selected variables so that the values can be later uploaded to the connected instruments.

Recipes are useful for the following:

- Eliminating operator error in setting machine parameters
- Taking a snapshot of the current process values when a good product is being made
- Exactly reproducing previous machine setup
- Displaying the loaded Recipe on-screen
- Saving and reloading instrument setup parameters
- Reviewing and editing complex programmer profiles

There are four steps to creating a recipe:

1. In Edit Mode: Create[822] a screen (GDW) and put[815] all the variables on it that are intended to be set using Recipe. This screen can be thought of as a Recipe screen.
Note: The variables need to be writeable so that they can be changed.

2. Select[636] these variables for Recipe using the Recipe tool  which looks like a 'knife and fork'. Once all the variables are selected click the Recipe tool again.

3. In Runtime mode: Create[637] the sets of values and save each set, giving each a different name.

4. To use the Recipe(s) in Runtime Mode go to the Recipe menu and choose **Recipe Manager**. Alternatively, to make it easier to use in Runtime Mode, go into Edit mode and either:
   - Setup a button to do a button action[403] for Recipe, such as: Recipe: Download Specific Recipe[444]

   or
   - Setup an automatic Recipe action[690] via the Strategy Controller[666]

5. It is possible to limit[657] which Recipe names are shown in the Recipe Manager box.

Each screen (GDW) in SpecView can have one Recipe associated with it. When 'Recipe mode' is selected a highlight (box) appears around all the variables selected for Recipe.

The Recipe defines the set of variables, and there can only be one of these per GDW, but there can be up to 1,295 different sets of values for these variables which are saved as files to disk.
However, each set of values may not need to set all the variables in the Recipe, therefore in order to set only some of the variables at a time the value N/C (No Change) can be used.

NOTE: A Recipe is therefore made up of two parts:

- ***The full list of variables which can be included in a Recipe (and there can only be one of these per GDW).***
- ***The named sets of values for these variables (and there can be 1,295 different***

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sets of values).

As of SpecView version 3.1.253[130], the number of Recipes per GDW was increased to 32,767. Therefore, from 3.1.253[130] onwards there can be 32,767 named sets of values.

Recipe names may be any length and can include spaces and special characters.

A description[646], which for example, may include special instructions to the operator, can be associated with each set of Recipe values.

Either Button actions[403] or the Strategy Controller[666] can make use of Recipes.

The order that values are downloaded into variables can be defined using Recipe Levels[656]

SpecView will automatically retry Recipe value downloads if there is a failure.

Selecting Variables to be Included in Recipe[636]
Recipes - Using[637]
Recipe Variables in the Variables List[321]
Recipe Warning[640]
Recipe Names[641]
Recipe Description[646]
Recipe Hide this box[646]
Recipe Save & Save As[647]
Recipe Import/Export[647]
Recipe Send[649]
Recipe 'Send To'[649]
Source and Target Instruments[651]
Recipe Send To: Warning[655]
Recipe 'Send To' Problems[655]
Setting the Recipe download order[656]
Preferences - Recipe[465]
Recipe on Remote[659]
Recipe Limit[657] - to limit which Recipe names are shown in the Recipe Manager box.
Recipe Compare[659]

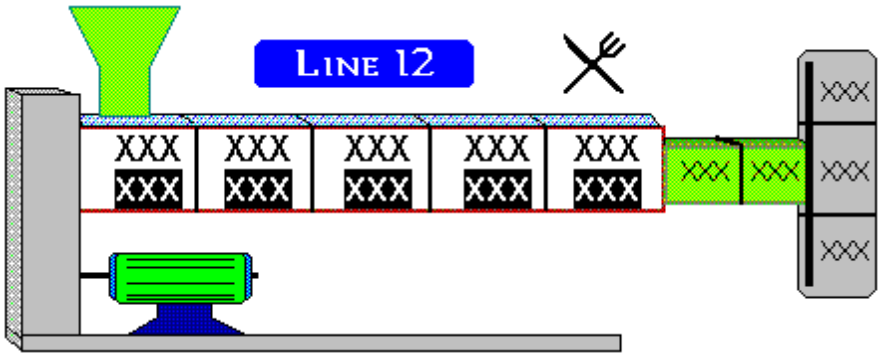
12.1 Selecting Variables to be Included in Recipe

NOTE: In order to be able to do this you must first have setup a GDW containing all the variables which you intend to put in to the Recipe. Read Adding Numeric Values to a GDW[348]

In Edit Mode open the GDW which is to have the Recipe defined on it.

Select Recipe Mode by clicking  on the toolbar (or View Menu - Recipe Mode)
The cursor changes to a knife and fork and any variables that have already been selected for Recipe will highlight.
To add or remove a variable, click the value with the knife and fork cursor. However, if a variable is Grouped[291] with other items on the GDW then it will need to Ungrouped[291] for use in Recipe.

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NOTE: As you move the cursor over each variable the Status Bar shows the name of the variable

Be sure NOT to select any variables that are Read Only.

12.2 Recipes - Using

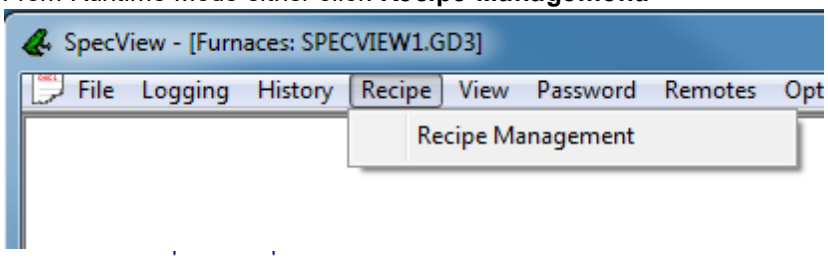
Recipes are Setup[636] from Edit Mode by the following steps:

1. In Edit Mode: Create[822] a screen (GDW) and put[815] all the variables on it that you wish to change using Recipe. This screen can be thought of as a Recipe screen.

2. Then Select[636] these variables for Recipe.

3. The sets of values are then created as follows:

From Runtime Mode either click **Recipe Management.**

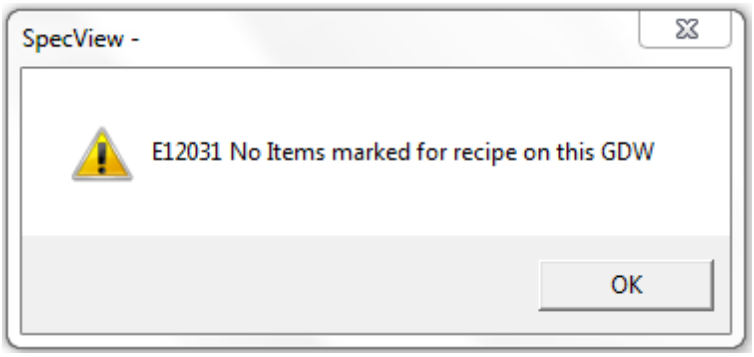


OR click 

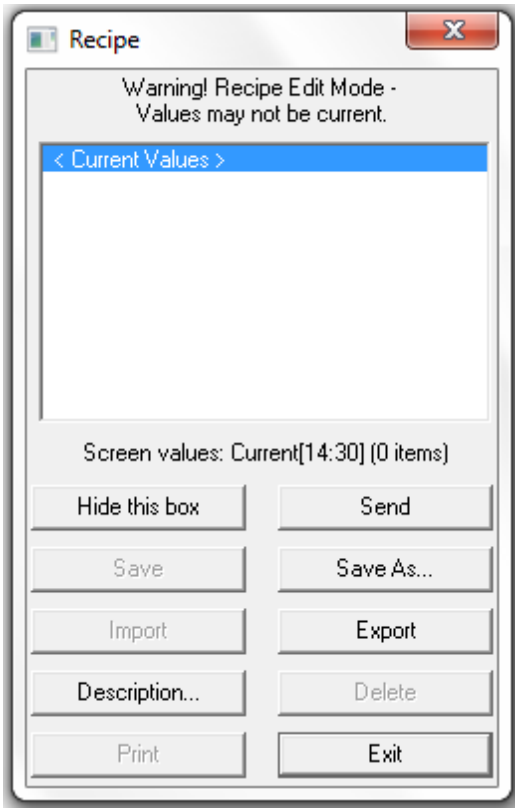
which is a button that has been previously defined in Edit Mode to perform the required Recipe action.
The Recipe box will appear.

If no items have been previously selected[636] in Edit Mode for Recipe for this GDW this box will appear:

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In which case the variables need to be selected using  on the toolbar in Edit Mode.

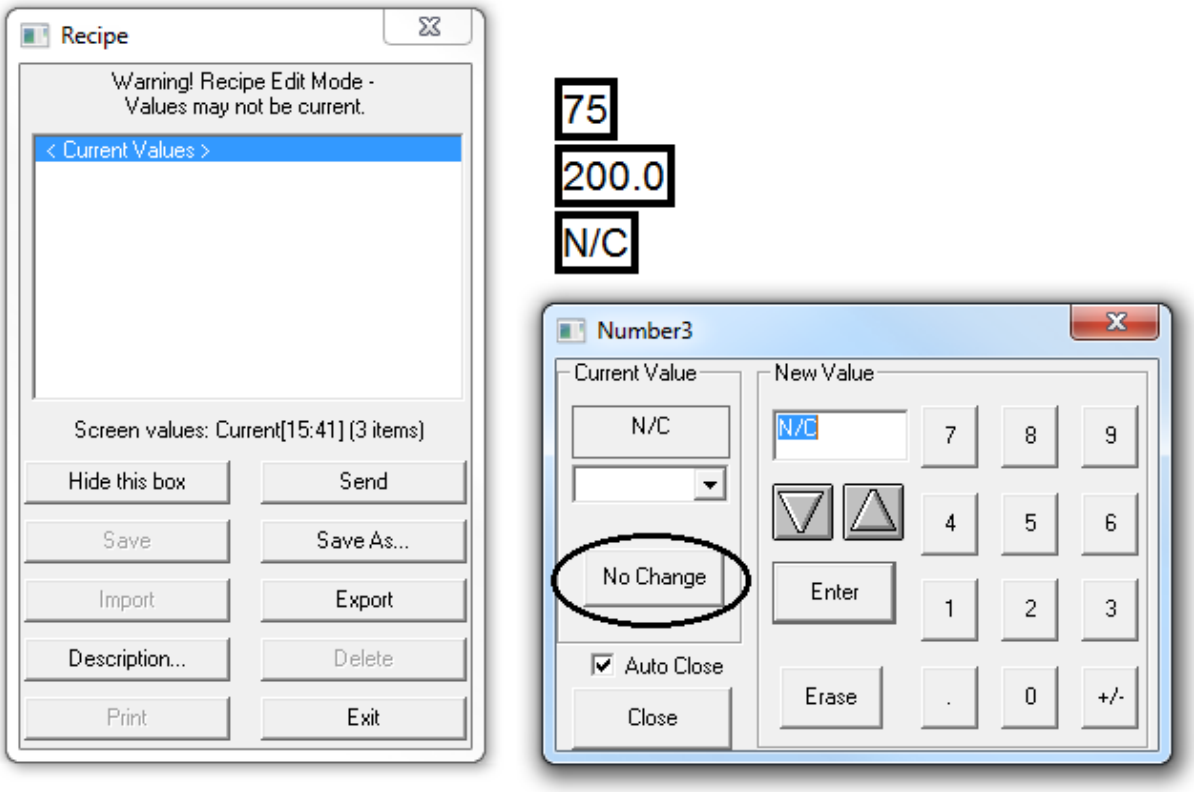


To define the values for each variable click the highlighted values on the GDW itself and enter the new value. Do this for each variable.

While the Recipe box is being displayed any values entered in the highlighted boxes will not be sent to an instrument or saved to a User Variable until the **Send** button is clicked.

If a variable does not need to be changed in this set of values, just click the **No Change** button on the data entry box for that variable.

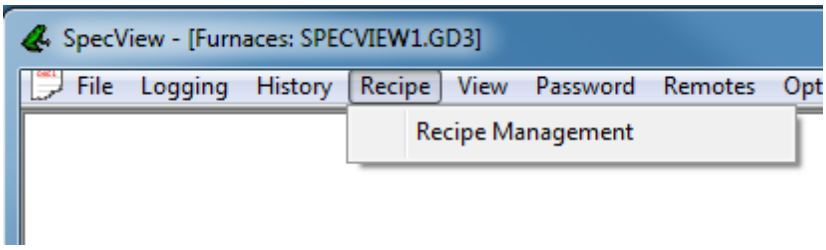
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Then click the **Save As...** button to save the set of values to a name. This name can then be used when in Edit Mode for button actions or by the Strategy Controller.

You can define numerous different sets of values (up to 1295), each given a different Recipe Name[641], but typically only a few sets are needed for most requirements.

If the Recipe box has been hidden using the Hide this box button, then

click **Recipe Management** 

OR



to restore the Recipe box.

NOTE: Items in the Recipe may show Color Dynamics[359] based on the Recipe value. This can cause confusion in some cases if some color dynamics are a result of the Recipe and others are not.

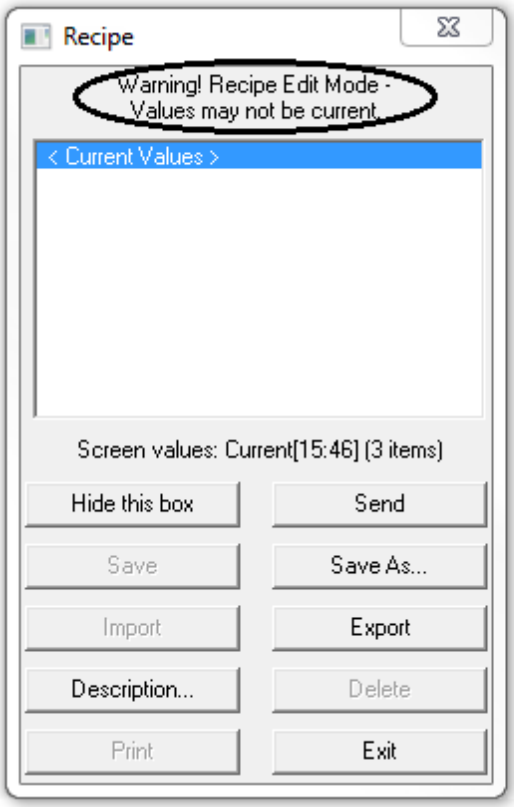
The sets of values can then be associated with a button or Strategy Controller event

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4. In Edit mode: Setup these sets of values to be used. This could be by defining a button [384] to do a button action [403] for Recipe, such as: Recipe: Download Specific Recipe [444] or via the Strategy Controller [666] to do a Recipe action [690].

12.3 Recipe Warning

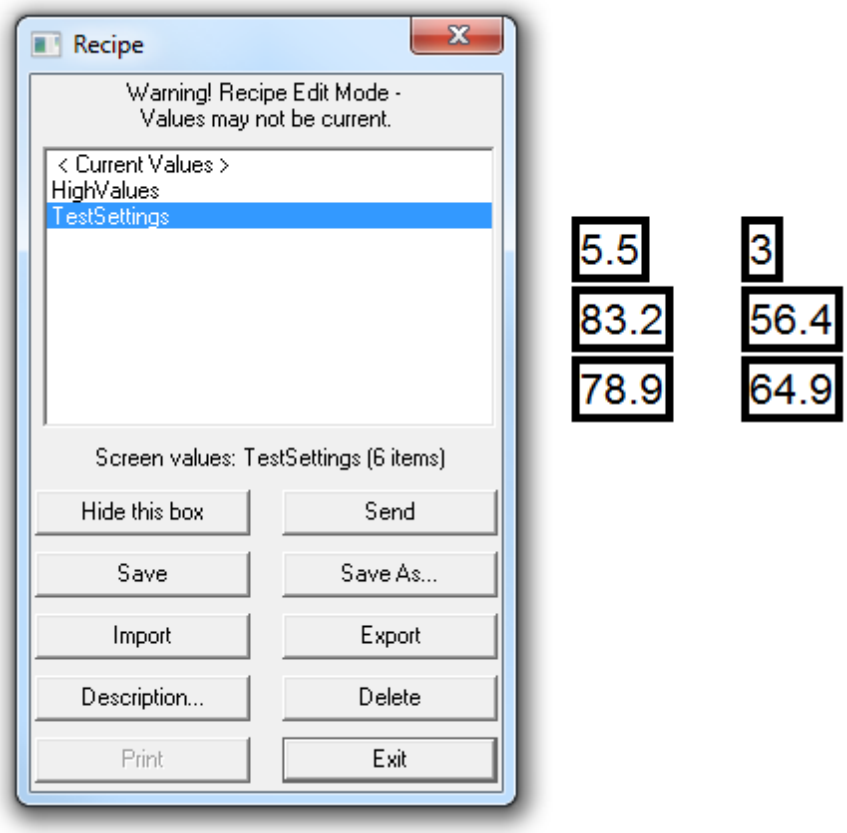
The highlighted values on the GDW are not updated from the instrument while the Recipe [637] box is on the screen.
When a Recipe has been selected from the list, or if a highlighted variable has been edited then the values shown ***are no longer current*** while the Recipe dialog is being shown.





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12.4 Recipe Names



Click a Recipe[637] name (which has previously been saved using the **Save As** button) and the highlighted values on the GDW will change to the stored values.
Click the **Send** button to write the values to the instruments.
If required, the values may be edited before sending (click a highlighted value on the GDW to edit it). The changes may be stored by clicking **Save** (overwriting the existing Recipe) or **Save As** (save as a new Recipe).

The Recipe defines the set of variables, and there can only be one of these per GDW, but there can be up to 1295 different sets of values for these variables which are saved as files to disk.

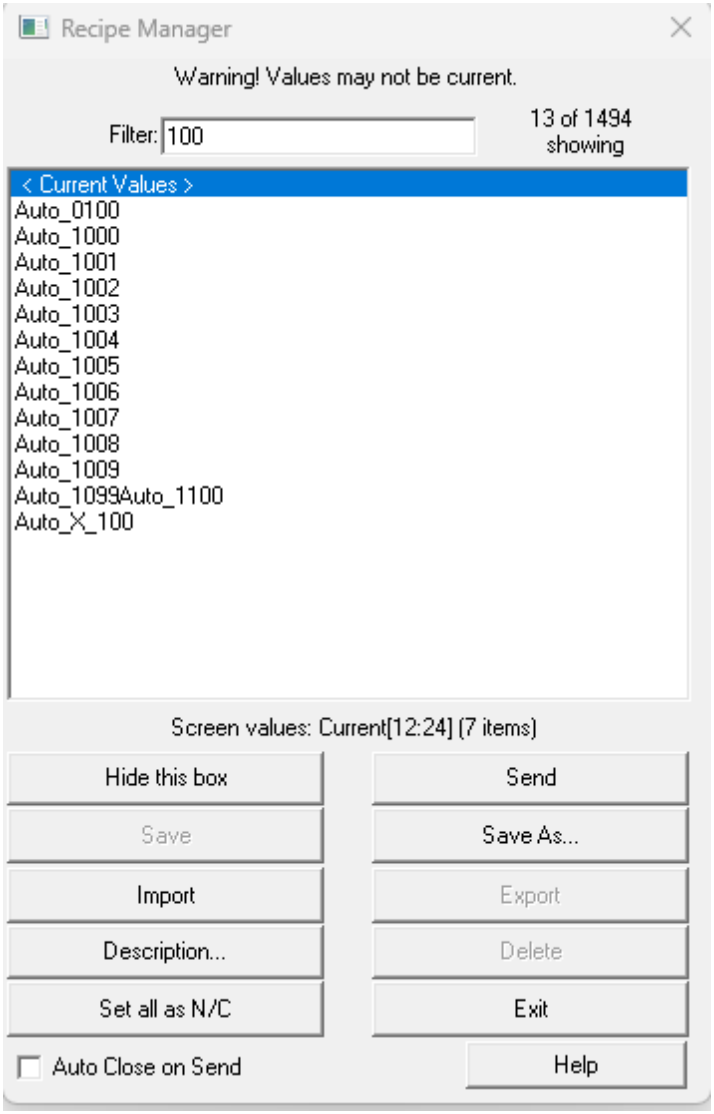
Recipe names may be any length and include spaces and any special characters.

Recipe Filtering

As of SpecView version 3.1.253[130], Recipe Filtering was introduced.

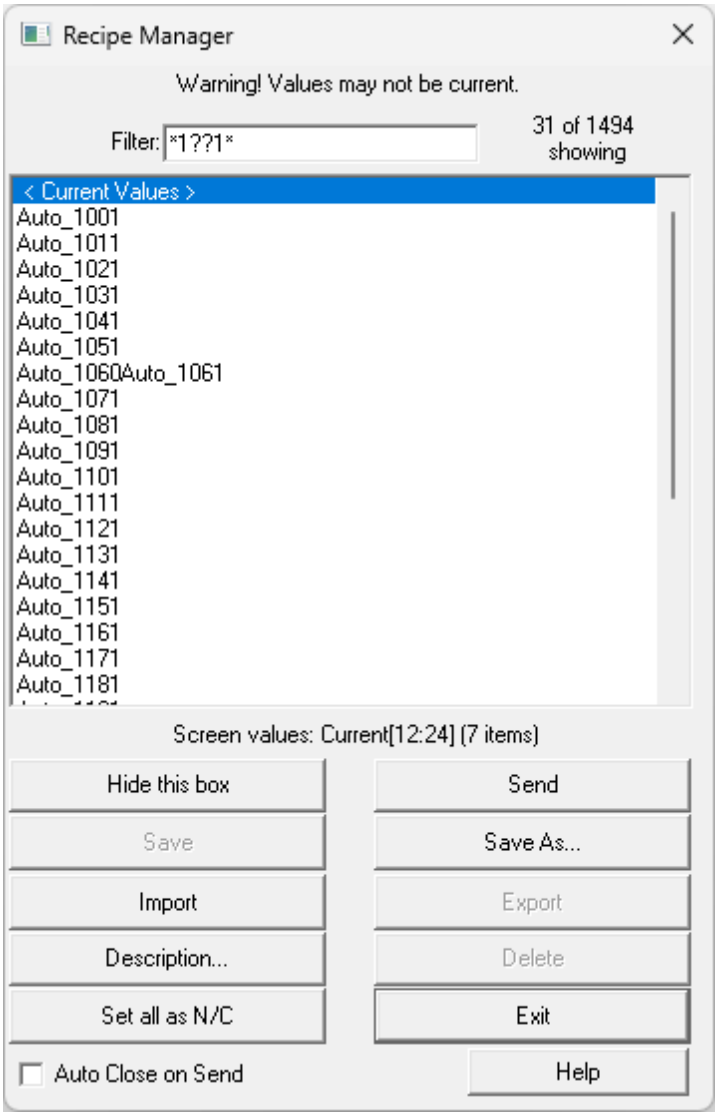
Recipe Filtering enables users to search through Recipe names.
For example, searching for the string '100' will return any Recipe Name with those characters in it as seen in the image below.

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Recipe Filtering supports wild cards of '*' and '?'.
For example, searing the string '*1??1*' will return Recipe Names such as Auto_1001.
This is seen in the image below.

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12.5 Recipe Names from Text Variables

Note that the word 'String' means the same as 'Text variable'.

Recipe names can be specified in a text variable which is helpful if, for example, the name of the Recipe is coming from a barcode[210] scanner.

Download Recipe from a Text Variable[644]
Recipe List Pre-Select from a Text Variable[644]
Recipe Send-To from a Text Variable[651]

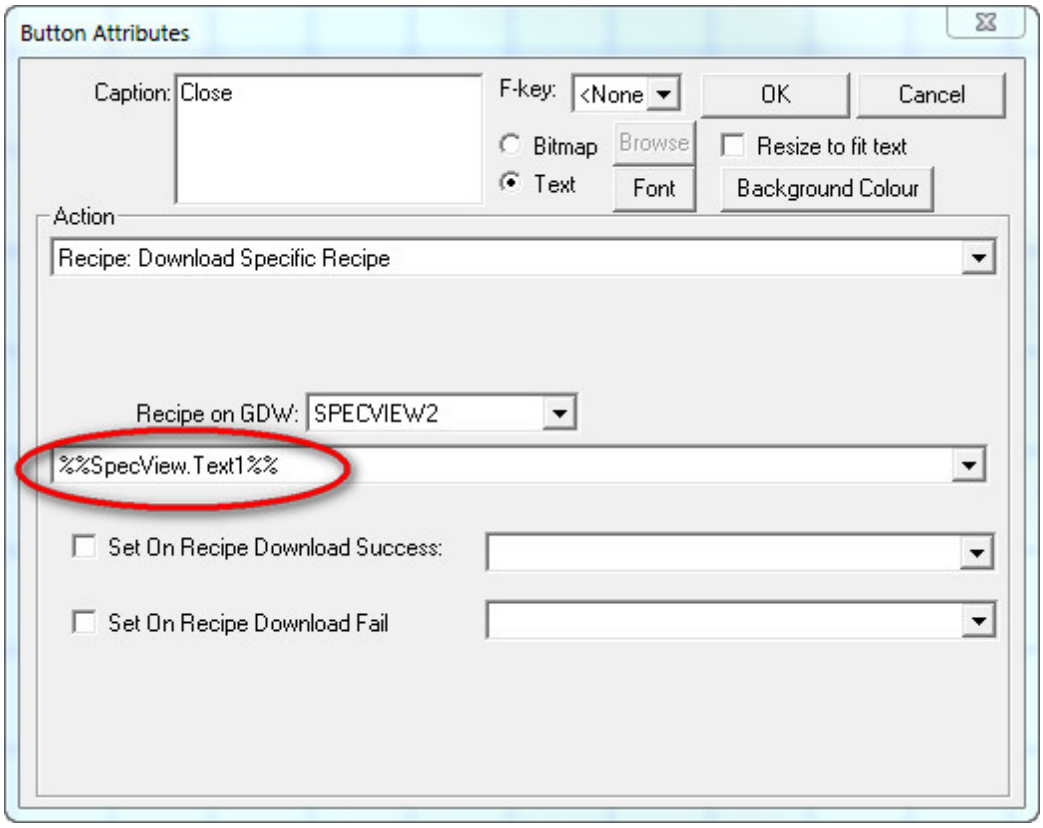
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Download Recipe from a Text Variable

This is enabled by default, and is controlled by:

SETTINGS.INI
[Recipe]
DownloadFromStringEnabled=Y

When enabled, it puts all the names of all the Text Variables into the Recipe selection box:



This shows the User Variable Text1 selected as the Recipe name to be downloaded. SpecView then looks up that variable and if that corresponds to the name of a Recipe on the specified screen, then that Recipe is downloaded.

NOTE: Recipe names are case sensitive

Also note: The Text User Variable MUST be out on an open screen (GDW) somewhere for this to work. (However, it does not need to be visible, it could be white-on-white, or off the right or top or bottom of the screen.)

Recipe List Pre-Select from a Text Variable

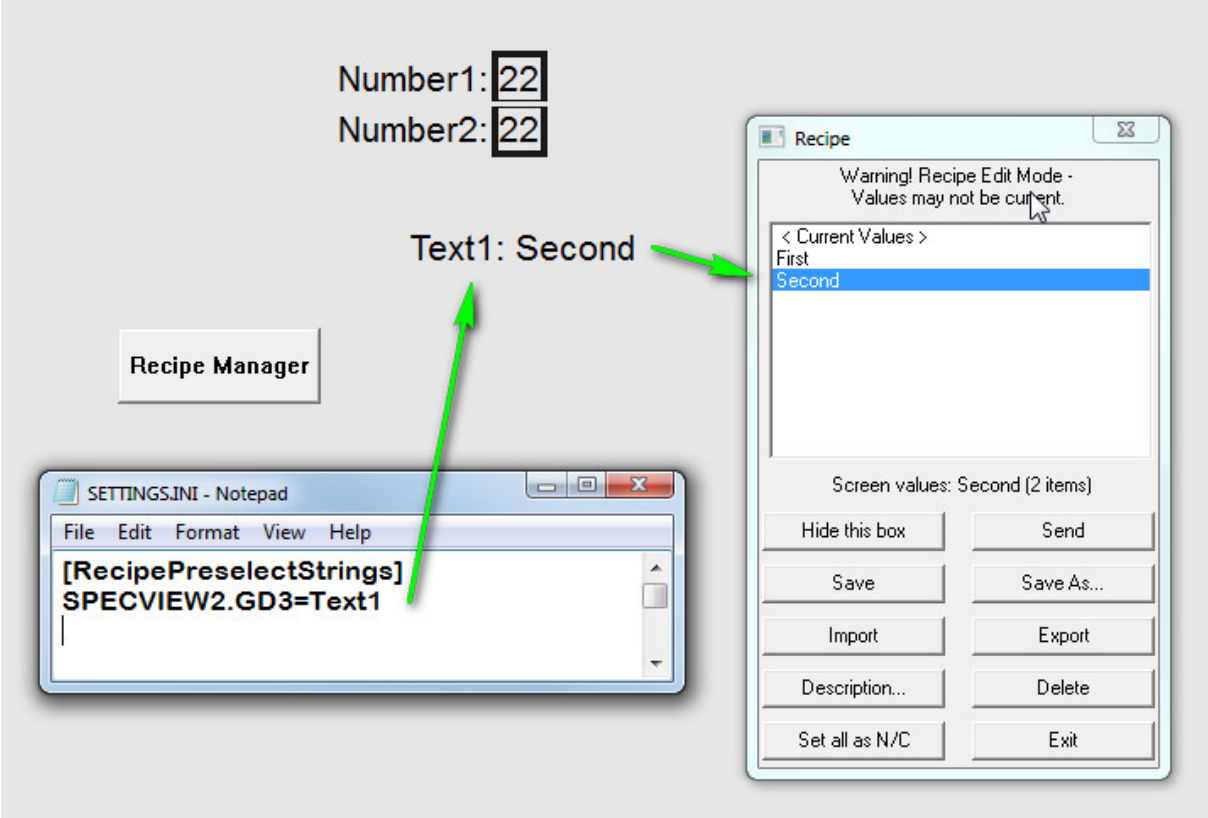
This allows a specific Recipe to be selected when the Recipe Manager is opened on a given screen - normally **Current Values** is selected every time.

This is not on by default and must be turned on for each screen, because each Recipe screen has its

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own set of Recipes and so each screen needs its own Text String.

Make a note of the Text String to be used for this screen, in this example, it is 'Text1' and make a note of the name of the screen, in this case, SPECVIEW2.GD3



In SETTINGS.INI, in a new secion, add:

[RecipePreselectStrings]
SPECVIEW2.GD3=Text1

This tells the system that if the Recipe Manager is opened on Screen SPECVIEW2, then use the Variable Text1 to Preselect a Recipe in the Recipe Manager.
In the example above, the Recipe 'Second' has been selected in the Recipe Manager because 'Second' is in the variable Text1.

If the variable specified does not contain the name of a Recipe in the list, then nothing is preselected.

Also note: The Text User Variable **MUST** be out on an open screen (GDW) somewhere for this to work. If not then no Recipe is preselected.
(However, it does not need to be visible, it could be white-on-white, or off the right or top or bottom of the screen.)

Once the Recipe has been pre-selected from the Text Variable, the Recipe can be Sent, or Sent-To as required.

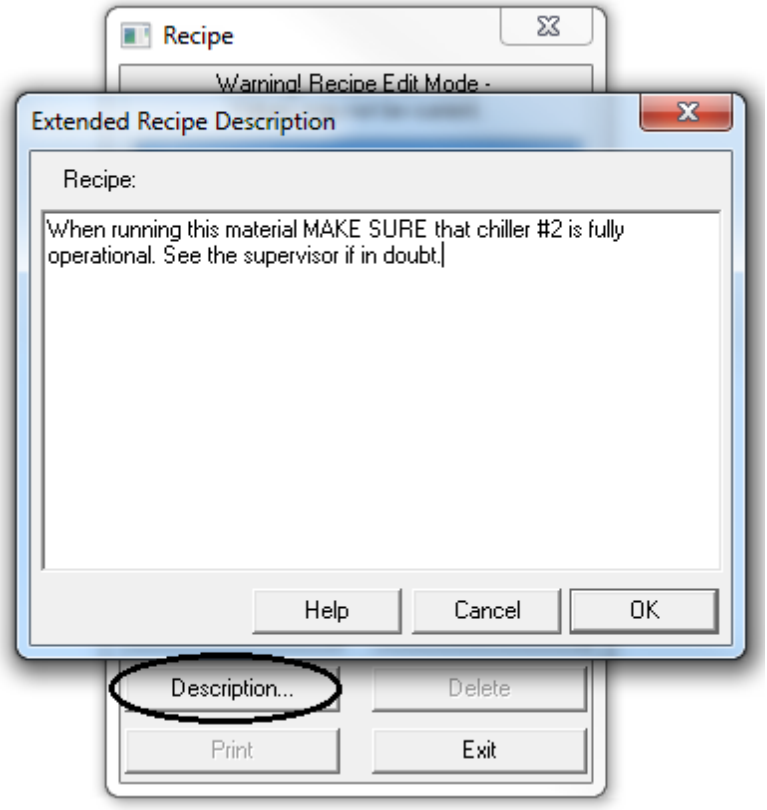
NOTE: Pre-selection of Recipe names is not case sensitive

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Recipe Send-To from a String - see here [651].

12.6 Recipe Description

Any text may be typed into the description box.
The description is part of the Recipe [637] so it is necessary to click the Save tool after exiting the description box.



As of SpecView Build 3.1.257 [127], the Description button on Recipe Manager will display an asterisk when a description is available for a Recipe [637].

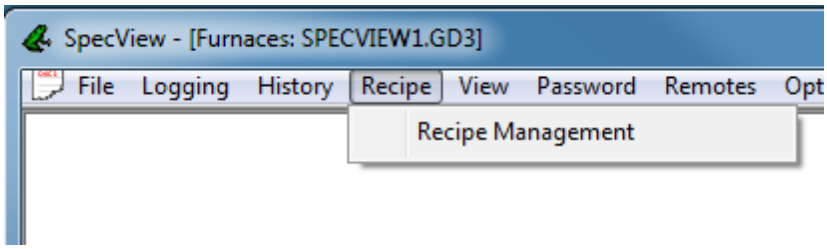


12.7 Recipe Hide this box

The Recipe [637] box may be covering some of the Recipe variables on the GDW. The **Hide this box** button hides the Recipe box while editing the Recipe values.
This is useful if values are behind the box.

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Click **Recipe Management**



OR

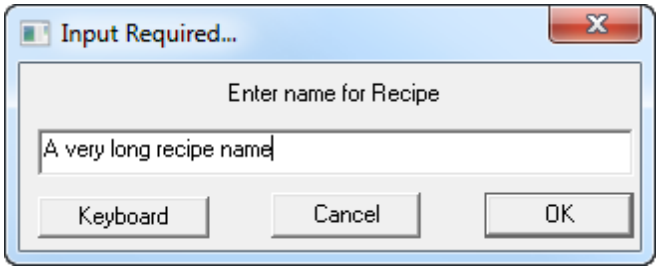


to restore the Recipe box.

12.8 Recipe Save & Save As

New Recipes[637]:

Click the **Save** button when the <Current Values> line is highlighted OR
Click the **Save As...** button. In either case you will be asked to enter a name:



Names may be any length and include any characters
(SpecView assigns the file names. A maximum of 1295 sets of recipe values are allowed per GDW)

NOTE: This is the same data entry box as used for Project names and SpecView User Variable names.

Existing Recipes:

The Save button saves the current values ***overwriting the old ones.***

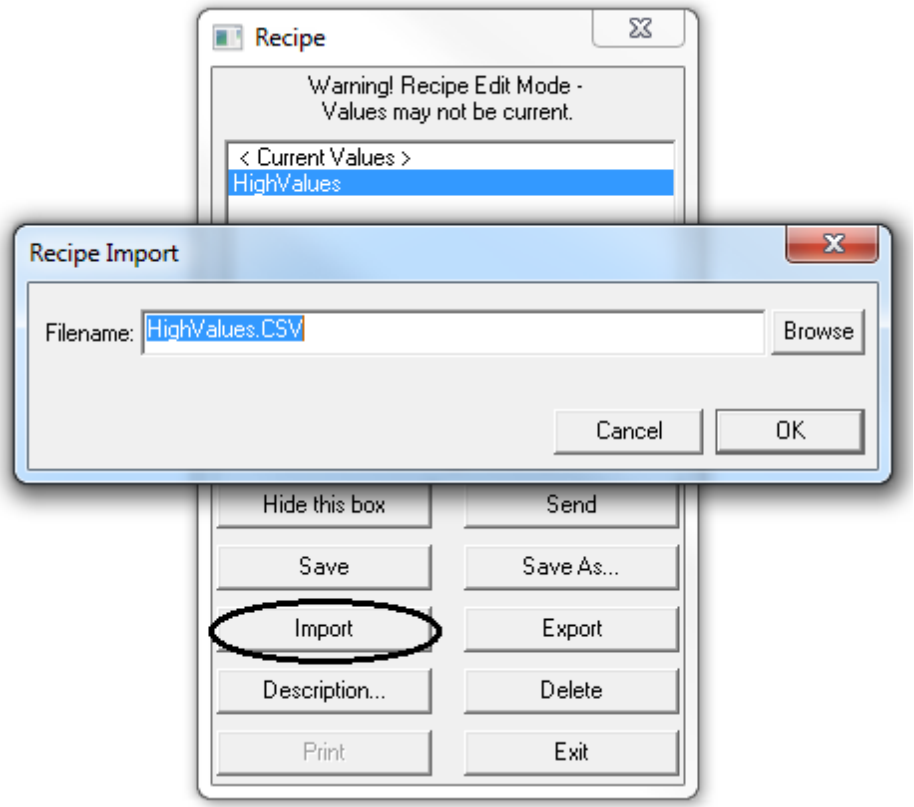
NOTE: There is NO 'overwrite existing' warning box.

12.9 Recipe Import/Export

Recipe[637] Import and Export are used to save a recipe to a file in a format that may be edited using Microsoft Excel and then subsequently imported into SpecView. This allows you to distribute recipes to other SpecView users in an easy to use manner. The exported recipe is in Comma Separated Value (CSV) format and can be directly edited in Excel. Editing restrictions are detailed below.

Recipe Import
The Import button on the Recipe Management screen is always enabled.

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The recipe which is imported does **not** relate to the one which is currently selected. It is just used to create the default name. Hence the default name will be the <name of the recipe currently selected>.CSV
If a folder is not specified then the recipe CSV file will be imported from the current project folder. Alternatively use the Browse button to select a folder and file to import from.
The file selected must be in CSV format and have been exported using the Export button from within SpecView.
When you click the OK button you will be prompted to discard any outstanding changes. Then the recipe CSV file will be read.
Each line representing a recipe item is validated to ensure that it can be imported correctly. If not then an error is displayed and you may cancel the import if required.
The number of recipe items being imported is checked, if it does not match the items currently in recipe then you are prompted. If there are fewer then the remainder will have their values set to 'No Change'. Extra items in the CSV file will be ignored.

Recipe Export
The Export button is only available once a recipe to be exported has been selected on the Recipe Management screen.
The Export will prompt for a file name, the default will be the <name of the recipe>.CSV
If a folder is not specified then the recipe CSV file will be saved in the current project folder. Alternatively use the Browse button to select a folder and file to save to.

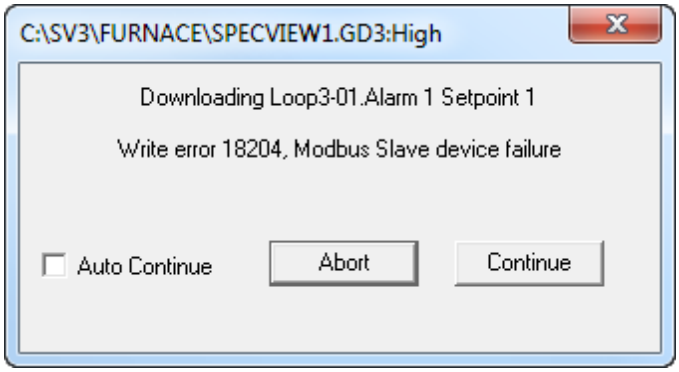
Editing the exported recipe
The recipe CSV file can be edited before importing it back into SpecView.
This can be done using MS-Word or a text editor, such as Notepad or WordPad, as well as Excel

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The name of the recipe on the first line may be changed and the recipe item's new value in the 4th column.
However, do **not** remove any of the commas that separate the columns, or change the data in first 3 columns as these are used by SpecView to match up the recipe items when importing the recipe.
Whole lines can be removed if you wish to remove a recipe item from recipe, but be aware of the importing issues detailed above.

12.10 Recipe Send

(Also Send To[649])
Sends the recipe[637] values shown on the GDW to the instruments.
A progress box will be displayed.
However, if an instrument does not accept the value sent by SpecView then an error will be shown, for example:



Recipe Send: Auto Continue
SpecView will continue to send the Recipe and ignore all future write errors

Recipe Send: Abort
The Recipe send is aborted

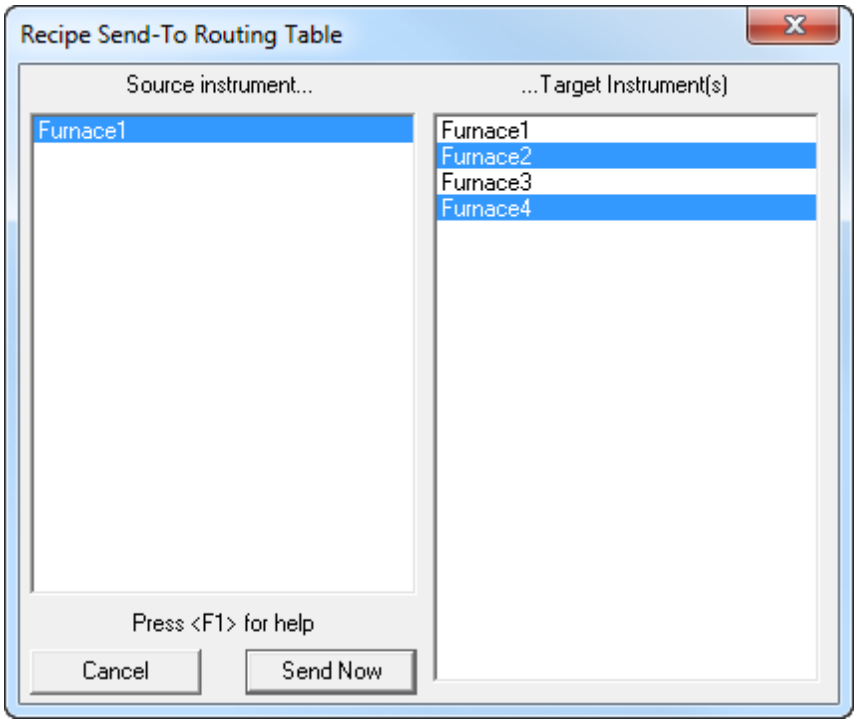
NOTE: Values already sent will be the values in the instruments. Previous values are not restored.

Recipe Send: Continue
Clicking **Continue** will resume the Recipe send. The loading will pause again if there is another write error.

12.11 Recipe Send To

This box is only displayed when there is more than one identical instrument that the recipe[637] could be sent to, and allows the Source and Target[651] instrument(s) to be selected:

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This will only send instrument variables to the specified instrument, it will not affect SpecView User Variables, however, see below.

Problems during download 655

For Recipes which include User Variables:

Recipe Send-To is intended to send from one instrument to one or more other instruments...but there is only one set of User Variables.
Consequently, normally, any User Variables that are in the recipe are NOT sent **at all** because it could be misleading - if a recipe is sent to 2 instruments, then the User Variables would be written to twice.

However, there are some cases where sending to a User Variable is useful:

1) If a profile has a SpecView-checked Hi-Limit-policeman (stored in a User Variable) that varies depending on the recipe downloaded. Once downloaded, the Strategy copies the single User Variable to the correct one for the instrument based on which device the recipe was sent to.

2) When **manually** (not via Strategy) doing a Recipe Send or Recipe Send-To there is no way to tell if it was successful or if the recipe download was aborted by the user part way through.
So putting a Boolean User Variable at the end of the recipe download (using Recipe Levels 656) will mean that if it gets all the way through it, then the Boolean will be set (indicating it was completed).

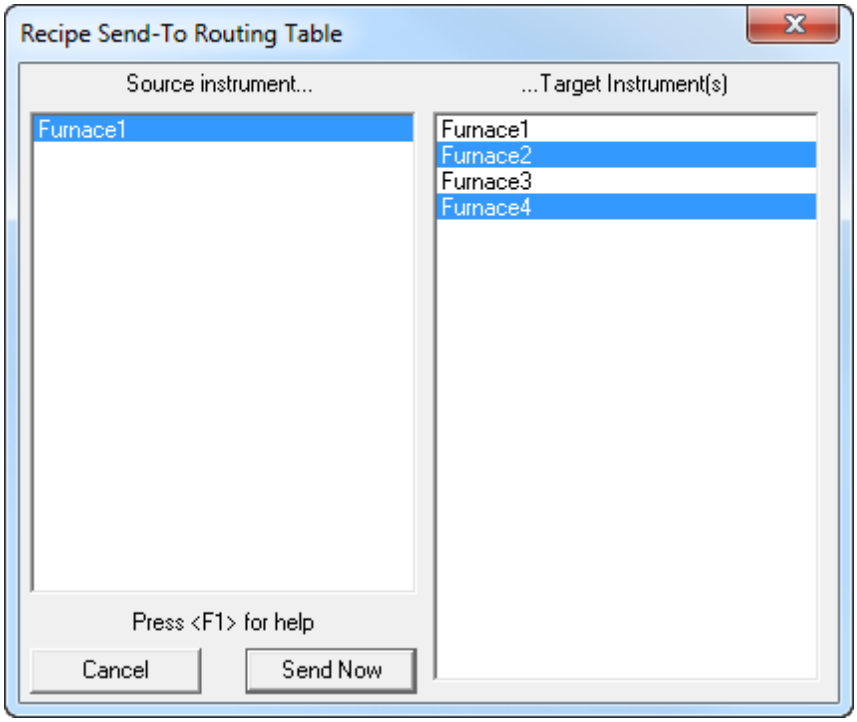
Note: The default is NOT to send-to User Variables.
To allow this add to SETTINGS.INI in the [RUNTIME] section:

RecipeSendToUserVars=1

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12.12 Source and Target Instruments

If more than one instrument has Recipe[637] values on the GDW they will be shown in the Source Instrument window. Select one and then select one or more Target Instruments to receive the values associated with *that source instrument.*



Then select the next Source Instrument and select target(s) for its values, and so on.
In this example, the values for Furnace 1 on the GDW will be sent to Furnaces 2 and 4.
When all required targets have been selected, click the **Send Now** button

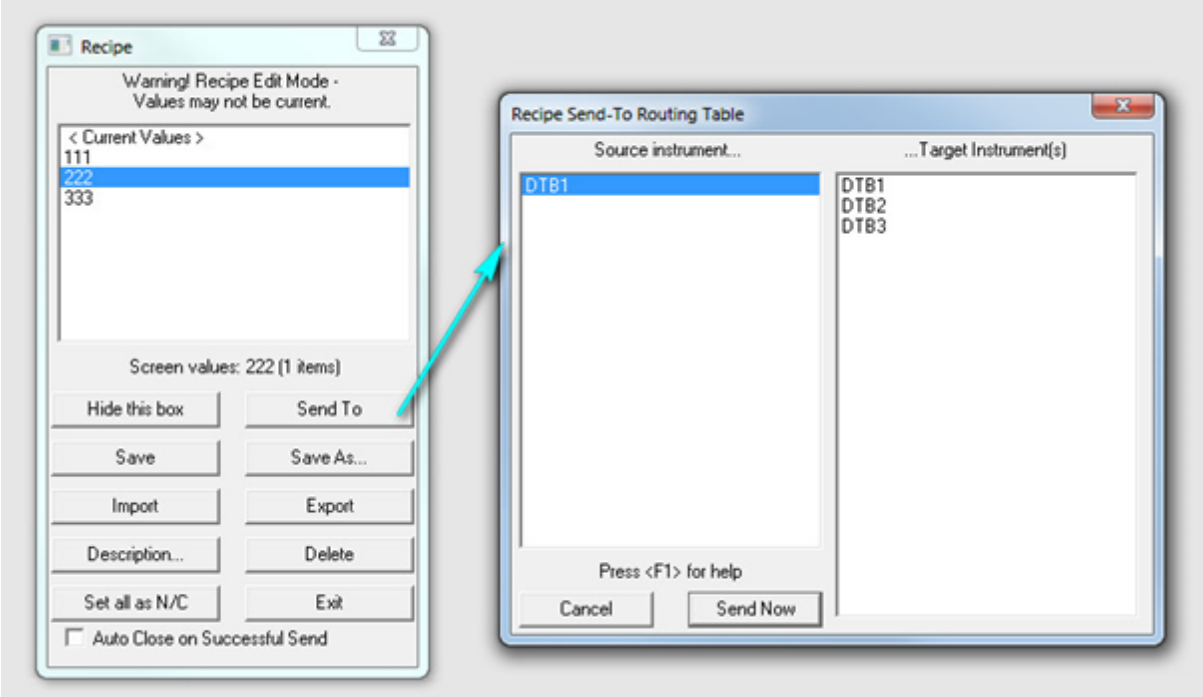
NOTE: At least one target must be selected.

12.13 Recipe Send-To from a Text Variable

Note that the word 'String' means the same as 'Text variable'.

The normal Recipe Manager Send -To invokes the Routing box that has the source on the left and the compatible targets on the right, one or more of which can be chosen to redirect the recipe to.

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When implementing Recipe Send-To from a string, unfortunately there is no space on any of the Dialog Boxes to enter or choose the String to be used, so it has to be done from a setting inside SETTINGS.INI

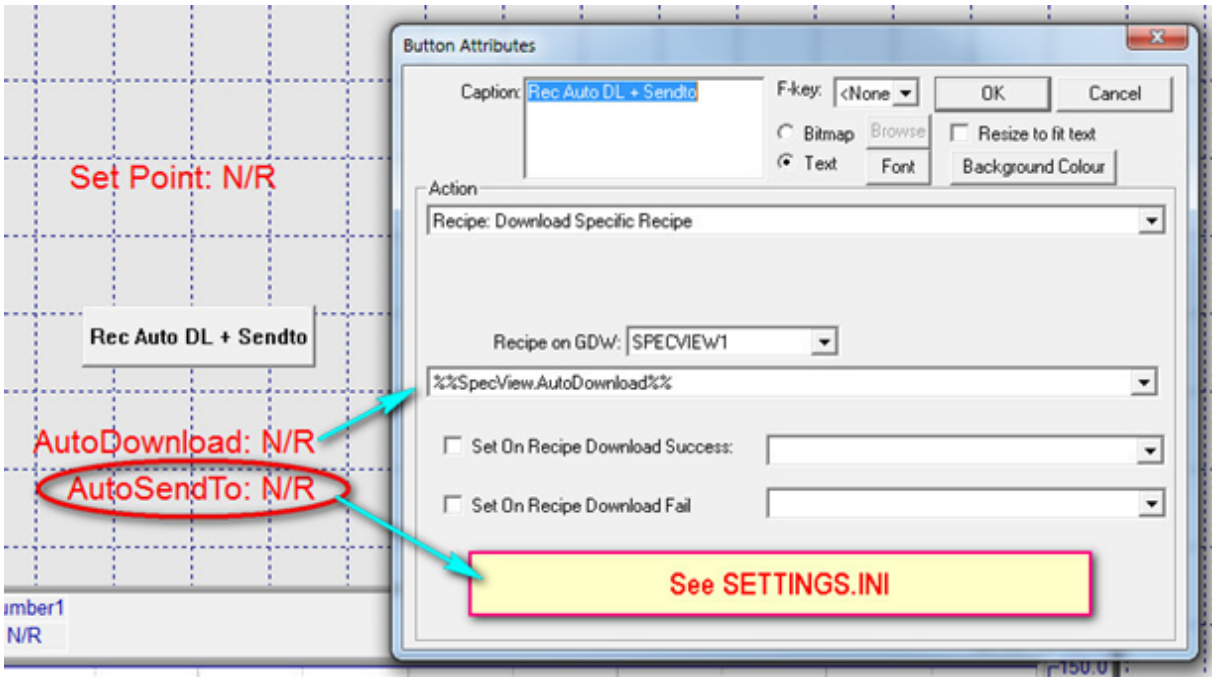
To Start with, the recipe itself must come from a String, and that can be specified in the the Button/ StrategyAction as previously discussed using the SETTINGS.INI[512] setting:

[Recipe]
DownloadFromStringEnabled=Y

That enables the picking of SpecView Strings as the name of the recipe to be downloaded, see next screenshot where this has been used:

The Button/Strategy Action[403] needs to be a Download Specific Recipe type.

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The AutoDownload string in the above example will contain the name of the Recipe on the screen SPECVIEW1.GD3

The AutoSendTo string will contain the name of the instrument to send-To – one from the Right column in the diagram on the previous page, e.g. DTB1, DTB2 or DTB3.

To make the Send-To work from a string, another setting is needed in SETTINGS.INI, add the section if it is not already there:

[RecipeAutoSendToStrings]
SPECVIEW1=AutoSendTo
DisplayErrors=Y

This says that the screen SPECVIEW1 will automatically Send-To the instrument whose name is in the String AutoSendTo

It also shows that any errors are to be displayed on the screen – otherwise just Event Log shows the errors.

If the AutoSendTo String is blank, then the Routing Dialog is displayed as with a normal Send-to, but if the String contains the name of one of the instruments on the right side of the Routing box, then that is automatically used instead of displaying the Routing box.

The Name of the instrument is case sensitive, so it must be specified exactly as it would appear in the right side of the Routing table.

So here are the steps to set this up:

Have a Recipe Screen (SPECVIEW1 in these examples).

Have a SpecView String that will contain the name of the recipe to be downloaded (AutoDownload in this

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example).

Have another String that will contain the name of the Instrument to Send-to (AutoSendTo in this example).

Test the recipe screen using a normal Send-To button type to check the Routing table Right hand side to make sure the names are as expected.

Put BOTH strings on an open screen somewhere – the recipe screen itself (SPECVIEW1) does not have to be open, but the two Strings must be on a screen that is always open.

Define a button or Strategy Action to Download a Specific Recipe on the screen, and choose the String from the
%% AutoDownload %% that shows up in the list, see the diagram above. If the %% items do NOT appear then edit SETTINGS.INI and add:

[Recipe]
DownloadFromStringEnabled=Y

Once the manual recipe download and send-to has been tested, then enable the AutoSendTo:

[RecipeAutoSendToStrings]
SPECVIEW1=AutoSendTo

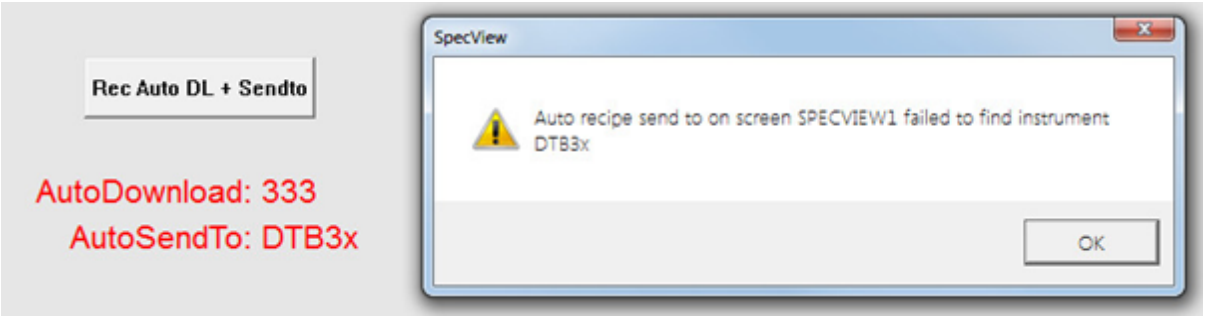
In SETTINGS.INI to allow the system to take over the Send-To.

NOTE: The button or Strategy Action must NOT be a Send-To type, just a normal Download Specific Recipe.

Important notes:

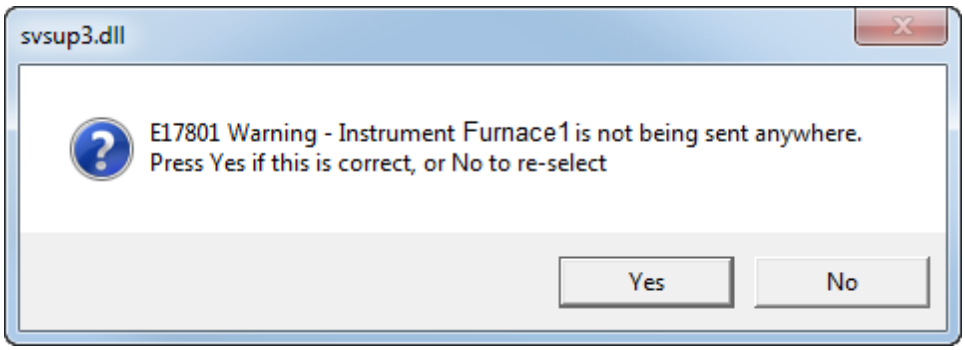
- The Strings must be on a screen that is open when the button or Strategy Action runs, otherwise the values will not be defined and it will not work.
- Only one instrument can be in the String to **Send-To** – to do **Send-To** multiple times they must be done one after the other.
- Only one instrument is allowed on the left side of the routing table - if there are more than one then the auto-send to will not operate because it is not possible to specify the destination for more than one instrument at a time.

If the name in the String is not correct, then an error message will be displayed and recipe send will fail:

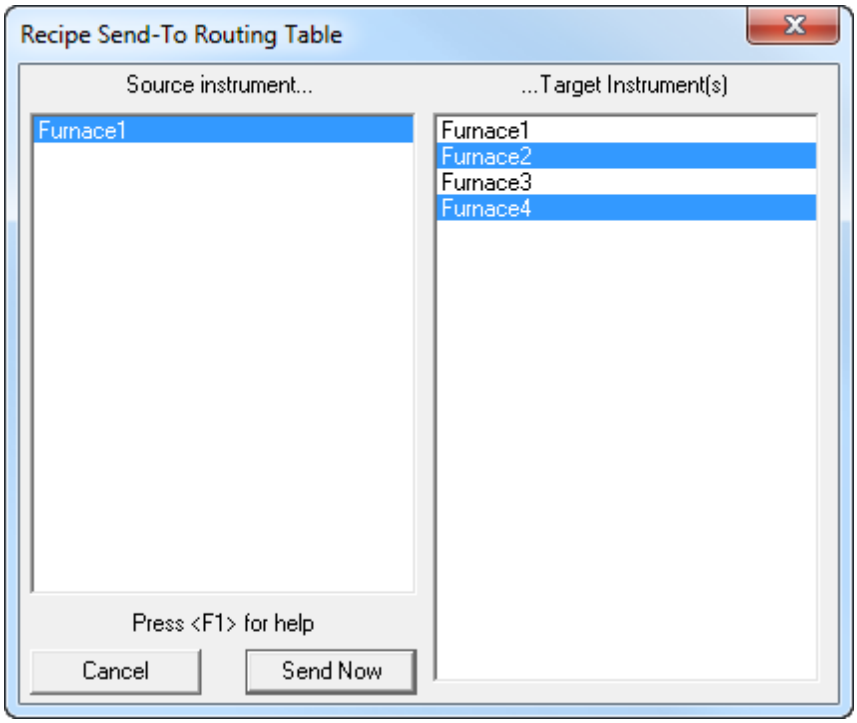


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12.14 Recipe Send To: Warning



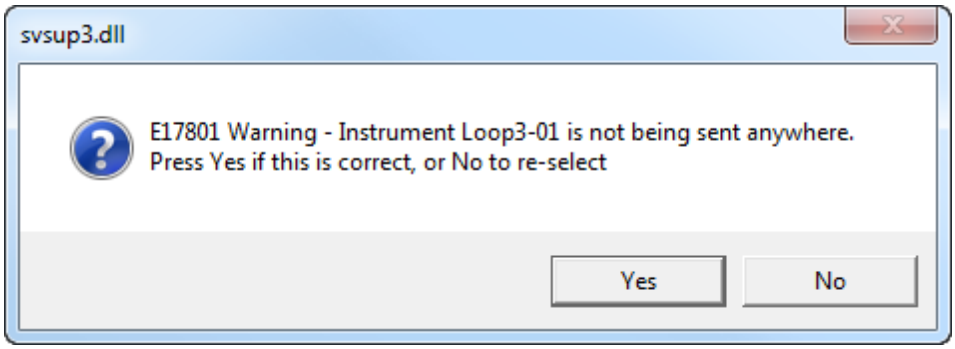
This means that no Target Instruments have been selected (to send the recipe[637] to) for the Source Instrument Furnace1, select the target instruments, for example:



12.15 Recipe Send To: Problems during download

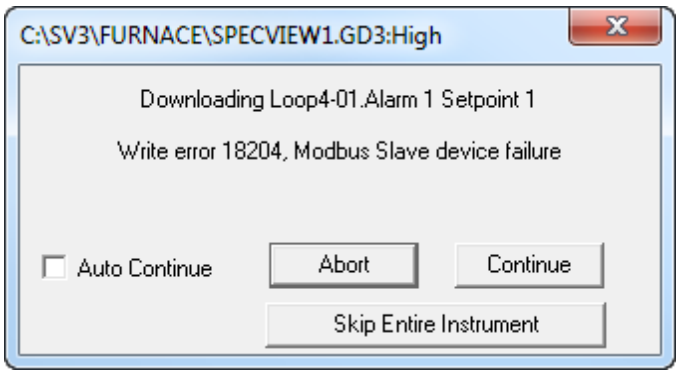
If at least one Target Instrument has not been selected (to send the recipe[637] to) for each Source Instrument:

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Click **Yes** or **No** as required.

If an instrument does not accept the value sent by SpecView:



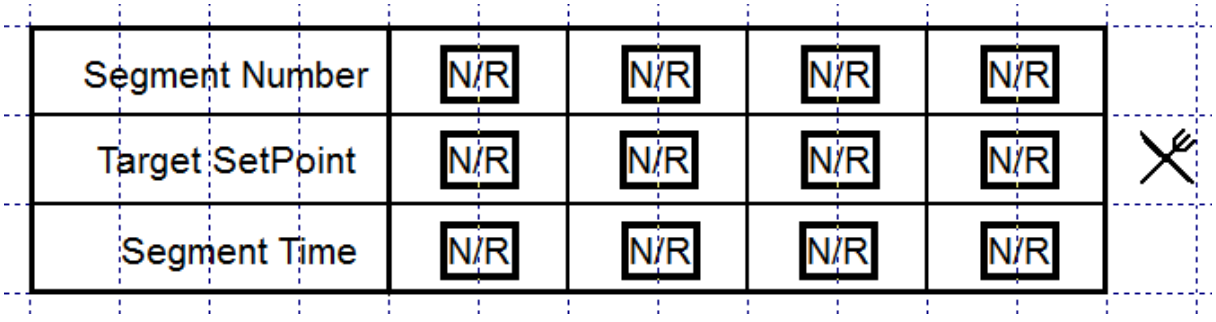
Recipe Send To: Skip Entire Instrument
SpecView will not attempt to send any more values to that target instrument

12.16 Recipe Specifying the download order

It is sometimes necessary to send recipe[637] values to instruments in a specific order. Examples are:

- Setting a controller to 'Manual' BEFORE setting the output power
- Setting a programmer segment or step number BEFORE setting a target time or setpoint

NOTE: Setting the Recipe download order is only required if the order of the download matters for the particular instrument variables used by the Recipe.



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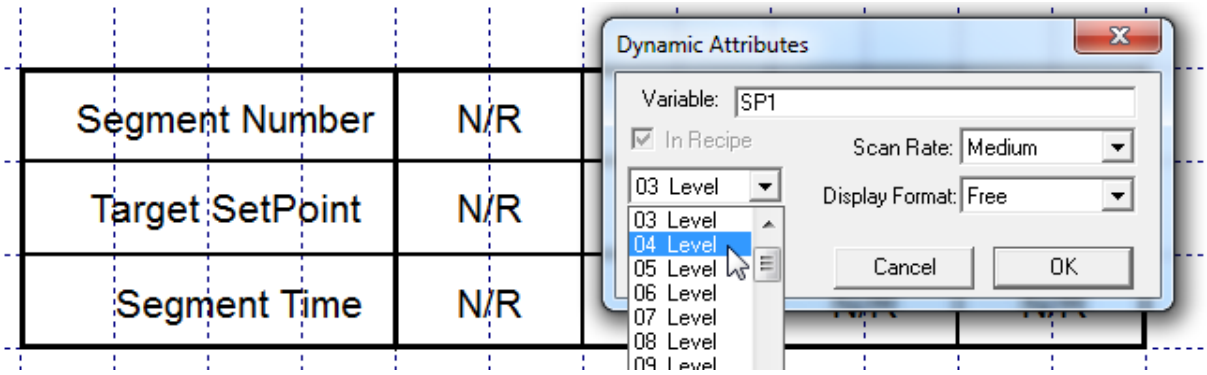
In this picture all these variables have been selected for Recipe. It is required that the following order is followed:

1. The first segment number
2. The first target SP and Time
3. The second segment number
4. The second target SP and Time
5. And so on…

SpecView supports up to 99 download levels which specify the order. Any number of parameters may be sent at any level. It is advisable to leave one or two spare levels at the top. So typically the first item (the first segment number, in this example) will be set to level 3, the next to level 4 and so on. The reason for this is in case you need to add something in the future that needs to be set first.
To set the download level:

First ensure  is NOT enabled on the toolbar.

- Single-click the value to select it
- Press the shortcut: Ctrl + D or use the Edit - Dynamic Attributes menu command:



Select the required level
SpecView will send the Recipe in the specified order.
There is a pause between levels to allow the controller (the instrument) enough time to register the values and be ready for the next data. This pause is adjustable in Preferences - Recipe 465

Then click the Save tool  and the Runtime tool  to save and run.

12.17 Recipe Limit

The list of Recipes in the Recipe Manager box can be limited (restricted) to a list of Recipe names that contain a specific piece of text (sub-string).

For example if there were 6 Recipe names listed:

Widgets_ZoneA
Gromets_ZoneA

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Eyelets_ZoneA
Widgets_ZoneB
Gromets_ZoneB
Eyelets_ZoneB

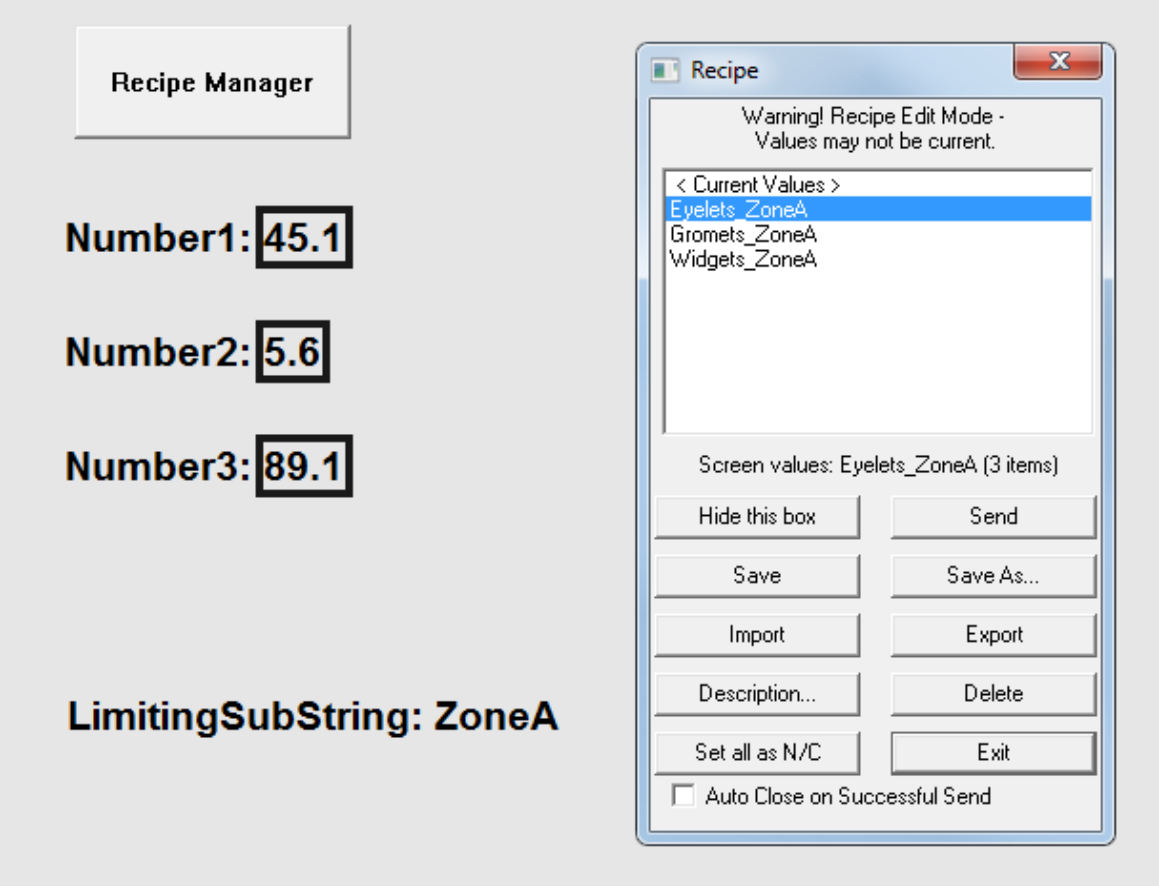
But if only the 'ZoneA' ones were needed to be listed in the Recipe Manager box for a specific GDW, called for example: test.gd3, then:

Create a Text User Variable called, for example, LimitingSubString.
Then in SETTINGS.INI (which is in the Project's sub-folder), add these lines:

[RecipeLimitStrings]
test.GD3=LimitingSubString
IgnoreCase=y

Then set the text variable LimitingSubString to 'ZoneA' then only these will be listed:

Widgets_ZoneA
Gromets_ZoneA
Eyelets_ZoneA

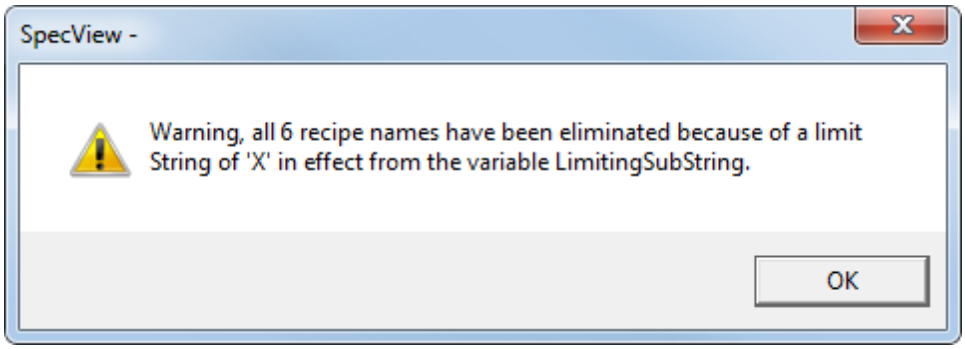


Similarly, if the text variable LimitingSubString was set to 'Widgets' then only these would be listed:

Widgets_ZoneA
Widgets_ZoneB

If the Text User Variable which is being used does not contain a sub-string that matches any of the Recipe names then this error will be displayed:

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12.18 Recipe on Remote

Recipes are stored on the Local [737], they are downloaded by the Remote [740] whenever the Recipe Manager [637] is invoked.

A change to a Recipe on the Remote will cause the change to be sent back to the Local.

It is possible that a Recipe may be edited by both the Local & Remote, or indeed by more than one Remote, at the same time.

If this occurs then SpecView will display a warning when the Recipe is edited. Saving the recipe under these circumstances should only be done with caution as changes may be overwritten.

12.19 Recipe Compare

Purpose

Recipe compare can be used to compare the recipe/profile/program in an instrument with one in the SpecView Recipe System.
This allows the user to quickly isolate any changes that have been made to the running Recipe in the controller.
Recipe compare can also be used to check an instrument against a known ‘baseline’ set of parameters for that instrument to allow the user to see which parameters have been changed to values not in the baseline set.
This could include all the modifiable parameters in an instrument, or a subset.
When used, differences in the loaded recipe compared to the values in the controller are highlighted on screen, and a report can be generated that lists all the differences in a file for more detailed analysis.

For example, in Figure 1, the intended value for the parameter Program 1 Setpoint in the Green Widgets recipe is 45.
Therefore, the value of 45 is seen for Program 1 Setpoint under the Baseline column.
The user designed the Green Widgets recipe and set that Program 1 Setpoint parameter to 45.
However, the current value is 240, and therefore Recipe Compare returns that the values are different, as seen under the Compare column.

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Note: It is not possible to compare the recipe in one make/model of instrument with one from a different make/model of instrument.
For example, users can not compare a recipe that involves parameters from a Watlow F4T to a recipe that involves a HoneyWell UDC 2800.
Recipe Compare can only be done for the same instrument that the recipe was initially designed for.

Note: It is not possible to compare a recipe from a SpecView Virtual Instrument to one of a number of instruments that would normally be 'Send To' recipe targets as there is currently no 'Recipe Read From' capability.
For instance, users can not compare a recipe that involves parameters from a Virtual Watlow F4T to a live Watlow F4T.

1	**Compare of Current values against Baseline recipe: Green Widgets on Tue Dec 05 08:59:16 2023**					
2						
3	**Name**	**Type**	**Level**	**Baseline**	**Current**	**Compare**
4	Program 1 Type	TypeEnum	3	Ramp	Ramp	Same
5	Program 2 Type	TypeEnum	3	Soak	Soak	Same
6	Program 3 Type	TypeEnum	3	End	End	Same
7	Program 1 Setpoint	TypeFloat	3	45	240	Different
8	Program 2 Setpoint	TypeFloat	3	45	240	Different
9	Program 3 Setpoint	TypeFloat	3	0	0	Same
10	Program 1 Time	TypeTimeOfDay	3	0:30:00	0:12:00	Different
11	Program 2 Time	TypeTimeOfDay	3	2:00:00	2:30:00	Different
12	Program 3 Time	TypeTimeOfDay	3	0:00:00	0:00:00	Same

Figure 1: Comparison Report opened in Excel.

Set up Recipe Comare

1. Enter into the project with the recipe screen that requires Recipe Compare.
2. Navigate to the Recipe Screen that requires Recipe Compare.
3. Enter Edit Mode (remain online).

   To learn more about SpecView's Edit Mode, please read the following.

   Editing a SpecView Project 282
4. Place a button on the screen.

   To learn more about adding buttons to a screen (GDW) or editing buttons on a screen (GDW), please read the following.

   Buttons - Drawing on a GDW 384

   Button Attributes and Strategy Controller Actions 403
5. Edit the button.

   For the Button Action, select the Button Attribute of Recipe: Show Recipe Manager (Compare Mode).

   Click OK.

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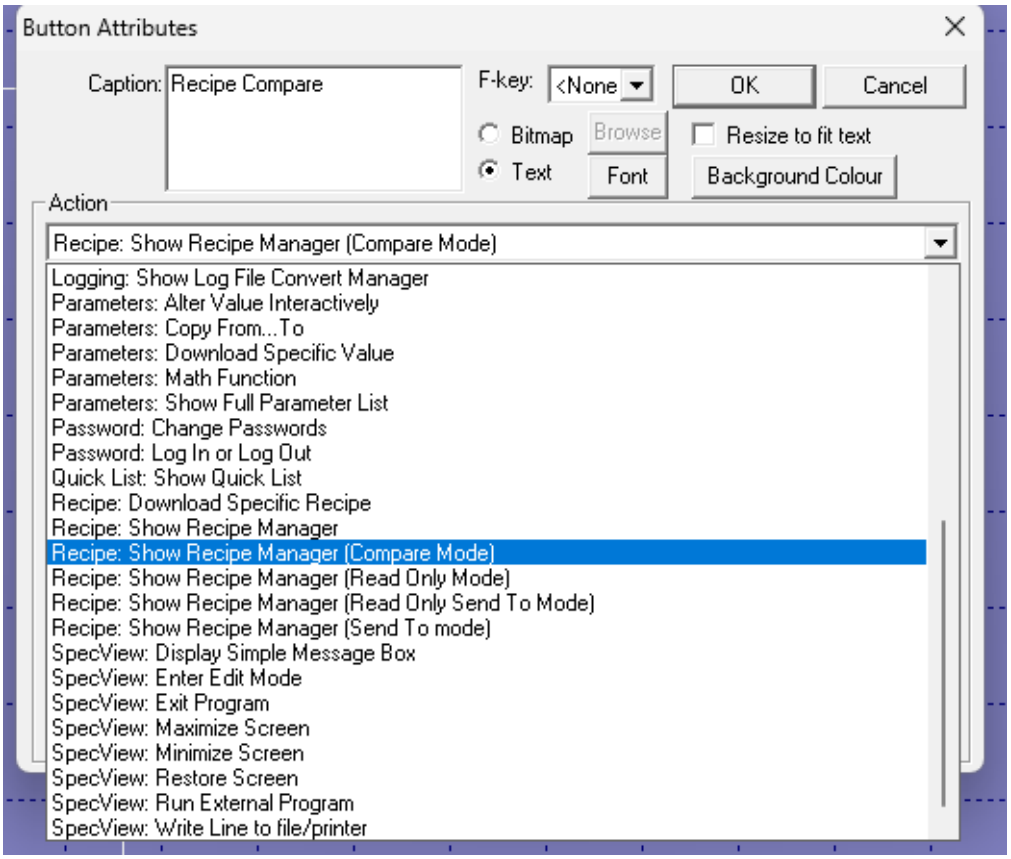


Figure 3: Recipe Compare button attribute

6. Enter Runtime by clicking on the Running Man button from the Toolbar.

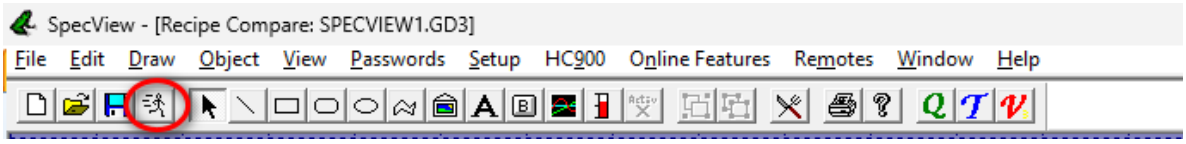


Figure 3: Running Man button.

7. When prompted to by SpecView, save the changes to the project before entering Runtime.
8. Once in Runtime and on the edited recipe screen of the project, click on the Recipe Compare button that was created.

   The Recipe Compare box will appear on the screen.

   The parameters selected for recipes will be highlighted in a box.

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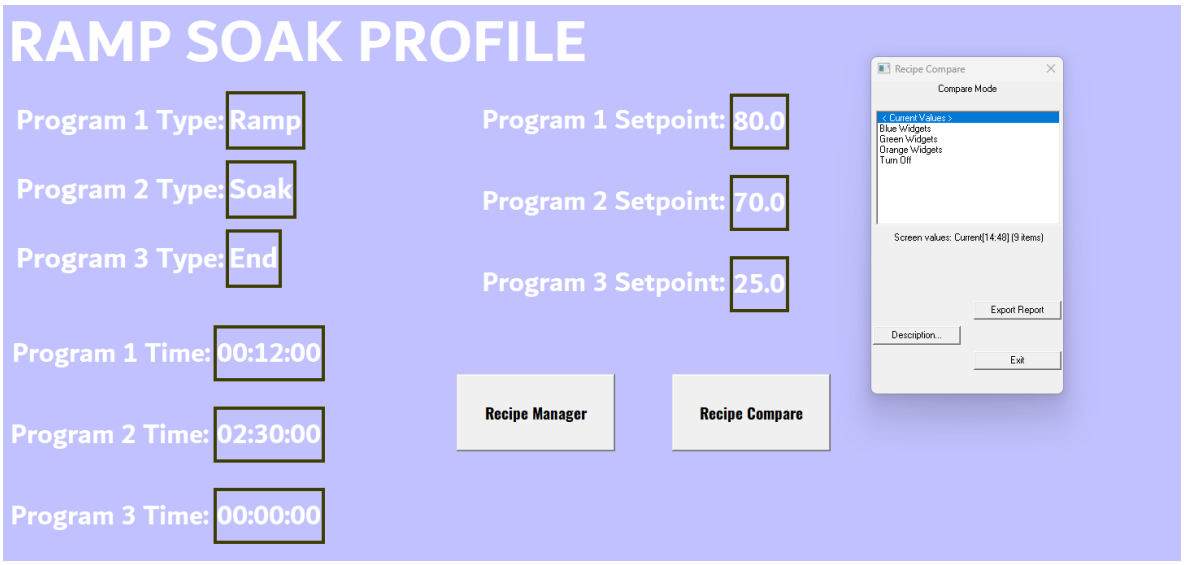


Figure 4: Recipe Compare mode.

9. Click on one of the recipes available in the Recipe Compare box to compare current values of the parameter with the baseline value for that specific recipe.

For example in Figure 5, the current values of the Ramp Soak Profile screen are being compared with the baseline values of the Green Widgets recipe.

The values that are highlighted in red display the altered parameters.

The values in the red box are the baseline values for the Green Widgets recipe.

Values that are covered by the OK box display the parameters that have not been altered from the baseline values of the Green Widgets recipe.

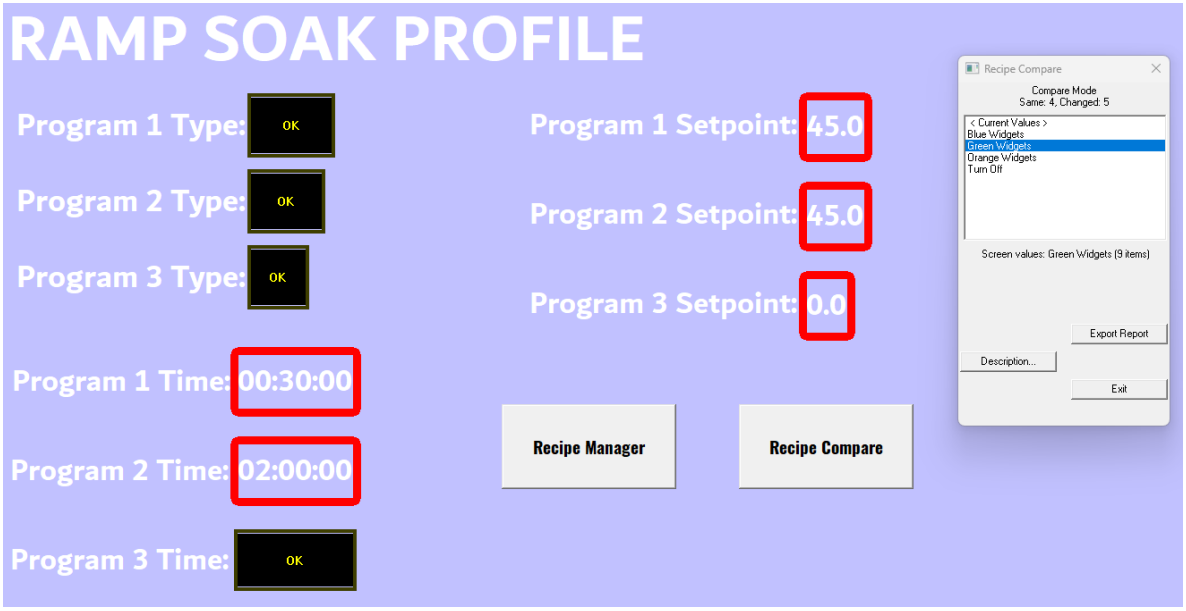


Figure 5: Comparing current values to baseline values of the Green Widgets recipe.

10. To export the Comparison Report, click on Export Report in the Recipe Compare box.
11. Edit file name to desired file name if required and click OK.

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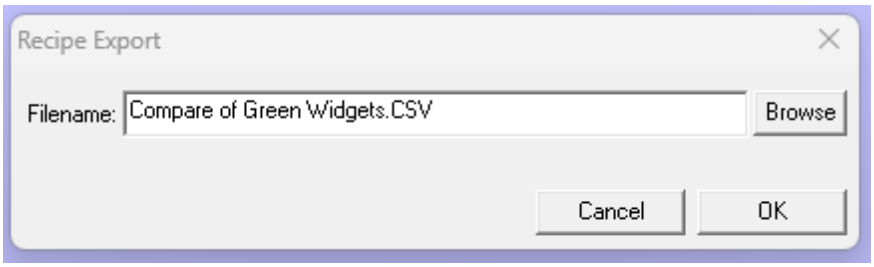


Figure 6: Export Comparison Report.

12. When prompted to, click Yes to view the Comparison Report immediately, or click No to view at a later time.

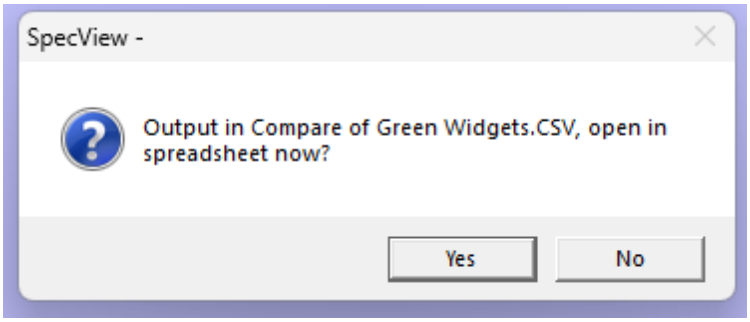


Figure 7: View Comparison Report immediately.

13. If Yes was clicked in Step 12, then the Comparison Report should open up as a CSV file in Excel.

If No was clicked in Step 12, then the Comparison Report will not open but will be available for later viewing.

Either way, the CSV file will be saved in the project folder which is in the SV3 folder of the PC's Local Disc.

The file path being, Local Disk\SV3\Project Folder. For example, C:\SV3\Recipe Compare.

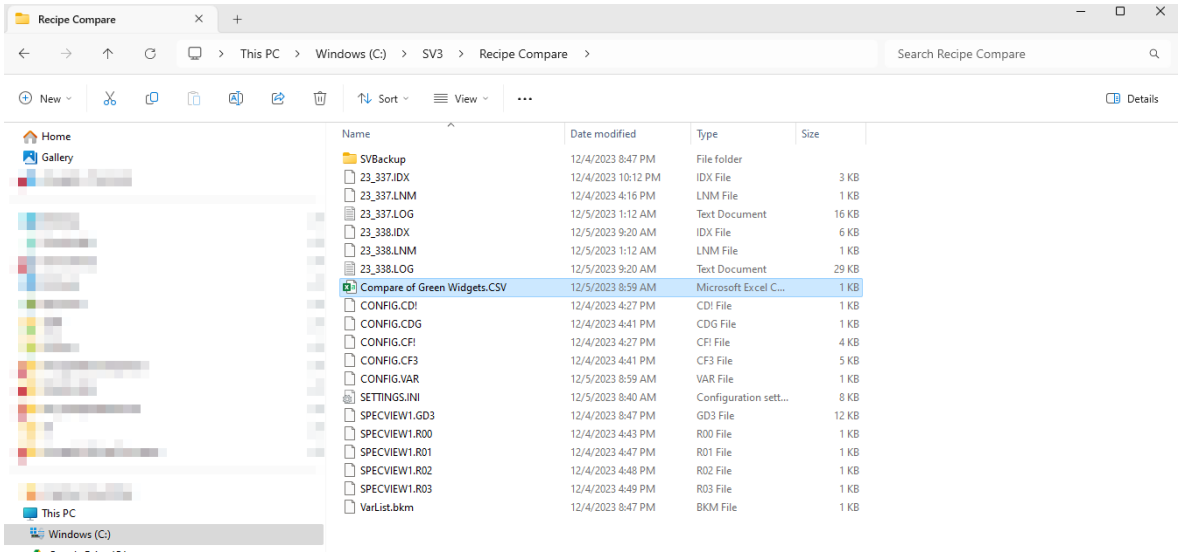


Figure 8: File path for the Comparison Report.

E12033 NOTE

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This error occurs when there is an incompatible number of parameters that is being compared using Recipe Compare.
For instance, a user can not compare the current values of 10 parameters on a recipe screen with a recipe that only has 9 parameters in it.
If a user attempts this, then the following error seen in Figure 2 will appear and compare the additional parameters to their current values instead of the recipe's baseline values.

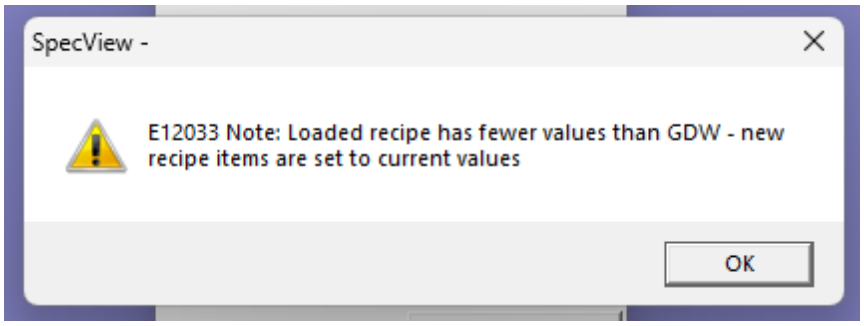


Figure 2: E12033 Note for comparing recipes with different number of parameters.

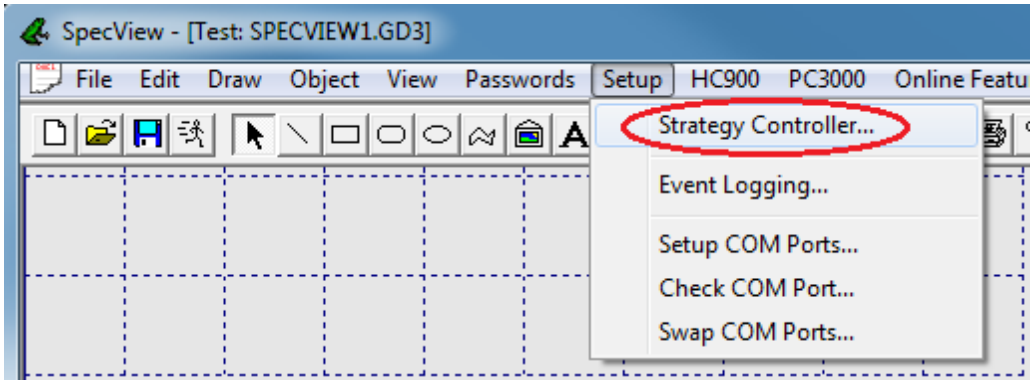
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Part 13

13 Strategy Controller

The Strategy Controller is used to automate functions in SpecView such as:

- Automatic Recipe[637] Downloading
- Automatic Log Report Generation[669]
- Turning a Variable On/Off when an event occurs
- Setting Variables to new values
- Timing events such as Down Time
- Counting events[694]
- Implementing cascade control[692]
- Performing multiple adjustments from a single click such as incrementing several set points at once



Using the Strategy Controller involves two steps:

1. Defining an Event
2. Defining one or more Actions to go with the Event

This may also be thought of as an 'IF - THEN' statement.

NOTE: There is no ELSE function in the Strategy Controller, but there is an Enable on Boolean[669] feature which can be used.

If an event is defined such as:

'Zone1.Process Value > 200 ➔ Turn On Outputs.Relay3'

SpecView will do nothing when the value falls below 200. A second event such as:

'Zone1.Process Value <= 200 ➔ Turn Off Outputs.Relay3'

must be defined.

EVENTS are tested continuously and in no particular order (see below)

ACTIONS are executed in the order that they are shown in the list

There is a step-by-step example[669] which explains the function of each item available in the Strategy Controller. It is strongly recommended to follow through this example, even if it is not relevant to the application, to become familiar with the concepts of the Strategy Controller.
Both the Events and Actions of the Strategy Controller can be logged to the Event Log[620].

NOTE: ALL variables (either User Variables or Instrument Variables) MUST be out on

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an open GDW for the Strategy Controller[666] to be able to use their values.

Programming the Strategy Controller[667]
Strategy Controller Hints and Tips[696]
Step-by-step example[669] showing how to use the Strategy Controller to generate an automatic log report for a duration of a process.
Event Type[684]
    Value (Variable) Based Event Setup[685]
    Time Based Event Setup[687]
Strategy Controller Actions[690]
Examples of Value Based Events[690]
    Turn on a digital output on a New Alarm[691]
    Cascade Control[692]
    Totalizer[694]
Examples of Time Based Events[695]

In the User Guide[872] there is also an example of using the Strategy Controller to generate a daily log report at **midnight** covering the previous 24 hours.

As of SpecView version 3.1.253[130], it is possible to add notes to Events.
This aids in describing Events[684] and Actions[690] for other users of SpecView who will be programming projects using Strategy Controller.

13.1 Programming the Strategy Controller

The Strategy Controller[666] is an event driven engine and therefore requires a completely different approach to programming from the more traditional procedural programming such as Basic.

The events are edge-driven so that they only fire when a change occurs. Therefore in an event that says, for example, 'If Bool1 = On' will only fire once, and will only fire again if the Boolean goes to Off and then back to On.

The order which events fire cannot be predetermined. The only way to ensure a particular sequence is to use the Enable-if mechanism.
For example:

    Event: 'When Temp > 100'
    Event: 'When Pressure > 20'

If it is important that the Temp is checked first (and its actions performed) and then the Pressure, use the Enable On Boolean[669] as an 'AND' operator:
(This example uses a SpecView User Variable 'Bool1')
Event: 'When Temp > 100 enable-if Bool1 is Off'

    Action: ...
    Action: 'Set Bool1 to On'

Event: 'When Pressure > 200 enable-if Bool1 is On'

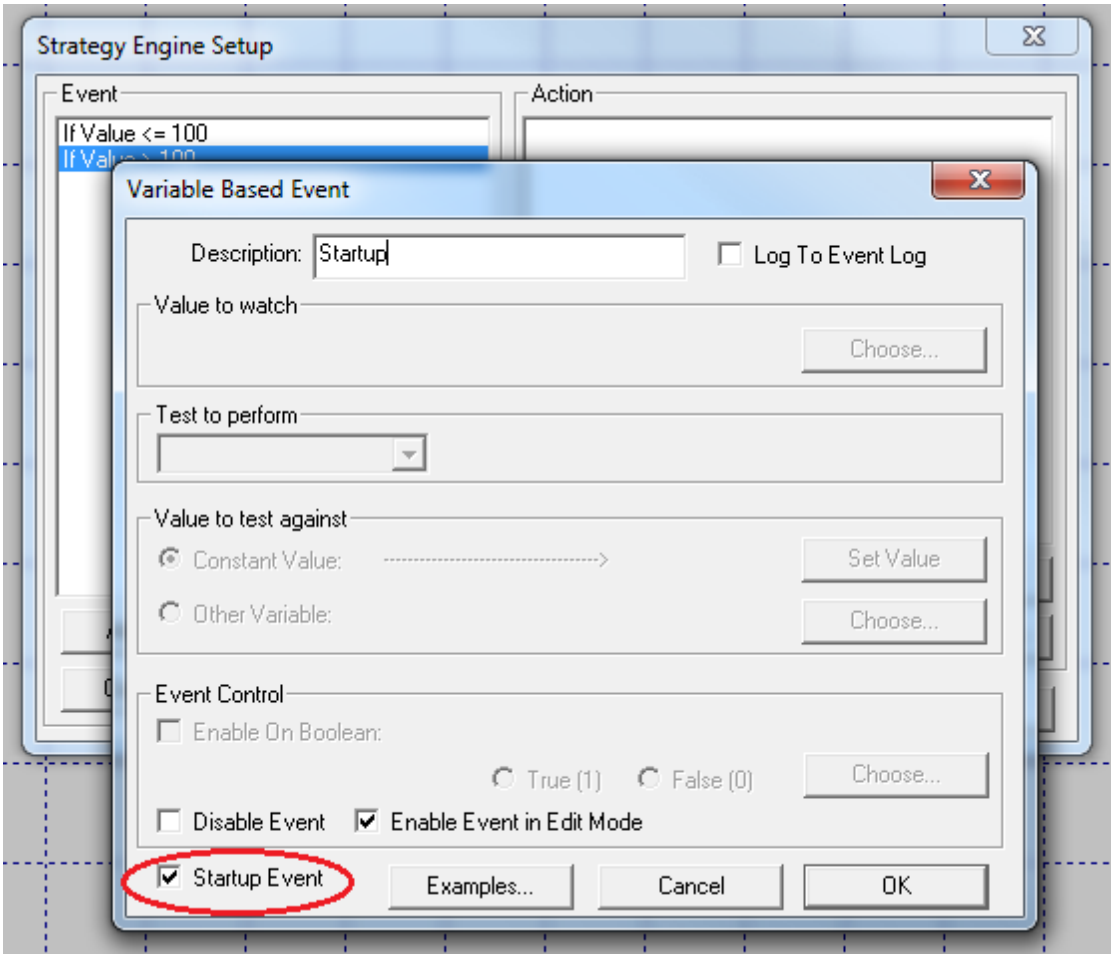
    Action: 'Set Bool1 to Off'
    Action: ...

The actions for an event are performed in the order that they are listed.

The 'Startup event' is a 'Value Based Event' and can be used to initialize variables. There can only be one Startup event defined, but it can have many Actions, which are typically used for initialization of

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variables.



Therefore in order to create a Strategy Controller 'program' it is necessary to think of it in terms of events & actions. Write down all the significant events (such as values going outside thresholds) then think of the actions which need to be done when those events occur.

The list of Events in the Strategy Controller are always listed in alphabetic order. Therefore to make reading and understanding the list easier it is useful to number the events so that they are shown in an order which the programmer would expect,
For example:

000 Startup
010 When Temp > 100 & Bool1 Off
020 When Pressure > 20 & Bool1 On
030 etc...

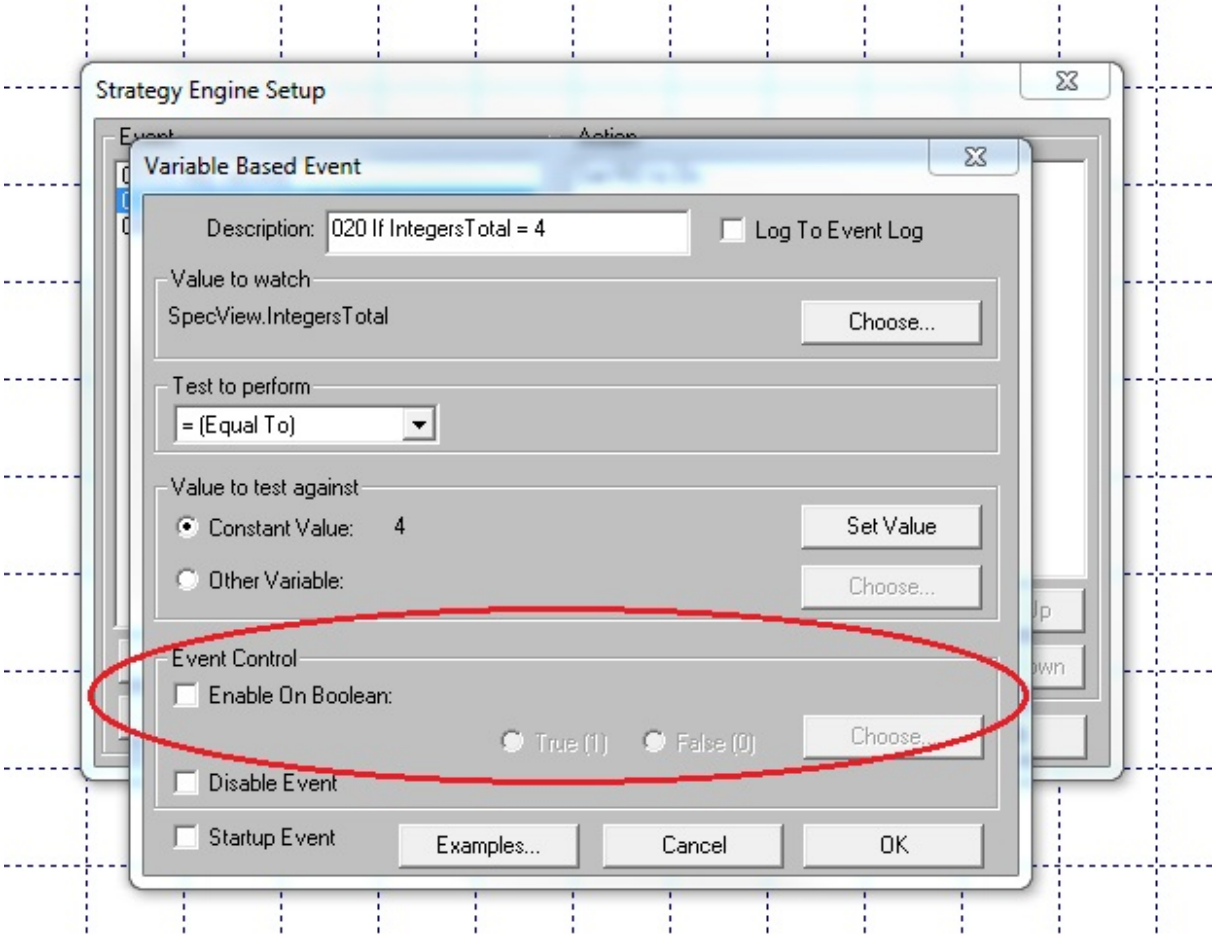
Leave intervals of, say, 9 between the event numbers to allow the addition of events in the future without the need to re-number them.

Step-by-step example of using the Strategy Controller 669

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13.2 Enable On Boolean

Use the Enable On Boolean[669] as an 'AND' operator in the Strategy Controller[666]:



This example uses a SpecView User Variable 'Bool1'

Event: 'When Temp > 100 enable-if Bool1 is Off'
    Action: ...
    Action: 'Set Bool1 to On'

Event: 'When Pressure > 200 enable-if Bool1 is On'
    Action: 'Set Bool1 to Off'
    Action: ...

13.3 Example: Automatic Log Report

This example will show the steps for a simple log report. A more complex example that incorporates some extra features is described later in this section.
To use the Strategy Controller[666] you must first plan the steps needed and define any SpecView variables that will be required. In this example we want to watch a programmer controller to see when it starts a program and note the time it starts. When the program is complete we want to note that time

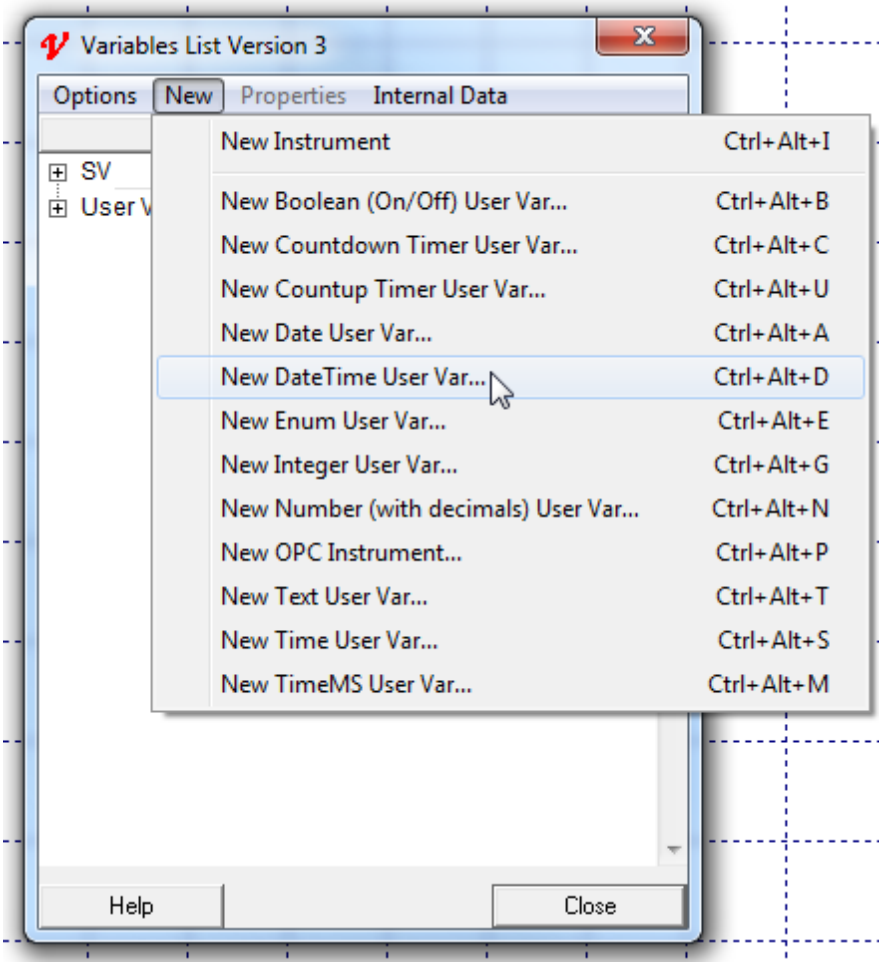
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and create a log report that covers the duration of the run.
These steps are required:

1 Create two SpecView Date/Time User Variables, one for the start time and one for the stop time
2 In Runtime Mode, define the log report format 611 that you want to use
3 Define the first Strategy Controller event that watches for the start of the program
4 Define an action to time stamp the program start
5 Define the second Strategy Controller event that watches for the end of the program
6 Define an action to time stamp the program end
7 Define another action to generate the log report

Step 1:
Create two SpecView DateTime User Variables, one for the start time and one for the stop time

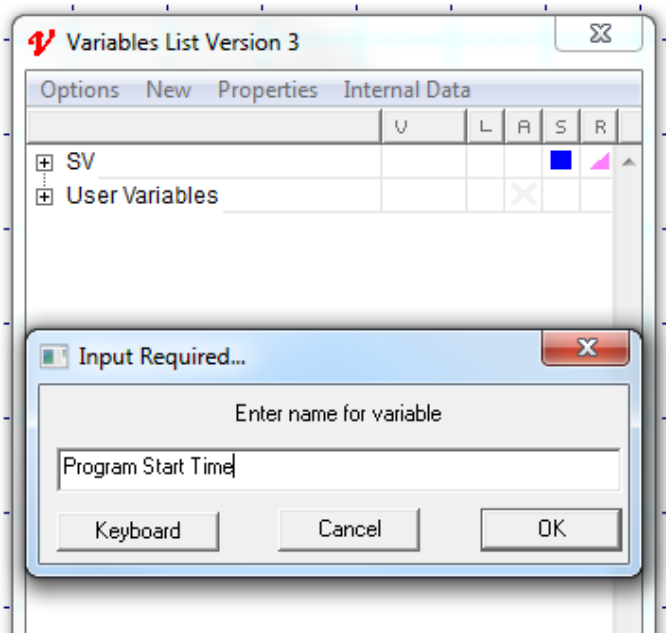
Open the Variables List by clicking the tool  and choose **'New DateTime User Var'** from the **New** menu:



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Enter the name: 'Program Start Time'

Click **OK** to create the User Variable.

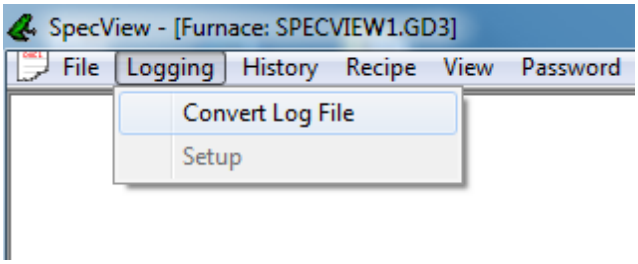


Repeat the above steps to create a second User Variable called 'Program Stop Time'.
(Note: To see the values of these DateTime User Variables when in Runtime Mode drag and drop them onto the screen (GDW), or add them to the Quick List[369].)

Step 2:
Define the log report format that you want to use for the file.

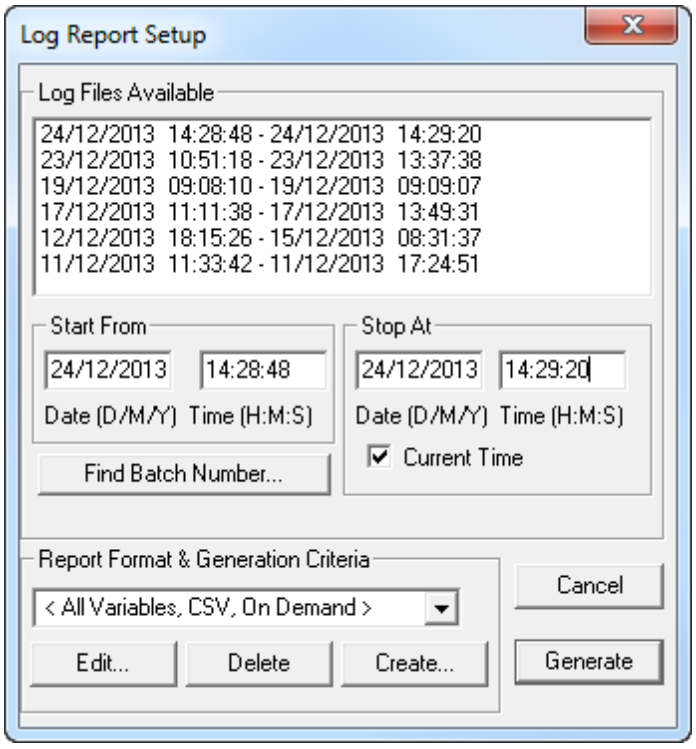
Click the Save tool  to save the changes and click Run 

Create the Log Report Format[611] to be used for the automatic report.
Choose **'Convert Log File'** from the **Logging** menu:



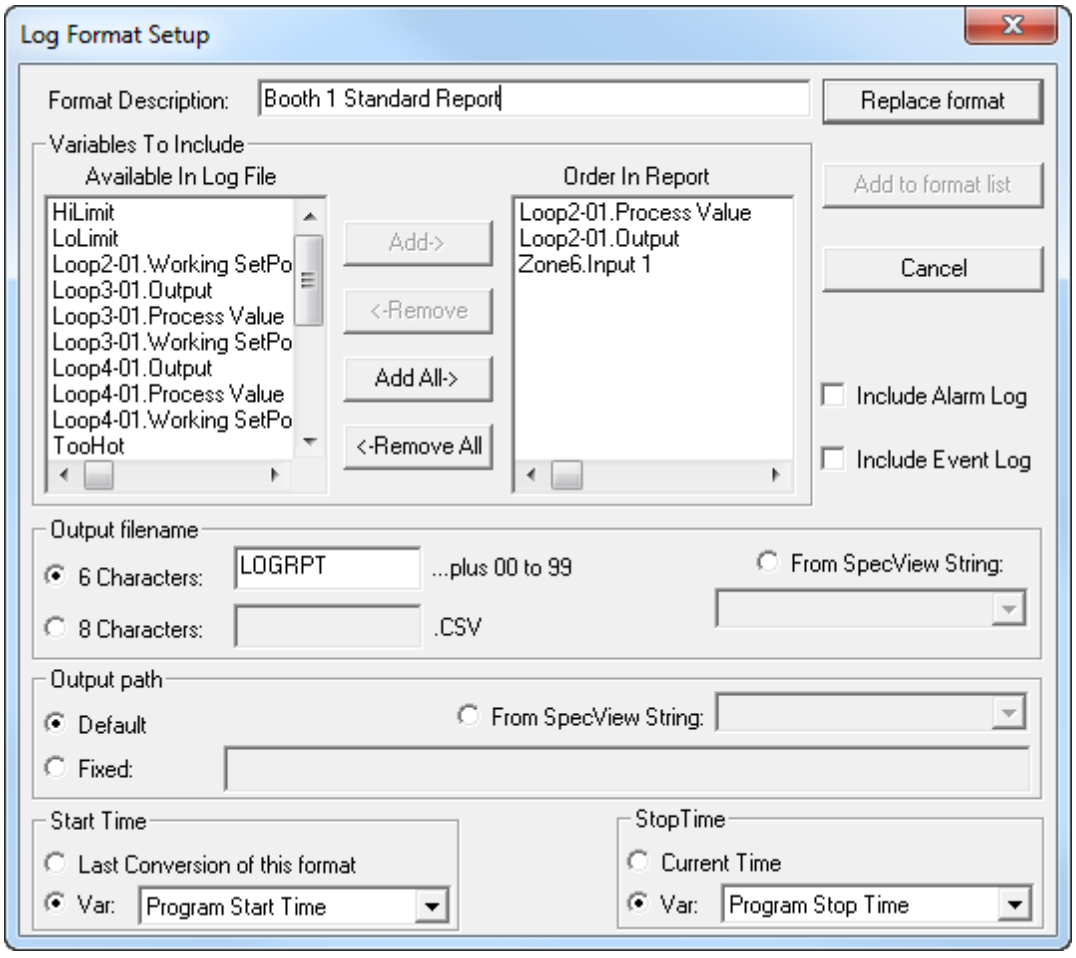
Click the **'Create...'** button on the Log Report Setup box:

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Select the variables from the list on the left to put into the report and click **Add**.
Then for the **Start Time** and **Stop Time** click **Var** and choose the variable from the drop-down-list:

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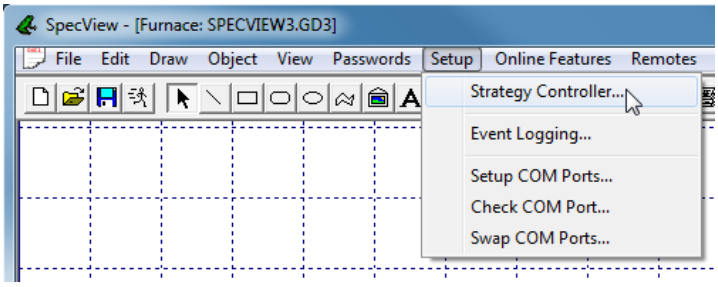


Ensure that the 'Start Time' and 'Stop Time' fields use the same SpecView User Variables that you created in Step1.

Step 3:
Define the first Strategy Controller event that watches for the start of the program

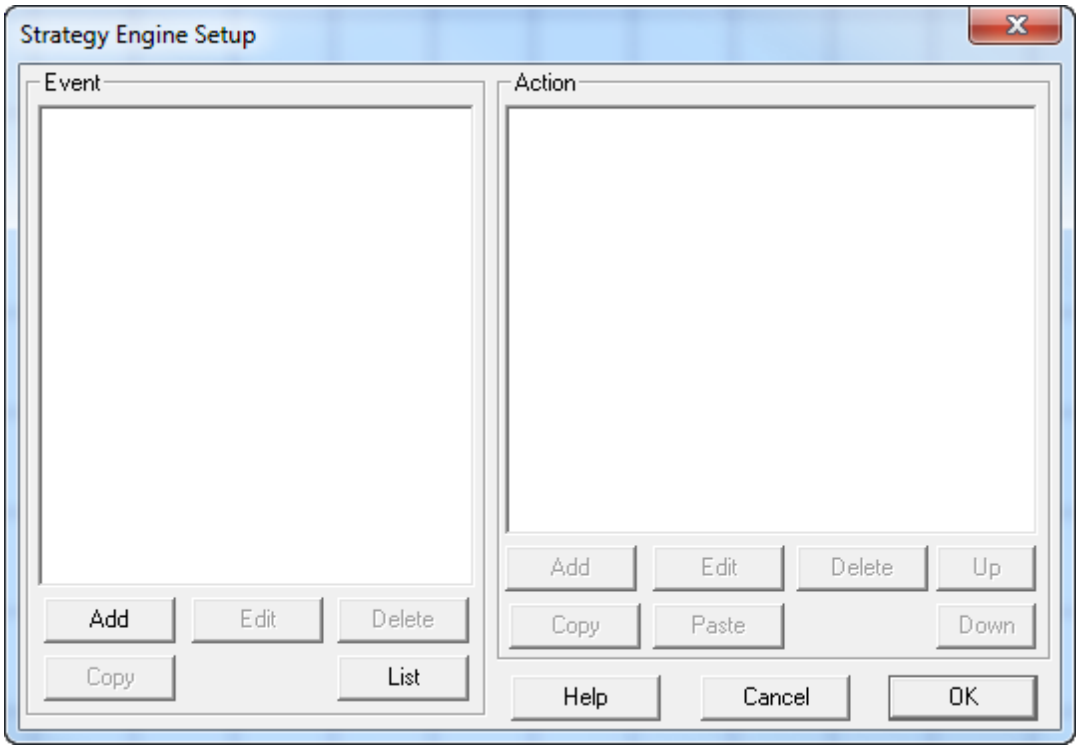
Go back into Edit Mode (offline) and choose **Strategy Controller** from the **Setup** menu.

Note: Ensure Strategy is 'Offline' on the Online Features menu while editing the Strategy.

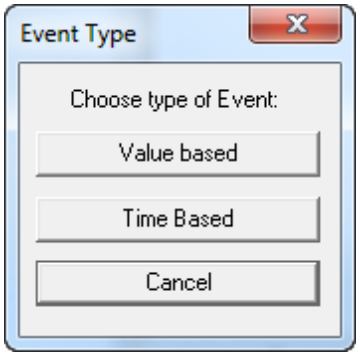


The Strategy Engine box is displayed:

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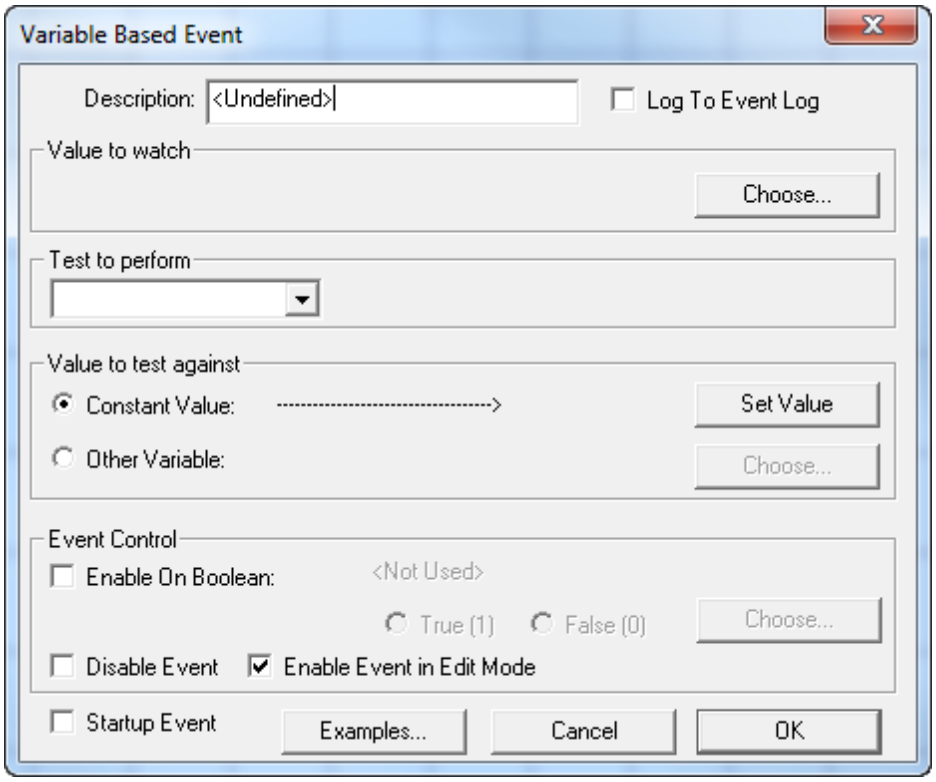
Click the Add button to add a new Event.
(The left side of the Strategy Engine setup box is for the Events and the right side is for the Actions associated with those Events.)



Click the **Value based** button

The **Value Based Event** box is displayed:

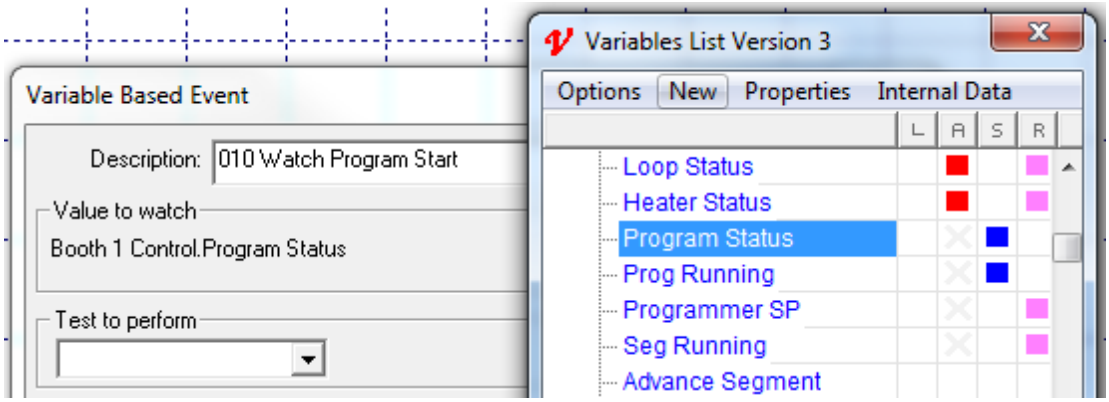
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In the Description field enter: 010 Watch Program Start

Events are listed in alphabetical order so it is a good idea to use a numeric prefix so that related events may be grouped together in the list. (this is for convenience - list order has no impact on how events are triggered).

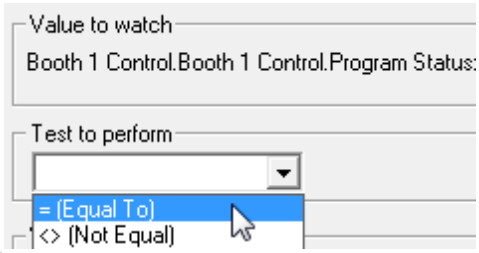
Then click the **Choose** button to select the variable that the Strategy Controller will monitor

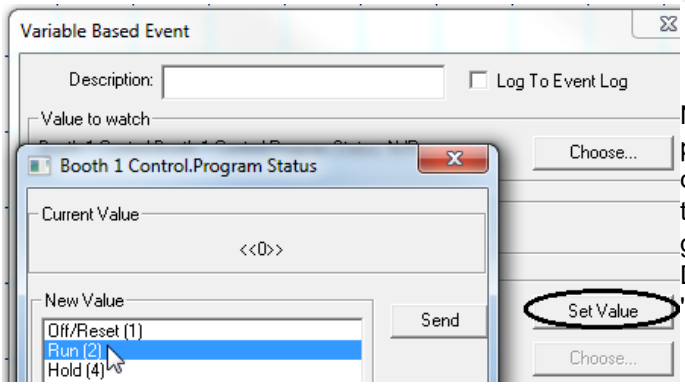


The Variables List will appear. Find the variable that you want to monitor to determine the start of the log report.
In this case, the parameter is 'Program Status'. The type of instrument that you are using will determine which parameter you want. If in doubt, please contact the instrument manufacturer.

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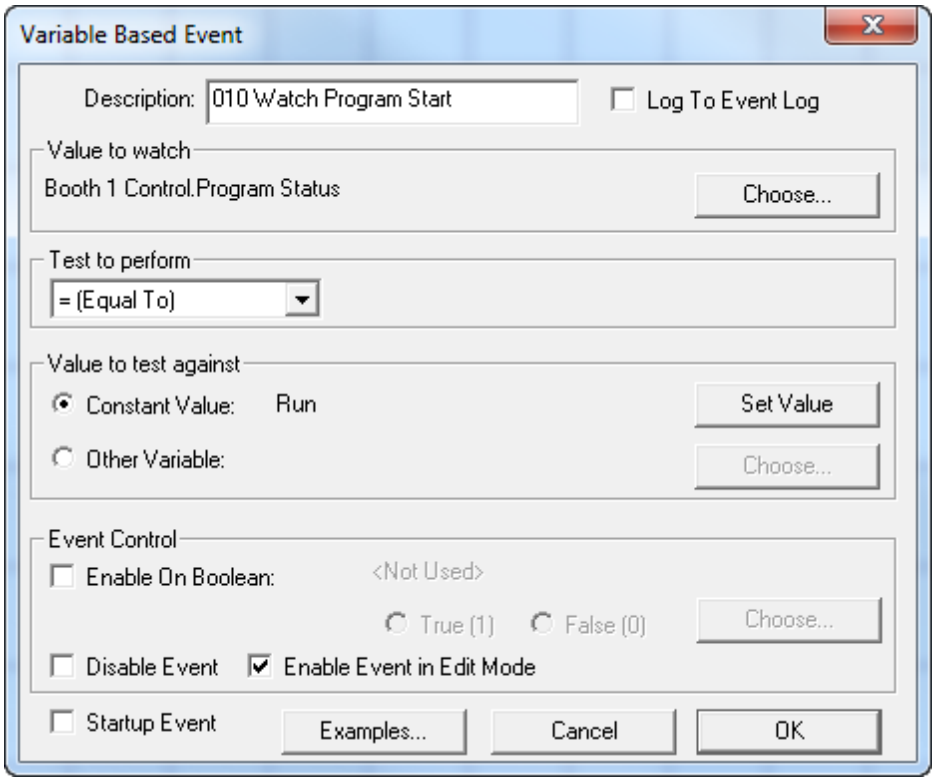
Click the arrow to drop down the list for 'Test to Perform'
In this case we want '= (Equal To)'





Next Click the **Set Value** button. The type of parameter that you selected to watch will determine the type of box that appears. In this case it is an 'enumerated' variable, which gives you a list to choose from.
Double click the one you want, in this case 'Run'

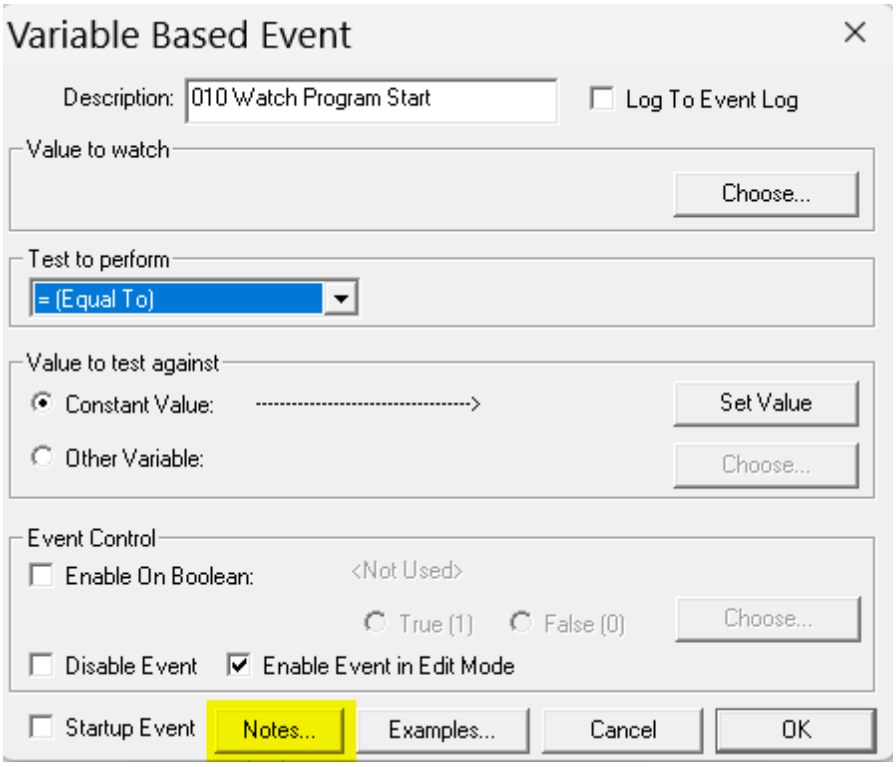
The Value Based Event box should now look like this:

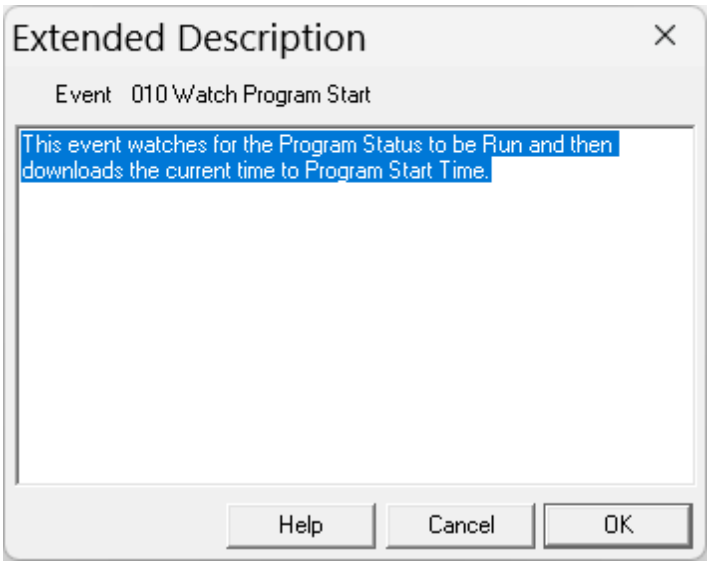


Click **OK** to close the **'Variable Based Event'** box

As of SpecView version 3.1.253, it is possible to enter notes for Events.
Notes can aid in leaving descriptions for users who will be programming Strategy Controller in the future.

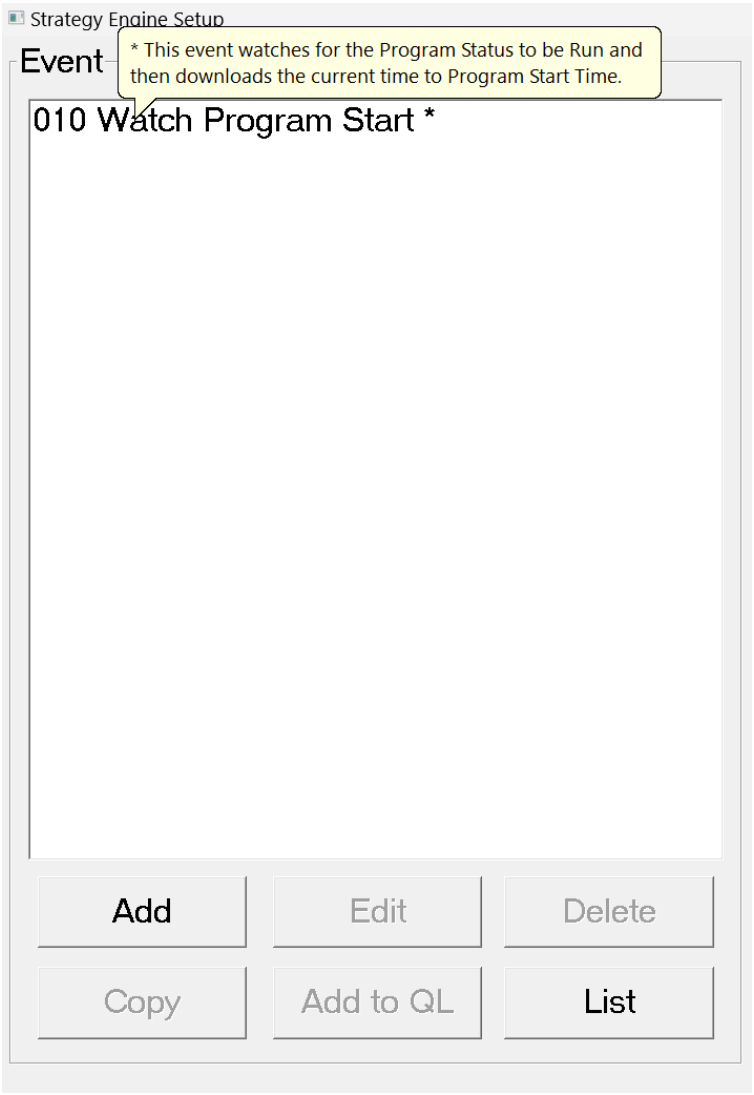
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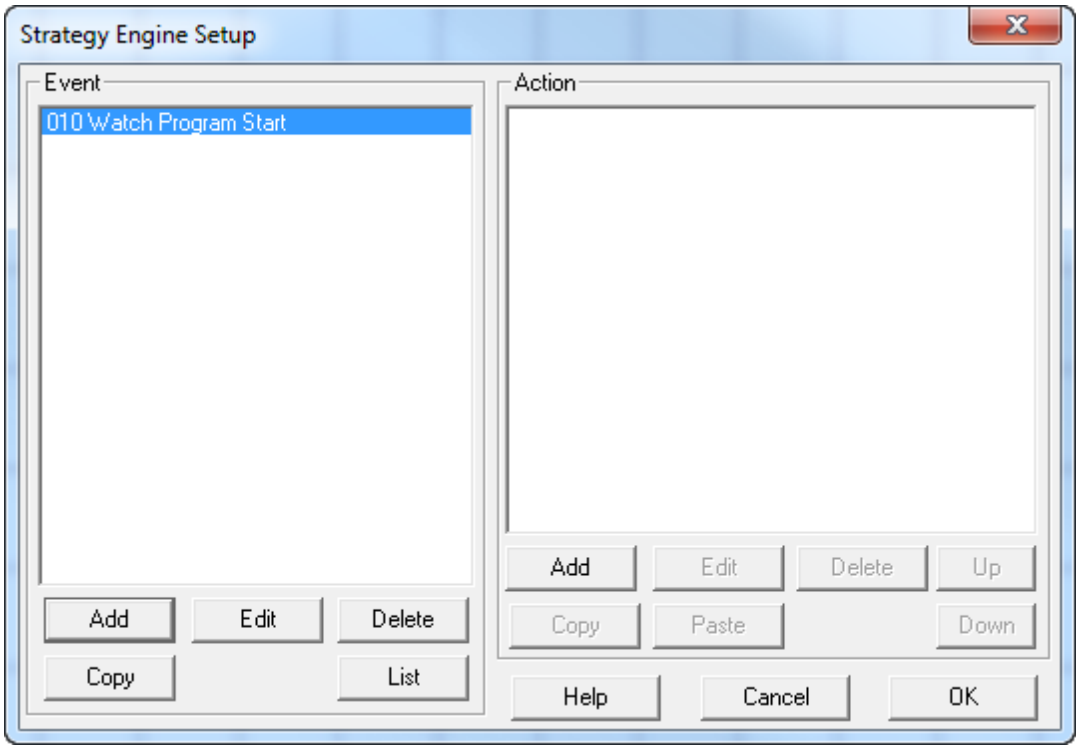
Events with notes will appear with a star at the end of it in the Events list.

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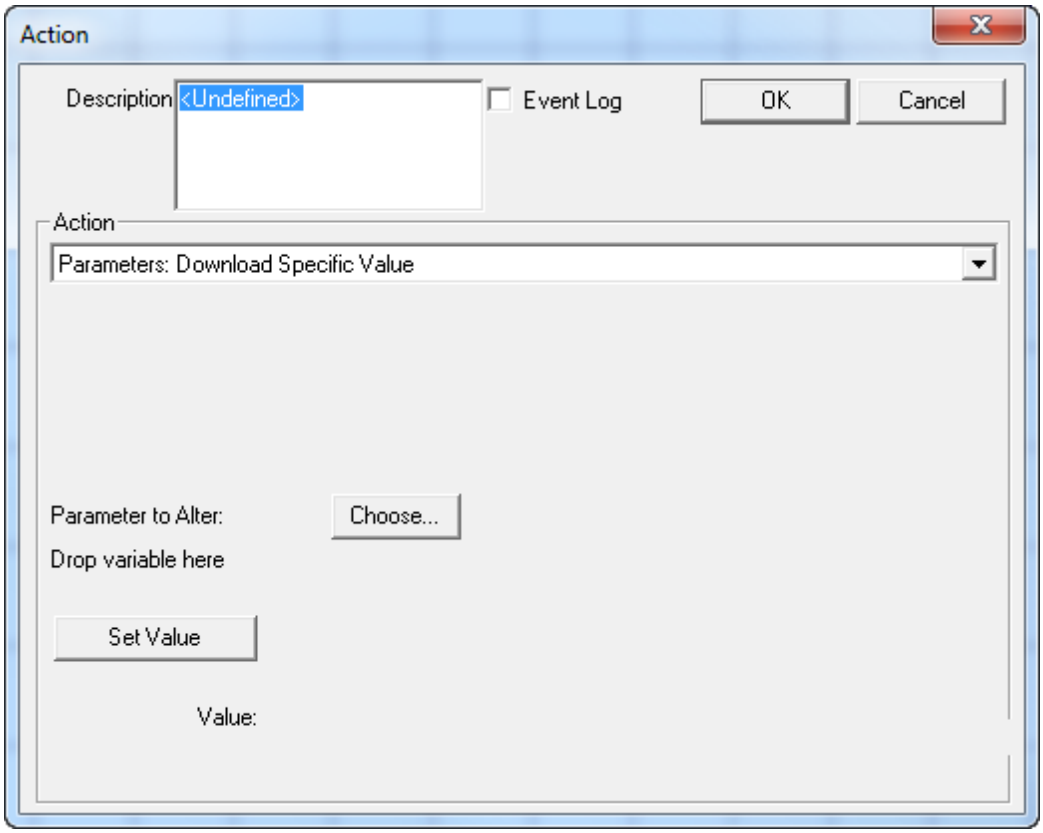
The **Strategy Engine Setup** box should now look like this:

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Step 4:
Define an Action to time stamp the program start
Click the **Add** button **on the Action side of the box**. The Action box is displayed:

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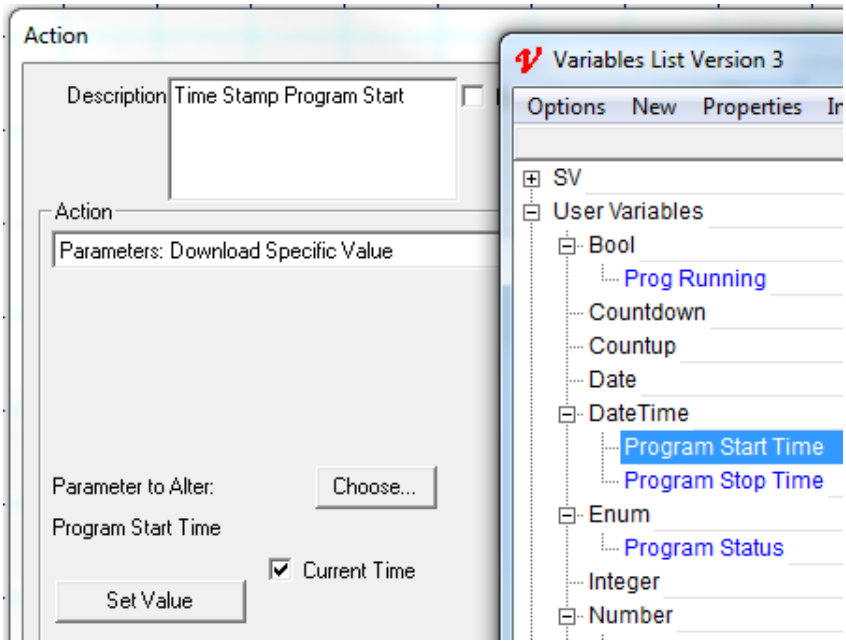
Enter a description, such as 'Time Stamp Program Start'.
(Actions will remain in the same order, so no additional numbering is required. To change the order use the 'Up' and 'Down' buttons.)
The default action is 'Download Specific Value' and that is the one needed now.

In the Variables List click the plus sign ⊞ by 'User Variables', the plus sign by DateTime.
Click and drag 'Program Start Time' into the Action box.

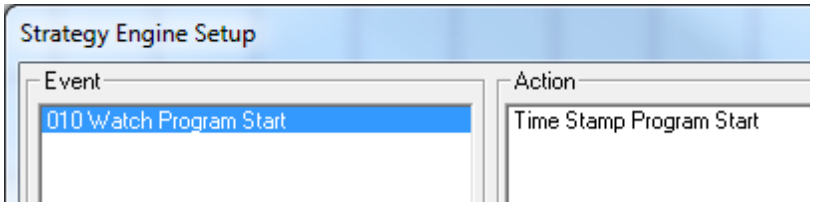
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We want SpecView to copy the current time to this variable so click the Current Time checkbox:

Click **OK**.

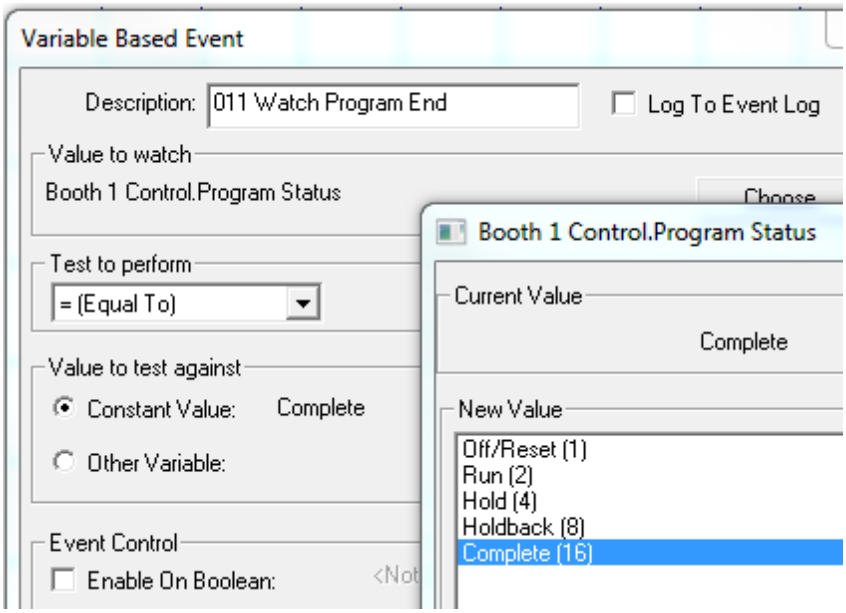


The box should now look like this:



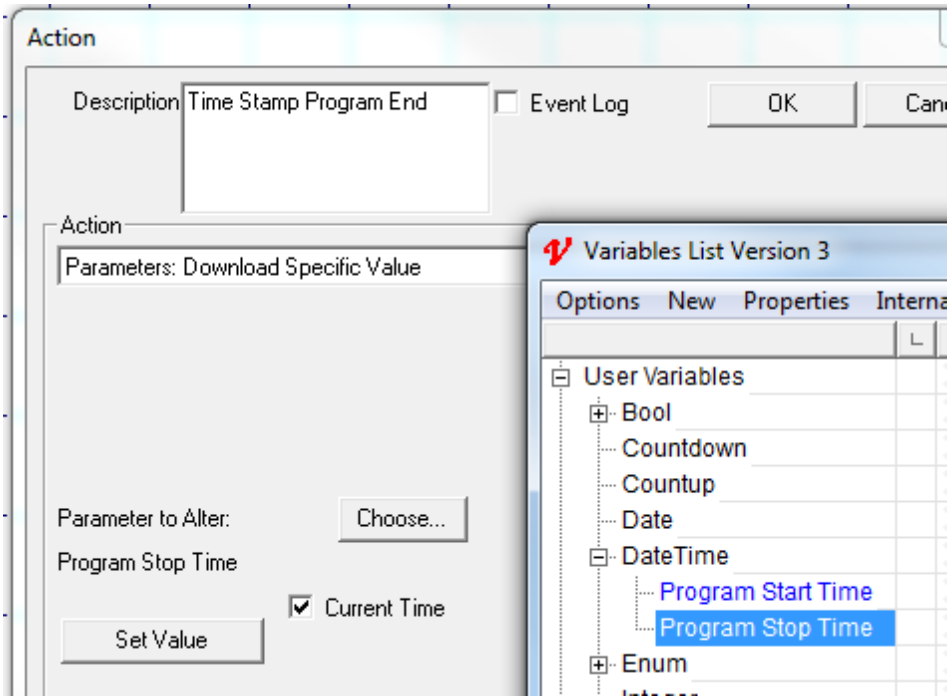
Step 5:
Define the second Strategy Controller event that watches for the end of the program
Click the **Add** button on the Event side of the box. Enter a description. Click the **Choose** button and select the variable to watch that will tell SpecView that the program is complete. Select '= (Equal To)' for the Test to perform. Click the **Set Value** button and choose the appropriate value. The box should look something like this, depending on the variables you have chosen.

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Step 6:
Define an action to time stamp the program end
Click the **Add** button on the Action side of the box. Enter a description, such as 'Time Stamp Program End'.
The default action of 'Download Specific Value' is the one that is needed now.

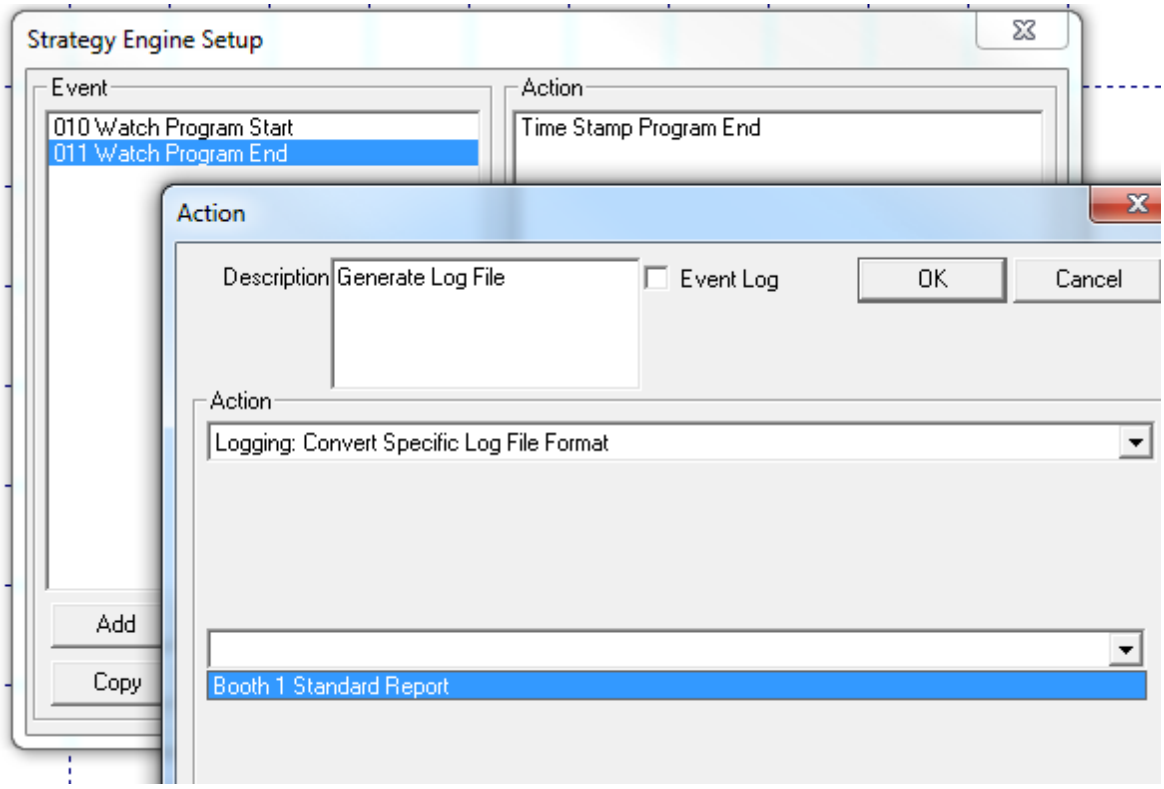
In the Variables List click the plus sign ⊞ by 'User Variables', the plus sign by DateTime.
Click and drag 'Program Stop Time' into the Action box and check the 'Current Time' box:



Step 7:

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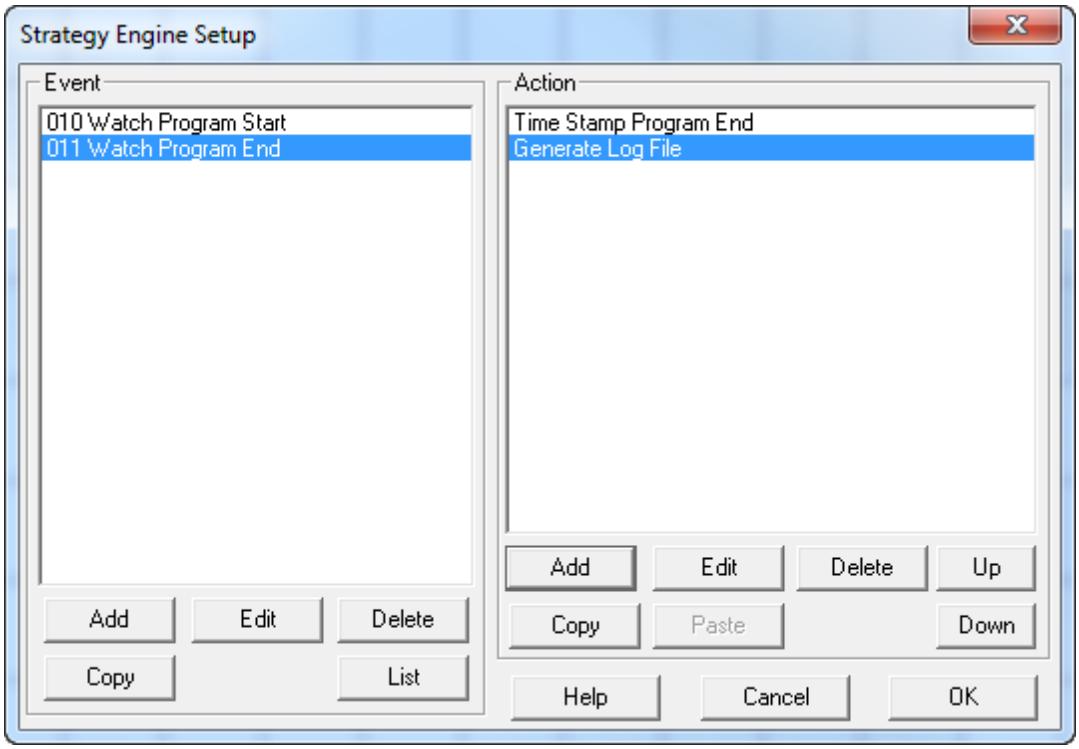
Define another action to generate the log report



Click the **Add** button again on the Action side of the box. Enter a description and select **'Logging: Convert Specific Log File Format'** as the action type.
Choose the log format you defined in Step 2.
Click **OK**

The Strategy Engine Setup box should now look like this:

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The setup is now complete. Click **OK** to save the Strategy.

Strategy events in SpecView are 'Edge Triggered'. This means that the Event is triggered when SpecView sees that occurrence of the Event conditions. When SpecView is started (either by starting the program or by going into Runtime Mode from Edit Mode) all the events are checked. If an event is true, the Strategy Controller will execute the actions associated with that event.
In this example, if the program is already running when SpecView is started '010 Watch Program Start' will trigger and the time stamp will be done. If this is a problem extra Strategy steps and intermediate boolean variables must be used to prevent the unwanted triggering of the event. An example of this is shown later in this section.

NOTE: This 'Edge Triggering' is such that once an Event has triggered, for example, Process Value > 200, then the Event will not be triggered again until the value has gone below 200 and then above 200 again.

13.4 Event Type

When selecting the Event Type in the Strategy Controller[666]:

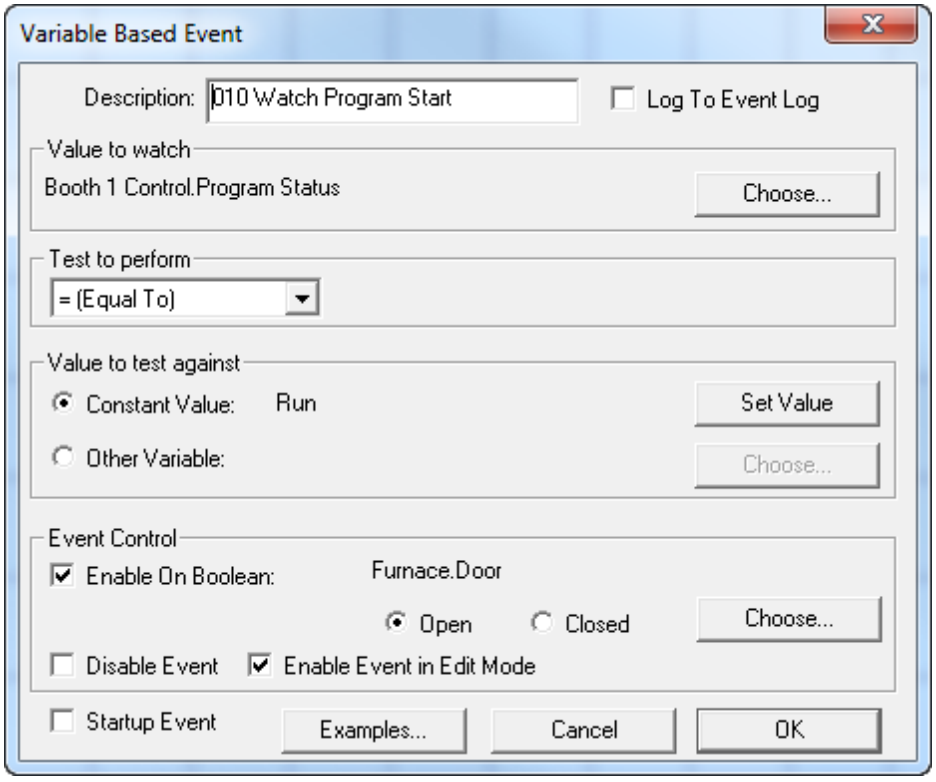
- Value Based[685] events test the value of a Variable against either a constant or another Variable.
- Time Based[687] events monitor Time, Day, Date, Day of Week etc.

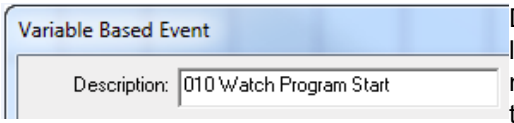
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13.5 Value (Variable) Based Event Setup

Setting up a Value or Variable Based Event in Strategy Controller[666]:

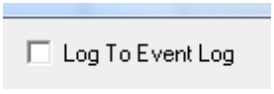
(There are also some specific examples here[690].)



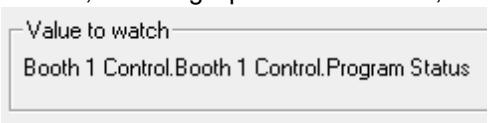


Description is a text field to identify the event. Events are listed in alphabetical order so it is a good idea to use a numeric prefix so that related events may be grouped together in the list.

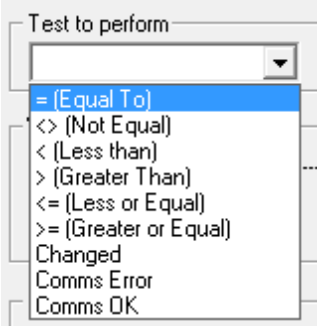
When the 'Log to Event Log' box is checked each occurrence of the event will be time stamped in the Event Log[620]. (If the event log has been set to record specified events)



'Value to Watch' is where the variable is selected that SpecView will check or 'watch'. This can be any variable, including SpecView variables, from the Variables List.



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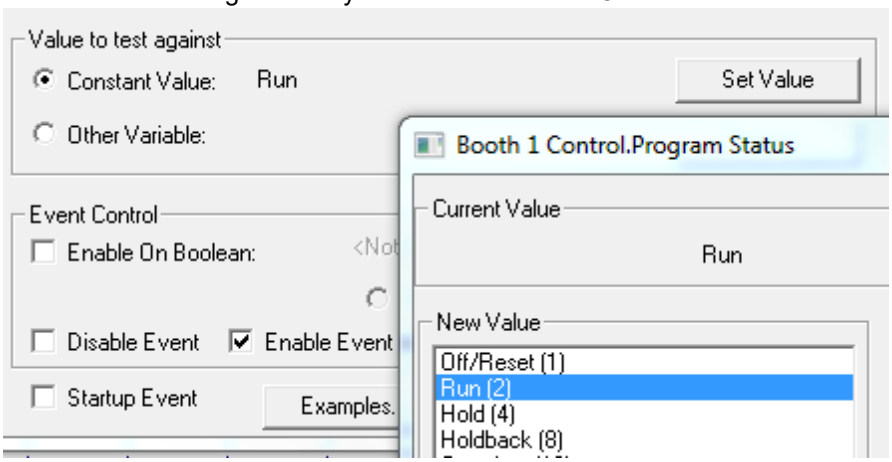


This is where the type of test SpecView will apply is specified.

'Changed' means changed by more than the amount given.
This includes time, booleans and values. When using this with a boolean it is necessary to ensure that the Value to test against is set to False.

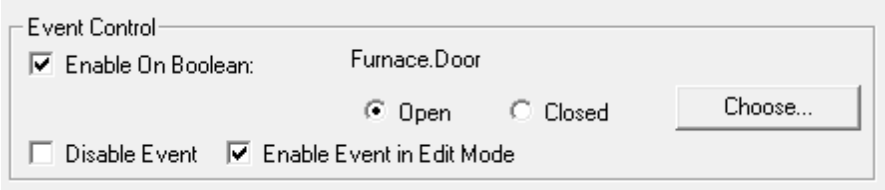
'Comms Error' will become true any time SpecView does not receive a response from the instrument when the variable is requested. This can be used to alert an operator that communications has been lost or corrupted.

The 'Value to test against' may be a constant value OR the value of another variable.



A constant value would be used when the test is always the same.
If a constant value of zero is used then this means **any** change to the variable.
Other Variable is used when two values are to be compared such as Zone 1.Process Value > Zone 2.Process Value.
Or if a test involves comparing a value to a setpoint that requires adjustment. For example, a counter is to be reset when the count value exceeds a particular value, and that value is to be set by the user. A SpecView variable would be defined called 'Count Reset Value' that is put on a GDW. The Strategy Controller event is: 'Counter.Value > SpecView.Count Reset Value'

Using Event Control (Enable On Boolean) to do an AND function
Event Control (using: Enable On Boolean) allows an AND function with a secondary boolean

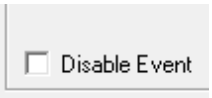


For example: Zone 1.Process value < 200 AND Furnace.Door = Open

If it is required to AND a variable that is not a boolean, such as a number, an intermediate event must be defined:
For example, Zone 1.Process Value > 250 AND Zone 3.Process Value > 300
A SpecView boolean User Variable must be defined 'Zone 3 over 300'
A Strategy Controller event/action: 'Zone 3.Process Value > 300 ➔ Parameters: Download Specific

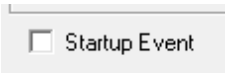
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Value of On to SpecView.Zone 3 over 300' turns on the boolean.
A second event: 'Zone 1.Process value < 200 AND SpecView.Zone 3 over 300 = True' completes the required statement.
In such an example do not forget to have an event to turn OFF the boolean since the Strategy Controller has no implied ELSE function.



When this box is checked the Strategy Controller will NOT test the event.

The Startup Event is a special event that is always true when SpecView is started or Runtime Mode is entered from Edit Mode. It is not necessary to define any variable to watch or specify any test.



Using Event Control (Enable On Boolean) to specify the order of Events
If the order that events are tested is important, then it is possible to force SpecView to do one set of actions before another by the use of the 'Event Control - Enable On Boolean'. To do this create a SpecView Boolean User Variable then add an action to the events to set the Boolean and use the 'Enable on Boolean' to determine which will be invoked as follows:

For example, the 2 events can have their sequence controlled as follows:

Events	Actions
If ProcessValue changed & Bool is Off	Set Bool On Do your required action
If ProcessValue changed & Bool is On	Set Bool Off Do your required action

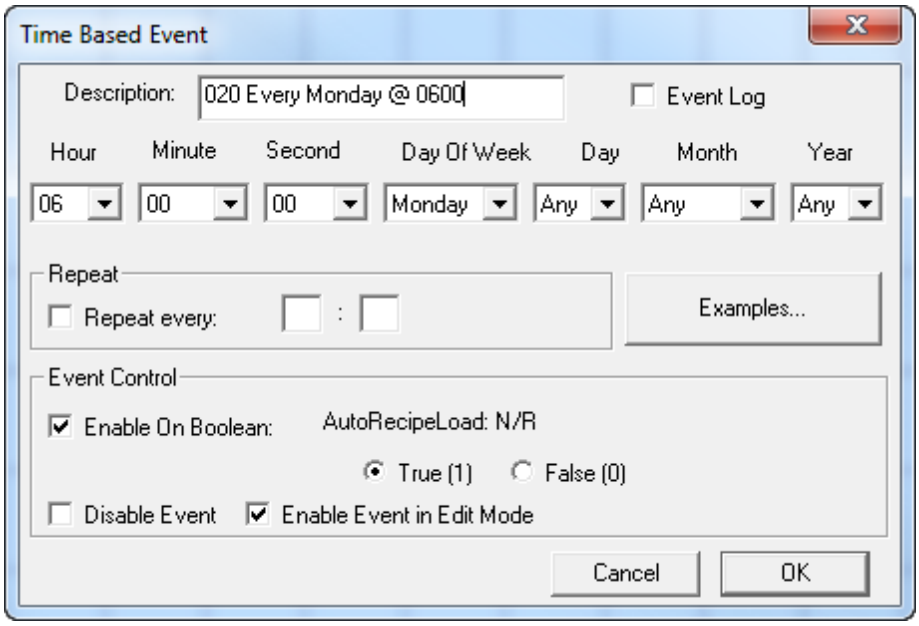
NOTE: When an event has been tested as true the event will not invoke its associated actions again until the event has become false, and then true again.

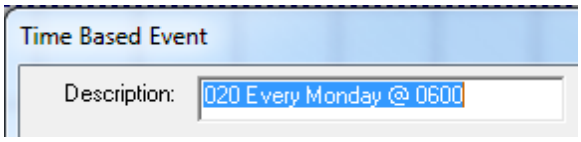
13.6 Time Based Event Setup

Setting up a Time Based Event in Strategy Controller 666:

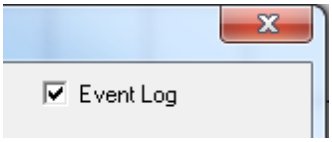
(There are also some specific examples here 695.)

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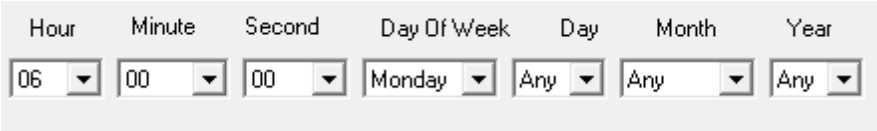


Description is a text field to identify the event. Events are listed in alphabetical order so it is a good idea to use a numeric prefix so that related events may be grouped together in the list.

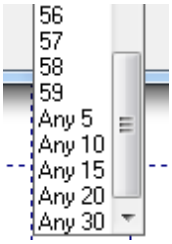


When the 'Log to Event Log' box is checked each occurrence of the event will be time stamped in the Event Log[620] . (If the event log has been set to record specified events)

The time at which the event will trigger is determined by the settings in these lists



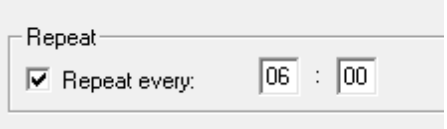
This event will last for one second every Monday at 6 o'clock in the morning. If 'Any' had been left in the 'Second' field the event would be true any time between 06:00:00 and 06:00:59. But the event will only be triggered ONCE during that minute, and will not trigger again until next Monday at 6am.



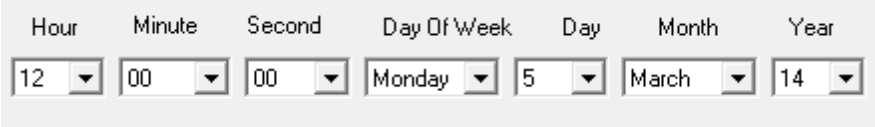
Note the 'Any 5, Any 10 etc. that are at the bottom of the Minute and Second lists. When possible, these should be used in place of the 'Repeat Every' function described below.

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Only use the 'Repeat every' setting with caution.
The event will trigger every 6 hours with the setting shown.
What SpecView does is compute when the next event should occur and automatically enter those values into the time and day fields.



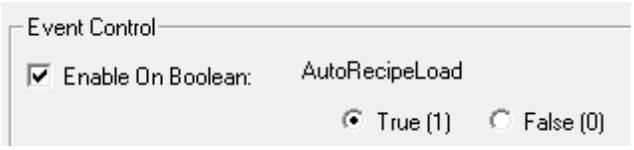
If the first event was set to be 06:00 on Monday, as shown above, and it is March 5, 2002 when the event is first triggered SpecView will compute that the next event will be:



If SpecView is not in Runtime Mode at that precise moment the event will be missed and will never be triggered again.
The user will need to re-edit the Strategy Controller event to get it to trigger again.

NOTE: It is recommended that a Value based event watching SpecView.Time with a test of Changed by a constant value be used instead of a time based event using 'Repeat every'.

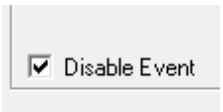
Using Event Control (Enable On Boolean) to do an AND function with a time based event
Event Control allows an AND function with a secondary boolean



For example: Every Monday at 06:00 AND SpecView.AutoRecipeLoad = On

If it is required to AND a variable that is not a boolean, such as a number, an intermediate event must be defined:
For example, 06:00 on Monday AND Zone 3.Process Value > 300
A SpecView boolean User Variable must be defined 'Zone 3 over 300'
A Strategy Controller event/action: 'Zone 3.Process Value > 300 ➔ Parameters: Download Specific Value of On to SpecView.Zone 3 over 300' turns on the boolean.
A second event: '06:00 on Monday' AND 'SpecView.Zone 3 over 300 = True' completes the required statement.
In such an example do not forget to have an event to turn OFF the boolean since the Strategy Controller has no implied ELSE function.

When this box is checked the Strategy Controller will NOT test the event.

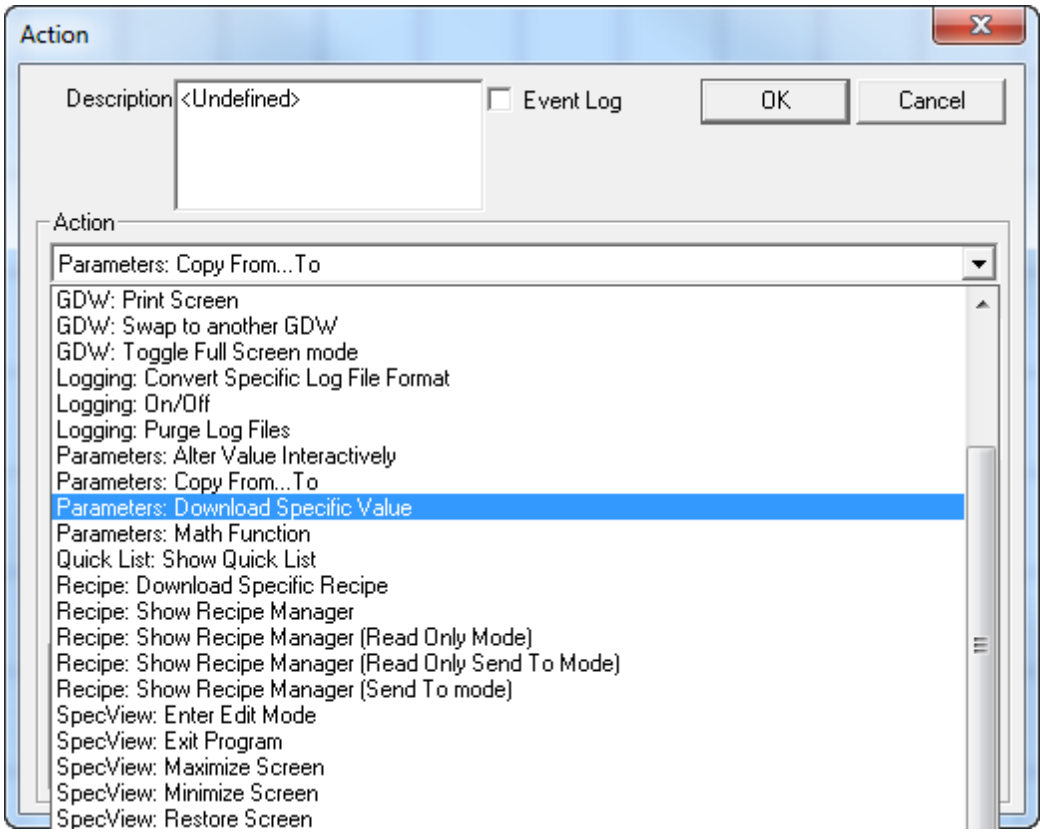


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13.7 Strategy Controller Actions

For more details on the list of Strategy Controller[666] Actions see the descriptions for Button Attributes[403]

Choose an Action from the list:



If the 'Event Log' box is checked then the action will be time stamped in the event log[620] each time it is executed. (If the event log has been set up to record specified Strategy items. This is the default setting of the event report).

13.8 Examples of Value Based Events

Some specific examples of using Value Based Events in Strategy Controller[666]:

Turn on a digital output on a New Alarm[691]
Cascade Control[692]
Automatic Log Report[669]
Totalizer[694]

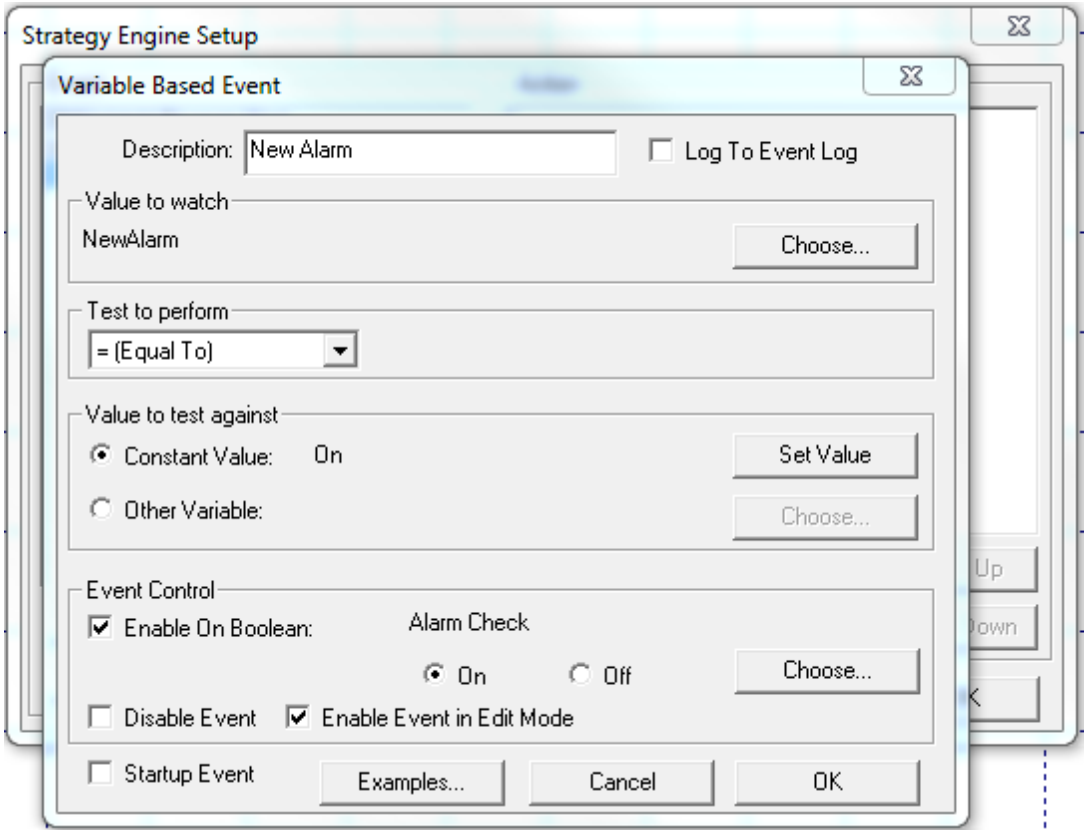
Contact your SpecView distributor for more examples.

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13.9 Turn on a digital output on a New Alarm

SpecView can monitor any boolean variable as an Alarm[616], also Alarm/Event Menu[273]

This Strategy Controller[666] example shows how to turn on a digital output whenever SpecView detects a new alarm.

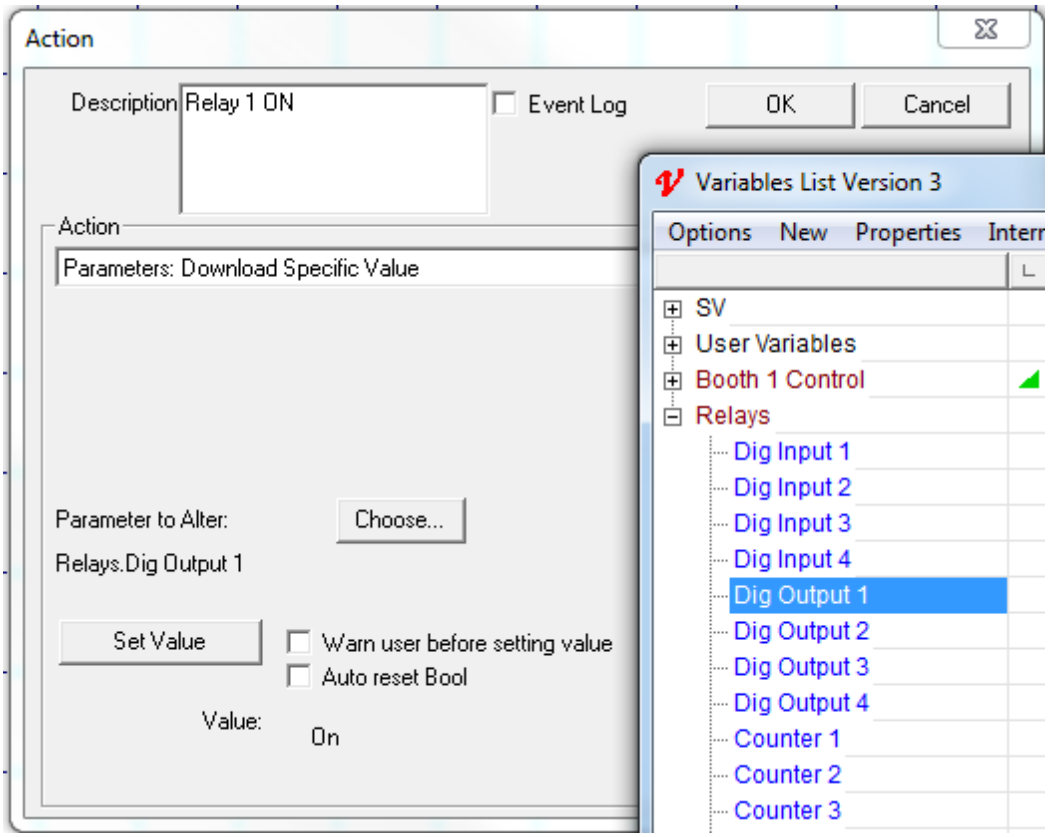


This event is watching (or monitoring) the SpecView variable **'SpecView.NewAlarm'** which will be set to 'On' when any of the boolean variables or boolean instrument parameters - which have the 'Alarm' property enabled - change to 'On'.

When there is a new alarm condition and the SpecView User Variable **'Alarm Check'** is 'On', the event will trigger. The use of event control would allow the user to disable this event by setting the SpecView.Alarm Check variable to 'Off'.

The appropriate action is shown below - The variable 'Relays.Dig Output 1' will be set to 'On':

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13.10 Cascade Control

The Strategy Controller[666] can be used to trim the set point of one controller based on the output of another. This is used in many applications where the desired measurement is 'thermally remote' from the heat source. Examples include:

- Controlling from the internal (part) sensor of a furnace
- Using 'Deep/Shallow' thermocouples on an extruder barrel

In this example the output of the 'Master' controller is used to adjust the set point of the 'Slave' controller. (If the master is a programmer type controller then 'Master.Working SP' should be added to the 'SpecView.SP Trim' instead of the 'Slave.SP')

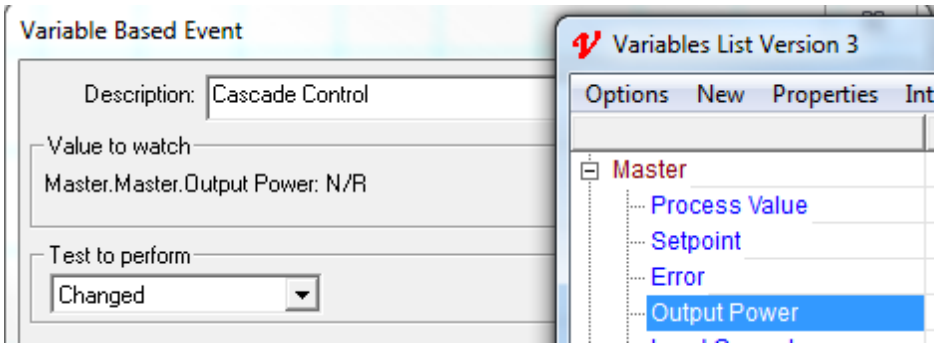
The example below shows the use of a SpecView User Variable to give more flexibility in tuning:

1. Define two SpecView Number (with decimals) User Variables, called 'Cascade Gain' and 'SP Trim'
2. Add a value based event: Value to watch = Master.Output; Test to Perform = Changed
3. Add an action Parameters: Math Function: COPY FROM Master.Output MULTIPLY SpecView.Cascade Gain COPY TO SpecView.SP Trim
4. Add a second math function action: COPY FROM Slave.Setpoint ADD Strategy Controller.SP Trim COPY TO Slave.Setpoint

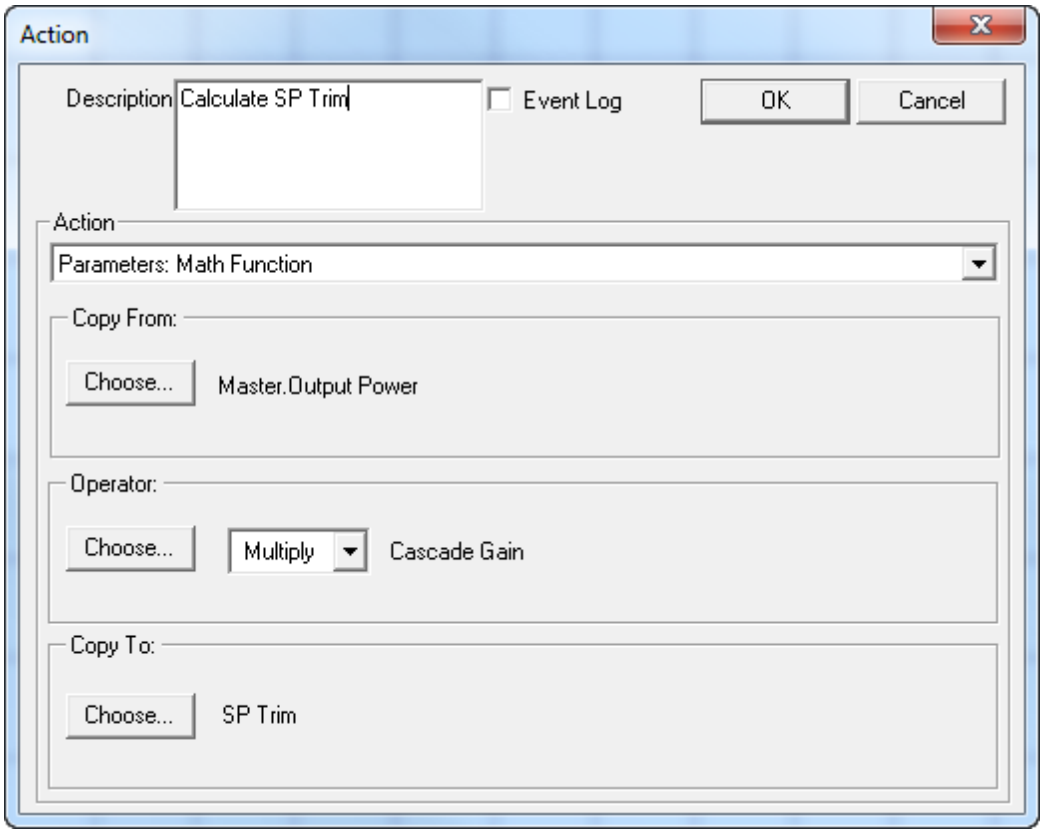
The Strategy Controller boxes for this example are shown below:

Event:

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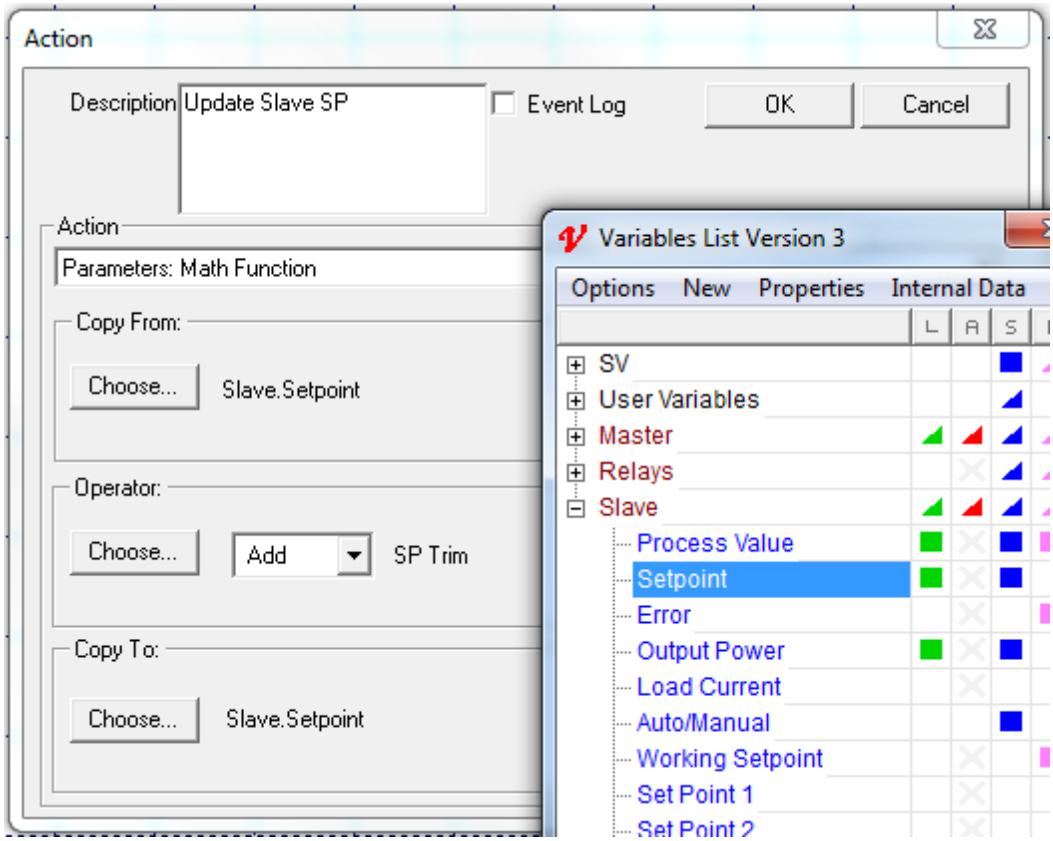


Action 1:



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Action 2:



13.11 Totalizer

Some instruments have a built-in totalizer. But if this is not the case then SpecView's Strategy Controller 666 can be configured to do this for you.
However, it is important to consider what it is that you need SpecView to do, for example:

- When should the totalizer result be reset back to zero?
- What is it that is being measured?
  - If the instrument does an on/off for every unit of consumption then these can be counted.
  - If the value is a flow-rate then the calculation needs to be done carefully to ensure that the total is a true one.

A basic totalizer would need a SpecView Number User Variable 322 to store the running-total and a Strategy Controller event which would add 433 the current value to the running-total.

Totalizing a flow-rate is more like calculating an average. However, it is particularly important to have thoroughly thought through exactly what is needed:

- What are the units of the flow rate?
- Is the flow generally constant or rapidly changing?
- How often should the flow-rate be sampled?
- Over what period of time will the totalizer run for, such as, over a few minutes or maybe over a few days.
- At what stage should it be reset?
- Should the reset be done automatically or manually by the operator?

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- How accurate does the total value need to be?
- Should the total value be marked for logging[326]?

Here's an example of a flow-rate in litres per minute, where the flow-rate is added up every second and at the end of each minute divided by 60 & added to the total:

Create an 'every second' event (see the note below), with the action to add[433] the current value of the flow-rate to the running-total.
Create an 'every minute' event, with the action to divide[433] the running total by 60 & add the result to the total. (For the constant value 60, create a SpecView Number User Variable called 'Sixty' and set the initial value to 60).

To show the duration that the totalizer has been running:

- Create two SpecView Time User Variables[322] (call them StartTime and Duration) and when the process starts set[431] StartTime to the Current Time and set[431] both the running-total & the total to zero.
- Then add an action to the 'every second' event (which you've already created) to subtract[433] StartTime from SpecView.Time & put the result in Duration.

When the values are displayed on the screen (GDW), it maybe that more than one decimal place needs to be shown, this can be changed using Dynamic Attributes[501].

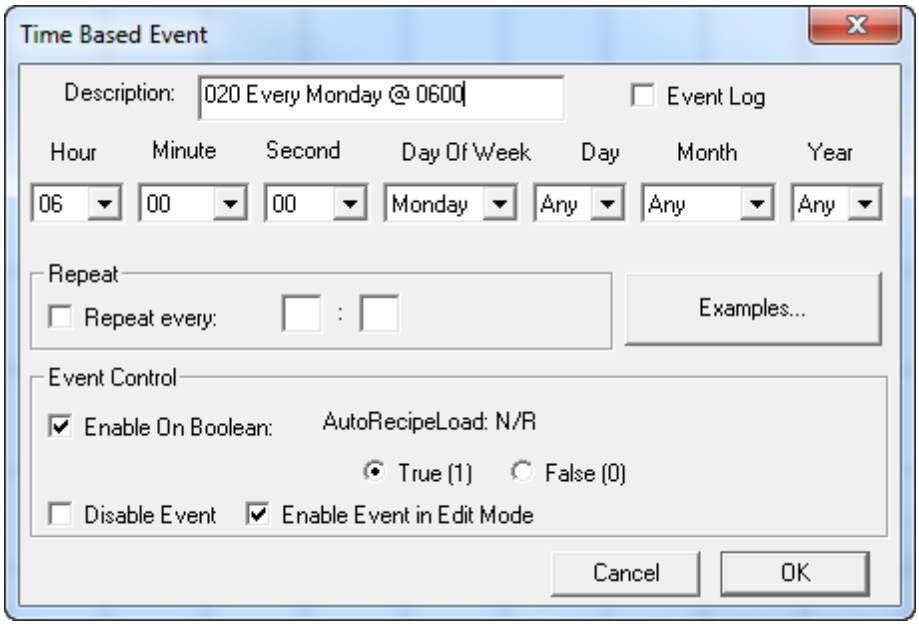
For an example of this please see the Demo projects on the SpecView CD, or contact your SpecView distributor.

NOTE: It is recommended that for events that need to 'fire' every second, or every minute a Value based event[685] watching SpecView.Time with a test of 'Changed' by a constant value be used instead of a Time based event[687] using 'Repeat every'.

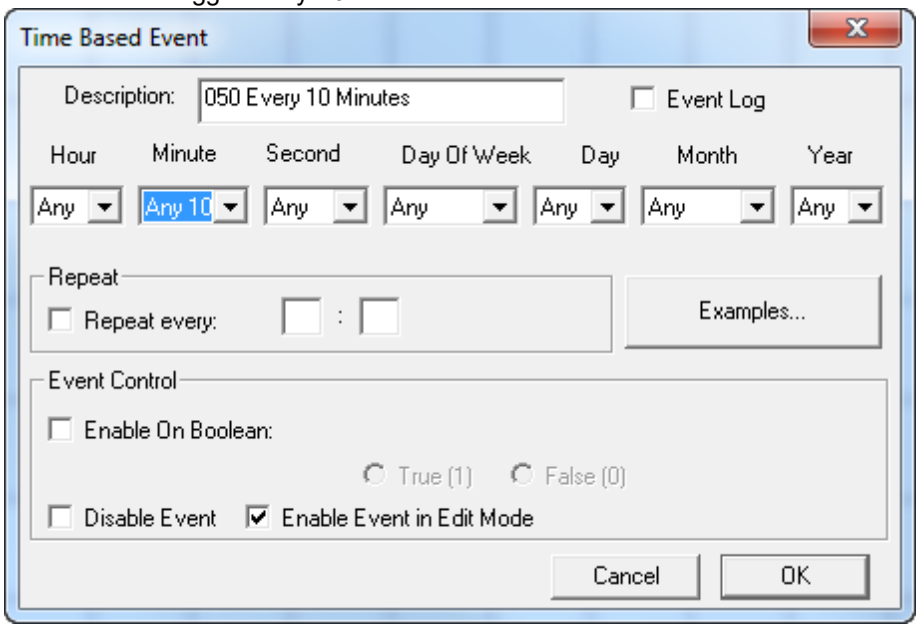
13.12 Examples of Time Based Events

This Strategy Controller[666] Event will trigger every Monday at 6 o'clock in the morning:
(Note that it is 'Enabled' by a SpecView boolean User Variable called 'SpecView.AutoRecipeLoad'. This means that this event will only trigger when that boolean is 'On')

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This event will trigger every 10 minutes:



NOTE: It is recommended to use this method to get a recurring event rather than use the 'Repeat Every' function

13.13 Strategy Controller - Hints & Tips

The Strategy Controller[666] works by reading values and checking each of the Events[685] against these values, for example, checking if a temperature is over a threshold and if so, then 'triggering' the associated Actions[690] for that Event.

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Each Event is triggered independently from the others, and then the associated Actions are executed in order.

Each Event is only triggered once when it becomes true, i.e. if a temperature goes over a threshold. For example, checking if a temperature is over a threshold would only trigger the Event once. It would not be triggered again until the temperature had dropped and then gone back up over the threshold again.

See further examples here:
Strategy - Avoiding Triggers at Startup 697
Strategy - Rolling Average 699

13.13.1 Strategy - Avoiding Triggers at Startup

Strategy Controller 666 Events can be incorrectly triggered when SpecView goes online (or at startup).

For example, a Log Report for a process should be generated when the process ends, but it is possible for the Log Report to be inadvertently generated when SpecView Starts (goes online).
This happens if the Program Status is read as 'Stopped' and causes a Log Report to be generated erroneously, when it should be generated ONLY when the state changes from Running to NotRunning. Likewise, if the Program Status is read as 'Running' this will cause the start time of the process to be reset.

Writing the Strategy correctly can prevent this, for example:

When SpecView initially reads the Program Status on the controller it sees the value as though it has just been changed, therefore the Strategy needs to be written with this in mind...

Therefore, we need another Boolean 488 (User Variable) to combine with the Program Status to determine if the process was running or not when SpecView started (went online).

This table shows how these Booleans are combined, so that Strategy can determine if the program was running or not at startup:

Program Status	Program Running	
Running	Off	Set StartDateTime to now, Set ProgramRunning to On
Running	On	Do nothing
Stopped	Off	Do nothing
Stopped	On	Set StopDateTime, Log Report, Set ProgramRunning to Off

To do this create a Boolean User Variable (called for example 'Program Running') that tracks whether the process is running and only allows the Log Report to be done ONLY if the process state changes to Stopped and the Boolean 'Program Running' indicates that it was running.

This way if SpecView is started again, the Boolean 'Program Running' will say it is not running and therefore avoid the Log Report being triggered incorrectly.

Therefore, in the Strategy Event for the Process Start, which is triggered when the controller indicates that the program state has changed to Running:
In the 'Event Control' section of the Event click 'Enable on Boolean' and choose Program Running and the

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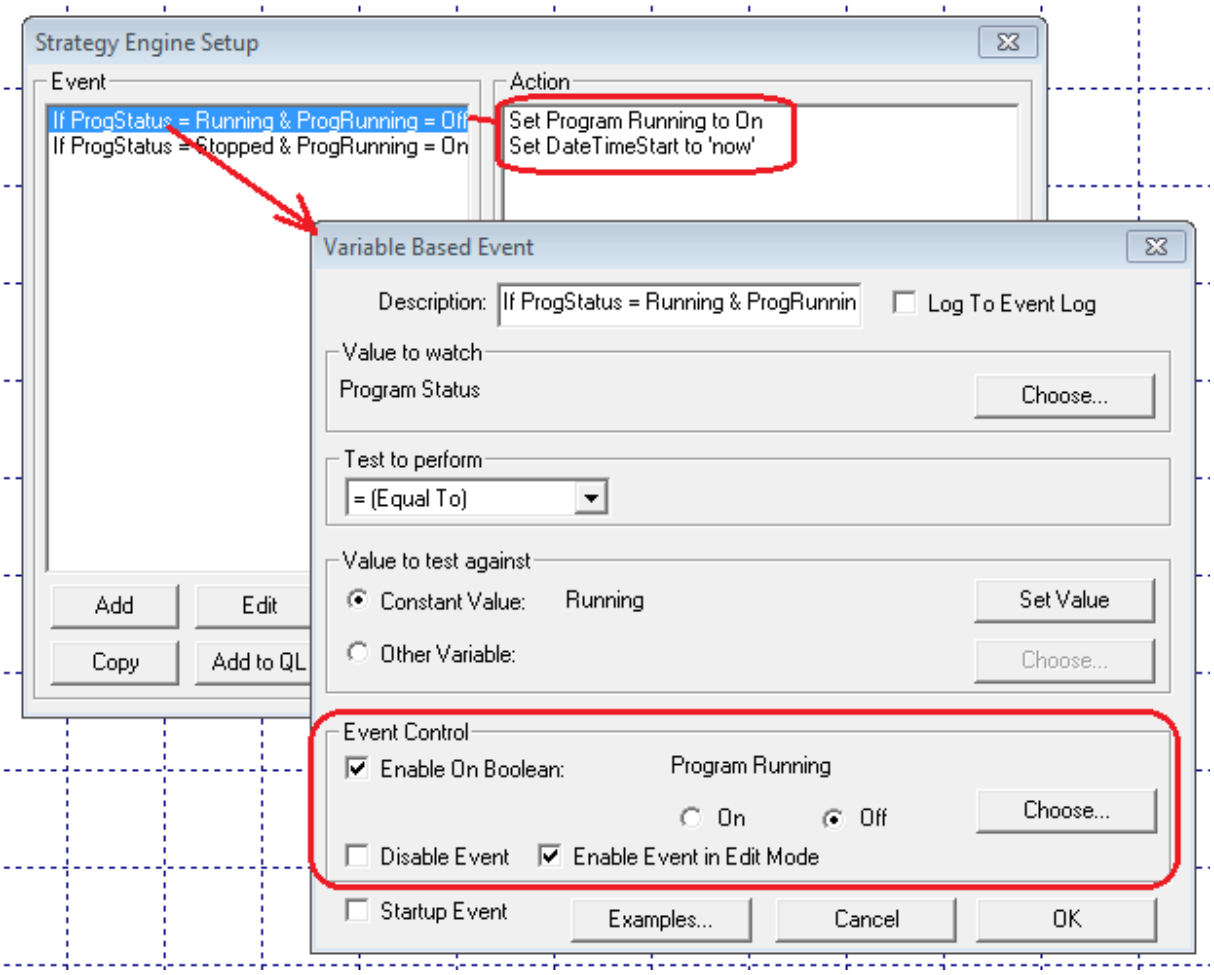
value as 'Off'.
Also add an Action to set Program Running to On

In the Strategy Event for the Process Stop, which is triggered when the controller indicates that the process state is Stopped:
In the 'Event Control' section of the Event click 'Enable on Boolean' and choose Program Running and the value as 'On'.
Also add an Action to set Program Running to Off

The 'Enable on Boolean' box is used as an 'AND' statement which works in conjunction with the primary instruction (so that both parts of the event box have to be true for the actions to be triggered).

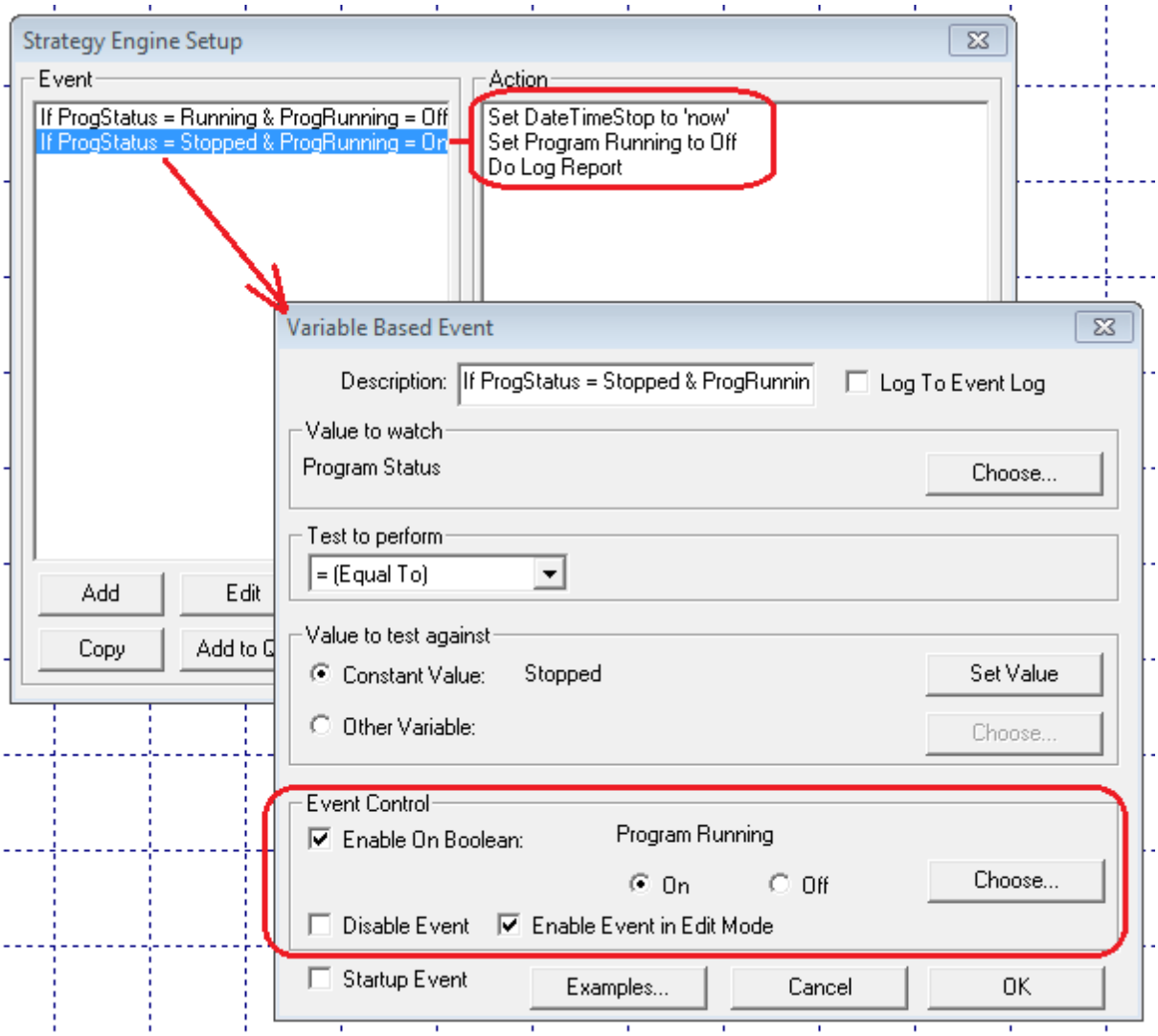
The result of making these changes is to prevent the Log Report being generated erroneously when SpecView starts, and similarly to prevent the start time of the process being reset.

For Program Status = Running:



And for the Program Status = Stopped:

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13.13.2 Strategy - Rolling Average

There are 2 methods for working out a rolling average.
The best solution is to use an ActiveX control which has been specifically developed to calculate a rolling average.

Calculating a Rolling Average using an ActiveX Control:

There is an ActiveX control called SVRollAv1 [786] which takes inputs/outputs from SpecView and does the calculations. It also handles the case of bad values.

Calculating a Rolling Average using SpecView's Strategy Controller:

However, it is possible to do a fairly straightforward rolling average using SpecView's Strategy Controller [666].
However, this has its limitations; firstly to do a rolling average of values taken once a minute over an hour would require 60 User Variables and the associated Strategy to 'ripple' the values down and

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total them up.
Secondly, that method doesn't handle the case where some values are 'bad', for example when comms are lost - which would adversely affect the calculated average.

A typical requirement is to see the average of a variable over a period of time.

This is a simple example of a rolling average over the last 10 minutes.

Readings are taken once a minute, and the average (mean) of the last 10 values is calculated & displayed.

Note that for the first ten minutes of the run the average will be incorrect because the sample size is less than 10.

Below are the SpecView user variables, together with the Strategy Controller events and actions, which will need to be defined.

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Variables:

Variable Type	Variable Name	Initial Value
Number (with decimals)	Value 01	0.0
Number (with decimals)	Value 02	0.0
Number (with decimals)	Value 03	0.0
Number (with decimals)	Value 04	0.0
Number (with decimals)	Value 05	0.0
Number (with decimals)	Value 06	0.0
Number (with decimals)	Value 07	0.0
Number (with decimals)	Value 08	0.0
Number (with decimals)	Value 09	0.0
Number (with decimals)	Value 10	0.0
Number (with decimals)	Sum	0.0
Number (with decimals)	Average	0.0
Number (with decimals)	Number of values	10.0

Events:

Event Type	Event Name	Details
Time Based	Every Minute	Set Second to 00

Actions for Every Minute Event:

Action Name	Action	Details
Reset Average to zero	Parameters: Download Specific Value	Set Average to 0.0
Reset Sum to zero	Parameters: Download Specific Value	Set Sum to 0.0
Copy 09-10	Parameters: Copy From... To	Copy from Value 09 to Value 10
Copy 08-09	Parameters: Copy From... To	Copy from Value 08 to Value 09
Copy 07-08	Parameters: Copy From... To	Copy from Value 07 to Value 08
Copy 06-07	Parameters: Copy From... To	Copy from Value 06 to Value 07
Copy 05-06	Parameters: Copy From... To	Copy from Value 05 to Value 06
Copy 04-05	Parameters: Copy From... To	Copy from Value 04 to Value 05
Copy 03-04	Parameters: Copy From... To	Copy from Value 03 to Value 04
Copy 02-03	Parameters: Copy From... To	Copy from Value 02 to Value 03
Copy 01-02	Parameters: Copy From... To	Copy from Value 01 to Value 02
Copy Value-01	Parameters: Copy From... To	Copy from Inst value to Value 01
Sum 01	Parameters: Math Function	Add Value 01 to Sum, Copy to Sum
Sum 02	Parameters: Math Function	Add Value 02 to Sum, Copy to Sum
Sum 03	Parameters: Math Function	Add Value 03 to Sum, Copy to Sum
Sum 04	Parameters: Math Function	Add Value 04 to Sum, Copy to Sum
Sum 05	Parameters: Math Function	Add Value 05 to Sum, Copy to Sum
Sum 06	Parameters: Math Function	Add Value 06 to Sum, Copy to Sum
Sum 07	Parameters: Math Function	Add Value 07 to Sum, Copy to Sum
Sum 08	Parameters: Math Function	Add Value 08 to Sum, Copy to Sum
Sum 09	Parameters: Math Function	Add Value 09 to Sum, Copy to Sum
Sum 10	Parameters: Math Function	Add Value 10 to Sum, Copy to Sum
Calc Average	Parameters: Math Function	Divide Sum by Number of Values, Copy to Average

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Part 14

14 Passwords

NOTE: Passwords are optional. If they are not needed then skip this section.

SpecView has the facility of password protection, which can be used as detailed below:

- Up to 5 levels of password access
- Any object on any screen may be password protected
- Adjustable inactivity timeout
- Hierarchical or non-hierarchical operation - meaning access is 'inherited' (or not) from lower-levels.
- Menu command blocking to unauthorized users
- Window controls or PC key blocking to unauthorized users
- It is possible to allow 'Level 1' users to use the system without having to login
- Password login/logout events can be recorded in the Event Log 620.

To save time it is a good idea to setup the Password system once all the screen layouts (GDWs) for a Project are complete.

Ideally there should be a thorough understanding of how the screens will be used in practice, in terms of who needs to use which parts of which screen.

For example, if there are 4 screens: MAIN.GDW, FURNACE.GDW, COOLER.GDW & SUPERVISOR.GDW and 2 users: Operator & Engineer, then to setup the Password system use the GDW Setup 707 menu command and go to each screen in turn and choose the 'Level' of the user (for example, 1 for Operator & 3 for Engineer), then select the objects on EACH screen that the user needs to have access to. Remember to save the changes to the screens.

For the Engineer level (in this example this is Level 3) it is advisable to check the **Allow Edit Mode** checkbox, and for Operator level (in this example this is Level 1) have this unchecked. This will just allow the Engineer level user to enter Edit Mode 501.

It may also be worth considering using Full-Screen 476 mode.
In this case it will be necessary to put a Button with the action: Password: Log In or Log Out 437 on at least the first 284 screen.
Put a Button to Toggle Full-Screen Mode 427 onto a screen which is accessible by the Engineer level user.

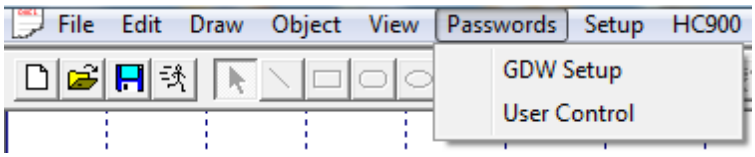
To Setup users use the User Control 710 menu command to create user IDs and Passwords for the users at the required levels.

Finally uncheck the **Disable Password System** checkbox (on the GDW Setup 707 dialog) and test that each user has access to the correct parts of each screen.

For future changes to the project, to save time in repeatedly entering the password every time Runtime Mode is used for testing, it is a good idea to disable the password system, make the amendments, test them, modify the password system appropriately so that any new items on the screen are accessible by the correct level of user, and then once everything is completed, re-enable the password system.

NOTE: When setting up the password system it is necessary to ensure that all variables, which may need to be changed during Runtime, are accessible by at least one user.

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NOTE: that when Passwords are used in conjunction with Full Screen mode[476] it is important to ensure that there are buttons on a GDW for Login and Logout.

When Passwords are enabled it is not possible to go directly into Edit mode using the shortcut of holding the **Shift** or **Control** keys and clicking the **Start** button to force SpecView to go directly into Edit Mode[501] when it starts. It is necessary to login as a user who can access Edit Mode and temporarily disable passwords.

For traceability it is recommended that each individual user is given their own ID and password - even if they use the same Level as other users. This is because Password login/logout events can be recorded in the Event Log[620] and the user ID that was logged in at a certain time can be traced.

It is also important to set the Password Timeout to the shortest possible time, so the user is automatically logged out after the briefest possible period of inactivity.

Passwords - GDW Setup[707]
Passwords - User Control[710]

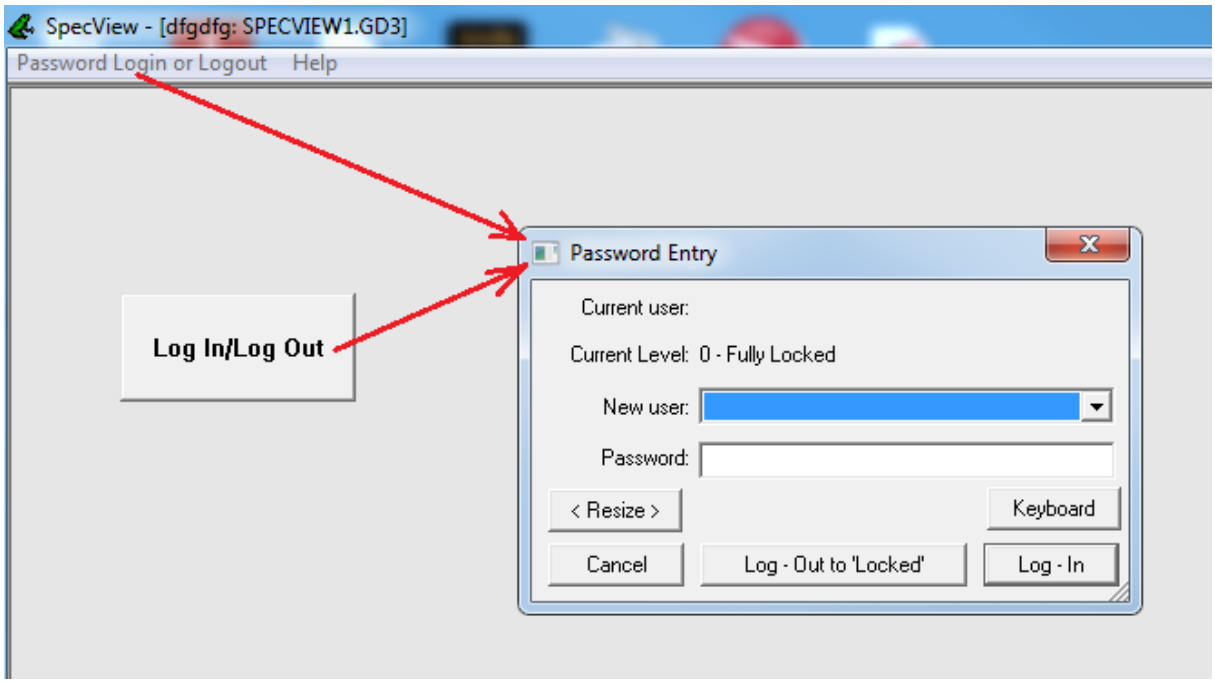
For information about the use of Passwords with ActiveX controls see here[781].

There is a video on SpecView's YouTube channel that illustrates SpecView's password system functionality here: 3000 SpecView Version 3 Passwords Tutorial.

14.1 Passwords - Login

Once passwords are enabled[707], the passwords login box can be accessed either from the menubar or from a Login[437] button:

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Choose the user name from the drop-down list.

Clicking the **Log - Out to Locked** button logs out to level '0', requiring the user to log back in again.

The Keyboard button displays an on-screen keyboard for users of Touch Screens.

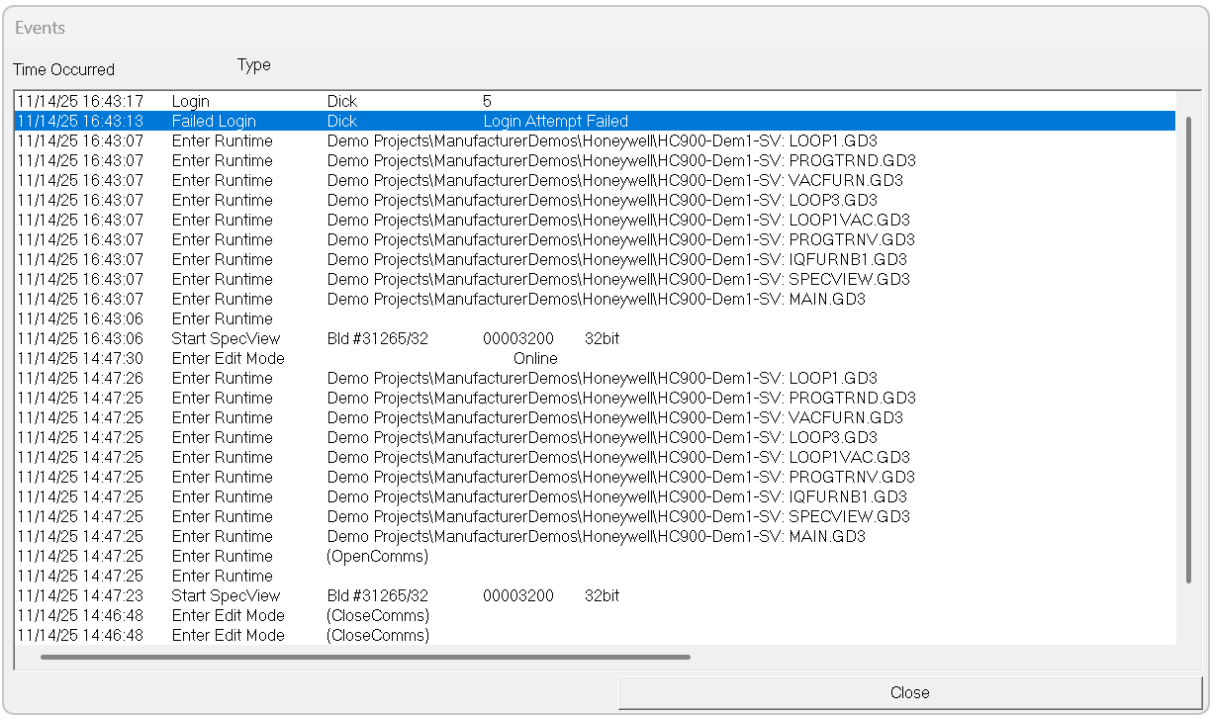
The **Password Entry** box can be resized using the **< Resize >** button which centers and keeps enlarging the box until the limit of the screen size is reached.
This is particularly useful for users of Touch Screens.

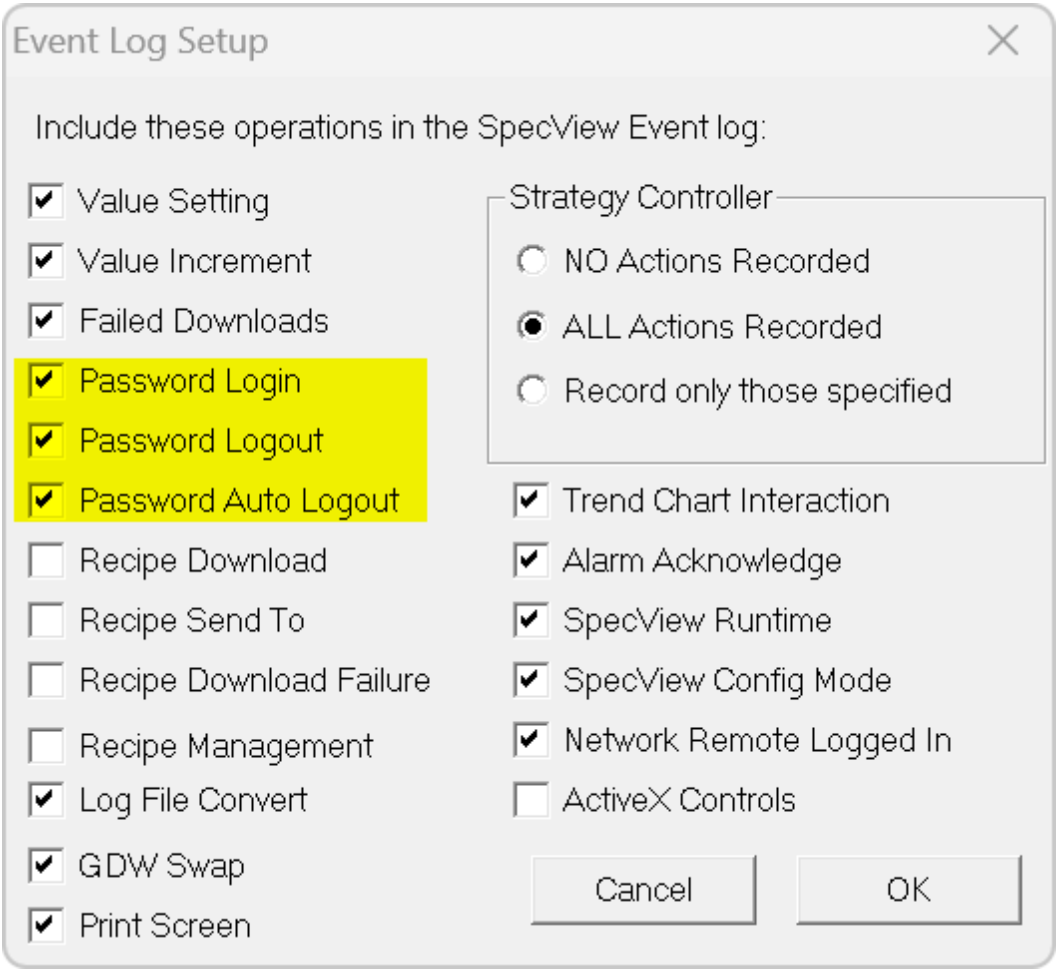
The resize 'grippy' in the bottom right corner of the frame can also be used to resize the box.

The previous size and position of the box is remembered.

SpecView 3.1.265

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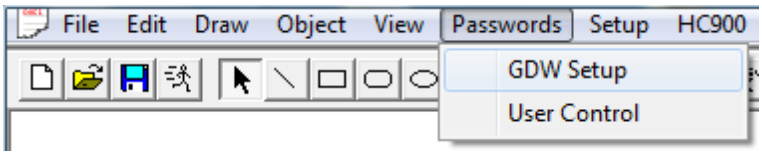


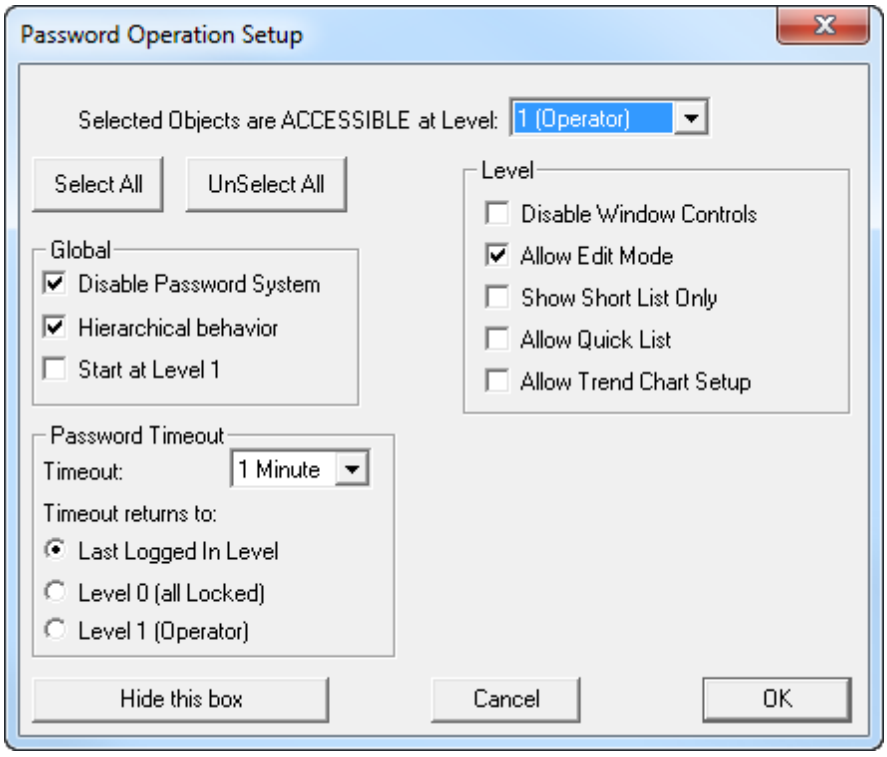


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If the Password Login, Password Logout, and Password Auto Logout options are enabled in the Event Log Setup[305], then a user logging in and logging out will get recorded in the Events Window[264].
As of SpecView 3.1.265[124], failed log in attempts will also be recorded in the Events Window[264].

14.2 Passwords - GDW Setup





Selected Object Access Levels

SpecView provides (up to) 5 levels of log-in access:

-Level 0 is the default (unless 'Start at Level 1' is checked) - where *only* the Password menu command or a Login[437] button is accessible
-Level 1 (Operator) is the first level - typically only minimal access is given to Level 1 users
-Level 2 would typically have more access than level 1
-Level 3 would typically have more access than levels 1 and 2
-Level 4 (Configuration) would have the most access, but not necessarily access to everything - otherwise they could just use level 5

When a user is logged in at Level 5 *everything* on all GDWs is accessible.
Be aware that just because a variable has been marked as accessible at a level on one GDW does NOT mean it is accessible on another GDW.
Level 0 and Level 5 are not included in the drop-down-list because '0' is no access, and '5' always has access to everything.

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Select All / UnSelect All Buttons

These buttons provide a quick way to Select / UnSelect all the objects on a GDW.
The Select All button is useful to highlight ALL the objects which the user may need access too, and then click (to deselect) the ones that you don't want this level to have access to.

Global - These apply to ALL levels of user:

Disable Password System (Default = On) - this applies to ALL Levels

When checked the password system is not active and the system is unlocked at all times. This is useful during project development when switching frequently between Edit Mode and Runtime Mode.

Hierarchical Behavior - this applies to ALL Levels

When checked each level behaves in a hierarchical way; i.e. When an object is marked as accessible at level 1, it is automatically accessible at levels 2, 3 and 4.

NOTE: The following example should be studied in order to understand how this behavior could be confusing.

–An object, say Zone1.Setpoint, is marked as accessible at Level 1 (Operator)
–It is therefore accessible at all higher levels
–The user switches to Level 4 (Configuration)
–The user clicks by mistake on Zone1.Setpoint, de-selecting it
–Seeing the mistake, the user clicks again on Zone1.Setpoint to re-select it….
However, because de-selecting it LOCKED it at Level 4 AND ALL LEVELS BELOW, re-selecting it only made it accessible at Level 4 - it is STILL LOCKED AT LEVEL 1. You MUST return to Level 1 and re-select it at that level.

Start at Level 1

This allows Level 1 users access without them having to login. This is commonly used when there are many operators who need to be able to walk-up to the system and click on a few things quickly without having to login first. In this case Level 1 users should only be given minimal access - and should need to login at a higher level to do anything that needs to be traceable. Password login/logout events can be recorded in the Event Log 620.

Password Timeout - These apply to ALL levels of user:

Timeout

Select a time for the inactivity timeout.
Inactivity is defined as not accessing a variable. Moving the mouse is not activity.
The time left on the timeout is shown in the status bar
It is important to set the Password Timeout to the shortest possible time, so the user is automatically logged out after the briefest possible period of inactivity.

Timeout Returns To

Select the required action:

Last Logged In Level - this goes back to the level of the last user logged in, if their level was less than the current level, otherwise it goes back to Level 0
Level 0 (all Locked) - this is the most secure choice
Level 1 (Operator) - this is similar to 'Start at Level 1' but it is necessary to login at Level 1 initially when SpecView first goes online.

Level - These only apply to the level of user selected:

Disable Window Controls - this applies to the current Level selected

When checked the Window's menus are hidden and the maximize/minimize controls are disabled for this level of user. In addition to this, the following Windows keys will also be disabled:

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Ctrl-Esc
Alt-Tab

'Windows' Key (which is positioned on the keyboard between the Ctrl and Alt keys) and on Windows 95/98/Me: Ctrl-Alt-Del is also disabled. However, on Win NT, Win 2000, Win XP, Ctrl-Alt-Del cannot be disabled.

It is possible to just allow windows to be minimized by using File->Preferences - Display tab - Allow Minimize.

Note: The Maximize window control will continue to be available for use. To avoid this being accidentally clicked use Full Screen Mode 476.

Allow Edit Mode - this applies to the current Level selected

When NOT checked the Edit Mode menu command is not available on the File menu to this level of user.

Short List Only - this applies to the current Level selected

-When checked the parameter button on Instrument Views will be restricted to the short list 260
-The Short Param List menu command on the Options menu 276 will also be disabled
This will also affect the contents of the Parameter list 260 which is displayed by the button (or Strategy Controller) action 'Parameters: Show Full Parameter List' 436.

NOTE: If a variable is listed in the short list, and the user has access to the Parameter list (either via the Instrument view's button, or via another button) then they will be able to change the value of that variable.

Allow Quick List

This allows this level of user to access the Quick List 266 from Runtime Mode.

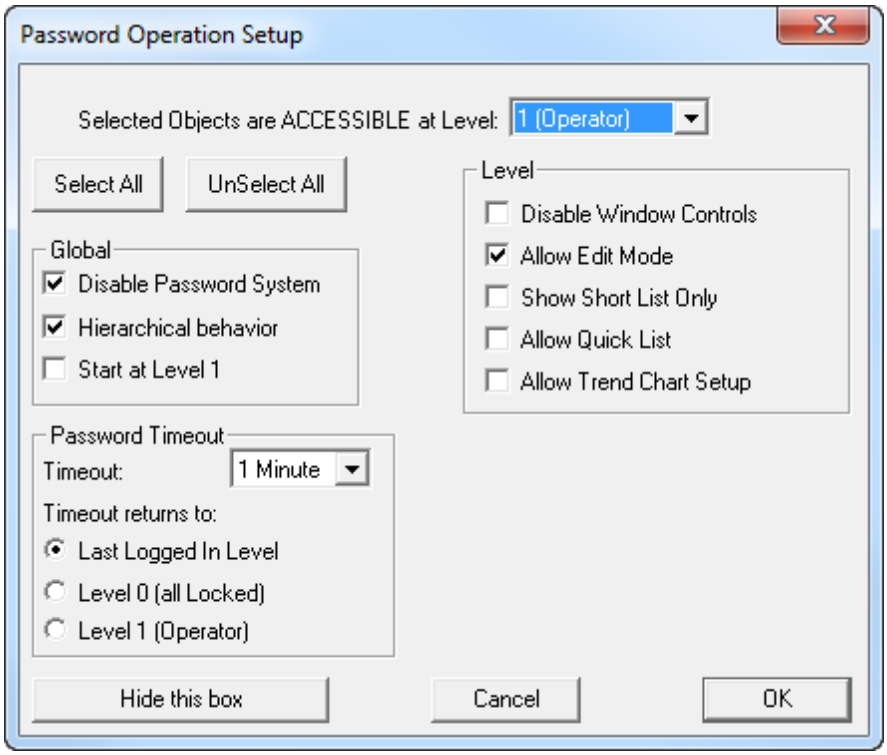
Allow Trend Chart Setup

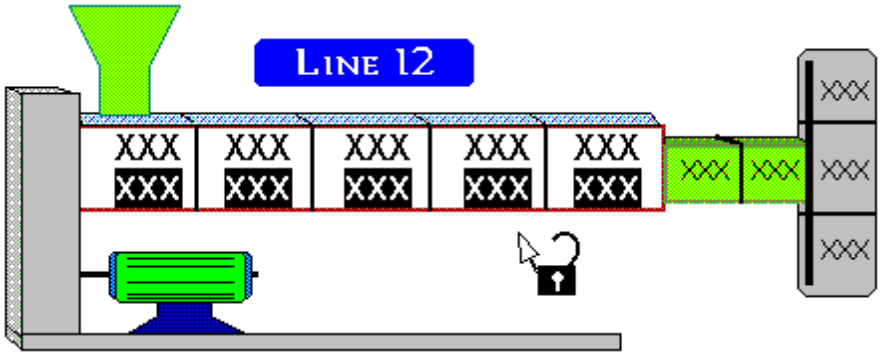
This allows this level of user to access the Trend Chart Setup 528 box from Runtime Mode.

14.3 Passwords - Selecting Objects for Access

Use the GDW Setup menu command on the Passwords menu which will display:

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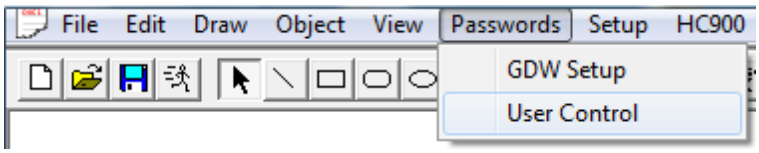




When the **Hide this box** button is clicked the cursor changes to the padlock shown above.

Click to highlight those objects on the GDW you want ***TO BE ACCESSIBLE*** at the level shown.
Each object selected will highlight (as shown above) in either reverse video or with an outline box. (As for Recipe, the highlight type is defined by the **Select Invert** check box in Preferences - Recipe 465)

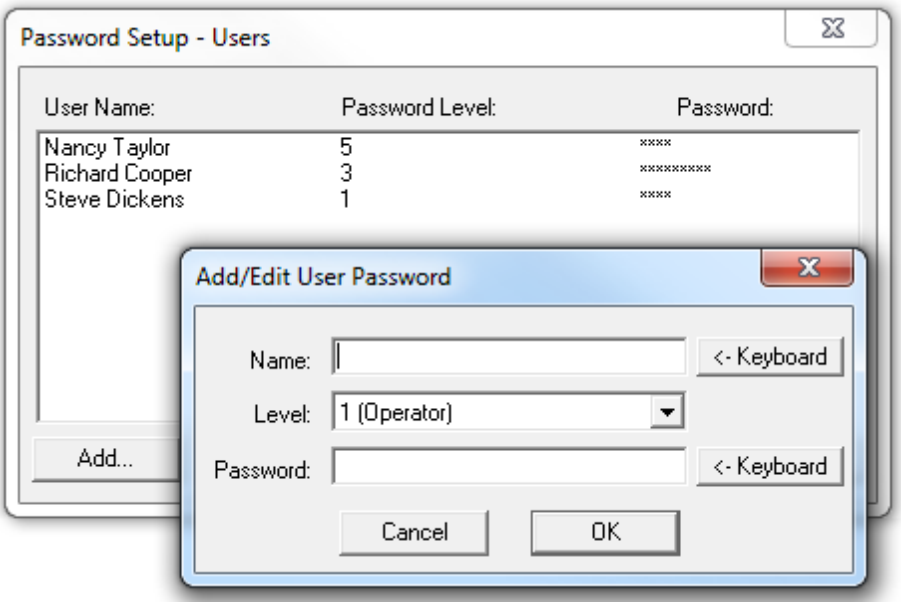
14.4 Passwords - User Control



This is used to enter the names and passwords of the users of the system

1. The User Control menu command brings up the 'Password Setup - Users' box
2. Then click the **Add** or **Edit** buttons to get the 'Add/Edit User Password' box

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Up to 5 levels of user access are provided - use as many (or as few) as you wish

NOTE: Use only the levels that you know you need. Too many levels can be counter-productive.

The designations 'Operator' and 'Configuration' are provided only as a reminder that higher numbers mean a higher level of access in hierarchical mode.

For traceability it is recommended that each individual user is given their own ID and password - even if they use the same Level as other users. This is because Password login/logout events can be recorded in the Event Log[620] and the user ID that was logged in at a certain time can be traced.

There is also a Button/Strategy Action will display the box[436] for changing passwords.

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Part 15

15 Multiple Users

SpecView Networking allows SpecView screen(s) to be accessed from other computers across the network or Internet.
If using a router, then it needs to be setup[753] to allow access.

It is possible to use other 'remote access' software such as Windows Remote Desktop or third-party software, for example: VNC, TeamViewer, Ammyy, etc.

However, using this kind of software would take control of the Local computer (which is the computer that is running SpecView and communicating with the instruments).

If users just want to view data with minimal interaction with the SpecView project, then SpecView's Web Server[716] could be an alternative solution.

The advantage of using SpecView Remote to access SpecView from other computers is that it allows actions to be carried out on Remote computer(s) independently from the operator of the Local computer and other Remotes, and allows multiple simultaneous Remote access (subject to the purchased options on the dongle) without interference.

The following actions would **not** be 'seen' by other computers (Remotes or Locals). These are therefore independent actions:

- Swapping the screen (GDW) which is being viewed.
- Historical Replay
- Changes to Trend charts[523], such as adding pens. (Edits to Trend charts on the Remote will be overwritten the next time the connection is made. Therefore permanent changes need to be made on the Local).
- Viewing the Alarm[616] or Event log[620] windows.
- Viewing the Instrument Parameter List[260] from the Instrument View[346].
- Converting a Log File[610]. This can be set up so that the resulting file will be written either to the Local or to a Remote computer.

The following actions would be 'seen' by other Remotes connected to the same Local computer:

- Changing values of variables[313] being displayed on the screen (GDW).
- Changes to Recipes[659] using the Recipe Manager[637]. These are always stored on the Local computer.

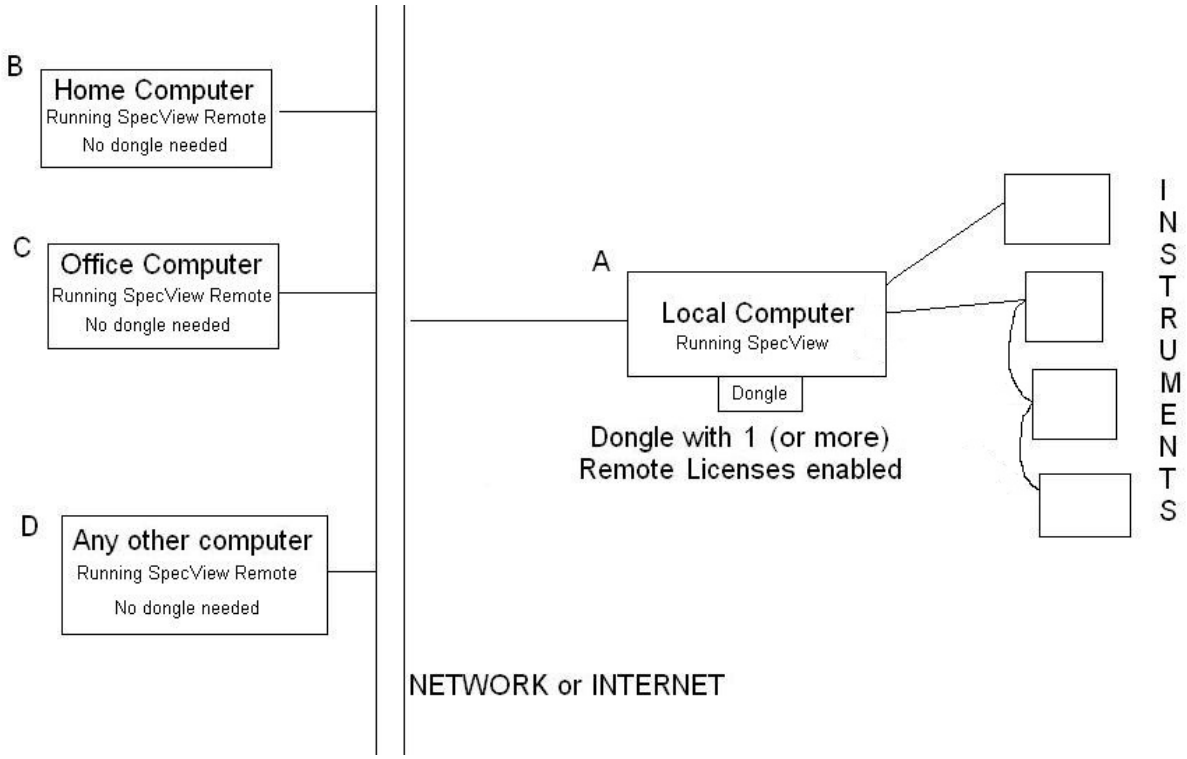
SpecView Remote is a secure method of access, as each connection requires a password.

However, it is not possible to go into Edit Mode from a Remote Computer.

Note: Strategy Controller[666] events and actions take place on the Local. Therefore actions that affect, for example, the values of variables will be 'seen' by a Remote by way of the change to the variable. However, actions that affect, for example, which screen (GDW) is being viewed will only be 'seen' on the Local.

SpecView Networking uses simultaneous licenses:

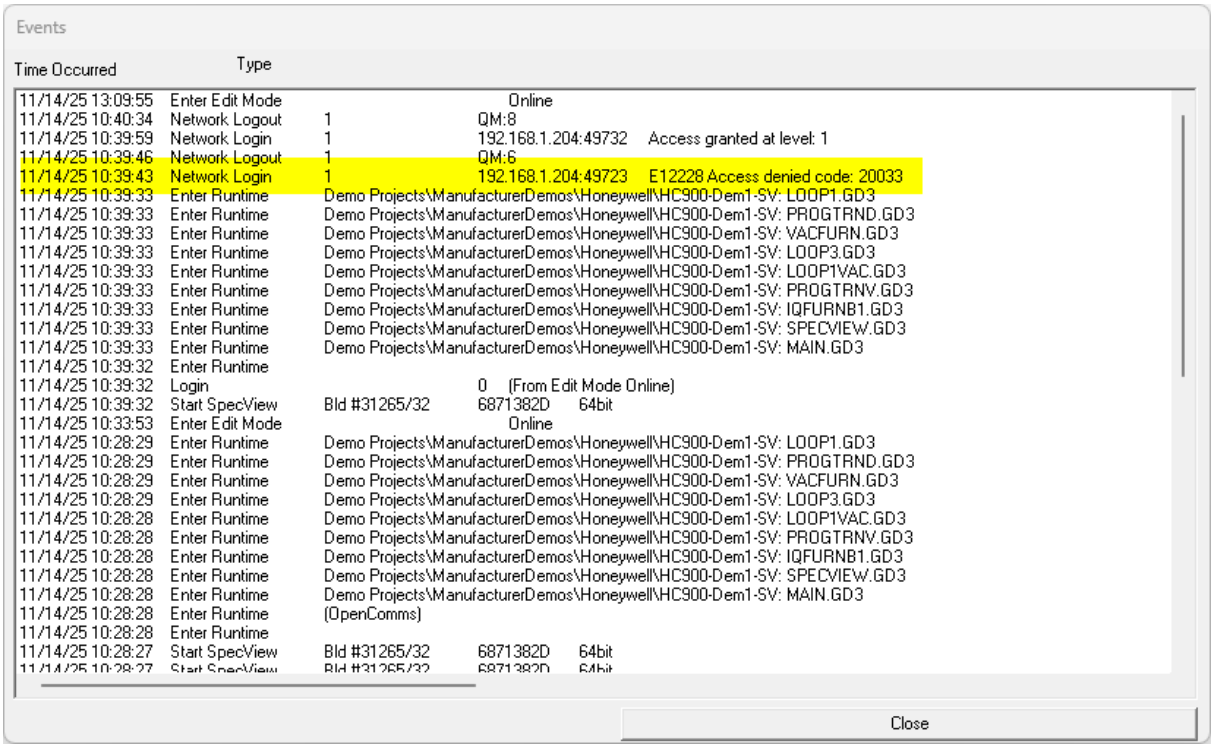
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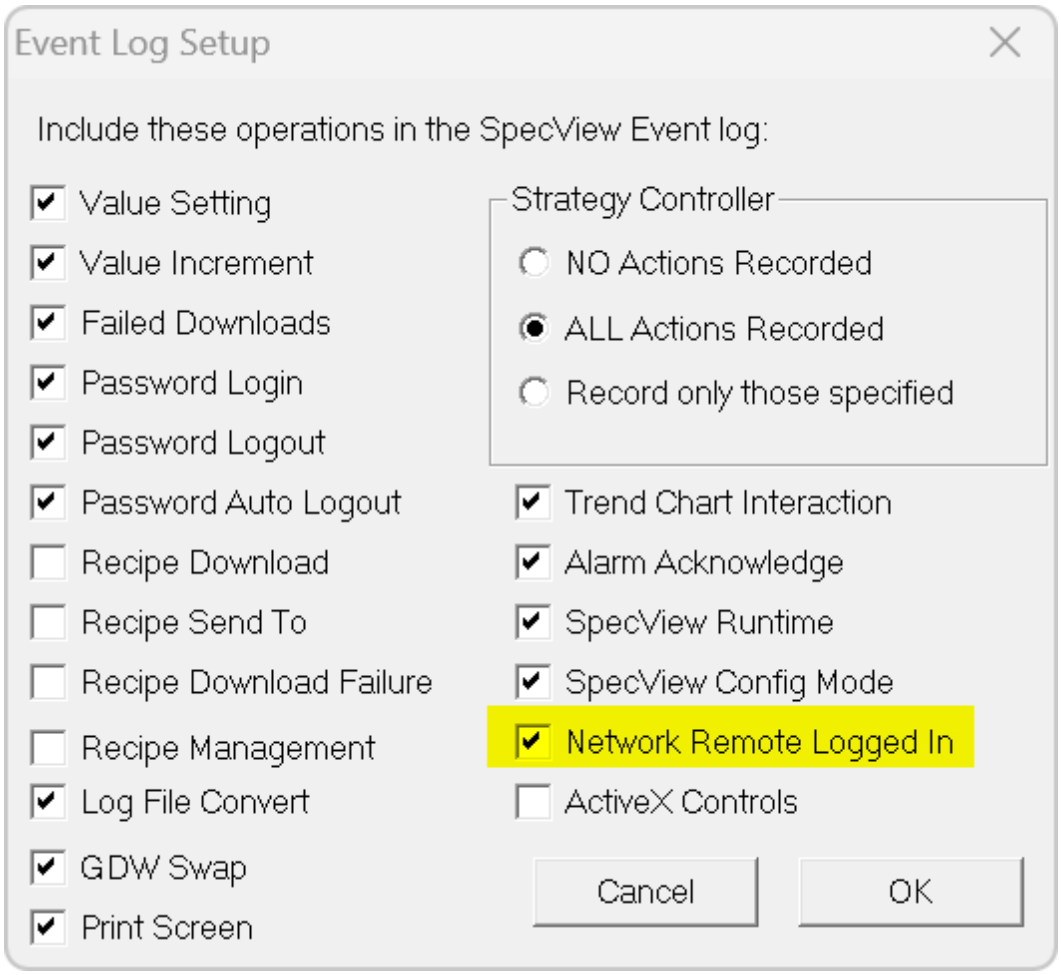
In this example, SpecView would need to be installed on all 4 computers, but no dongle would be needed in the computers B, C or D.
The dongle in computer A would need at least one Remote License enabled on it.
This would allow any of the SpecView programs running on computers B, C or D to connect to the SpecView program running on computer A.
With additional Remote Licenses, any number of remote computers can connect, so long as the number of licenses available is not exceeded at any one time.

SpecView 3.1.265

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As of SpecView 3.1.265[124], failed log in attempts will be registered in the Events Window[264] if the Network Remote Logged In option, as seen in the image above, is enabled in the Event Log Setup[305].

For further information:

- Connections for SpecView Networking[735]
- SpecView Networking - Local[737]
- SpecView Networking - Remote[740]
- SpecView Networking - Via Modem[756]
- SpecView Networking - Runtime Functions (on Remote)[744]
- SpecView Networking - Runtime Functions (on Local)[745]
- SpecView Networking - Troubleshooting[745]
- SpecView Networking - Minimum Requirements[752]

15.1 Web Server

SpecView offers an integrated Web Server[716] feature, available as an option in the dongle (license). This internal Web Server[716] facilitates periodic sharing of the SpecView program's current display as a web page, allowing access via standard web browsers.

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This enables SpecView to be accessed, and optionally interacted with, on phones, tablets or a remote browser on a computer.
The system captures a screenshot of either the SpecView screen area or the entire PC screen, which is then displayed through the Web Server[716].
To ensure accuracy, it is advisable to avoid running other programs over the SpecView interface; otherwise, the screenshot will display the overlaying application instead of SpecView.

Limited interaction with the SpecView program is possible through the Web Server[716] as of SpecView 3.1.267[122].
Users can click on the screenshot of the PC screen on the Web Server[716] and have that click registered on the actual PC running the Web Server[716].

Currently, the connection to SpecView's Web Server[716] does not use HTTPS.
The connection uses HTTP on Port 80 by default.

Additionally, the status of the Web Server is presented in SpecView's Pre-Defined Variables.
Read more here.

Access from Multiple Devices

With this functionality, the local PC running SpecView, the system directly connected to the instrumentation, can be accessed remotely using tablets and smart phones.
Access is possible if the devices are connected to the appropriate network and meet the necessary access requirements.

Remote Interaction Considerations

For users who need to fully and independently view and interact with a SpecView system located elsewhere, it is essential to use SpecView's Local/Remote[713] networking facility.
When using the SpecView's Multi-User System[713], remote users can engage with the project without disrupting the activities of local users.
However, when accessing the project via the Web Server, simultaneous interactions by both a local user and a remote user may lead to conflicts regarding control of the project.
This issue persists even if multiple remote users access the local project concurrently through the Web Server[716].

- Web Server - Setup[717]
- Web Server - Port 80 Setup[720]
- Web Server - Access on browsers[726]
- Web Server - Connections[728]
- Web Server - Status[732]
- Web Server - Events[733]

15.1.1 Web Server - Setup

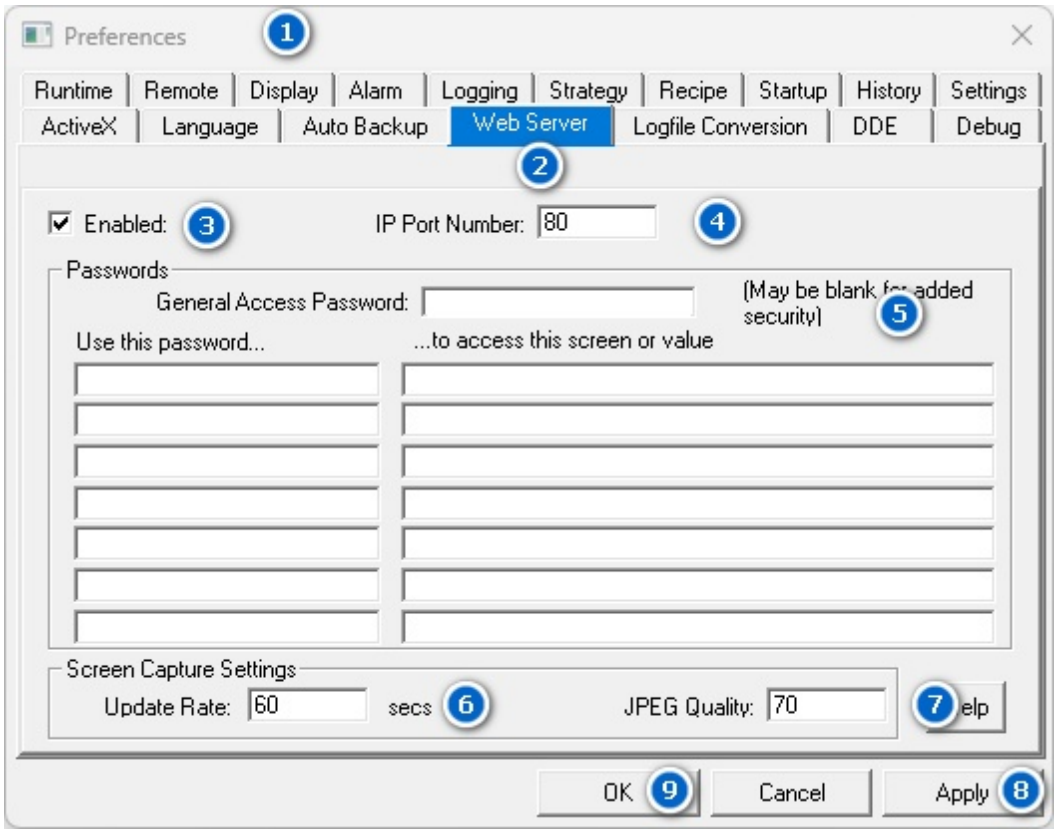
Please read through the Web Server[716] section to learn more about SpecView's Web Server[716] features.
Follow the steps below to set up the Web Server[716] on SpecView.

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1. Access SpecView Preferences [458] by selecting File > Preferences [458] or using the Ctrl + E keyboard shortcut within the SpecView project.
2. Navigate to the Web Server [716] tab in the Preferences [458] dialog box.
3. Select the check box adjacent to "*Enable the Web Server*".
4. Specify an appropriate port number in the IP Port Number field.
   The default setting for the Web Server is port 80.
   Users will need to confirm with their company's IT department to ensure that this does not conflict with any other applications.
   Read Web Server - Port 80 Setup [720] for further details.
5. The General Access password is for the Web Values feature and is not required for the Web Server [716].
   For details on the Web Values feature, consult your SpecView representative.
6. The update rate is by default 60 seconds.
   SpecView will update a new screenshot every 60 seconds.
   Users can update this if they need SpecView to update images faster.
   It is recommended to leave the update rate at the default value of 60 to minimize the load on the SpecView Web Server [716].
   If the update rate needs to be increased, please contact a SpecView representative first to avoid mismatched refreshing rates between the Web Server [716] and the remote browser.
7. The JPEG quality is at the default of 70.
   The JPEG quality ranges from 0 – 100.
   0 being low quality with a high amount of JPEG compression and 100 being high quality with little JPEG compression.
   It is recommended to leave the JPEG quality at the default value of 70 as this is a good compromise between speed of access and quality of image.
8. Click on Apply.
9. Click on OK.

The Web Server is now active – and will remain active regardless of which SpecView project is opened. If SpecView is shut down, the Web Server [716] will stop.

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SpecView 3.1.267

As of SpecView 3.1.267[122], users have the ability to interact with the Web Server in a limited capacity.
When a user clicks on an area in the screenshot, the click will be registered in the same area on the PC hosting the Web Server[716].
For example, the user clicks on a button in the screenshot.
That click will be registered on the PC hosting the Web Server[716] and the button action will be triggered.

The steps mentioned in Web Server - Setup[717] still apply.
Implement the following steps before Step 8.

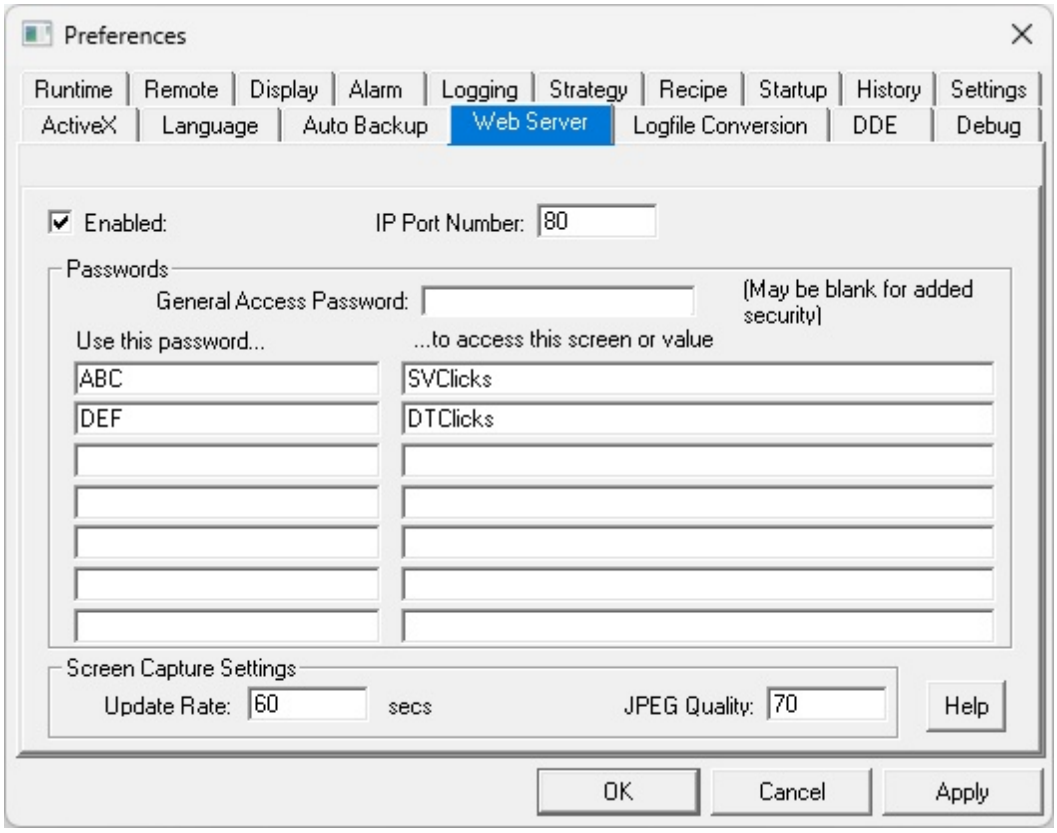
1. Enter the command "*SVClicks*" in a field under "*to access this screen or value*".
2. Enter an appropriate password for "*SVClicks*" in the same row but under the "*Use this password*" column.
3. Repeat Steps 1 and 2 for the command "*DTClicks*" to interact with the entire desktop screen.

The command "*SVClicks*" will present the user with a screenshot of just the area of the SpecView window.
It will not show any surrounding screen contents.

The command "*DTClicks*" will present the user with a screenshot of the entire PC screen, including the Taskbar.
This enables users to interact with the desktop and any other program running on the computer, whereas "*SVClicks*" only allows access to the SpecView screen area.
It is strongly recommended to be extremely careful when utilizing "*DTClicks*" as this feature does enable users to access and control any programs and data on the PC.

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(Step 8-9 from above) Click on Apply and then click on OK.
The Web Server[716] is now active and ready to be interacted with.

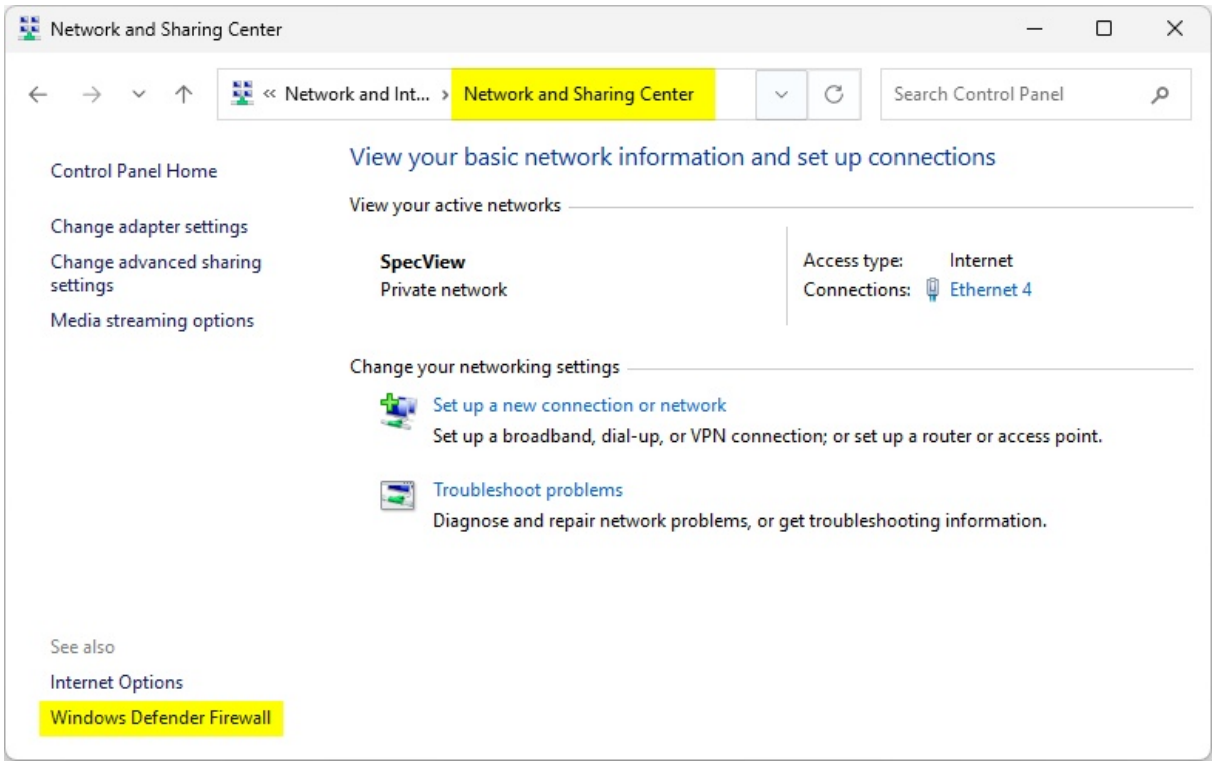


15.1.2 Web Server - Port 80 Setup

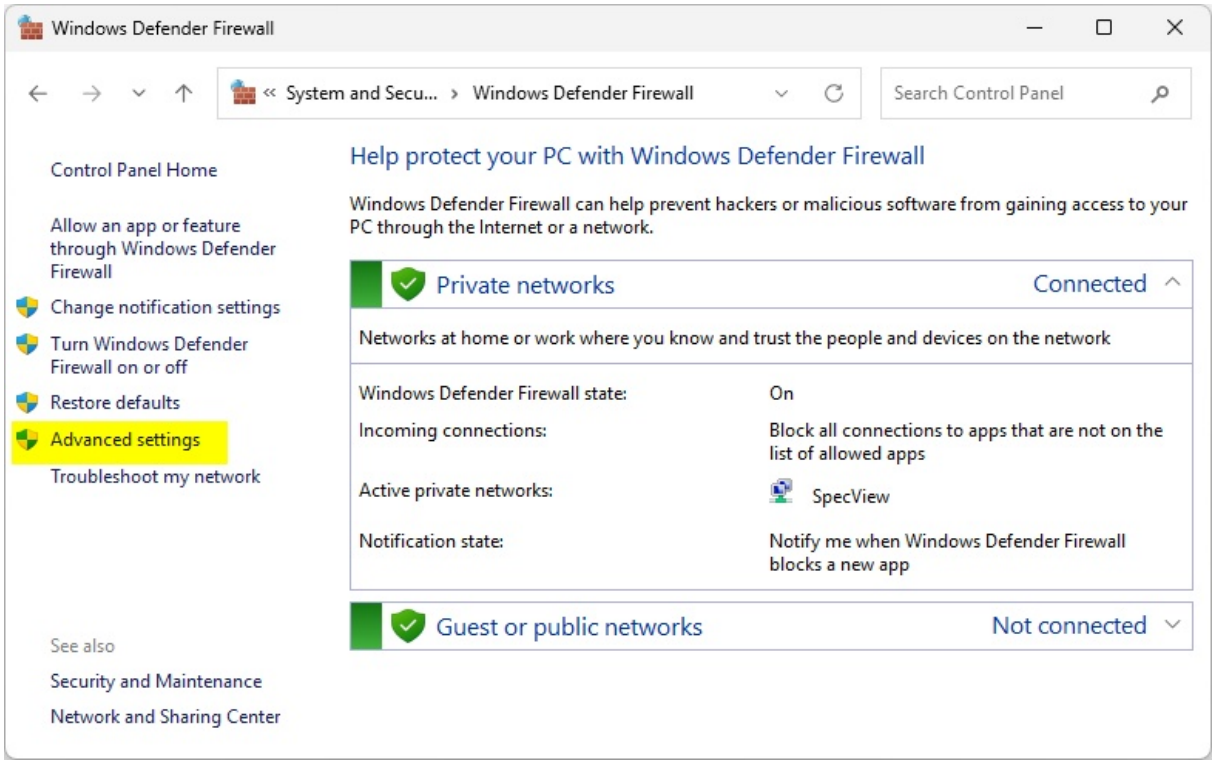
Please read through the Web Server[716] section to learn more about SpecView's Web Server[716] features.
Follow the steps below to allow incoming connections on the PC's Port 80 for SpecView's Web Server[716].

1. Verify with the IT department that Port 80 is open and available to be utilized.
Port 80 is the standard port for web pages (http) and it may conflict with another web server running on the same computer – or may make it difficult to access this Web Server[716] from outside via the Internet.
2. Open Windows Control Panel > Network and Internet > Network and Sharing Center.
3. Click on Windows Defender Firewall.

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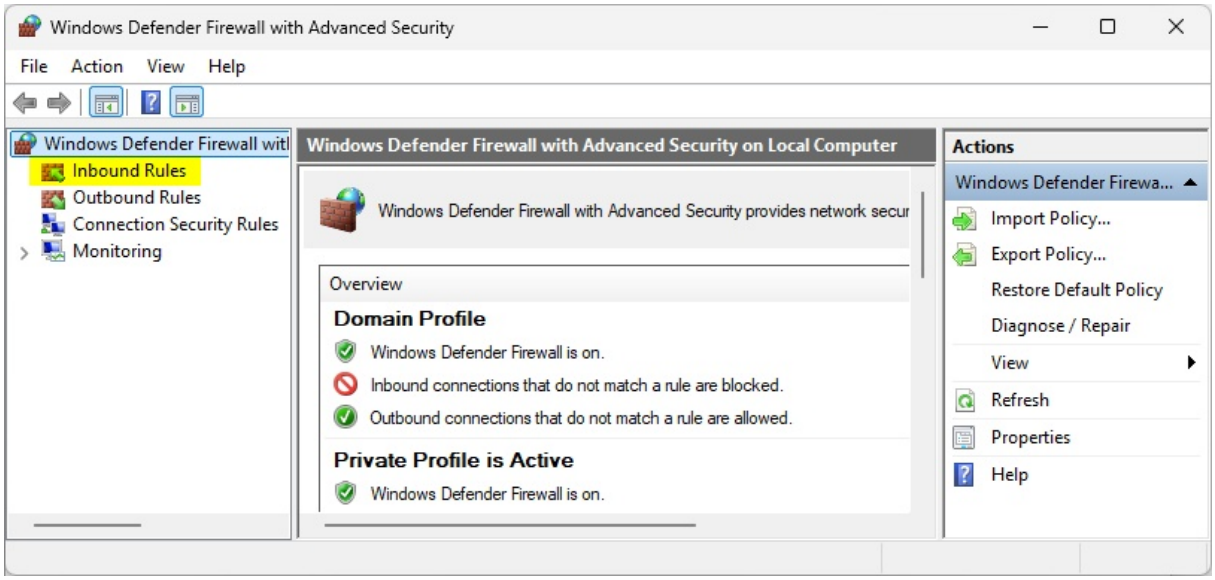


4. Click on Advanced settings. This will open the Windows Defender Firewall with Advanced Security box.

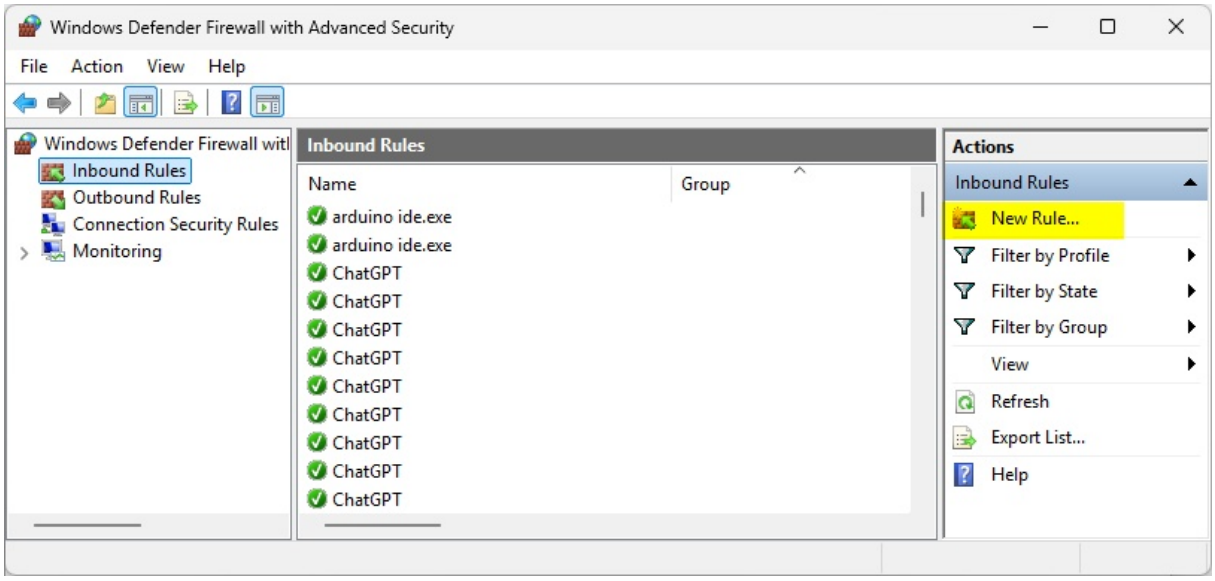


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5. Click on Inbound Rules.

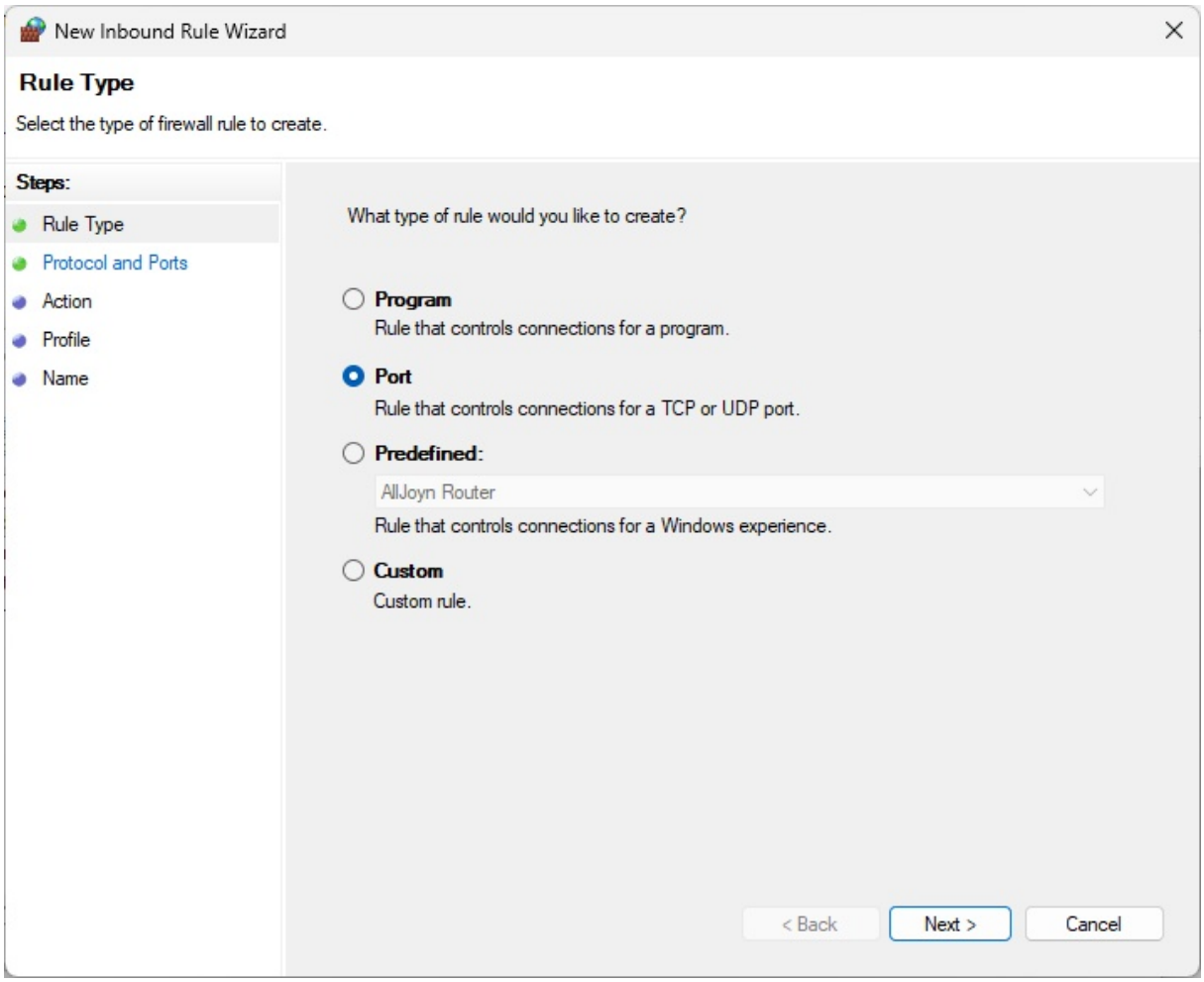


6. Click on New Rule. This will open the New Inbound Rule Wizard.



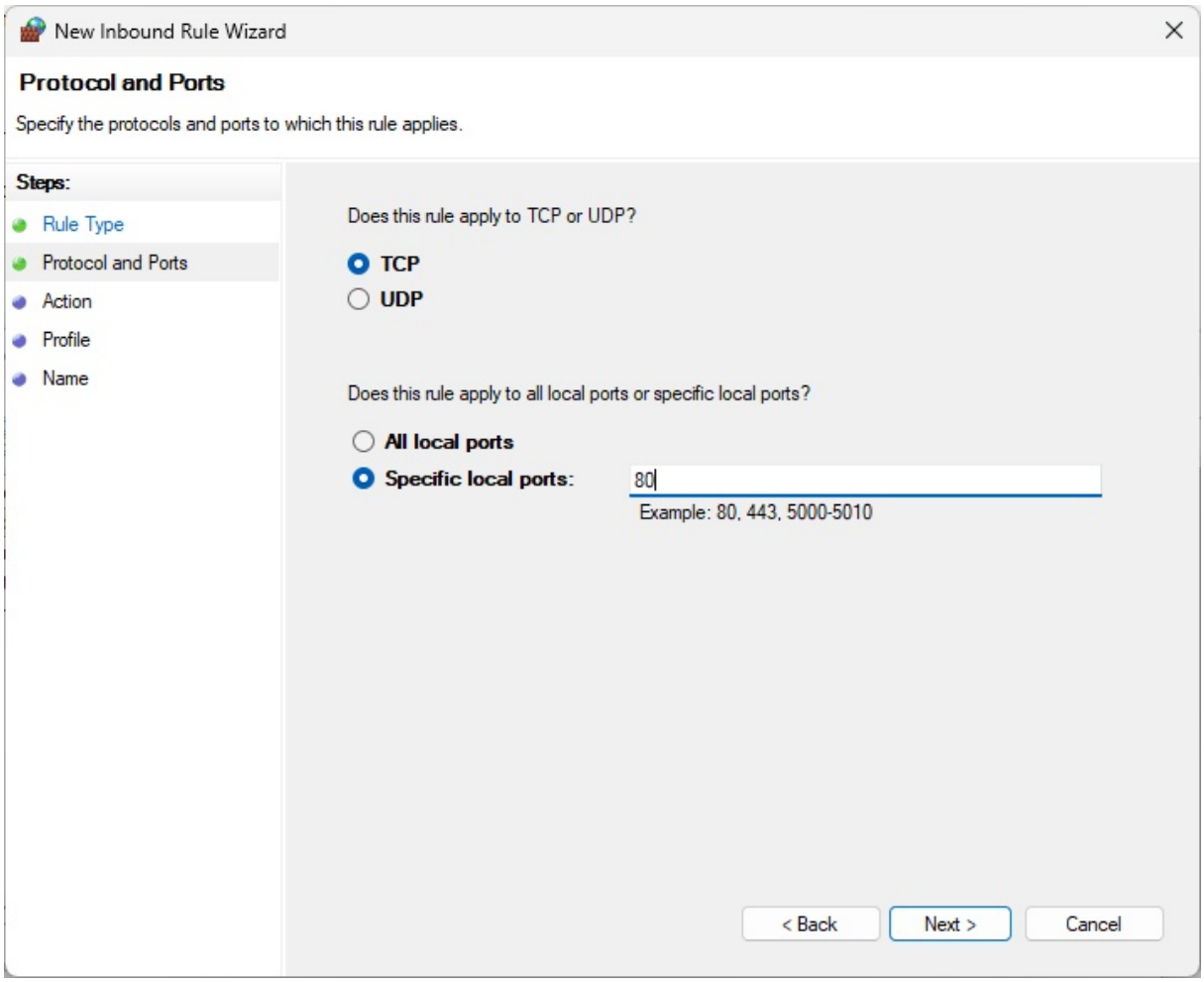
7. Click on Port and then click Next.

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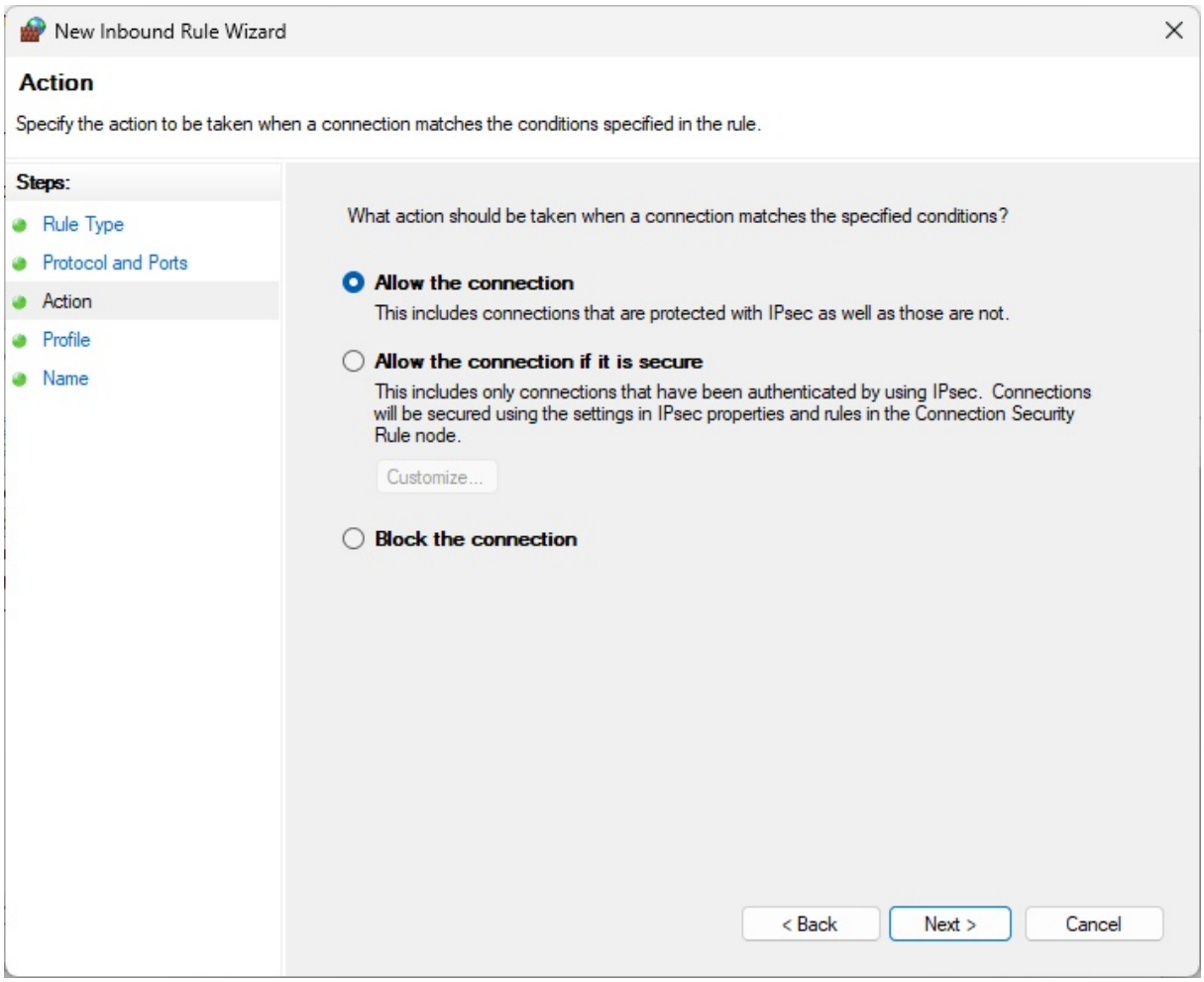
8. Click on Specific local ports, enter 80 into the field, and click Next.

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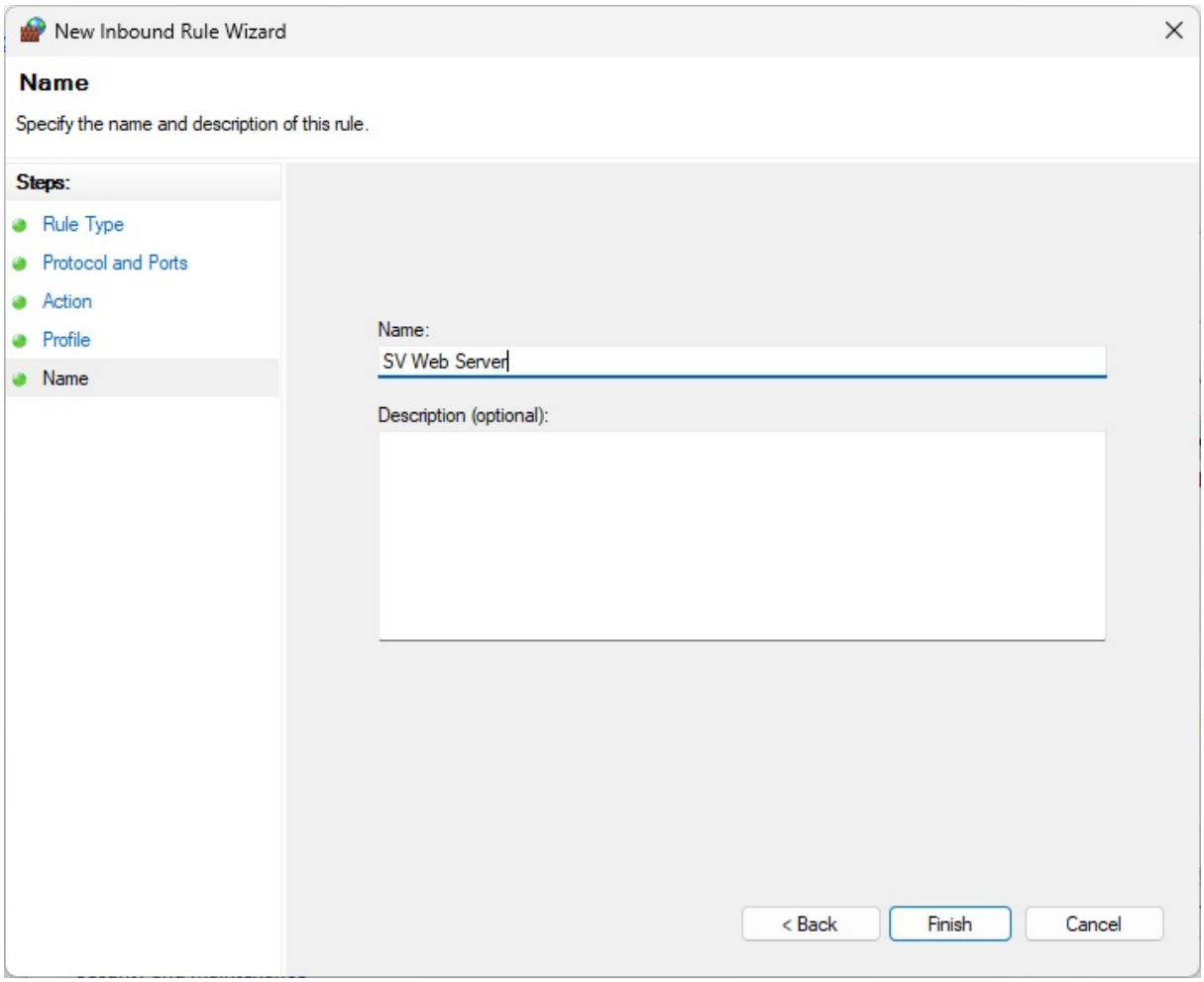
9. Click Allow the connection and click Next.
   The user should confirm with their IT department regarding when this rule should apply.
   It is recommended to start with enabling all domain, private, and public, connections.
   The user can edit this setting later once the Web Server[716] is operational.
   Click on Next to continue.

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10. Provide an appropriate name for the new Inbound Rule and click Finish.

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The PC will now be able to accept incoming Web Server[716] connections on Port 80 for SpecView.

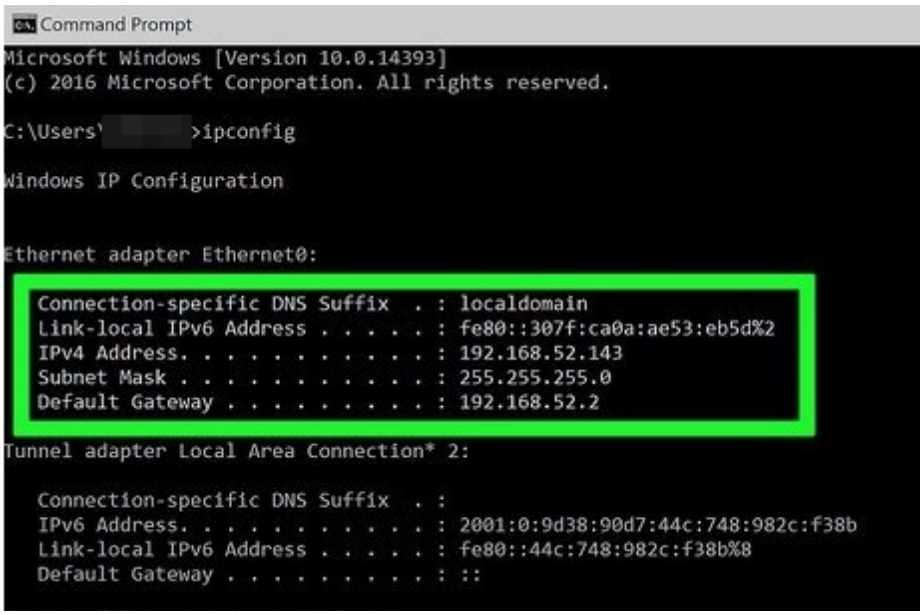
15.1.3 Web Server - Access on browsers

Please read through the Web Server[716] section to learn more about SpecView's Web Server[716] features.
Follow the steps below to access the Web Server[716] through a web browser.

1. Verify that both the device attempting to access the Web Server[716] (remote device) and the PC hosting the Web Server[716] are connected to the same network.
   The Web Server's[716] IP address is identical to the IP address of the PC hosting the Web Server[716].
   Please read through Web Server - Connections[728] for further details on how to ensure the remote device and the Web Server[716] are on the same local network.

   Determine the IP address of the Web Server[716]:
   On the PC hosting the Web Server[716], launch the Command Prompt terminal.
   Input the command "*ipconfig*".
   The resulting output will display the PC's IP address in the IPv4 Address field.

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Identify the IP address of the remote device.

If the remote device's IP address is 192.168.1.23 and the Web Server's [716] IP address is 192.168.2.63, the remote device is not on the same local network as the Web Server [716].

In such cases, please consult the company's IT department for further assistance.

2. On the remote device, open a web browser.
3. Enter the IP address of the Web Server [716] in the browser's address bar, followed by "*/index.html*".

For example, if the IP address of the Web Server [716] is 192.168.52.143, enter "*192.168.52.143/index.html*" in the address bar.

If the user needs to interact with the Web Server [716], enter the IP address of the Web Server [716] in the browser's address bar, followed by "*/index.html?SVClicksPassword*".

For example, if the IP address of the Web Server [716] is 192.168.52.143 and the "*SVClicks*" password is "*ABC*", enter "*192.168.52.143/index.html?ABC*" in the address bar.

Press ENTER; the web page should then load the screenshot of the SpecView application.

To access the desktop, follow the steps mentioned above and replace the "*SVClicks*" password with the "*DTClicks*" password.

It is strongly recommended to be extremely careful when utilizing "*DTClicks*" as this feature does enable users to access and control any programs and data on the PC.

For more information on "*SVClicks*" and "*DTClicks*" please read through Web Server - Setup [719].

If switching between "*SVClicks*" and "*DTClicks*" web pages, occasionally an extra refresh of the web page is required.

4. Press ENTER; the web page should then load the screenshot generated by SpecView.

By default, this screenshot updates every 60 seconds.

To edit how fast the screenshot updates, please read through Web Server - Setup [717] and contact a SpecView representative as additional support will be required.

If utilizing "*SVClicks*" or "*DTClicks*", the user can click anywhere on the screenshot, and the

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click will be registered on the PC hosting the Web Server[716].

For example, if the user clicks on the screenshot where a button is, then the button will be clicked on the PC running the Web Server[716].

After a user clicks on the screenshot, the screenshot will update faster than 60 seconds.

The screenshot will be refreshed in the sequence of the fibonacci numbers up to the default of 60 seconds, at which point the screenshot will refresh according to the default setting.

To edit this, please contact a SpecView representative.

15.1.4 Web Server - Connections

Please read through the Web Server[716] section to learn more about SpecView's Web Server[716] features.

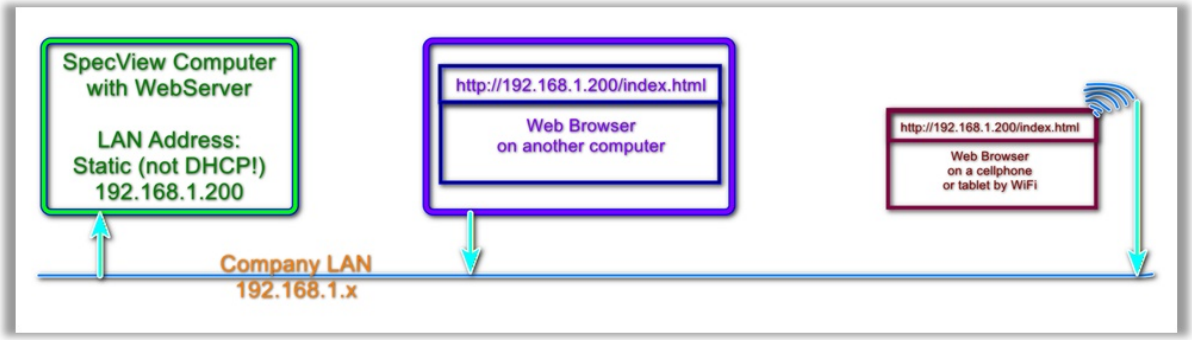
There are many ways that companies access the Internet and hence it is difficult to be exact about the things that need to be set up to assess incoming access from a remote browser.
What follows is a very brief description of what is needed, seek help from the I.T. Department for the details.

A brief discussion of terms used:

- ISP: Internet Service Provider. This is the company supplying Internet
- Router: The device that allows connection to the Internet
- Public IP: This is the IP address on the Internet that your company router is connected to.
- LAN: Local Area Network – the company network inside the building
- Dynamic IP: An IP Address that changes
- Static IP: An IP address that is fixed
- DNS: Doman Name System – the method the Internet uses to associate a name with an IP address.
- DDNS or Dynamic DNS: A Service that allows an Internet Name to be associated with a Dynamically changing IP address.
- Port Forwarding: A way to route packets inside the company in the LAN

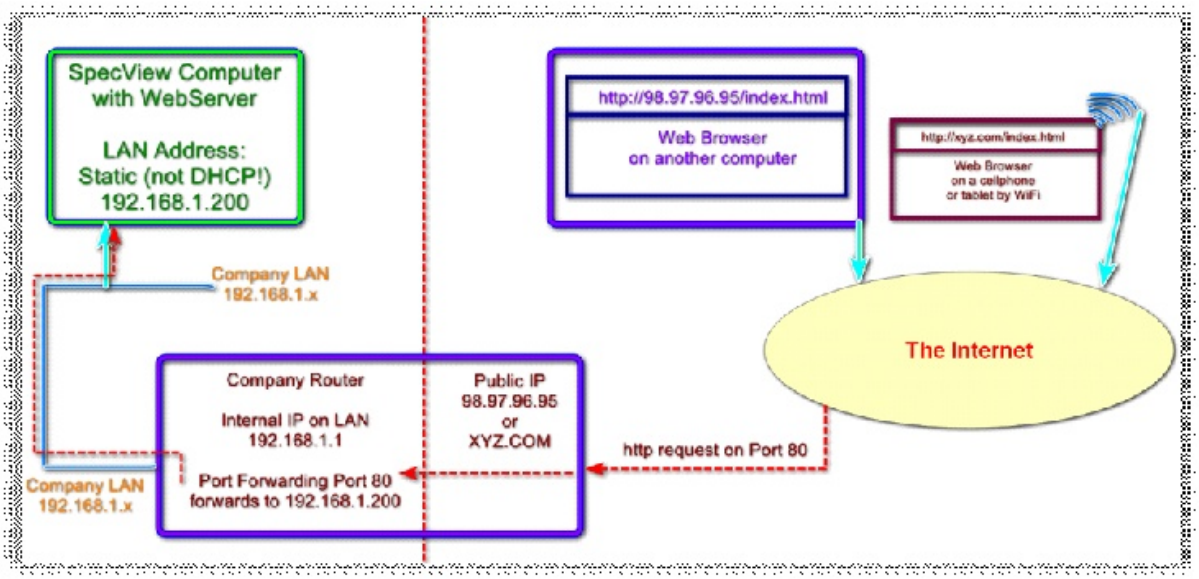
Here are 3 diagrams outlining how a cellphone / tablet or any other computer with a Web browser can access the SpecView Web server in different scenarios:

1. Access only from within the company, NOT outside.

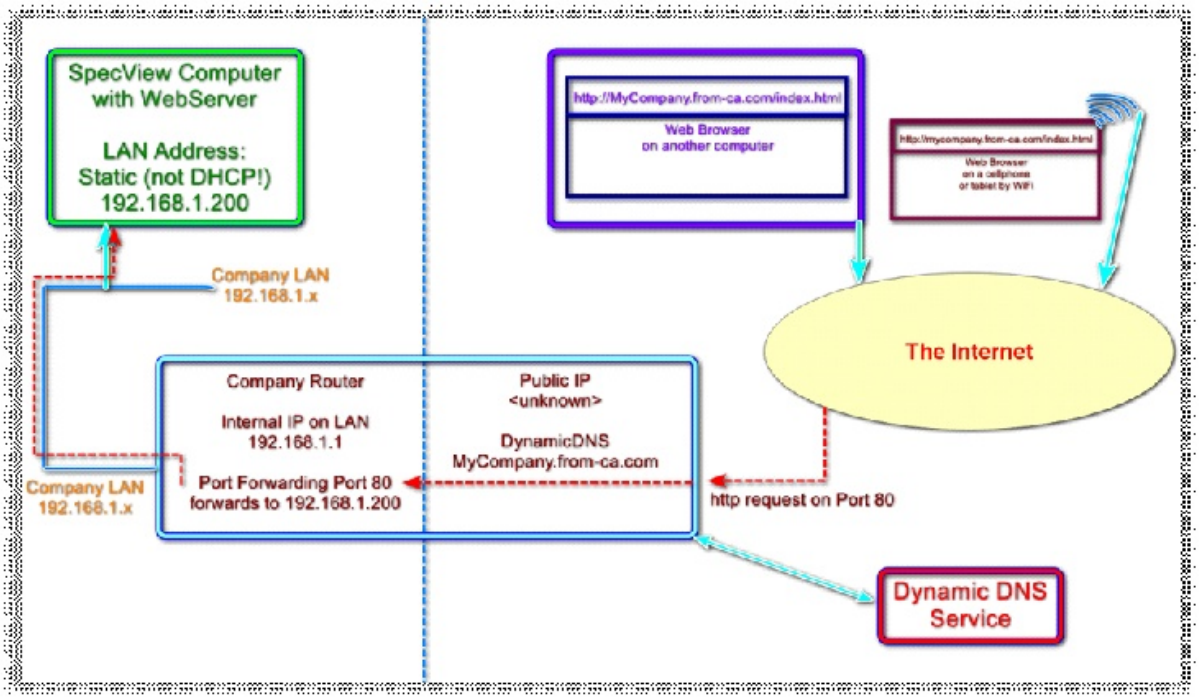


2. Access from outside where a Static Public IP is setup, or a fixed DNS is already in use, Port forwarding setup to route packets to the SpecView computer.

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3. Access from outside where ISP uses Dynamic IP and Company uses Dynamic DNS to map MyCompany.from-ca.com to the SpecView computer through the router.



When a company has internet access, the way that it is assigned an IP address can be either Dynamic or Static.

Dynamic IP. Unless otherwise setup, most businesses and individuals have a dynamic IP address assigned by their ISP. This Dynamic IP address can change every day or every week, as the ISP does it's normal things. This means that it is usually difficult to connect into the company because the Public

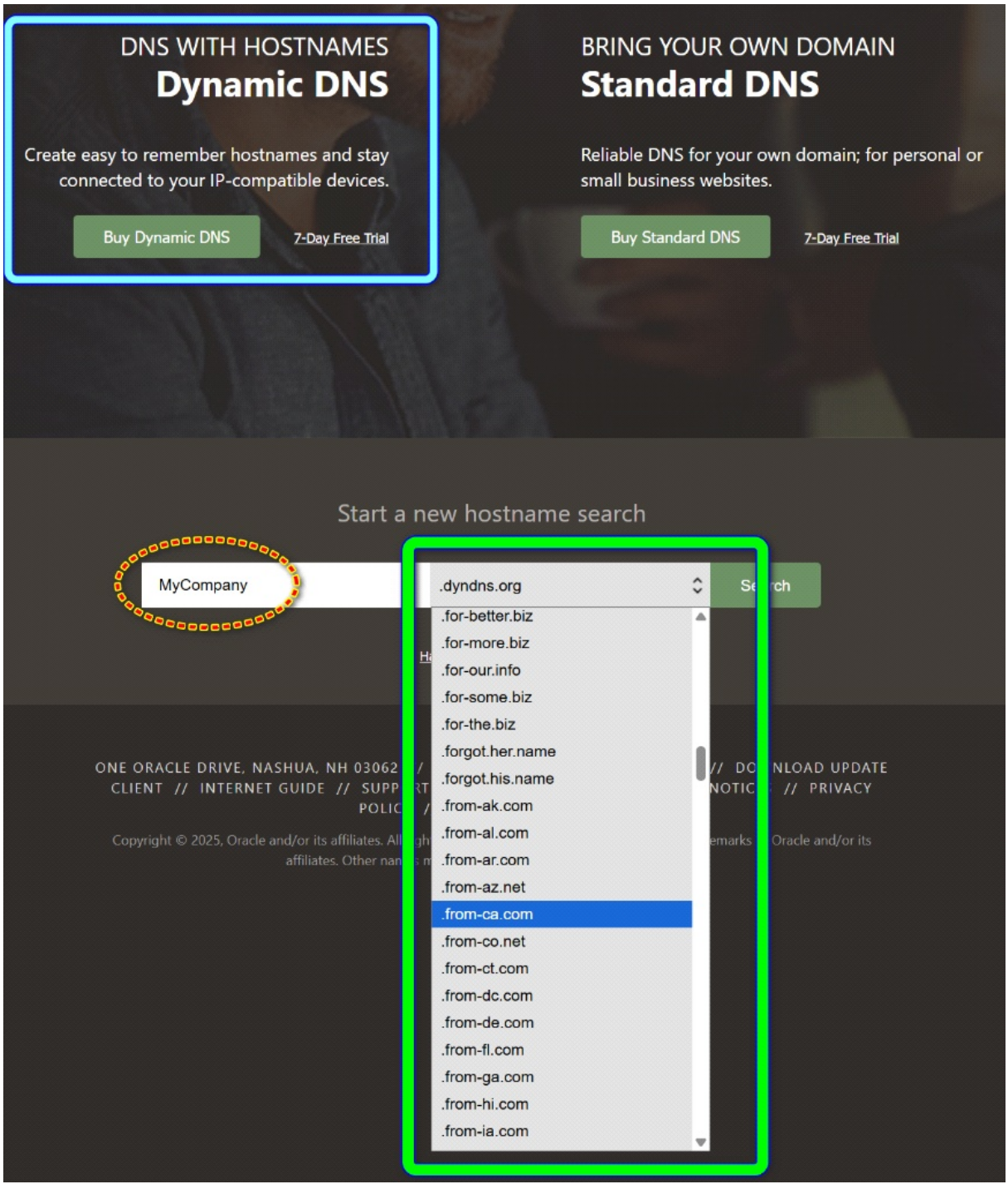
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IP address can change from time to time.
Static IP. This is usually an extra cost service from the ISP, where one or more IP Addresses are assigned to the company and will not change. This makes it easy to connect to the company because the Public IP address will not change. Some ISPs supply static IP as an extra cost service, others do not allow it at all.

In the case where Static IP is not available, the Dynamic IP that is the usual case makes it difficult to know what the Public IP address of the company is, and so makes it near impossible to connect to the company from outside.

To solve this problem, a Dynamic DNS (DDNS) service can be used. This is a service that may be in the router, or may be implemented separately which allows an Internet Domain Name to be associated with the company and it is updated as the company's Dynamic IP address changes.
There are many DDNS service suppliers, with varying costs, varying available domain names to choose from and various service costs. Which one to choose from is up to the IT Department, and the router being used.
One such service is "DynDNS" from Oracle: https://account.dyn.com/

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Here, a Dynamic DNS domain name service may be purchased, for example:
The oval highlight shows the company name and the various domains available are in the green box. In this example screenshot, the Dynamic DNS name would be: mycompany.from-ca.com
This name would remain fixed as the company's Public IP address changes, meaning that there is a fixed, known address that can be typed in that will always reach the company.
Then, in the company's Internet Router, the DDNS service can be enabled to manage the changes, or a third party application can be run inside the company to achieve the same thing.

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Having setup a DDNS service, or having a Static IP from the ISP, the last steps are to deal with the various firewalls that are blocking access.
Setup the Internet Router to port-forward the incoming Web Server requests to the target Computer.
Suppose the Computer inside the company, on the LAN, has a fixed static IP address of 192.168.1.200.
The Internet Router needs to be setup to port forward Port 80 from the Internet to the 192.168.1.200 computer.
If port 80 is already being used by the company for it's own Web Server, then both SpecView and the Port forwarding need to be changed to use an alternative port.

The Final step is to setup the SpecView Computer at 192.168.1.200 to allow incoming port 80 requests through the firewall.
How this is achieved depends on the firewall / Endpoint Security / Antivirus setup, so the IT Department can help with that.
Please read through Web Server - Port 80 Setup[720].

15.1.5 Web Server - Status

Please read through the Web Server[716] section to learn more about SpecView's Web Server[716] features.

As of SpecView 3.1.267[122], this variable is available to users.
This variable is an enumerated type with the values: Disabled, Idle, Web Values, Screen ReadOnly, Screen with Clicks, and Desktop with Clicks.

- **Disabled** - The Web Server is disabled. To enable the Web Server please read through Web Server - Setup[717].
- **Idle** - The Web Server is enabled. However, there have been no requests to the server in the past 60 seconds. To access the Web Server through a remote browser please read Web Server - Access on browsers[726].
- **Web Values** - The Web Server is enabled and users have requested Web Values. For more information on Web Values, please contact a SpecView representative.
- **Screen ReadOnly** - The Web Server is enabled and a request for a screenshot of the SpecView screen area with no interaction capability has been made.
- **Screen with Clicks** - The Web Server is enabled and a request for a screenshot of the SpecView screen area with limited interaction has been made. (*SVClicks*[719])
- **Desktop with Clicks** - The Web Server is enabled and a request for a screenshot of the entire PC screen, including the Taskbar, with limited interaction has been made. (*DTClicks*[719])

This variable is useful in identifying when a user has remotely accessed the project through the Web Server[716].

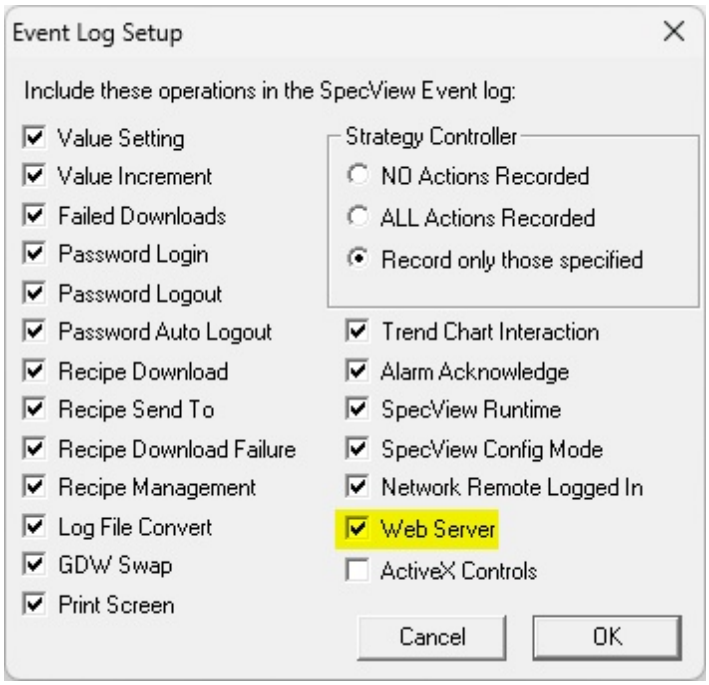
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Additionally, this variable can be utilized with Strategy Controller[666] to automatically perform certain Actions[403] such as swapping to a new GDW when a user remotely access the project through the Web Server[716].
For more details on programming Strategy Controller[666] please read through Programming the Strategy Controller[667].

15.1.6 Web Server - Events

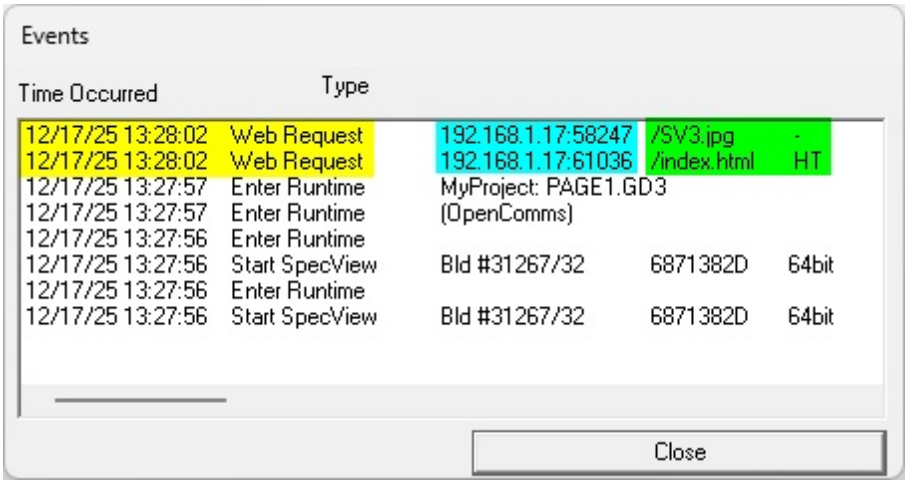
Please read through the Web Server[716] section to learn more about SpecView's Web Server[716] features.

As of SpecView 3.1.267[122], this Web Server requests can be logged to the Event Window.
For further details on how to enable the event logging of Web Server[716] requests, please read through Data Logging - Events[620].

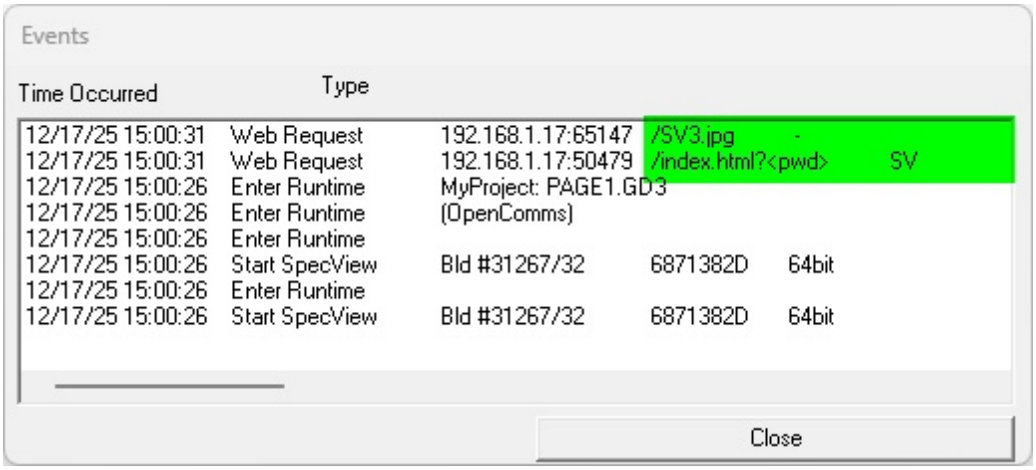


The event window will display the IP address from where the request was made and the type of request that was made.

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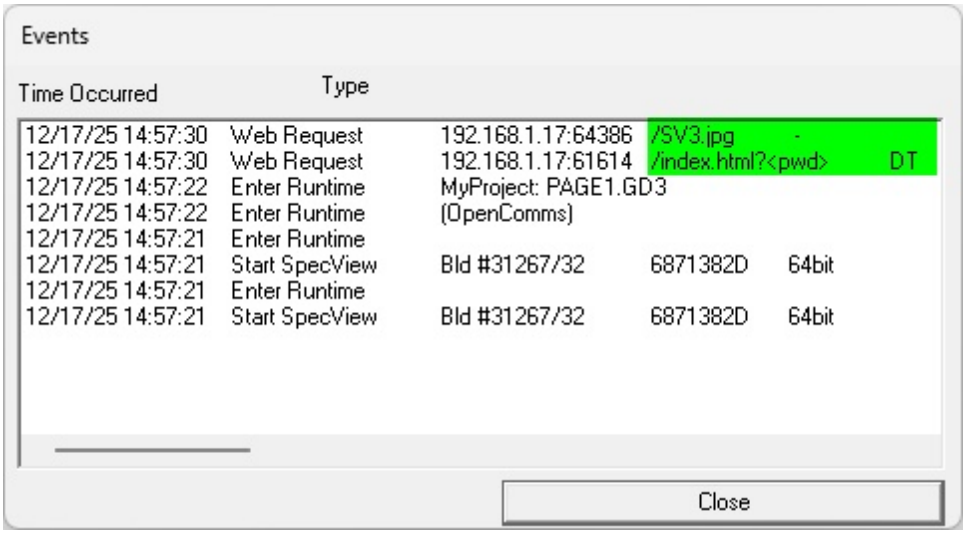


For example, the image above displays the event window[273].
The yellow area displays the date and time of the Web Server[716] requests.
The blue area displays the IP address from where the requests originated.
The green displays the type of requests.
Here the request was for the Web Server[716] to display the screenshot of the SpecView screen area with no interaction capability.



In the image above, the request was for the Web Server[716] to display the screenshot of the SpecView screen area with limited interaction capability (SVClicks).

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In the image above, the request was for the Web Server[716] to display the screenshot of the Desktop screen, including the Taskbar, with limited interaction capability (DTClicks).

Additionally, the status of the Web Server[716] can be viewed from the Web Server Status variable[732].

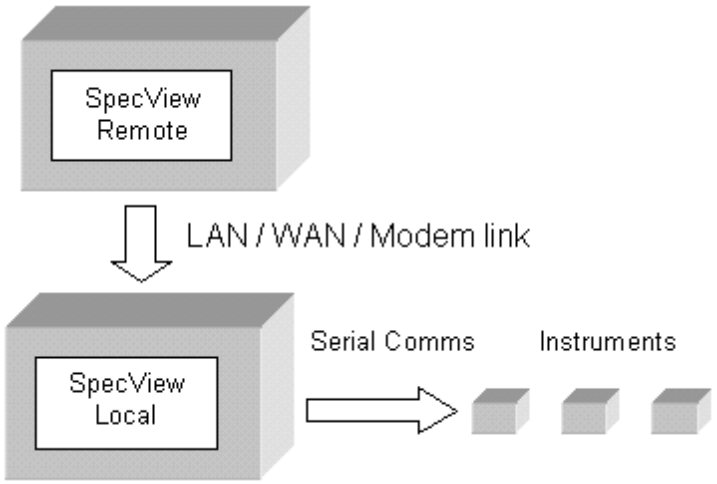
15.2 Multiple Users - Connections

For Multple Users[736] the connection can be made in 4 possible ways:

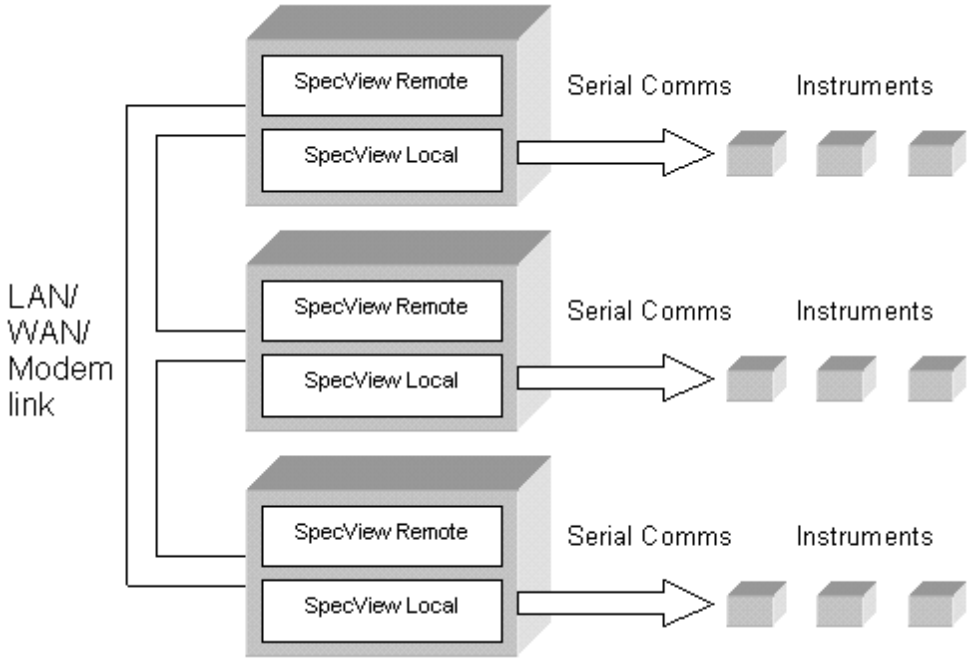
1. Via TCP/IP over a LAN (Local Area Network).
2. Via TCP/IP over a WAN (Wide Area Network) using an 'always connected' phone line or Broadband connection.
3. By making the Local computer available to the Internet so that the Remote computer(s) can access it over their Internet link. However, this has security implications so is not recommended.
4. By using modems[756] for SpecView to make a direct-dial connection between the computers when needed.

The diagrams below show example projects:

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It is possible for a PC to run one SpecView Local and several copies of SpecView Remote simultaneously:



Multiple Users - Quick Setup 736

15.3 Multiple Users - Quick Setup

Further details on all these steps are provided below, but in brief:

On the Local (which is the computer connected directly to the instruments):

- Ensure the dongle 498 connected to the Local has the Networking Option enabled for the required number of simultaneous remote users
- From Runtime Mode use the **Preferences** menu command from the **File** menu. Click the **Remote** tab and ensure that at least one of the checkboxes for Network & Modem 756 are

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checked
- Use the **User Setup** command from the **Remotes** menu to setup username(s) and password(s)

On the Remote (which is the computer connected to the Local via the network):
- If using a Modem [756] connection then first ensure that the Modems are correctly configured [759]
- On the Projects Found dialog click the **Remote** button
- Click **New** and create a new connection, then click **Connect**

To check it is all working:
- Check instrument values are updating as expected
- On the Local use the **View Connected Users** menu command from the Remotes menu [275].

Connections [735]
Local [737]
Remote [740]
Runtime Functions (on Remote) [744]
Runtime Functions (on Local) [745]
Troubleshooting [745]
Minimum Requirements [752]
Modems [756]

It is also possible to have SpecView Remote start automatically when the computer is started using SpecView's Command Line options.
To do this:
1. Edit the shortcut properties of the SV3 icon on the desktop to add -r <connection name>
   For example: C:\SV3\sv3.exe -r 'Factory Floor'
2. Copy the shortcut to the Startup folder.

15.4 Multiple Users - Local

A dongle [498] (copy protection key) with the Networking Option enabled must be connected to the Local computer.

The next step is to ensure that the required SpecView Project has been created.

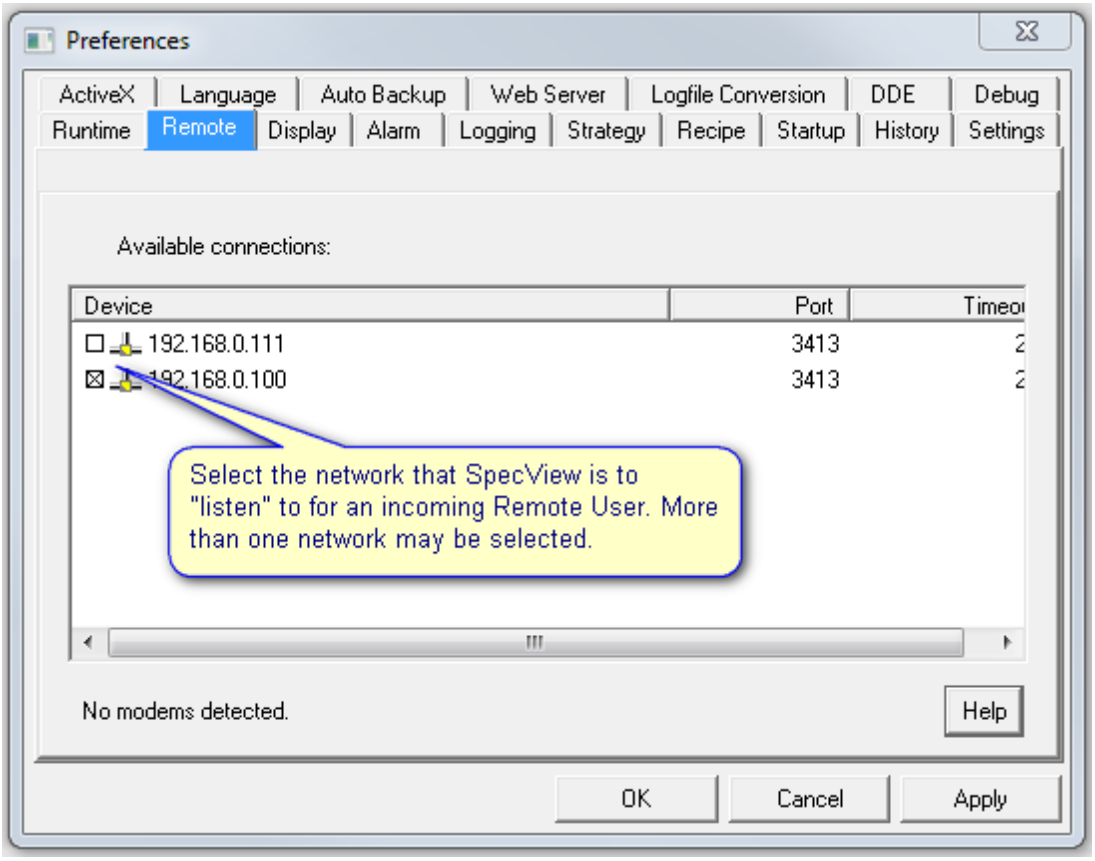
When developing a SpecView Project which is intended to be accessed by SpecView Remote, it is very useful to put all of these SpecView pre-defined Variables [319] on to an accessible screen (GDW):

SpecView.Date
SpecView.Time
SpecView.GoodComms
SpecView.CommsErrors
SpecView.CommsErrorCode
SpecView.CommsErrorDescription

Then if the Remote computer is not showing the expected values from the instruments, it is easy to check if there is a problem with the SpecView Local's instrument communications.

Once the development of the Project is complete;
from **Runtime Mode** use the **Preferences** menu command from the **File** menu. Click the **Remote** tab:

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Check the appropriate box for whether the Remote is to use the LAN or Modem [756] for the connection. If more than one of the devices is checked then SpecView will 'listen' on both for remote connections.

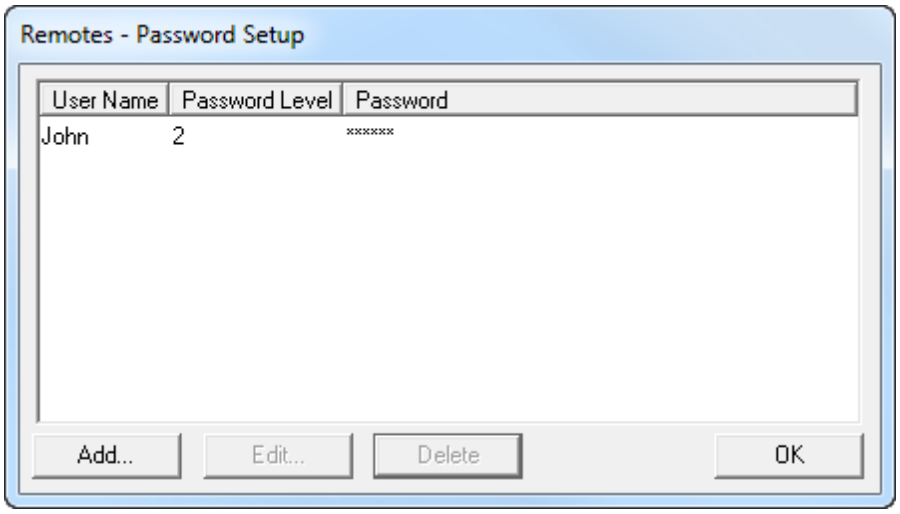
Note that these will take effect immediately, you do not need to restart SpecView for changes on the Remote tab to take effect.

The Timeout value is used in the event of a network failure. This is the number of seconds after which the connection will be dropped.

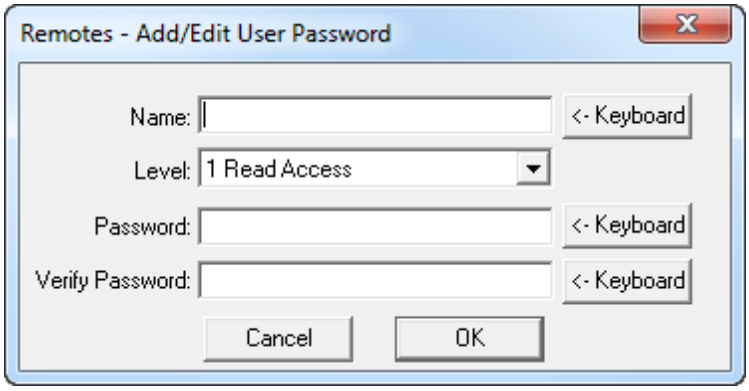
The next step is to register the remote users. Use the User Setup menu command on the Remotes menu [275]. Each user will be assigned a password and will be assigned either **'Read Only'** (Level 1) or **'Read & Write Access'** (Level 2) or **'Alarm Acknowledge'** (Level 3).

Read Only will prevent the Remote user from changing the values of variables on the Local.

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Click **Add**, or select the user's name and click **Edit**:



Note that this is an extra security mechanism for Networking. It is independent of SpecView's Password system, which will continue to function on the Remote.

SpecView will decide whether a variable can be changed on the Local, based on the Access Level setting for the Remote user (in the box above) and SpecView's Password system.

The options are:
1 **Read Access** - Allows just Read Only access, so that variables cannot be changed from the Remote.
2 **Read & Write Access** - Allows Read & Write access, so that variables can be changed from the Remote.
3 **Alarm Acknowledge** - Allows Read & Write access, as well as allowing Alarms to be acknowledged from the Remote.

We recommend that careful thought is given as to whether Remote users can change (Write to) variables or Acknowledge Alarms [353], as they could be some distance away and oblivious to the subsequent effects of their change.

Setting Up SpecView Networking [736]

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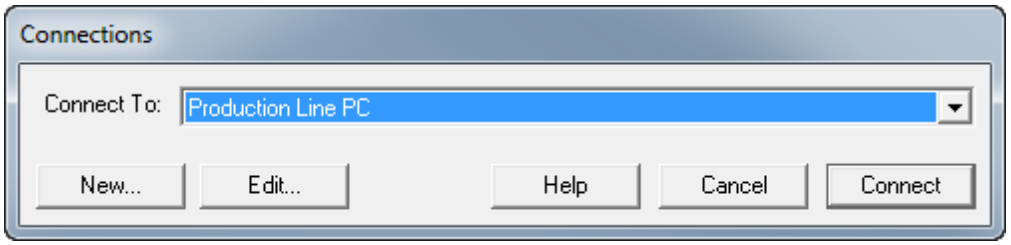
15.5 Multiple Users - Remote

The Remote computer(s) do not require dongles [498].

When SpecView starts click the **Remote...** button:

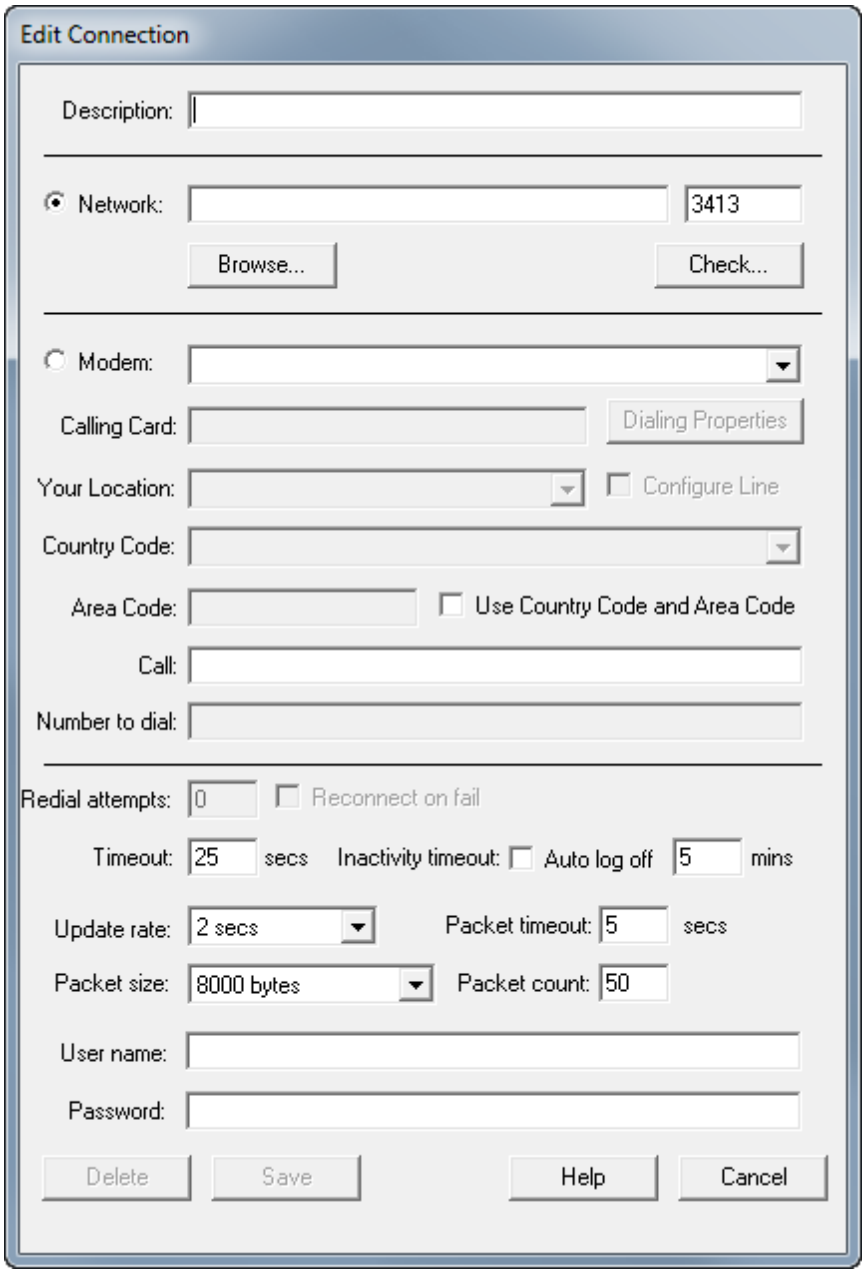


The Connections box is displayed:



The user can select which Local computer to connect to, or click **New...** or **Edit...** to create or modify a connection:

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The Description can be any name. This name will be appended to the name of the project from the Local computer when the project is copied to the Remote. For example, if this name is 'Production Line PC' and the project is called 'Batch Run' then the name of the Local project once it is copied to the Remote will be: 'Batch_Run_Production_Line_PC'. This is to distinguish between identically named projects copied from different computers.

Network:
Enter the IP address (or network name) of a PC running SpecView Local or click **Browse**.
SpecView's default TCP/IP port number is 3413; it is recommended to use this, as it is registered with:
http://www.iana.org/assignments/port-numbers
and therefore should not conflict with other communications software running on the PC.

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To confirm the address is correct, click the **Check** button.
The **Check** button will only check that the other computer is contactable over the network, it will not at this stage check to see if it is running as a SpecView Local.

Modem: Select the Modem to be used from the list and enter the number to dial in the Call: box. This is detailed in SpecView Networking via Modem 756.

Redial attempts: (Default: 1) The number of times the connection will be tried before giving up.

Reconnect on fail: (Default: Off) Whether the connection will automatically try to reconnect if it fails.

Timeout: (Default 25 secs) The number of seconds that SpecView Remote will wait for a reply from SpecView Local, before timing out.

Inactivity timeout: (Default: 5 mins) In the event of a network failure this is the number of minutes after which the connection will be dropped. A value of 0 is not allowed. In addition:

Auto log off: (Default off) When checked, the user will be logged off after the Inactivity timeout period, if there has been no user activity, such as clicking buttons.

When it is unchecked, the user will not be logged off, the connection will remain open indefinitely.

This is useful if the Remote machine is likely to be left unattended.

Update rate: (Default 2 secs) This is the rate at which the Remote will update from the Local.
Reducing this time will increase network traffic, but will mean that the Remote will be more tightly in-sync with the Local.

Packet size: (Default 1000 bytes) This is the maximum number of bytes sent between the Local and the Remote. Adjust this together with Packet count according to the type of network.

For rapid transfer of data over a lightly loaded LAN connection, set Packet size to 8000 and set Packet count to 50.

For a Direct Modem 756 to modem connection, to allow a timely response to user-initiated activities, set Packet size to 1000 & Packet count to 5.

If you experience reductions in transfer rate, such as on a heavily loaded LAN, then
a higher Packet count would be advisable, however, this will adversely affect the response
time to operations like Parameter Downloads by the user.

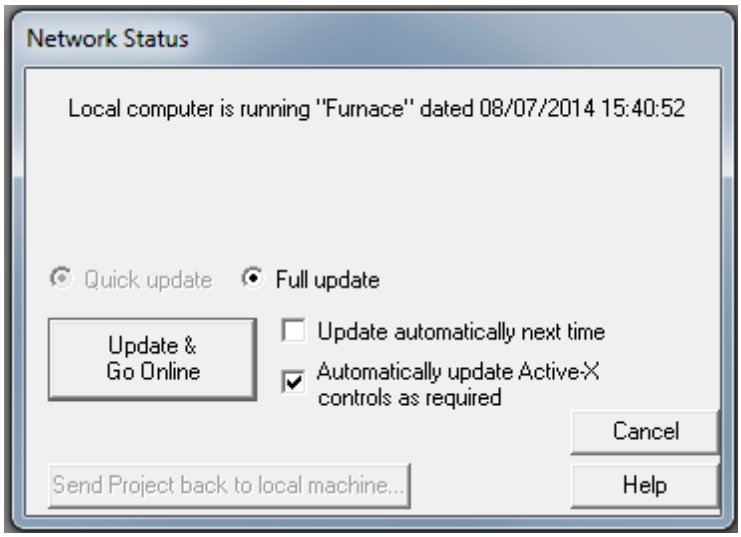
The minimum Packet count is 5 and the realistic maximum value is 500.

User Name & Password: The user name and password to be used to connect to the Local.
If these fields are left blank then the Username & Password will be prompted for when the connection is made, which is useful if many users will be using this connection.

These will need to have been previously set up using the User Setup menu command on the Remote menu on the Local computer.
Then click **Save**.

Now clicking **Connect** on the Connections dialog will display the Network Status dialog:

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SpecView Remote will check to see if it already has a copy of the project which is running on the Local computer. There is the option of either copying the projet which is running on the Local computer to the Remote computer using the **Update & Go Online** button, or vice versa, using the **Send Project back to local machine** button.

The **Update automatically next time** checkbox will have the effect of clicking the [Update & Go Online] button automatically.

Full update takes the whole project, so that it can be worked on off-line at the Remote.

A SpecView project can be created/modified on either computer. To do this on the Local computer SpecView's Edit Mode can be used directly.

However, on the Remote computer, SpecView's Edit Mode is disabled, therefore, SpecView will need to be run in 'Stand-alone' mode. To do this, select the project and then hold the shift key down while clicking the **Go Online Now** button on the Projects Found box.

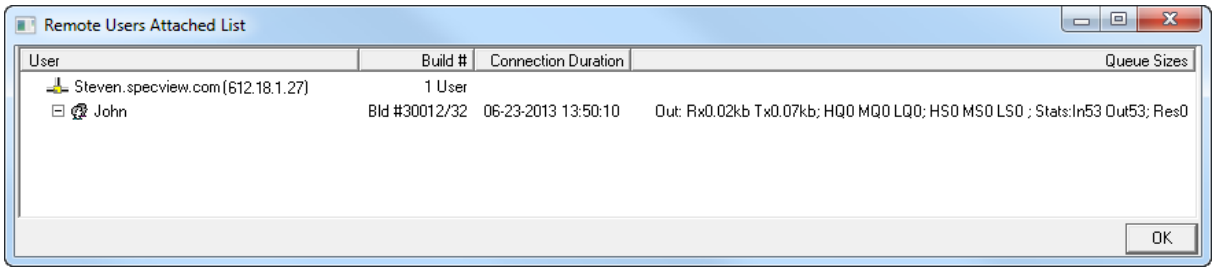
Once the **Update & Go Online** button, or the **Send Project back to local machine** button has been clicked, it will then go on-line. Note that if the project is the same as it was last time then it will immediately go online, without the need to click a button.

When a GDW is displayed on the Remote computer, the values of the variables on the GDW are sent from the Local computer.

SpecView Local is able to process requests from multiple Remote computers simultaneously.

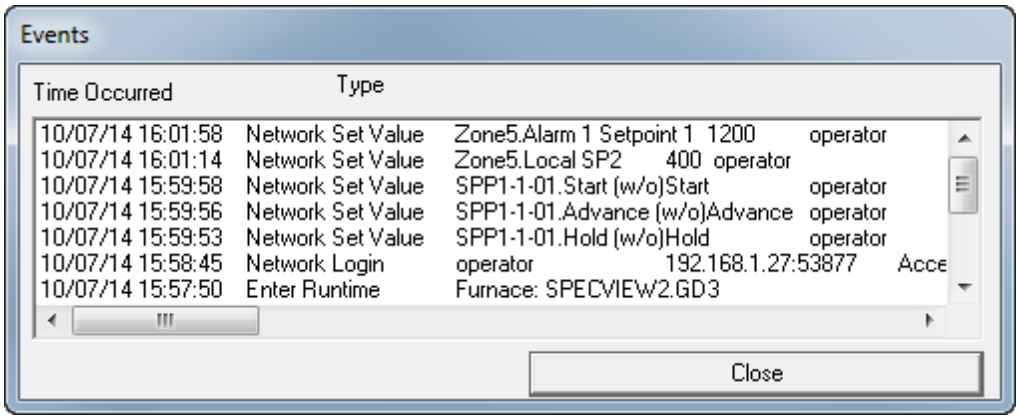
The Local user will be unaware that a remote user is accessing it, other than by viewing the Remote Users Attached list, by using the View Connected Users menu command from the Remotes menu:

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Or via the Events Window, as the Event Logger[620] will record all Network Login and Network Logout events and all values sent to the instruments by the remote user (Network Set Value).

The reporting of these events can be disabled using the Event Logging menu command on the Setup menu.



Setting Up SpecView Networking[736]

15.6 Multiple Users - Runtime Functions (on Remote)

The following will be 'seen' by other Remotes connected to the same Local computer:

- Changing values of variables[256] being displayed on the GDW.
- Changes to Recipes[659] using the Recipe Manager[637]. These are only stored on the Local computer.

However, the following will **not** be 'seen' by other computers (Remotes or Locals):

- Swapping the GDW which is being viewed.
- Changes to Trend charts[397], such as adding pens. (Edits to Trend charts on the Remote will be overwritten the next time the connection is made. Therefore permanent changes need to be made on the Local.)
- Viewing the Alarm[616] or Event log[620] windows.
- Viewing the Instrument Parameter List[260] from the Instrument View[346].
- Converting a Log File[610]. This can be set up so that the resulting file will be written either to the Local or to a Remote computer.

Note: Strategy Controller[666] events and actions take place on the Local. Therefore actions that affect, for example, the values of variables will be 'seen' by the Remote by way of the change to the variable.

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However, actions that affect, for example, which GDW is being viewed will only be 'seen' on the Local.

Setting Up SpecView Networking 736

15.7 Multiple Users - Runtime Functions (on Local)

Certain functions are restricted to the Local computer, such as:

- Setting Users & User passwords from the Remote menu
- Setting Preferences 458
- Displaying the View Connected Users dialog from the Remote menu.
- Going into Edit Mode. Note that this will disconnect all the Remote connections.

Setting Up SpecView Networking 736

15.8 Multiple Users - Troubleshooting

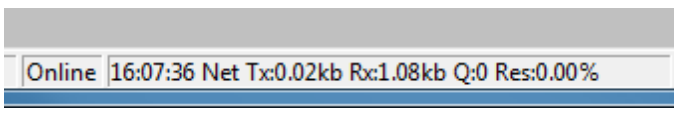
For troubleshooting SpecView Networking these topics will give further information:

- Setting Up SpecView Networking 736
- Router setup 753.
- If the Remote appears to be running slowly 745.
- If error messages 746 are bring displayed.
- If there are connection problems then it is possible to use Telnet 748 to check the connection.
- If using Modems to make the connection, then check the section on Modem troubleshooting 759.

If problems persist them please contact your SpecView Representative 798

15.8.1 Multiple Users - Performance

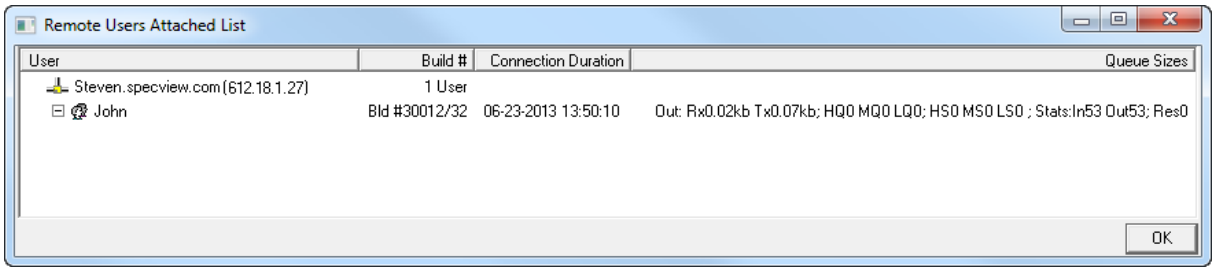
If the Remote appears to be running slowly
Then it is useful to look at the information on the Remote's Status bar:



The time is the time that the last updated value on the Local was updated, so this is the real data time lag. If this stops then there may be a network fault. The Tx and Rx show the data rate in kb (kilobytes)

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going across the connection. The Q shows the size of queue of data trying to be sent to the Local. If the queue size increases to above 20 then there may be a problem with sending data to the Local.
The Local's Status bar shows the same information as above, but for the total of communication with all Remotes.
From the Local to see information about individual connections use the View Connected Users 275 menu command on the Remotes menu:



The columns show:

The User ID.
The version of SpecView running on the Remote.
Date & time the connection was made.
The Queue sizes column shows:

Rx0.00kb Tx0.25kb = Receive & Transmit data rates (kb/sec)
HQ0 MQ0 LQ0 = High, Medium & Low queue sizes
HS0 MS0 LS0 = High, Medium & Low packet sizes

NOTE: that the name of the computer and port number are displayed in the title bar of this dialog. This can be used to check that these are correctly set on the Remote if there is difficulty making a connection.

15.8.2 Multiple Users - Errors

There are messages (starting with an 'M'), warnings (starting with a 'W') and errors (starting with an 'E'):

Messages	Warnings	Errors
		E12214 746 E12204 747 E12223 747 E12212 748

The meaning of these messages are detailed below:

E12214 Local is not available or the connection failed.'
Then the following checks should be made:

1. Is the address (or network name) and port number right?
To confirm this; on the Local, look at the title bar of the **Remote Users Attached** list, accessed by

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using the **View Connected Users** menu command from the Remotes menu. The address (or network name) and port number will be displayed in the title bar. Ensure this is what is being used by the Remote then click the **Check** button on the Remote to confirm it can reach the Local computer.

2. Is SpecView Local running and is it in Runtime Mode?
On the Local has Networking been enabled? Ensure that, on the Local, at least one of the checkboxes for Network and Modem have been checked on the Preferences Remote 460 tab. This is accessed by using the Preferences menu command on the File menu.

3. Are there remote users setup (i.e. login names/passwords) and are there enough remote users setup?

4. Is the version of SpecView running on the Local the same as the version running on the Remote?
If this is the problem then the Event Window on the Local will show that there has been a connection failure with error code 20022.

If it still doesn't connect use Telnet 748 to check the connection.

E12204 Logon failed for user <user> to SpecView PC <PC name>. Please check that the SpecView PC is up and running; also check your user name and password with the owner of SpecView PC <PC name> then retry.'

Click the Edit button to edit the connection and check that the Username and Password defined at the bottom of the box is correct.
They should be the same as listed on the Local in the **User Setup** box which is accessed from the **Remotes** menu,

E12223 This project is from a previous remote connection. Any changes made will be lost when re-connecting as a remote user.

When a SpecView Remote connection is made the whole project is copied from the Local across to the Remote.

The name of the copied project on the Remote uses the name of the connection which is appended to the name of the project from the Local computer .

For example, if the connection name is **'Production Line PC'** and the project is called **'Batch Run'** then the name of the copy of the project on the Remote will be: '**Batch_Run_Production_Line_PC**'. This is to distinguish between identically named projects copied from different computers.

This project should not be edited on the Remote because any changes made will be lost when re-connecting as a remote user. This is because if meanwhile changes have been made on the Local then it will be copied over again the next time the Remote connects which will overwrite the changes made on the Remote.

Therefore, if this message is displayed there are 2 possible scenarios:
1. This is an intentional copy of the project which from now on will only ever be run as a Local on this computer.
In which case rename the folder so it won't get accidentally overwritten in future and delete the

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file called 'remote.use' (which is 0 size) in the folder, then this message will not be displayed.

2. This is not an intentional copy of the project.
   In which case exit SpecView and run again clicking on the 'Remote' button at startup to run SpecView as a Remote.

E12212 There are 1 remotes still connected. If you still want to go into Edit Mode then press "Yes" and these remotes will be put into standby mode awaiting reconnection.

Standby mode is explained here [752].

If using Modems to make the connection
Then check the section on Modem troubleshooting [759].

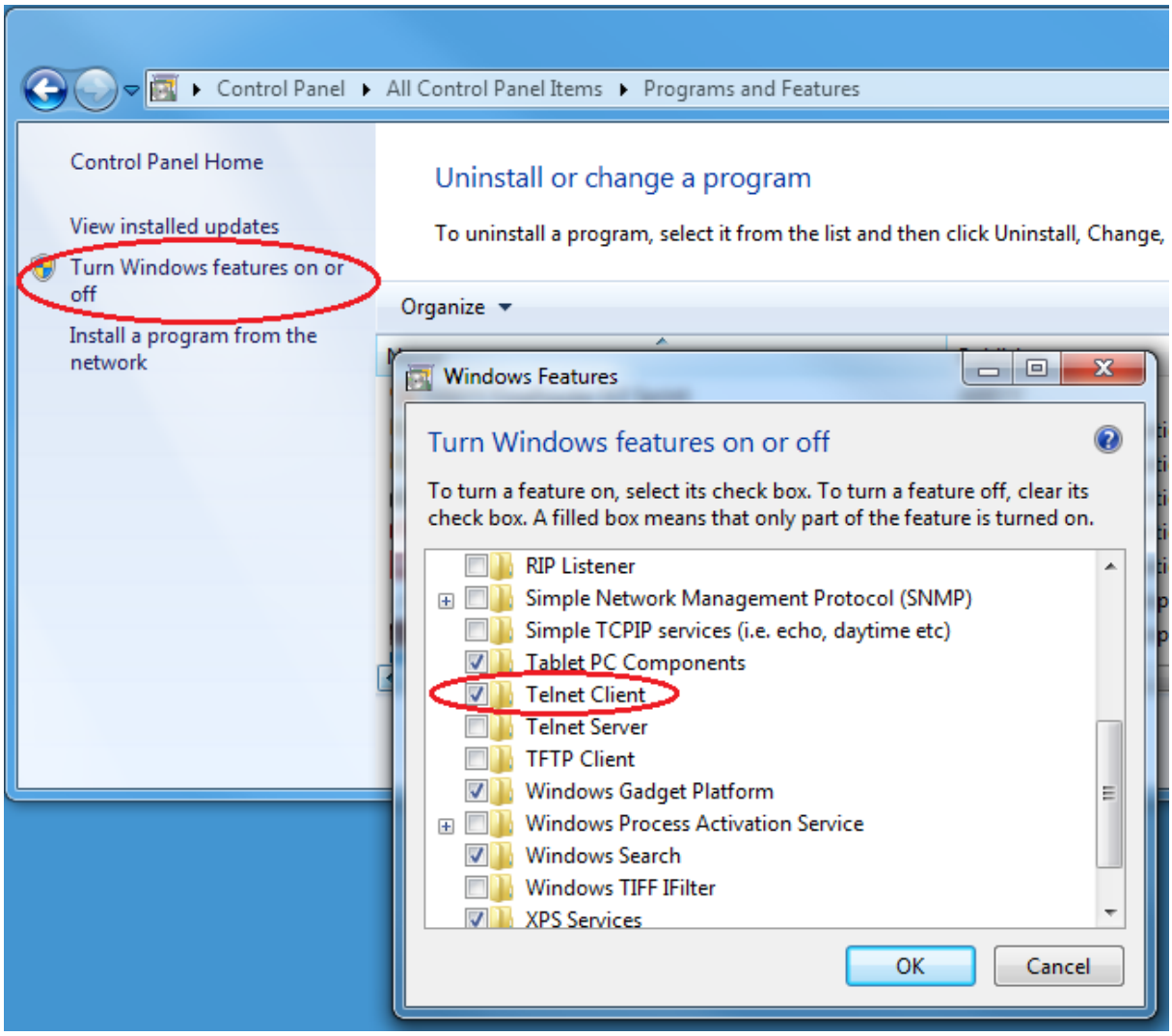
15.8.3 Multiple Users - Testing with Telnet

If the Remote is unable to connect then there is a tool called Telnet available in Windows which can be used to test a connection between a Local and a Remote.

The Telnet command can be used to check to see if SpecView has any chance of connecting to a remote computer on a given IP address and Port over TCP.
(UsingTelnet is like knocking on the front door to see if anyone is at that address)

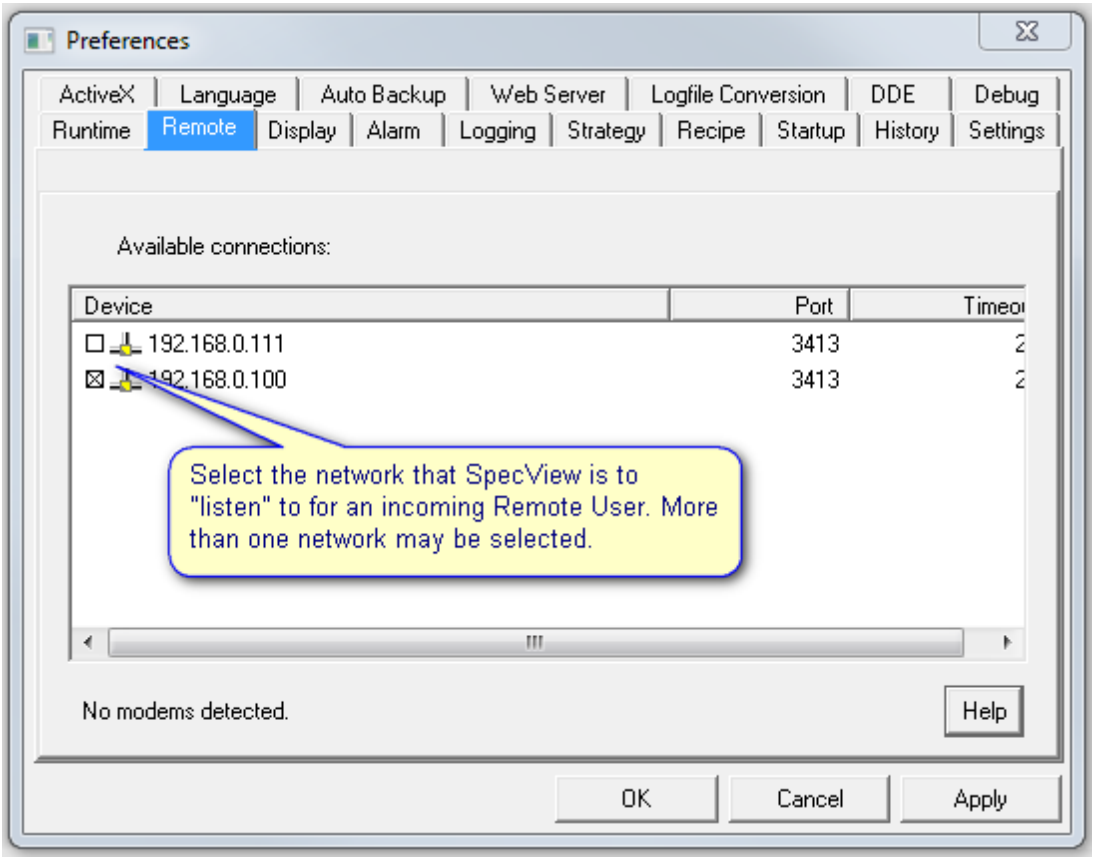
On Windows 7 (and newer versions of Windows) the **telnet** client utility program is not available by default.
Administrator privileges will be required to enable it.
Go to the Windows Control Panel 'Programs and Features' to enable it, see below:

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Once telnet is enabled on the Remote, be sure that SpecView is running on the Local[737], and check on the File-Preferences Remote tab that it is listening:

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Then open a Windows **Command Prompt**. (If it is already open then close and re-open it).
then enter, for example:

telnet 192.168.1.99 3413

*Note the space after 'telnet' and the space before the **'3413'**.*

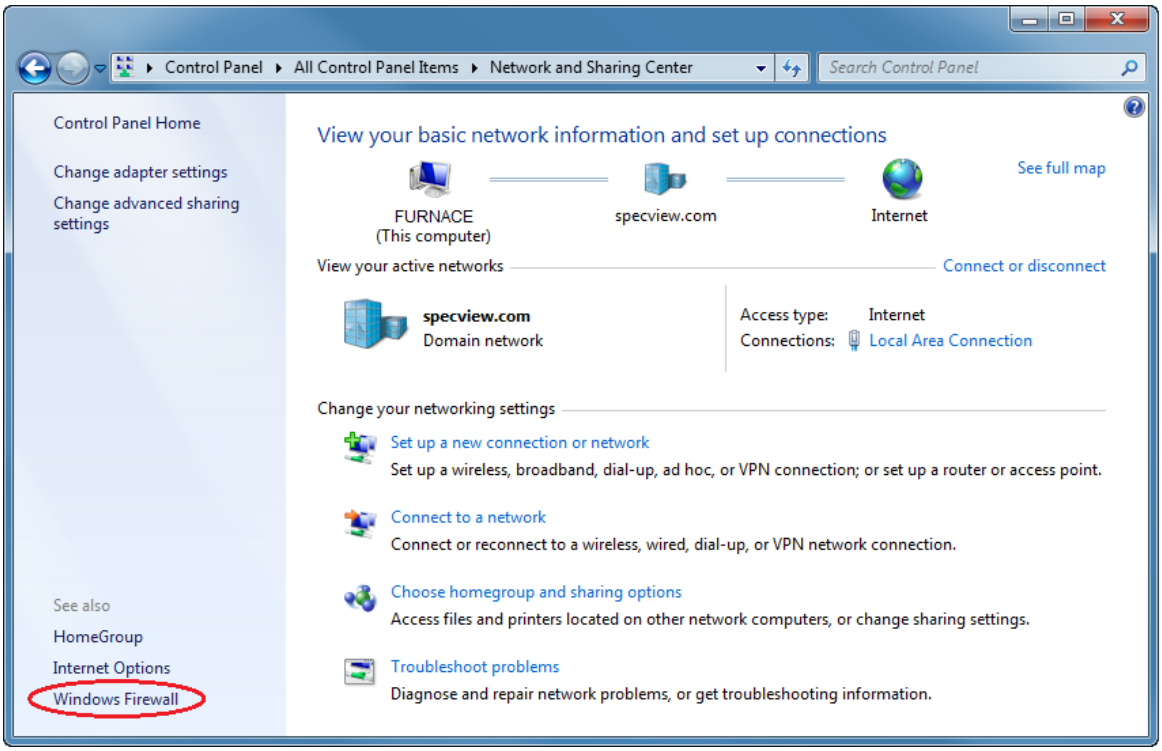
The number **3413** is the port number, this number has been specifically assigned for use by SpecView Remote connections by IANA.org (Internet Assigned Numbers Authority).
It isn't absolutely necessary to use the port number 3413 - just so long as if it is changed then it is changed at both the SpecView Local and Remote.
The reason IANA assigns numbers is just to avoid conflict between software from different suppliers.

If this gives an error such as: **Connecting To 192.168.1.99...Could not open connection to the host, on port 3413: Connect failed**
then there is a problem with the network.

In which case it will be necessary to setup or check the rule specified in the **Windows Firewall**, using the **Windows Control Panel**.
Below are instructions for Windows 7:

From the **Windows Control Panel** select the **Network and Sharing Center**
Windows Firewall (at bottom left):

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Then click **Advanced Settings** (on left)
and **Inbound Rules** (on left)
New Rule... (on right)
Select: **Port**
Click **[Next >]**
Select: **Specfic local ports** and enter: 3413
Click **[Next >]**
Allow the connection
Click **[Next >]**
Tick the boxes (**Domain/Private/Public**) for which this rule should apply
Click **[Next >]**
Enter a suitable name, for example:
Name: SpecView networking 3413
Description: Allow port 3413 in for SpecView Networking
Click **[OK]**

Then if running telnet (for example: **telnet 192.168.1.99 3413**) from the Windows **Command Prompt** gives a blank screen with a flashing prompt, then it has connected successfully.
Press CTRL+] to get a '>' prompt, then to close telnet type: quit

If telnet connected successfully, then once telnet has closed (it is not possible to have both telnet and SpecView connected at the same time) then SpecView should be able to connect.
If not then please contact your SpecView Representative 798 .

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15.9 Multiple Users - Minimum Requirements for Multiple Users

The minimum system requirements for a computer to be used as a Remote is specified here: Minimum Requirements for running SpecView [26]

For a SpecView Local, the number of simultaneously connected users affects the required specification. If there are going to be many, then more computer power is appropriate.

It is almost impossible to exactly specify the requirements because the load on the computer is dependent on what the Local computer's project is doing, how much data it is acquiring, which screens the Remotes are looking at, how many Remotes are connected or what they are doing. Coupled with this are any Strategy Controller [666] and Logging overheads.

As a rough starting point, if the PC running SpecView already (before Local operation is enabled or used) is quick to respond in all areas, then a small number of Remotes should not impose any noticeable load. If the PC is already feeling 'slow', then it will be a little worse!

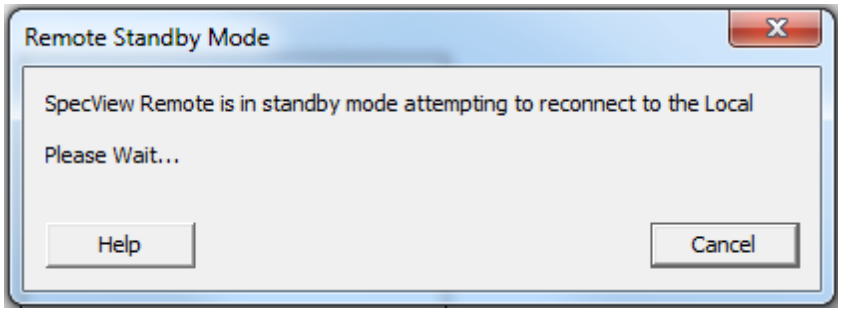
The biggest single effect that may be seen is the situation where the data update rate on the Local PC appears to slow down when remotes are connected. This will happen because one or more Remotes may be asking for additional data across the Local PC's communications links to the connected instruments. This extra data means that the Local PC can only get data at a slower rate across saturated links. This can often happen if a Remote user displays a large Parameter list, but the effect is no worse than a Local user displaying the same Parameter list.

It is important that the screen resolution of the Remote is comparable with that of the Local to allow the Remote to adequately display the contents of the Local's screen.
Use the 'Show screen size guide' menu command on the View menu [295] to ensure that the items on a GDW are positioned appropriately.

Minimum Requirements for running SpecView [26]
Setting Up SpecView Networking [736]

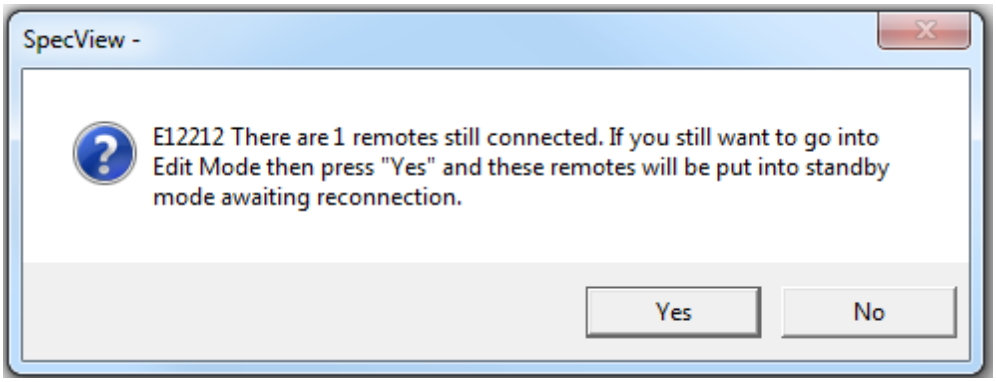
15.10 Multiple Users - Remote in Standby

If there is a network error where the connection between a Remote and a Local is broken then the Remote enters **Standby Mode:**



This can also happen if the Local is put into Edit Mode [282] but the Local user will have been warned that Remote users will be disconnected:

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In **Standby Mode** the Remote retries to re-connect to the Local, if successful it will then go online to the Local; if unsuccessful returns to **Standby Mode**.
The Remote user can cancel **Standby Mode** by clicking the Cancel button on the **Standby Mode** box or the progress bar.

15.11 Multiple Users - Router Setup

There are three parts to setting up a router for SpecView Remote connections:

1) How the Remote PC can find the Local

2) How to setup the Firewall etc. to allow incoming connections

3) Checking the Local PC's settings

For example, if there are 2 sites, called SITE-A (SA) and SITE-B (SB), each running a SpecView Local, then to connect to those from Headquarters (HQ) as a SpecView Remote:

1) How the Remote PC can find the local:

If HQ, SA and SB are all on some LAN, then there is nothing to do. But if the sites each have their own separate Broadband service, then see as follows:

If SA or SB has Static IP broadband, then their IP Address does not change and it can be typed it in to the 'Remote Connection Setup' box on the SpecView Remote.
But, the majority of broadband services are not Static IP, they are Dynamic IP.

Dynamic IP means that from one day to the next the external IP Address of the router can change, so whatever is typed into the Remote connections box will not work tomorrow.

Therefore, there is DYNAMIC DNS. This is where an internet name is associated with an IP Address, AND where 'the system' constantly keeps updating the name-to-IP-Address mapping when the IP Address is reassigned.

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Dynamic DNS (DDNS) is typically a paid-for service, but there are some free ones.

There are two places that the Dynamic DNS can be set. One is in the router for SA and SB, or alternatively, it can be on any PC inside SA or SB.

The best place is in the router, because as soon as the router gets assigned a new IP Address from the Broadband service, it can update the Dynamic DNS itself. If it is done on a PC, then there may be some delay.

So, to decide which service to use:

For the router setup, look inside the router and find out which Dynamic-DNS services they support and use those. As an example, 'D-Link' routers have their own service (free) that handles it. Other routers may have the same, or may support one of the free or paid services out there.

For free services, look at: http://dnslookup.me/dynamic-dns/

Dynamic DNS will assign a domain name, such as **pc10572.freeddns.org** and that is what needs to be used in the Remote connection setup box on the Remote instead of the IP Address.

Dynamic DNS can also be done using a program running on a computer inside the network instead of playing with the router. Google for "ddns client windows".

2) To setup the Firewall etc. to allow incoming connections:

There are two parts to this:

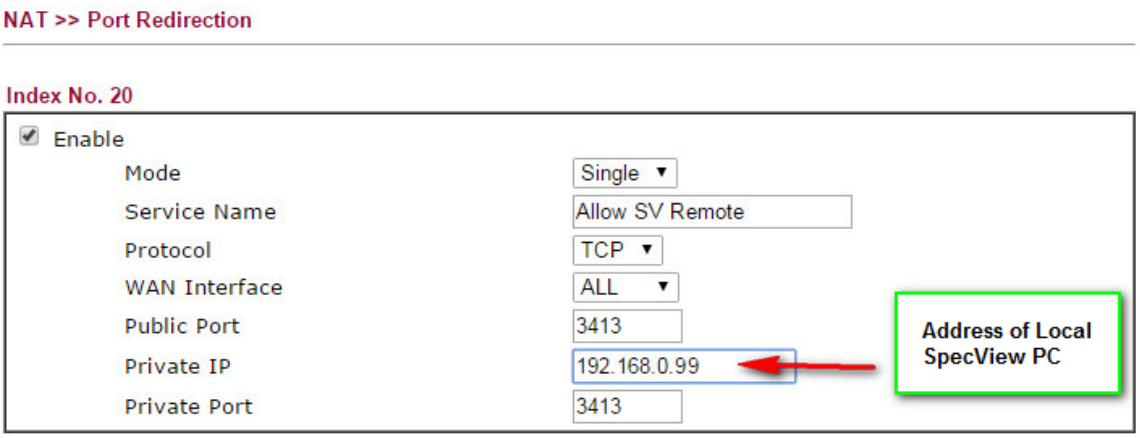
2a) Router setup to let the packets through into the internal LAN:

Normally a router is setup as a firewall to stop abnormal traffic (hackers!) from gaining access. What is needed is PORT-FORWARDING, sometimes also described as virtual servers.

By default, SpecView Remote uses TCP/IP Port 3413 to connect. So the router needs to be setup to port-forward port 3413 to the PC that's running SpecView Local.

If the PC's internal network address is 192.168.0.99 (See point 3 below)

Then the router needs to be setup to Port Forward Port 3413 from the External IP Address to the Internal Port 3413 in Address 192.168.0.99



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This means that whenever a TCP/IP packet arrives on the External IP Address on port 3413, it will be sent directly to port 3413 on the Internal LAN PC at 192.168.0.99
That avoids the Router's firewall.

2b) Setting up the PC to let the packets through into SpecView:

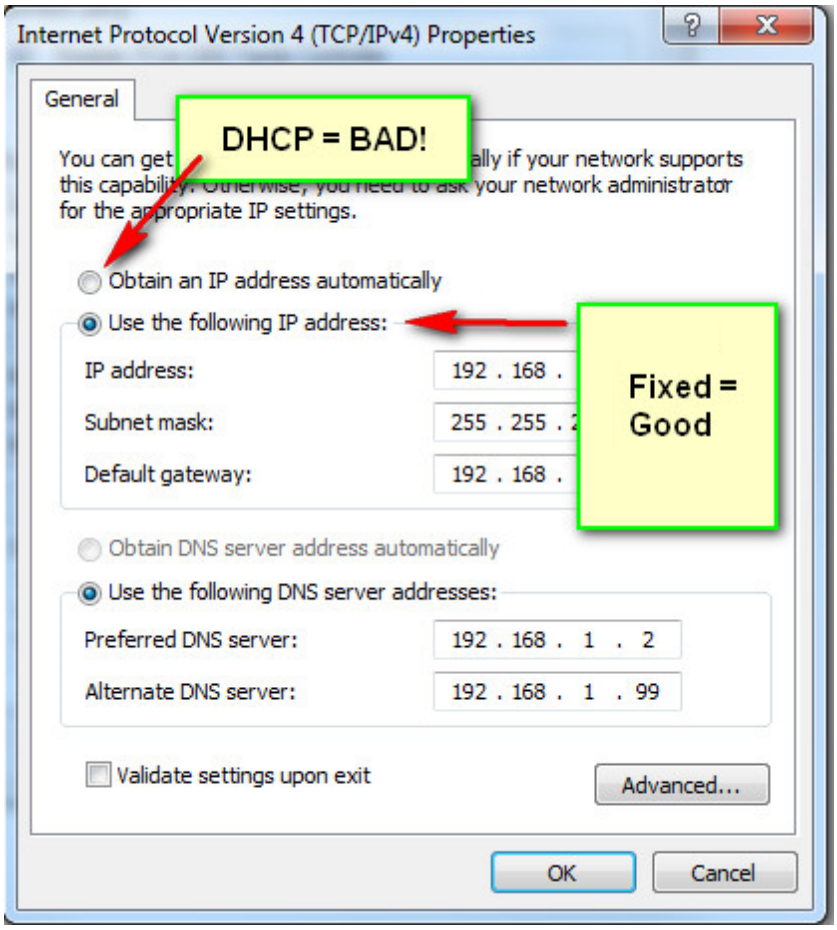
The Computer itself is likely to have a firewall, so, for example, on Windows 7, go to:
Control Panel -> Network & Sharing -> Windows Firewall -> Advanced Settings -> Inbound Rules
and setup a rule that lets TCP traffic on port 3413 through.

3) Checking the Local PC's settings:

In addition to the firewall settings, it is important to make sure that the Local PC has a fixed IP Address on the Site's LAN.
The reason for this is that the port forwarding in the router needs to know exactly where to forward the packets to.
If the Local PC has its IP Address assigned by a DHCP server, then, much like Dynamic IP from the broadband supplier, the IP Addess of the computers on the network can change from day to day.

To check whether you have a fixed IP Address, go to Control Panel -> Network & Sharing -> Adapter Settings. Right click the network card and choose Properties then select TCP/IP v4 in the list and click the Properties button. It must show 'Use the following IP Address':

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Once Fixed IP is setup on the local PC, then Port Forward from the Router will work.

15.12 Multiple Users via Modem

Although this is unlikely these days - in situations where a LAN or WAN or Internet connection between the Local & Remote(s) is not appropriate; SpecView Remote can be used to dial directly into the Local.

If more than one simultaneous connection is needed then more than one modem will need to be connected to the Local, each with a different telephone number.

However, for this SpecView relies on having modems which have themselves been correctly configured, PLEASE REFER TO THE MODEM'S USER GUIDE. Then test the modem connection using Hyperterminal [759].

SpecView should work with all makes of data modems, but it has been found that some combinations work better than others, these are listed under Modem types [763].

Additionally it is important that the SpecView project [282] has been setup so that both ends have

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sufficient information to be able to make a successful dial-up connection.

Multiple Users via Modem - Setup 757
Multiple Users via Modem - Failure 759
Multiple Users via Modem - Using HyperTerminal 759
Multiple Users via Modem - Modem Types 763
Multiple Users via Modem - TAPI Versions 763

15.12.1 Multiple Users via Modem - Setup

There are 6 steps to follow:

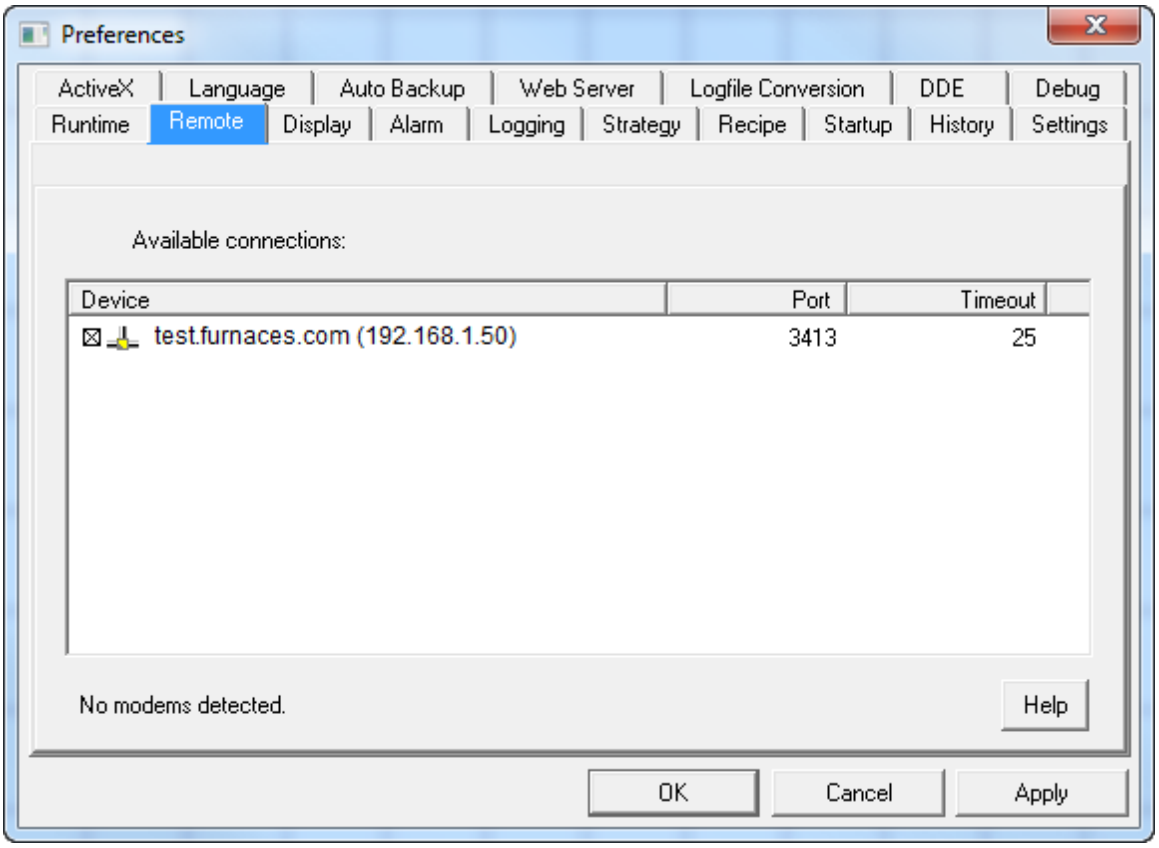
On the Local:
1. When developing a SpecView Project which is intended to be accessed by SpecView Remote it is very useful to put all of these SpecView pre-defined Variables 319 on to an accessible screen (GDW):

SpecView.Date
SpecView.Time
SpecView.GoodComms
SpecView.CommsErrors
SpecView.CommsErrorCode
SpecView.CommsErrorItem
SpecView.CommsErrorDescription

Then if the Remote computer isn't seeing the expected values on the instruments then it is easy to check if there's a problem with the SpecView Local's instrument communications.

2. In either Edit or Runtime mode: Choose the Preferences menu item from the File Menu 269 and click the Remote 460 tab. Check the appropriate box to enable the Modem:

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Click the Timeout to change it. The timeout for Modems is the the time before redialing, This is set by default to 50 seconds because many modems require some time to clear-down and therefore a rapid redial will not succeed, so we recommend caution before changing this.

3. In Runtime mode: Choose the 'User Setup' menu item from the Remotes menu and define some User ID(s) with appropriate Levels.

4. Display the 'Remote Users Attached List' which is displayed by choosing 'View Connected Users' from the Remotes menu 275. This will provide information about the connection status.

On the Remote:
1. At startup: Click the [Remote] button on the 'Projects Found' box which is displayed at startup. Click [New…], then on the Edit Connection dialog give the connection a name, check the Modem checkbox and fill in the fields as appropriate.
The 'Reconnect on fail' checkbox will automatically reconnect & go online if the line is dropped.
Entering a Username & Password will mean that these will automatically be filled in on connection.
Ensure these are also setup on the Local.
Click [Save]

2. Click [Connect] to make the connection.

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15.12.2 Multiple Users via Modem - Failure

To troubleshoot a problem with Modem connection follow the points below:

1. On the Local always display the 'Remote Users Attached List' which is displayed by choosing 'View Connected Users' from the Remotes menu. This will provide useful information about the Local's connection status.

2. On the Local always have a screen which shows the 5 SpecView variables:
    SpecView.Time
    SpecView.GoodComms
    SpecView.CommsErrors
    SpecView.CommsErrorCode
    SpecView.CommsErrorItem
    SpecView.CommsErrorDescription
This will provide information about the instrument data coming into the Local, because unless the Local is able to reliably access the instrument data, then the Remote will not be able to request this data from the Local.

3. Ensure that this is a supported Modem 763

4. Check the version of TAPI 763 installed on your PC

5. Ensure HyperTerminal 759 can make a successful connection.

6. Performance:
The transfer rate on the Remote (Rx and Tx in kb/sec) is shown in the status line at the bottom of the SpecView32 screen. On the Local you will see the transfer rate on the Remotes->View Connected Users screen.

If the transfer rate/throughput between Local and Remote is not as quick as expected, then this is normally caused by modems negotiating a low baud rate, due to compatibility or line quality. Try re-dialling or replacing one or both of the modems.

7. Resends high:
On the Remote the resends are shown as a percentage on the status bar at the bottom of the SpecView32 screen e.g. Res:30.00%
On the Local the resends are shown as a packet count on the Remotes->View Connected Users screen e.g. Res20

High resends such as 20% or more could be due to a very bad line or a modem hardware issue.

Redial to retry the connection. If there is still a high resend rate then prove that the modems are OK by using HyperTerminal 759 to send/receive a large text file. Use the Zmodem protocol to send a large file (say 20Mb or more) and watch the Retries which indicate failure to send/receive. If HyperTerminal reports problems then suspect that there is a modem issue. If HyperTerminal shows no issue then contact your SpecView Representative.

15.12.3 Multiple Users via Modem - HyperTerminal

If you find that SpecView is not making a successful modem connection then the first thing to try is to do

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the same action using HyperTerminal.
This was a component of Windows and therefore is an independent piece of software. However, in Windows Vista, Windows 7 and 8, HyperTerminal is not included, but it is possible to download this useful tool from various websites, the files needed are:

hypertrm.exe
hypertrm.dll

In most cases SpecView will perform the same as HyperTerminal. With HyperTerminal you can either connect to:

- Direct to the COM Port of the TAPI device – this allows you to use AT commands (see: www.computerhope.com/atcom.htm).
- Direct to the modem – this allows you to dial a number via an easy to use interface and best emulates what SpecView will do

Remember: If HyperTerminal cannot do it, then SpecView cannot either!

Where is HyperTerminal?
You will find HyperTerminal under:

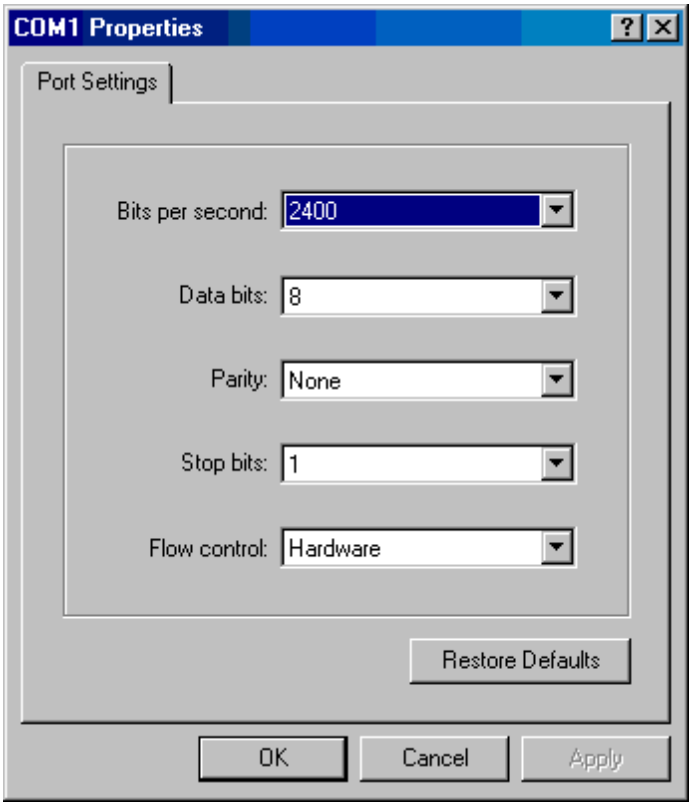
- WinXP
  - "Start->All Programs->Accessories->Communications".
- Win98
  - "Start->Programs->Accessories->Communications".
  - If you do not have it installed then you will need to visit the "Control Panel->Add/Remove Programs->Windows Setup". Check the "Communications" box. Hit the "Details" button. Ensure that "HyperTerminal" is checked.
- Win95
  - "Start->Programs->Accessories".
  - If you do not have it installed then you will need to visit the "Control Panel->Add/Remove Programs->Windows Setup". Check the "Communications" box. Hit the "Details" button. Ensure that "HyperTerminal" is checked.

Using HyperTerminal to simulate SpecView Remote connecting to SpecView Local:
Firstly ensure that the modem speakers are on. This is done via Windows Control Panel. This will help considerably in understanding what's going on.

1. To check that the modem on the Remote PC is basically working and can be 'seen' on the COM port, do the following:
On the Remote PC use HyperTerminal 'Direct to the COM Port' that the modem is connected to.

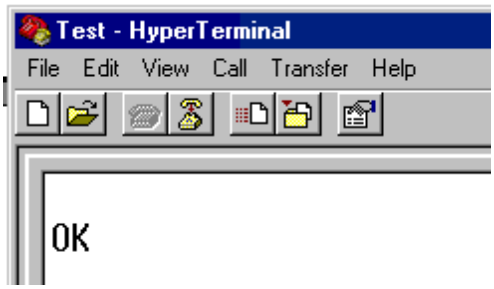
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Type AT (although the AT characters will not necessarily be shown on the screen) it should respond with OK which will prove that the modem can be accessed on the COM port.

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Then exit HyperTerminal.

2. Check that the modem on the Local PC can be accessed:
By doing the same as above on the Local PC.

3. Then on the Local PC run HyperTerminal again but this time select the modem from the list (enter any telephone number as this won't be used)



Click [Cancel] instead of [Dial], then choose the 'Wait for call' menu command from the Call menu.

Now on the Remote PC run HyperTerminal and again select the modem from the list enter the telephone number of the **modem on the Local** and click [Dial] and watch the call status until it shows 'Connected'. Then characters typed will echo into the other HyperTerminal screen.
To disconnect use the 'Disconnect' tool on the toolbar.

If any of this doesn't work then contact your computer's administrator and ask them to:
- Check the modem drivers have been recognised by checking the Windows Control Panel - Modems on the PCs at both ends of the connection.
- Check the wiring connections
- Check that the number being dialled is correct
- Do the noises being heard reflect what's going on, for example is a ringing tone heard.

It is very important to ensure that these steps work correctly BEFORE attempting to use SpecView

Remember: If HyperTerminal cannot do it, then SpecView cannot either!

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4. Once the above steps have been completed and are all working OK then:

Use SpecView to make the connection, first ensure HyperTerminal isn't running (because SpecView & HyperTerminal cannot run at the same time using the same COM port).

Run SpecView Local and setup 757 the connection.
Then in the Remote PC run SpecView and click the [Remote] button.
Either click [New...] to add a new connection, or [Edit...] to edit an existing connection. Ensure the number to dial & settings are correct as described in setup 757. Click [Save] then [Connect].

Modem Troubleshooting 759

15.12.4 Multiple Users via Modem - Modem Types

The Modem models which have been used are:

- Ambient 56K bps External (MD5660) Modem
- Bluetooth Modem
- Conexant SmartHSFiV.9x 56K Speakerphone PCI Modem
- Conextantd480 MDC V.92
- HayesAccura 56K Speakerphone External
- HayesAccura V92 Speakerphone External
- Intel V92 External Modem (Actually: Generic unbranded modem)
- Practical Peripherals PM288MT II V.34
- Standard Modem (Actually: Generic Rockwell 28.8K internal ISA card modem)
- Sportster 33600 FAX VOICE EXT
- SupraExpress 56e PRO
- SupraMax 56K USB (not recommended for connection to a Local)

However, this is not a complete list, it should be considered more as a guideline.
Therefore, if the modem being used is not listed there is still a good chance it will work correctly.

SpecView Networking via Modem - General 756
Modem Troubleshooting 759

15.12.5 Multiple Users via Modem - TAPI Versions

SpecView32 requires at least TAPI version 1.4, as this was the version “bundled” in Windows 95 and is designed for 32-bit applications. This allows SpecView to support Windows 95 and hence versions of TAPI included with more recent versions of Windows. SpecView has been tested with TAPI versions 1.4, 2.1 and 3.1.

Windows XP Pro:
Version(s) included: 2.2 & 3.1

Windows XP Home:
Version(s) included: 2.2 & 3.1

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Windows 2000:
Version(s) included: 3.0

Windows NT Server 4.0:
Version(s) included: 2.0
Version available for download: 2.1 which is in: Service Pack 6a (SP6a)
From: http://www.microsoft.com/ntserver/nts/downloads/recommended/SP6/allSP6.asp

Windows NT Workstation 4.0:
Version(s) included: 2.0
Version available for download: 2.1 which is in Service Pack 6a (SP6a)
From: http://www.microsoft.com/ntserver/nts/downloads/recommended/SP6/allSP6.asp

Windows 98:
Version(s) included: 2.1

Windows 95:
Version(s) included: 1.4
Version available for download: 2.1
From: ftp://62.49.124.34/TechNotes/TAPI/Win95_tapi21.exe

1.4	Included in Windows 95.
1.5	Included in Windows CE 1.0.
2.0	Included in Windows NT 4.0 with SP3.
2.1	Included in Windows NT 4.0 with SP4 and Windows 98.
2.2	Included in Windows Server 2003, Windows XP, and Windows 2000.

SpecView Networking via Modem - General 756
Modem Troubleshooting 759

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Part 16

16 ActiveX Controls

ActiveX controls are self-contained pieces of software which have a specific functionality & purpose. These controls can be added to SpecView projects to enhance the functionality & usability of SpecView. The controls themselves are purchased from the author of the controls, not from SpecView. Although a few controls written by SpecView will be available for purchase,
(please see the SpecView website for details of these: www.specview.com).

Examples of sets of ActiveX controls are:
– Symbol Factory from Software Toolbox Inc. - see: www.softwaretoolbox.com
– Instrumentation Studio for ActiveX from Century Soar Technology Co. Ltd. See: www.cstsoft.com
It is also possible to develop ActiveX controls oneself, although this requires a high degree of software development expertise.

Examples & tutorials of a good range of ActiveX Controls written in Visual Basic can be seen at: http://pages.cpsc.ucalgary.ca/~saul/vb_examples/

In general there are 3 types of ActiveX control:
1. Those with just a graphical component, but with no values or functionality, such as a pipe graphic.
2. Those with both a graphical component & which also have input and/or output values(s), such as a slider control, where the inputs might be the maximum & minimum values for the slider bar & the output would be the position of the slider on the bar.
3. Those with no graphical component, which might for example do a calculation on some input values & put the result into an output value.

ActiveX - Steps to add an ActiveX Control 766

The addition of ActiveX controls has affected the Backward Compatibility of SpecView Projects.

Note: Neither the delete key nor the cursor keys will not work when an ActiveX control is on the screen. This is because of uncertainty as to whether these keys are being used within the ActiveX control, or on items on the SpecView screen.

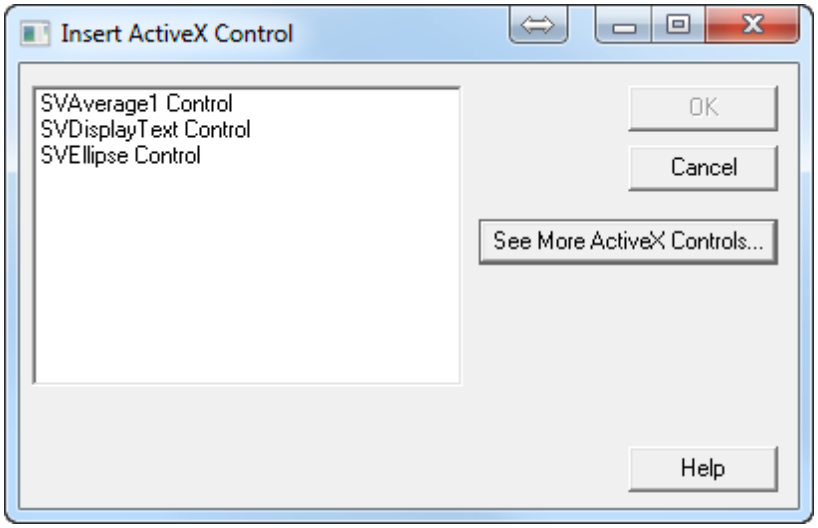
16.1 ActiveX Steps to add an ActiveX Control

There are a number of steps to adding an ActiveX control to SpecView:
1. Firstly decide which control is required & ensure its functionality is fully understood, having read the author's documentation.
2. Install the required ActiveX control(s), following the installation procedure supplied with the control. They cannot be installed from within SpecView.
3. Use: Object->ActiveX Control->Register Controls to see if the required controls are listed, if not, use the Register 773 button to register them with SpecView.
4. If the ActiveX control is one which has input and/or output values(s) that need to be linked to SpecView's Instrument or User variables, then the required instruments and/or User variables will need to be defined in SpecView.
5. Use: the ActiveX  tool on the toolbar and use the ActiveX cursor 

to draw the control on the GDW. This can be done by clicking somewhere on the screen & dragging out to the required size, or by just clicking on the screen to position a control using its default size. (The 'hotspot' of this cursor is by the top of the 'A').

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Even controls which don't have any graphical components will need to be placed somewhere on the screen, but as they will **not** be displayed in Runtime they can be drawn any size, anywhere on the screen.
6. The 'Insert ActiveX Control' box will be displayed:



Select the control required, if it isn't listed, then click [See More ActiveX Controls] to add the control to the list, or if the control isn't shown then the control will need to be Registered[773] & then select the control from the list.
7. When all the required controls have been drawn press the ESC key to restore the cursor to the 'pointer' cursor.
8. Select the control on the GDW.

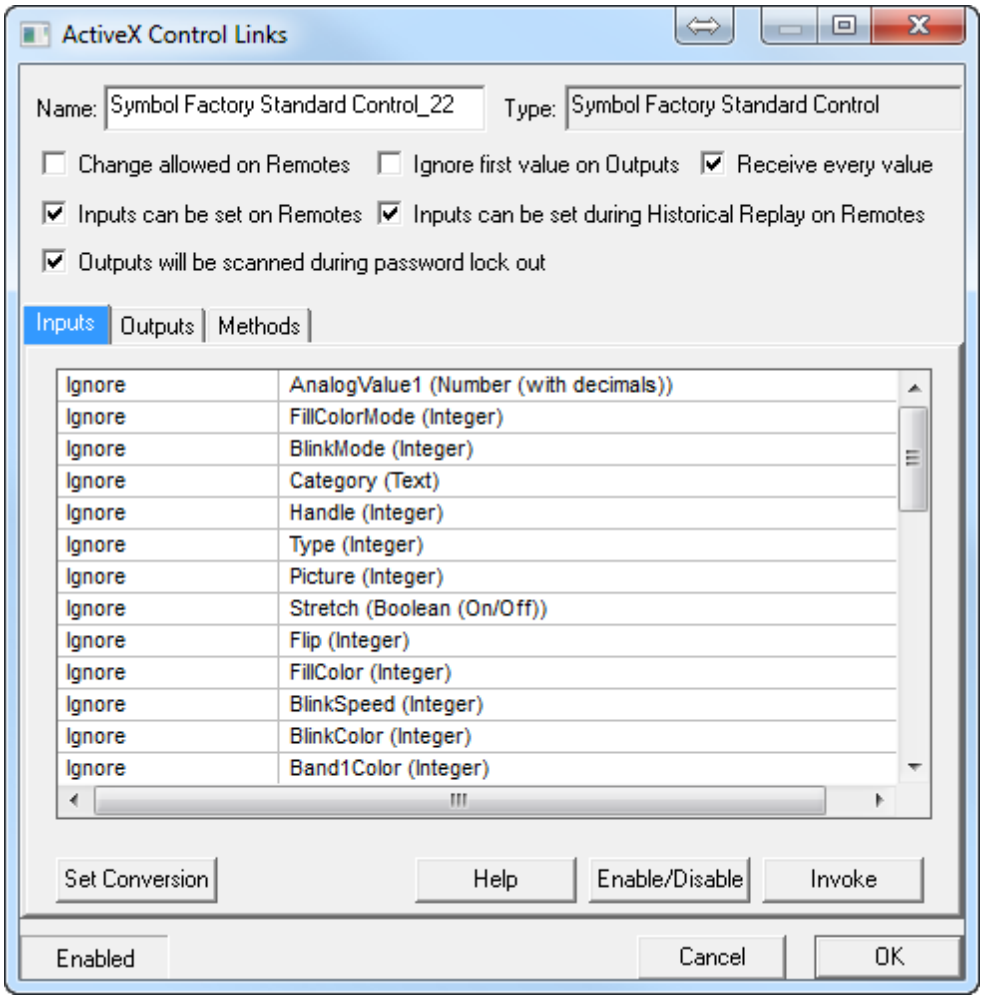
Note: To select an ActiveX object on a screen (GD3):

- Either move the mouse over the edge of the control, until the cross-hair cursor is shown, then click to select the object.

- Or click the background & drag to enclose the object(s), when the button is released all objects enclosed will be selected.

9. Use: Object->ActiveX Control->Setup (or Right-Click on the control, or press Alt-Enter) to setup the control according to the author's documentation.
10. If the ActiveX control is one which has input and/or output values(s), which need to be linked to SpecView's Instrument or User variables, then use: Object->ActiveX Control->Link to Variables (or Alt-X)

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Input tab: An Input[776] is an input into the Control (SpecView setting a value into it)

Output tab: An Output[778] is an output from a Control.

Methods tab: A Method[779] is something that can't be classed as an input or output. For example, something that has no inputs or outputs, such as an 'About...' box.

Change allowed on remotes checkbox: This is OFF by default.
When checked this allows users logged in from Remote[740] versions of SpecView to change the Inputs on this ActiveX Control. This maybe desirable for a control such as a graphical slider, but NOT desirable for, say, an averaging control.

Ignore first value on Outputs checkbox: This is OFF by default.
When checked this means that the very first value out of each Output for this control is ignored. This maybe desirable when the first value is a start-up condition or to be considered as an out of range value.

Receive every value checkbox: This is ON by default.
When ON this means that the control receives all changes in values that are set for Inputs to this control.
When set to OFF this means that the control is just sent the latest value when its Inputs are set.

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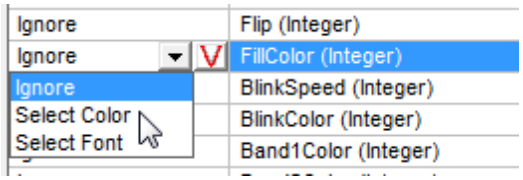
This can be used when it is NOT necessary to see all values on a heavily laden system, particularly when the control is being used on a SpecView Remote, or if accurancy is not the control's purpose, or if the latest value is the only relevant value that is needed to be processed.

Invoke button: This can be used to run a Method to test it.

Enable/Disable button: Will enable or disable a control. All controls can be enabled/disabled using the File->Preferences ActiveX[772] tab.

For example:
If the control is a graphic & it has an Input such as 'Blink Speed' then in order to set this it is necessary to read the author's documentation to find out the following information:
- The type of the value, for example, an Integer or a Number with decimals.
- The units of the value (Seconds, tenths of seconds, etc.)
- The range of values.
- Then also whether a related Input parameter needs to be set, for example to 'turn on' the blinking.
To set the Blink Speed parameter from a SpecView variable create a SpecView User Variable of the required type & then click the Blink Speed parameter on the Input tab, click the Variables List button & select the variable from the list.

To set a parameter to a constant value, such as Blink Mode=1 to turn on blinking, replace the word 'ignore' with '1'. To set a parameter to a color or font select from the dropdown list:



These constants will be applied on entry to Runtime mode or by clicking the Invoke button.

To monitor what is happening with an ActiveX control during Runtime mode via the Event window, it is necessary to check the 'ActiveX Controls' checkbox on the Event Log Setup box from the Setup menu[305]. By default this is not checked as it produces a large number of entries in the Event Log[620].

For information about ActiveX controls and Passwords[703] see here[781].

See also:

ActiveX Overview[766]

ActiveX Licensing[770]

ActiveX Insert Control[771]

ActiveX Preferences[772]

ActiveX Variables Inputs[776]

ActiveX Variables Outputs[778]

ActiveX Variables Methods[779]

ActiveX Register[773]

ActiveX Manage Control List[775]

ActiveX Control Not Licensed[783]

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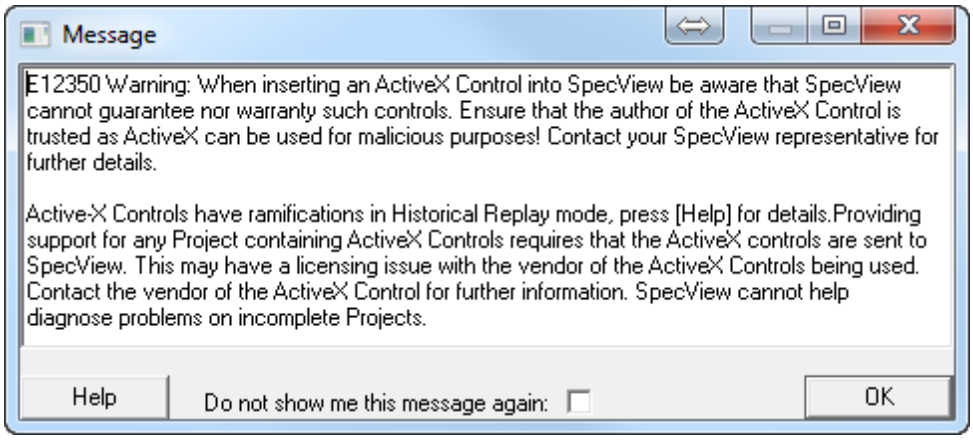
ActiveX on SpecView Remote 771

ActiveX Controls and Passwords 781

ActiveX Controls and Historical Replay 783

Note: Neither the delete key nor the cursor keys will not work when an ActiveX control is on the screen. This is because of uncertainty as to whether these keys are being used within the ActiveX control, or on items on the SpecView screen.

16.2 ActiveX Licensing



It is important to read the licensing agreement supplied with the control & to understand how the licensing is enforced, in order to avoid being in breach of the licensing agreement.

ActiveX Controls which are developed specifically for use with SpecView will have SpecView's licensing scheme built into them, this is described below. But ActiveX Controls (such as: Symbol Factory & Instrumentation Studio) which have been developed for general release will not, so for these Controls it is important to read the licensing documentation supplied with them.

Note that Microsoft's licensing strategy is not supported by SpecView & therefore any ActiveX controls which use Microsoft's licensing will not run.

If SpecView's licensing scheme is built into an ActiveX Control then:

- If SpecView is being used in 'Demo' mode, where SpecView will run for 10 minutes with no dongle attached, then ActiveX controls can be added to a project and then run for the 10 minute limit in Runtime Mode.

- If SpecView is running with a dongle 498, but which doesn't have the ActiveX option enabled then SpecView will not allow the adding, editing or running of any ActiveX controls. The dongle will require upgrading 64 to add the ActiveX option.

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- If the dongle has the ActiveX option enabled and the class of the ActiveX license on the dongle is correct then it will run.
SpecView has a number of classes of ActiveX licensing, each Control has a class, such as Class1, Class2, Class3, etc. and the dongle's ActiveX licensing will also have a class assigned to it and only Controls of the correct class will run. The dongle will require upgrading 64 to add the correct Class.

See also:

ActiveX Overview 766

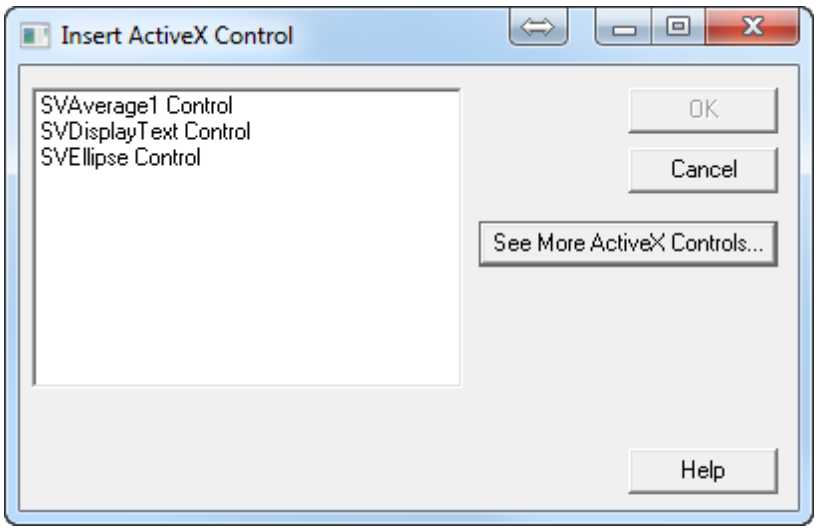
ActiveX - Steps to add an ActiveX Control 766

16.3 ActiveX On SpecView Remote

When an ActiveX control is being added to a screen which may be displayed on a Remote PC via SpecView Remote, then it is important to consider whether the control is intended for use on the Remote, such as a slider control to set an instrument setpoint, then it is important that the 'Change allowed on Remotes' checkbox is checked on the Object->ActiveX Control->Link To Variables box. This is detailed in ActiveX - Steps to add an ActiveX Control 766

See also: ActiveX Overview 766

16.4 ActiveX Insert Control



Please refer to ActiveX - Steps to add an ActiveX Control 766 for full details on inserting an ActiveX Control.

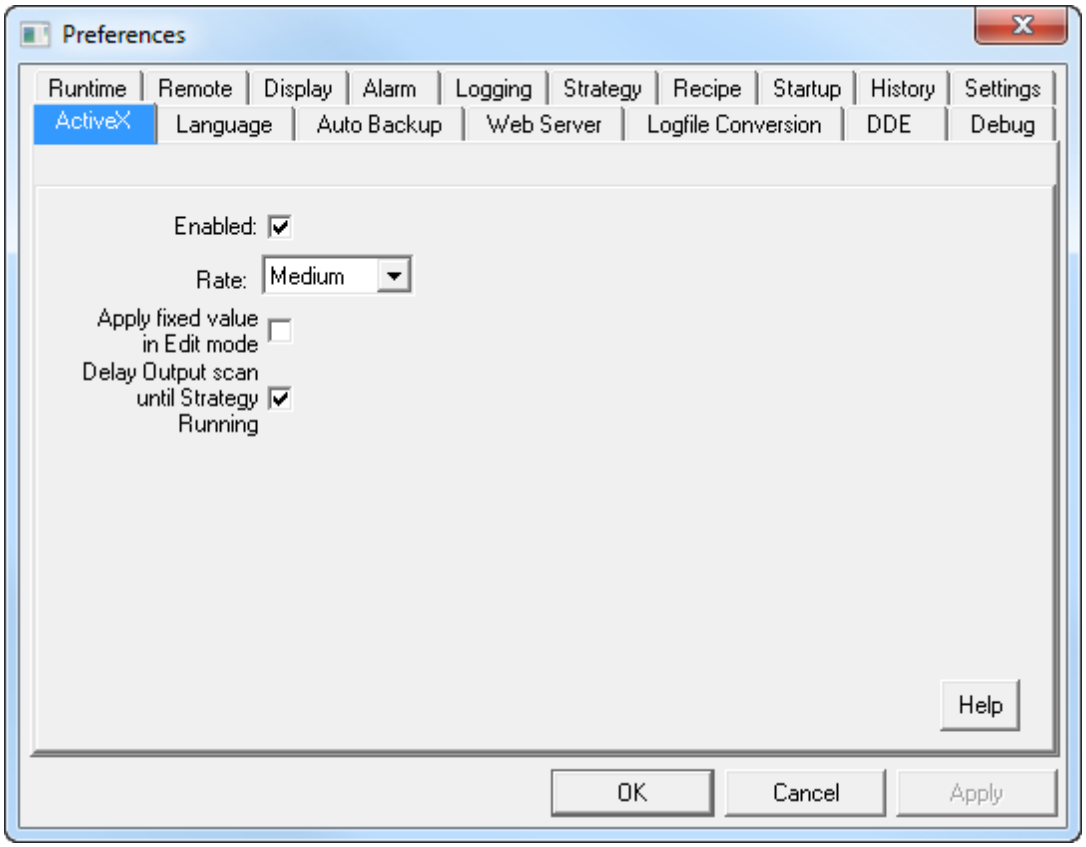
When ActiveX controls are first used within SpecView a full list of all the installed controls is generated and shown in the 'Insert ActiveX Control' box. To reduce this list to just contain the ActiveX controls which are being used. Click the 'See More ActiveX Controls' button and select those requried. Then just that abbreviated list will be shown. Subsequently the full list can be seen by clicking the 'See More

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ActiveX Controls' button.

Note: Neither the delete key nor the cursor keys will not work when an ActiveX control is on the screen. This is because of uncertainty as to whether these keys are being used within the ActiveX control, or on items on the SpecView screen.

16.5 ActiveX Preferences



Enabled: This is ON by default.
Allows all ActiveX controls to be enabled/disabled throughout SpecView.

Design Mode: This is OFF by default.
Some controls have a run mode and a design mode & behave differently, this allows Design mode to be used. It is important to read documentation supplied with a ActiceX Control. This is a SpecView wide setting, to set this on a per control basis select the control & use: Object->ActiveX Control->Design mode

Rate: Default is every 2 seconds.
This is the 'heartbeat' same as Scan rate (which is on the Preferences Runtime Tab[459]). This controls the rate at which ActiveX Control outputs are invoked.

Apply fixed value in edit mode: This is OFF by default.

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When ON this causes the fixed values specified against a control to be applied when entering Edit mode.

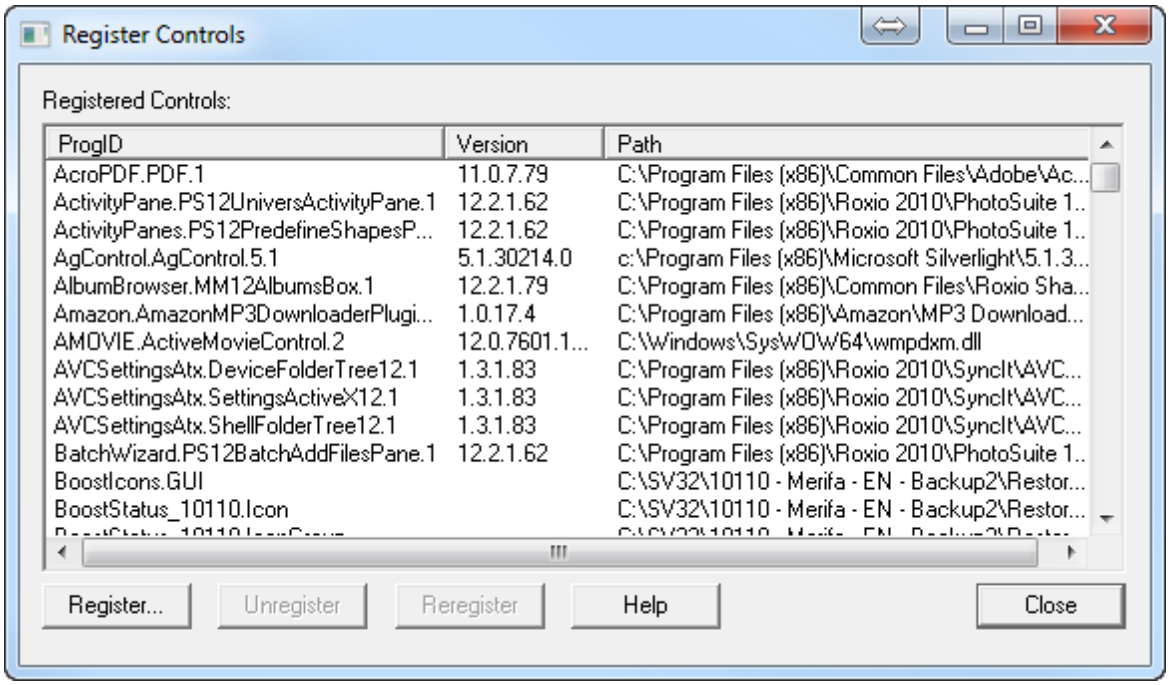
Delay Output scan until Strategy Running: This is ON by default.
When ON all of the ActiveX Controls inputs are NOT scanned until Strategy 666 start-up is complete. If there are no strategy start-up events then there is no delay. This delay can be useful to ensure Strategy start-up actions that set Inputs are completed before anything else such as Outputs could affect the Input values.

See also:

ActiveX Overview 766

ActiveX - Steps to add an ActiveX Control 766

16.6 ActiveX Register



Registering a control is similar to installing it.

NOTE: To register or unregister a control it is necessary to be running SpecView as an Administrator 511 because SpecView updates the Windows Registry during this process, which requires Administrator privileges.

Most sets of ActiveX controls will come with their own installation program, which is likely to register the control automatically.
However, some controls (maybe where one has been written as a bespoke control) will need to be registered.
To Register a control using SpecView use: Object->ActiveX Control->Register Controls...
Click 'Register...' and browse to find the control.

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If in doubt about this then please contact the vendor of the control.

Projects that contain ActiveX controls, which are not yet installed (or registered) on the PC, can now be Restored[193] & run. Although a warning message will be displayed informing the user that the ActiveX controls need to be installed. However, in this case the screens (GDWs) will not be able to be saved after modification, unless the missing ActiveX controls are deleted from the GDW.

See also:

ActiveX Overview[766]

ActiveX - Steps to add an ActiveX Control[766]





These messages will be displayed when the version of the ActiveX controls in a Project differs from the version of ActiveX controls which are installed (registered) on the PC. In the case of a minor change to the naming of the inputs/outputs/methods within the new version of the ActiveX control, this will be automatically adjusted within the Project, so that it will continue to work with the new version.

However, it is always wise to ensure that a backup of the Project has been made before going into Edit Mode and saving the automatic adjustments.

If this ActiveX control is being used on multiple GD3s then it is necessary to open and save each of the affected GD3s. To ease this process a new menu option has been created to perform that function: 'Object->ActiveX Control->Save All GD3s for Version Changes' this menu item is only enabled if an

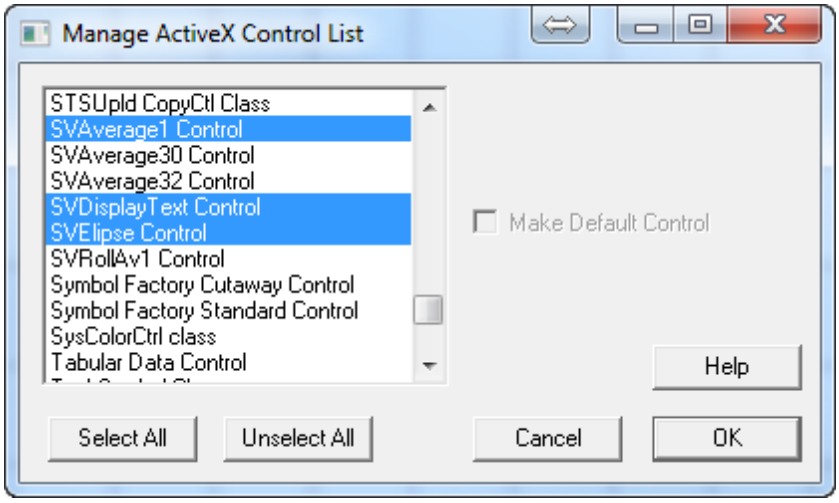
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ActiveX Control has had a version change in this project.

Registering ActiveX controls from SpecView on Windows Vista, Windows 7 and Windows Server 2008

Registering ActiveX controls requires administrative priviledges, which under these versions of Windows requires user confirmation in the form of a 'User Account Control' box, which is now displayed when SpecView starts.

16.7 ActiveX Manage Control List



This is the full list of all ActiveX controls which have been registered[773] on this PC.
Those that are selected are the ones to be included in the 'Insert ActiveX Control' box
this keeps the list to a manageable size!

Make Default Control: This is enabled when just a single control is selected.
Checking this will help to reduce the number of mouse-clicks required to insert many instances of the same type of control.

See also:

ActiveX Overview[766]

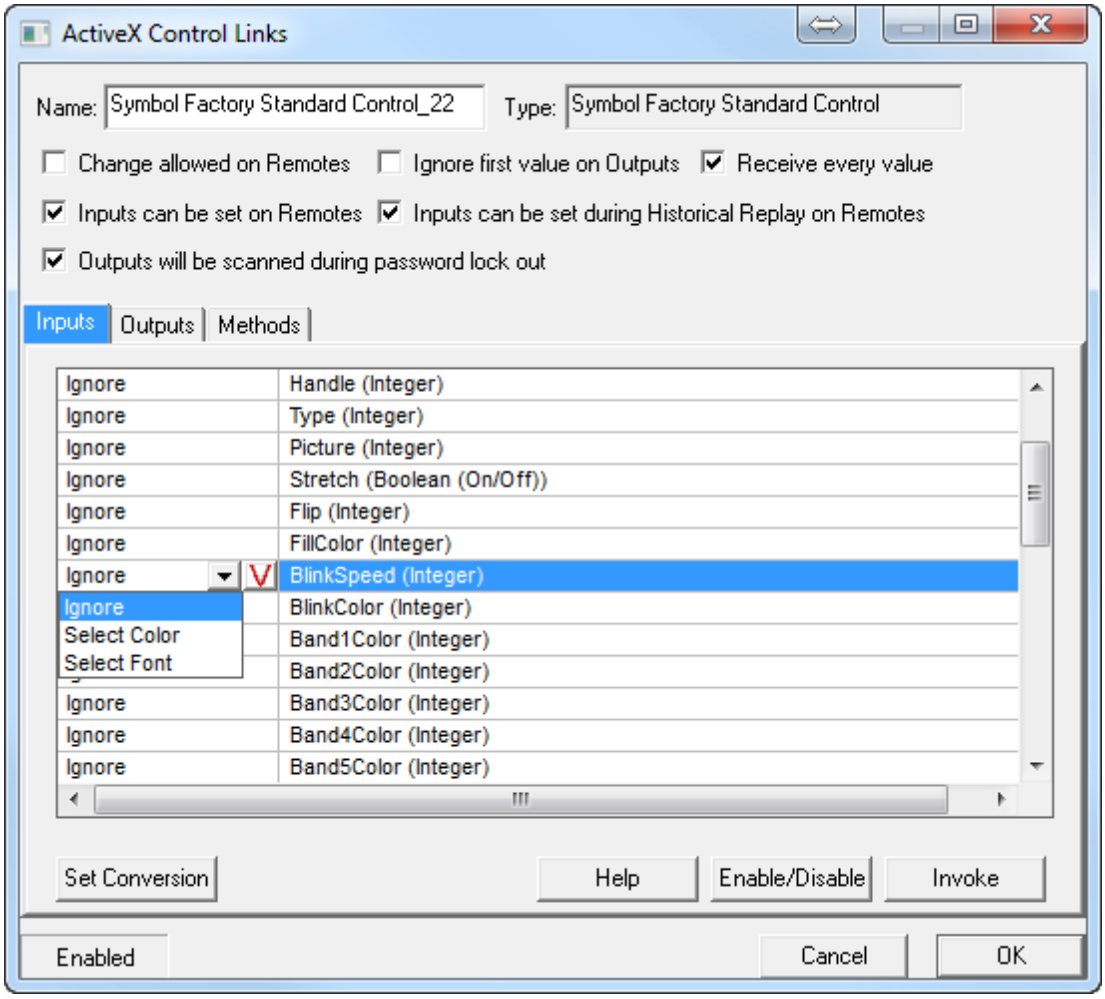
ActiveX - Steps to add an ActiveX Control[766]

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16.8 ActiveX Variables Inputs

An Input is an input into the Control (SpecView setting a value into it).

Select the control, then press ALT-X to display the ActiveX Control Links box & click the Inputs tab:



To assign an ActiveX Control's Inputs to SpecView variables it is necessary to have first throughly read & understood the Control's documentation supplied by the author of the control.

It is possible to assign one of four kinds of input:

1. Constant values: To set a parameter to a constant value, such as BlinkMode=1 to turn on blinking, replace the word 'Ignore' with '1'.

Note that to assign a constant that is the same as a SpecView variable or parameter it is necessary to enclose it in double-quotes. Otherwise SpecView will substitute the value of the variable rather than just sending its name in.
For example: SpecView.Number1 sends the value of Number1 to the control
whereas, 'SpecView.Number1' sends the string ' SpecView.Number1' to the control.

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2. SpecView variables or Instrument parameters: Click the required parameter on the Input tab then click the Variables List button:



& select the instrument or SpecView User variable to link it to.

When choosing a variable from the Variables List there are checkboxes to allow the type of variables to be changed:
- Do not convert
- Color
- Font
- Date
- Time
- Number with decimals
- Integer (which can be Signed or Unsigned)
- String
- Display format - This is used only when converting a number into a String to specify the number of decimal places or whether scientific notation is required.

However, it is always preferable to use a variable which is itself of the correct type.

Note that it is sometimes possible for an input to a control to be split across more than one input parameter. For example, the Time could be split into 3 separate parameters of hours, minutes & seconds. However, in this case whenever one of the parameters changes then all 3 will be sent by SpecView to the Control, but the other 'parts' of the parameter may not yet have been updated.

3. Colors: Choose 'Select Color' and select the required color. The color will be shown in notation, for example: 'Color_65280', not as the name of the color, for example: 'Green'.

4. Fonts: Choose 'Select Font' and select the required font. The font will be shown in notation, for example: ' Font_Arial,10,0,400,0', not as the name of the font, for example: 'Arial Regular 10'.

Note that If the name (in notation form) of a color or font needs to be assigned to a string then the name will need to be enclosed in double-quotes, otherwise SpecView will substitute the actual color or font in place of its name.

Enable/Disable: This button will enable or disable the selected item, or if none are selected then it will enable/disable the entire control.
All controls can be enabled/disabled using the File->Preferences ActiveX[772] tab.
Invoke: The Invoke button can be used to read an Input to test it.

See also:

ActiveX Overview[766]

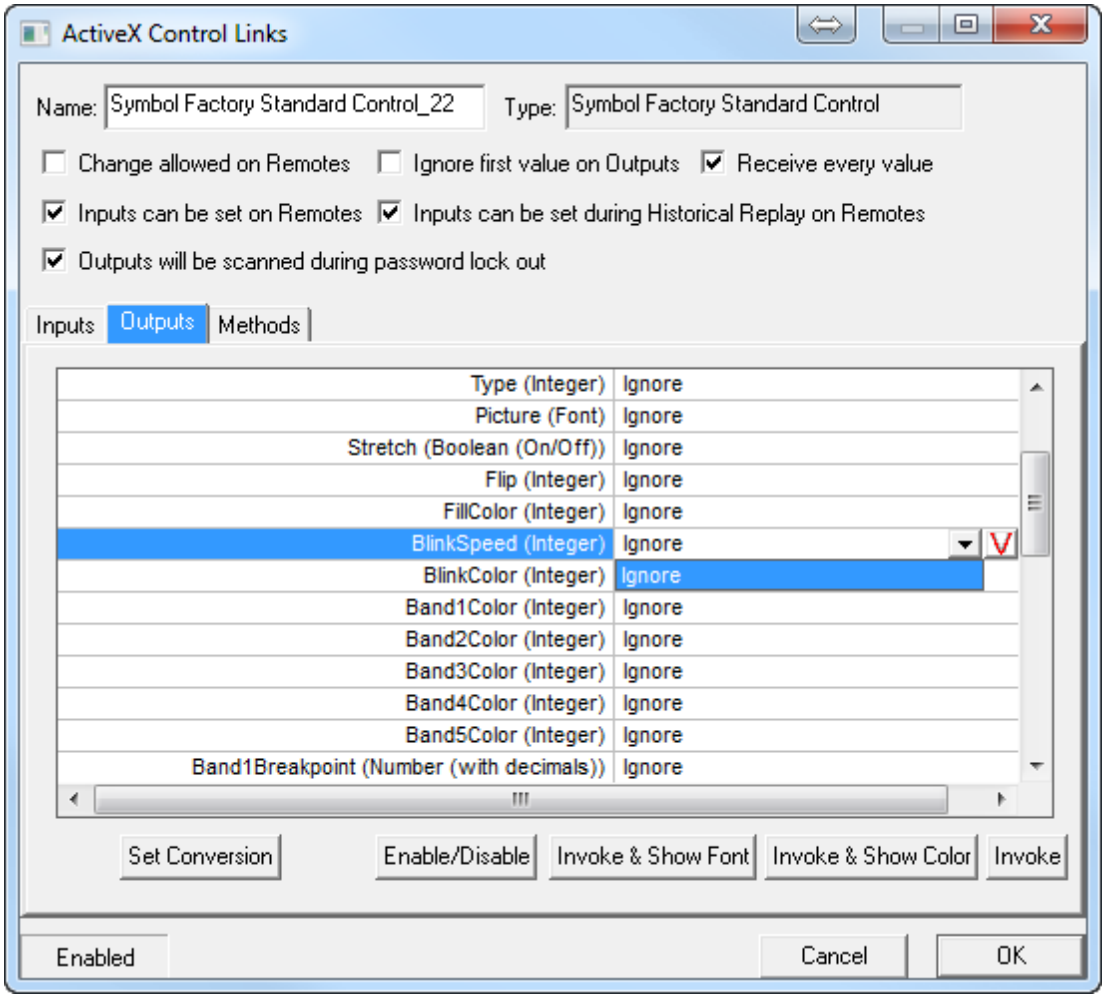
ActiveX - Steps to add an ActiveX Control[766]

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16.9 ActiveX Variables Outputs

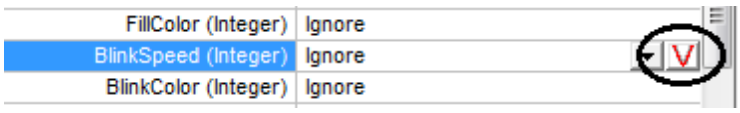
An Output is an output from a Control (Putting the value into a SpecView variable).

Select the control, then press ALT-X to display the ActiveX Control Links box & click the Outputs tab:



To assign an ActiveX Control's Outputs to SpecView variables it is necessary to have first thoroughly read & understood the Control's documentation supplied by the author of the control.

It is possible to assign an output to a SpecView variable or Instrument parameter. Click the required parameter on the Input tab & click the Variables List button:



& select the instrument or User Variable to assign the value to.

When choosing a variable from the Variables List there are checkboxes to allow the type of variables to

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be changed, such as converting a Text variable '25 Dec 2005' to a Date variable: 25th Dec 05.

- Do not convert
- Color
- Font
- Date
- Time
- Number with decimals
- Integer (which can be Signed or Unsigned)
- String
- Display format - This is used only when converting a number into a String to specify the number of decimal places or whether scientific notation is required.

However, it is always preferable to use a variable which is itself of the correct type, as type conversion should only be required on rare occasions when the control's documentation specifies.

Note that it is sometimes possible for an output from a control to be split across more than one output parameter. For example, the Time could be split into 3 separate parameters of hours, minutes & seconds. However, in this case whenever one of the parameters changes then all 3 will be sent to SpecView from the Control, but the other 'parts' of the parameter may not yet have been updated.

Enable/Disable: This will enable or disable the selected item, or if none are selected then it will enable/disable the entire control.
All controls can be enabled/disabled using the File->Preferences ActiveX[772] tab.
Invoke & Show As Font:
Invoke & Show As Color:
Some ActiveX controls are written such that they have some Outputs that can be represented as Colors or Fonts. However, please refer to the Control's documentation for further information on this.
Invoke: The Invoke button can be used to generate an Output to test it.

See also:

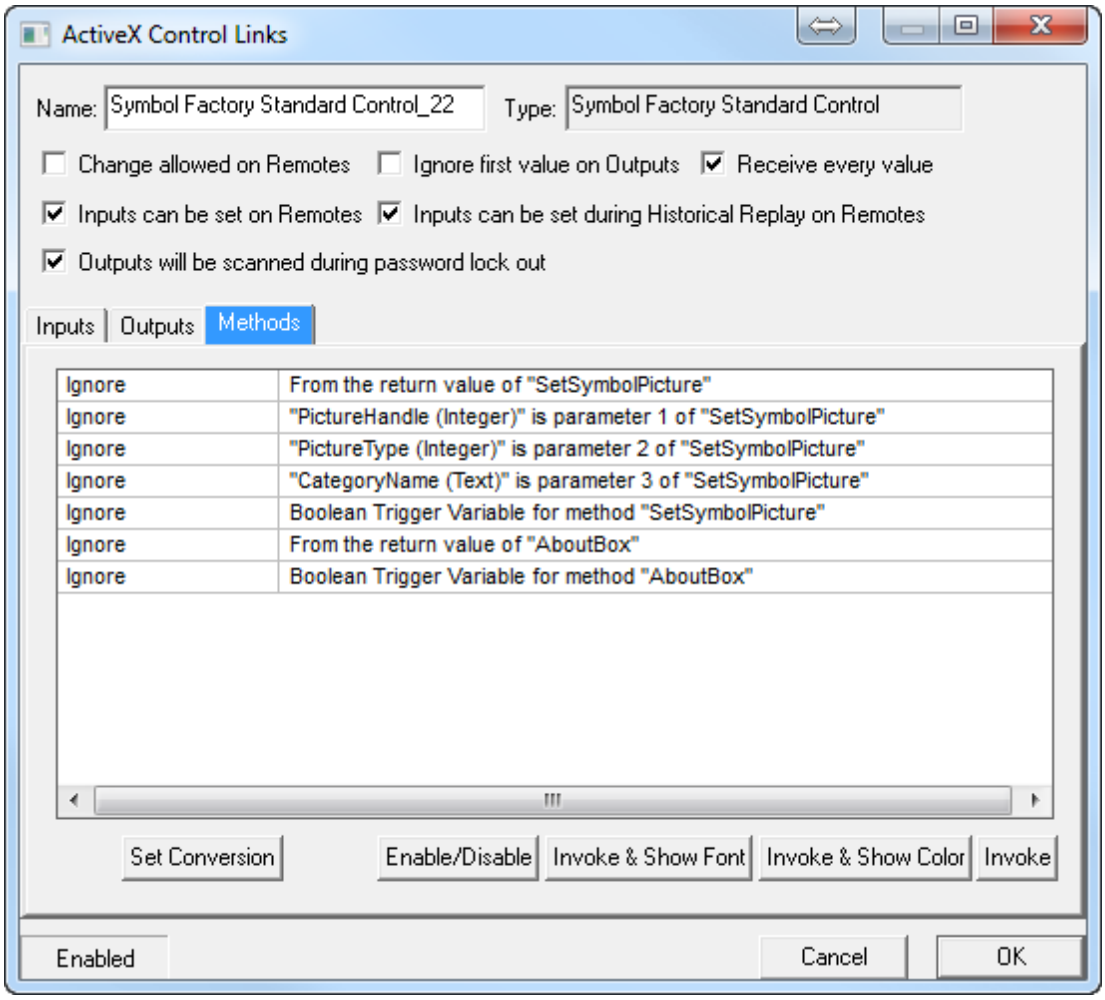
ActiveX Overview[766]

ActiveX - Steps to add an ActiveX Control[766]

16.10 ActiveX Variables Methods

A Method is something that can't be classed as an input[776] or output[778]. For example, something that has no inputs or outputs, such as an 'About...' box.

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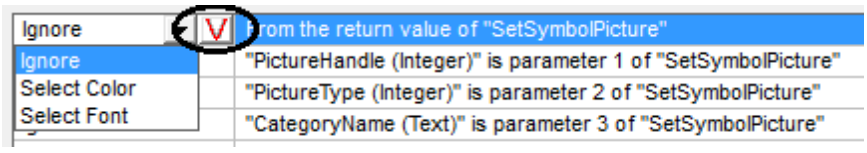


To assign an ActiveX Control's Methods to SpecView variables it is necessary to have first throughly read & understood the Control's documentation supplied by the author of the control.

It is possible to assign one of four kinds of value to a Method:

1. Constant values: To set a parameter to a constant value replace the word 'Ignore' with the value.

2. SpecView variables or Instrument parameters: Click the required parameter on the Methods tab then click the Variables List button:



& select the instrument or SpecView User variable to link it to.

3. Colors: Choose 'Select Color' and select the required color. The color will be shown in notation, for example: 'Color_65280', not as the name of the color, for example: 'Green'.

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4. Fonts: Choose 'Select Font' and select the required font. The font will be shown in notation, for example: ' Font_Arial,10,0,400,0', not as the name of the font, for example: 'Arial Regular 10'.

Enable/Disable: This will enable or disable the selected item, or if none are selected then it will enable/disable the entire control.
All controls can be enabled/disabled using the File->Preferences ActiveX[772] tab.
Invoke & Show As Font:
Invoke & Show As Color:
Some ActiveX controls are written such that they have some Outputs & Methods that can be represented as Colors or Fonts. However, please refer to the Control's documentation for further information on this.
Invoke: The Invoke button can be used to run a Method to test it.

See also:

ActiveX Overview[766]

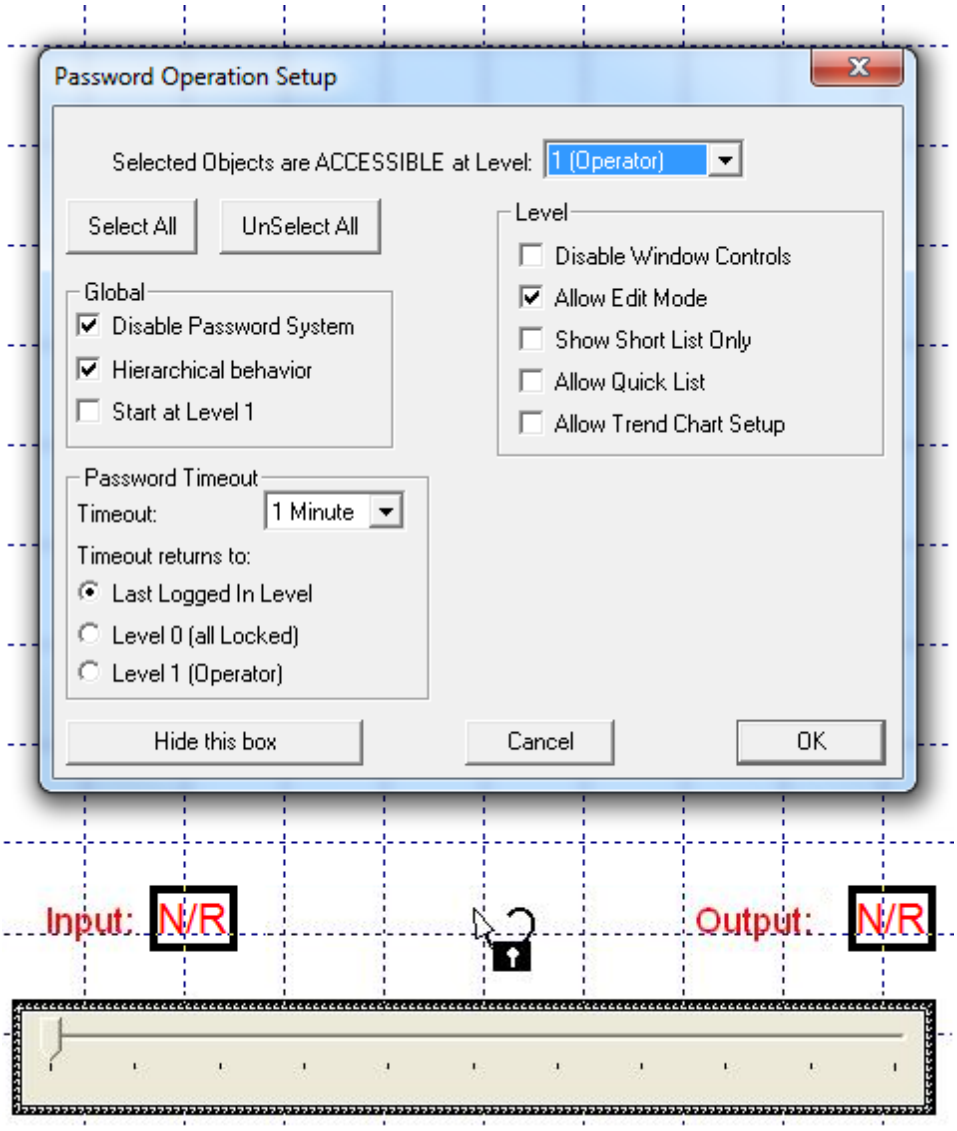
ActiveX - Steps to add an ActiveX Control[766]

16.11 ActiveX Controls and Passwords

When enabling SpecView's Passwords[703] on a project which uses ActiveX Controls it is important that the ActiveX controls are enabled at the appropriate level.

Although an ActiveX control which is intended for user interaction (such as a slider), will allow the user to operate it regardless of the password settings, the variable which is linked to it as the output will only be updated IF BOTH the ActiveX control and the output value is accessible by the user.

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To select ActiveX controls with the padlock cursor, watch for the 'tick' appearing in the cursor as it passes over the edge of the control:



and that is when clicking will select it.

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16.12 ActiveX and Historical Replay

When SpecView is in Historical Replay [622] the ActiveX controls on the screen will also replay if the input parameters are marked for logging in the Variables List [326].

However, if this is not required then it is possible to 'turn off' ActiveX Controls in Historical Replay in the SETTINGS.INI file in the project's folder:

[ActiveX]

InputsDisabledInHistoricalReplay=Y

See also:

ActiveX Overview [766]

Preferences [458]

16.13 ActiveX Control Not Licensed



This error will be displayed if the SpecView dongle [498] either doesn't have the ActiveX option enabled, or if the class of the ActiveX license on the dongle is incorrect.
SpecView has a number of classes of ActiveX licensing, each Control has a class, such as Class1, Class2, Class3, etc. and the dongle's ActiveX licensing will also have a class assigned to it and only Controls of the correct class will run.

The dongle will require upgrading [64].

Please refer to ActiveX Licensing [770] for full details on ActiveX Control licensing.

See also:

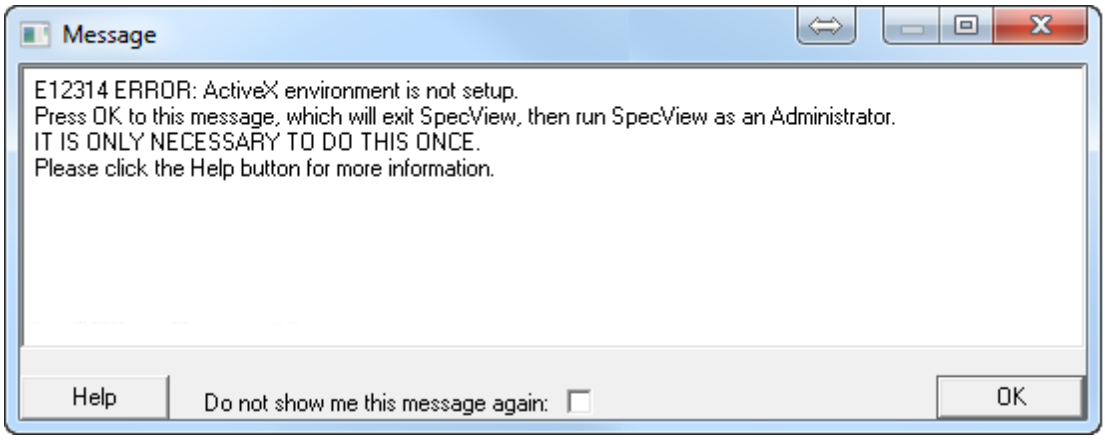
ActiveX Overview [766]

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ActiveX - Steps to add an ActiveX Control [766]

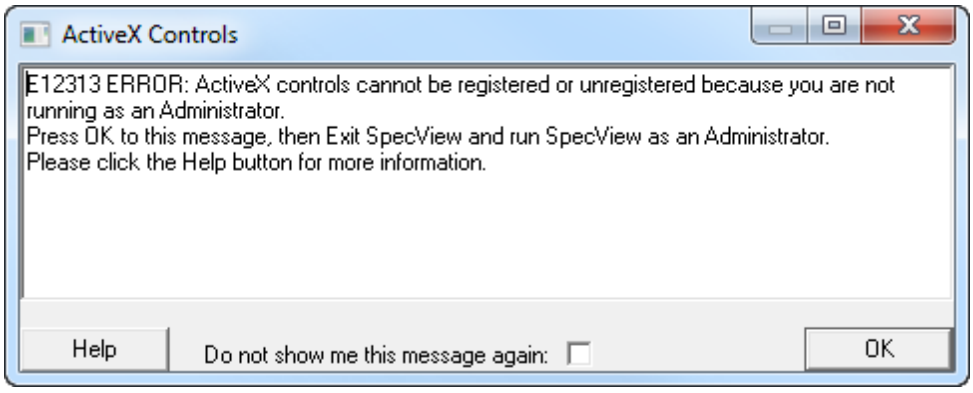
16.14 ActiveX Need To Be Administrator

E12314 ERROR: ActiveX environment is not setup:



This error will occur if SpecView wasn't installed [181] by a user with 'Administrator' privileges on this computer which would have prevented the Registry from being setup for SpecView to run correctly. This error will cause SpecView to exit. It will be necessary to run SpecView as an Administrator [511] once. After that you just run it as a standard user.

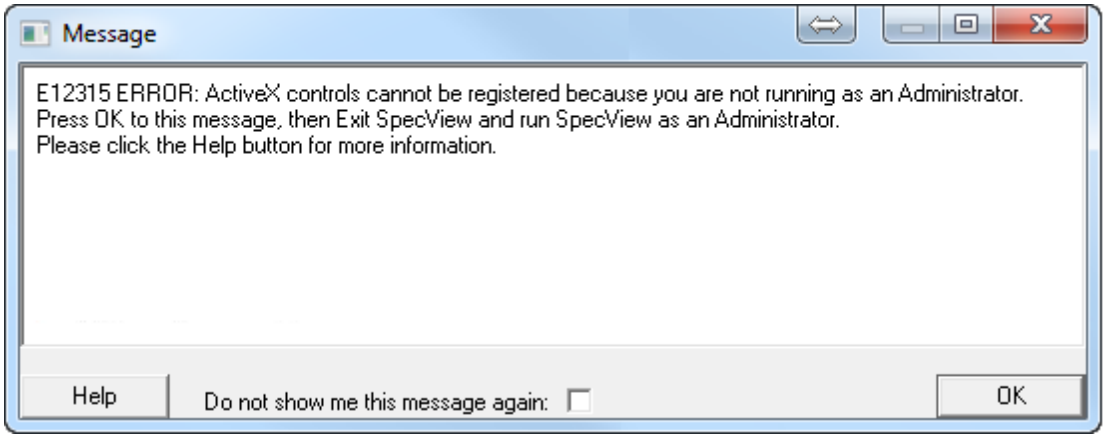
E12313 ERROR: ActiveX controls cannot be registered or unregistered because you are not running as an Administrator:



This error will be seen when trying to register or unregister [773] a control when not running SpecView as an Administrator [511]. It is necessary for SpecView to update the Windows Registry during this process, which requires Administrator privileges.

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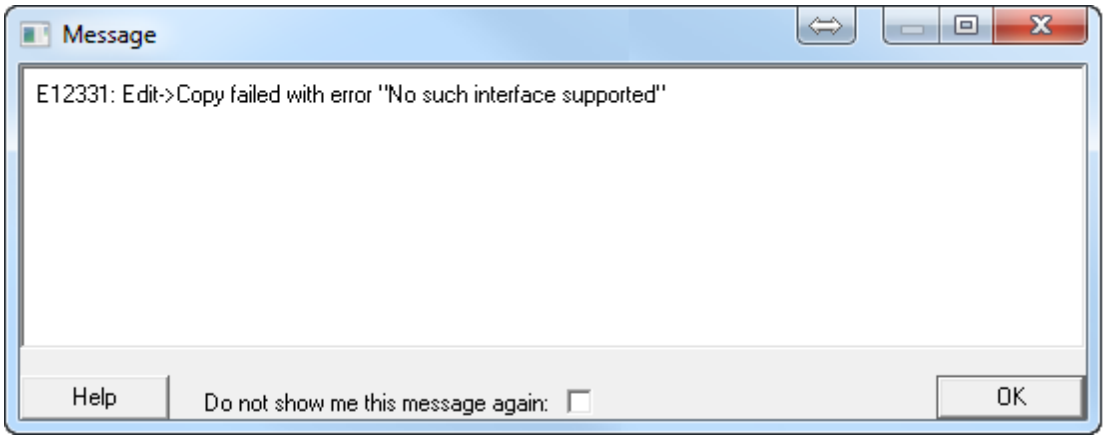
E12315 ERROR: ActiveX controls cannot be registered because you are not running as an Administrator:



This error will be seen when trying to restore[193] a project which contains ActiveX controls which need to be registered when not running SpecView as an Administrator[511]. It is necessary for SpecView to update the Windows Registry during this process which requires Administrator privileges.

16.15 ActiveX Edit->Copy not supported by this control

E12331 Edit->Copy failed with error 'No such interface supported':



This error will occur if the ActiveX control itself doesn't support the actions 'Copy' or 'Cut' from the Edit menu[287].

To make a copy of this control it is necessary to create another instance of it.

To delete this control please use Edit->Delete instead of Edit->Cut.

See also:

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ActiveX Overview 766

ActiveX - Steps to add an ActiveX Control 766

16.16 ActiveX Rolling Average

This describes the steps to setup the SVRollAv1 ActiveX Control to compute rolling averages within SpecView.

However in order to use this control it is necessary to have the ActiveX Class 1 option enabled on the dongle. Please contact your SpecView representative for the price of this option.

SVRollAv1 functionality:

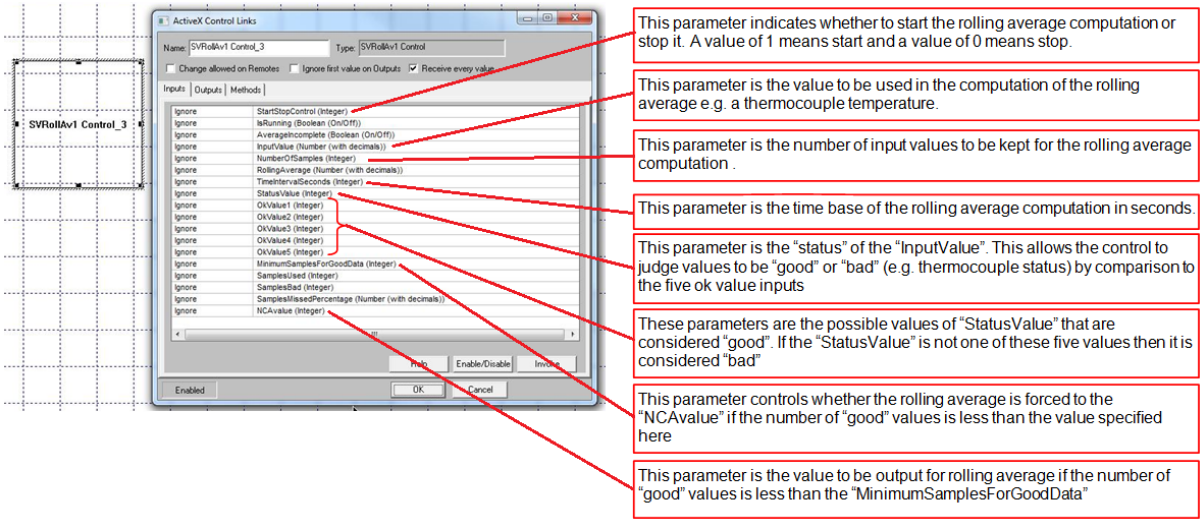
- SVRollAv1 provides a rolling average output computed from an input value. As with all ActiveX controls within SpecView if an integer or string is linked to this input then it will be converted to a number (with decimals).
- The rolling average computation can be stopped and started at will.
- A number of history items must be specified as inputs. This provides the base from which the rolling average is computed. The number of history items can be up to 2,000,000,000.
- A time base in seconds is required which controls the rolling average computation, reading an input value and computing the new rolling average.
- The control has the concept of “good” and “bad” values according to a “status” input value which is checked against a list of “good” input values. The number of values in history that are “good” or “bad” are available as outputs, as is the percentage of samples “missed” (caused by “bad” values).
- The rolling average can be set to an NCA (Not Currently Available) value (set by an input with a default of 0) if not enough values are “good”. There is also an output Boolean to indicate this state.

How to ‘wire’ the SVRollAv1 ActiveX control into SpecView:

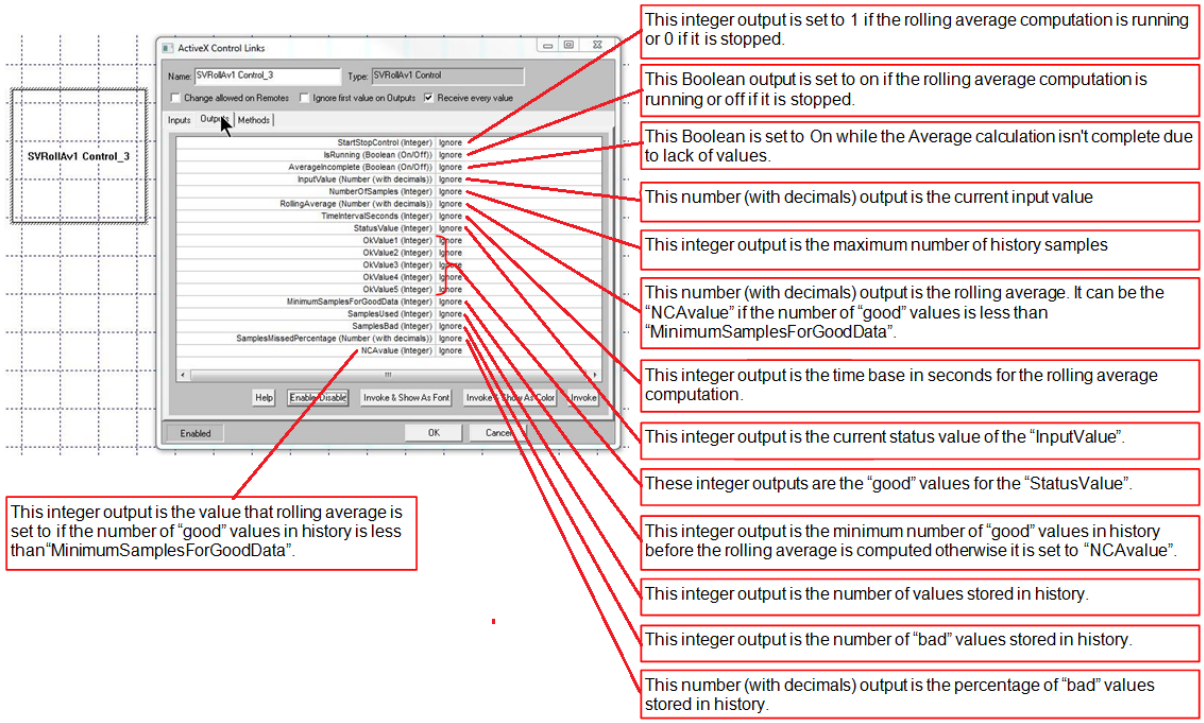
- SVRollAv1 will only work with recent versions of SpecView.
- Ensure that SVRollAv1 ActiveX control is registered 773 on the SpecView PC.
- Insert an SVRollAv1 ActiveX Control onto a GDW (screen) and then open the “Link to Variables…” box as below:

On the "Inputs" tab:

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Then on the "Outputs" tab:



If the Status value and OK values are not needed then specify 0 against these inputs:

"StatusValue"
"OkValue1"
"OkValue2"
"OkValue3"
"OkValue4"
"OkValue5"

This will cause all of the "InputValue" values to be considered "good".

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Part 17

17 Troubleshooting

Troubleshooting Instrument Communications 790
Hyperterminal 795
Telnet 796
Technical Support 798
Frequently Asked Questions (FAQ) 904

See also: Improving Performance (Speed) of Instrument Communications 569

17.1 Troubleshooting Instrument Communication

What to do if your instrument is just displaying 'N/R' instead of the correct values when in Runtime mode:

For serial comms connections - please first check the wiring (daisy-chain), see here: Instrument Installation and Wiring 565

Is this a new installation of SpecView, which has not as yet ever worked?
Is this happening for ALL of the instrument's variables?
If the answers to the above 2 questions is Yes, then:

- Has the wiring between the instrument & the PC been checked?
- Has the instrument's manufacturer's manual been checked for any relevant information? For example, the setting of the instrument's address (address 0 should not be used).
- Is the instrument's **address**, **baud-rate** and **parity** correctly set on the instrument?
- Is the instrument's **address** is correctly specified in SpecView? (Click the Variables List 517 tool, select the instrument's name and click **Properties**, then click **Address Help**)
- Check the instrument is connected to the correct COM port, as specified in SpecView.
- Does the COM port on the computer work? (Use HyperTerminal 795 to test the COM port). And is the correct type of COM card fitted in the instrument?
- Is the instrument's **baud-rate** and **parity** correctly specified in SpecView? From Runtime mode use the 'Setup COM Ports' menu command on the Options menu 276, click the tab for the appropriate COM port. Check the baud-rate & note down the name & version number of the driver. When the Settings are show 'Default' that means that the data-bits, parity & stop-bits have been set according to the factory defaults as specified in the instrument manufacturer's manual.
- Is the instrument using the correct protocol? (for example, ASCII protocol versus modbus protocol)
- Is the instrument terminated correctly?
- Do you need a converter, which is needed for: RS422 567 or RS485 568 serial comms? (The reason the B&B converter is recommended for SpecView is because it has 'Automatic Send Data Control', which automatically switches from transmit to receive).
- Does the converter work? Has it been wired up correctly according to the wiring diagram supplied with it? Does it require power and is it switched on? Have any dip-switches been set according to the instructions? Do other connected instruments work? Is it possible to swap it around to test it?
- Has SpecView's Online Technical Notes been checked for this instrument type? Access www.specview.com then click Download and click FTP-site and open the TechNotes folder.
- Some instruments have to be setup to allow their variables to be read. For example, setting the access level.

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- If the N/R is coming from an OPC Server[579], then contact your OPC Server's administrator to see if the OPC Server is running correctly.
- If all of this has been checked then please contact your instrument's supplier.

If SpecView has been working successfully, but has now stopped working, or if just some of the instrument's variables are displaying as 'N/R' or 'NPV', then:

- Firstly be aware that some instruments are designed in such a way that, depending on the instrument setup, instrument mode or program considerations, some values are legitimately unavailable - these variables will be shown as 'NPV[253]'s. This is normal & correct behaviour for that instrument. Two common examples of this are: 1: Programmer instruments, where segment variables change their availability depending on segment type. 2: Instruments where optional hardware is not present, for example output boards not fitted, or auxilliary inputs not configured/ fitted. Please see the instrument manual for which variables may or may not be available under these circumstances.
- Is this an intermittent failure?
- What is the value of the variables: **SpecView.CommsErrors**, **SpecView.GoodComms**, **SpecView.CommsErrorCode, Specview.CommsErrorDescription** & **SpecView.CommsErrorItem**? These variables can be added to a GDW and/or logged. To Log these variables, use 'Database->Show Logging in Variables List' from the Setup menu[305] and check the boxes next to these variables in the Variables List[313], then from Runtime mode use Convert Log File from the Logging menu[273] to create a Log File Convert Format[608] which contains these variables. Note that the variables will not be listed in the Log Format Setup box until they have been logged according to the rate defined in Preferences - Logging[464] or from the action Logging: On/Off[428].
- Has the wiring between the instrument & the PC been checked and tested?
- Has anything been altered or added to either hardware or software?
- Has SpecView's Address Help for the instrument been checked? To view this go into Edit mode, use the Variables List tool, select the instrument's name and click the **Properties** button, then click **Address Help**.
- Has SpecView's Online Technical Notes been checked for this instrument type? Access www.specview.com then click Download and click FTP-site and open the TechNotes folder.

Using the Line Writer to troubleshoot comms problems:
This will create a file which lists the date, time & cause of any comms errors.
(This will be a file separate to SpecView's standard Log Files[589] or Log File Reports[606]).

To do this create a Strategy Controller[666] value based event: 'When CommsErrors changes' that watches SpecView.CommsErrors and when it changes does the action SpecView: Write Line to file/ printer[452] of:
+CommsErrors.csv %%SpecView.Date%%,%%SpecView.Time%%,%%SpecView.GoodComms%%,%%SpecView.CommsErrors%%,%%SpecView.CommsErrorCode%%,%%SpecView.CommsErrorItem%%, %%SpecView.CommsErrorDescrption%%

It is also a good idea to remove the commas from the date format in Preferences - Display[461] to prevent these commas from adding unnecessary columns to the CSV file.

Using SpecView's Driver Debug:

If all the above has been thoroughly checked then the next step is to send your SpecView representative Debug files.
These debug file(s) need to be as small as possible, at the same time as being as relevant as possible. The extra effort taken to create these will be much appreciated by your SpecView representative and will enable them to give you an answer promptly.

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Therefore the aim is to have a minimal Project (by using the **New Manual Project**[204] button) with just a single GDW displaying just one of the instrument variables which is causing trouble.

Alternatively, create a new GDW in an existing Project, and put just one of the variables which is causing trouble out on to it. Then using File->Preferences disable Logging (on the Logging tab), disable Alarms (on the Alarms tab) and Strategy (on the Strategy tab). Ensure that none of your other GDWs have File->Auto-open on Runtime enabled. (NB: Once the problem has been resolved these changes will need to be reversed).

To create the Debug file(s) follow the steps below:

If your instrument is NOT using the Modbus (or Modbus TCP/IP) protocol then use:

DEBUG = 1

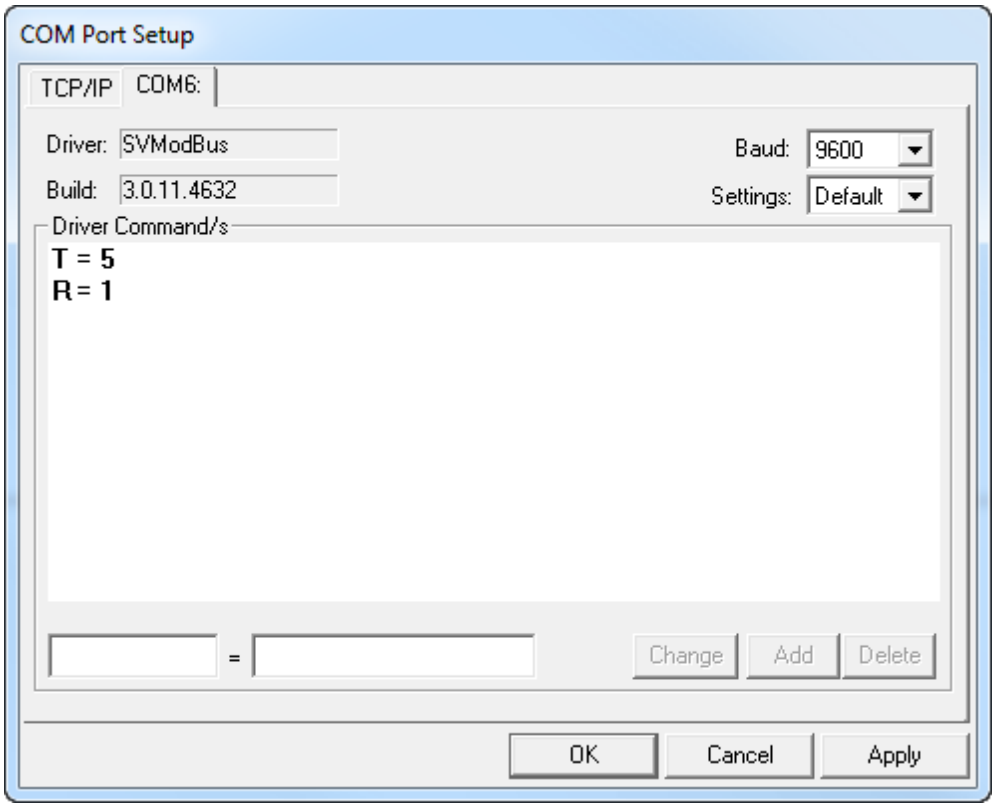
Note: Not all drivers support DEBUG = 1, in which case you will see the error: 'Driver commands not accepted' if this occurs please contact your SpecView representative.

If your instrument is using the Modbus (or Modbus TCP/IP) protocol then use:

DEBUG = 15
DEBUGSIZE = 1
DEBUGAUTODEL = 9 (This will create up to nine 1Mb files)

To set these up:

From SpecView's Runtime mode use the Setup COM Port menu command from the Options menu[276], click the appropriate tab for the port being used.
In the bottom-left-hand box enter DEBUG, then in the next box enter either 1 or 15 appropriately, then click the **Add** button:



The Driver Commands[206] box will now show the value for DEBUG.
Then (if required) do the same for: DEBUGSIZE = 1 and DEBUGAUTODEL = 9

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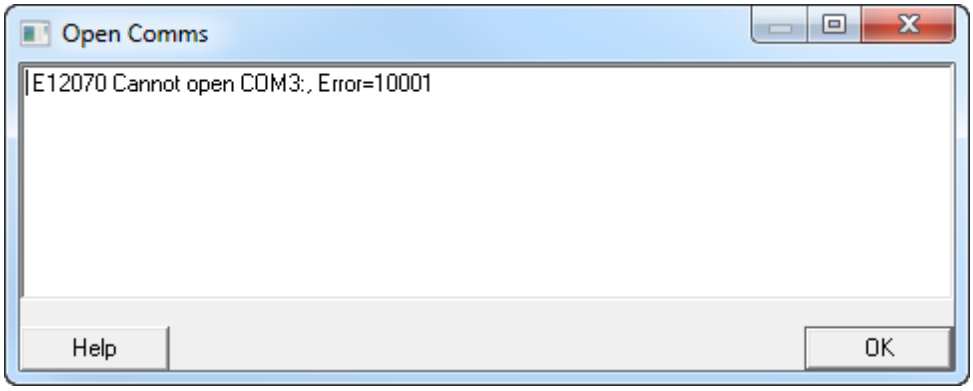
Then wait for at least one minute, but no more than three minutes, then Exit SpecView

In your Project's folder under SpecView's installation folder (usually C:\SV3) you should now find some .TXT files where the names start with 'debug', for example: debug_COM1.txt
Email these file(s) to your SpecView representative.
You will also need to email an SVA (SpecView Archive) of your Project. To do this use SpecView's **Archive** 193 button (which is on the Projects Found box when SpecView starts up). Ideally this should be done with the 'Include log files' checkbox un-checked.

Remember to set Debug back to zero afterwards.

See also: Handling lost COMMS 834.

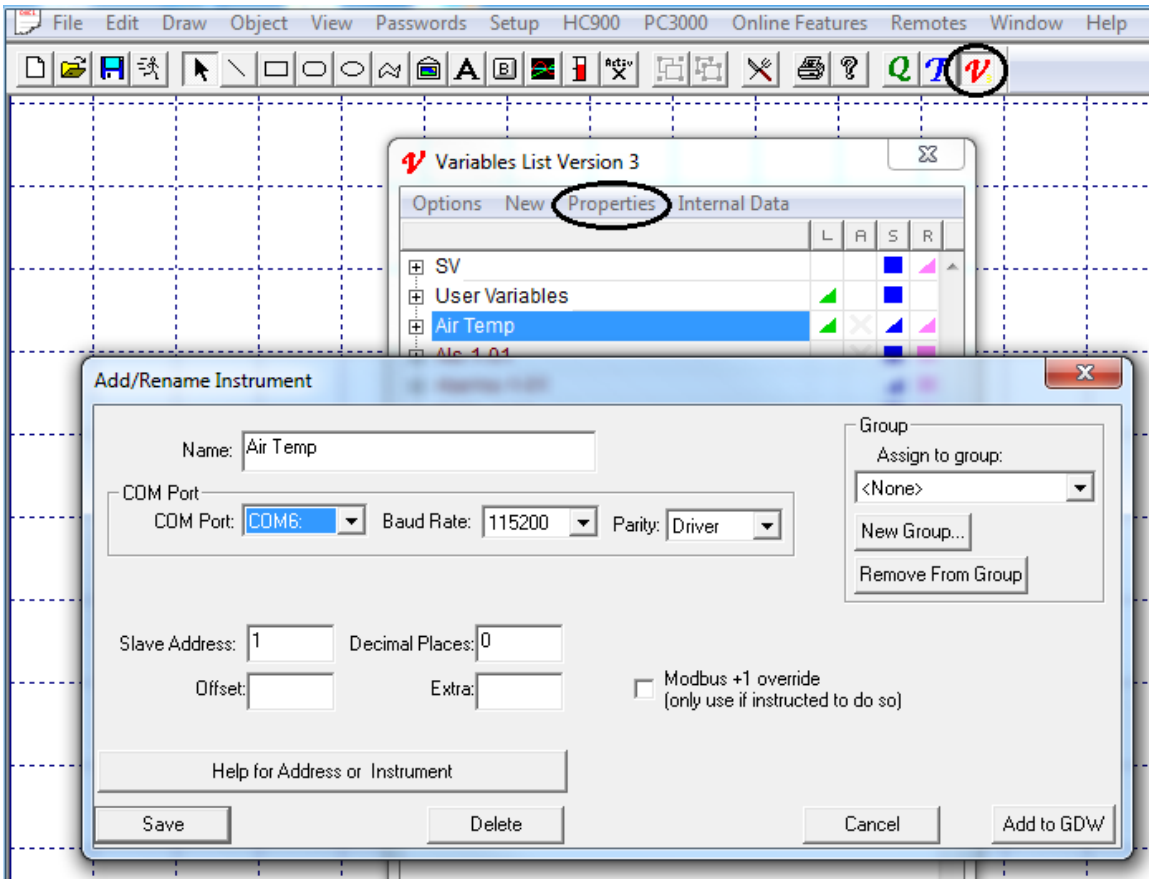
17.2 Cannot Open COM Port



There are many reasons why this error can occur:

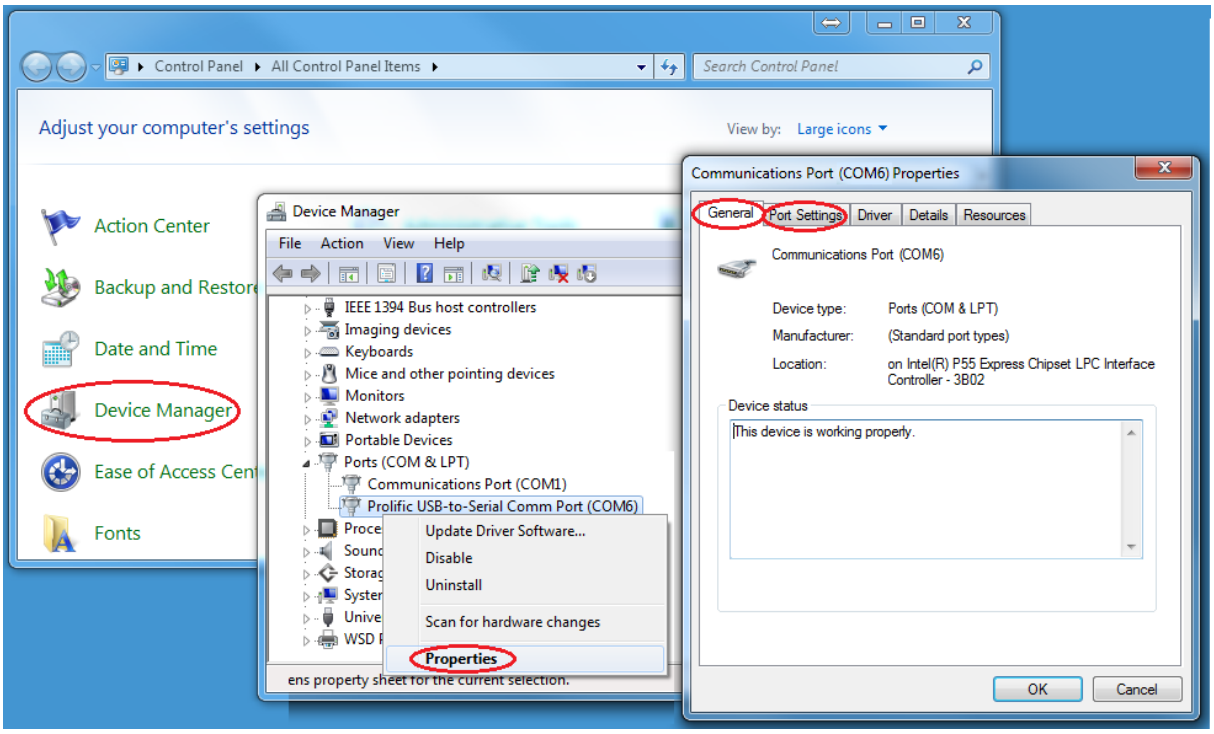
Firstly, from SpecView's Edit mode 282 open the Variables List 313 and check the Properties 326 of the instrument to see which COM port(s) SpecView is using to communicate with the instrument(s):

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Then use the Windows Control Panel Device Manager to check the status of the COM port:

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Use Hyperterminal[795] to test the COM port.

If there are many instruments using the wrong COM port then use **'Swap COM ports'** from the Setup[305] menu to change which port SpecView is using to communicate with the instrument(s).

Note that if the instrument(s) are connected to a COM port which has a number above 9 then it will be necessary to set MaxPorts[458].

17.3 HyperTerminal

How to use HyperTerminal to test if the COM port that the instrument(s) are connected to is functioning correctly:

HyperTerminal may already be installed, however it isn't available by default on Windows 7.
To download this very useful tool:

> Google for: Windows 7 Hyperterminal
> Alternatives include 'putty'

Once downloaded, run HyperTerminal from the **Start** button: Programs menu (or it may be under the Accessories - Communications sub-menus).

From HyperTerminal's 'Connection Description' dialog enter any name & choose any icon, then click **OK**.

On the 'Connect To' dialog - to test, for example, COM1 then select 'Direct to Com1' from the 'Connect using' list box, and click **OK**, then click **OK** on the 'COM1 Properties' dialog leaving the 'Bits per second' and the other settings as they are.

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If the status bar along the bottom of the window now says 'Connected 00:00:00' and starts counting up in seconds, then COM1 is OK. Otherwise an error dialog will be displayed. If HyperTerminal cannot connect to the COM port, then SpecView will also be unable to communicate with it.

17.4 Telnet

Use the Windows utility 'telnet' to check if it will be possible for SpecView to connect to an instrument on a given IP address over TCP.

Note: On Windows 7 the 'telnet' client utility program is not available by default.
Administrator privileges will be required to enable it.
Go to the Windows Control Panel 'Programs and Features' to enable it. Click 'Turn Windows Features on or off' (on the panel on the left of this box).
When the list is displayed enable (tick) 'Telnet Client'.

This is an example of testing the connection to a an instrument at IP address: 192.168.1.64 using port 502:

First ensure that SpecView is NOT running because it is not possible to have both telnet and SpecView connected at the same time.

Open a 'Command Prompt' window, then enter: (Note that there is a just a space between the IP address and the '502' port number)

telnet 192.168.1.64 502

If this gives an error then there is a problem with the network, in which case try:

ping 192.168.1.64

The 'ping' utility just checks if an address exists (so it doesn't need the port number), whereas 'telnet' actually connects, which is more useful when troubleshooting.

If 'ping' works, but telnet doesn't then possibly the instrument isn't answering on port 502 (***Port 502 is the default port for Modbus instruments over TCP***) in which case check the port settings on the instrument.

If 'telnet' gives a blank screen with a flashing prompt, then it has connected successfully.
Press CTRL+] to get a '>' prompt, then to close telnet type: quit

If telnet connected successfully, then once telnet has closed (it is not possible to have both telnet and SpecView connected at the same time) then SpecView should be able to connect. If not then please contact 798 a SpecView representative.

17.5 Reporting Bugs

To report an issue with this release of SpecView please email bug reports to V3bugs@specview.com detailing:

Name:	
Company Name:	

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Email:	
SpecView Version & Build number:	
SpecView Dongle Serial Number:	
Microsoft Windows Version:	
Using SpecView 32bit or 64bit:	
Error Message:	Was an error message displayed and if so what was it?
Reproduceable:	Does the problem reoccur?
Configuration/Project Name:	Please also if possible email an Archive[193] of the configuration.
Instruments:	Please give manufacturer, model(s), COM port(s) and address(es).
Runtime/Edit Mode:	Did the problem occur in Runtime or Edit Mode?
Crash:	Did it crash? If so, when & what was the module and version that it crashed in?
Comments:	Please give full details of the problem, ideally with screenshots.
Priority:	High/Medium/Low

If a more serious problem occurs, such as a crash or hang, then please generate a dump file[797] and send[798] it to SpecView.

17.6 Generating Dump Files

If a more serious problem occurs, such as a crash or hang, then it is possible to generate a DUMP file that can be sent[798] to SpecView for analysis to help investigate the problem.

Using PROCDUMP

There is a utility available from Microsoft called PROCDUMP.EXE

This is included the SpecView Version 3 and will be in the C:\SV3\ folder.
It can be run automatically each time SpecView is run from Preferences Debug[470].
Note: In some versions of Windows Procdump will generate a dump file each time the File->Open box is displayed, this is a known Windows problem and can be ignored.

Ensure the PROCDUMP.EXE file is in your main SpecView folder, this is usually C:\SV32 for Version 2.5, or C:\SV3 for Version 3.

Here is the recommended way of using it:

Either before SpecView is running, or after you have started SpecView:

Start a Command Prompt, then type one of these commands:

For Version 3 of SpecView:

```
CD  \SV3       (or wherever you have installed SV3)
PROCDUMP  -E  1  -H  -MP  -N 10  -W  SV3
```

For Version 2.5 of SpecView:

```
CD  \SV32       (or wherever you have installed SV32)
PROCDUMP  -E  1  -H  -MP  -N 10  -W  SV32
```

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You can put this into a Batch (.BAT) file to save typing this every time.

The resulting dump file is typically named: SV3_Date_Time_.DMP

Please then ZIP the DMP file to make it much smaller and eMail[798] it us, or use a file exchange service such as DropBox to allow us to collect it.
Please also email these details[796].

Creating DUMP (.dmp) files using TaskManager

This is not recommended - please use Procdump as described above.

If an error message appears saying that a crash has occurred, immediately open the TaskManager and click the Processes tab, find either ***SV3_32.exe*** or ***SV_64.exe*** in the list and right-click on it and choose **Create DMP File** from the popup menu.

However, it is difficult for us to debug a 64-bit[189] DMP file from a 32-bit[189] SpecView running on a 64-bit system.

Therefore, if you are running SpecView 32bit on a 64bit system (because of ActiveX), then it is necessary to run a 32bit version of the TaskManager to create a DMP file.
The 32bit TaskManager is located in ***C:\Windows\SysWOW64*** folder and the name of the file is ***taskmgr.exe***

*Note: Be careful, because if the normal 64bit TaskManager is running, then starting the 32bit one from the **\WINDOWS\WOW64** folder will appear to work, but it will just bring the 64bit TaskManager to the front. It is possible to check which one is running from the TaskManager Processes list because 'taskmgr.exe' will have *32 after it for the 32bit version, or nothing after it for the 64bit version.*

17.7 Technical Support

If you encounter a problem with SpecView, in the first instance please contact your SpecView distributor.

The latest version of SpecView can be downloaded free-of-charge from our website http://www.specview.com
for 2 years from the date of purchase. However, if SpecView was originally purchased over 2 years ago, then there will be a charge for the update. Please contact your SpecView supplier.

Please also check the Frequently Asked Questions[904] section of this Help.

However, if you need to contact SpecView's Technical Support then use one of the following:

- Electronic Support e-mail and Internet[799]
- Telephone Support in The Americas and the Far East[799]
- Telephone support in the UK[799]
- Telephone support in Europe and the rest of the World[799]

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Please quote the version number of SpecView that you are using, this can be found by using the About SpecView menu command on the Help menu[278]. Please give both the version number & the 3-digit build number.

If you have purchased SpecView, then please also give the Serial Number of your dongle.
The Serial Number can be found either on the printed label attached to the dongle, or by using the Registration Information menu command on the Help menu[278].

If you have problems with a specific Project, it is most helpful if the entire problem Project folder is saved to a single file and attached to an e-mail message. This can be done using the Archive/Restore[193] button. This will allow our Technical Support team to run exactly what you are running.

You may also be asked to click the Technical Information[309] button on the About SpecView box (by using the About SpecView menu command on the Help menu[278]) to provide further details on your specific installation.

Document control: SpecView User Manual for Version 3.1 - Revision: 31.269

17.7.1 USA Contact Numbers

Telephone: (253) 853-3199
Fax: (253) 853-3801
If dialing from outside the USA and Canada, the country code is (+1)
Time zone: PST (GMT -8 Hours)

17.7.2 UK Contact Numbers

Telephone: (01825) 766 566
Fax: (01825) 766 966
Time zone: GMT

17.7.3 Europe Contact Numbers

Telephone: (+44) 1825 766 566
Fax: (+44) 1825 766 966
Time zone: GMT

17.7.4 Internet Support

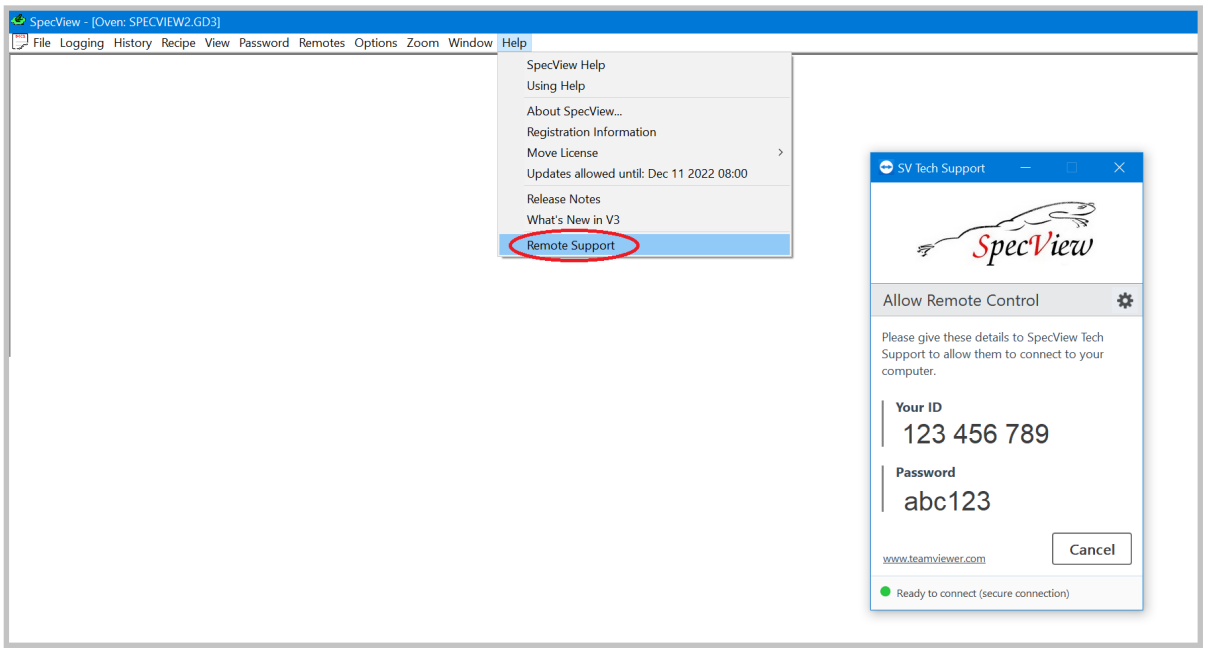
Sales and application information: sales@specview.com
Technical Support: support@specview.com
World Wide Web page: http://www.specview.com

Remote Support
If your computer is connected to the Internet, then we can quickly and easily help you with SpecView Technical Support issues, by taking control of your computer using SpecView Remote Support. Only run this application when instructed by SpecView's Technical Support staff.

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This is totally secure (see below), requires no installation or configuration by you or your IT department, and will allow us to help you in the quickest possible way.

When instructed by SpecView's Technical Support staff, run the Remote Support application from the Help menu:



And tell us the ID and Password.
We will then be able to take control of your computer, so you can sit back & watch what we do, whilst discussing the problem by phone to reach a quick resolution.

Security
The SpecView QuickSupport application is completely secure because:

- It is only active when you run it - no files are installed on your computer that would allow any one else to get in without your knowledge.
- The ID is unique to your PC.
- The password is valid for this session only, and will be different the next time you run the program.
- The TeamViewer System is managed by secure encrypted servers owned by the TeamViewer company.

Read more from TeamViewer's website: www.teamviewer.com and their security statement here: www.teamviewer.com/products/security.aspx

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Part 18

18 Quick Start Guide

This Quick Start Guide covers the installation and initial configuration of SpecView as a step-by-step guide to the most frequently used features of SpecView:

Quick Start:

Quick Start - Overview 802
Quick Start - Starting SpecView 804
Quick Start - Manual Project 806
Quick Start - For Instruments using the Modbus Protocol 811
Quick Start - Automatically detect instruments and display instrument views 812
Quick Start - Add a variable to the GDW 815
Quick Start - Draw a trend chart 819
Quick Start - Define a second GDW 822
Quick Start - Add buttons to switch between GDW's 823
Quick Start - Add a Bar chart 825
Quick Start - See how it works in Runtime mode 827

18.1 Quick Start - Overview

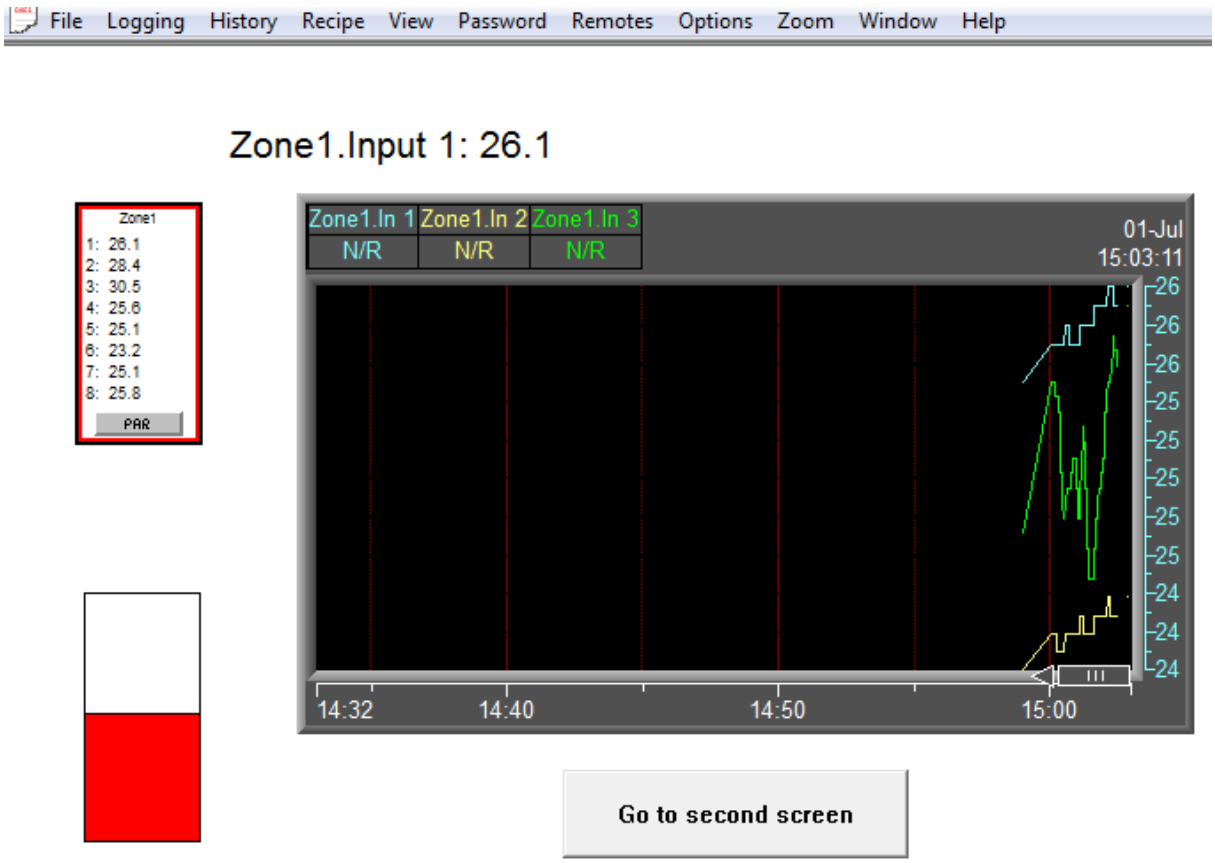
This Quick Start Guide covers the installation and initial configuration of SpecView.

When the computer is connected to an instrument via a serial port (RS232/RS485/RS422/USB) or by Ethernet (TCP/IP), SpecView gets data from and can send data to the instrument. Unlike conventional SCADA (Supervisory Control and Data Acquisition) software, where each data point has to be defined by the user, SpecView has a pre-built database of hundreds of instruments. Most instruments, if already connected to the computer, can be **Automatically Detected** by SpecView. If the instrument is not connected to the computer, or if that instrument does not support the auto-detection feature, the user selects it from a list. In SpecView this is called **Manually Defining Instruments**.

Below is a step-by-step guide to the most frequently used features of SpecView:

Once all the steps below have been followed, the screen should look similar to this:

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*Note: The **Instrument View** (the Zone1 box at the top left) will depend on the specific instrument being used.*

The steps are as follows:

1. Installing SpecView 181
2. Starting SpecView 804

If there are Instrument(s) connected, then follow:

3. Automatically detecting instruments and displaying Instrument Views 812

Or, if there are no instrument(s) currently connected to the computer then follow:

4. Manual Definition 806

and continuing:

5. Add a variable to a screen 815, known as a GDW (Graphical Display Window)
6. Draw a Trend Chart 819
7. Define a second GDW 822
8. Add buttons to switch between GDW's 823
9. Add a Bar chart to a GDW 825
10. See how it works in Runtime Mode 827

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Once installed[181], follow through these steps by first clicking the link: Starting SpecView[804].

When running SpecView there are numerous 'Help' buttons that will open a relevant topic in the Help, or press the F1 key at any time.

Note: SpecView's name for each screen is a GDW[503] (Graphical Display Window).
Each GDW is saved as a file on disk with a filename extension of .GD3 (similar to a Word document having a filename extension of .doc).
From SpecView version 2.5 build 820 (dated 2006), these GDW files have changed their filename extension to .GD3
However, a GDW (or GD3) file is not a standalone file and must be accompanied by all the other files within its Project folder.
An easy way to keep them together when backing-up is to use SpecView's Archive.

18.2 Quick Start - Starting SpecView

Once SpecView is installed, double-click the **SpecView** icon 

or click **Start** and select SpecView from the Programs menu.

Note: For further information on the 32-bit and 64-bit versions of SpecView see: 32bit and 64bit SpecView[189]

Select your language:

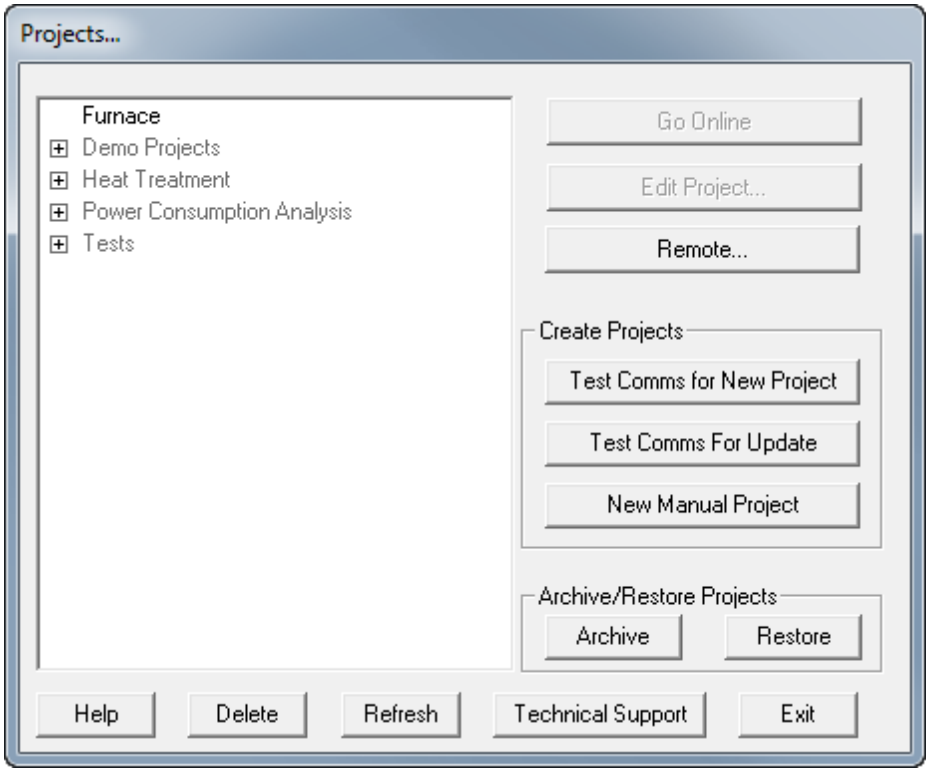


If SpecView is started with a license[33] this box is displayed:

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Click the **Select/Create Project** button to open the **Projects** box, see below:



If there is an instrument connected, click the **Test Comms For New Project** button to Automatically detect[812] instruments and then enter an appropriate name for the new Project.

If there is no instrument connected SpecView can still be configured by clicking the **New Manual Project** button which goes to Manual Project[806]

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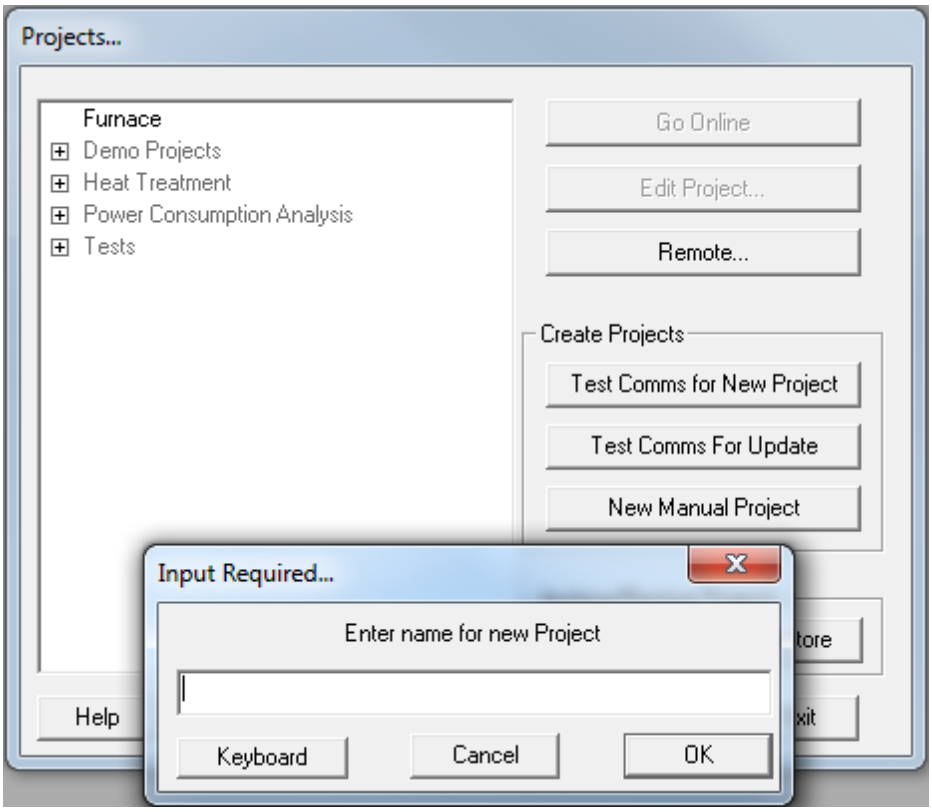
If SpecView was started **without** a license [31] connected there will be limited functionality [31], in this case click the **Demo** button to open the **Projects** box, as shown above.



18.3 Quick Start - Manual Project

If you have no instrument connected clicking on **New Manual Project** will display the **Input Required** box

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Enter a name for the project. SpecView will create a sub-folder with this name in the SpecView folder (which is normally C:\SV3\). The name you enter should follow the Windows file naming rules [521] and should not be too long.

Remember this name. This folder will be where all log files and project files will be stored. Log Reports will also be stored here unless another folder is specified.

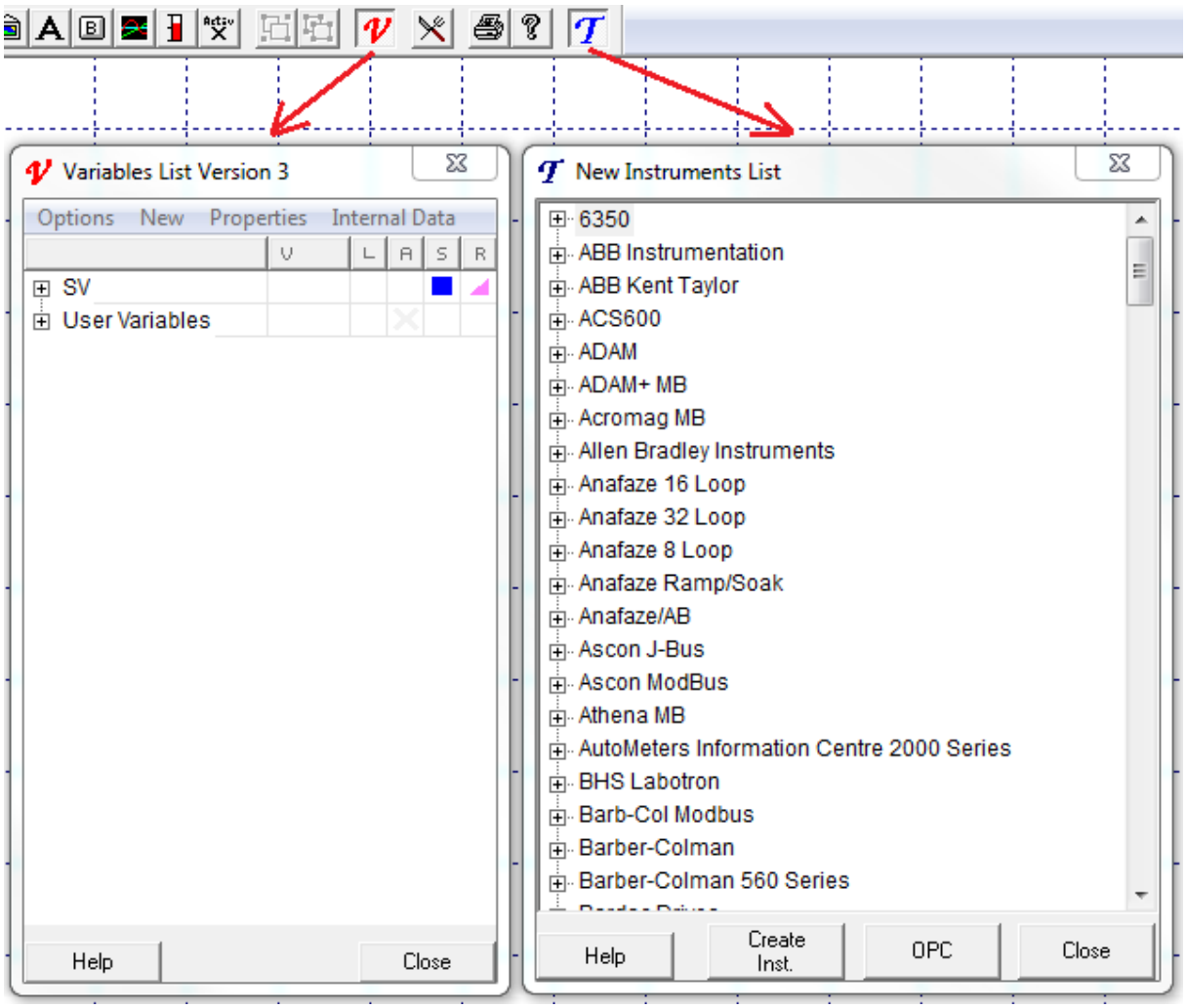
When a name has been entered click **OK** and this will immediately go into Edit Mode displaying a blank Graphical Display Window (GDW) grid.

Click the Variables List tool  on the Toolbar to display the Variables List. At this stage the only item listed will be SpecView.

Note: When using the Toolbar, move the pointer over a tool and the Tool Tip will say what it does.

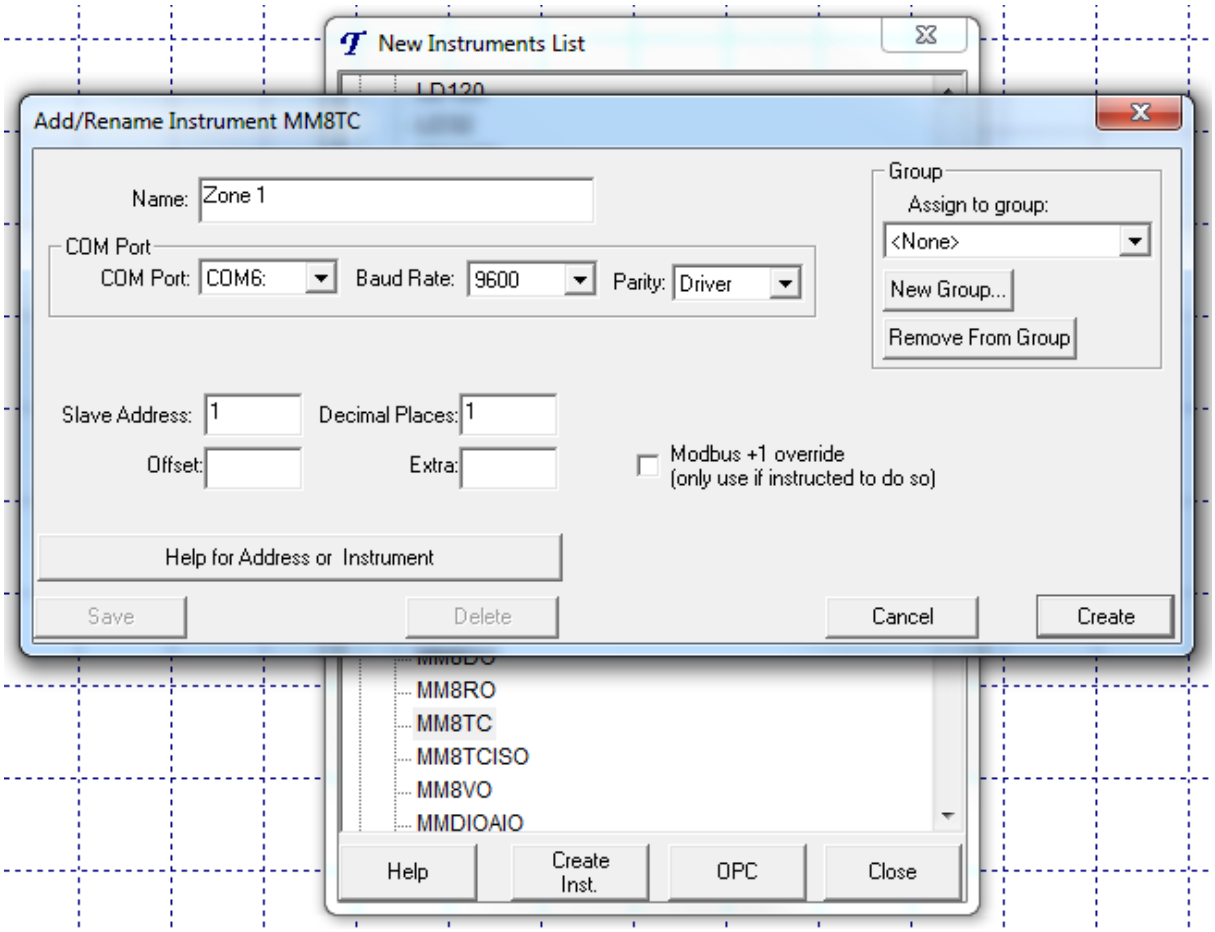
Click the Templates tool  on the Toolbar to display the Templates List, which will list the pre-defined instrument types:

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Scroll down the list of available instruments to find the name of the instrument that is intended to be connected.
Click the ⊞ symbol beside the instrument to display the specific instrument types. Select the appropriate one, then click **Create Inst**.

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Choose the **COM Port** from the list (for example COM1) and enter the **Slave Address** for the instrument together with the address **Offset** if needed and the number of **Decimal Places** that the values will need to show.
(To add instruments at COM ports greater than COM9 see setting MaxPorts[458])

Extra: This is only used by instruments like the Honeywell HC900 to access the the SPP block's Profile Descriptor Fields.

For help click the **Help for Address or Instrument** button.

For more information on Modbus addressing: Modbus instrument addressing[811]

The instrument can be added to a group which allows a number of instruments that are being used for a specific purpose to be kept together in a logical way.
For example, a furnace, warehouse, etc.

Enter the Baud Rate[206] and Parity[206] appropriate for the instrument and click **OK**.

Please consult the instrument manufacturer's manual for more information.

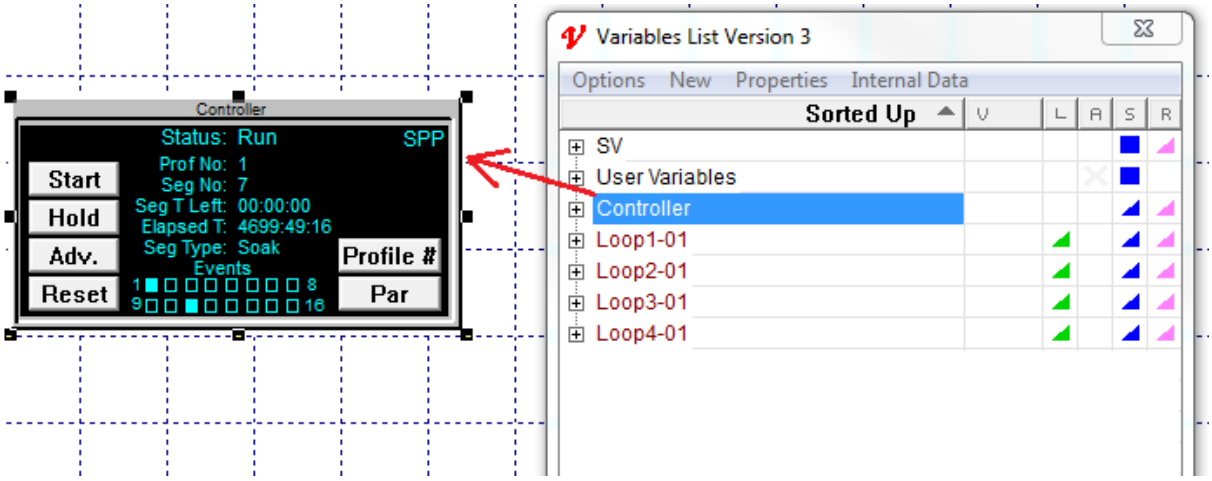
Note: To test if the COM port that your instrument(s) are connected to is functioning correctly[795].

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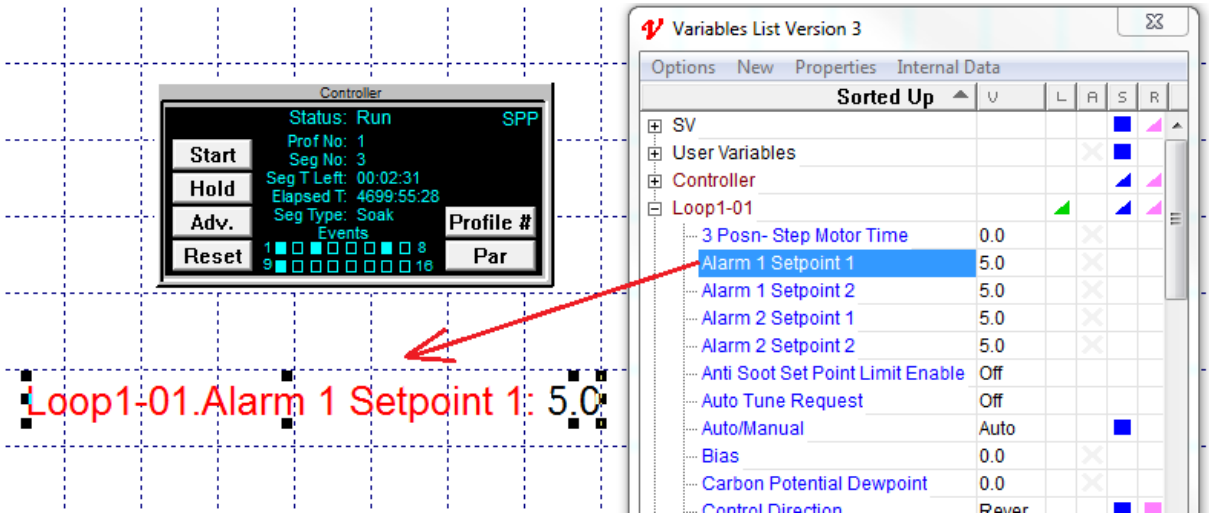
The instrument has now been defined within SpecView and will be listed in the Variables List.
If the instrument has a large number of parameters, such as a multi-loop controller, then the parameters will be divided into a number of 'logical instruments' called Instrument Views.

For example, an 8-loop controller could have an Instrument View containing the parameters for the controller itself in addition to 8 Instrument Views containing the parameters for each of the loops.

The instrument View can itself be dragged out onto the GDW:



Parameters can be dragged out onto the GDW individually:



Or a number of parameters can be multi-selected and dragged out.
If using multi-select then the parameters will have additional 'handles' around them, which can be used to spread 313 them out.

This is now configured as if the instrument was already connected and you had clicked the **Test Comms for New Project** button to automatically detect the instrument. Therefore you can now skip the next section, and go straight to Edit Mode, starting with Add a variable to the GDW 815

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18.4 Quick Start - For Instruments using the Modbus Protocol

If the instrument you are using uses Modbus protocol you need to know how the instrument is configured.
If there is a choice between Modbus or J-Bus protocol choose J-BUS
If there is a choice for Data Bits choose 8 (EIGHT)
If there is a choice for Parity choose NONE
If there is a choice for Stop Bits choose 1 (ONE)
The format of the address specification for Modbus is:

AA,PT;O

Where:
AA: Two-digit address of the instrument in decimal.
P: Number of decimal places for user defined items (see Note 1 below).
T: Type of protocol: J for J-Bus, M for Modbus (see Note 2 below).
O: (Optional) Address offset (see Note 3 below).
Examples:
1,1J Address 1, 0 decimal place, J-Bus parameters
2,1J;2 Address 2, 1 decimal place, J-Bus parameters, offset by 2
10,0M 0 Decimals, Modbus parameters

Note 1 (Decimal Places [496]):
0 / 1 / 2 / 3 SpecView will put a decimal place in the position indicated by this setting. The setting affects those variables where the number of decimals required is based on an instrument setting such as the range that has been selected. Some items, such as Output Power are fixed at a given number of decimal places and are not affected by this setting.
AutoDetect may assume 0 decimal places when detecting instruments. This might result in values being 10 or 100 times too large on displays. If this is the case, then edit the address for the instruments from AA,0T to AA,1T (See below for the meaning of this).

Note 2 (Protocol):
If in ANY doubt, do not enter anything for this item. SpecView will add it for you.
There is often confusion between Modbus 'Registers' and 'Addresses'. With SpecView the user does not need to fully understand the difference but the correct setting MUST be made here. When 'J' (for J-Bus) is used the 'Address' that has been pre-defined by SpecView is sent to the instrument. When 'M' (for Modbus) is used ONE is subtracted from the pre-defined address. SpecView pre-defined instruments ALWAYS assume the address and NEVER the register. Unless advised otherwise by SpecView either leave the letter out or use 'J'.

Note 3 (Address Offset):
Some instrument companies use an address structure so that a particular instrument view can be re-used with the appropriate address offset. This feature is also used with SpecView's 'Generic Modbus' instrument views. The addresses for each instance of the instrument are the same, offset by a fixed number. See Generic Modbus for more details. Also, where this feature is required for a specific instrument, refer to the help for that instrument.

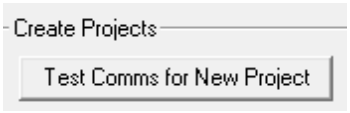
The rate at which the Modbus driver will supply the values of variables from the instruments is defined by the driver command [206] WTTL (default=19 tenths of a second). This can be set using the Setup COM Ports menu command on the Setup menu [305].

For Instruments using Modbus TCP/IP

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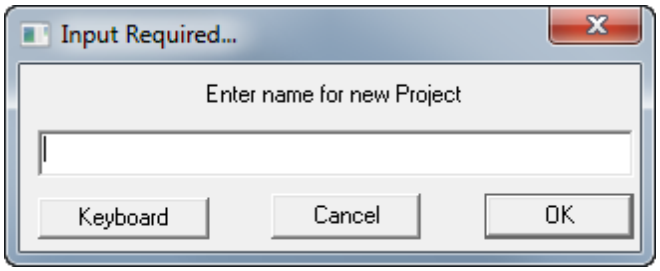
The address, as detailed above, is prefixed with the full IP address followed by a comma.
For example: 192.168.1.99,1,2J

18.5 Quick Start - Automatically detect instruments and display instrument views

Click the 

button, to detect the connected instruments automatically.

The **Input Required** box is displayed:

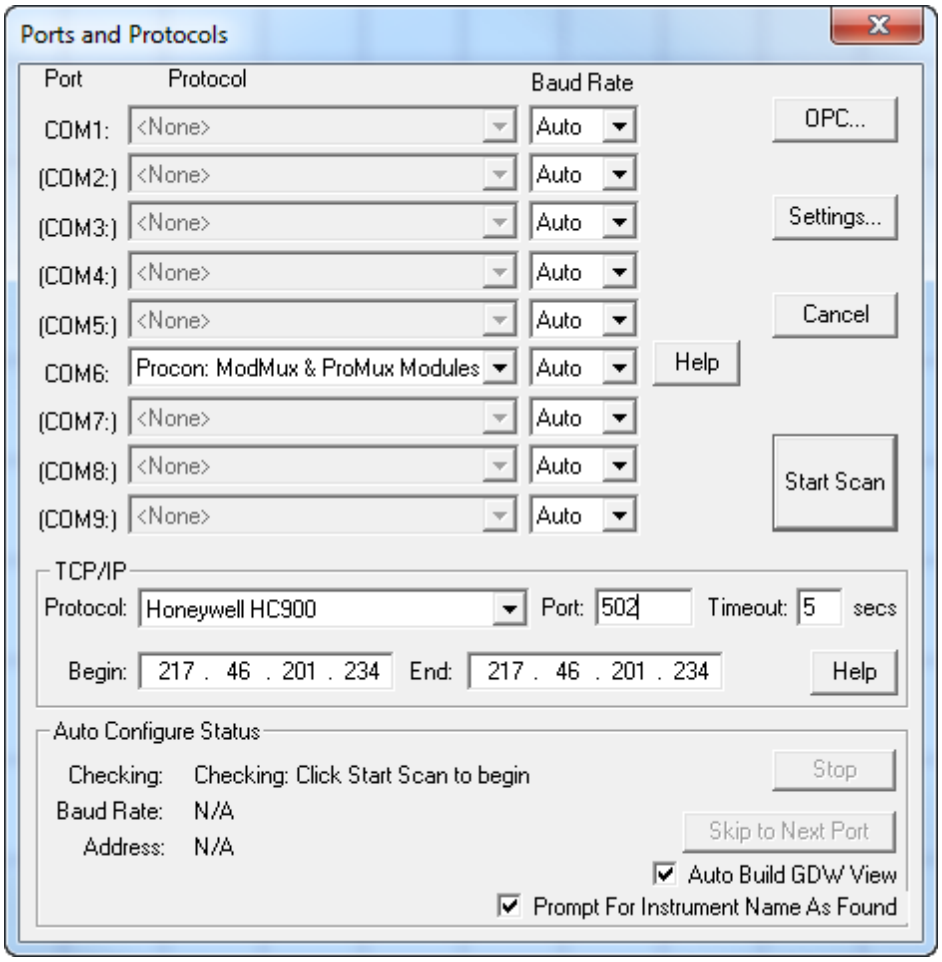


Enter an appropriate name for the project. SpecView will create a sub-folder with this name in the SpecView folder (which is normally C:\SV3), the name you enter should follow the Windows file naming rules [521] and should not be too long.

Remember this name. This folder will be where all the log files and project files will be stored. Log Reports [606] will also be stored here unless another folder is specified.

When a name has been entered for the project, click **OK**, then the Ports and Protocols box is displayed:

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Ports and Protocol
You will need to know which COM port(s) on your computer the instrument(s) are connected to and the type(s) of the instrument(s). If in doubt about this please consult your instrument manufacturer's manual.

For the appropriate COM port(s) select the type(s) of the instrument(s) under Protocol. When you select a protocol for a COM port, a **Help** button is displayed on the same line. Click it for help on the driver selected.

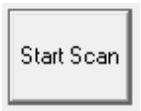
If the default port settings do not match the settings for your instruments, click Settings... to set up[499] the port.

BAUD Rate
If there is any uncertainty as to the BAUD rate[206] used by the instrument then leave it set to 'Auto' to allow SpecView to try a range of BAUD rates. If the BAUD rate is known then set it appropriately.

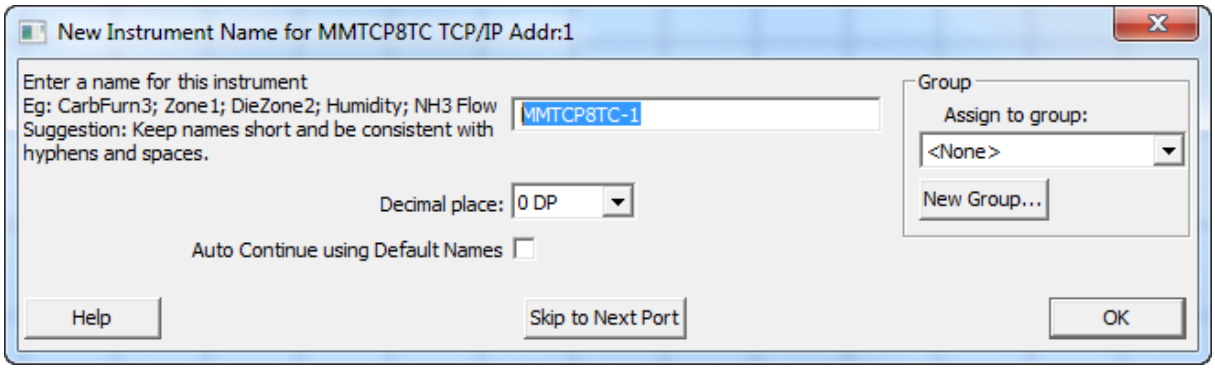
TCP/IP
There is also TCP/IP Auto Detection[201] available for some instrument types.

Start Scan

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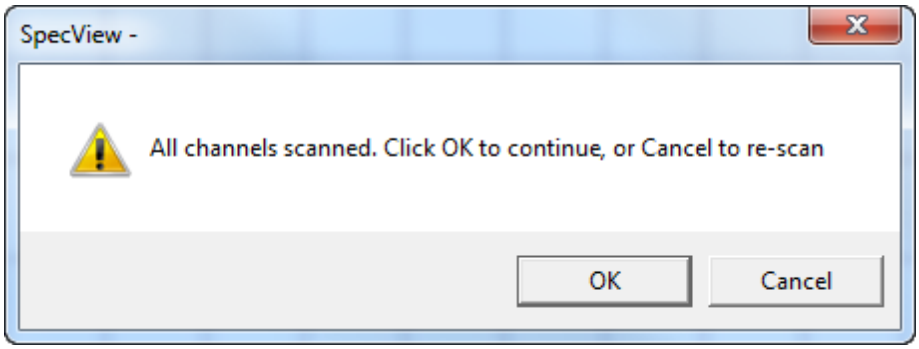
Click 

SpecView will begin to scan the ports and determine what instrument(s) you have connected. As each instrument is found this box is displayed:



This allows the name for each instrument to be assigned (or use the default names), specify the decimal places [496] and if required assign to a group [341].

Instrument Views (which are typically pictures of the front panel of the instruments) will be displayed on the Graphical Display Window (GDW) behind the Ports and Protocols box. When all your instruments have been auto-detected for this port, if there are further instruments connected to other COM ports then click **Skip to Next Port**, otherwise if there are no further instruments click **Stop**. A window will be displayed to say that all channels have been scanned:

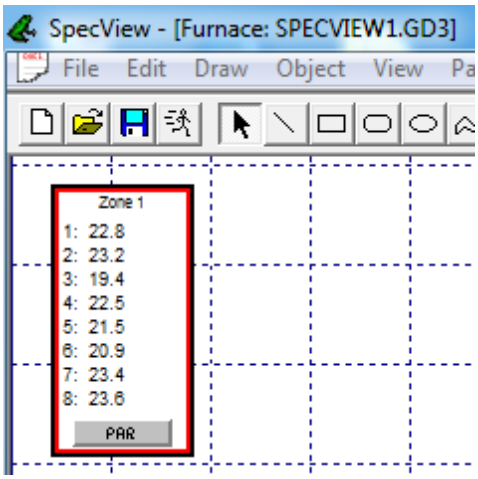


Click OK to continue and enter Edit Mode.

The Edit Mode screen will look something like that shown below.

However, if no Instrument View(s) appear then SpecView is not communicating with the instrument(s). Check your connections and settings and rescan. If problems persist first read Troubleshooting [790] then if unresolved contact your instrument supplier.

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You have now created a GDW containing Instrument Views.

The actual Instrument View displayed will depend on the instrument type, other examples of Instrument Views are shown below:



Instrument Views can be repositioned on the GDW by clicking and dragging.

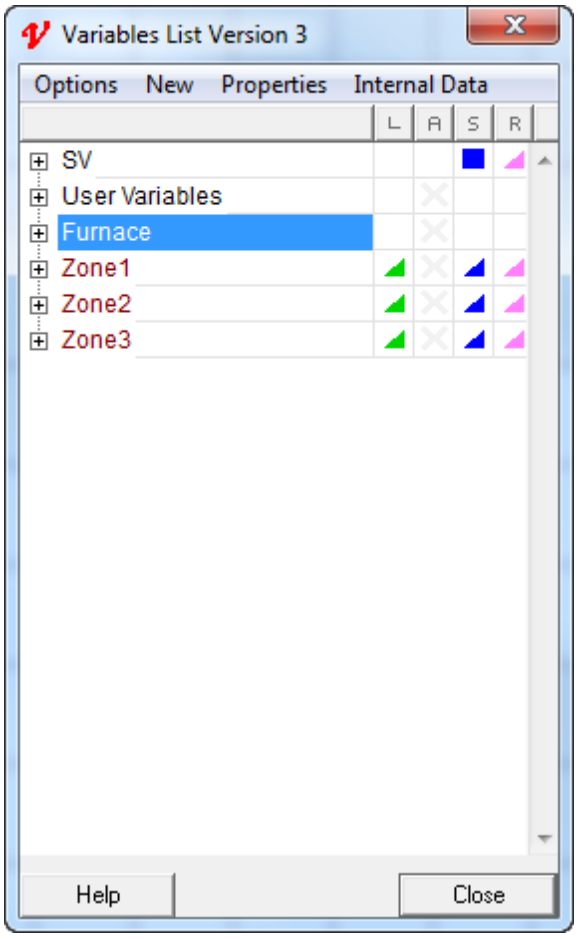
Click the Save tool  and then the **Save** button to save this GDW as **SPECVIEW1.GD3** in the project sub-folder.

For the next step read: Add a variable to the GDW 815

18.6 Quick Start - Add a variable to the GDW

To add a variable to the GDW 503 (Graphical Display Window) or GD3 click the Variables List tool  to display a list of the instruments that SpecView has detected.

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The name SV also appears in the list as this represents a list of pre-defined variables [319] that are associated with SpecView.

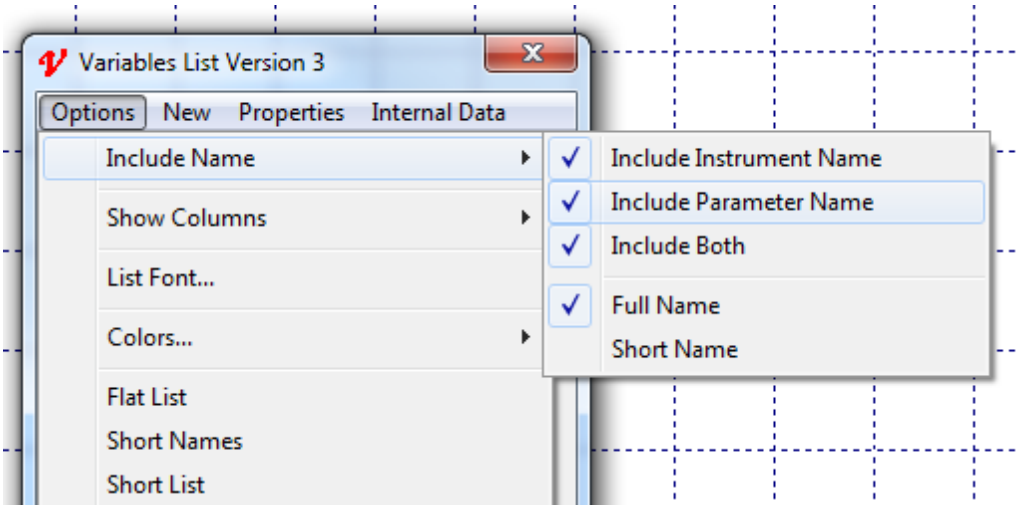
There is also a list of User Variables [322].

Click the ⊞ symbol next to an instrument name to see all the parameters.

Click and drag a parameter, or multi-select [507] and drag and spread out [507] a number of parameters out onto the GDW.

The name of the variable will also be displayed on the GDW together with the value of the variable itself. *This is assuming that Include Instrument and/or Parameter Name is selected on the Variable List's Options Menu:*

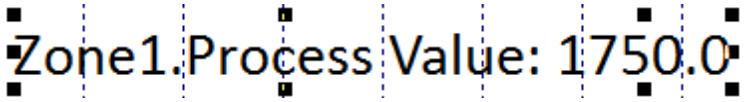
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*Note: If the value of the variable(s) are shown as **N/R** then first go to the **Online Features**[307] menu and check it is **Online** then if unresolved go to Troubleshooting[790].*

When the name of the variable and its value are initially put onto the GDW, they are put out as two separate items. In order to move them both together (as a pair) to a different position on the screen they will need to be grouped[504] together.

To do this use the Group tool  (or press G) which will group them together:



Use the mouse to drag into position on the GDW.
To position on the screen exactly use the cursor keys to nudge by one pixel.

Dragging an object on the screen using the mouse, or holding the **SHIFT** key down while using the cursor keys, will make the object jump by one grid increment, whichever grid size is active at the time. The position of the object relative to the grid will be preserved.

The grid sizes are specified using **Set Grid Sizes** on the View menu[295] and the grid size to be used is selected by choosing **Toggle Grid Lines** from the **View menu** or pressing CTRL-G to cycle through them.

To align an object with the grid use **Object->Align->Realign To Grid**.

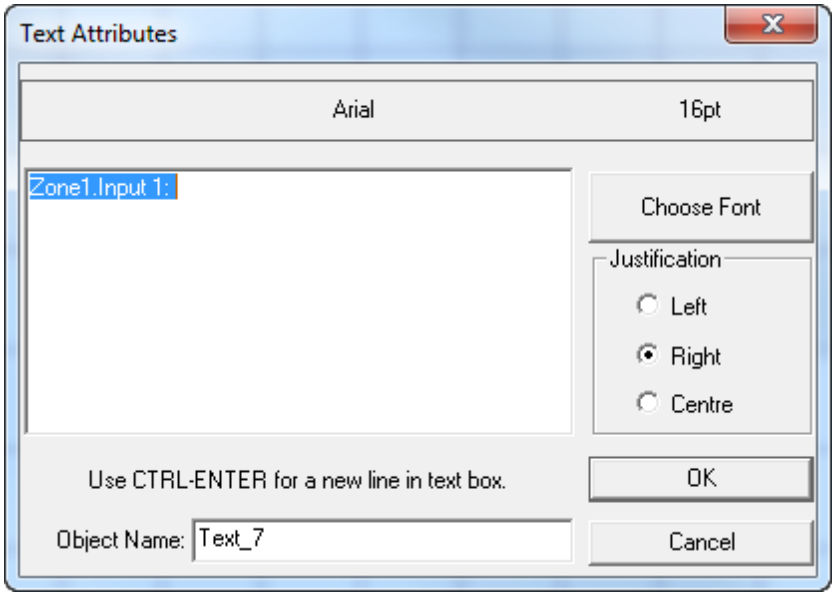
Remember to Ungroup them afterwards using  (or press U).

To change the name of a variable, it is best to do this from the **Variables List** BEFORE putting the variable onto the GDW. This is done by right-clicking and choosing **Properties** from the popup menu.

More information on variables see the Variables List[313].

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In order to change, for example, the font or color of a variable or its name, use the Ungroup tool  (or press U) to ungroup the variable and its name, then double-click the name to display the **Text Attributes** box:



Click the **Choose Font** button to choose and alternative font or font color.

*Note: To change the default text font use the **Text Font** menu command from the **Object menu**.*

Click the Save tool  and then **Save** to save this GDW again.

Click the Runtime tool  to enter Runtime Mode.

Alarms List box may be displayed if there is an alarm active on the instrument, close it by clicking the **Close** button.

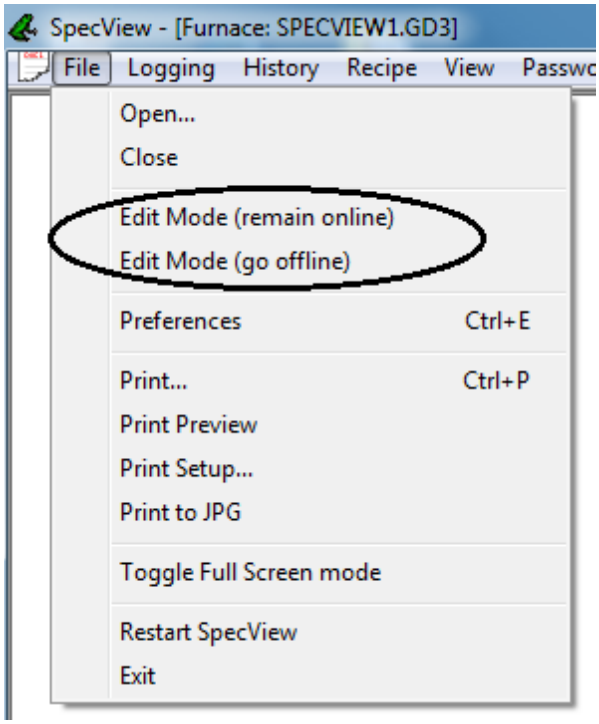
*NOTE: The obvious differences between Edit Mode[282] and Runtime Mode are that Edit Mode displays a grid across the screen (GDW). Although it is possible to disable the grid (Using **Toggle Grid Lines** from the View[295] menu) this is not recommended as the grid helps with aligning items when positioning them. There are also significant differences between the contents of the menus in the two modes. Edit Mode also has a toolbar. It is best to use Edit Mode only when setting up SpecView or changing screen layouts. and go into Runtime Mode once this is done. this prevents any accidental changes being made. Edit mode can also be Online depending on the settings on the Online Features[307] Menu.*

For the next step read: Draw a Trend Chart[819]

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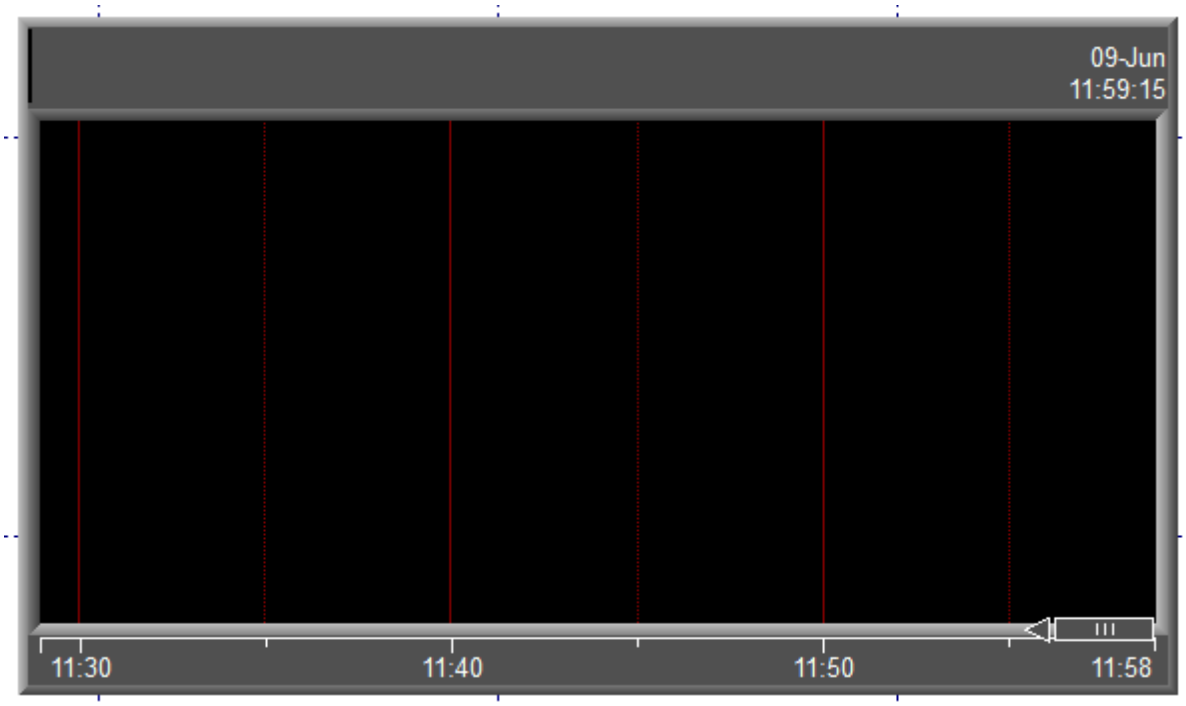
18.7 Quick Start - Draw a trend chart

Go back to Edit Mode by selecting Edit Mode (either **Edit Mode (remain online)** or **Edit Mode (go offline)**) from the File menu.

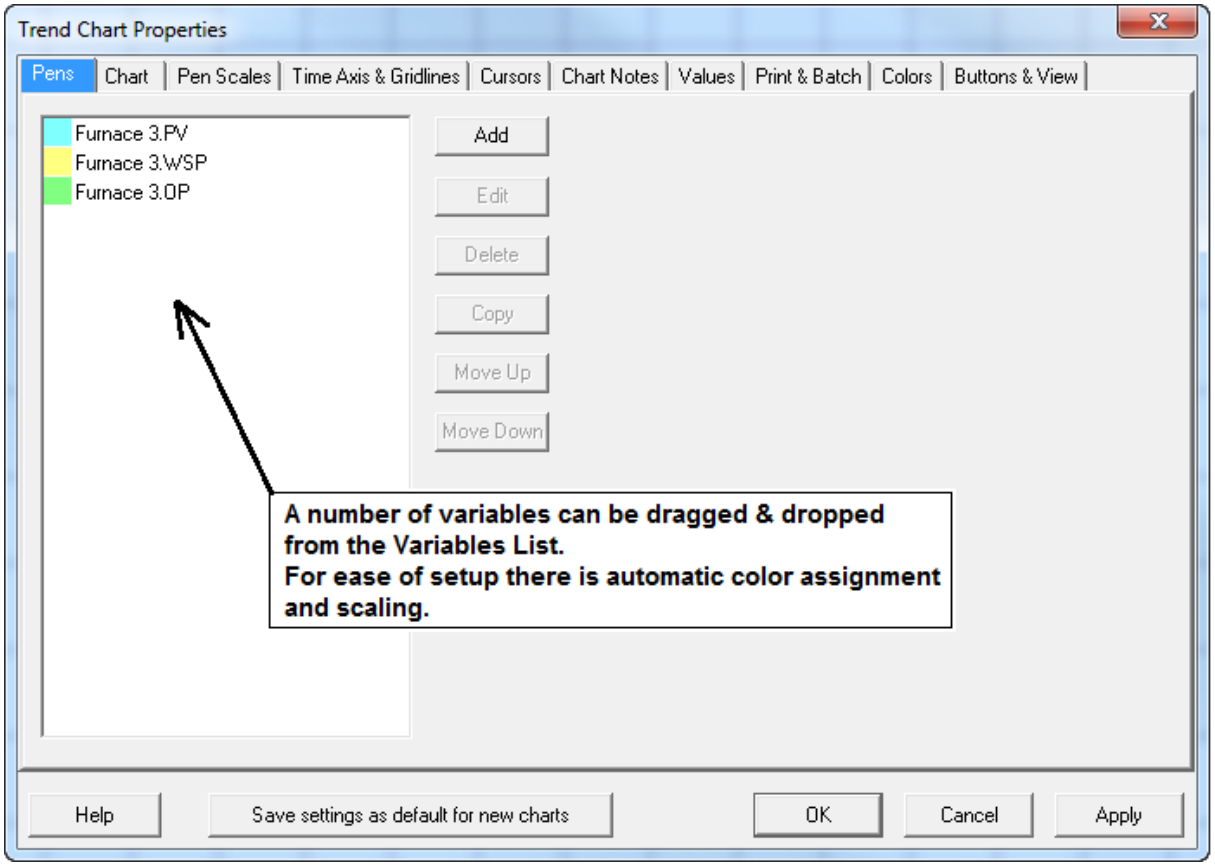


Click the Draw Trend Chart tool  and the cursor changes to: 
Click and drag on the GDW to draw a rectangle. When you release the mouse button a Trend chart is drawn

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and the Trend Chart Properties box is displayed. Click the Add button to display the Pen Properties and the Variables List boxes:



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This is used to choose which parameters are displayed on the Trend chart and the appearance of the chart, colors etc.

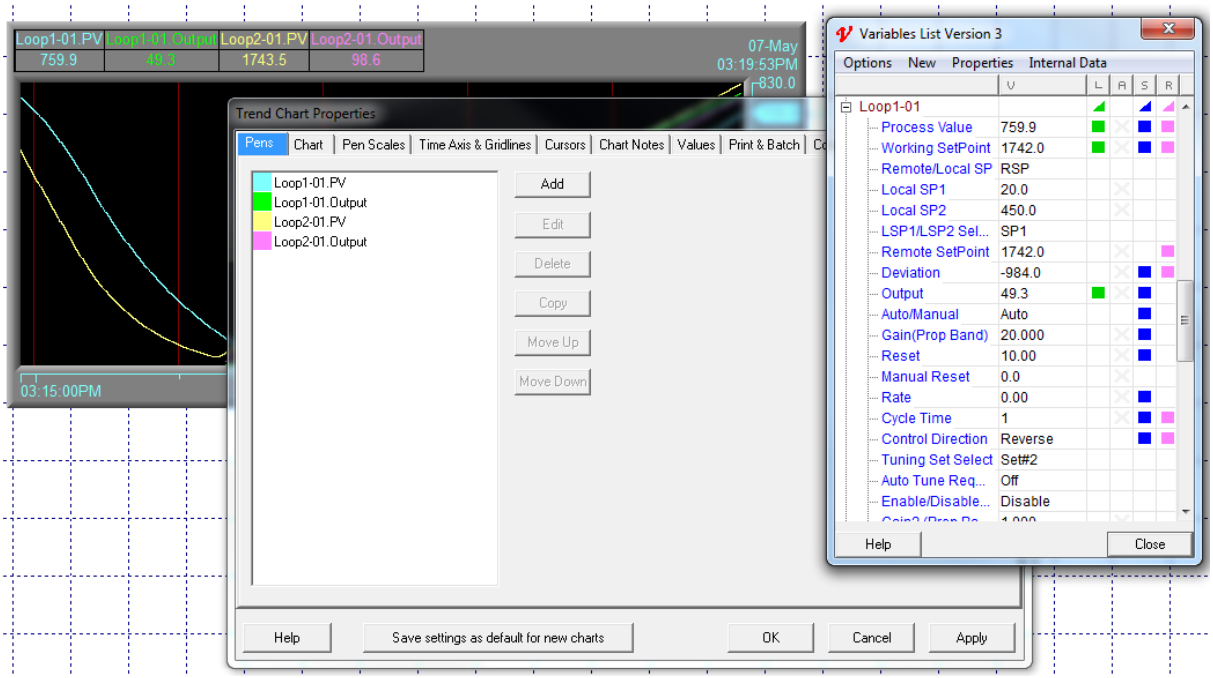
From the Variables List expand the list of parameters for the instrument from which you wish to display data by clicking the ⊞ symbol if it is not already open.

Initially the Pens list (on the Pens tab) is blank, drag parameters from the Variables List either directly into the Pens List, or into the Pens Properties box.

The scales and pen colors will be automatically defined. Other attributes of the pens can be changed using the Pen Properties box.

Note: A Pen is the word used to refer to a single trace line on a Trend chart.

The Time Span of the chart can be set on the **Chart** tab. The Time span can range from 30 seconds to 60 days.

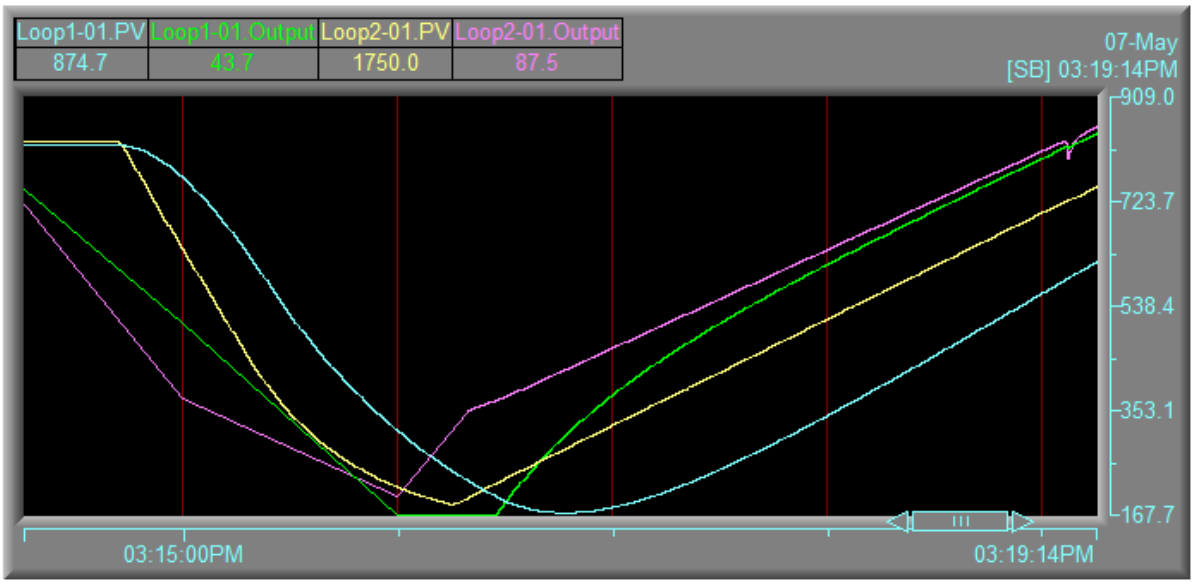


Add some more pens to the chart, then click **OK** to close the Trend Chart Properties box.

Click the Save tool  to save this GDW again.

To subsequently edit the chart while in Edit Mode, click anywhere on the chart and choose Setup Chart from the popup menu.

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More information on setting up Trend Charts [523]

For the next step read: Define a second GDW [822]

18.8 Quick Start - Define a second GDW

The first GDW (Graphical Display Window) has already been saved.

Now click the New GDW tool  to get a new blank GDW.

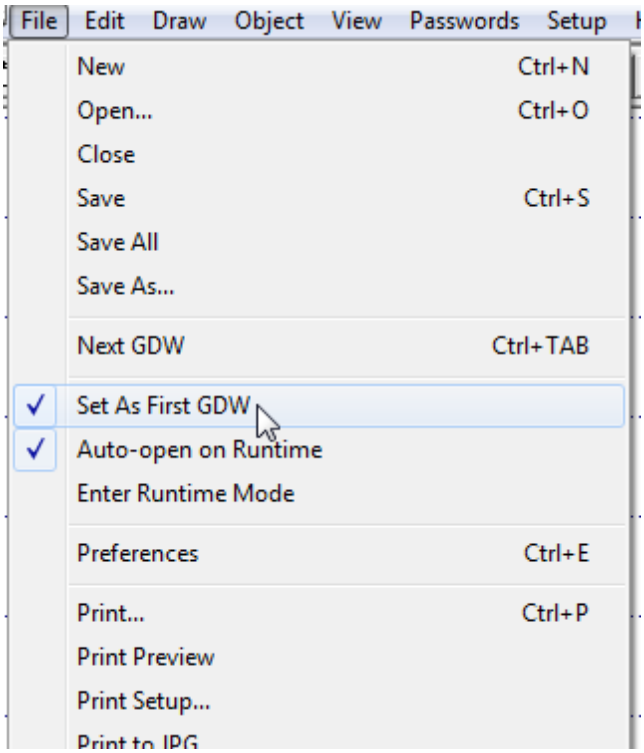
Click the Trend Chart tool  and draw another chart onto this new GDW. Any variables [819] may be used for the pens, even the same ones as before.

Also, many types of variable can be plotted on a Trend chart, including boolean (On/Off functions).

Click the Save tool  and give this new GDW a name so it can be saved.

Note: When SpecView enters Runtime Mode it will normally start by opening the GDW last edited. To specify which GDW is opened on Runtime use the Set As First GDW menu command from the File menu while in Edit Mode.

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To open more than one GDW at startup use the **Auto-open on Runtime** menu command. It is important that this feature is used for all GDW's that contain Trend Charts in order to start their trace lines when SpecView starts.

For the next step read: Add buttons to switch between GDW's 823

18.9 Quick Start - Add buttons to switch between GDW's

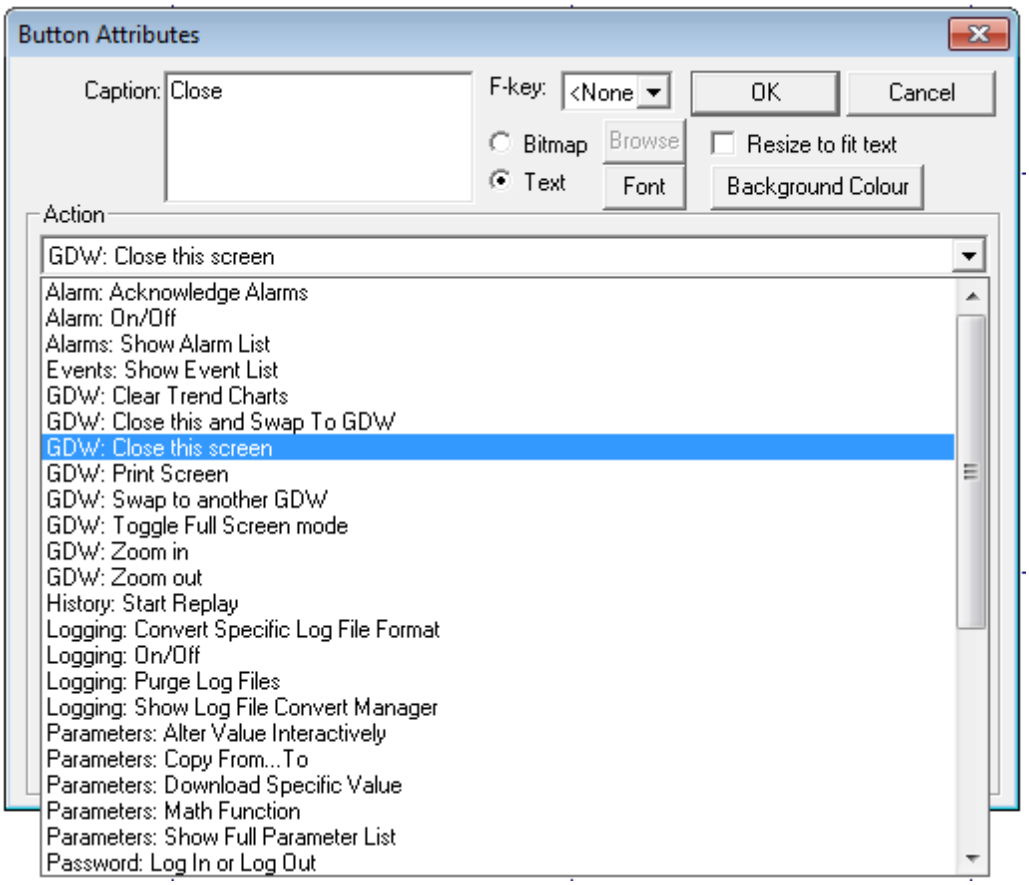
To put a button on the GDW click the Draw Buttons tool  .
Draw the button by clicking and dragging the mouse until the button is the size and shape you require



Position the button using the mouse or cursor keys as described previously 815.

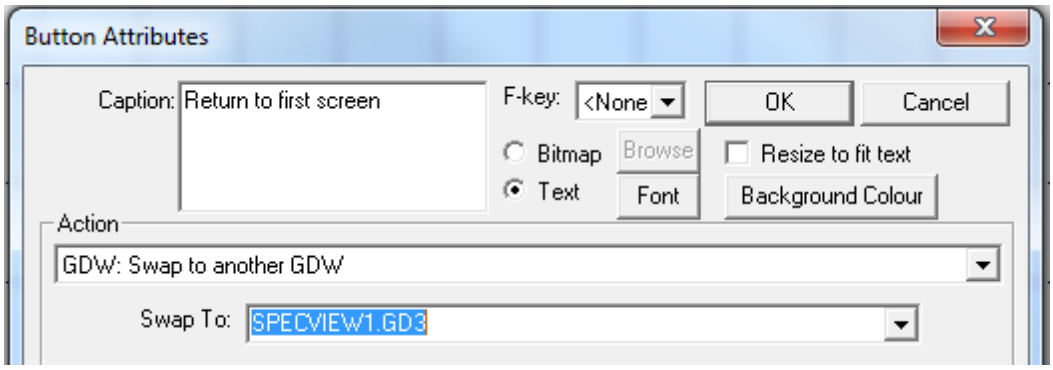
Double-click the button to display the Button Attributes box:

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Change the text in the **Caption** box to say, for example, 'Return to first screen'.

Then from the **Action** list, select **GDW: Swap to another GDW**, then select the name from the **Swap To** list that you gave to the first GDW:



Click **OK** to close the Button Attributes box, then click the Save tool  to save this new GDW again.

Open the first GDW by either

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clicking the Open GDW tool  and then selecting the name of the GDW from the list and clicking **OK**, or by selecting the name of the GDW from the Window[308] menu.

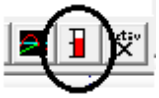
Click the Draw Buttons tool  and draw a button on this GDW as before, double-click this button and change its attributes.
Change the **Caption** to say, for example, 'Go to second screen'.
From the **Action** list, select **GDW Control: Swap to another GDW**, then select from the **Swap To** list the name that you gave to the second GDW, click **OK**.

Click the Save tool  to save again.

For the next step read: Add a Bar chart[825]

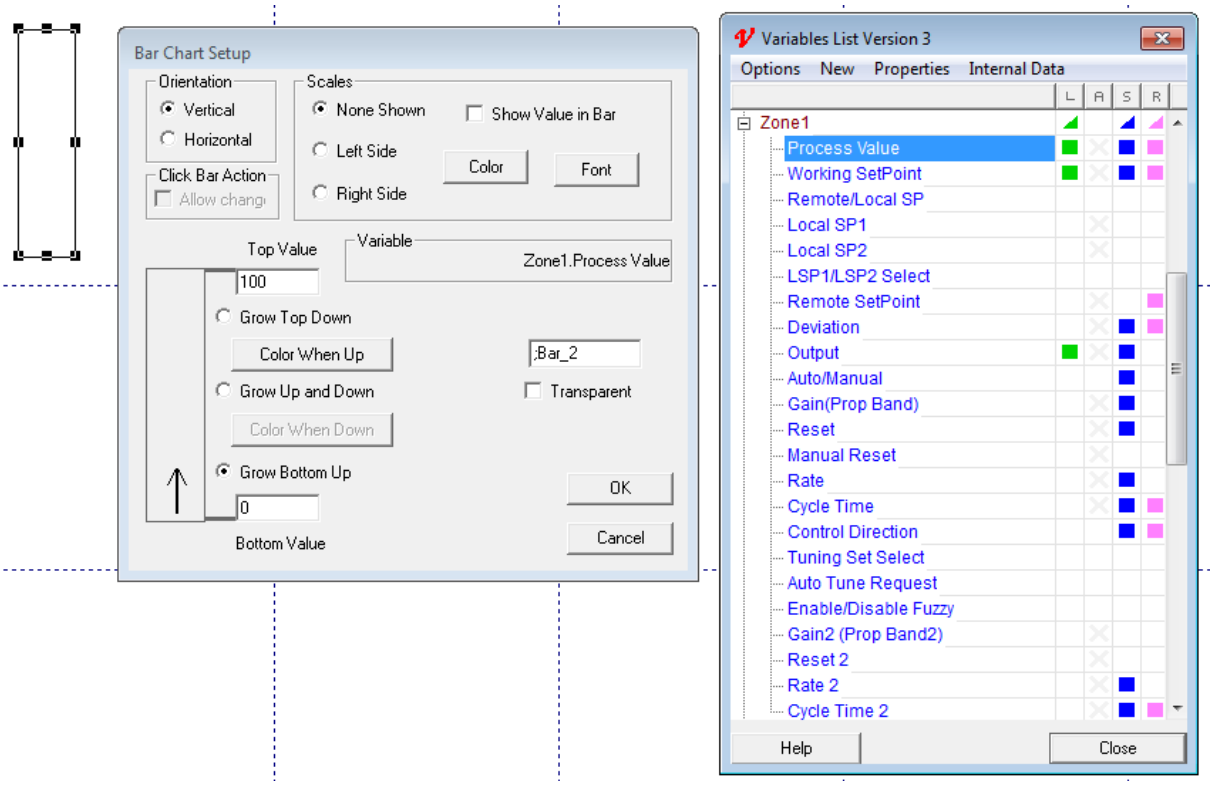
18.10 Quick Start - Add a Bar chart

Adding a Bar chart to a GDW is very similar to adding a Trend chart.

Click the Draw Bar Chart tool  and the cursor changes to 
Click and drag on the GDW to draw a rectangle as shown below. When the mouse button is released a Bar chart is drawn on the GDW.

The Bar Chart Setup box and Variables List are also displayed:

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This is used to choose the variable to be displayed on the Bar chart and the appearance of it. Select the variable to be displayed from the **Variables List** by clicking the ⊞ symbol next to the name of the instrument, if it is not already open. Drag and drop the variable from the **Variables List** into the Variable field in the **Bar Chart Setup** box.

Orientation defines how the value is displayed within the bar chart; **Vertical** for up/down, **Horizontal** for left/right.

Enter a **Top Value** (such as 100) and a **Bottom Value** (such as 0). Choose the color of the bar, and whether the bar should grow from the bottom up, from the top down, or both up and down. In the **Scales** section of the box choose whether to display a scale for the Bar chart and whether or not to show the value numerically within the bar.

Once all the changes are made click **OK** and then click the Save tool  again.

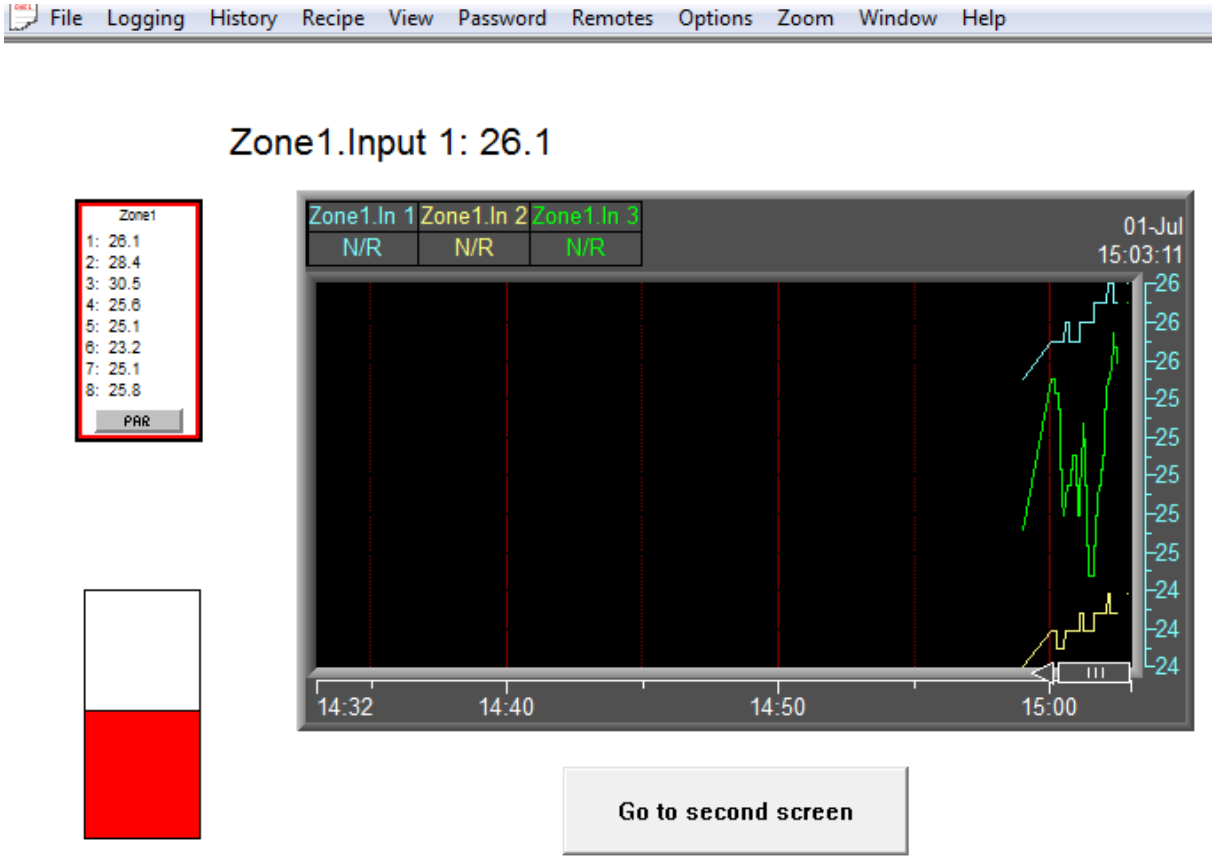
See how it works in Runtime Mode 827

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18.11 Quick Start - See how it works in Runtime mode

Click the Enter Runtime tool  to see the project you have just set up working in Runtime Mode.

The GDW screen should now look similar to this:



The Instrument View, variable, Trend chart and Bar chart on the first screen of the GDW will be displaying data (if not, see Troubleshooting[790]).

Clicking on the button(s) shown within the Instrument View(s), in this example the **PAR** button, should perform similar actions to clicking on the respective buttons on the front panel of the actual instruments themselves.

Clicking on the value of the variable, in this case 26.1:

Zone1.Input 1: 26.1

could, if the variable was writeable[521], allow this value to be changed. However, as the variable 'Input 1' is not a writeable variable this is not possible in this example.

The Trend chart lines will initially be invisible. However, after a few moments the lines will start to be

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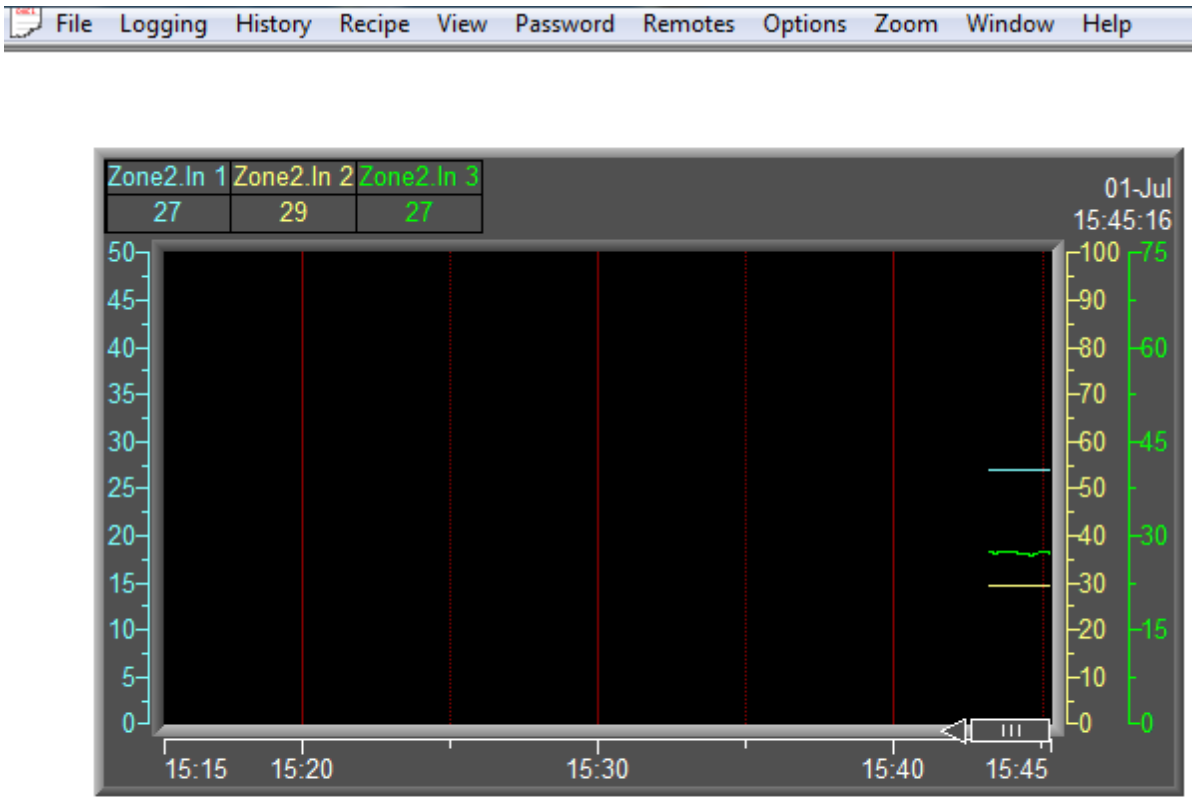
drawn depending on the time-span[541] that was specified for the Trend chart when it was created.

If the **Setup** button and/or **Help** button were enabled on the Buttons & View[560] tab then:
Clicking on the **Setup** button in the top right-hand corner of the Trend chart allows the Trend Chart to be modified from Runtime mode.
Clicking on the **Help** button will display help for the Trend chart attributes.

Clicking on any of the Pen labels along the top of the Trend chart switches the vertical scale to match the scale that you defined for that Pen.

Clicking on the 

button will switch to the other GDW which you defined,
which may look similar to this:



CONGRATULATIONS! You have just created your own custom multi-screen supervisory system in just a few minutes.

Remember to make a backup of the project using SpecView's Archive/Restore[193] facility.

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Now explore the Data Logging [589] and (optional) Historical Replay [623] features. Then you can go back into Edit Mode [501] and explore the custom Graphics [372], Recipes [511], Networking [736] and other features of SpecView.

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Part 19

19 User Guide

The User Guide explains how to configure a SpecView project to fulfill tasks that are frequently required and to provide links into other relevant topics within the help:

Setting up a Project 831
Creating Graphics/Mimics 832
Improving Performance 834
Handling Lost COMMS 834
How many instruments can be connected to SpecView? 835
Printing from SpecView 836
Remembering Window Positions 836
Remote/Local Screen Sizes Differ 840
Multiple Monitors 840
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Running SpecView as a Service 897
Running a program when SpecView exits 897
Handling different ways SpecView exits 899
How to move a box back that is being displayed off-screen 900
Siemens S7 - example setup of TIA Portal for S7-1200 900

If there is a requirement for further help then please contact SpecView Technical Support 798.

19.1 Setting up a Project

Here are the basic steps in setting up SpecView. The order can be changed to some degree and each step can be edited at any time.
Firstly, you will need to select **either** Manual **or** Automatic Instrument Detection:
1a. Manual Definition 204 of instrument(s):

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This is only required in the following cases:

- If the instrument(s) are not physically connected to the computer for auto detection
- If the instrument(s) are special such that they cannot be auto detected
- If the instrument(s) are being added to an existing project

Define the instruments you are going to be using by clicking the **Show New** button to display the full list of available variables

Or:

1b. Auto Instrument Detection [198]

Then:

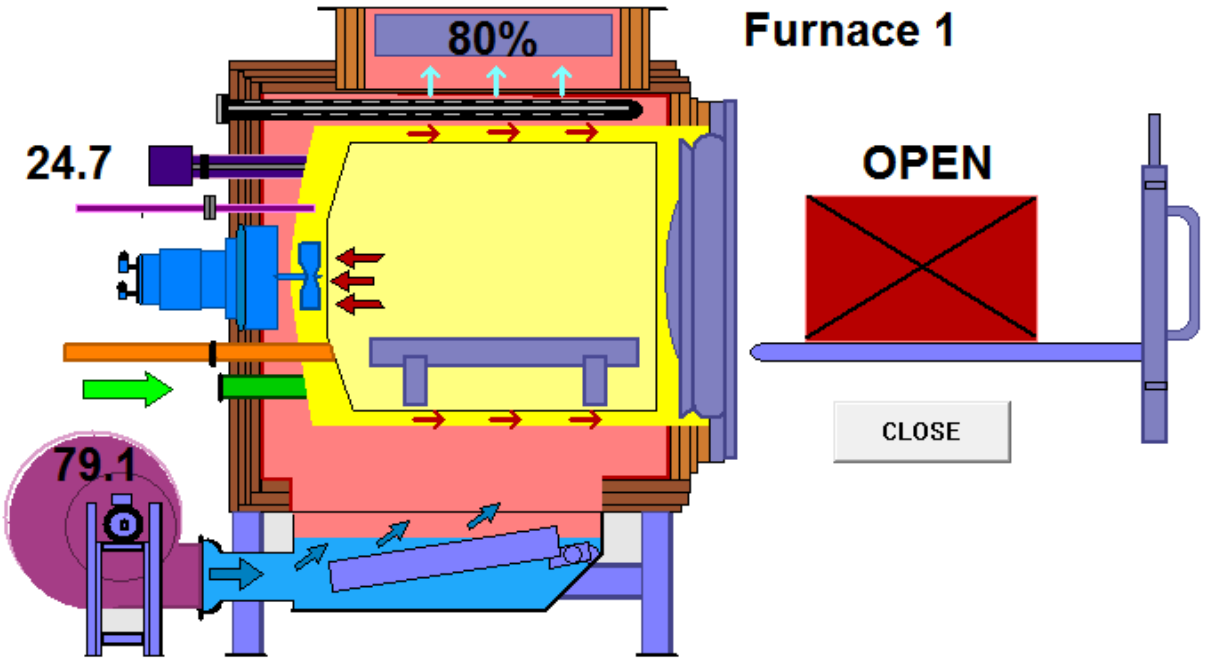
2. Add/Rename Instruments [208]
   Edit the names of each instrument if required.
3. Create your GDW(s) [503]

Define any SpecView User Variables required
Create / Import any graphics
Add Buttons to the GDW's to switch between them
Put numeric values on the GDW
Add Trend and Bar Charts

4. Put the four SpecView pre-defined Variables [319] for Comms on a screen to show the status of instrument communication.
5. Add or remove any variables from Data Logging [589]
6. Choose variables to be included in Recipe [635]
7. Configure the (optional) Strategy Controller [666]

19.2 Creating Graphics/Mimics

Graphics and Mimics can be created in SpecView using a number of methods:



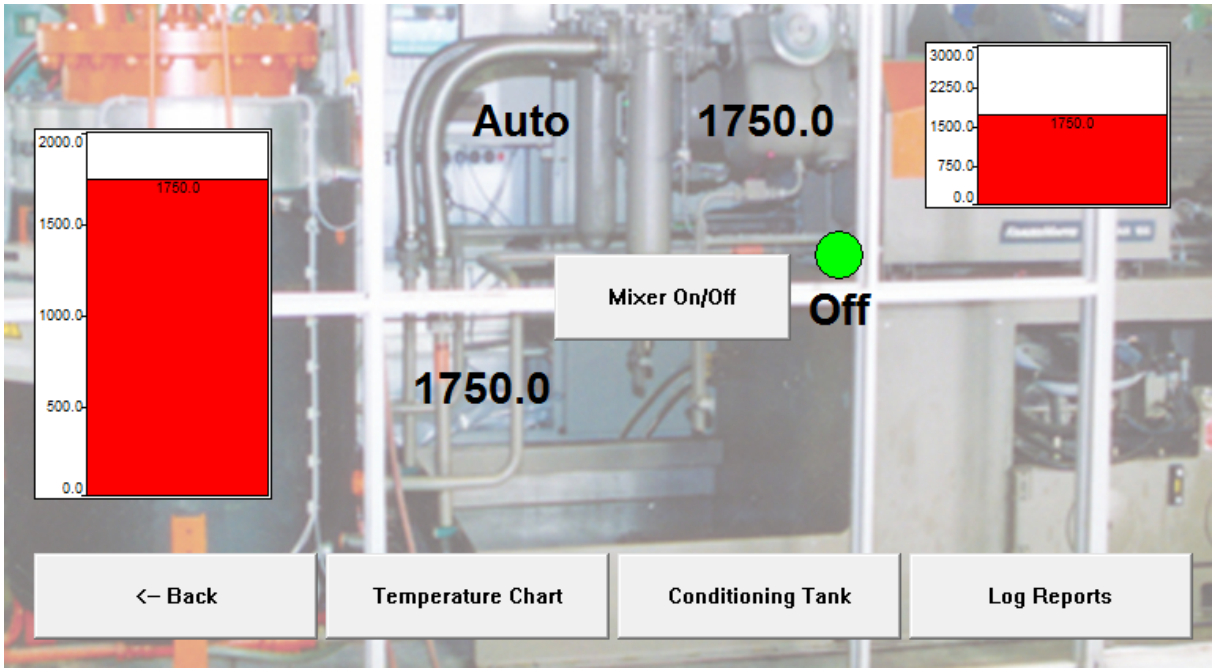
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Photo/Image:
Take a photo or scan a picture or draw a digital image and convert the JPG file into a BMP file using any image processing software, or use Microsoft Paint and use 'Save As' to save it as a BMP file. It is an idea to grey-out the image to reduce its contrast. It is also a good idea to resize the image smaller so that it is nearer the correct size. This avoids making the project slow to open and will also save disk space when Archiving[193] the project.

Then use SpecView's Bitmap tool[379] to display the bitmap.
Double-click the bitmap and uncheck the 'Fix to Original Size' checkbox so it can be resized to exactly the size required.

Note: The bitmap can be locked[361] into position to avoid it being inadvertently moved with the cursor.

Values, buttons, barcharts, etc. can be put on top of it for easy visual feedback.
If the bitmap seems to be 'on top' of the values then select the bitmap and choose 'Move to Back' from the Object menu[291].



GDO (Graphical Display Objects):
Graphics made with SpecView's drawing tools can be grouped and saved as GDO's using the Save Object menu command on the Object menu[291]. The saved GDO's can be re-used (using the Load Object menu command) any number of times in any GDW in any copy of SpecView.

Color Dynamics:
Color Dynamics[359] can be used to change the color of objects and text on the screen according to the value(s) of variables(s).

Position Dynamics:

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Position Dynamics [363] allow objects on the screen to be positioned (moved) according to the value(s) of variables(s). This allows a basic form of animation, such as a showing something moving along a conveyor belt.

ActiveX:
ActiveX controls [766] to represent the appearance and functionality of components and HMI elements can be purchased from various third-party developers and be displayed on SpecView's screens (GDWs).

19.3 Improving Performance

To improve performance so that the rate that instrument variables are updated is increased see here [569].

19.4 Handling lost COMMS

If for some reason communications to an instrument is lost, SpecView will not automatically 'flag up' these types of issues in an obvious way because instruments can be legitimately switched off for maintenance, etc.

So it's up to the designer of the project to get SpecView to do something appropriate.

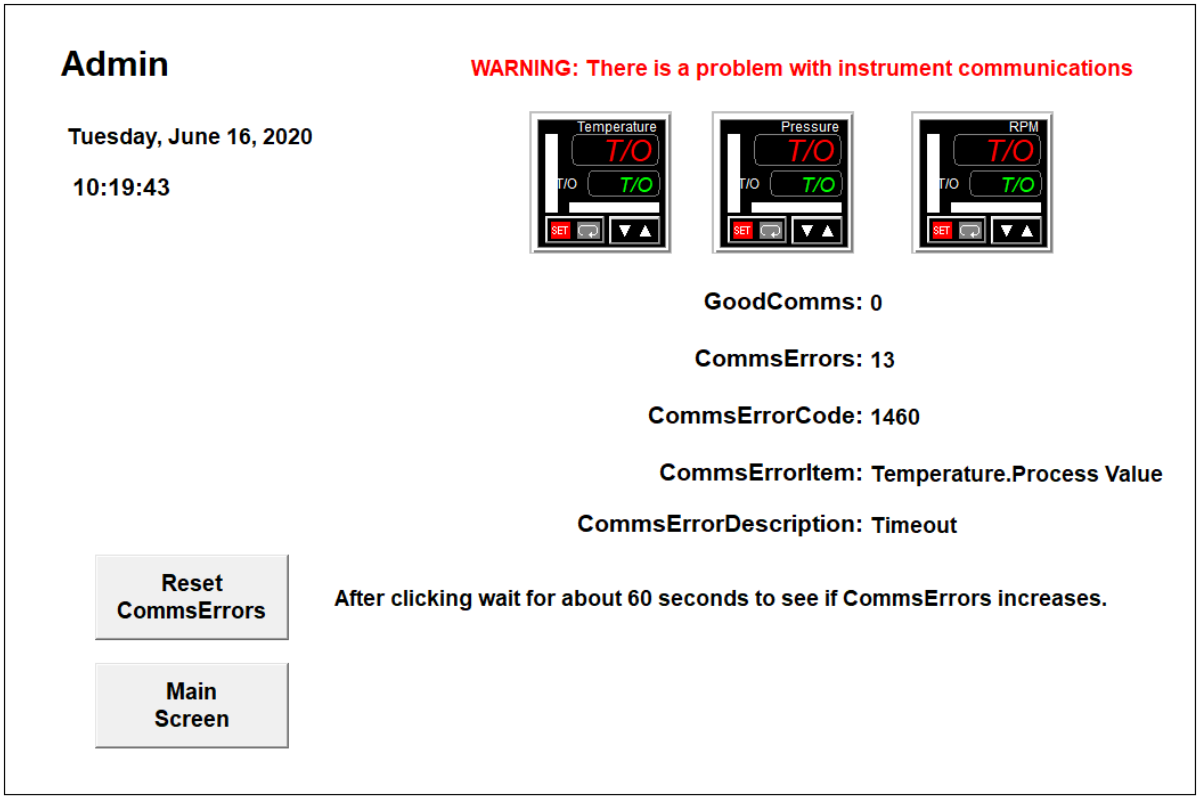
For example, it is possible to put a warning message on the screen (GDW) that that is looked at most often, and use Color Dynamics [359] so that the message is red when BadComms [319] is not equal to zero, and hidden [361] while BadComms was zero.

The message would tell the operator to click on a button to go to an 'Admin' screen.

The Admin screen would have the same (or similar) message together with the other comms error variables and a button to set BadComms back to zero.

Here is an example of what an 'Admin' screen might look like:

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Note: some systems regularly see 'BadComms' increasing - and this should be investigated[790] in full to understand the reason.

It is also possible to log the comms variables, but be aware of the logging rate, and hence disk space usage.

Also the LineWriter[791] can be used for recording what is happening with Comms.

19.5 How many instruments can be connected to SpecView?

Can SpecView read values from multiple instruments? And if so, how many instruments can SpecView read values from?

Yes, SpecView can read values from multiple instruments, the limits are:

For Serial comms:

The number of controllers that can be connected to SpecView is only limited by the available addresses on the controllers. Most instruments go to 99 addresses (254 for Modbus) and SpecView supports up to 40 COM ports.

RS422 and RS485 would need repeaters if there are more than 16 or 32 instruments respectively. Please see the instrument manufacturer's instructions or the comms converter's manual.

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If there are a large number of instruments communicating at a relatively slow rate, then it can take a long time to acquire the data from them all if they are on a single COM port.
By splitting the instruments onto two or more separate comms lines, you can increase the data rate because SpecView will gather data from all ports simultaneously.
However, this would require SpecView's Multiport[571] option on the license.

For correct correct daisy-chain wiring see Wiring Tips.

For comms over TCP:

There is no practical limit to the number of recorders, but be aware that the performance of the computer will be affected if there are many tags being requested from many recorders at a fast rate.

For both Serial comms and TCP:

You can have a combination of the above and this would also require SpecView's Multiport[571] option on the license.

Note: For different communications protocols:

If the instruments are not using the same communications protocol then SpecView's Multiport[571] option will also be required, so that all the instruments that communicate using one protocol are on one port, and instruments that communicate using a different protocol are on another.
It is not possible to mix communications protocols on a single port.

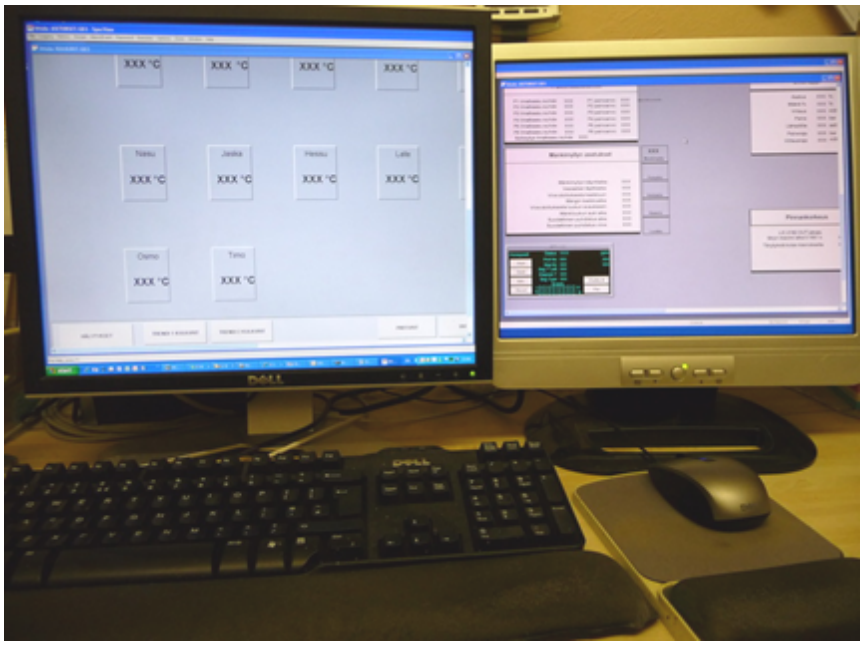
19.6 Printing from SpecView

There are various ways to print from SpecView which are detailed here[386].

19.7 Remembering Window Positions

It is possible to make SpecView remember positions of windows - this is particularly useful when using very large monitors or multiple monitors.

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Limitations

SpecView's screens (also known as GDWs or GD3s) are not independent windows, so they can't be positioned outside the main screen.

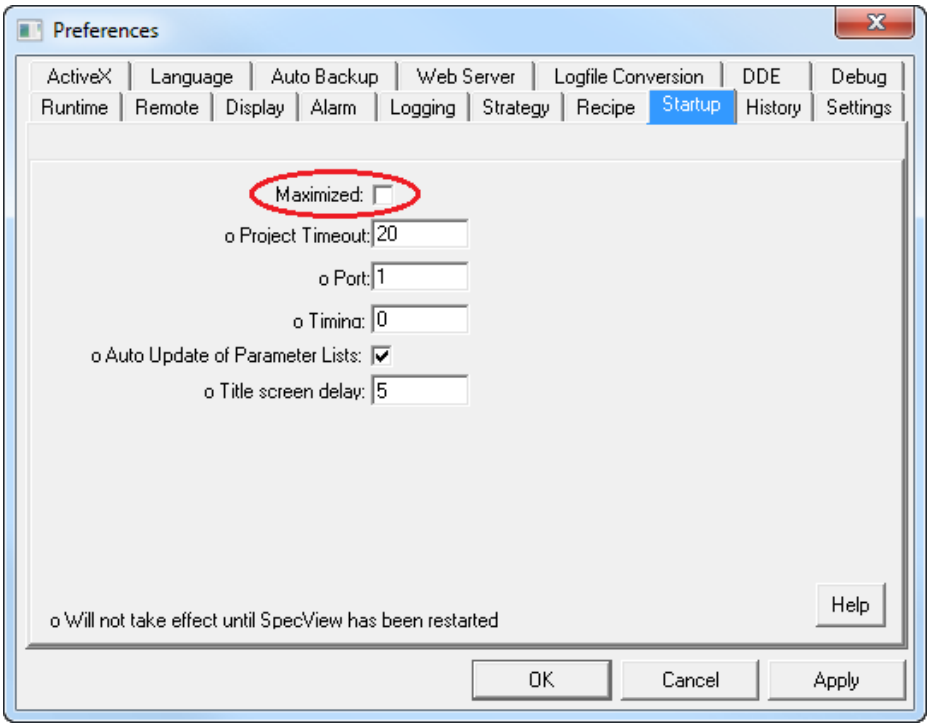
A screen's position will only be stored when that screen is closed, or SpecView is exited.

Therefore, it is necessary to ensure that the main screen (in other words the screen that has 'File->Set As First GDW' set) is made large, by dragging it out.
Then open each of the screens and position them as required, then exit SpecView.
So the next time SpecView is run it will have remembered the last positions of each of the screens.

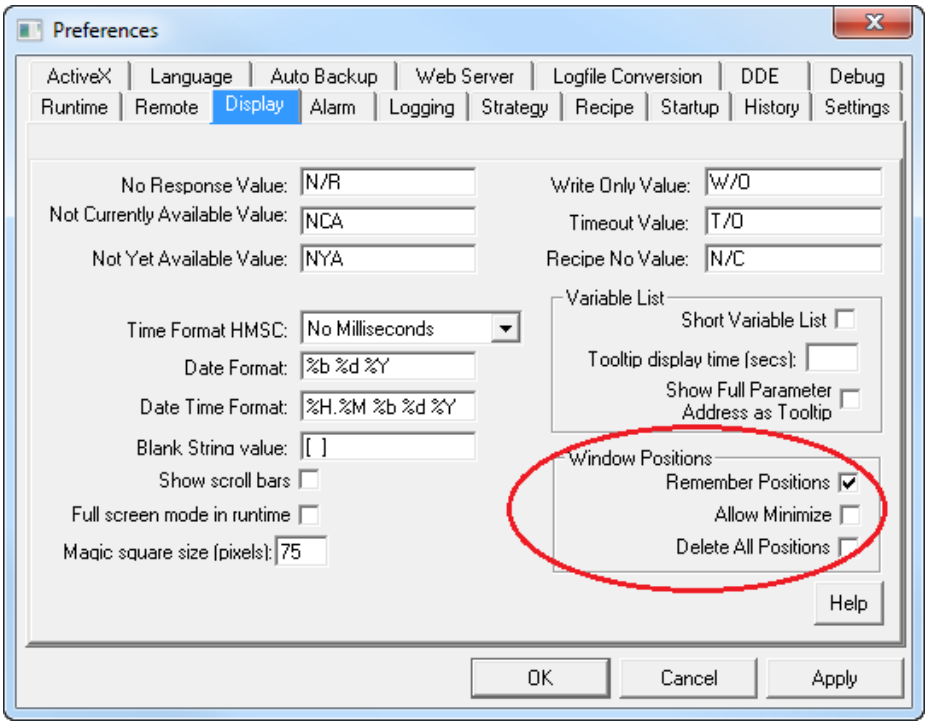
Method

Choose **Preferences** from the **File** menu and click the **Startup** tab and uncheck the **Maximized** checkbox:

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Click the **Display** tab and check the **Remember Positions** checkbox:

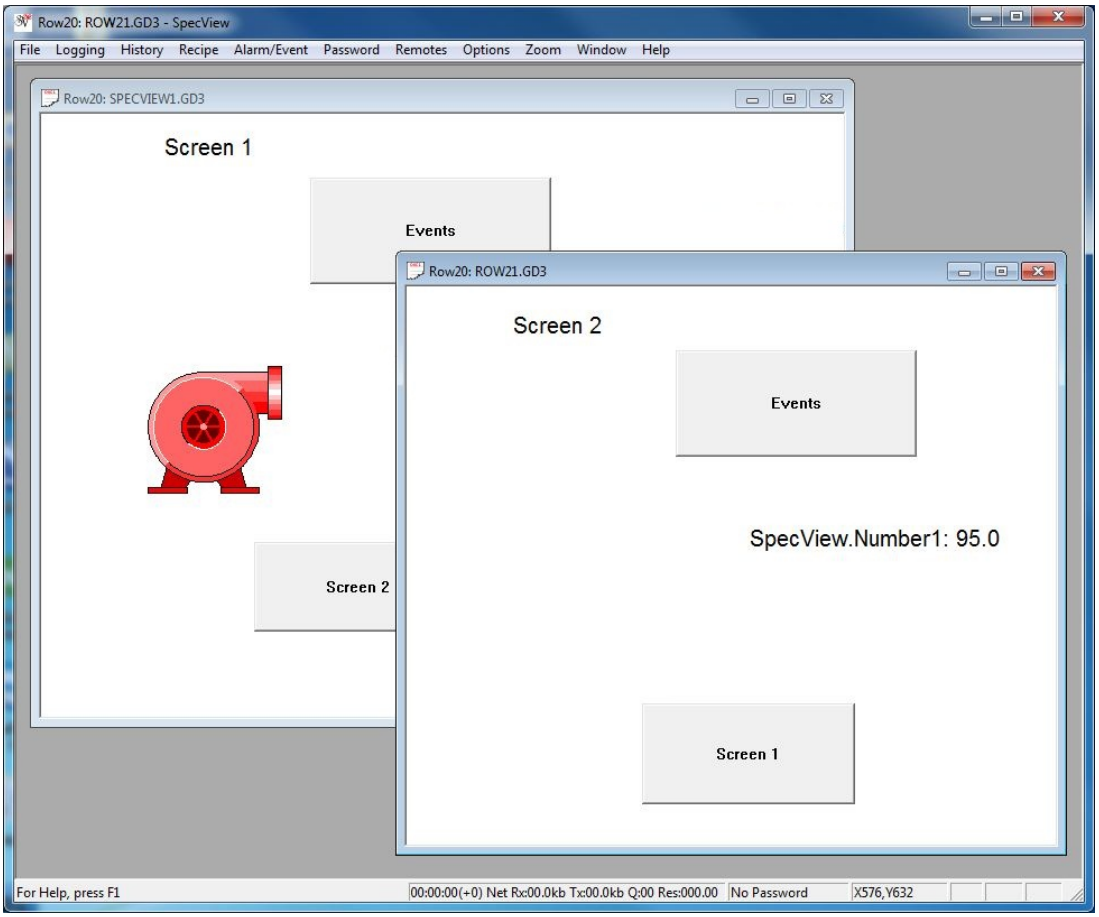


The **Allow Minimize** checkbox is used to specify if the Minimize window control should be allowed.

The size and position of the individual windows is stored when the window is CLOSED.

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The **Delete All Positions** checkbox clears these stored coordinates.



Uses

The 'remembering' of window positions is particularly useful when using multiple monitors on a single computer in order that certain windows (GDWs) will subsequently appear on a particular monitor.

To do this:

- Using the **Windows Control Panel**, select **Display** and choose **Multiple displays – Extend these displays** (not **Duplicate these displays**)
- Position the windows while in Runtime Mode and close each of them (then re-open to check position is now correct)

Note that the positions of windows are only remembered when the window is closed (not when SpecView exits)

- It is highly recommended to enable Passwords [703] and check **Disable Window Controls** for Operators (so they can't accidentally click them).

Note: One alternative to this for positioning GDWs on multiple monitors is to use SpecView Remote [713] and run both SpecView Local and SpecView Remote(s) on the same computer so that the Local runs on one screen and the Remote(s) on the other(s). It is important that the SpecView Local is started first and the Remotes started afterwards.

Or another alternative is to use more than one computer and run SpecView Remote [713] on the other computer(s) to be able to see the screens on the Local computer.

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19.8 Remote/Local Screen Sizes Differ

In the case where a Remote computer's physical screen (display or monitor) is a different size (resolution) to the Local computer's physical screen (display or monitor) then it can be difficult for users to see the whole screen-layout (*also know as a GD3** or *page, see asterisked note below*) to access buttons, etc.

To resolve this there are solutions:

Enabling scrollbars on the File->Preferences Display tab will allow 'scrolling' around the screen-layout (GDW or page).

But that is only suitable as a short-term solution, especially if using Full-Screen mode, alternatively create a set of screen-layouts that have had the objects re-sized or re-positioned to fit the different screen size. This is described here.

To do this for each screen-layout use **File->Save As** to save it to another name, for example, save **Zone1.GD3** to **Zone1_small.GD3**

Then open **Zone1_small.GD3** in Edit Mode and go to **View->Set screen size guide** and enter the width and height in pixels of the smaller screen.
Then choose **View->Show screen size guide**. This will show a dashed line to assist in re-positioning/ re-sizing the objects as required.

Once complete, add buttons to access the new set of screen-layouts (GD3s or pages) from the first screen (**File->Set As First GDW**), for example, having an initial choice of buttons to select 'Big' (Local) or 'Small' (Remote) or vice versa. These then go to the appropriate set of screen-layouts.

In the Variables List there is a SpecView Variable 'RemoteMode' which is set to 'On' on on Remote. However, due to the fact that the Strategy Controller doesn't run on the Remote it isn't possible to use this Variable to switch screens according to whether or not it is on the Local or the Remote.

(The purpose of the 'RemoteMode' variable is, for example, to only have an 'Exit SpecView' button on the Remote. Not on the Local. To do this use Position Dynamics to position the Exit button off-screen when RemoteMode=Off. Or for use with ActiveX controls.)

* Note: For users of earlier versions of SpecView the term GDW (Graphical Display Window) was used for a 'screen-layout' (or page). These are now GD3 (Graphical Display windows for Version 3).

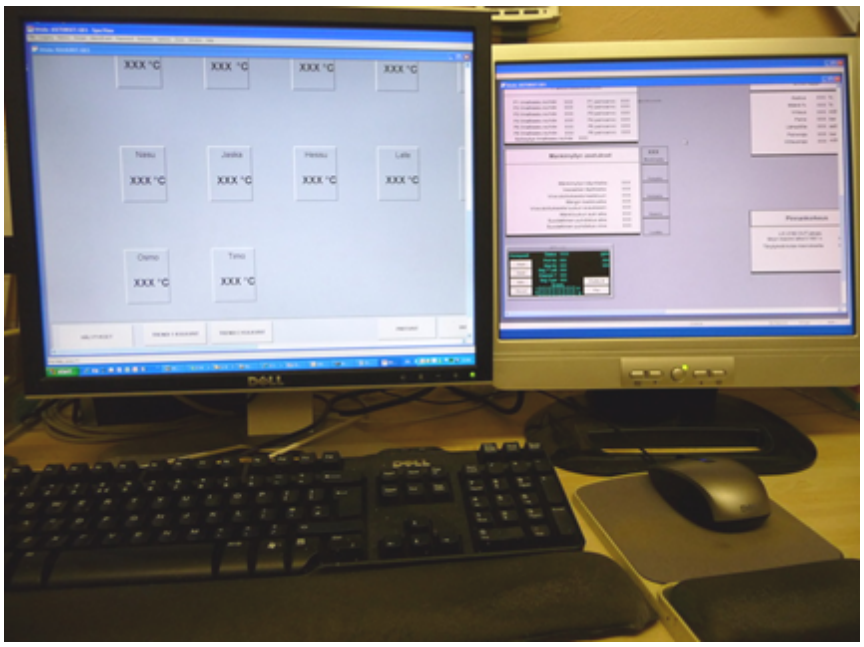
19.9 Multiple Monitors

The use of Multiple monitors can be handled in two different ways:

- Remembering Window Positions - by stretching the Windows Desktop across all the monitors.

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- Running SpecView Remote[713] on the same computer



There are Pros and Cons for each.

Please contact[798] SpecView Technical Support for more details.

19.10 Resizing GDWs to fit a larger physical monitor

Monitor (physical screen) sizes and the resolution of those monitors are increasing.

SpecView screen layouts (GDWs) that were designed on smaller or lower resolution monitors are not automatically resized on larger (or smaller) monitors.
Although the View menu does have zoom capability.

It is necessary to go into Edit Mode to make the necessary changes, and there are some features in SpecView which will help.

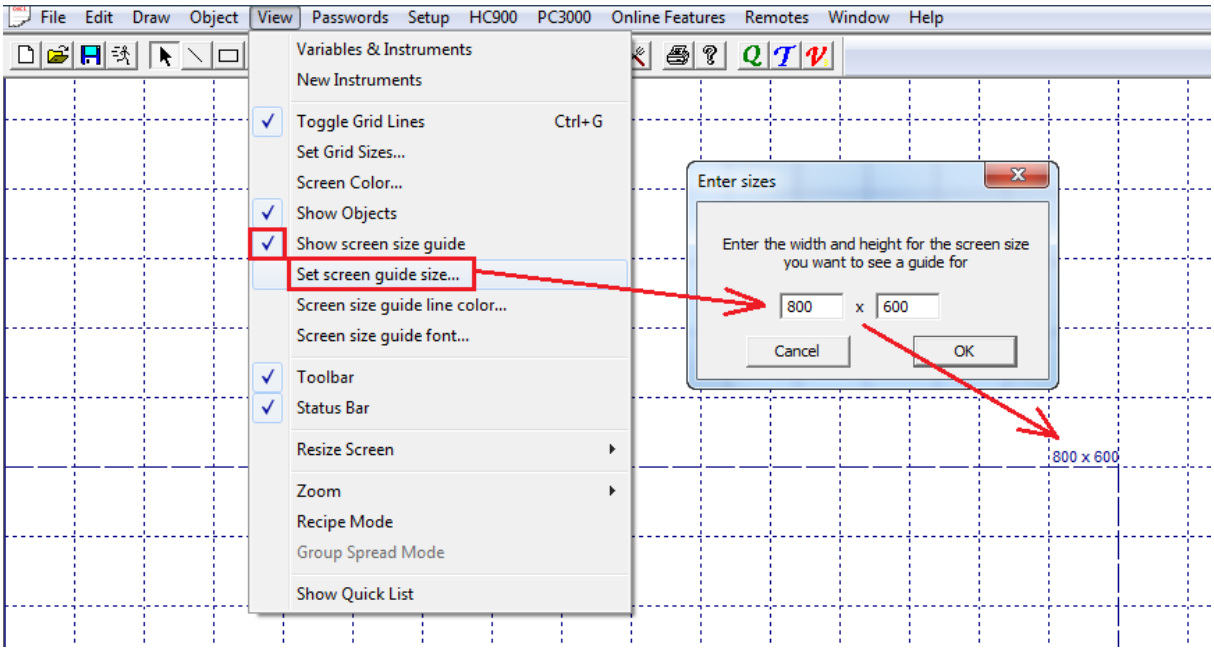
First it is useful to know the width and height in pixels of the new monitor.

Then once in Edit Mode:

1. First choose **Show screen size guide** from the View[295] menu which shows a dashed lines.

Then choose **Set screen size guide** and enter the width and height of the new monitor in pixels:

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This will draw dashed lines to mark the extent of the available screen area, although this is along the boundary, so to see it scroll across or up.

2. Choose **Resize Screen** from the **View** menu and then choose **800x600 -> 1024x768** to enlarge the objects on the screen.

This can be done more than once if the new monitor is significantly bigger.

However, Instrument Views [346] can look a little odd after resizing, which is something we're looking to improve in a future release.

Something else to be aware of when adding text to a GDW while using a high resolution monitor is Windows Font Scaling [382].

If SpecView Networking is being used and the monitors physical screens on the Local and Remote are different, then see here [840].

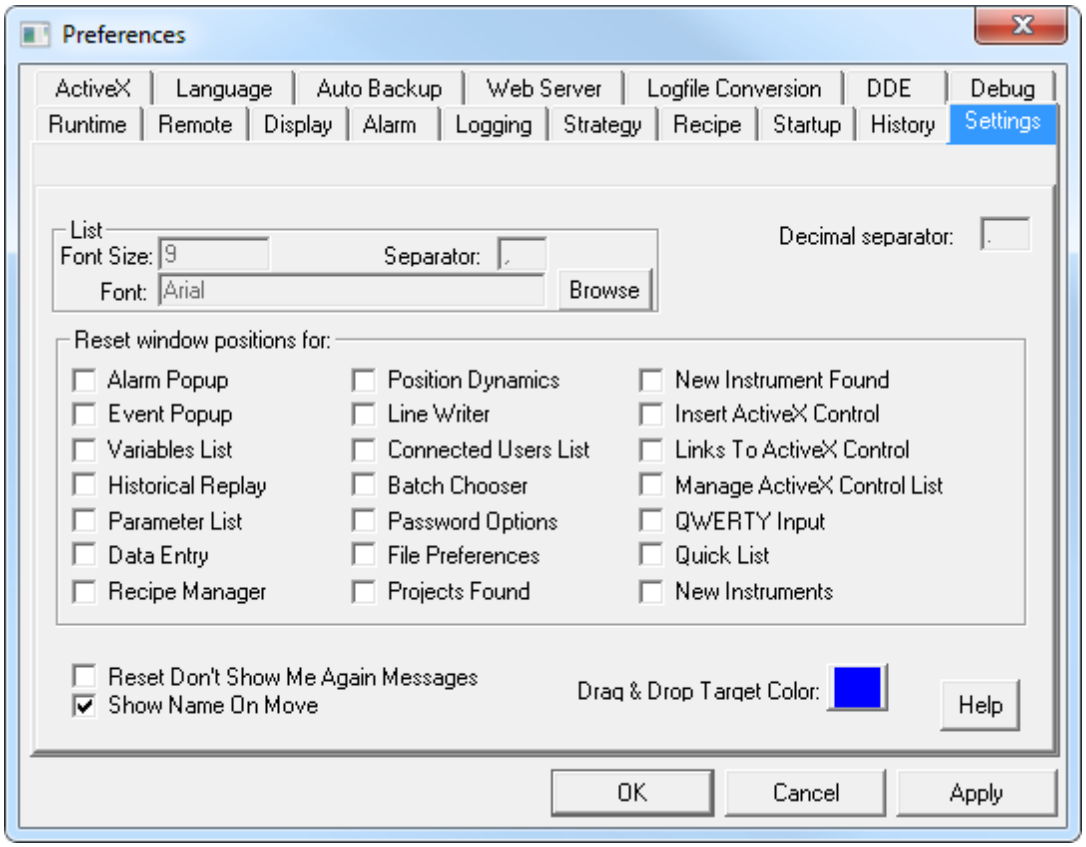
19.11 Bringing a box into view that is off-screen

It is possible for the boxes that SpecView displays, to be positioned off-screen, which means they are not visible.
This is because it is useful if SpecView remembers the last position of a box, so when it is opened again it appears in the same place.
However, if the last time SpecView it was run it was on a larger display monitor, then the box can end up positioned such that it is off-screen.

The Preferences box (accessed by choosing **Preferences** from the **File** menu) has a Settings [467] tab

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which allows the position of most boxes to be reset:



However, not all boxes can be repositioned using this, for example the Strategy Controller[666] box.

Therefore there is a trick in Windows that allows the position of boxes which are off-screen to be moved.

To do this, for example for the Strategy box, follow these steps - which will seem to do nothing until 'Step 5':

1. Choose **Strategy Controller** from the **Setup** menu, this will ensure that the box has keyboard focus, even though it can't be seen.
2. Press **ALT** and **Spacebar** together.
3. Press **M**.
4. Press a cursor arrow key, such as the up-arrow key, once.
5. Now the mouse has control over the window, so now move the mouse around until the window appears.

19.12 Sending an email from SpecView

It is possible to setup SpecView's Strategy Controller[666] to send email(s) when a certain condition occurs, such as an alarm. There are 2 ways to do this:

1. Using SpecView's Run External Program[447] command to run an email program that has a command-line interface to send the email, see below.

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2. Using an ActiveX[766] control, see below:

1. Using SpecView's Run External Program[447] command to run an email program, such as Swithmail:

Swithmail:

First download Swithmail (from: https://sourceforge.net/projects/swithmail/) and read the associated help file(s).
This is free software, but please consider donating using the the link provided.

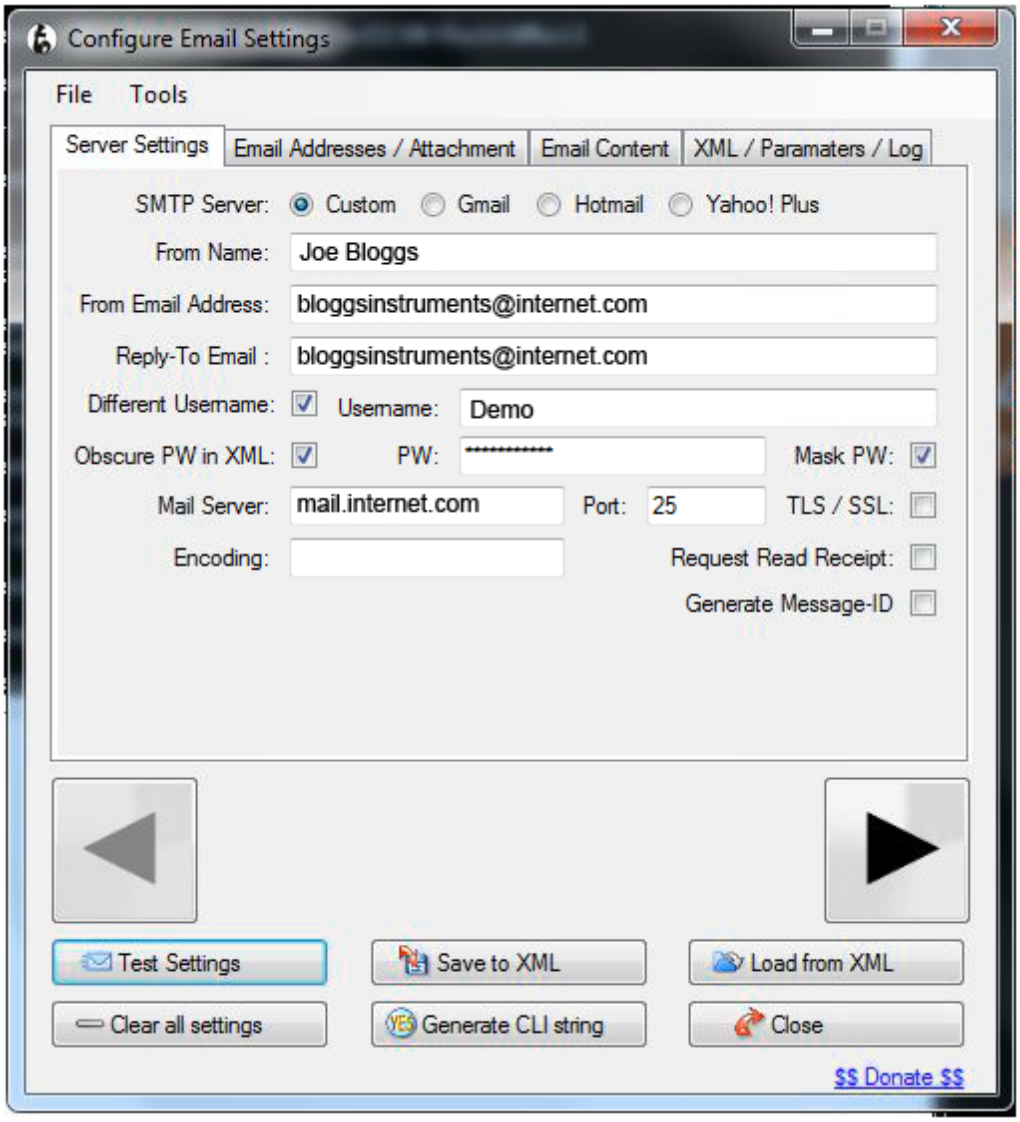
Read Setting up SwithMail (GUI) to send an Email from SpecView[848] for a step by step procedure to set up SwithMail's GUI to send Emails from SpecView.

If sending from a personal Gmail account, ensure two-factor authentication and an App Password has been setup.

For more information, please read SMTP Server Requires Secure Connection Error[847].

Swithmail is easy to setup because it has a user friendly graphical interface:

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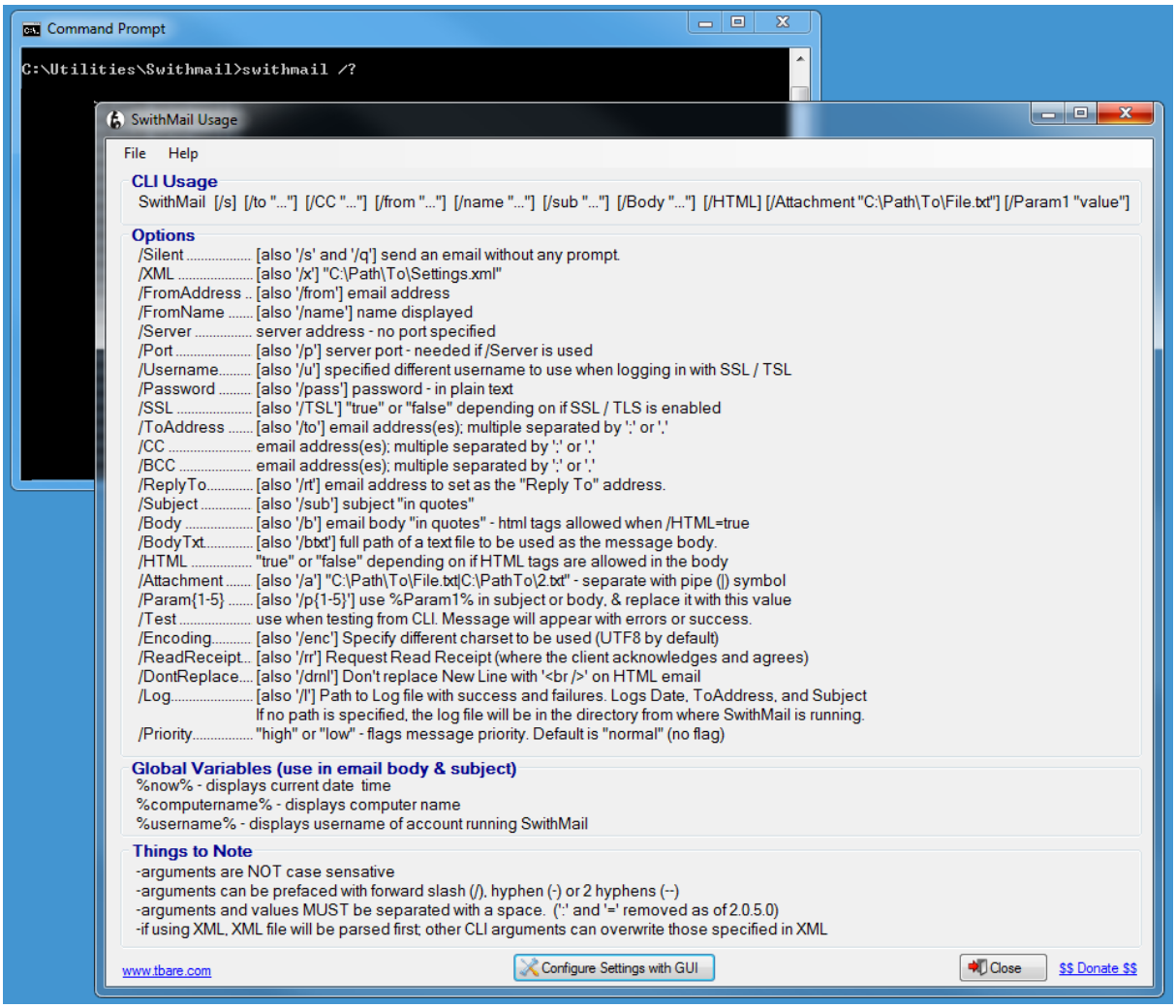
First you will need the following information:

1. The name of the mail server and the port number.
2. Whether it uses SSL or not.
3. The login details for it, i.e. username & password.

Use the **Test Settings** button to check if the entered details are valid.

Swithmail also has a command-line interface which means it can be run by SpecView without additional user action.
To view the available command-line options use command shown below:

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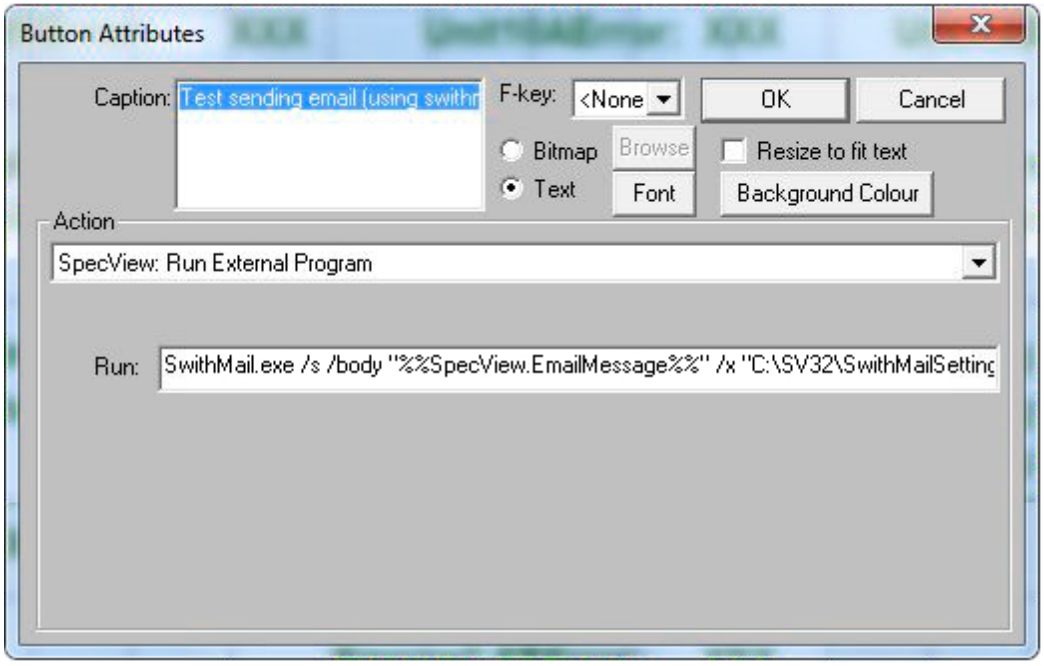


Running Swithmail from SpecView:
Put the text of the email to be sent into a file, called for example: **message.txt**
Then:

- Create a SpecView Text User Variable called, for example 'Subject'
- Create a button and use the Button/Strategy action: SpecView: Run External Program 447
- To run the command:

swithmail.exe message.txt -subject '%%SpecView.Subject%%' -to user@domain.com

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Both swithmail.exe and message.txt need to be in the Project's subfolder (C:\SV3\<project>\)
Or alternatively include their full pathnames when referring to them in the command-line above. If there are spaces in the pathname then it will need enclosing in quotes.

Once Swithmail is working correctly from a button on the screen, then it is possible to use SpecView's Strategy Controller[666] to send an email automatically, for example, when an alarm occurs.

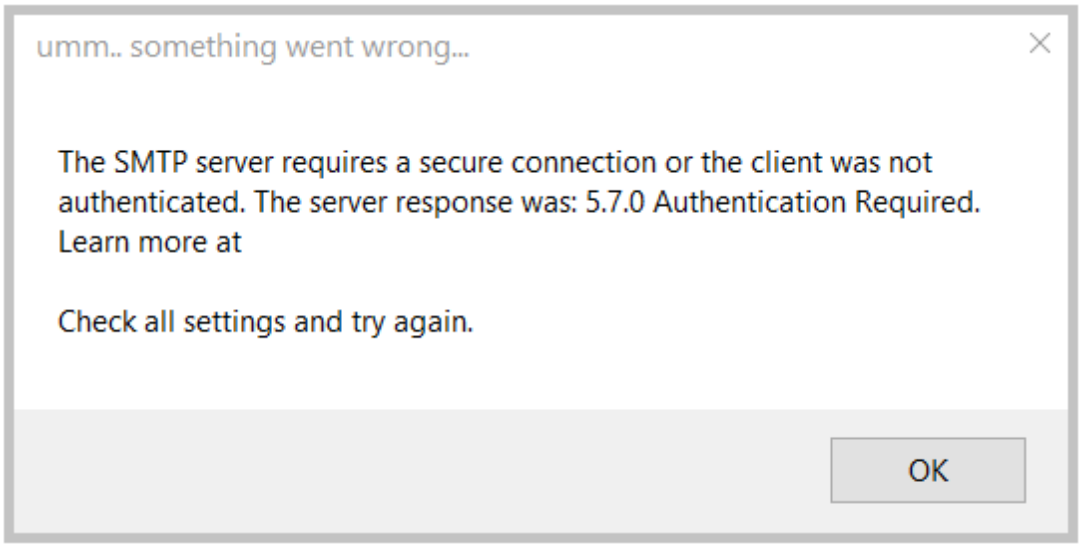
2. Using an ActiveX[766] control:

The ActiveX control AddEmail can be used which is available from www.traysoft.com.
Please contact SpecView's Technical Support[798] for further help.

19.12.1 SMTP Server Requires Secure Connection Error

While configuring email settings with SwithMail it is possible to receive the following error message if using Gmail or a company mail server.

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This error occurs because the mail server that SwithMail is attempting to establish a connection with is suspicious of the connection.

SwithMail is not able to respond to the challenge that the mail server raises and the connection attempt fails.

To circumvent this issue, additional verification is required on the user's email account settings.

If a company mail server is being utilized, using the custom option on SwithMail GUI to configure email settings should be sufficient. Ensure the login credentials, server name, and port number are correct before testing the connection. This information can be provided by the company's IT department.

If Gmail is being utilized, 2-Step Verification needs to be enabled on the user's Gmail account. Additionally, an App Password generated by Gmail needs to be used as the password on SwithMail. The App Password will replace the user's usual login password on SwithMail.

To enable 2-Step Verification and app passwords, please read Google's Account Help pages.

Gmail: Turn On 2-Step Verification

Gmail: Sign In With App Passwords

19.12.2 Setting up SwithMail (GUI) to send an Email from SpecView

This section will outline how to set up SwithMail using its GUI to enable SpecView to send an Email.

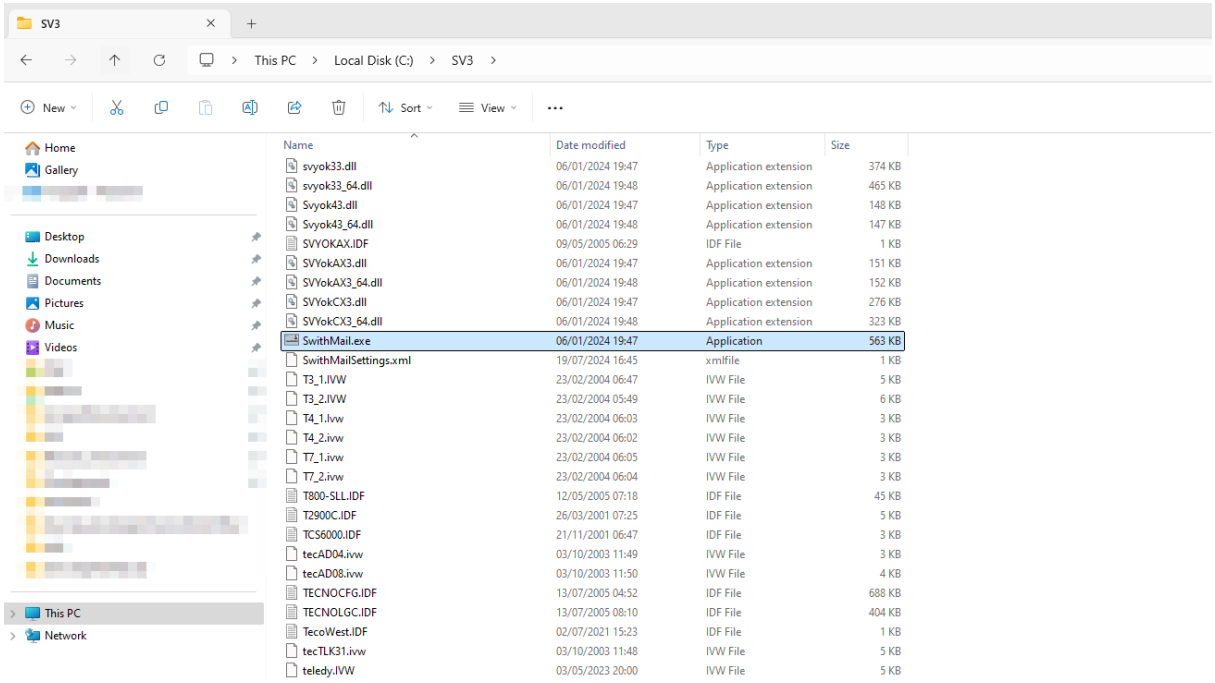
If sending from a company Email address, the login credentials, server name, and port number for the company's mail server will be required.

If sending from a personal Gmail account, ensure two-factor authentication and an App Password has been setup.

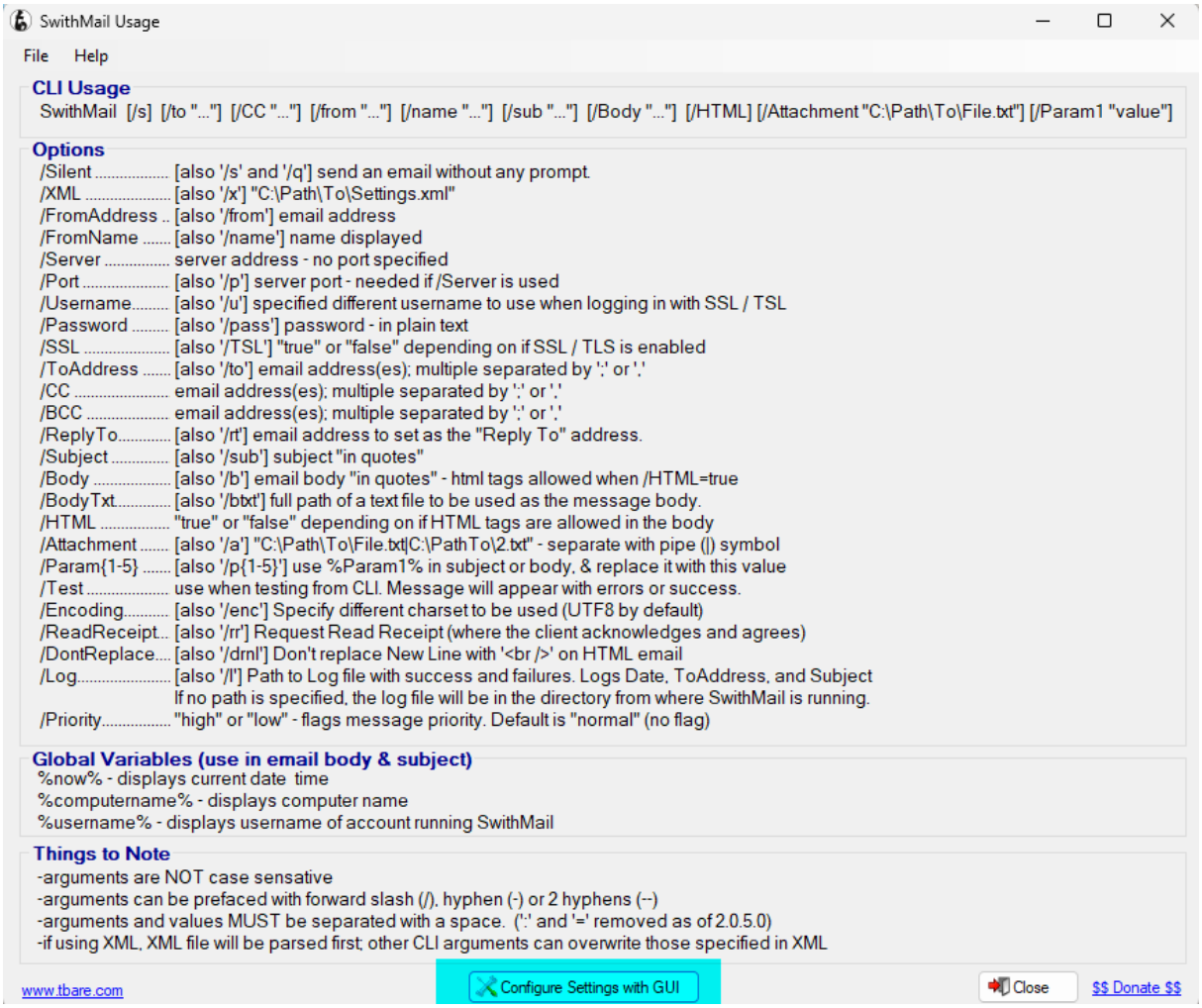
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For more information, please read SMTP Server Requires Secure Connection Error[847].

1. From the SV3 folder, open SwithMail.exe.

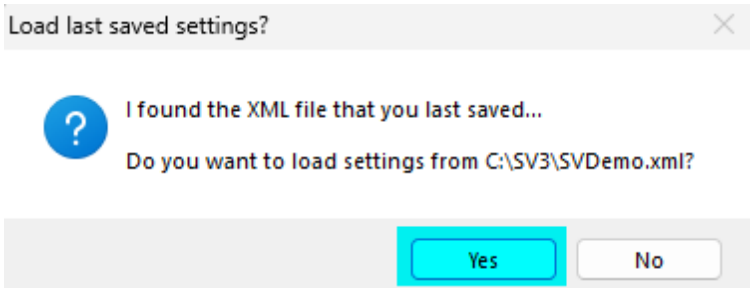


2. Click on Configure Settings with GUI.



3. If a previously saved xml file is available, then modifying the settings within the xml file will be more efficient.

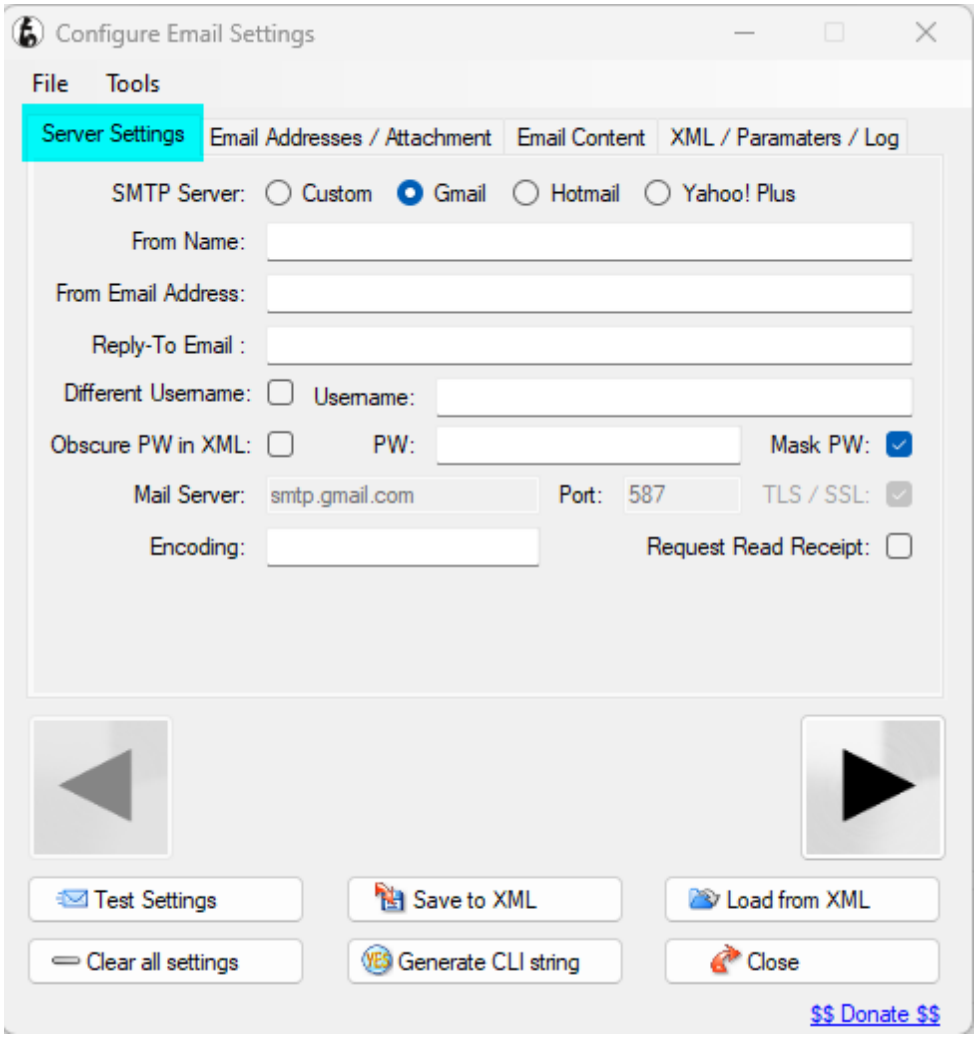
   Click on Yes when asked to load last saved settings.



   If no xml file was previously stored, continue on to Step 4.

4. Click on the Server Settings tab.

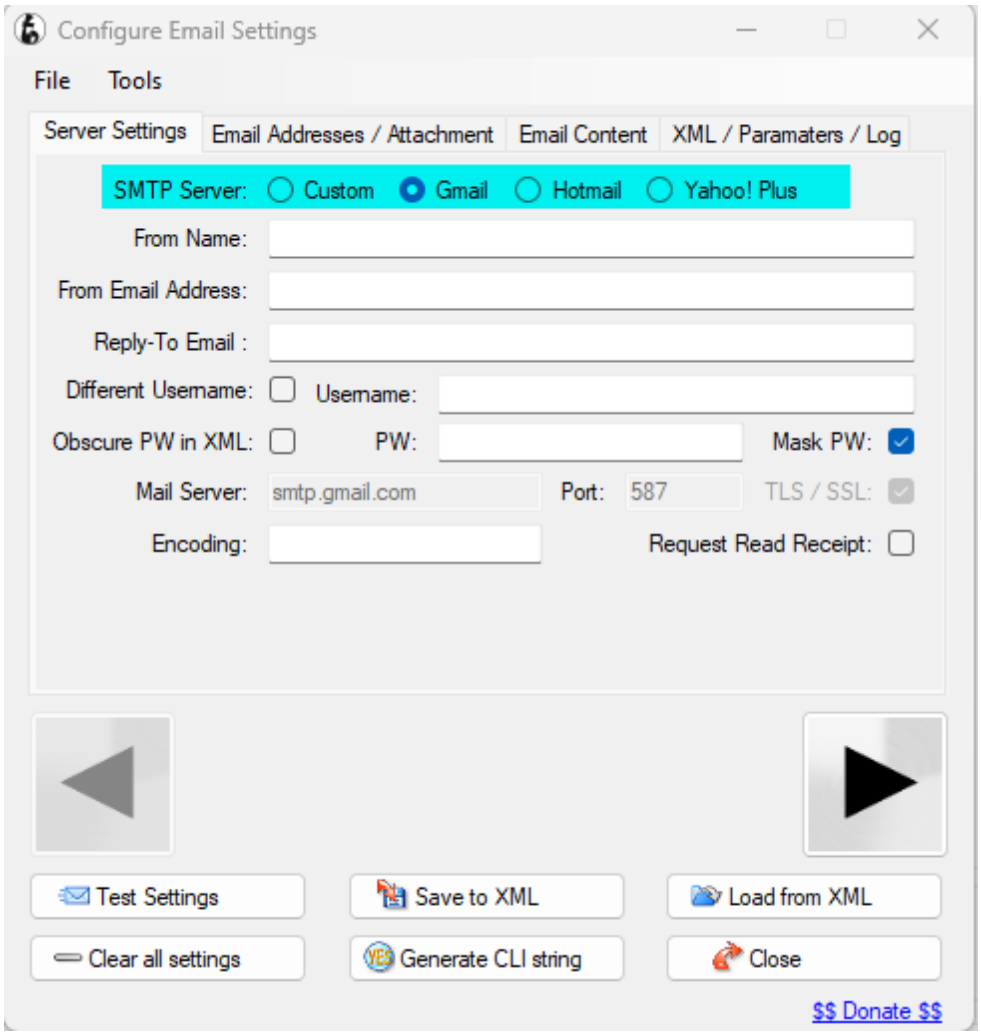
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5. For the SMTP Server setting, click on the circle beside the appropriate Email server being used.

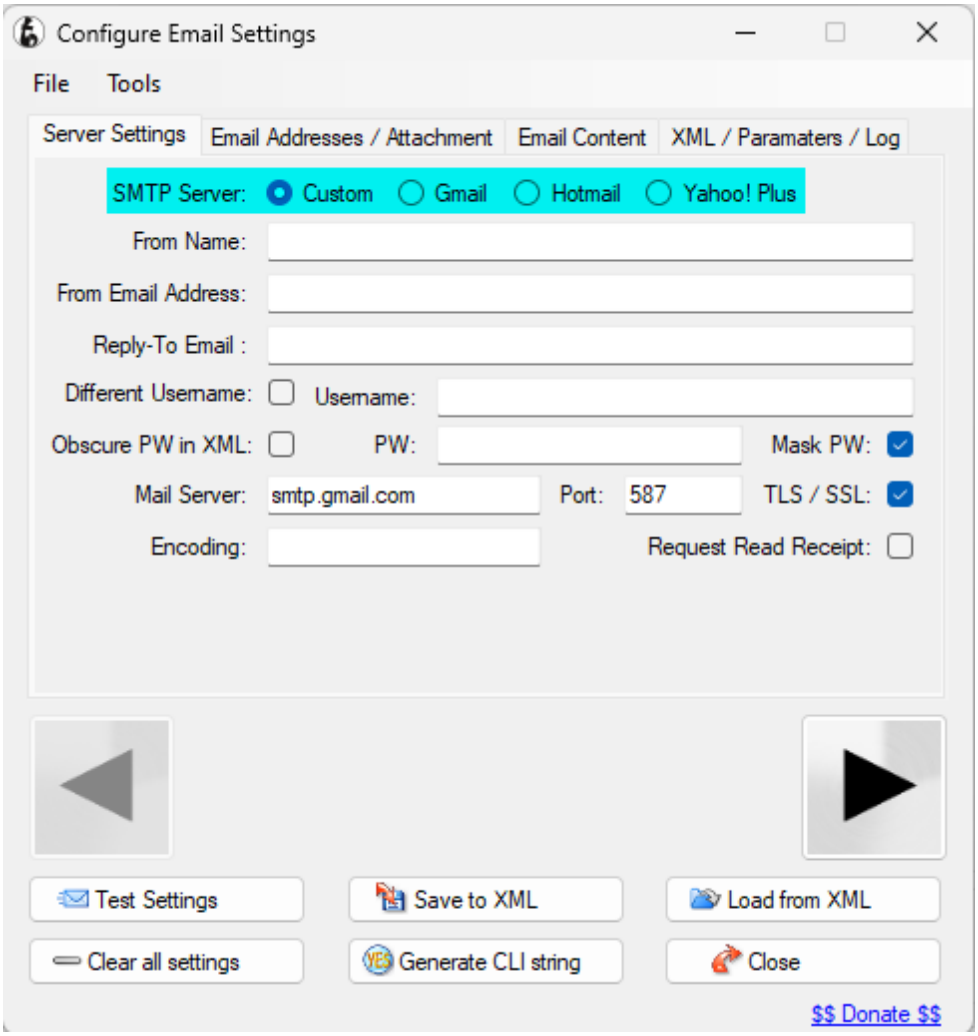
   For example, if you using a personal Gmail account, then click on and fill in the circle beside Gmail.

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If using a company email, click on the circle beside Custom.

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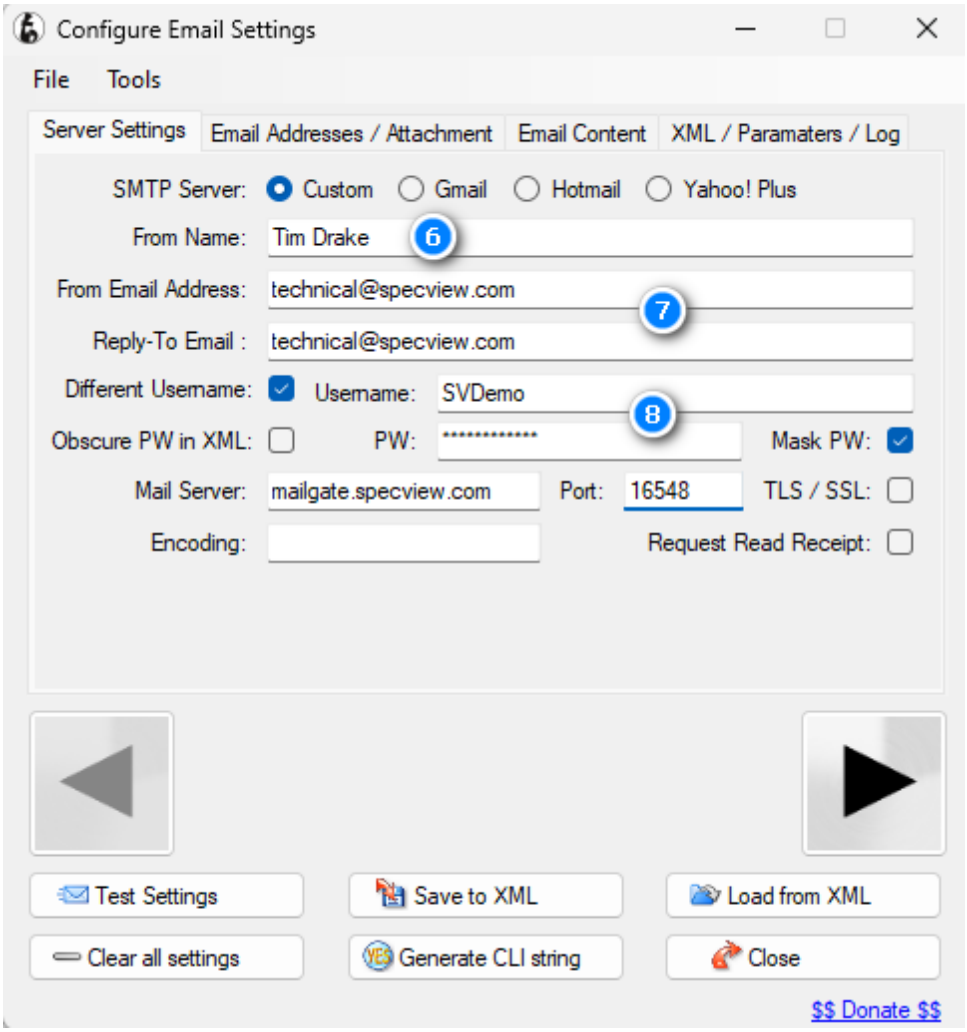
6. Enter a sender name in the From Name field.
7. Enter a Sender Email address in the From Email Address and Reply-To Email fields.
8. If sending an Email from a company Email address, enter the company's mail server login credentials in the Username and PW fields.
   Enter the name of mail sever in the Mail Server field.
   Enter the appropriate port number in the Port field.

If using a personal email, enter the login credentials for the personal email account in the Username and PW fields.

For personal Gmail accounts, an App Password will be required to replace the usual Gmail account password.

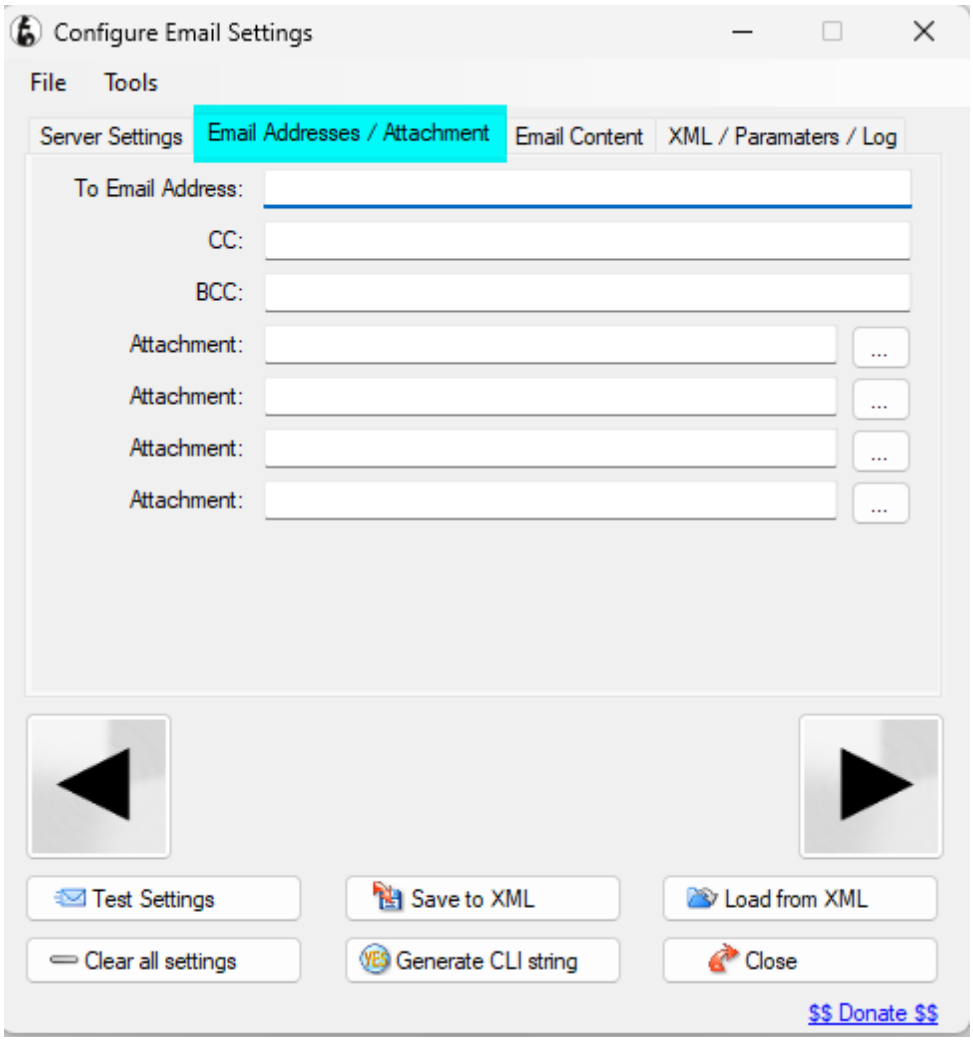
For more information, please read SMTP Server Requires Secure Connection Error[847].

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9. Click on Email Addresses / Attachment.

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10. Enter the recipient's Email address in the To Email Address field.

    For multiple recipients, separate the Email addresses with a semicolon.

    To copy someone on the Email, enter their Email address in the CC field.

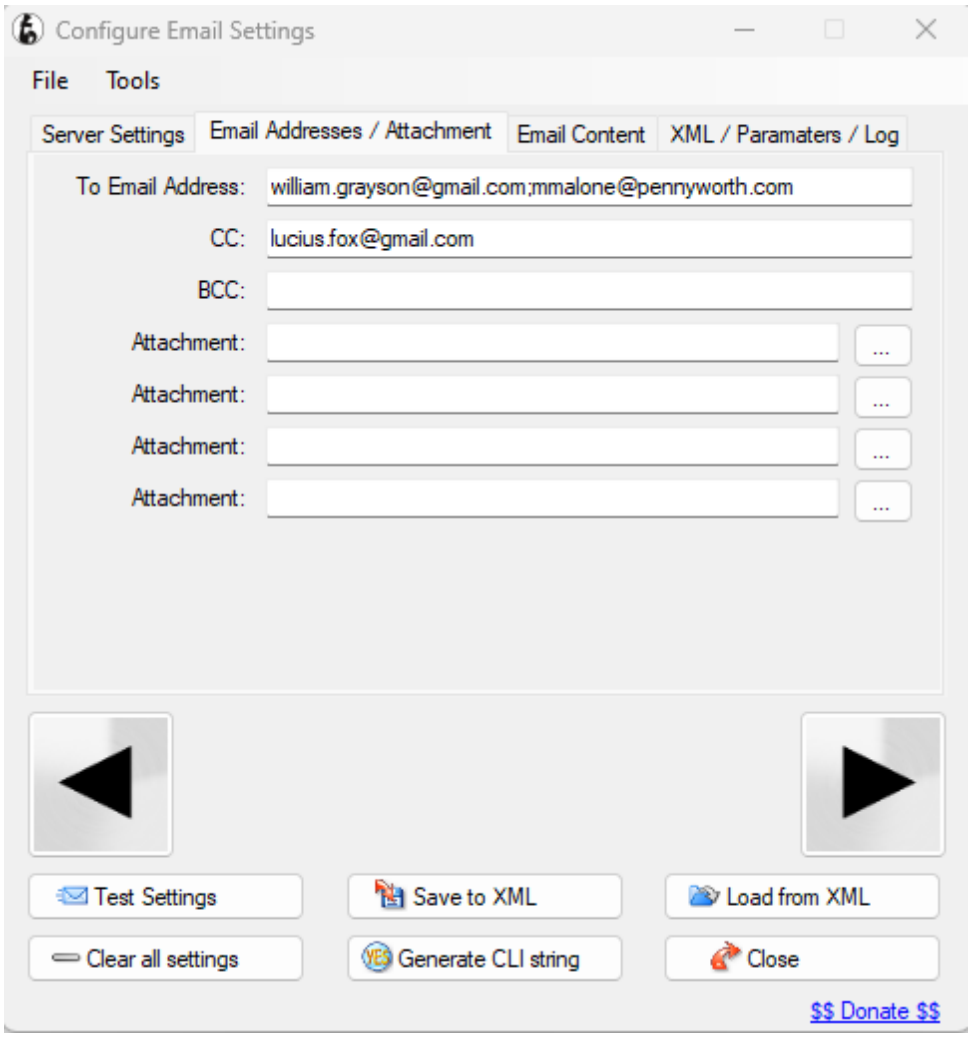
    To copy multiple people on the Email, separate their Email addresses with a semicolon.

    To send an SMS text message, enter the recipient's email to text service Email address.

    For example, to send an SMS text message to a recipient with the phone number 123-456-7890 and a carrier service of Bell Canada, enter 12345678890@txt.bellmobility.ca as the recipient Email Address.

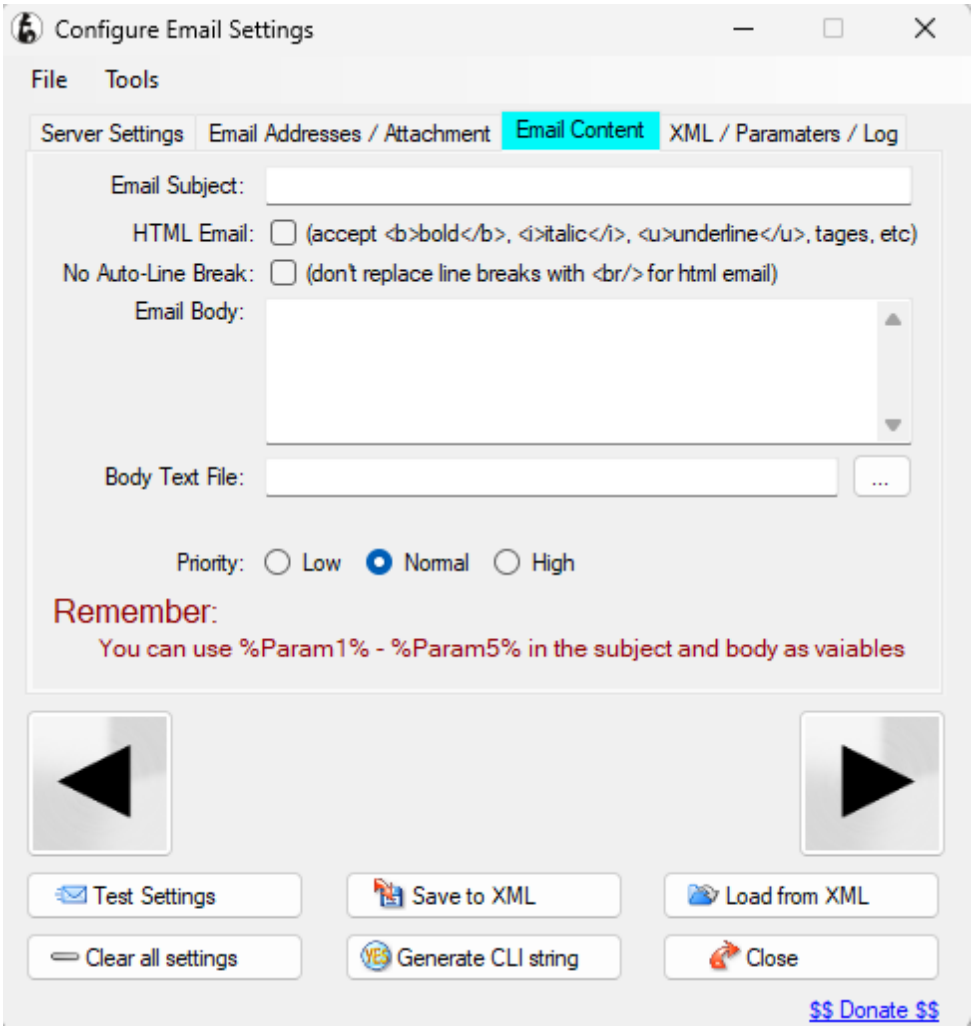
    For more details on this, please read Sending an SMS text message from SpecView 863.

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11.Click on Email Content.

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12.Enter the subject of the Email in the Email Subject field.

The subject of the Email can contain parameter values.

Encapsulate the parameters in %.

For example the subject of the Email can say, "%Batch ID% *(SpecView parameter for the name of the batch)* Complete".

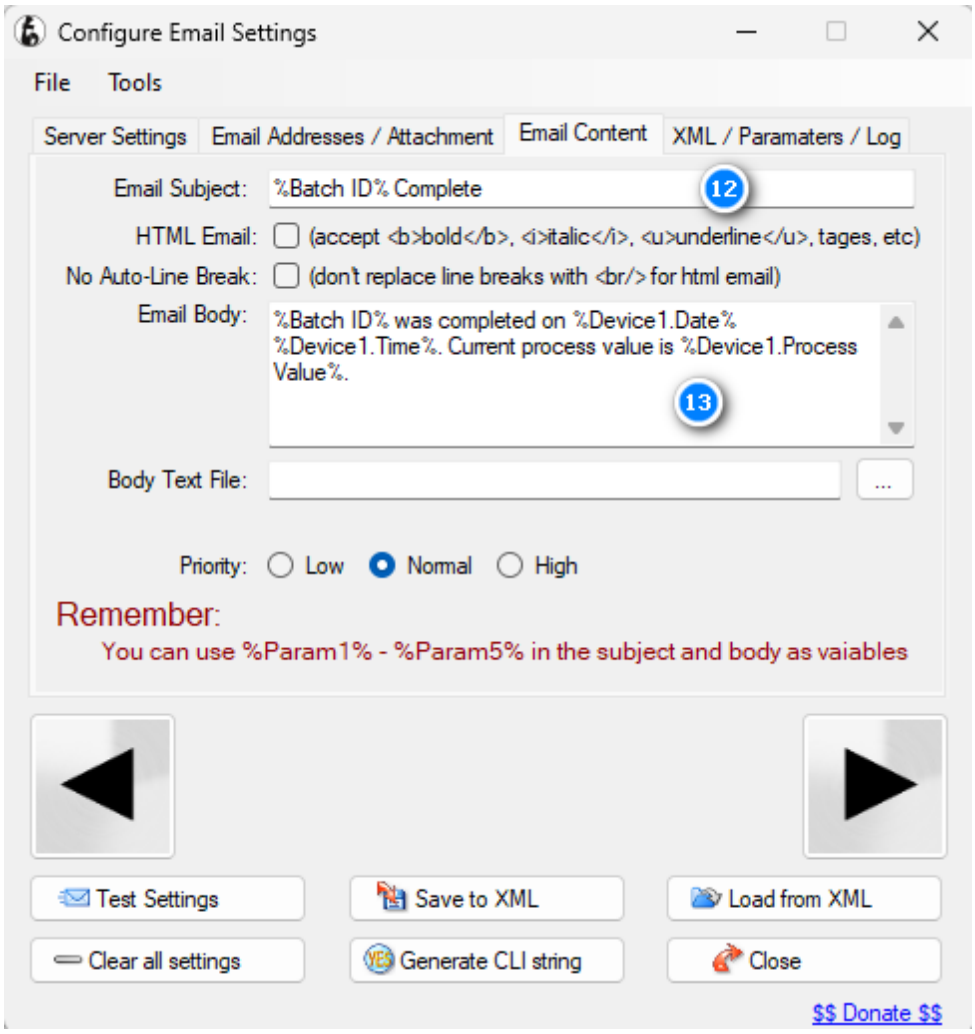
13.Enter the body of the Email in the Email Body field.

The body of the Email can contain parameter values.

Encapsulate the parameters in %.

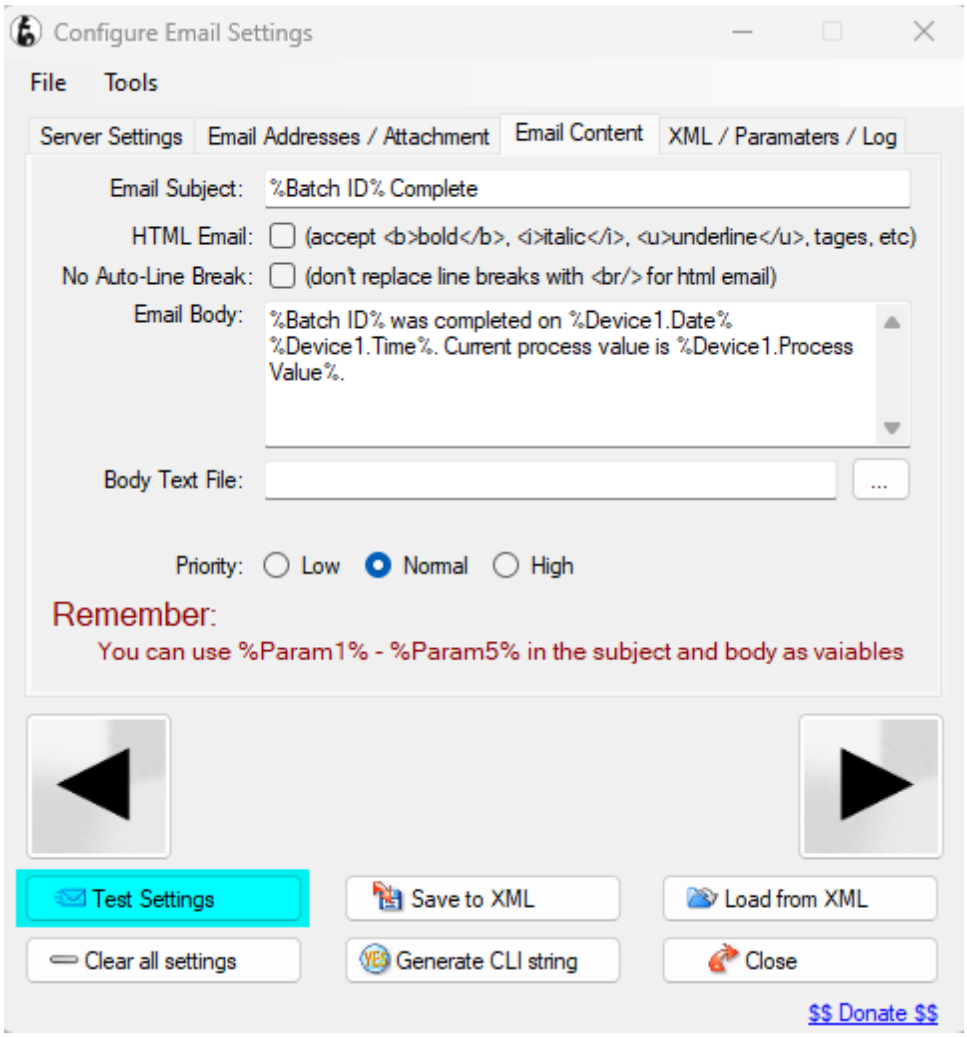
For example, the body of the Email can say, "%Batch ID% *(SpecView parameter for the name of the batch)* was completed on %Device1.Date% %Device1.Time% *(instrument parameters for date and time respectively*). Current process value is %Device1.Process Value% *(process value of device)*.".

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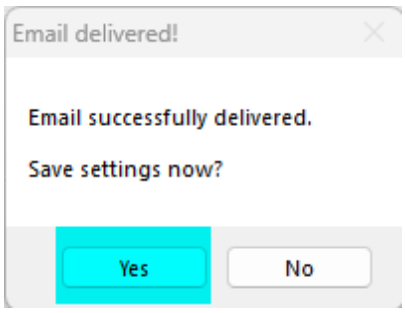
14.Click on Test Settings to test if the Email will be successfully sent.

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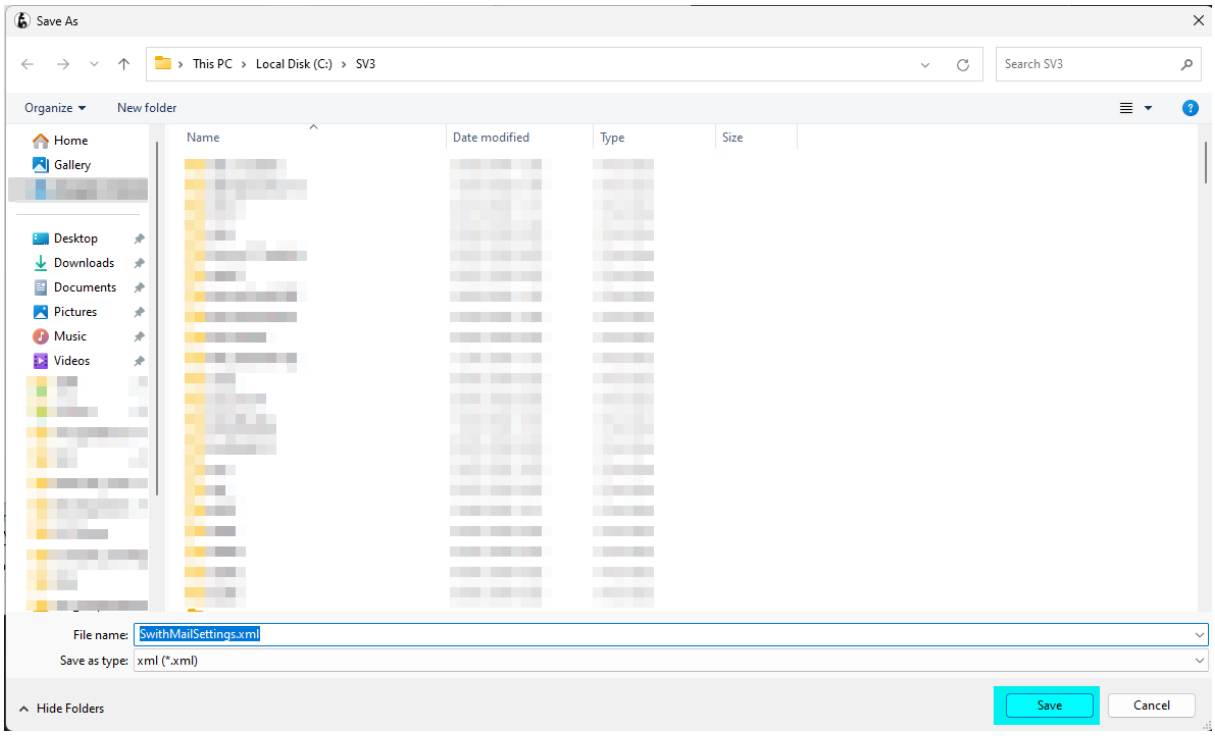


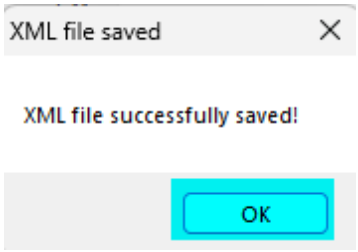
15. If the Email was successfully delivered, then click on Yes to save the settings as a xml file in the SV3 folder.

    This will enable for easier editing of the settings if it is required in the future.



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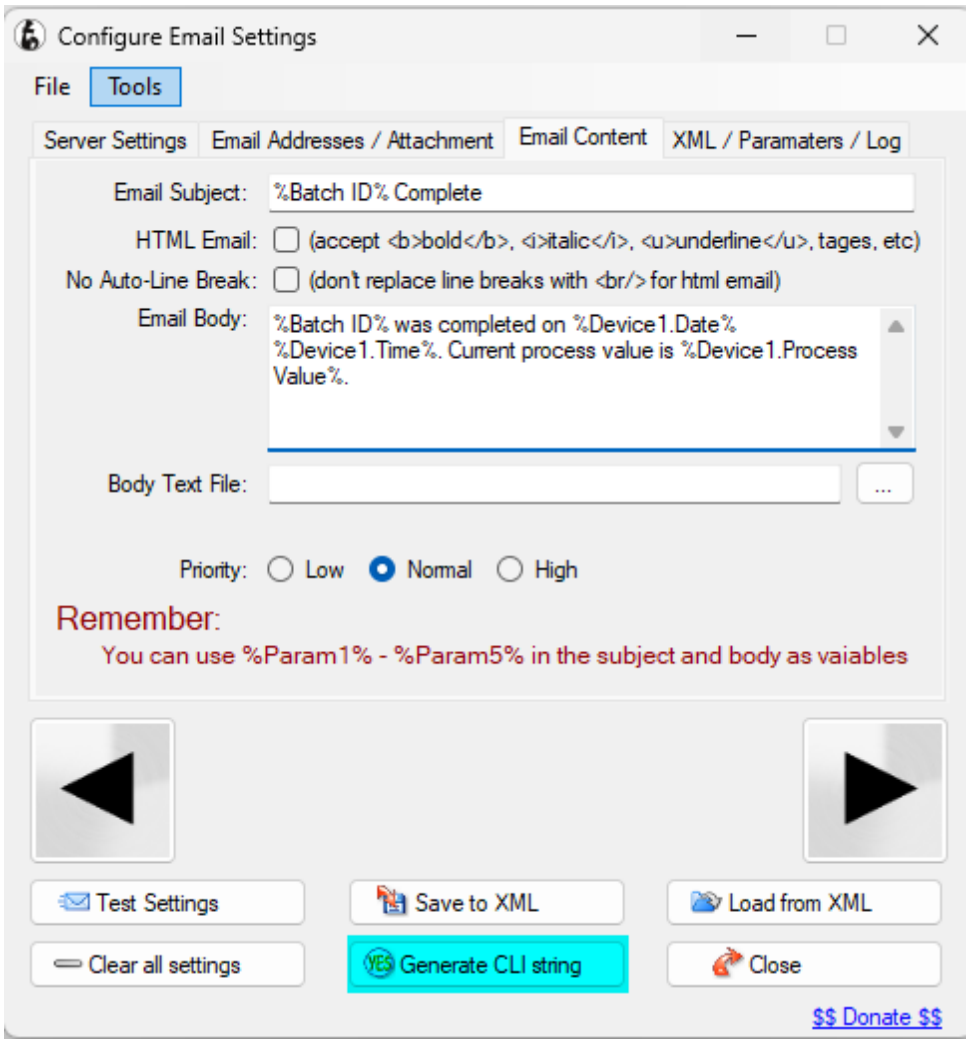
If the Email was not successfully delivered, ensure the settings have been correctly programmed.

Ensure the login credentials for the mail server are correct, and that the mail server is capable of receiving Emails from the Email address entered in Step 7.

Sometimes company mail servers will not allow for Emails originating from external Email addresses to be received.

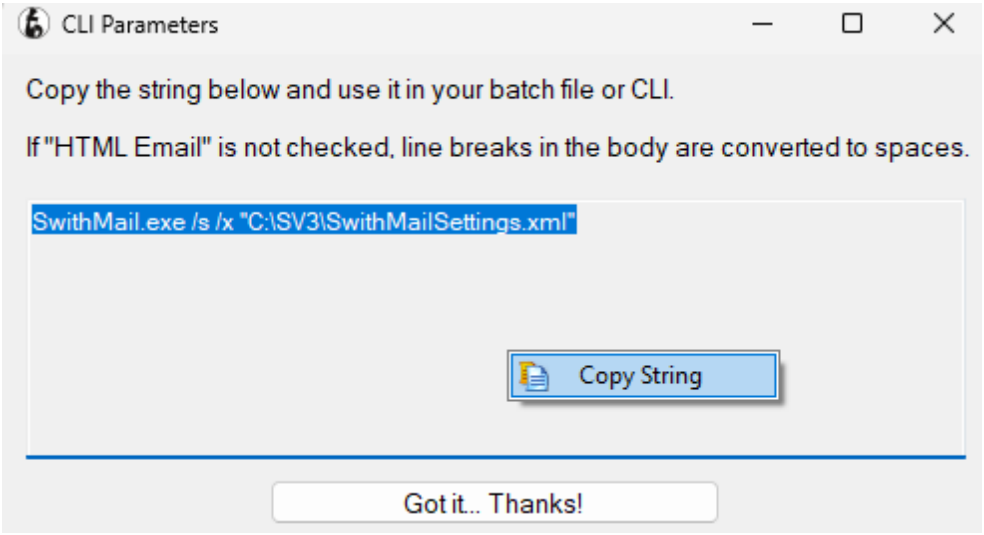
16.Click on Generate CLI string.

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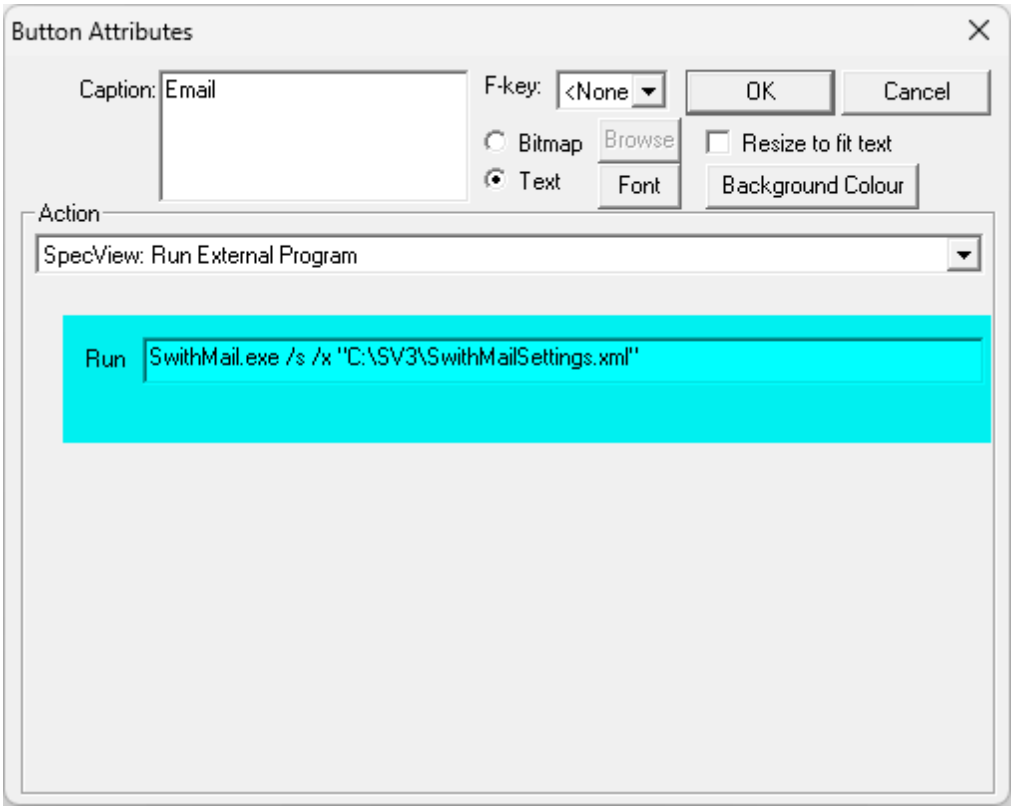
17.Right click on the CLI box and click on Copy String.

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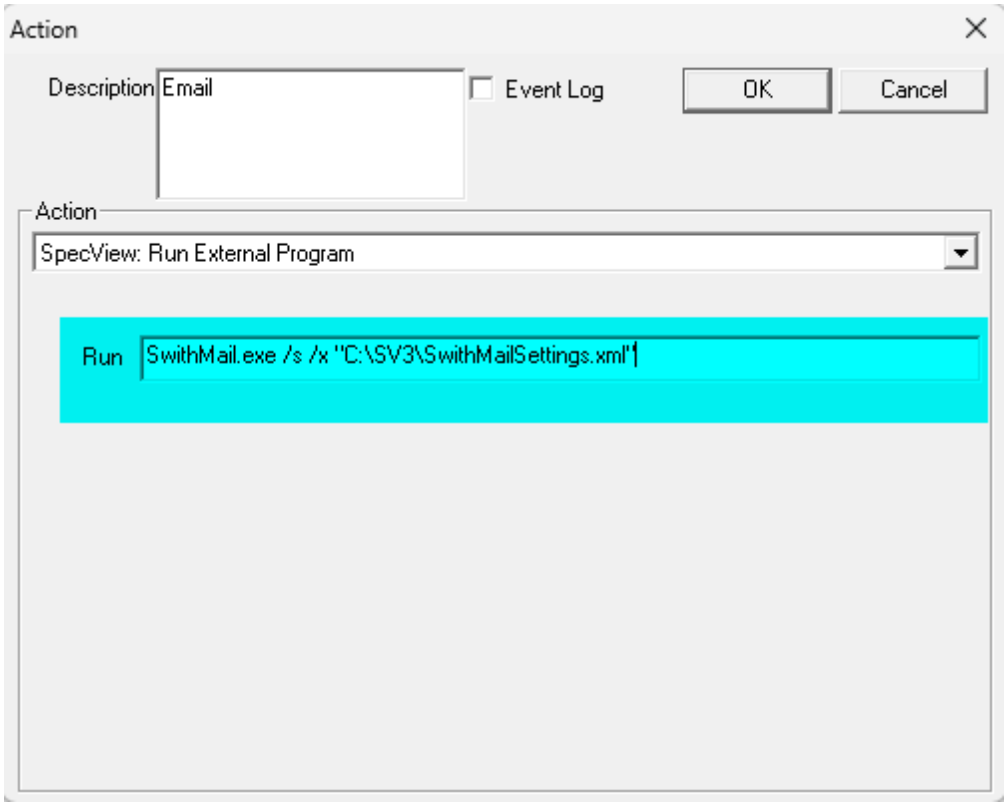


Click on Got it ... Thanks!

18. Paste the CLI string in the Run field in the Button Attributes or Strategy Controller Action box after selecting SpecView: Run External Program from the Action drop down menu.



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Now whenever the Button is actioned or the Strategy Event is triggered, an Email will be sent according to the settings programmed in SwithMail mentioned in Steps 1-13 above.

19.13 Sending an SMS text message from SpecView

Sending a notification from SpecView when an event occurs is a common request. SpecView's Strategy Controller has an "Action" available that runs an external command line application. There is a utility called swithmail[843] that can be setup to send an e-mail using the "Run External Program" action.

However, please be aware that due to the **mobile phone network** text messages are **not** guaranteed to arrive in a timely manner and therefore should not be used in time critical situations.

Email to text services in the USA and Canada:

Most cell phone providers in the USA and Canada offer an e-mail to text service.
To send a SMS text message, follow the steps outlined in Setting up SwithMail (GUI) to send an Email from SpecView[848] and replace the recipients' Email addresses with their carrier Email addresses.
For example, to send an SMS text message to a recipient with the phone number 123-456-7890 and a carrier service of Bell Canada, enter 12345678890@txt.bellmobility.ca as the recipient Email Address.

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However, note that these services are only available in the USA and Canada.
In the UK the SMS/MMS protocols are different so cell phone providers in the UK don't offer this service, but the below solutions will work in the UK.

- **AT&T** – cellnumber@txt.att.net
- **Cricket** – cellnumber@sms.mycricket.com
- **Verizon** – cellnumber@vtext.com
- **T-Mobile** – cellnumber@tmomail.net
- **Sprint PCS** - cellnumber@messaging.sprintpcs.com
- **Virgin Mobile –** cellnumber@vmobl.com
- **US Cellular** – cellnumber@email.uscc.net
- **Nextel** - cellnumber@messaging.nextel.com
- **Boost** - cellnumber@myboostmobile.com
- **Alltel** – cellnumber@message.alltel.com

Email to text services in Canada:

- **Bell Canada** - cellnumber@txt.bellmobility.ca
- **Fido** - cellnumber@fido.ca
- **Rogers Canada** - cellnumber@pcs.rogers.com
- **Telus** - cellnumber@msg.telus.com
- **Virgin Mobile Canada** - cellnumber@vmobile.ca
- **Koodo** - cellnumber@koodomobile.com
- **Chatr** - cellnumber@pcs.rogers.com
- **Sasktel** - cellnumber@sms.Sasktel.com

Using swithmail [843] together with a text messaging service:

It is possible to send text messages using swithmail [843] to email an email address that will then send a text to that mobile number (such as: www.world-text.com)

It is necessary to have setup an account with www.world-text.com to send emails to a mobile number, and note that there will be a cost involved.

Using 2sms:

It is also possible to send texts directly using 2sms (www.2sms.com).
2sms has a command line interface that works well with SpecView and 2sms is fully supported on Windows 7
See the 2sms website for details.

However they have a multitude of pricing structures, see their pricing page here: http://www.2sms.com/cost.aspx

This is an example of using 2sms to send a text message using the Button/Strategy Controller action 'Run External Program' [447]:

C:\Program Files\2sms.com\Desktop SMS\desktopsms.exe /m:"%%SpecView.Time%%, Routine maintenance due: %%SpecView.MaintDateTime%%" /n:"07777123456" /s

Note, there is also a cost involved, see pricing here: https://gb.2sms.com/uk-pricing/

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19.14 Making a phone call from SpecView

Sending a notification from SpecView when an event occurs is a common request which could be done via:

- Email 843
- Text 863
- Telephone call

To make a telephone call from SpecView, there are 3 ways SpecView could do this:
All of these assume that the SpecView license has the 'Strategy Controller' option.

1. Running a program to make the call which would require the Strategy Controller to run an external command line application which in this case would be some sort of program that dials a telephone number. These sorts of programs are becoming more widely available, further research on available programs would be needed, and each call would come at an additional cost from the provider. Unfortunately 'Google Voice' only works in America at the moment.

2. Turning on a digital output:
   In the simplest form - think of personal alarm systems for the elderly - these have a button on a necklace that the person presses if something is wrong. This signals an autodialler box on the wall to make the call to the telephone number(s) that have been previously setup in the autodialler.
   Now imagine that you have acquired from somewhere a button pusher gadget that presses a button when a digital output is On. So obviously these could be put together, and SpecView could be setup to turn on the digital output.

   A real example of this is this GSM Autodialler which could work together with a Promux relay output module - or any digital output from any existing instrumentation, e.g. a spare alarm output on a controller.
   See here: https://gsm-activate.co.uk/product/gsm-auto-dialler/

3. Sending a signal via the Modbus protocol to some sort of device which accepts Modbus commands and which can do the dialing, to find available solutions Google for: Modbus slave autodialler

19.15 Playing a noise when an alarm occurs

Can I get SpecView to play a noise (or tune) when something happens?

Use the Strategy Controller 666 action: SpecView: Run External Program 447 to run a separate program, for example, Playwav.exe, to play a tune on the sound card, if one is fitted.
Playwav.exe can be downloaded from Horst Schaeffer's Software Pages here: https://www.horstmuc.de/wminis.htm#playwav

If Playwav.exe is placed in, for example, the SV3 folder, then to play a WAV file, for example, NOISE.WAV which has also been placed in the SV3 folder, use SpecView: Run External Program 447 and use a command such as:

C:\SV3\PLAYWAV.EXE C:\SV3\NOISE.WAV

Note that it is important to specify the full path of the .EXE file (including the .EXE filename extension),

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as well as the full path of the WAV file, because SpecView needs to know where the files are, which means that typing just 'playwav noise' will not work.

Note: Use quotes if there are spaces in the filename, for example: C:\SV3\PLAYWAV.EXE "C:\SV3\LOUD NOISE.WAV"

Alternatively, if there is hardware connected such as a digital relay which could be wired to an alarm bell, then the digital output could be set by the Strategy Controller[666] to make the alarm bell ring.

19.16 Strategy: Preventing events triggering at startup

How to prevent a Strategy Event triggering when SpecView starts?

For example, if Strategy tests a boolean, but it is necessary that neither the 'On' nor 'Off' events are triggered when SpecView starts (or goes 'Online')...

To prevent this create an additional Boolean User Variable that will be used as a 'mirror' of the first one.
In Strategy add two new events :
If 'Bool is On' with the action: set[431] 'MirrorBool to On'
If 'Bool is Off' with the action: set[431] 'MirrorBool to Off'
Then in the original 'If Bool is On' event add 'Enable on Boolean[669]: MirrorBool is Off'.
And in the original 'If Bool is Off' event add 'Enable on Boolean: MirrorBool is On'.

This will prevent these events triggering when SpecView starts.

This works because the 'Enable on Boolean' functions as an AND operator.
When SpecView starts (or goes 'Online') neither statement:
'If Bool is On' AND 'MirrorBool is Off'
nor
'If Bool is Off' AND 'MirrorBool is On'
will be true.

This is described in more detail here[697].

19.17 Trend Chart Tolerance Bands

Setting up tolerance bands on a trend chart pen (max & min allowable values) can be done in the following ways:

- Warning 'flashing' of the pen line on a Trend Chart when out of range using the **Blink on Alarm from** box on the Pen Properties[535] setup box
- Warning flashing using Color Dynamics[359]
- Warning messages using Position Dynamics[363]
- Ramp/Soak controllers have a Working Setpoint, so plotting the Working Setpoint on the chart can be used to indicate a tolerance band. This can be done with User Variables[322] that have been set using

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the Strategy Controller[666] to the Working Setpoint plus or minus a tolerance

- If the upper and lower limits don't change during the process then simply plotting 2 User Variables[517] on the Trend Chart that contain the upper and lower values will visually show if the reading goes out-of-range.

For determining if a value is 'in-range' in order to e.g. send an email, there is some Strategy that will need implementing to do range-checking[869].

19.18 Trend Chart Batches

Processes can either be considered as 'continuous' or 'batch' processes.

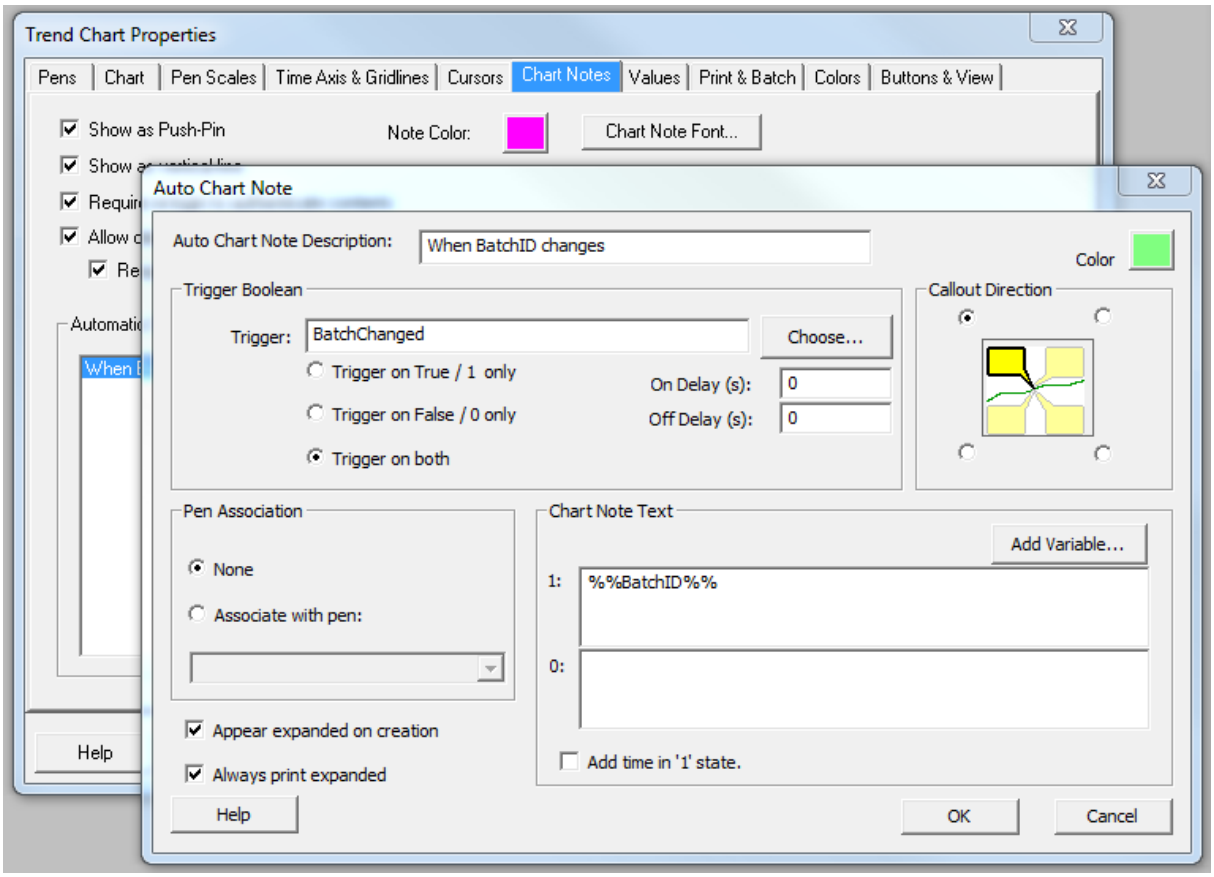
For batch processes it is useful to be able to give names to the batches and to be able to find them at a later date to review the data, using the 'batch chooser' from either Historical Replay or Log Reports.

For detail on the steps needed see video on YouTube: 4500 - SpecView Version 3 Trend Chart: Batch Tags

There are some settings in Trend Chart setup that are useful when displaying a batch on a chart - for example, on the Chart tab set Scrolling mode to **None - rescale time to fit**. This will make the chart fit the batch.

It is also possible to add Automatic Chart Notes when a batch changes:

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The BatchChanged trigger would be a Boolean User Variable that it set to 'On' when the BatchID changes using Strategy Controller.
For more information contact SpecView Technical Support[798].

19.19 Passwords: Explaining the two different password systems

There are 2 types of password systems in SpecView:

1. SpecView passwords[703]
2. SpecView Networking passwords[736]

SpecView passwords
These are setup on the Local and they control which user can click on what.
There are 5 password levels: Level 1 users are typically setup for minimal access and level 5 users always have full access.
So for example:

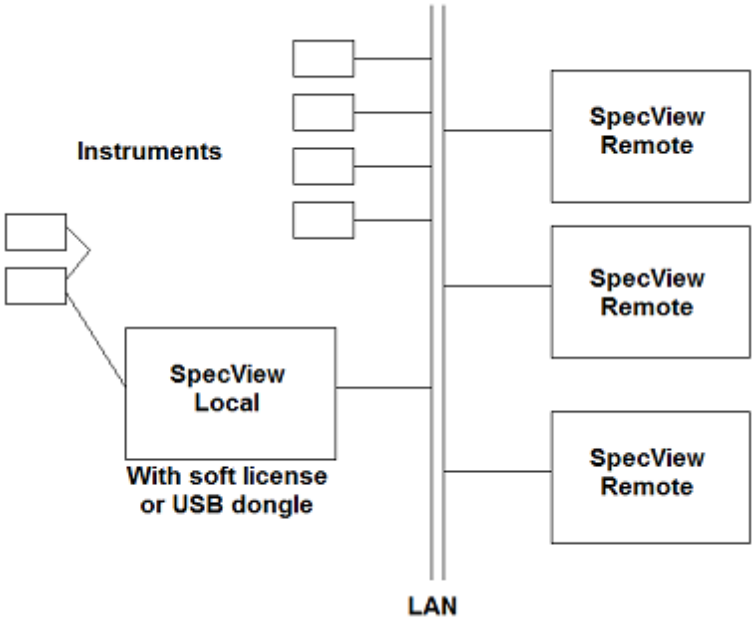
Level 1 - Operators
Level 2 - Supervisors

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Level 3 - Managers
Level 4 - Senior Managers
Level 5 - Admin
But not all levels need to be used… typically a few Level 1 users and one Level 5 are enough.

SpecView Networking passwords are setup on the Local and they control which Remote users can connect and whether those Remote users have the ability to change values.
There are 3 levels of access:
1=Read-only
2=Read/Write
3=Read/Write and alarm acknowledge
If SpecView passwords are not being used then this is an easy way to prevent Remote users from setting values that they shouldn't, and acts as an extra level of protection if SpecView passwords are being used.

The Project (also known as a *Configuration* or *Application*) on the Remote is copied across from the Local, so whatever passwords systems and users are setup on the Local will be copied to the Remote when the connection is made.



19.20 Range Checking

Determining if a value is 'in-range' (i.e. between an upper and lower limit) in order to e.g. send an email if it is out-of-range.

To do this there is some Strategy 666 that will need to be implemented.

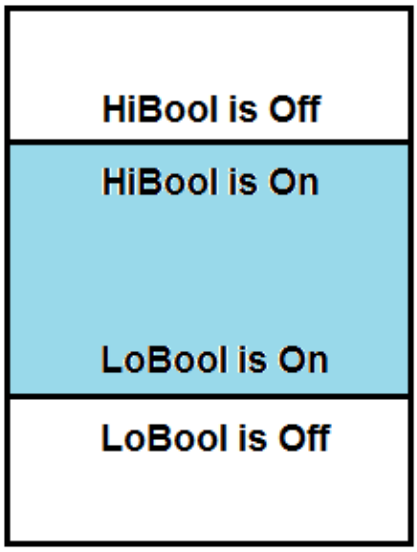
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The logic needs to set 2 booleans, e.g. HiBool and LoBool to be able to determine if the value is in-range.

HiBool is set according to whether the value is above or below the HiLimit.

And LoBool is set according to whether the value is above or below the LoLimit.

The in-range value is shown in blue in this diagram.



Below are the steps for the logic required in the Strategy:

Strategy logic	Explanation
Every Second: *HiLimit = Setpoint + AmountAbove* *LoLimit = Setpoint + AmountBelow*	When the computer's time changes, which is every second, update the HiLimit and LoLimit to allow for the ramping of the Setpoint.
If Value > HiLimit: *HiBool = Off* *InRange = HiBool + LoBool* *OutOfRange = InRange - InRange*	If the value is greater than the HiLimit: Set HiBool to OFF Set InRange to ON only if both HiBool and LoBool are ON. Set OutOfRange to the opposite of InRange.
If Value <= HiLimit: *HiBool = On* *InRange = HiBool + LoBool* *OutOfRange = InRange - InRange*	If the value is less than or equal to the HiLimit: Set HiBool to ON Set InRange to ON only if both HiBool and LoBool are ON. Set OutOfRange to the opposite of InRange.
If Value >= LoLimit: *LoBool = On* *InRange = HiBool + LoBool* *OutOfRange = InRange - InRange*	If the value is greater than or equal to the LoLimit: Set LoBool to ON Set InRange to ON only if both HiBool and LoBool are ON. Set OutOfRange to the opposite of InRange.
If Value < LoLimit: *LoBool = Off* *InRange = HiBool + LoBool* *OutOfRange = InRange - InRange*	If the value is less than the LoLimit: Set LoBool to OFF Set InRange to ON only if both HiBool and LoBool are ON. Set OutOfRange to the opposite of InRange.
If OutOfRange = On: *Send email*	If OutOfRange is ON: Send an email 843

For further assistance, or to see an example project, contact your SpecView representative.

19.21 Integrating SpecView with other software

SpecView can interface to other software in 4 ways:

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1.CSV (Output from SpecView only):
SpecView can write a CSV file – either by a logfile report 606 or using SpecView's LineWriter 452. Other software could read this. But unfortunately SpecView cannot read a CSV file that has been written by other software.

2.DDE (Both output from SpecView and input to SpecView):
SpecView supports DDE 582 Read and DDE Poke to read and write the values of variables to other DDE enabled software.
For example Microsoft Excel is DDE enabled

3.ActiveX control (Both output from SpecView and input to SpecView):
SpecView can input and output the values of variables via ActiveX 766 controls.
For example one of our resellers has written ActiveX controls in Visual Basic to allow SpecView to read/write data in a Microsoft Access database

4.OPC (Both output from SpecView and input to SpecView):
This is an unlikely solution - however, SpecView can read and write via OPC 574 – SpecView has a built-in OPC-Client - but this would need the other software to have an OPC-Server – either built-in or a third-party OPC-Server.

19.22 Adding a Yes/No confirmation to an Exit button

To add a confirmation: **Are you sure? Yes/No** to an **Exit** button follow these steps:

Note: The Strategy Controller will be required for this, all SpecView systems come with 2 free Strategy events, so if there is one event available then use that, otherwise the Strategy Controller option will need to be purchased.

This example assumes the 'Exit' button will be on a screen (GDW) called 'MainScreen'.

1. Create a Boolean User Variable called, for example, ExitPressed (initial value 'Off').

2. Create a new screen (GDW) called, for example, ExitScreen and put in it the text: 'Are you sure?'
and a button 'Yes' that has the action: **SpecView: Exit Program**
and a button 'No' that has the action: **GDW: Swap to another GDW**: MainScreen

3. The 'Exit' button should have the action:
Parameters: Download Specific Value: ExitPressed to On.

4. In Strategy Controller create an event: If ExitPressed = On
With the actions: **Parameters: Download Specific Value**: ExitPressed to Off
GDW: Swap to another GDW: ExitScreen

Note: However this will not work if using SpecView from a Remote. This is because screen swaps from the Strategy Controller are not supported on Remotes.

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19.23 Setting up an automatic Log Report

How can I setup a Log File Conversion to occur, automatically on a regular basis, for example, every day at Midnight?
For a detailed example of setting up the Strategy Controller to do an automatic Log Report at the end of a process run, please read: Example: Automatic Log Report 669.

Below is an abbreviated example, specifically for doing a Log Report at midnight:

For any automatic report generation you will need two SpecView 'DateTime' User Variables, one for the start time of the report (called: ReportStart), and one for the stop time (called: ReportStop).
Put both of these DateTime User Variables on a GDW.

NOTE: The Date/Time variables used for the start and stop times of the report MUST be on an open GDW in runtime for the report generation to work. They can be small or even behind an object like a trend chart, but they must be on an open GDW.

In this example a SpecView Text User Variable is going to be used (called: BatchRef) for the Report's file name. Create this variable and put it onto the GDW.
Also set the BatchTag 627 property on this variable, so that it can also be used for Historical Replay 622 purposes.

Ensure the Instrument and User Variables which are needed to be in the Log File Report are marked for logging. To do this check the 'Logged' attribute for the variables shown in the Variable Properties 326 box, or by selecting Show Logging In Variables List on the Setup menu 305

In Runtime Mode, click the current value of BatchRef and enter a name, such as a batch number.

Setup the Report Format:
– Save all GDW's and go into Runtime Mode
– Select the Convert Log File menu command from the Logging menu 273
– Click the Create button on the Log Report Setup Box
– Edit the fields as follow
  - Give the format a name, such as 'MidnightReport'
  - Add the variables required in the report, for example, by clicking 'Add All->'
  - Check the 'From SpecView String' checkbox and choose BatchRef from the options
  - Check the 'Start Time from Var' checkbox and choose ReportStart from the options
  - Check the 'Stop Time from Var' checkbox and choose ReportStop from the options

Then click 'Add to Format List'
- Click 'Cancel' to exit the Log Report Setup box
- Select the Edit Mode menu command from the File menu 269

The actual Log File Conversion can be done automatically using the Strategy Controller 666
Select the Strategy Controller menu command from the Setup menu 305

- Add a Time Based Event called 'At midnight generate Log Report', and set Hour=00, Minute=00, Second=00, the others leave set to 'Any'
- Add the Action: 'Time stamp ReportStop' to do: 'Parameters: Download Specific Value' using the variable ReportStop, setting it to 'Current Time' by checking the box

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- Add the Action: 'Generate Log Report' to do: 'Logging: Convert Specific Log File Format' using the format just created
- Add the Action: 'Time stamp ReportStart' to do: 'Parameters: Download Specific Value' using the variable ReportStart, setting it to 'Current Time' by checking the box

Click OK

Enter Runtime Mode and enter a name for tonight's converted log file report into BatchRef.

For the first day that this is run ReportStart will need to be set manually, so this value will need to be put on a screen in a convenient place so it can be manually set on the first day.

19.24 Using the date & time for a Log Report filename

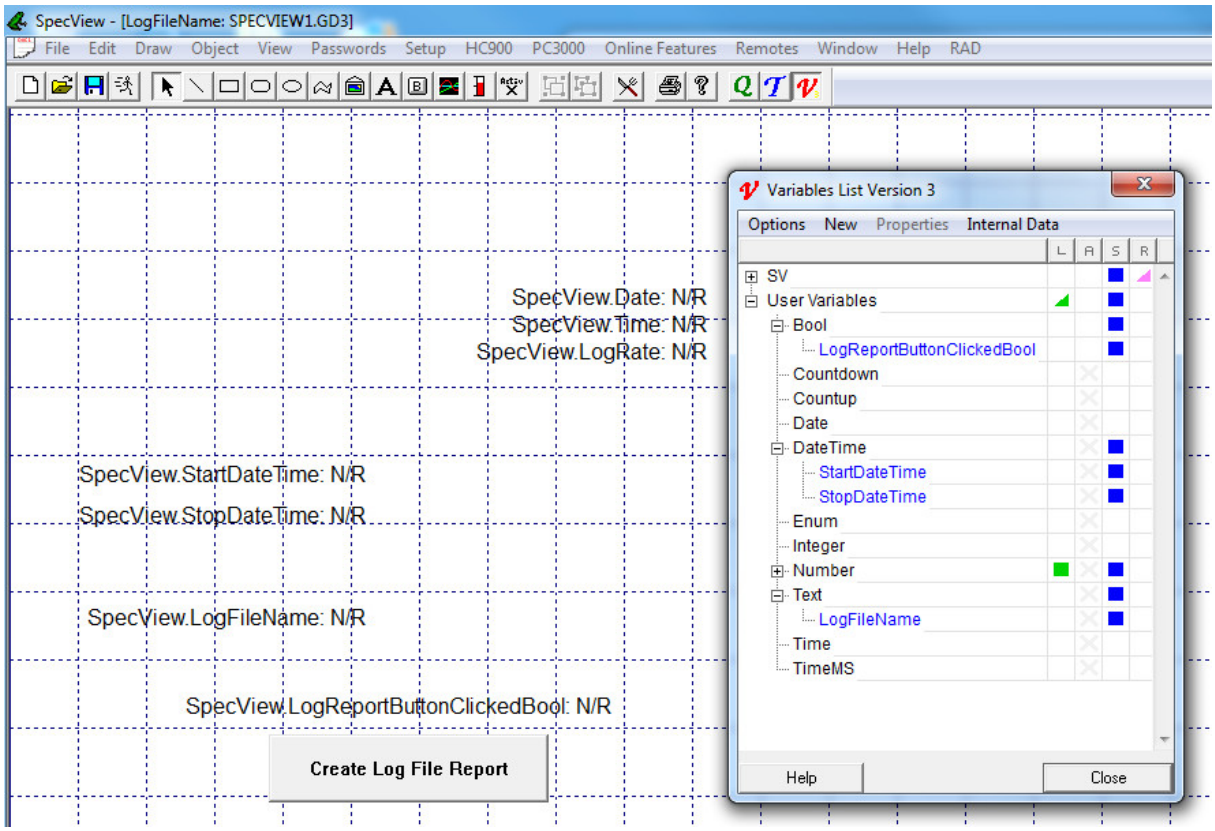
This example shows how to create a filename containing the date & time for use when generating Log Reports:

There are many ways to do this depending on exactly what is wanted.
For example, the filename may need to be built up from a combination of the line name, product name, batch name and date & time. Part of this may be from a scanned barcode. The triggering of the Log Report would typically be triggered automatically by the Strategy Controller when the process starts.

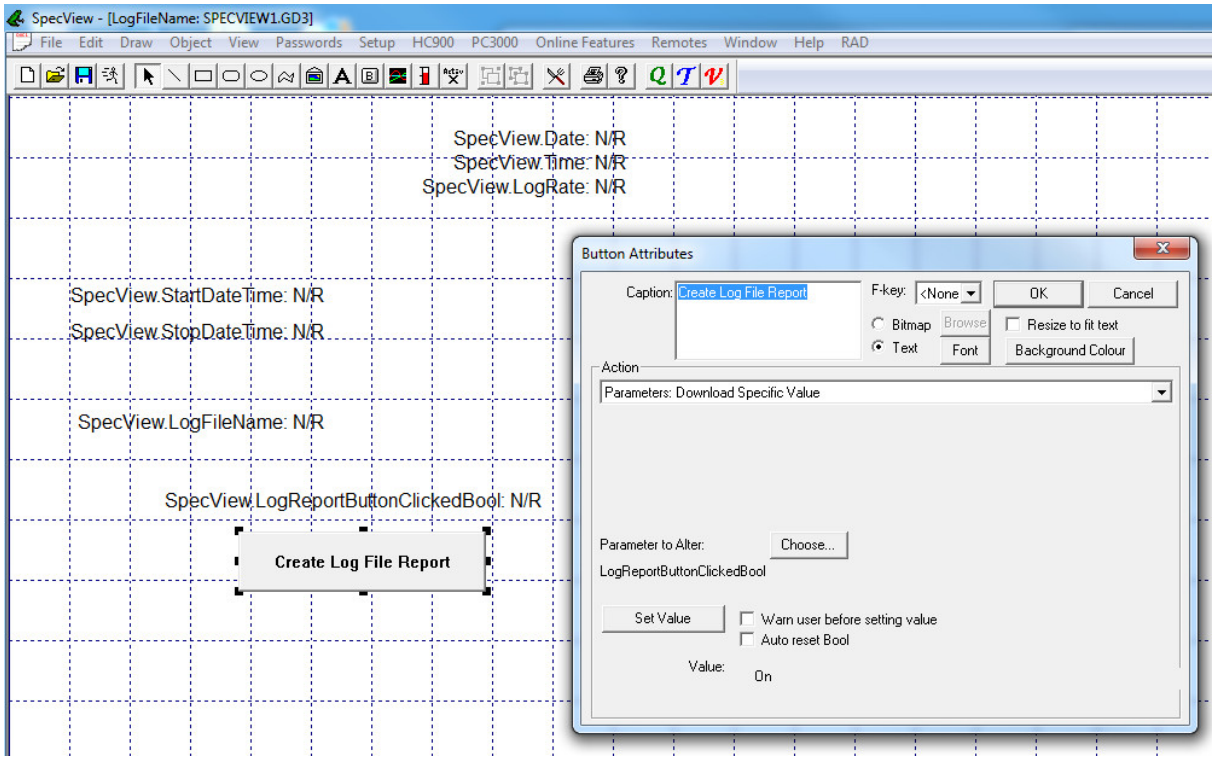
However, for this simple example, the filename will just be the date & time and the triggering of the Log Report will be done by clicking a button.

Create the following User Variables:
DateTime: StartDateTime & StopDateTime
Text: LogFileName
Bool: LogReportButtonClickedBool
Then put the variables on the screen (GDW):

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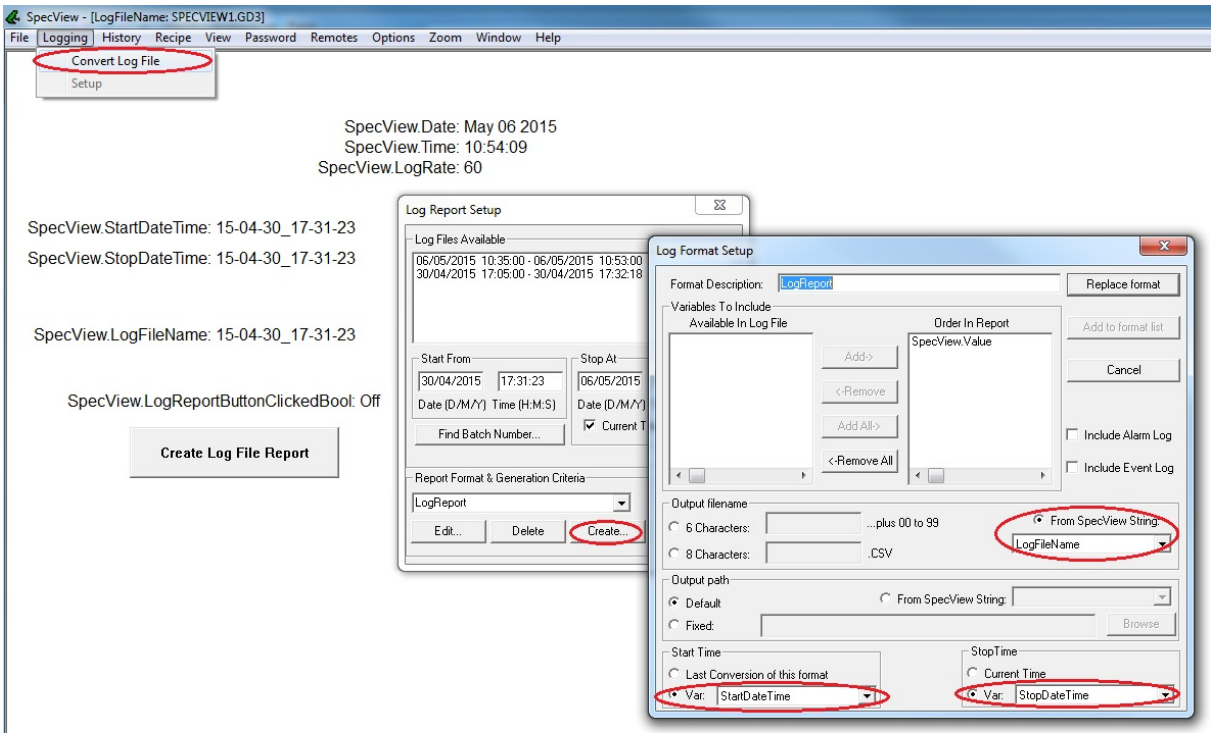


Put a button on the screen to be used to trigger the Log Report:



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Go into Runtime Mode and setup a Log Report Format as shown:

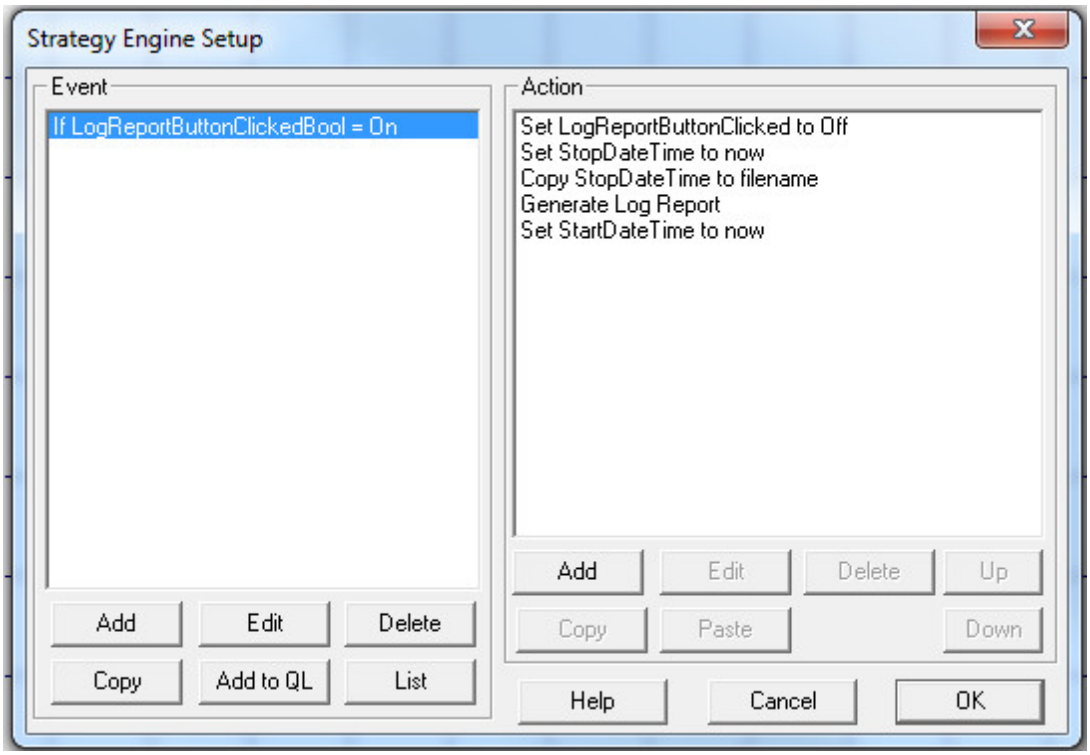


Go back to Edit Mode (Offline) and from the Setup menu choose Strategy Controller.
Note: For this example only one Strategy Event is required, and as 2 Strategy events are included as part of the base product there is scope to add more. However, if more than 2 events are needed then the Strategy Controller option will need to be purchased.

The Event is: If LogReportButtonClicked is equal to 'On'
The Actions for this event are:

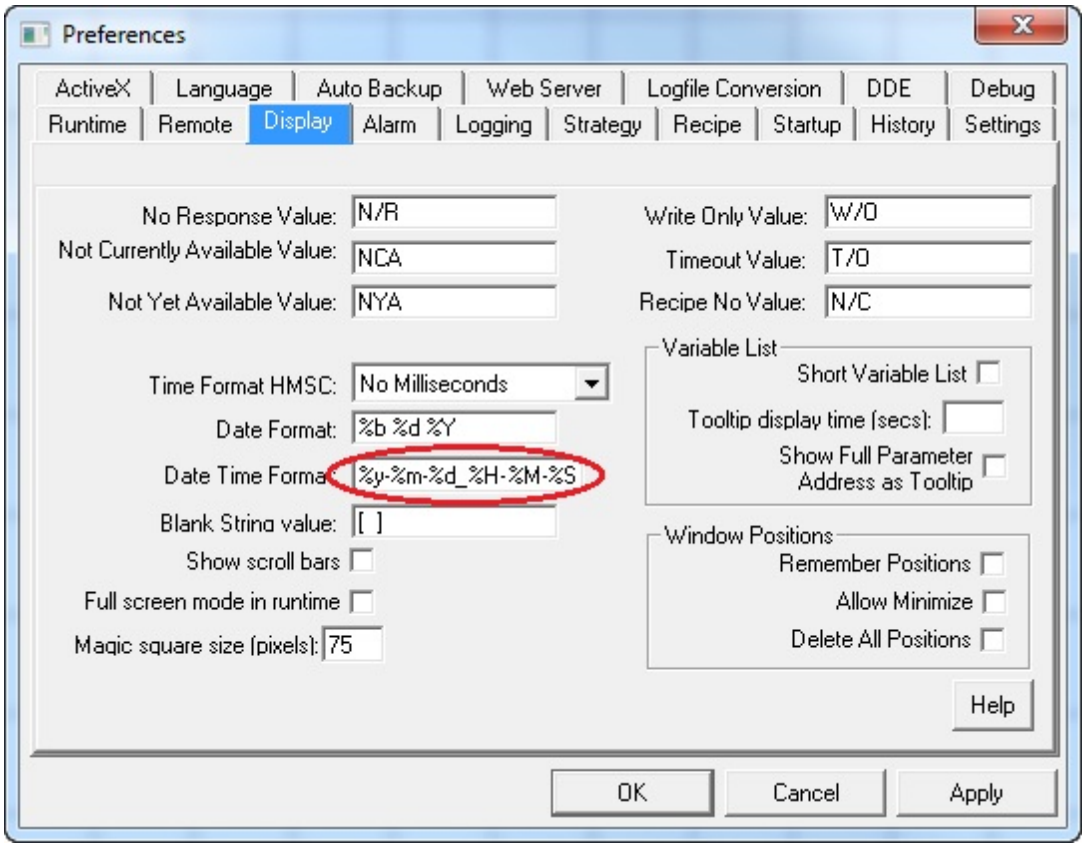
Set LogReportButtonClicked to Off - (Ready for the next time, using: 'Parameters: Download Specific Value')
Set StopDateTime to current time - (Using: 'Parameters: Download Specific Value' to set StopDateTime to 'Current time')
Copy StopDateTime to filename - (Using "Parameters: Copy From … To' to copy the StopDateTime to the filename)
Generate Log Report - (Use 'Logging: Convert Specific Log File Format' and choose the Log Report Format that was created in the previous step)
Set StartDateTime to now - (Using: 'Parameters: Download Specific Value' to set StartDateTime to 'Current time' ready for the next Log Report)

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From the File manu choose Preferences, click the 'Display' tab and set the 'Date Time Format' format so that it is: %y-%m-%d_%H-%M-%S
This will ensure that when a Date Time variable is used for a filename the files will be in date order when sorted by name.

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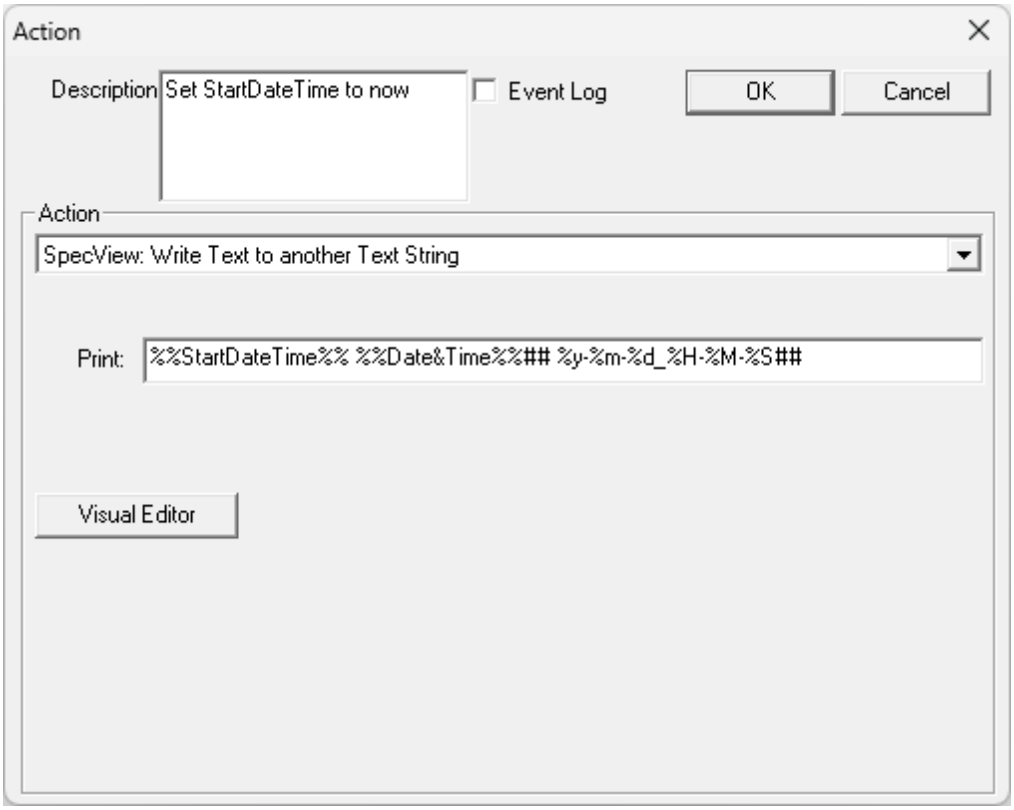


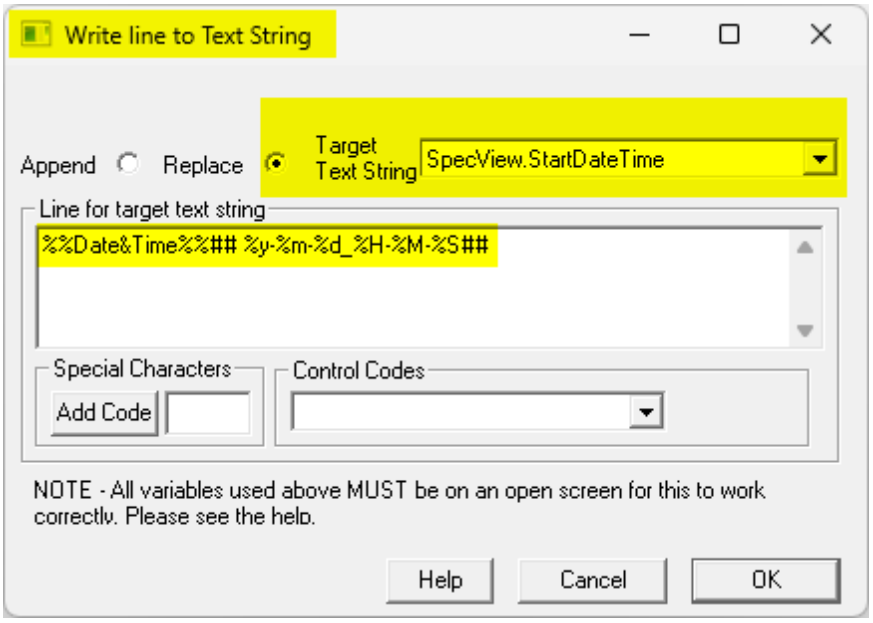
Then click return to Runtime Mode and click the 'Create Log File Report' button.
The Log Report file itself will be in the project's folder and can be opened either in Microsoft Excel or in any text editor such as Wordpad.

SpecView 3.1.265

As of SpecView 3.1.265[124], the procedure mentioned above regarding the formating of the date and time is significantly simplified with use of Variable Substitution Strings[518].
Rather than having to edit the Project Preferences[458], it is far simpler to have StartDateTime and StopDateTime as text variables.
Then, using the Write Text to another Text String Strategy Controller Action[456] users can set the appropriate start and stop dates and times in their desired display formats.

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19.25 Changing Log Data location or folder

Detailing issues relevant to whether SpecView can be installed on or save logged data to a network drive.

Can Log Files be written into another separate folder?
It is possible to set this in SETTINGS.INI (This file is in the Project's sub-folder within the installation

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folder, which is by default C:\SV3). Add to the [Logging] section (or create a Logging section if it is not there) this line, for example:

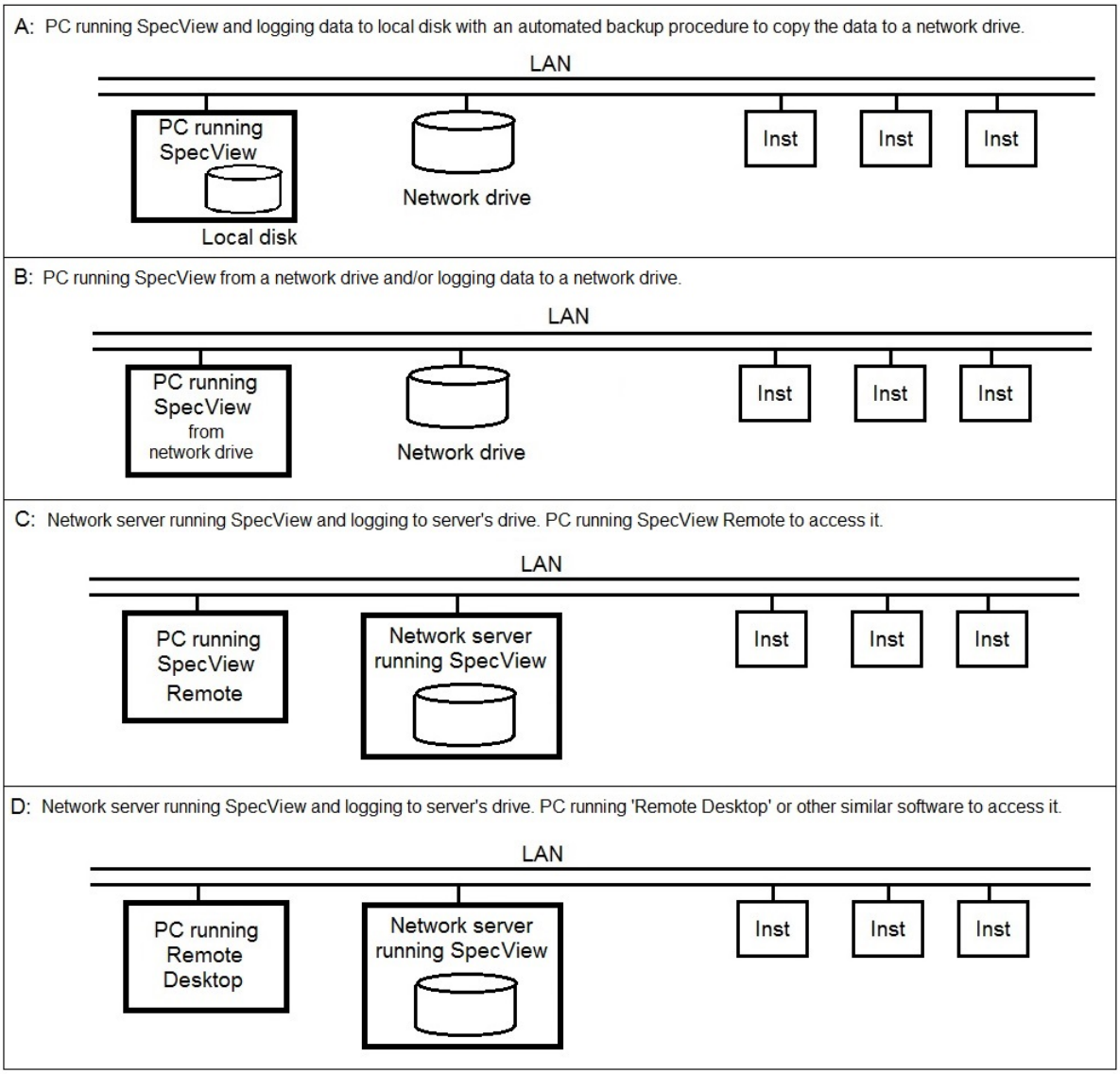
Path=C:\MyPath\

NOTE: However, there is a problem if this folder is on a networked computer, because should the network fail, then SpecView will fail when it attempts to write to the logfile. So we recommend this is only used for logging to a folder which is on the same PC as SpecView is running.

This document details the

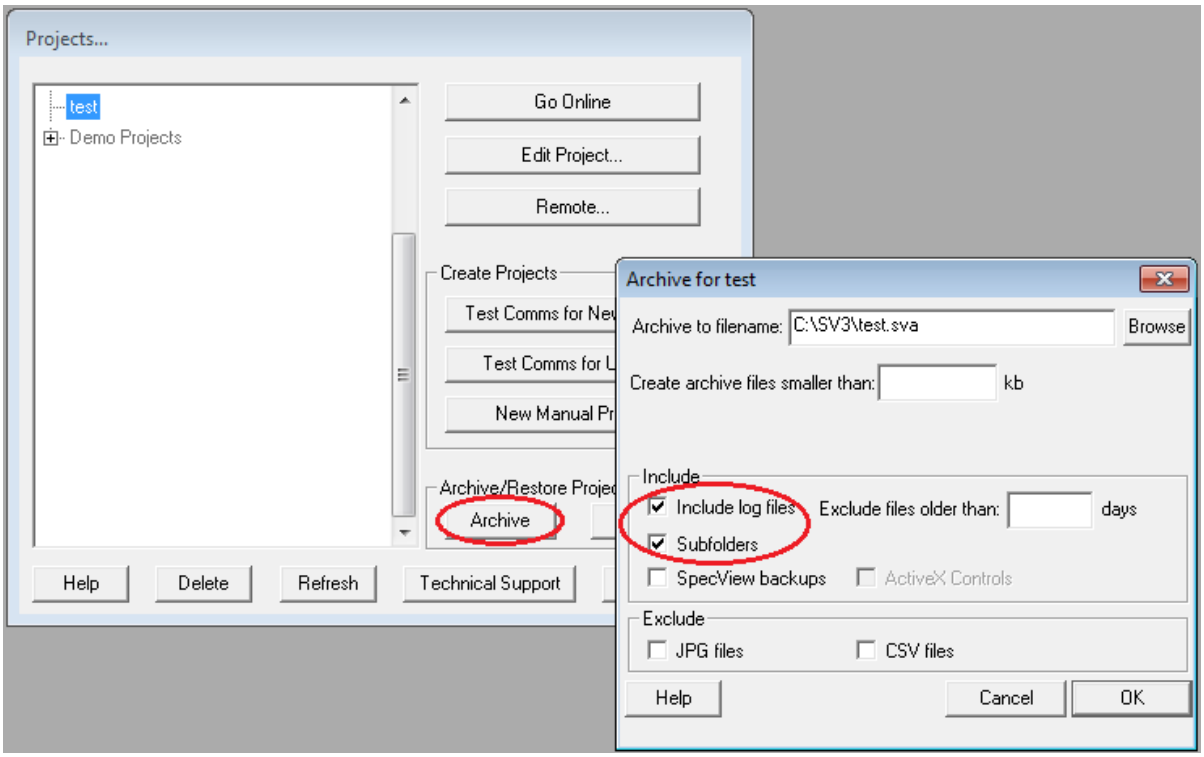
3 Description

There are a number of ways SpecView can be setup on a network:



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Also, if the folder which is specified is not within the SpecView Project folder, then the Archive[193] 'Include Logfiles' checkbox will **not** Archive the logfiles. If the folder is in the Project folder then to Archive the logfiles both the 'Include Logfiles' and 'Include subfolders' will need to be checked:



Therefore, in light of this, it maybe worth considering:
- Making a copy (for example, every 24 hours) of the Log File data using the Strategy Controller. This could then be done to a Network Server. See example below.
- Alternatively: Modify the Log File Report Format[611] to cause the resultant Log File Reports to be written to another folder.

19.26 Copy Log Files to a Network Server

How to **make a copy of SpecView's Log Files to, for example, a Network Server?**
Typically this would be done just after midnight, for example, one second after midnight (00:00:01) by the Strategy Controller[687].

If the logfiles are copied using the standard Windows 'copy' command then this will copy all the files

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each time, including those which have already been copied. Therefore using the 'xcopy' command is preferable.

To copy the files, and to keep a record of which files were copied & when, 2 files will be needed:
empty.txt - just containing one carriage-return character.
xcopythem.bat - containing:

```
date < empty.txt >> xcopylog.txt
type empty.txt >> xcopylog.txt
time < empty.txt >> xcopylog.txt
type empty.txt >> xcopylog.txt
C:\WINDOWS\COMMAND\XCOPY  /D /C /Y  C:\SV3\DEFAULT\??_???.*  C:\SAFE >> xcopylog.txt
type empty.txt >> xcopylog.txt
```

In this example the logfiles to be copied are in C:\SV3\DEFAULT
they are being copied to: C:\SAFE
and the XCOPY command is in C:\WINDOWS\COMMAND

Please note the underscore character between the two and the three question marks.
It may be worth setting the 'Close on exit' property on the xcopythem.bat batch file using Windows Explorer.

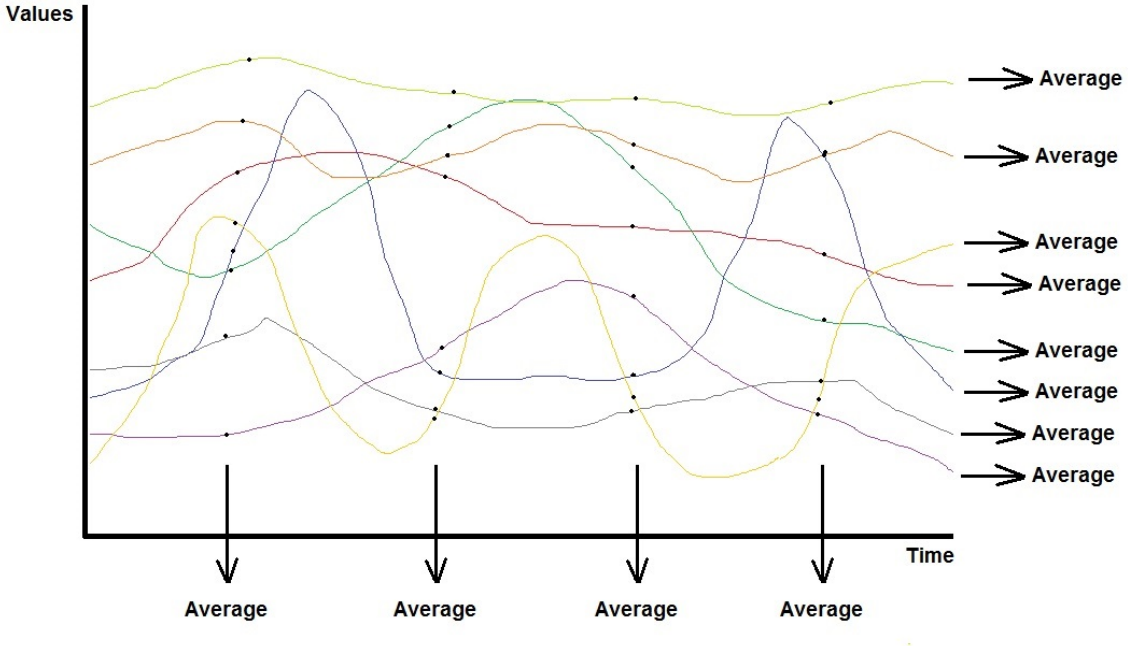
This will create an output file (xcopylog.txt) which contains the date & time of each copy together with a list of the files copied.

19.27 Calculating Averages

Different Types of Averages

It is important to think about the reason for calculating an average, and to think about how it is done, because that will dramatically affect the result that is sought.

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In statistics it is possible to calculate:
Mean - Average (add the values together and divide by the number of values)
Median - Mid-point value
Mode - Values that appear most often

There are different types of mean (average), here are some examples:

Current Average: This takes the sum of a number of current values (taken at a specific moment in time) and is divided by the number of values.

Average of maximum/minimums: This is the average of maximum or minimum values.

Rolling Average: This takes the sum of a number of values (taken over a period of time) and is divided by the number of values.

For a Rolling Average it is very important to decide what the duration of the time period should be, and the interval between the value readings.
For example, the duration might be 24 hours and the value readings being taken at intervals of one hour.

There are 2 methods for working out a rolling average:

1. The best solution is to use an ActiveX control which has been specifically developed to calculate a rolling average.
There is an ActiveX control called SVRollAv1 [786] which takes inputs/outputs from SpecView and does the calculations. It also handles the case of bad values.

2. Or it is possible to calculate a Rolling Average using SpecView's Strategy Controller [699]

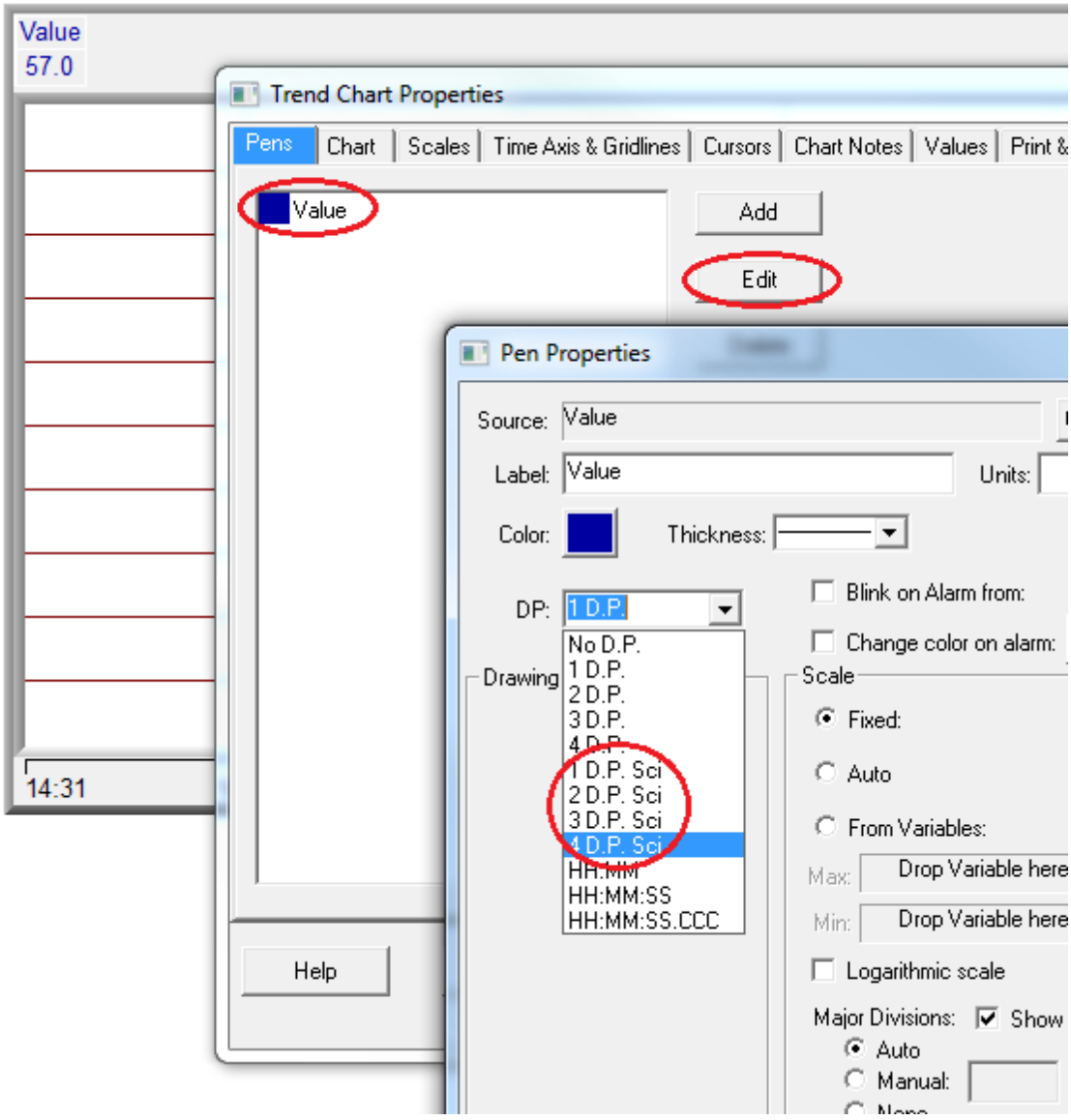
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19.28 Logarithmic Values

There are 3 math functions [433] that can be used for logarithmic values: Power, Log-10 and Log-e.

The Dynamic Attributes [357] of logarithmic values need to be in scientific notation for decimal places.

Trend Chart pens [535] can have logarithmic scales, which is useful for pressure and vacuum measurements.
Scientific notation is available on the **DP** drop-down-menu for very big or small values:



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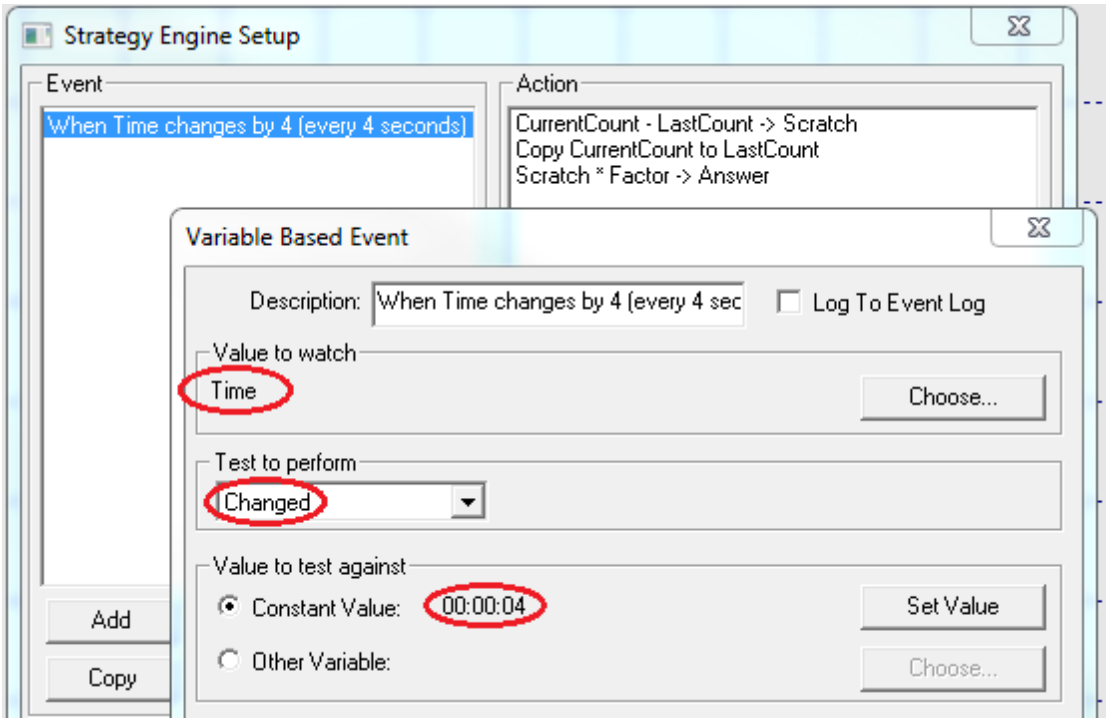
19.29 Converting a Counter to a Flow Rate

To convert a counter from a Digital Input on an instrument into a flow rate involves some math in Strategy.

The Strategy Event needs to trigger at a time interval as required to calculate the flow rate.

In the example below it is set to trigger every 4 seconds.

This is done by creating a 'Value Based Event' and watching SpecView's Time variable to see when it is 'Changed' by 4 seconds:



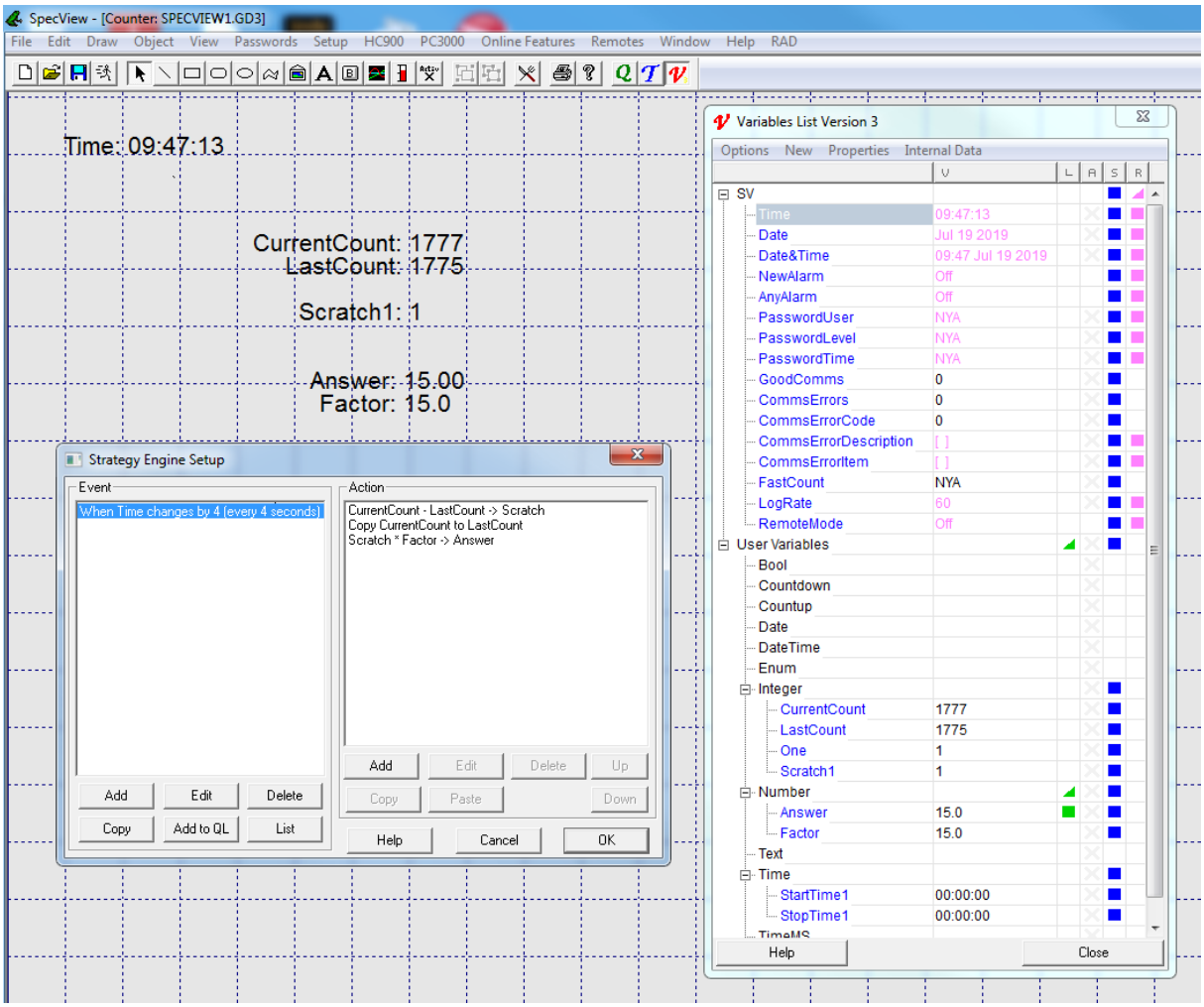
In the screenshot below, there are 3 Strategy Actions, which are:

- *CurrentCount - LastCount -> Scratch*
  Calculate the amount that CurrentCount has changed by since the LastCount and save it into a temporary variable.

- *Copy CurrentCount to LastCount*
  Replace LastCount with the CurrentCount.

- *Scratch + Factor -> Answer*
  Factor is the conversion factor (which in the example below is 15) which is used to convert into the flow rate.

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19.30 Translating SpecView into other lanuages

If a SpecView Configuration needs to be made available in more than one language, normally, this would involve many screens having to be duplicated in each different language, with the associated errors and inconsistencies that that may cause.

Since all occurrences of the same word on different GDWs are referenced only once, this procedure makes it easy to translate consistently and quickly without duplication.

In order to address this SpecView (from Version 2.5 Build 781 onwards) on entering Runtime mode, reads an TAB-separated spreadsheet from the file CONFIG.SVT. Then, when a GDW is opened at Runtime, any strings on the screen are replaced with corresponding strings from the spreadsheet.

This makes it possible to have a Master Configuration in one language that can be displayed in a variety of other languages without editing GDWs or creating duplicate language-dependant configurations.

CONFIG.SVT is a TAB separated file, similar to a Comma Separated Value (.CSV) file, but using tabs to delimit the fields. This allows the text to contain commas.

NOTE: To create the CONFIG.SVT automatically there is a utility that extracts ALL text strings from

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ALL GDWs in the Configuration. Please contact SpecView[798] for further information on this automatic text string extraction utility.

This spreadsheet has the following columns (shown here with examples for Cancel & Browse):

ENU	SubString	Comment	GDW	DEU	FRA	ITA	NLD
Cancel		Button	MAIN.GDW SCREE	Abbrechen	Annuler	Annulla	Annulleren
Browse			SAVE.GDW TREND	Browse	Parcourir	Sfoglia	Zoek

ENU	The source language text (in this case ENU)
SubString	Substring - explained below
Comment	Any comment string, such as: Must have space at end of text
GDW	The GDW(s) that the string occurs on. This is just for reference to help find the context
DEU	The German translation (these columns can be in any order)
FRA	The French translation
ITA	The Italian translation
NLD	The Dutch translation

If the CONFIG.SVT file does not exist then no substitution takes place at Runtime.

Similarly, if there is no translation available for a given row & column then no substitution takes place.

The Comment and GDW columns are not used in the translation, they serve only as a helpful guide to the Translator.

If a 'Y' or a 'y' exists in the SubString column then the text in Column1 (Source Language) is looked for as a SubString, this prevents a word from having to be repeated numerous times, for example:

Screen 1
Screen 2
Screen 3
Screen 4
...
Screen Y

In the above example, the one occurrence of "Screen" is replaced in each of the "Screen 1", "Screen 2" etc strings, thus saving duplication.

However, it is worth noting that the substitution of SubStrings can take considerable CPU time, and so should only be used sparingly.

The matching process is both case-sensitive and whitespace-sensitive.

If the Source String is a multi-line string then the characters: '\r\n' represent the new-line. These characters must be left intact in the translated strings.

The CONFIG.SVT applies only to the specific configuration it is in. There is no 'global' file that translates across all Configurations. To implement a global file make a subset of all the common words as a template and include it into each CONFIG.SVT as required.

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If a string has '=', '+' or '-' as its first character then put a single quote before it, otherwise spreadsheet programs such as Excel will interpret the string as a formula. As an alternative, change the column format to Text. But it is important to note that this information is not stored in the Tab Separated File format so will be lost when you re-open the sheet. To avoid this either:
1. Don't use '=', '+' or '-' as the first character of any string.
2. Save the worksheet as an XLS and use that as the Master for re-editing to preserve the column format.

A CONFIG.SVT file can be created manually by creating an Excel spreadsheet by hand in the format specified above. This MUST be saved as a TAB separated file unless it is in this format SpecView will be unable to read it.

To create the CONFIG.SVT automatically there is a utility that extracts ALL text strings from ALL GDWs in the Configuration. This takes some time to run. Please contact SpecView for further information on this automatic text string extraction utility.

Running a SpecView configuration in a different language:

So to run a SpecView configuration in one of the other languages….
First be sure SpecView is NOT running, then:
Edit C:\SV3\SV3.INI using Notepad
In the '[Settings]' section add the line:
ForceForeignLanguageXlat=FRA

This just defines the column in the CONFIG.SVT file that is to be used.
So in this example the 'FRA' column will be used. But if there is nothing in that column then the first column (ENU) is used.

19.31 Instrument Support in SpecView

How can I find out if SpecView supports a particular instrument?

Is the instrument specifically listed on: www.specview.com
if it is, then the answer is yes.

If not, then:
1. If the manufacturer & instrument series is listed, but just not the specific model number (i.e. 'XYZ series 1200' but yours is model: 1250) then:
Try connecting using the most similar instrument definition. If it doesn't work or only partially works, then see: 'New Driver (or Driver modification)' below.

2. If the manufacturer is listed but no similar model number is shown, then:
See: "New Driver (or Driver modification)" below.

3. If the manufacturer is not listed, then:
Check the technical documentation for the instrument which details the protocol it uses:
3a. If the protocol is modbus-RTU or modbus-TCP then this may be possible using SpecView's Generic modbus driver. (However, SpecView does not support the Modbus-ASCII protocol).
3b. If the instrument supports OPC, then SpecView's OPC client can be used which is a chargeable option.

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3c. If the protocol is ASCI then, it may be possible, see 'New Driver (or Driver modification)' below.
3d. If the protocol is proprietory then see 'New Driver (or Driver modification)' below.

New Driver (or Driver modification)
If a new driver or a driver modification is required then give us as much information as possible (in writing via email or fax), including the technical documentation for the instrument which details the parameter addresses (or let us know where we can obtain it from).

If the instrument has many hundreds of parameters, but you only require access to a few of them then let us know. Similarly, If you have a specific time-scale requirement then we'll need to know this too.

Based on this information and the commercial potential we will provide a quotation & time scale.

Be prepared to send us the instrument in question, so that we can use it for test purposes. If it is not possible for us to be sent the instrument, then instead we can send you a Driver based on the technical documentation for you to try.

PLCs
PLCs are different to instruments and controllers because they typically have their own software to setup the program to run.
Consequently because this software can be used to setup parameters at different addresses within the PLC it is not possible for SpecView to create an 'Instrument Definition' for the driver containing the parameter names and addresses, because these can change depending on how the PLC's software is configured.

SpecView can communicate with PLCs in 2 ways:
1. Via OPC - in which case it is necessary to purchase the PLC's own OPC Server (or a third party OPC Server such as Kepware) and the SpecView OPC Client 572 option on the dongle.
Or
2. Via Modbus TCP if the PLC has this capability (it may be an optional hardware module)

For example, Siemens PLCs have the capability to use the Modbus TCP protocol (if the Modbus card is purchased with it). In this case it is possible to use SpecView's Generic Modbus driver to access the parameters once the PLC itself has been configured.

It is necessary to know how the PLC has been setup, in order to know, for example, that the 'High Alarm Limit' is of type 'Function Code 3' at address 24.

Hopefully the PLC setup software has a method of exporting the Modbus map (containing the mappings of parameter names and their types and addresses)

Contact SpecView Technical Support 798 for assistance in converting the Modbus map to the types in SpecView's Generic Modbus.

For using SpecView's Generic Modbus driver with the **Siemens S7-1200 PLC**, there is a specific example of the setup of Siemens TIA Portal 900.

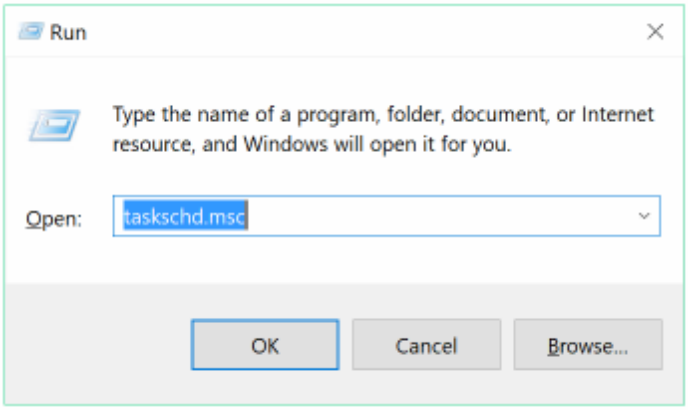
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19.32 Running SpecView Automatically From Computer Startup

Windows 10 reboots the computer after it updates itself, which is a problem if SpecView needs to be running uninterrupted.
SpecView cannot currently be run as a service[897] because it requires a user to be logged-in.
However, once a user is logged-in to the computer SpecView can be run automatically.

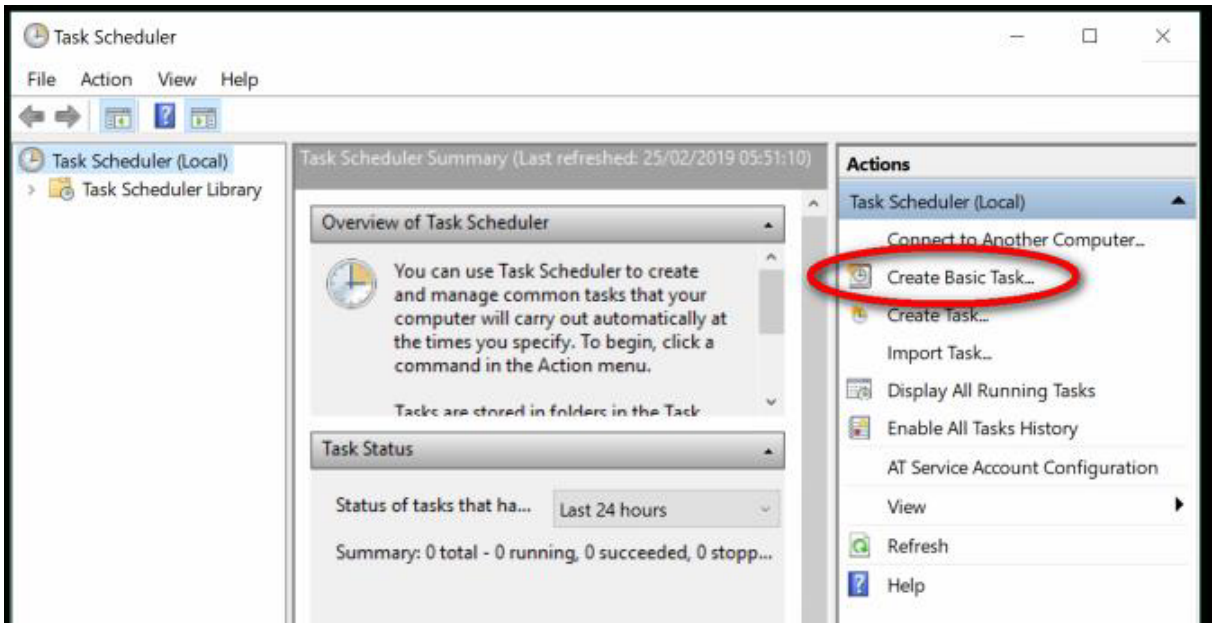
If using a hardware (USB) dongle it is necessary to ensure that the dongle driver has had time to initialize before SpecView starts.
Therefore, if it is deemed necessary to add SpecView to the 'Startup Group' there would need to be a delay (once the user has logged in) to allow the dongle driver to finish initializing.
If using a soft-license then there is no need for this delay.
One scheme that can be used, which does not require anyone at the computer to start and log-in, is to run SpecView on a dedicated server computer and have the computers that the operators interact with be SpecView Remotes[713].
On the Remote computers the operators can select/edit recipes, enter batch data and process comments.
These computers do not collect and store data themselves as the server is doing this.
For further information please contact Technical Support[798].

1. Press Windows-Key and R to bring up the Run Box, and type TASKSCHD.MSC .

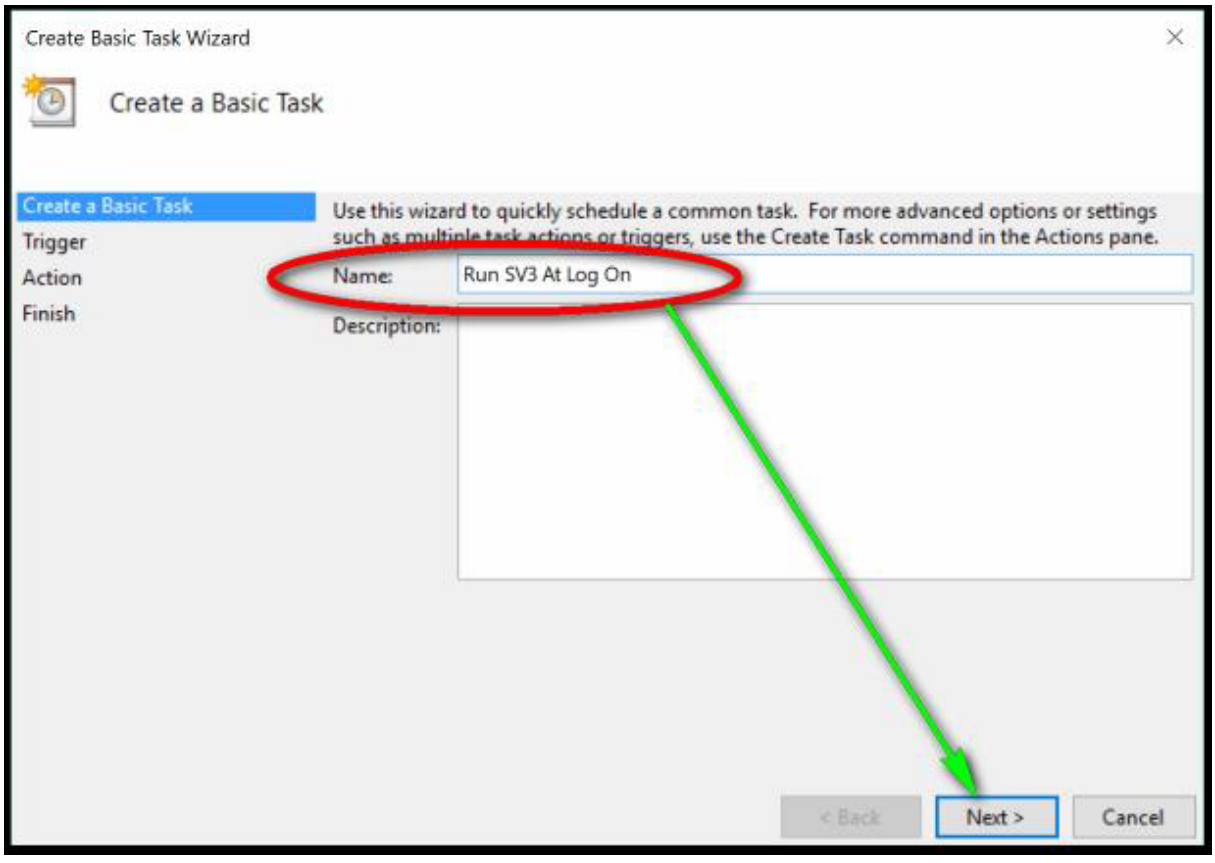


2. Click on **Create Basic Task** on the right:

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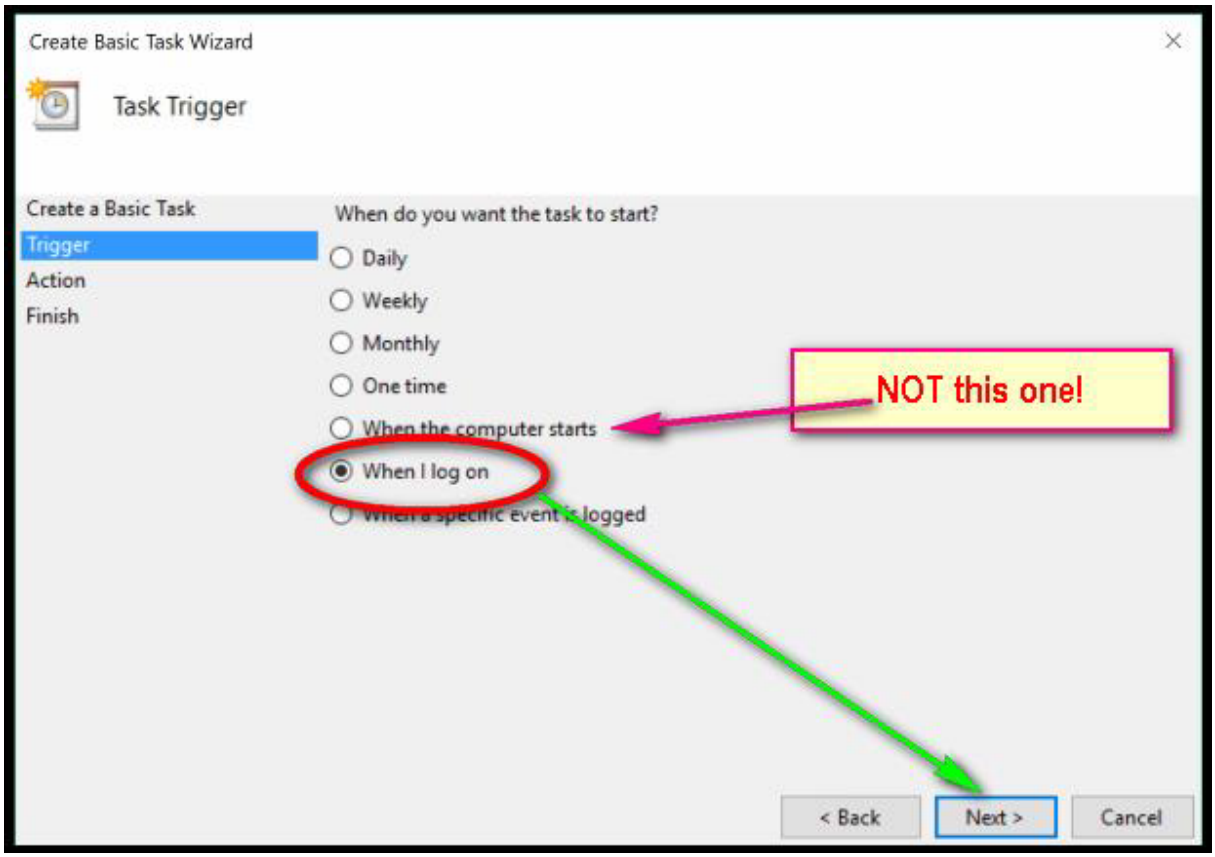


3. Give the task a suitable name and click NEXT:



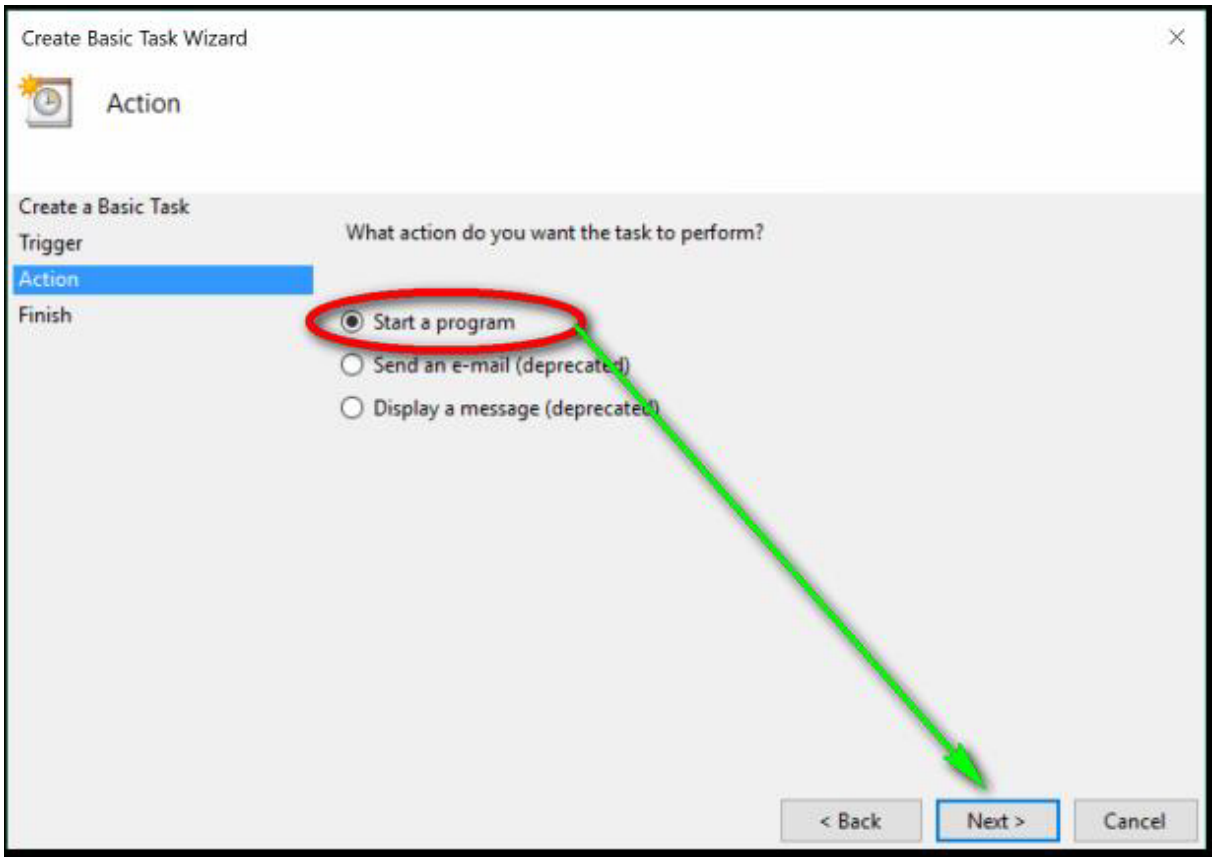
4. Select **When I log on**, do NOT choose when the computer starts because that starts SV3 too early in the startup cycle and can cause problems.

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5. Select **Start a program**:

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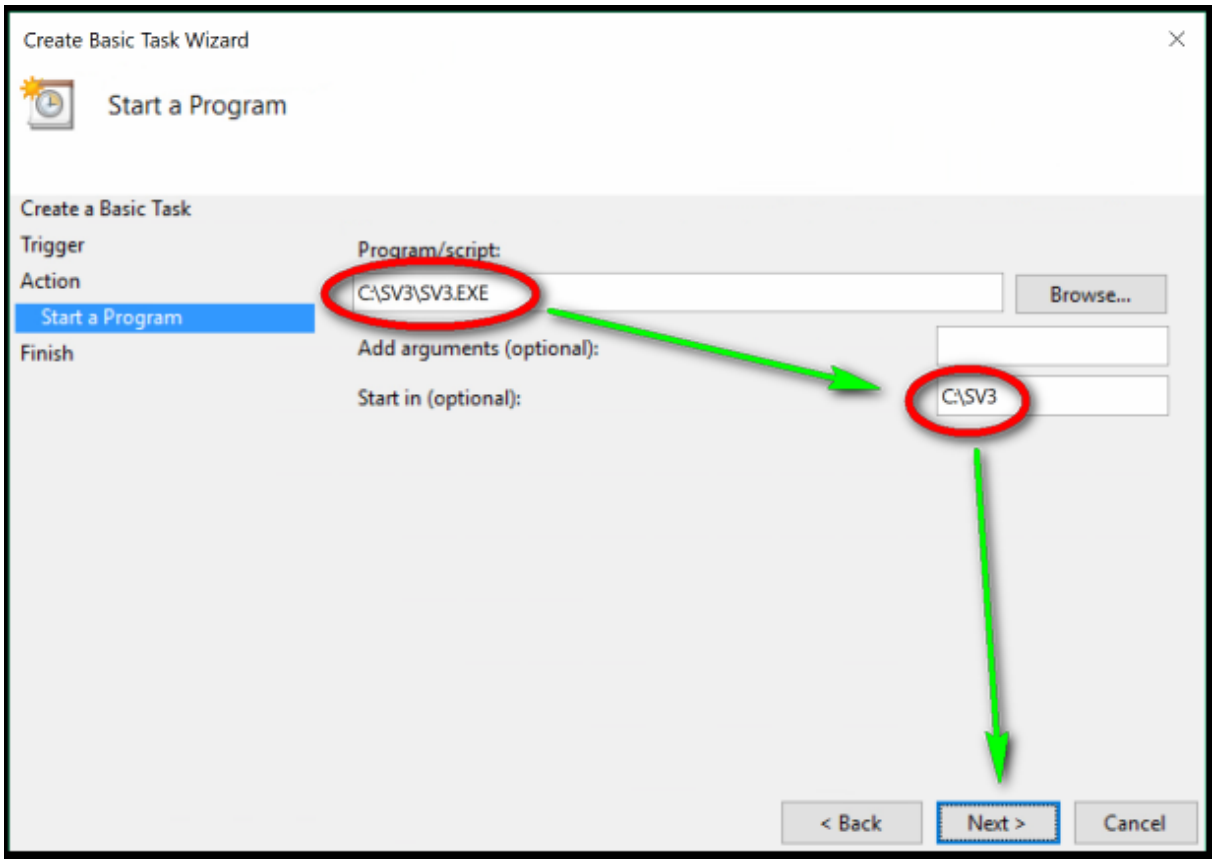


6. Enter **C:\SV3\SV3.EXE** in the Program box AND enter the path **C:\SV3** in the Start In box.

Note: If SpecView is installed elsewhere, you will need to supply the correct path in both boxes.

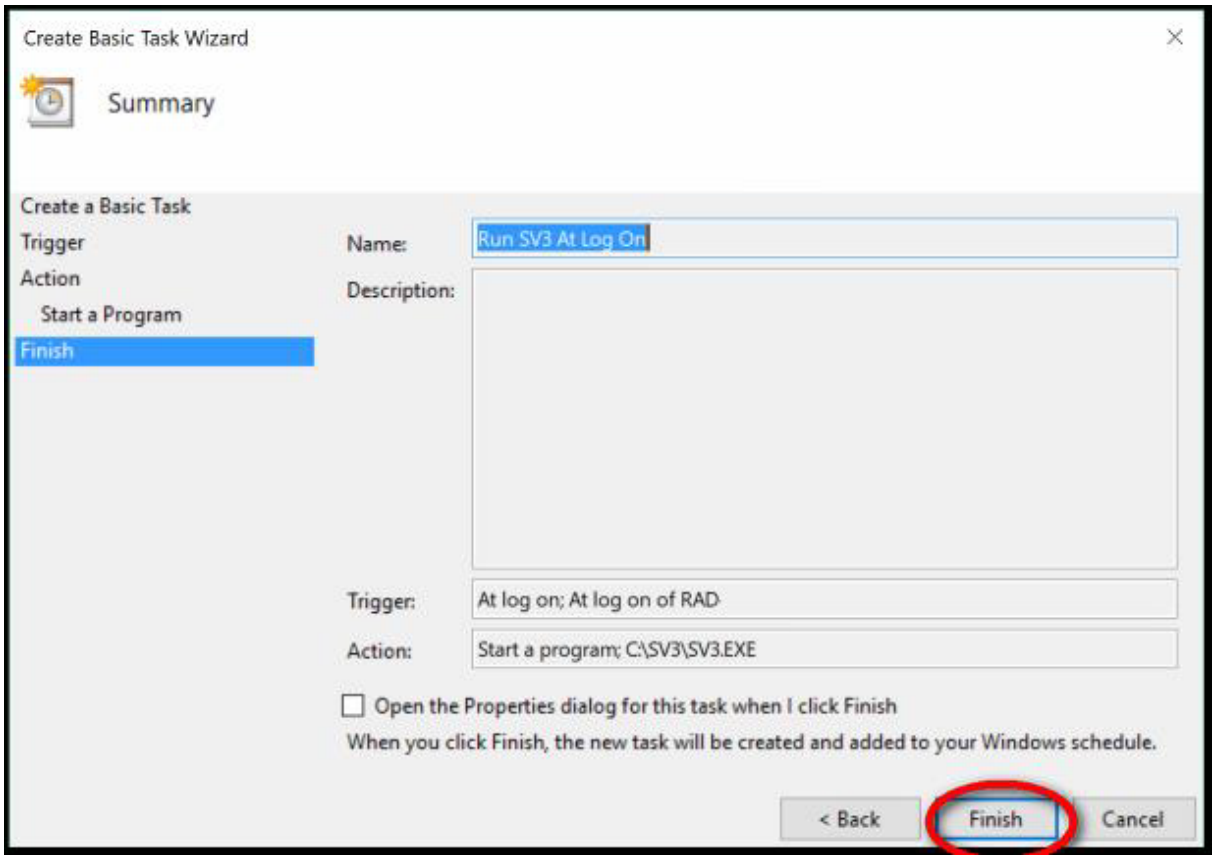
If you need to run SV3 64 bit version[189], then the name is **SV3_64.EXE**

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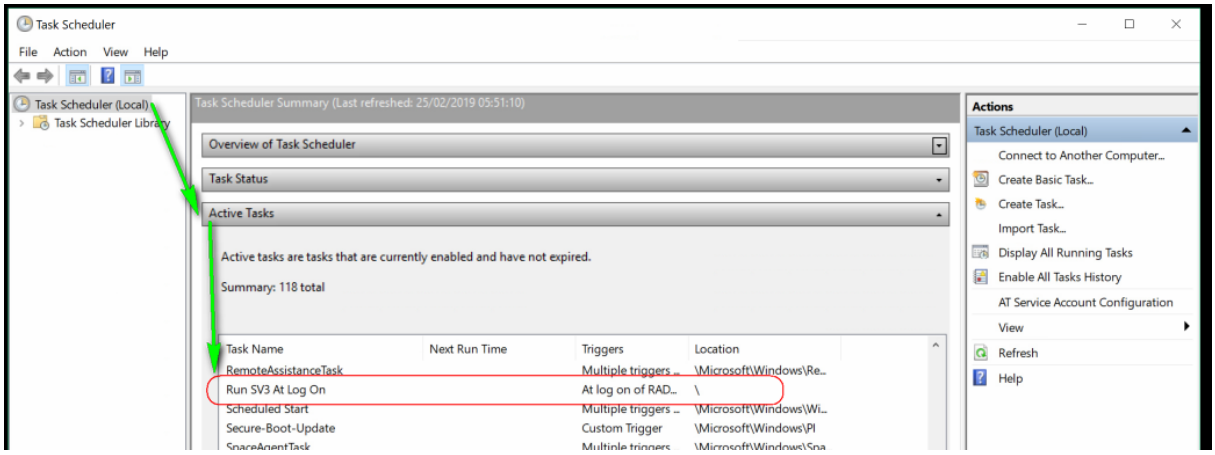


7. Check the entries in the summary and click Finish.

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8. The task can now be seen in the Active Tasks list and SpecView will start up when the user is logged in.

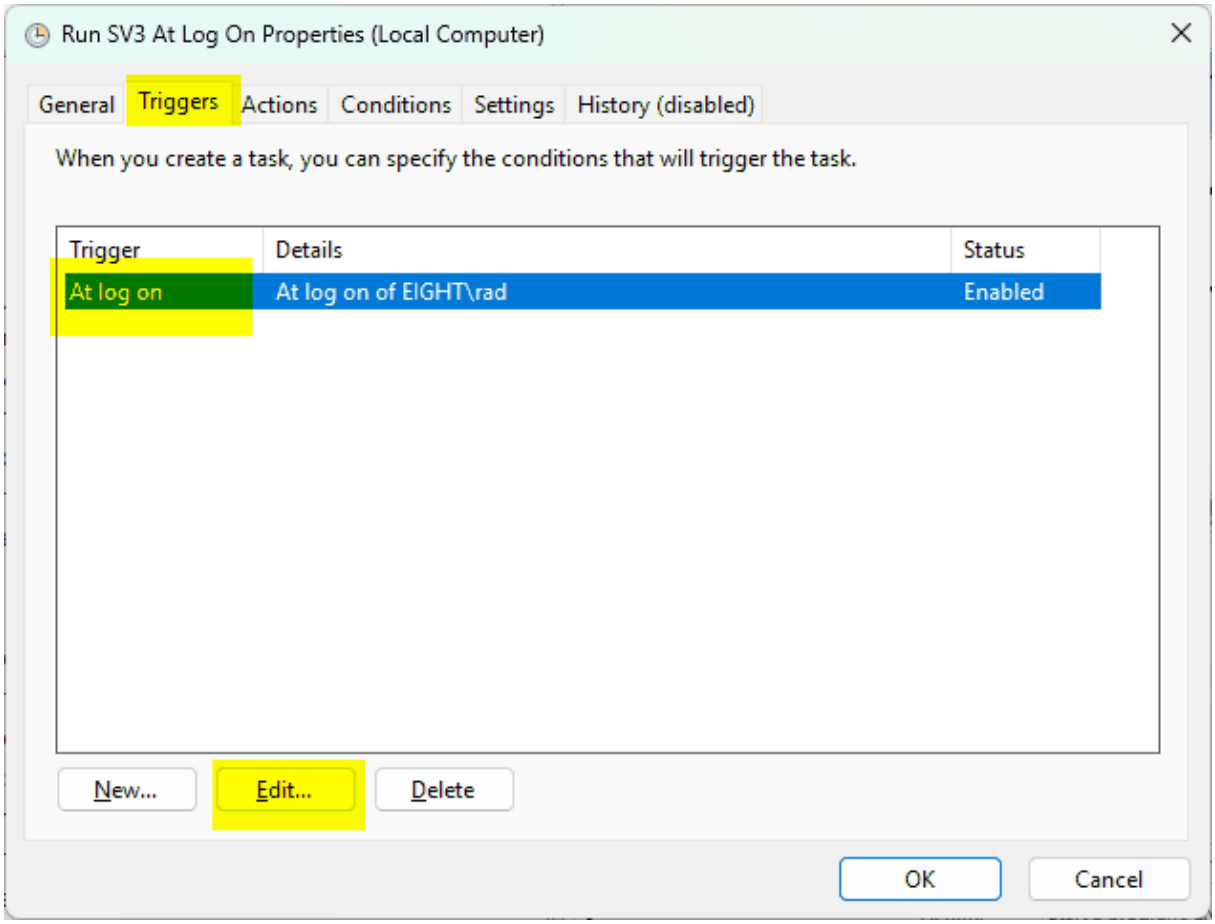


If a Dongle License is being used ...

1. Click on Task Scheduler Library.
2. Scroll down to Run SV3 At Log On and double click it.
3. Click on the Triggers tab.

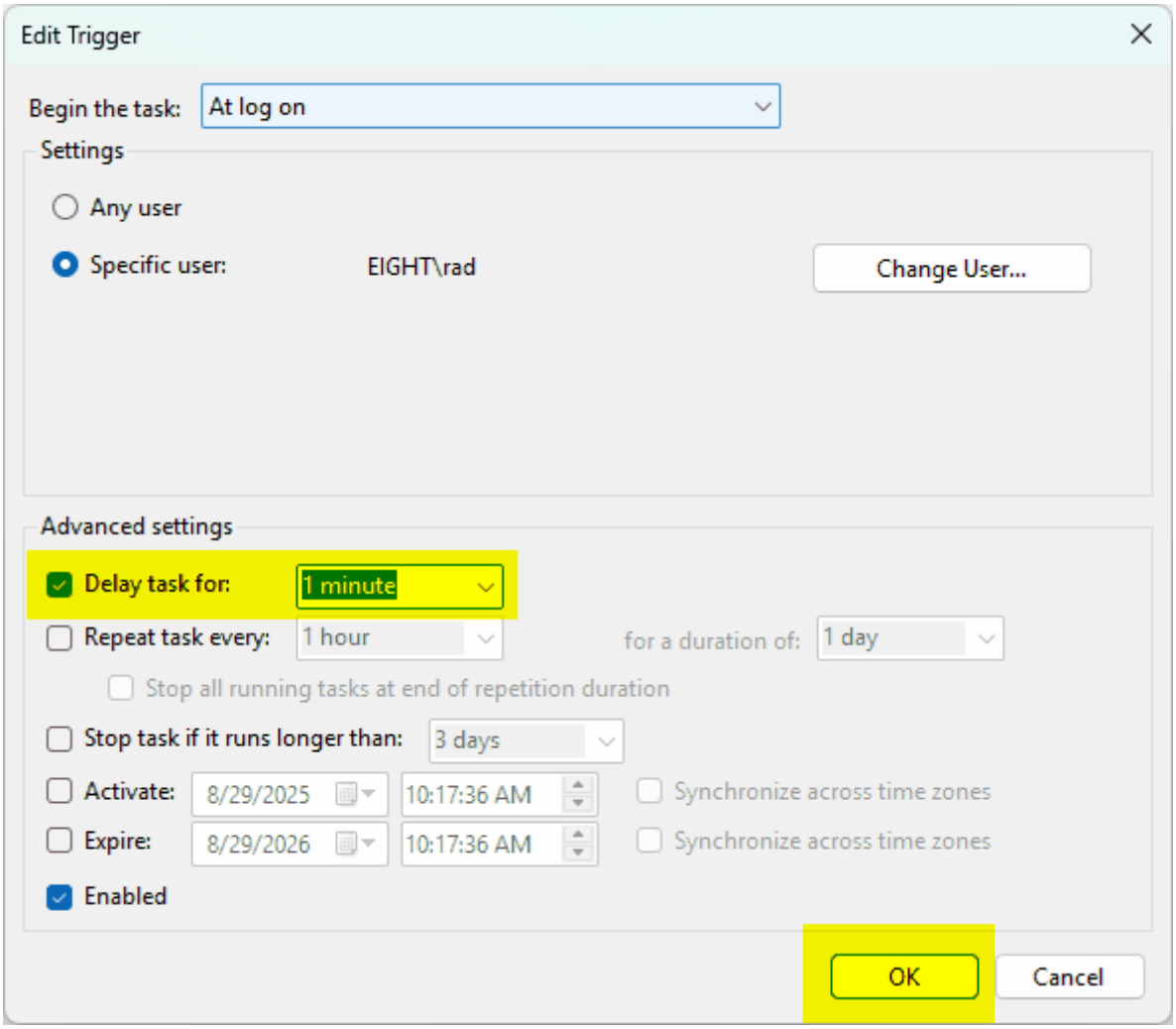
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4. Click on At log on.
5. Click on the Edit button.



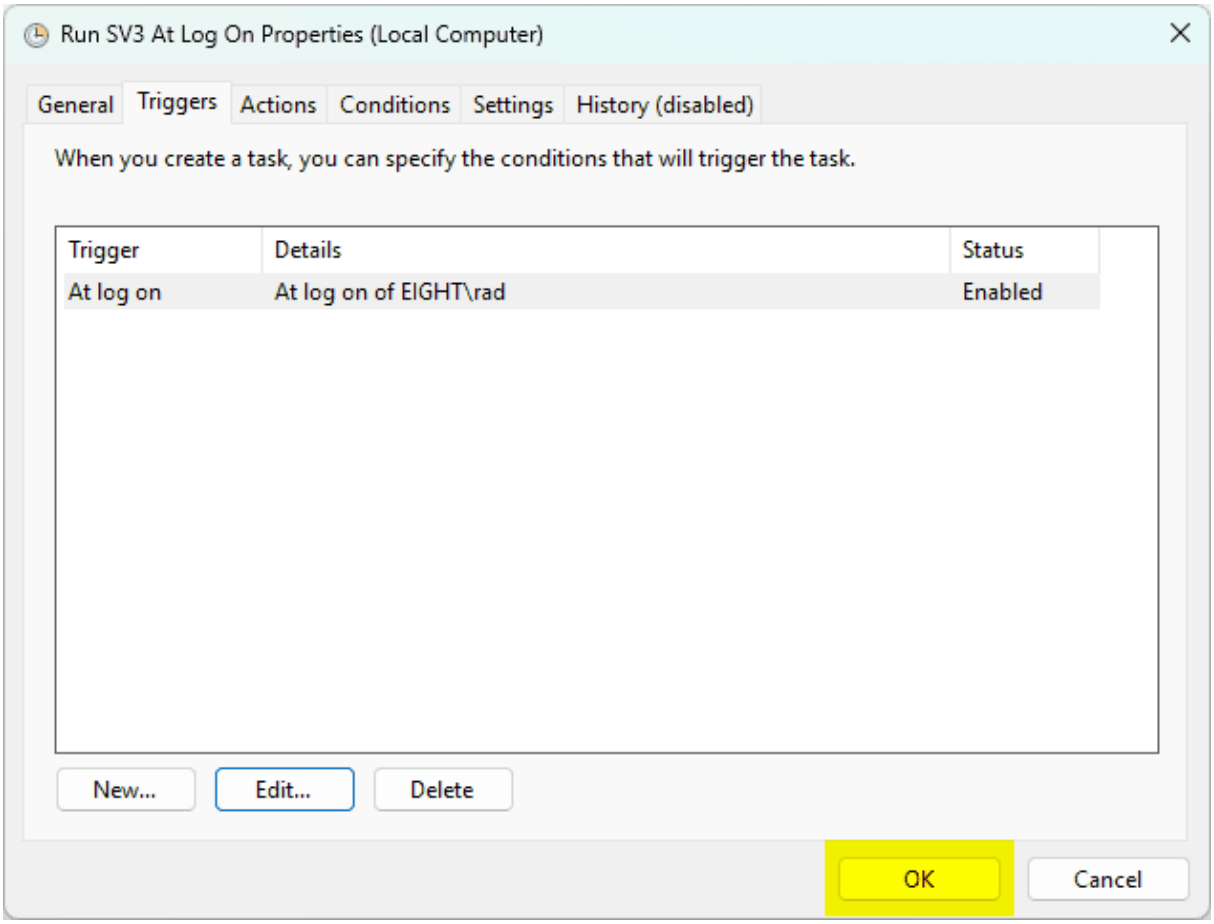
6. Click on the box beside Delay task for:
7. From the drop down menu select 1 minute.
8. Click on the OK button.

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9. Click on the OK button.

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SpecView will now automatically start up when a user logs on with no issues from the (USB) Dongle License.

19.33 Running SpecView as a Service

SpecView cannot be run as a service.

This is because there needs to be a Windows User logged in before SpecView is run.

SpecView can be run automatically [889] once a user logs in, but not as a service because services run without a user id associated with them from Windows start-up.

19.34 Running a program when SpecView exits

A program can be run when SpecView exits. The program is run in the same way as when using the action Run External Program [447].

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This can be used to:
- Send an eMail to indicate that someone exited SV
- Restart SpecView if SpecView is exited
- Display a message
- Copy files to another location automatically on exit, for example, to copy debug files into a different folder to preserve them

To do this follow these steps:

In the SETTINGS.INI file for the Project add this line to the '[SETTINGS]' section:

```
ExitProgToRun=C:\SV3\RUNME.BAT
```

Then, when SpecView has finished running that Project and is exiting, it will run the Batch file.

Note: does not work if SpecView exits abnormally, it will only run of SpecView exits normally.

The RUNME.BAT file should do whatever is required. This could be, for example:

```
@ECHO OFF
CD   \SV3
START  /MIN   ProgramToRunMinimized.exe
EXIT
```

Here are three interesting examples that can be done:
(Note: the @echo off prevents to steps being listed on the screen, and the EXIT closes the command prompt when finished.)

1. Display a Message Box on the screen (Also useful in normal RunExternal program while SV is running)
Save and unzip the attached Usermessage.vbs in the SV3 folder, then the batch file would be:

```
@ECHO OFF
CD  \SV3
WSCRIPT  usermessage.vbs
EXIT
```

This example .vbs has a 10 second timeout on the message, which can be useful. The .vbs file is a text file, so it can be easily changed to the message of choice.

2. Copy COMMS debug files from the project folder (e.g. MyProject) to a subfolder named by date to save them before the next run of SpecView overwrites them:

```
@echo off
cd \sv3\MyProject
setlocal enableextensions
for /f "tokens=1-5 delims=:" %%d in ("%time%") do SET MassTime=%%d-%%e-%%f
for /f "tokens=1-5 delims=/ " %%d in ("%date%") do SET MassDate=%%d-%%e-%%f-%%g
set foldername=DebugsFrom_%MassDate%_%MassTime%
REM folder looks like this:      DebugsFrom_17_12_2014_16_02_47.70
md %foldername%
MOVE  debug*.txt  %foldername%
EXIT
```

3. Restart SpecView after a short (10 second) delay. Starts SpecView Maximized instead of minimized.

```
@ECHO OFF
```

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```
CD  \SV3
TIMEOUT  /T  10
START /MAX  SV3.EXE
EXIT
```

1 & 3 could be combined together to display a message informing the user that SpecView is being restarted.

19.35 Handling different ways SpecView exits

It is possible to setup SpecView to make it take some action when it exits under the following circumstances:

- If it is exited normally (which would catch if a user exited SpecView accidentally).
- Or if it were to crash.
- Or if comms stops.

Here are examples of BATch (.BAT) files that can be used in these cases:

To run a BATch file on Normal Exit of SpecView:
SETTINGS.INI:

```
[Settings]
ExitProgToRun=C:\SV3\SomeBATchFile.BAT
ExtProgDispMode=M          or N  or F   (see notes below)
```

To run a BATch file on CRASH of SpecView: (see notes below)
SETTINGS.INI:

```
[Settings]
CrashProgToRun=C:\SV3\SomeOtherBATchFile.BAT
ExtProgDispMode=M          or N  or F    (see notes below)
```

This will work regardless of **Procdump** or **Minidump** mode being enabled or not.

To run a BATch file on GoodComms stopping: (i.e. Trend Chart pen lines 'flatlining')
SV3.INI

```
[Watchdog]
CommsWatchdogSecs=60
Restart=Y
```

Then if this happens, SpecView will run: **AUTORESTARTSV_EXTRA.BAT** in the same folder as SV3.EXE while it is restarting

To run a BATch file on a Remote when it goes into Standby:
SV3.INI (this has to be SV3 because SETTINGS.INI gets overwritten):

```
[Networking]
RemoteStandbyBatchFile=C:\SV3\SomeOtherBATchFileAgain.BAT
```

Notes on the BATch files:

- You MUST always specify the full path to the BATch file in the .INI file so that SpecView can find it.
- Inside the BATch file you MUST 'CD' to somewhere first because the current working folder may

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not be where you think it is.

- End the BATch file with a line that says: **EXIT** otherwise the BATch file CMD window may be left running afterwards.
- The "ExtProgDisplayMode[448]" is M for Minimized (the default), or N for Normal window display, or F for Full screen.
- You can create a 'log' of the times these occurred using this command line:

  ECHO Crashed at %DATE% %TIME% >> C:\SV3\MYLOG.TXT

19.36 How to move a box back that is being displayed off-screen

If a box - such as the **Variables List** box doesn't appear when the button for it is clicked then it may be positioned off screen, in which case use Preferences - Settings[467] to reset the position of the box.

However, if the box is not included in **Preferences - Settings** then use Windows to reposition the box. To do this, first ensure the box has focus by doing whatever is normally done to open the box, such as clicking the menu command for it, then follow these steps:

Hold the ALT key and press the spacebar - this will appear to do nothing, but it will have opened the Windows menu on the box.
Press the 'm' key on the keyboard - again this will appear to do nothing, but it will have selected 'Move' from the box's Window menu.
Press any cursor key on the keyboard - just click it once, similarly this will appear to do nothing, but it will have enabled the mouse to move the box.
Now move the mouse - and the box will move with the mouse and can be dragged back into view.

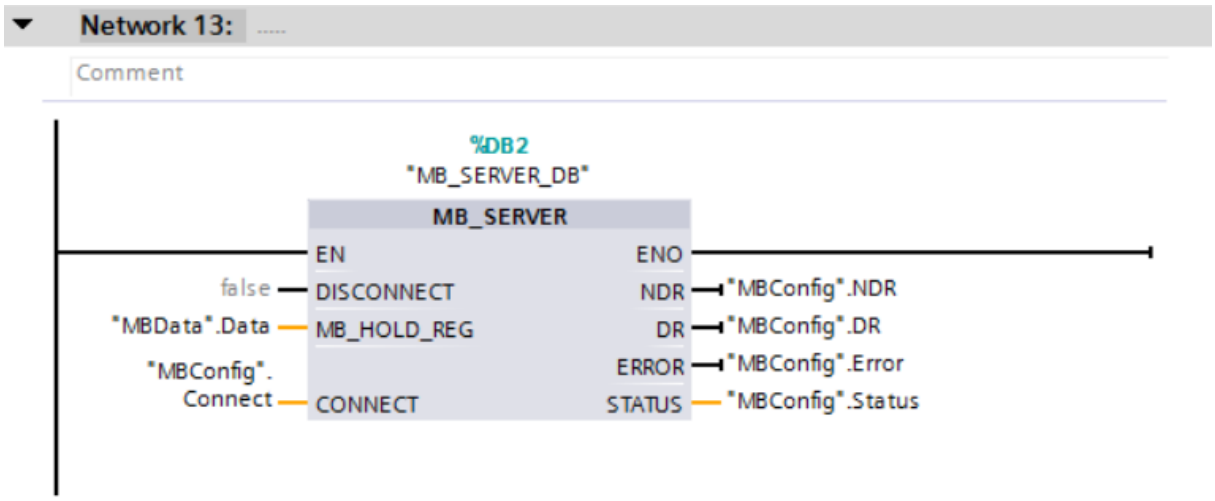
The steps above will work for any Windows box, this is not just a SpecView feature.

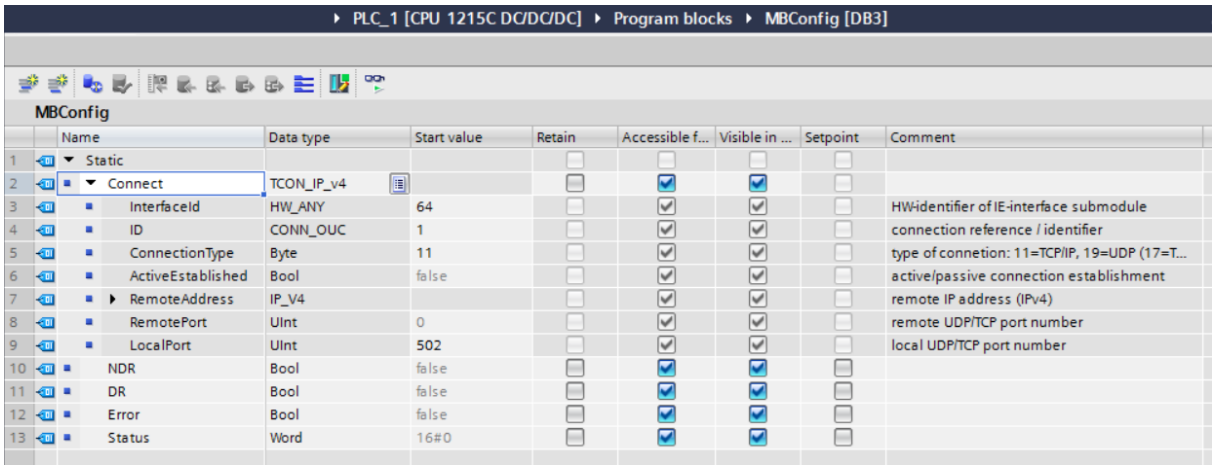
19.37 Siemens S7 - example setup of TIA Portal for S7-1200

The screen-shots below show an example of the setup for the Siemens TIA Portal for S7-1200.

This would allow SpecView to communicate with a Siemens S1200 PLC over Modbus/TCP with SpecView's Generic Modbus driver using blocks of 4xHolding registers.

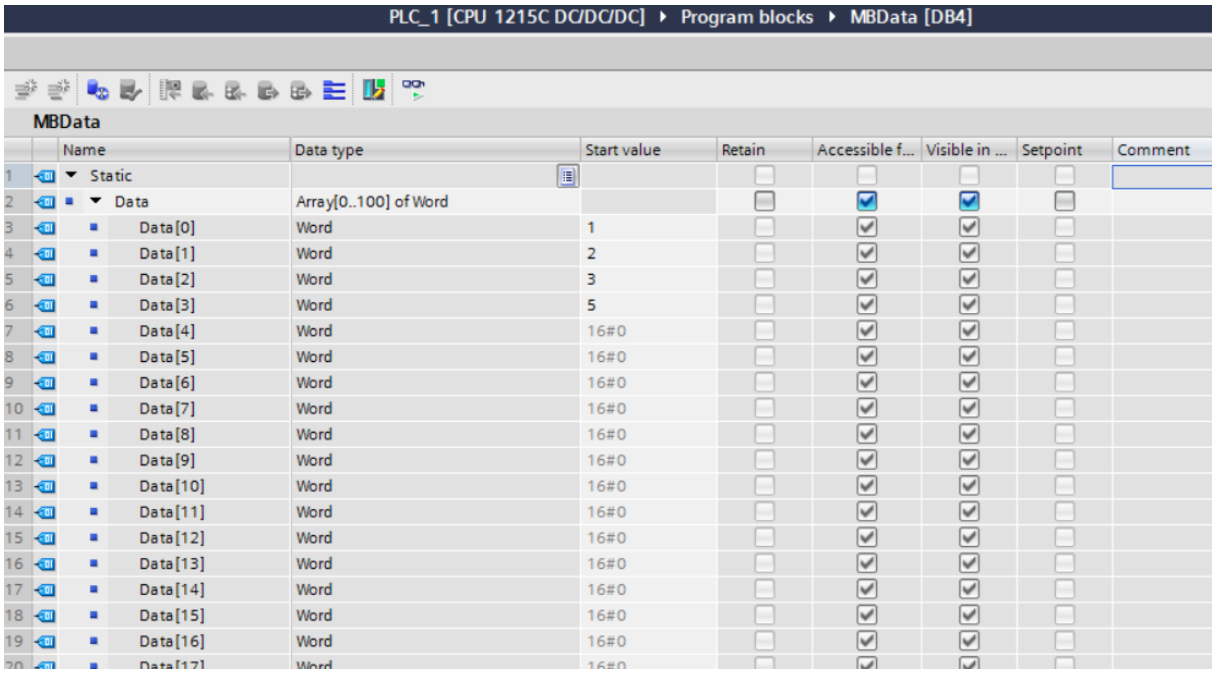
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	Name	Data type	Start value	Retain	Accessible f...	Visible in ...	Setpoint	Comment
1	Static							
2	Connect	TCON_IP_v4						
3	InterfaceId	HW_ANY	64					HW-identifier of IE-interface submodule
4	ID	CONN_OUC	1					connection reference / identifier
5	ConnectionType	Byte	11					type of connetion: 11=TCP/IP, 19=UDP (17=T...
6	ActiveEstablished	Bool	false					active/passive connection establishment
7	RemoteAddress	IP_V4						remote IP address (IPv4)
8	RemotePort	UInt	0					remote UDP/TCP port number
9	LocalPort	UInt	502					local UDP/TCP port number
10	NDR	Bool	false					
11	DR	Bool	false					
12	Error	Bool	false					
13	Status	Word	16#0					

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	Name	Data type	Start value	Retain	Accessible f...	Visible in ...	Setpoint	Comment
1	Static							
2	Data	Array[0..100] of Word						
3	Data[0]	Word	1					
4	Data[1]	Word	2					
5	Data[2]	Word	3					
6	Data[3]	Word	5					
7	Data[4]	Word	16#0					
8	Data[5]	Word	16#0					
9	Data[6]	Word	16#0					
10	Data[7]	Word	16#0					
11	Data[8]	Word	16#0					
12	Data[9]	Word	16#0					
13	Data[10]	Word	16#0					
14	Data[11]	Word	16#0					
15	Data[12]	Word	16#0					
16	Data[13]	Word	16#0					
17	Data[14]	Word	16#0					
18	Data[15]	Word	16#0					
19	Data[16]	Word	16#0					
20	Data[17]	Word	16#0					

For further assistance contact your SpecView representative.

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Part 20

20 Frequently Asked Questions (FAQ)

For the answers to the following questions please see the relevant section of the FAQ:

FAQ - Installation/Update/Upgrade 905
- Does SpecView work with Win95/98/NT/2000/Me/XP?
- Do I need to send the dongle back in order to get it upgraded to to add further options?
- Will updating affect my existing Projects?
- Can I copy SpecView to another PC & how can this be done?
- During installation I get an error about DCOM.

FAQ - Instrument 906
- Why am I seeing: 'N/R' or 'NPV' or 'NCA' or 'N/C' or 'T/O' or 'W/O' on the screen where the instrument's values should be?
- On my generic Modbus instrument how do I access higher registers?
- Why are the instrument values shown 10 or 100 times too big (or too small)?
- Why are the wrong values being returned from the instrument?
- How do I use a BarCode Scanner with SpecView?
- How can I avoid affecting communications throughput if some instrument(s) need to be turned off or disconnected for a reason?

FAQ - SpecView Runtime 907
- Can I monitor SpecView remotely?
- How do I view previous Event Logs?
- How can I restore the Historical Replay Control Panel window to its original size?
- Why am I getting steps or gaps on my Trend Chart rather than a smooth curve?
- I am getting empty logfiles, what could be the reason for this?
- How can performance be improved - so that the rate that instrument variables are updated is increased?
- How can I make the color of things on a GDW change according to a value?
- How can I modify one of SpecView's Demo Projects so it will work with my instruments?
- Running a program using 'SpecView: Run External Program' the program's window is minimized.
- How can I improve the speed that SpecView starts up?
- Can I run SpecView from the Windows Startup Group?
- Why am I not seeing all the Instrument Parameters I expect to see in the Parameter List?
- The Trend Chart doesn't appear to be updating, why might this be?

FAQ - SpecView Edit Mode 909
- Can I develop complex screen(s) for one instrument (e.g: Furnace1) then copy it/them for another instrument of the same type (e.g: Furnace2)?
- Double-clicking on an item on the GDW seems to have no effect, when usually it would display the relevant attributes box for that item.
- I can't seem to add a variable on a GDW into Recipe.
- I can't seem to edit a value's Dynamic Attributes.
- Changing the color of text on the screen (using Object->Text Font...) doesn't appear to have any effect.
- How do I configure SpecView Networking (Remote/Local)?
- What can I do if Auto detect doesn't work for my instrument?
- How do I do a Strategy Controller event every second?
- How do I do a Strategy Controller event every minute?
- My variables list box doesn't appear, why not?
- How do I animate a graphic using the Strategy Controller?
- How do I make clicking somewhere on a GDW do a button-type action?

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- I've set the Fill Color of a shape but it isn't being filled, why?
- Why is it that using the Edit->Paste of an object doesn't appear to work?
- What can I do if comparing an instrument value (with decimal places[496]) with an integer in the Strategy Controller doesn't work?
- Can I copy a whole Project?
- Adding a bitmap to a GDW makes the GDW much larger, why?
- How do I archive logfiles?
- How do I delete logfiles?
- I am confused about the difference between Log Files and Log File Reports created by Log File Conversion.
- How can I make the Strategy Controller run another program?
- How do I run a DOS .BAT file from the action: SpecView: Run External Program ?
- How do I setup the Strategy Controller to do a delay (for example, 5 seconds) ?
- How can I make a button on a GDW do more than one action ?
- How can I make a button toggle a Boolean so that successive clicks turn it On/Off/On/...?
- What is the maximum value for an Integer or Number variable?
- How can a value be displayed on a GDW using scientific notation (showing mantissa & exponent)?
- Opening a screen in Runtime mode with a Trend Chart; the chart is always initially blank with no pen lines. What can be done about this?
- How can a screen (GDW) be printed to an Adobe PDF (Portable Document Format) file?
- How can I make a Strategy Event which will keep 'firing' all the time that something is 'true'?
- How can I make something blink/flash on screen?
- How can I position items on a screen & align them to within a pixel & stop them 'jumping' to the grid?
- How can I make some text appear on the screen using the Strategy Controller when something happens?
- How can I run a Help (HLP) file from a button on the screen?
- How can I use COM ports 10 and above?
- Why am I not seeing all the Instrument Parameters I expect to see in the Variables List?

20.1 FAQ - Installation/Update/Upgrade

Does SpecView work with Win95/98/NT/2000/Me/XP?
- Yes, this is detailed in Minimum Requirements[26], however SpecView does not work with Windows CE, which is a reduced version of Windows used in Windows embedded devices.

Do I need to send the dongle back in order to get it upgraded to to add further options, (such as adding the Strategy Controller option)?
- No, once you have decided to upgrade[64] the dongle[498], and have raised a purchase order
- Use the Registration Info menu command from the Help[309] menu
- Click Enable Further Options.
- Write the Step 1 code, which is generated, on to the order and fax it to your SpecView distributor.
- They will then give you the Step 2 code(s) by voice/fax/email to complete the upgrade.

Will either updating to a new version of SpecView, or upgrading to add further SpecView options to the dongle, affect my existing Projects?
- Both updating[186] the version of SpecView software & upgrading[64] the dongle[498] add further options, preserves existing Projects.
- However, as with all computer files, taking regular backups is a good idea.
- To do this use the Archive[193] button on the Projects Found dialog to save an entire Project.

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Can I copy SpecView to another PC & how can this be done?
- Yes, it may be copied freely because, without a dongle[498] connected, it will only operate in Runtime Mode for 10 minutes, or as a Remote[736]. Dongles are not limited to a specific PC and can be transferred.
- In order to copy SpecView together with your Project and Log Files, follow the steps below:
  - First Install[181] SpecView (preferably using the latest version) either from the CD or via download.
  - Then use SpecView's Archive[193] to create a backup file of the Project's sub-folder (this folder contains data only, no software) which is within SpecView's installation folder (usually C:\SV3).
  - Copy this file to the new PC which has had the latest version of SpecView installed and use SpecView's Restore[193] to install the data.

If the existing version of SpecView was the 16-bit version then read SpecView Upgrading from a previous version[64]

During installation I get an error about DCOM.
- There is a file which SpecView needs which doesn't exist in early versions of Windows 95, 98 or Me. During the installation process it will install DCOM95 or DCOM98 appropriately. This file is needed for SpecView's OPC functionality, and because part of the OPC functionality is built-in to the base product, the file is required even if SpecView's OPC option isn't being used.

20.2 FAQ - Instrument

Why am I seeing: 'N/R' or 'NPV' or 'NCA' or 'N/C' or 'T/O' or 'W/O' on the screen where the instrument's values should be?
- For 'N/R' this is correct operation while offline[307] in Edit Mode[501]. However, if this occurs while in Runtime Mode[512] then please read Troubleshooting Instrument Communications[790] for the steps to take.
- For the others, they explained in Values on the GDW[253].

On my generic Modbus instrument how do I access higher registers?
- Use an offset[215] on the address specification by adding a semicolon followed by the offset, for example 1,0J;256

Why are the instrument values shown 10 or 100 times too big (or too small) or without the decimal point positioned correctly?
- Check the address[208] specification to see if the number of decimal places[496] is correct.

Why are the wrong values being returned from the instrument?
- Check the instrument's manual, as some instruments return raw data (for example, Chessell & ABB Chart Recorders), which needs to be scaled.
- This can be done from the Properties button on the Variables List[313].

How do I use a BarCode Scanner with SpecView?
- This is detailed under Using a BarCode Scanner with SpecView[210].

How can I avoid affecting communications throughput if some instrument(s) need to be turned off or disconnected for a reason?

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There are 2 answers to this depending on whether the dongle has the Multiport 507 option enabled:

- If the Dongle has the Multiport 507 option enabled then:
Set the 'COM port' of the missing controllers to something else, like 'COM2'. That way all the failed reads & timeouts won't affect the communication stream coming in from the other COM port.

- If the Dongle hasn't got the Multiport 507 option enabled then:
Go to File->Preferences & on the Runtime tab 459 set 'Comms Back Off Multiplier' to a larger number. It is a trade-off as to how high to set it because if it is very high, then when the instruments are subsequently reconnected on it will take SpecView that long to 'notice'. Be aware that it'll also affect the 'retry' timeout on the live instruments too, so it is important to put the variables 319:

SpecView.CommsErrors
SpecView.GoodComms
SpecView.CommsErrorCode
SpecView.CommsErrorItem
SpecView.CommsErrorDescription

on a screen somewhere & when all the instruments are connected check that CommsErrors stays at zero - if there is a weakness in instrument communication then increasing the Comms Back Off Multiplier would not be a good idea.

20.3 FAQ - SpecView Runtime

Can I monitor SpecView remotely?
- Yes, use SpecView Networking 736

How do I view previous Event Logs?
- Use the Convert Log File menu command from the Logging 273 menu
- Create a Report Format which has **Include Event Log** checked.
- This will create a .CSE file, which can be viewed using Excel.

How can I restore the Historical Replay Control Panel window to its original size?
- Use File->Preferences Settings 467 'Reset Historical Replay Window Position'

Why am I getting steps or gaps on my Trend Chart rather than a smooth curve?
- This could be because SpecView is busy trying to read non-existent instruments, or getting repeated comms failures. Maybe increasing the Comms Back Off Multiplier 459 to 1000 may help.
- Alternatively the PC could be busy, so check the loading on the PC.
- Gaps can be caused by the PC's Power Save function.

I am getting empty logfiles, what could be the reason for this?
- Use the **Show Logging in Variables List** menu command on the Setup->Database sub-menu 305.
- Then, using the Variables List 313, check that the required variables are set as logged.
- Or maybe the logging rate needs adjusting from Preferences Logging 464

How can performance be improved - so that the rate that instrument variables are updated is increased?
See here 569

How can I make the color of things on a GDW change according to a value?
A variable's color can be made to change according to its own value or another variable's value, for

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example, a text string's color 'Warning: Overheating' could appear in red when a temperature reading is above a certain value. Then set to white (which would make it disappear) otherwise.
In this example, select the text string, then choose Color Dynamics [359] from the Edit menu [287].

How can I modify one of SpecView's Demo Projects so that it will work with my instruments?
It is likely that the problem is caused by the instrument address(es) being incorrectly set.
In Edit Mode click the 'Variables List' tool then select the instrument's name and click the Properties button. The address field will show the address that SpecView is using. Either alter the address in SpecView or change the instrument's address according to the instrument manufacturer's instructions.
Modbus address format [215]

When I run a program using SpecView: Run External Program [447] the program's window is minimized.
- It is possible to change this in the SETTINGS.INI file in the Project's folder:

[Settings]
RunExtProgDispMode=M

Where the choices are:
M - means start Minimized, which is the default
F - means start using Full screen
N - means start in a Normal window

This setting will affect all programs run by SpecView from that Project.

The reason that the default setting is Minimized is because this command was originally added in order to run programs to, for example, play a sound file, where it would be innapropriate to display the program's window.

How can I send email from within SpecView?
It is possible to setup SpecView's Strategy Controller to send email(s) when a certain condition occurs, such as an alarm. There are 2 ways to do this:
1. Using SpecView: Run External Program [447]:
There are programs available, but we don't currently know of any specific examples, which have a command line interface so that the email address & the file containing the message to send can be specified on the command line.

2. Using SVEmail:
SVEmail was written by us to send an email via a MAPI compatible email program.
However, due to the recent tightening of security on the use of MAPI to send emails because of the problems caused by automated spamming, this will only work on older versions of Microsoft Outlook (such as Outlook 2000). We are not aware of which other email programs it will work with, although there are a great many email programs available so it should be possible. The best thing to do is to try it out, please contact your SpecView distributor to request SVEmail free of charge.

How can I improve the speed that SpecView starts up?
When SpecView starts up it loads all the Instrument Definition Files (IDF) in the installation folder (usually C:\SV3\), which takes some time. To improve the speed of startup it is OK to move the Instrument Definition Files (IDF) that are not being used into another folder. It is best not to delete them in case they are needed in the future, so we recommend creating a folder, such as C:\SV3\IDF and moving the IDF files that are not being used into there.
NOTE: To see which IDF files are still being loaded, go into Edit mode, click the Variables List [V] tool and click 'Show New' this lists all the Instrument types which have been read from the IDF files during startup.

Can I run SpecView from the Windows Startup Group?

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If SpecView is put into the Startup Group, then often it will start before other parts of the system are ready. To resolve this, use a delay program, such as:
http://www.rjlsoftware.com/software/utility/delayexec/
to delay the startup a bit.

Why am I not seeing all the Instrument Parameters I expect to see in the Parameter List?
- To display the full list use the Options Menu[276] and select the Short List menu command. All the parameters will appear. Choose this menu item again to toggle back to the short list[326] mode. To include/exclude parameters from the Short List use the Variable Properties[326] box.

The Trend Chart doesn't appear to be updating, why might this be?
Firstly determine the resolution of a Trend Chart as SpecView will draw one pixel on the Trend Chart pen line according to the time span of the chart & the width of the chart in pixels. Therefore if the time span of the chart is 28 days & the chart is 1000 pixels wide then one pixel will be drawn and every 40 minutes. This also applies to the rate at which the values shown along the top of the chart will be updated.
To ensure the current values can be seen put the values out onto the screen from the Variables List[313].
If the values still aren't updating as expected then put the variables: **SpecView.CommsErrors**, **SpecView.GoodComms**, **SpecView.CommsErrorCode, SpecView.CommsErrorItem & Specview.CommsErrorDescription** onto the screen to check instrument communications[790].

20.4 FAQ - SpecView Edit Mode

Can I develop complex screen(s) for one instrument (e.g: Furnace1) then copy it/them for another instrument of the same type (e.g: Furnace2)?

Yes, once you have created the screen(s) for the first instrument and you are happy with them, use File->Save As... to save them to different names. Ensure the other instrument(s) are in the Variables list[313], either by adding them Manually[204], or by having initially done an auto-detect of all connected instruments. Then go to one of the newly saved screens (using File->Open) and use Edit->Replace[287] to substitute the names (e.g: Furnace1 to Furnace2).
This will change all occurrences, but only on the current GDW so if there is more than one GDW per instrument it will need doing for each. However, it will not affect the Strategy Controller[666] so this will need to be changed as necessary.

Double-clicking on an item on the GDW seems to have no effect, when usually it would display the relevant attributes box for that item.
- The item may be Grouped with another item on the GDW, click on the item once so that it is selected and click the Ungroup tool (detailed in the Object menu[291])

I can't seem to add a variable on a GDW into Recipe.
- The value and the variable's name may still be Grouped together, un-click the Recipe[636] tool, then click on the variable and click the Ungroup tool (detailed in the Object menu[291])

I can't seem to edit a value's Dynamic Attributes.
- If the Dynamic Attributes[501] menu command appears to have no effect then the value and the variable's name may still be Grouped together, click on the variable and click the Ungroup tool (detailed in the Object menu[291])

Changing the color of text on the screen (using Object->Text Font...) doesn't appear to have any effect.

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- It is possible that the text is Grouped together with another item on the GDW, click on the item and click the Ungroup tool (detailed in the Object menu 291). Then select them individually.

How do I configure SpecView Networking (Remote/Local)?
- Details in SpecView Networking 736

What can I do if Auto detect doesn't work for my instrument?
- Use Manual Instrument Configuration 204

How do I do a Strategy Controller event every second?
- In the Strategy Controller 666 create a Value Based event
- Value to watch: SpecView.Time
- Test to perform: Changed
- Value to test against will default to Constant Value: 00:00:00

How do I do a Strategy Controller event every minute?
- In the Strategy Controller 666 create a Value Based event
- Value to watch: SpecView.Time
- Test to perform: Changed,
- With the Constant Value 00:00:59

My Variables List box doesn't appear, why not?
- It may be off screen,
- use File->Preferences Settings 467 'Reset Variables List Window Position'

How do I animate a graphic using the Strategy Controller?
- Set a SpecView User Variable 322 to represent the phase of the animation.
- Create a number of shapes 372 for the animation
- Use Edit->Color Dynamics 359 to make the shapes change color between the background color and another color, to make them 'appear' & 'disappear' according to the value of the User Variable.
However, it is not possible to animate a bitmap.

How do I make clicking somewhere on a GDW do a button-type action?
This can be used to make a part of a GDW sensitive to a click.
- Create a polygon 372 with Outline Weight (or line width) = 0 and position it appropriately and note its name shown in the Shape Properties box.
- Create a button 384 and position it off-screen with the required action
- Change the caption of the button to be exactly the same as the name of the polygon (this is case sensitive).
Now clicking on the polygon will have the same effect as clicking on the button.

I've set the Fill Color of a shape but it isn't being filled, why?
- Double-click the shape & uncheck the **fill-none** box

Why is it that using the Edit->Paste of an object doesn't appear to work?
- It has been pasted over the top of the original, move it to one side to reveal the one beneath.

What can I do if comparing an instrument value (with decimal places 496) with an integer in the Strategy Controller doesn't work?
- Comparisons of variables 517 must be between variables of the same type.
You will need to create a User Variable of type Number (with decimals) and copy 429 the integer into it before making the comparison.

Can I copy a whole Project?
- Yes, either use Windows Explorer to copy the Project folder 190
- or use Archive/Restore 193

Adding a bitmap to a GDW makes the GDW much larger, why?
- This occurs if a bitmap 379 is added using the Insert New Object menu command on the Edit menu 287.

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- It is recommended to use the Insert a Bitmap 379 tool on the toolbar (or Draw->Bitmap... 289) instead.

Can I write a line of text at the top of a Logfile Report?
- Use the SpecView: Write Line to file/printer 452 action for a Button or via the Strategy Controller.
- Use this to write the line you require to a file called, say, LINE.TXT.
- Generate a log report to, say, REPORT.CSV
- Create a file called, say JOIN.BAT, containing a line something like:
COPY LINE.TXT+REPORT.CSV FINAL.CSV
- Then use the action SpecView: Run External Program 447 to run JOIN.BAT.

How do I archive logfiles?
- There are (up to) 6 files which make up a day's logfiles 589: .LOG .LNM .EVT .ALM .IDX .BTC (These are detailed further in Data Logging - Disk Space Requirements 603).
- Using Windows Explorer go into the Project's sub-folder and sort by name
- This will ensure that all logfiles are listed first
- These can be copied or zipped as required.
- The first part of the logfile names are in the format YY_DDD, where YY is the current year number, and DDD is the current day number within the year (starting from 000. So for: 1st January 2003 the file names will be: 03_000).
Or see the example below that uses: xcopy

How do I delete logfiles?
- The best method is to use the Strategy Controller or Button action: Logging: Purge Log Files 429

I am confused about the difference between Log Files and Log File Reports created by Log File Conversion.
- Log Files 589 are automatically created and updated all the time that SpecView is in Runtime Mode. There are a set of (up to) 6 files which make up a day's data log.
- The contents of Log Files cannot be viewed directly, they must first be converted into a Log File Report using Log File Conversion 606.
- In order to generate a Log File Report first a Report Format 611 will need to be setup, this defines which values in the Log Files should be listed in the Log File Report, and in what order.
- The Log File Conversion can then be done directly by a user action, either from the Logging menu during Runtime, or from the Button/Strategy Controller actions Logging: Convert Specific Log File Format 428 or Logging: Show Log File Convert Manager 429.
- The Log File Report can then be viewed using any program which can read .CSV (Comma Separated Variables) files, such as Excel.

How can I make the Strategy Controller run another program?
- Use the action SpecView: Run external program 447
- It is important to include the full pathname of the program to be run, for example, C:\TEMP\MYPROGRAM
Without the full path SpecView will only look in the current Project's sub-folder in the installation folder (usually C:\SV3) for the program.
- To run a .BAT file create the file in the Project's sub-folder with the commands to be run. If you require the MS-DOS Prompt window to disappear when the .BAT file has finished then add the command 'exit' as the last line of the .BAT file. Also on the MS-DOS Prompt's properties check the 'Close on exit' box. However, note that any error messages from the running of the .BAT file may then be lost.

How do I run a DOS .BAT file from the action: SpecView: Run External Program ?
The .BAT file can be in SpecView's current Project's folder, or in a folder specified by the PATH setting in Windows, then just the filename can be used:

```
Example.bat
```

or, if there are spaces in the name use double quotes:

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"Example Two.bat"
Similarly use double quotes around commandline parameters with spaces:
Example.bat "This is an example with spaces"

Alternatively specify the full pathname, again using double-quotes if there are spaces in the name, for example: "C:\My Documents\Example.bat"

Also you may wish to write the .BAT file so that any output or errors are redirected to a file and then set the 'Close on exit' property on it using Windows Explorer so that the MS-DOS Prompt window closes immediately the .BAT file has finished running.

How do I setup the Strategy Controller to do a delay (for example, 5 seconds) ?
- Create a Countdown Timer User Variable 322
- Set the value to 6
- Use a Value Based event to watch for the Countdown Timer becoming = 1
(Going from 6 to 1 is better than going from 5 to 0 because once it has reached 0 it will remain there)

How can I make a button on a GDW do more than one action ?
- Create a Boolean SpecView User Variable (& set it to 'Off')
- Create a button that sets the Boolean to 'On'
- Use a Strategy Controller value based event to 'watch' the boolean, when it is set to 'On' do the required actions, then as the last action set the boolean back to 'Off'.

How can I make a button toggle a Boolean so that successive clicks turn it On/Off/On/...?
- Set the button action to do a Math Function 433 and subtract the Boolean from itself and store the answer in itself, for example:
Copy From: Bool1
Subtract: Bool1
Copy To: Bool1

What is the maximum value for an Integer or Number variable?
The ranges are detailed under SpecView User Variables 322.

How can a value be displayed on a GDW using scientific notation (showing mantissa & exponent)?
This is done using by setting the Dynamic Attributes 357 of a variable on a GDW.

Opening a screen in Runtime mode with a Trend Chart; the chart is always initially blank with no pen lines. What can be done about this?
Use the 'Auto-open on Runtime' menu command from the File menu 269 to tell SpecView to open (start) this GDW when entering Runtime Mode.

Also when creating buttons 384 to change screens use GDW Control: Swap to another GDW 426 to swap to another GDW screen without closing it and clearing the trace line(s), instead of using GDW Control: Close this and Swap To GDW 422, which is intended for use with infrequently used GDW screens, such as setup screens that don't contain Trend Charts.

How can a screen (GDW) be printed to an Adobe PDF (Portable Document Format) file?
Firstly Adobe Acrobat (or another program that can create PDF files) needs to be installed on the PC.
Then there are 2 ways of doing this:
1. By using either the Print or Print Setup menu commands from the File menu 269, because when Adobe Acrobat is installed it will be shown in the list of printers and can be selected to create a PDF (Portable Document Format) file.

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2. If the File Menu is not available (because Full Screen mode[476] is enabled), or if the printing is to be done from the Strategy Controller[666], then use the Printer Setup from Windows itself to set Adobe to be the 'Default Printer'.

How can I make a Strategy Event which will keep 'firing' all the time that something is 'true'?
Normally Strategy Events are edge-driven so that they only fire when a change occurs. Therefore in event that says, for example, 'If Bool1 = On' will only fire once, and will only fire again if the Boolean goes to Off and then back to On.
So if you want something to keep firing all the time, for example, while Bool1=On then do this:

- Add a Value Based Event called 'Every 2 seconds', and watch SpecView.Time, choose 'Changed' & test against 00:00:02. In the Event Control panel check the Enable on Boolean & choose Bool1=True.

This event will then 'fire' every 2 seconds all the time that Bool1=On.
This is useful to, for example, make something blink/flash or repeatedly ring a bell all the time there is an Alarm.

How can I make something blink/flash on screen?
– Add a Value Based Event called 'Every second & while Alarm=On', and watch 'SpecView.Time', choose 'Changed' & test against 00:00:00. In the 'Event Control' panel check the 'Enable on Boolean' & choose 'Alarm=True'. (for the Alarm you want, or use SpecView.AnyAlarm[319] for all alarms).

- Set the Action to do a Math Function[433] and subtract a Boolean User Variable from itself and store the answer in itself, for example:
Copy From: Bool1
Subtract: Bool1
Copy To: Bool1
(Subtracting a Boolean value from itself effectively toggles the value).

- Also add a Value Based Event called 'If Alarm = Off' to check if Alarm equals 'Off'.
- Set the Action to set Bool1 to 'Off'. So that the Boolean is turned off when the Alarm is.

Then select the item on the screen you want to flash & set the Color Dynamics[359] using 'Edit->Color Dynamics'.
- When 'SpecView.Bool1 = On' set it to (maybe) red.
- When 'SpecView.Bool1 = Off' set it to white (if the background is white then it'll disappear)

It is possible to stop the Alarm box appearing automatically by using:
'File->Preferences->Alarm tab' & unsetting 'Popup Enabled'.

How can I position items on a screen & align them to within a pixel & stop them 'jumping' to the grid?
This is done using by disabling the grid from the View Menu[295], by setting Grid Size to zero & unchecking Grid Lines.
However, although this allows objects on the screen to be positioned manually to within one pixel, this requires very precise positioning of the mouse & so is not recommended.

How can I make some text appear on the screen using the Strategy Controller when something happens?
There are a number of different ways of doing this:
- Make some text on the screen (GDW) appear/disappear using Color Dynamics[359] (making the text the same colour as the background color will make it seem to disappear).
- Swap[426] the screen (GDW) to a screen with the text on it. Remember to put a button on the new

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screen to swap the screen back.
- Use Run External Program 447 to run a program such as Notepad to display a file containing the text. For example:

c:\Windows\notepad.exe C:\SV3\Furnace\FurnaceWarning.txt
(Change paths as appropriate)

However, to ensure the Notepad window is seen you will need to set RunExtProgDispMode (default: M, which is minimized) to 'N' (normalized) in the [Settings] section of Settings.ini. See Preferences 458.

- Use Run External Program 447 to display a HLP file, for example:

C:\windows\winhlp32.exe C:\SV3\Furnace\FurnaceHelp.hlp
(Change paths as appropriate)

Set RunExtProgDispMode to 'N', as described above.

How can I run a Help (HLP) file from a button on the screen?
- Use Run External Program 447 to display a HLP file, for example:

C:\windows\winhlp32.exe C:\SV3\Furnace\FurnaceHelp.hlp
(Change paths as appropriate)

Set RunExtProgDispMode to 'N', as described above.

How can I use COM ports 10 and above?
- Firstly to use more than one COM port to connect to instruments the Multport 507 option will be required.
- The default number of COM ports is 9, but SpecView supports up 40 ports. To use ports 10 and above change the MaxPorts 458 setting.

Why am I not seeing all the Instrument Parameters I expect to see in the Variables List?
- Uncheck the Short List 313 checkbox on the Variables List to show all the Instrument Variables.
- Or you may need to manually add parts of the instrument which haven't already been defined by Automatically detecting the instrument or defined manually, this is described in Manually Defining Instruments 204.

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Part 21

21 Python-SpecView Integration

Users who are already familiar with Python and have the language installed on their systems do not need to review the entire document.
It is sufficient for these users to install the Pymodbus library and proceed with running the Python Demo SpecView project, as referenced in the Running the Script and Configuring SpecView section.
It is highly advisable to consult the final section of this document, which provides important guidelines for modifying Example.Py.

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5. Configuring SpecView 920

6. Example.py 931

21.1 Download Python

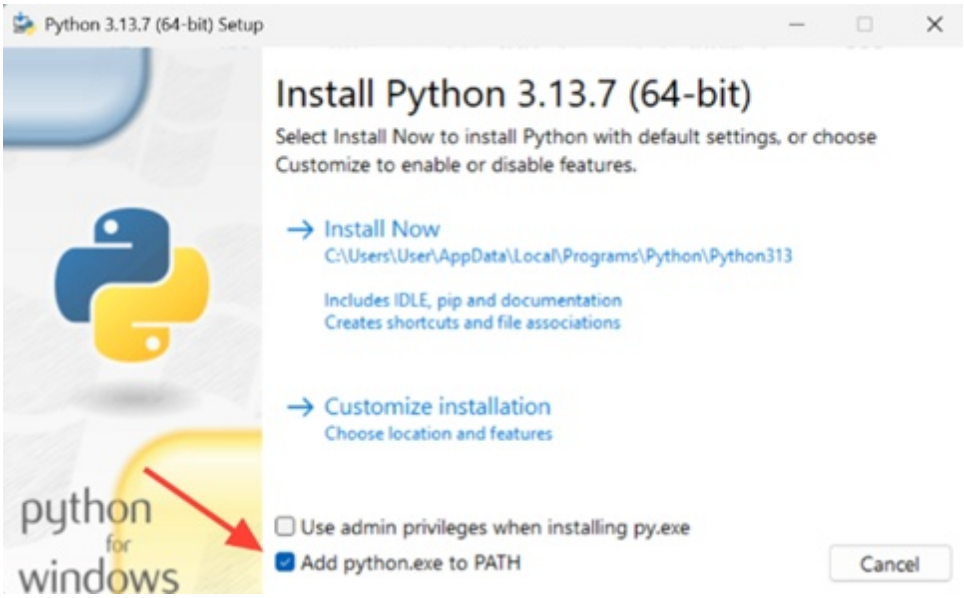
To begin working with SpecView Python scripts, users should first download and install Python from https://www.python.org/downloads/.
The script provided has been developed using Python version 3.12.7.
It is generally best practice to install the most recently released version of Python, as this ensures users will receive the latest security updates, bug fixes, and optimal performance.

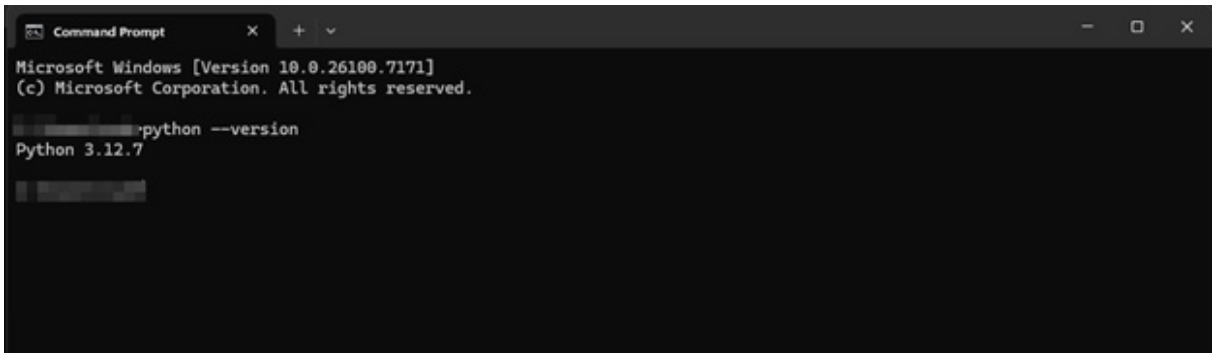
However, be aware that updating to a newer Python version can sometimes result in changes or removal of existing Python libraries.
Such modifications may impact the compatibility of the current Python script.
Therefore, it is important to thoroughly review Python's official release notes before upgrading.
Pay close attention to any updates affecting libraries used in this script to prevent any disruptions in functionality.

During the installation process, make sure to enable the option to add python.exe to system PATH. This step is essential for running Python commands directly from the command prompt.

After installing Python, open a Command Prompt terminal and enter "*python –version*".
The output should indicate the installed version of Python.
If users encounter an error stating that "*Python is not recognized as an internal or external command, operable program or batch file*," it means python.exe was not added to the PATH during installation.
In this case, uninstall Python and reinstall it, ensuring to select the option to add python.exe to PATH as instructed.

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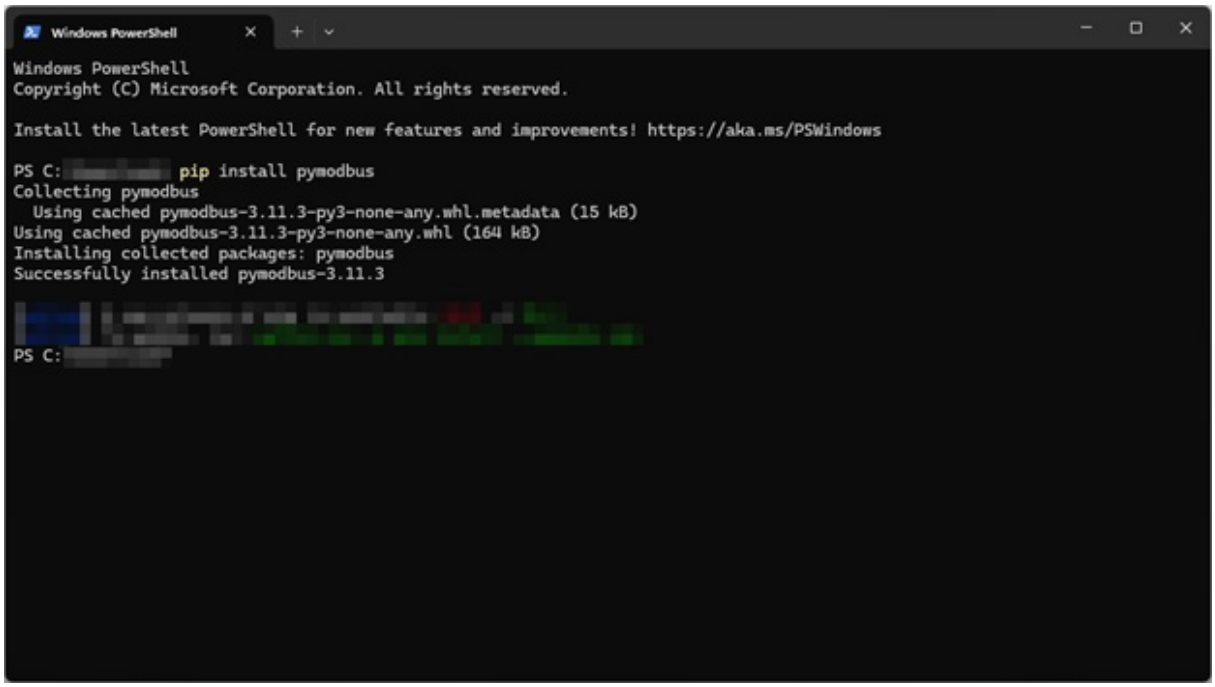


21.2 Install Pymodbus

This script requires the use of the Python library Pymodbus.
Begin by opening a Command Prompt terminal and entering the following command: *'pip install pymodbus'.*

This command will install the latest available version of Pymodbus.
This Python script was developed with a specific version of the library, such as 3.11.3.
To learn more about Pymodbus, including usage, documentation, and available methods, please visit https://pymodbus.readthedocs.io/en/v3.9.2/#.
It is important to note that updates to the PyModbus library may introduce changes or removals to certain methods.
Before running the script, verify that all methods used remain unchanged and available in the installed version.
This precaution helps prevent compatibility issues and ensures this script functions as intended.

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21.3 Using an IDE for Python Scripts

To facilitate the editing and development of this Python script, it is advisable to download an Integrated Development Environment (IDE).
An IDE provides a comprehensive set of tools that streamline the processes of debugging, building, and executing the script, making development more efficient and manageable.
Any IDE that can execute Python scripts is suitable for this purpose.
Some popular options include Visual Studio Code and Thonny, both of which offer user-friendly interfaces and robust features to enhance a user's coding experience
For the download of Visual Studio Code please visit https://code.visualstudio.com/download.
For the setup of Visual Studio Code for Python please visit https://code.visualstudio.com/docs/python/python-tutorial.
For the download of Thonny please visit, https://thonny.org/.
For a beginner friendly tutorial on Thonny please visit https://realpython.com/python-thonny/.

21.4 Editing Python Scripts without an IDE

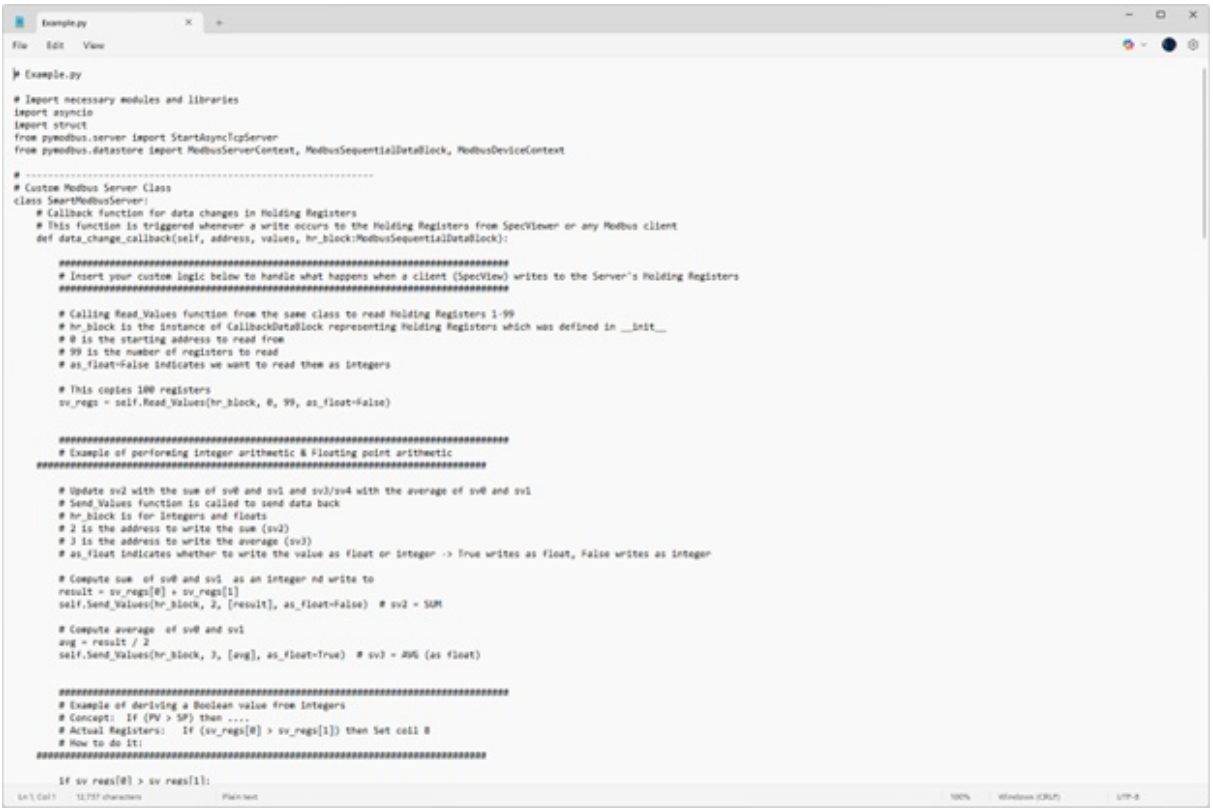
If users prefer not to use an Integrated Development Environment (IDE), they can edit the Python script using a simple text editor such as Notepad.
To do this, locate and open the script file in Notepad, make any necessary changes, and then save the updates.

When editing the script in Notepad, please ensure to adhere to Python's syntax rules.

For example, correct indentation of code is very important. If the user incorrectly indents any part of the code, the script may fail to execute.
Once the updated script has been saved, users can execute it directly by double-clicking the file in File

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Explorer or running it from the Terminal.
This approach provides a straightforward alternative for modifying and running Python scripts without the need for specialized development tools.
The script provides clear guidelines in comments for where users should and should not edit the script. Please adhere to these guidelines for optimal functionality of the script.



```
Example.py

# Import necessary modules and libraries
import asyncio
import struct
from pymodbus.server import StartAsyncTcpServer
from pymodbus.datastore import ModbusServerContext, ModbusSequentialDataBlock, ModbusDeviceContext

# ------------------------------------------------------------
# Custom Modbus Server Class
class SmartModbusServer:
    # Callback function for data changes in Holding Registers
    # This function is triggered whenever a write occurs to the Holding Registers from SpecViewer or any Modbus client
    def data_change_callback(self, address, values, hr_block:ModbusSequentialDataBlock):

        ##########################################################################
        # Insert your custom logic below to handle what happens when a client (SpecView) writes to the Server's Holding Registers
        ##########################################################################

        # Calling Read_Values function from the same class to read Holding Registers 1-99
        # hr_block is the instance of CallbackDataBlock representing Holding Registers which was defined in __init__
        # 0 is the starting address to read from
        # 99 is the number of registers to read
        # as_float=False indicates we want to read them as integers

        # This copies 100 registers
        sv_regs = self.Read_Values(hr_block, 0, 99, as_float=False)


        ##########################################################################
        # Example of performing integer arithmetic & Floating point arithmetic
    ##############################################################################

        # Update sv2 with the sum of sv0 and sv1 and sv3/sv4 with the average of sv0 and sv1
        # Send_Values function is called to send data back
        # hr_block is for Integers and floats
        # 2 is the address to write the sum (sv2)
        # 3 is the address to write the average (sv3)
        # as_float indicates whether to write the value as float or integer -> True writes as float, False writes as integer

        # Compute sum  of sv0 and sv1  as an integer nd write to
        result = sv_regs[0] + sv_regs[1]
        self.Send_Values(hr_block, 2, [result], as_float=False)  # sv2 = SUM

        # Compute average  of sv0 and sv1
        avg = result / 2
        self.Send_Values(hr_block, 3, [avg], as_float=True)  # sv3 = AVG (as float)


        ##########################################################################
        # Example of deriving a Boolean value from Integers
        # Concept:  If (PV > SP) then ....
        # Actual Registers:   If (sv_regs[0] > sv_regs[1]) then Set coil 0
        # How to do it:
    ##############################################################################

        If sv_regs[0] > sv_regs[1]:
```



```
##########################################################################
##########################################################################
##########################################################################
    # DO NOT CHANGE ANYTHING BELOW THIS LINE
##########################################################################
##########################################################################
##########################################################################

# Constructor
def __init__(self):
    # Initialize Data Blocks with Callbacks -> Creates a block of 100 Holding Registers initialized to 15 and every write triggers data_change_callback function
    self.hr_block = CallbackDataBlock(0, [15]*100, self.data_change_callback)
    # Initialize Coils Block with Callbacks -> Creates a block of 100 Coils initialized to 0 and every write triggers coil_change_callback function
    self.coils_block = CallbackDataBlock(0, [0]*100, self.coil_change_callback)

    # Create Modbus Device Context -> Uses Pymodbus' function ModbusDeviceContext to create a store of different data blocks
    self.store = ModbusDeviceContext(
        # di = Discrete Inputs Block -> 100 Discrete Inputs initialized to 0
        di=ModbusSequentialDataBlock(0, [0]*100),
        # co = Coils Block -> Custom CallbackDataBlock for Coils -> triggers coil_change_callback on write
        co=self.coils_block,
        # hr = Holding Registers Block -> Custom CallbackDataBlock for Holding Registers -> triggers data_change_callback on write
        hr=self.hr_block,
        # ir = Input Registers Block -> 100 Input Registers initialized to 0
        ir=ModbusSequentialDataBlock(0, [0]*100),
    )
    # Wrap the store in a Modbus Server Context by using Pymodbus' ModbusServerContext function
    # 'single=True' indicates a single slave context
    self.context = ModbusServerContext(self.store, single=True)

# Utility function to send values to a specified block
def Send_Values(self, block, address, values, as_float=False):

    # Ensure values fit in 16-bit unsigned integer range for Holding Registers and ignore for Coils
    if block == self.hr_block:
        values = [v % 65536 for v in values]  # Ensure values fit in 16-bit unsigned integer range

    # If values are to be sent as floats, convert each float to two 16-bit integers and write them to consecutive addresses
    if as_float:
        for i, float_value in enumerate(values):
            int1, int2 = FloatToInts(float_value)
            super(CallbackDataBlock, block).setValues(address + 1 + i*2, [int1, int2])
    else:
        # If not as floats, write the values directly
        # super(CallbackDataBlock, block) is used to bypass the overridden setValues method in CallbackDataBlock to prevent infinite recursion
        # setValues is called on the parent class to perform the actual write operation -> From Pymodbus' ModbusSequentialDataBlock
        super(CallbackDataBlock, block).setValues(address + 1, values)

# Utility function to read values from a specified block
def Read_Values(self, block, address, count, as_float=False):
    # If values are to be read as floats, read two 16-bit integers for each float and convert them back to floats
    if as_float:
        float_values = []
        for i in range(count):
            int1, int2 = block.getValues(address+1 + i*2, 2)
            float_value = IntsToFloat(int1, int2)
```

21.5 Configuring SpecView

Run the Example.py script to ensure that the script can run with no errors.
Example.py is an example script that creates a Modbus Server and demonstrates the following functions when a client such as SpecView writes to its Holding Registers.
Users can read on how to set up these registers in the steps below.

- The Modbus Server sums the values of Register 0 and Register 1 in SpecView's Generic Modbus Holding Registers and writes the sum in Register 2.
- The Modbus Server writes the average of Register 0 and Register 1 in Register 3 and 4 as a Float type.

A user will require the use of a 4X IEEE Float Register Big Endian with an offset of 3 to read this average value correctly.

- If Register 0's value is greater than Register 1's value, then the Modbus Server will write 1 to Coil 8.

This showcases the concept of how to turn ON an output (Coil 8) when a Process Value (Register 0) is greater than a limit (Register 1).

- If Register 5's value is greater than Register 6's value and Register 5's value is less than the value of Register 7, then the Modbus Server will write 1 to Coil 9

This showcases the concept of In Range.

The Modbus Server will turn ON an output (Coil 9) if the PV (Register 5) is within the range set by the Low Limit (Register 6) and High Limit (Register 7).

Also, the Modbus Server demonstrates the following when a client like SpecView writes to its Coils.

- Coil 2 is On when Coil 0 AND Coil 1 are on.
- Coil 3 is On when Coil 0 or Coil 1 are on.
- Coil 4 is On when Coil 0 XOR Coil 1 is true.
- Coil 5 is the bitwise complement of Coil 0. (i.e. NOT)

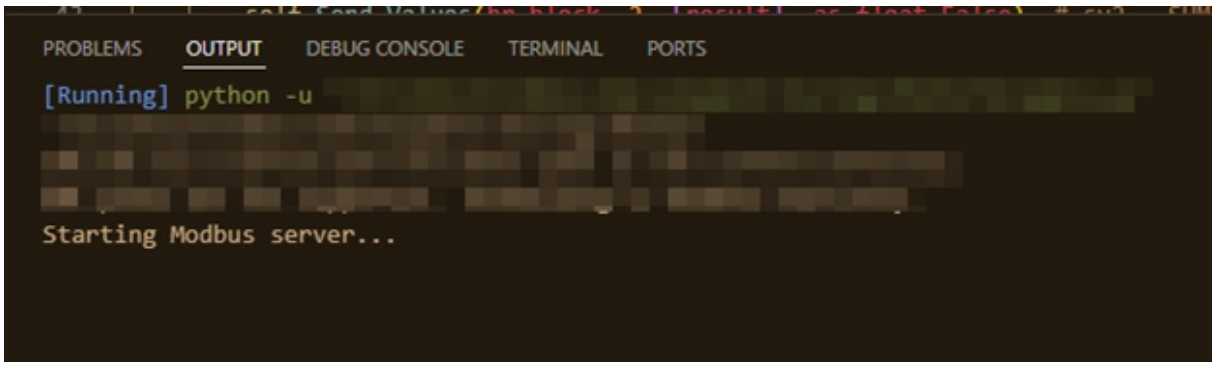
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This showcases the bitwise operations that are possible using the Modbus Server.
Users can read how to set up these Coils in the steps below.

Step 1: Run the Python Script in an IDE or Notepad 921
Step 2: Set Up SpecView for Modbus Communication 921
Step 3: Interact with Modbus Registers 924

Step 1: Run the Python Script in an IDE or Notepad

Open the script in the chosen Integrated Development Environment (IDE). Execute the script to ensure there are no errors during startup.
If the user chooses to use Notepad, then double click the Example.py file to run it in the Terminal.
If the script runs successfully, the user should see the message "*Starting Modbus server …*" appear in the Output or Terminal window.
This confirms that the Modbus server is operating as expected.



If there are errors such as "pymodbus is not recognized", then please verify …
1. Pymodbus was installed as mentioned in Install Pymodbus 917
2. That the script is being run locally from the PC and not from a network drive.
3. There are no alternate versions of Python installed on the PC and that Python was installed as explained in Download Python 916.

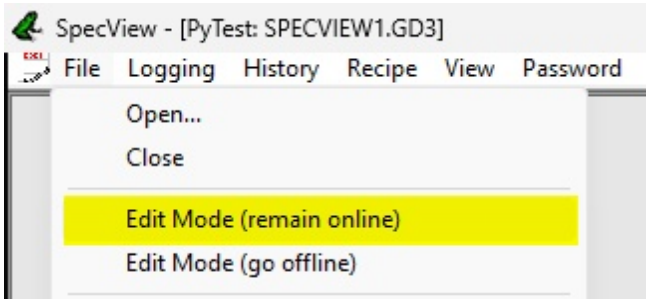
If other errors are encountered at this point, try searching for the error on the internet to see if other programmers might have experienced a similar error.
If no viable solutions are mentioned online, then contact a SpecView representative.

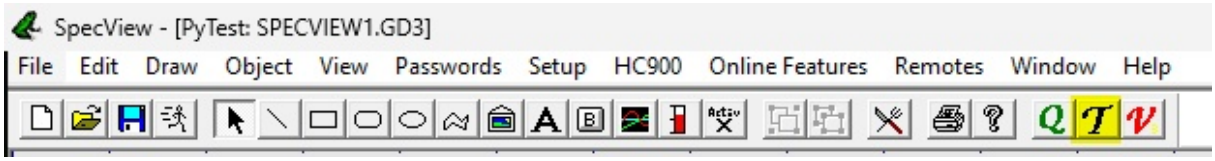
Step 2: Set Up SpecView for Modbus Communication

The SpecView project referenced in this section has already been configured and is available under the Demo section as the Python Demo.
It is highly advisable to review this section for a comprehensive understanding of how the project was configured to interface with the Python Modbus server.

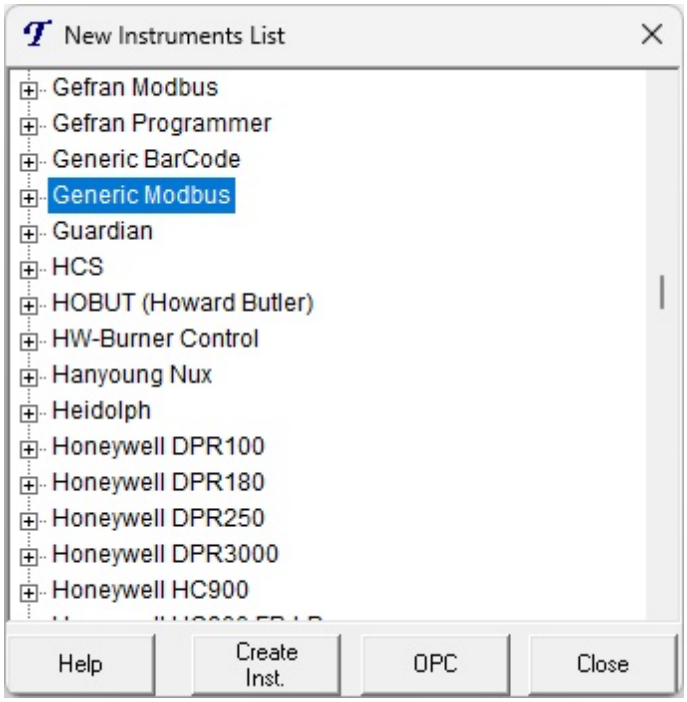
1. In SpecView, begin by either opening a new project or accessing an existing project.
2. Switch to Edit Mode (Online) and open the Templates/New Instruments List.

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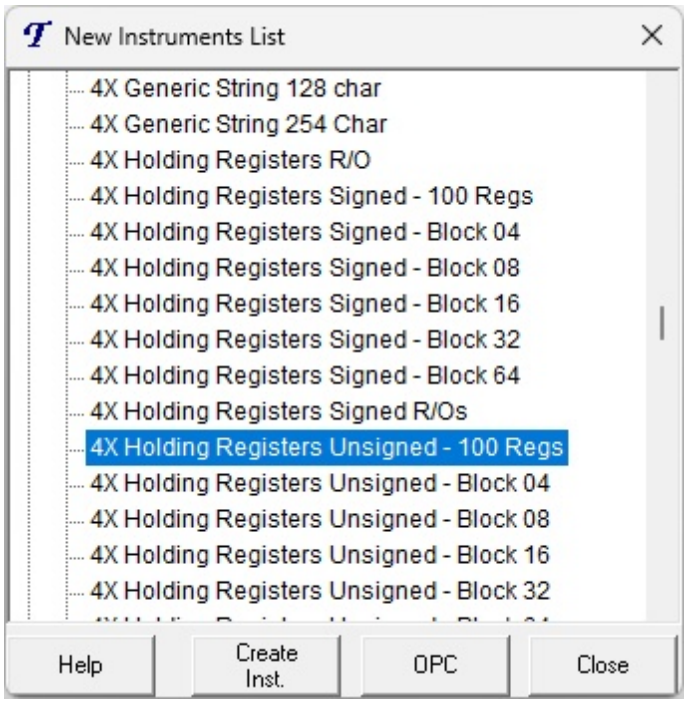


3. Locate and double-click on “Generic Modbus” to expand its options.

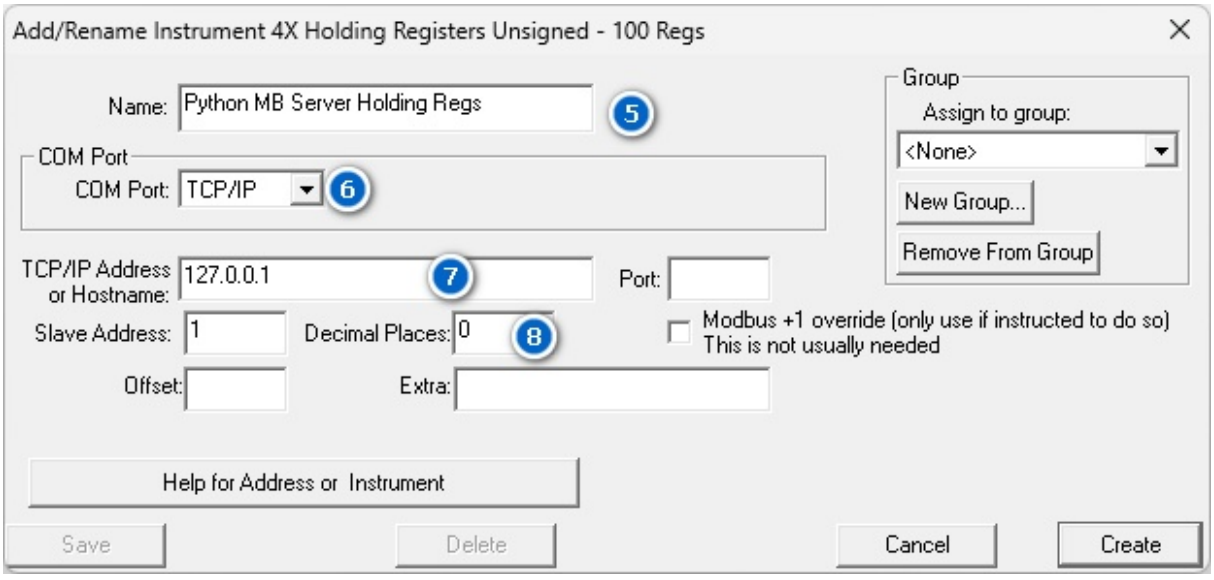


4. Within the expanded section, double-click on “*4X Holding Registers Unsigned – 100 Regs*.”

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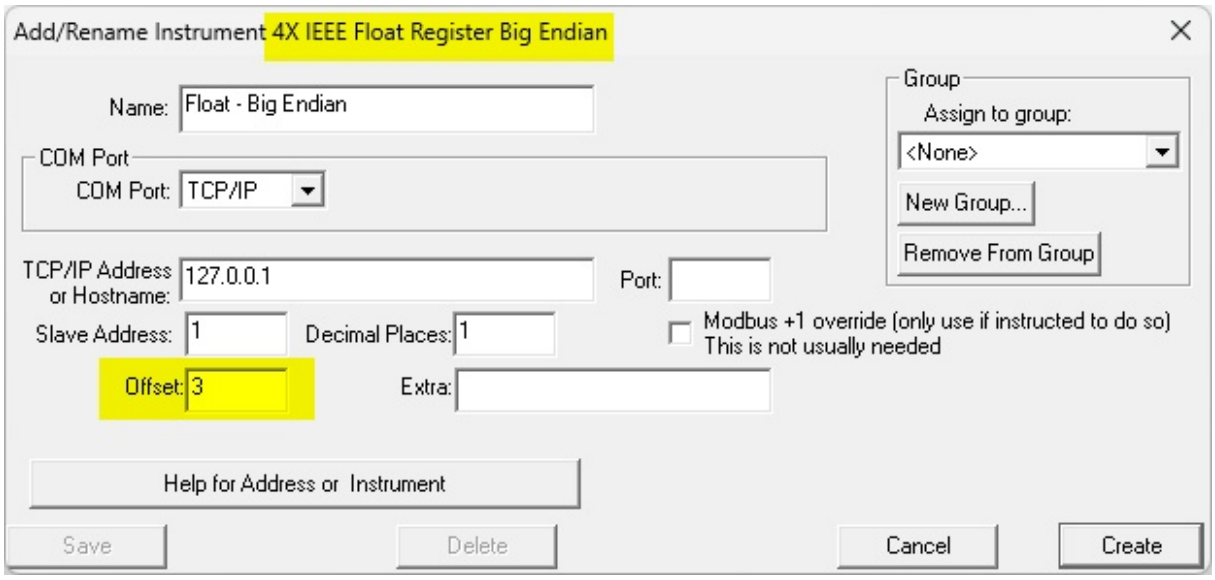


5. In the "*Add/Rename Instrument*" dialog, enter a suitable name for the Modbus server in the Name field.
6. From the COM Port drop-down menu, select "*TCP/IP*."
7. Enter 127.0.0.1 in the Hostname field to reference the local server.
8. Specify the required number of decimal places in the Decimal Places field.

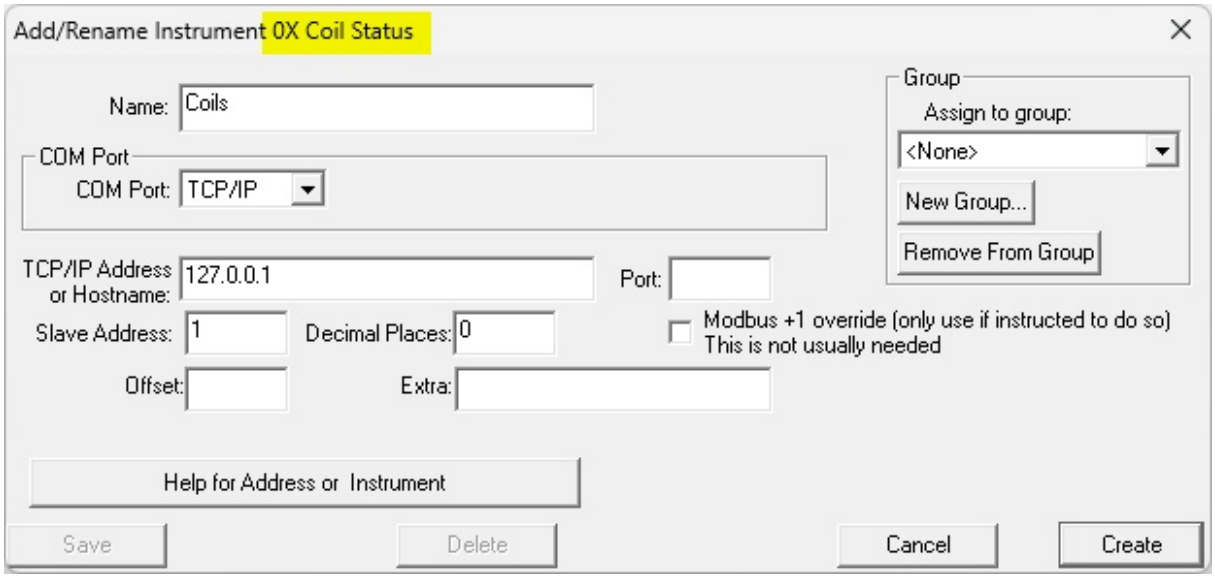


9. Repeat Steps 5 – 9, for a "*4X IEEE Float Register Big Endian*" found in Generic Modbus.
10. The Offset value this time will be 3.

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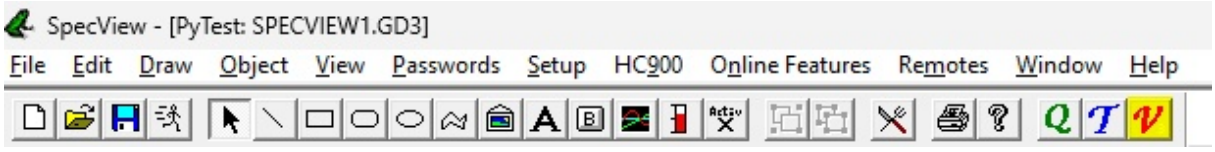


11.Repeat Steps 5-9, for a "*0X Coil Status*" instrument found in Generic Modbus.

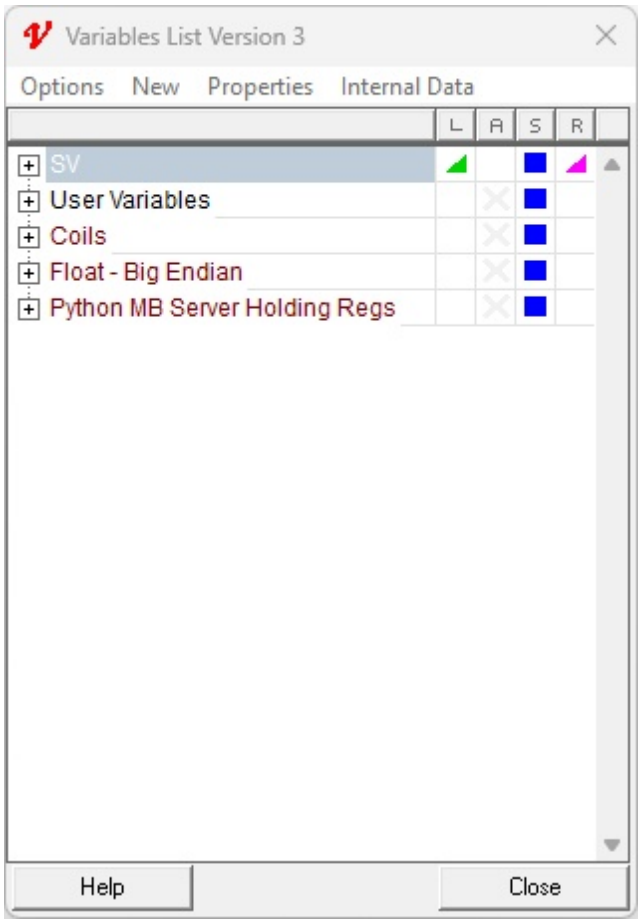


Step 3: Interact with Modbus Registers

1. Open the Variables List. The newly added Generic Modbus instruments should be visible.

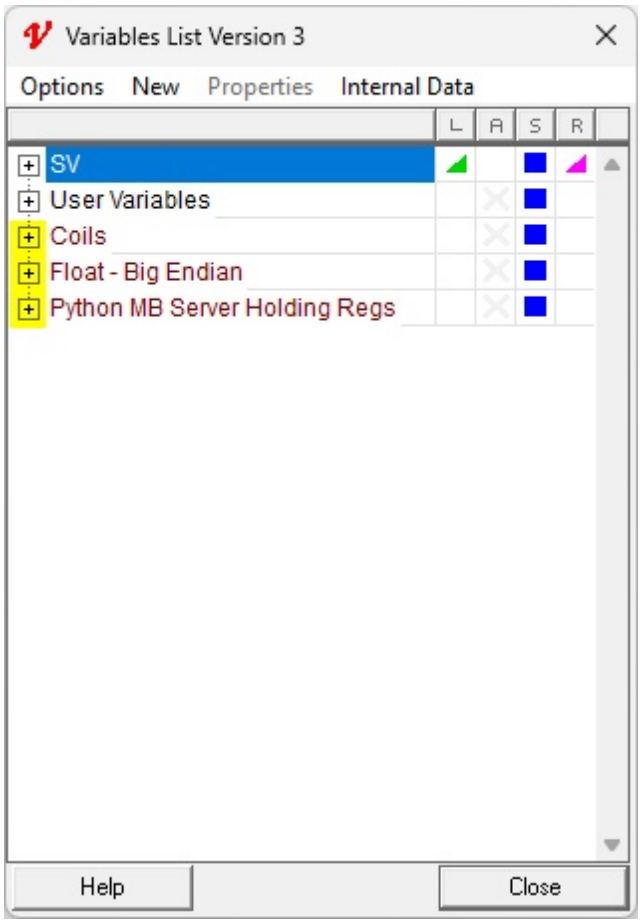


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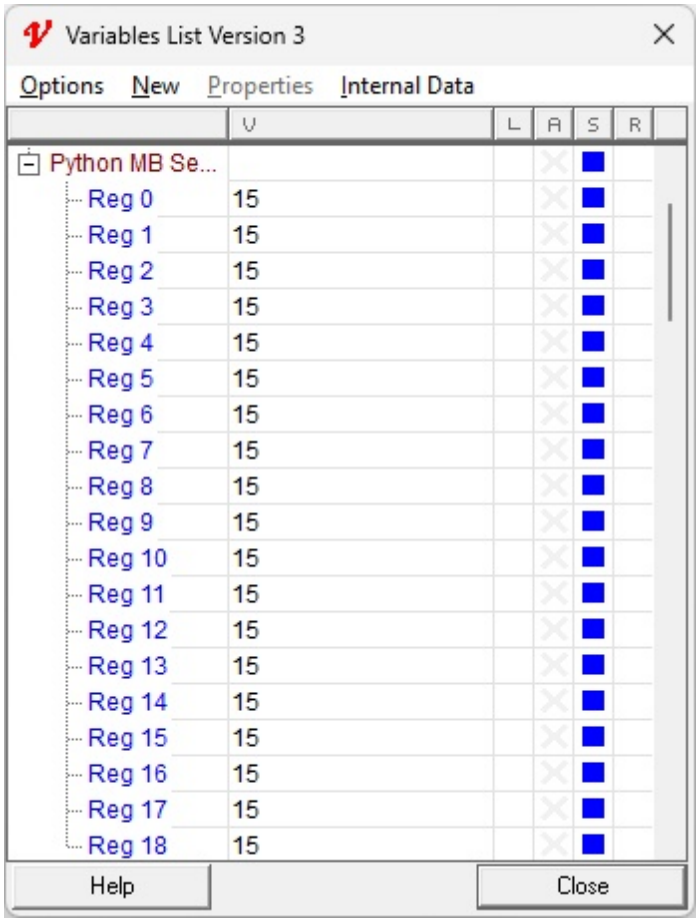
2. To view the individual registers, click the + icon next to the instrument's name in the Variables List.

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3. All the Holding Registers should initially display a value of 15.

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4. Double-click the value of Reg 0 or Reg 1 in the Variables List and update it as needed.
   Once Reg 0 or Reg 1 has changed, Reg 2 will automatically reflect the sum of Reg 0 and Reg 1.
   Reg 3 and Reg 4 will display the average of Reg 0 and Reg1.
   This value will be an IEEE Float.
   To see the value displayed as a Float, follow Step 2 and expand the 4X IEEE Float Register Big Endian that was created in Step 10 of Set Up SpecView for Modbus Communication 921.
   Coil 8 will turn ON if Reg 0's value is greater than Reg 1's values. To view the Coils, follow Step 2 and expand the instrument created in Step 9 of Set Up SpecView for Modbus Communication 921.

Python MB Server Holding Regs.Reg 0: 30
Python MB Server Holding Regs.Reg 1: 15

Register 2 (Sum): 45

Float - Big Endian Reg 3/4 (Avg): 22.5

Reg 0 (PV) > Reg 1 (SP) then Coil 8 = ON

Coil 8: On

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Python MB Server Holding Regs.Reg 0: 30
Python MB Server Holding Regs.Reg 1: 1606

Register 2 (Sum): 1636

Float - Big Endian Reg 3/4 (Avg): 818.0

Reg 0 (PV) > Reg 1 (SP) then Coil 8 = ON

Coil 8: Off

5. Double-click and edit the values of Reg 5 (PV), Reg 6 (Low Limit), and Reg 7 (High Limit).
   If Reg 5 is greater than Reg 6 and Reg 5 is less than Reg 7, then Coil 9 will be turned ON.

Python MB Server Holding Regs.Reg 5 (PV): 32
Python MB Server Holding Regs.Reg 6 (Lo Lim): 30
Python MB Server Holding Regs.Reg 7 (Hi Lim): 45

If Reg 5 (PV) > Reg 6 (Lo Lim)
&
Reg 5 (PV) < Reg 7 (Hi Lim)
then
Coil 9 = ON

Coil 9: On

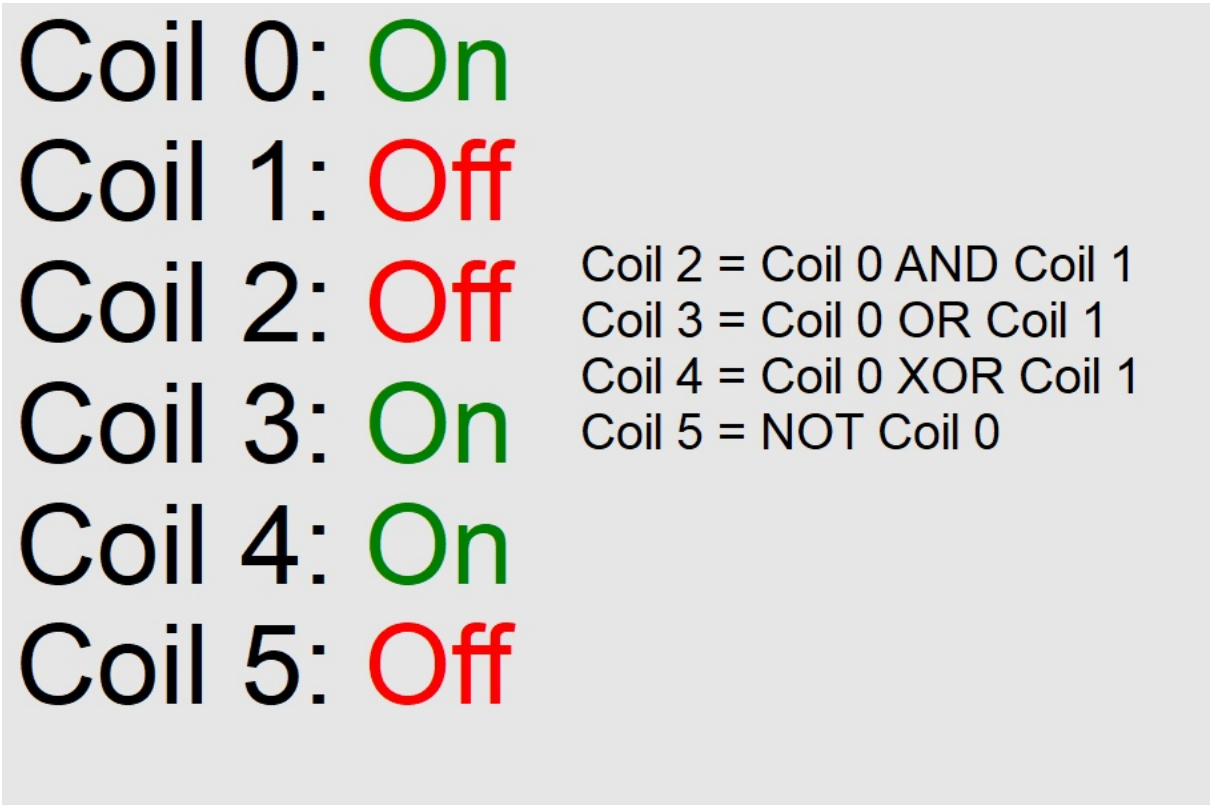
Python MB Server Holding Regs.Reg 5 (PV): 28
Python MB Server Holding Regs.Reg 6 (Lo Lim): 30
Python MB Server Holding Regs.Reg 7 (Hi Lim): 45

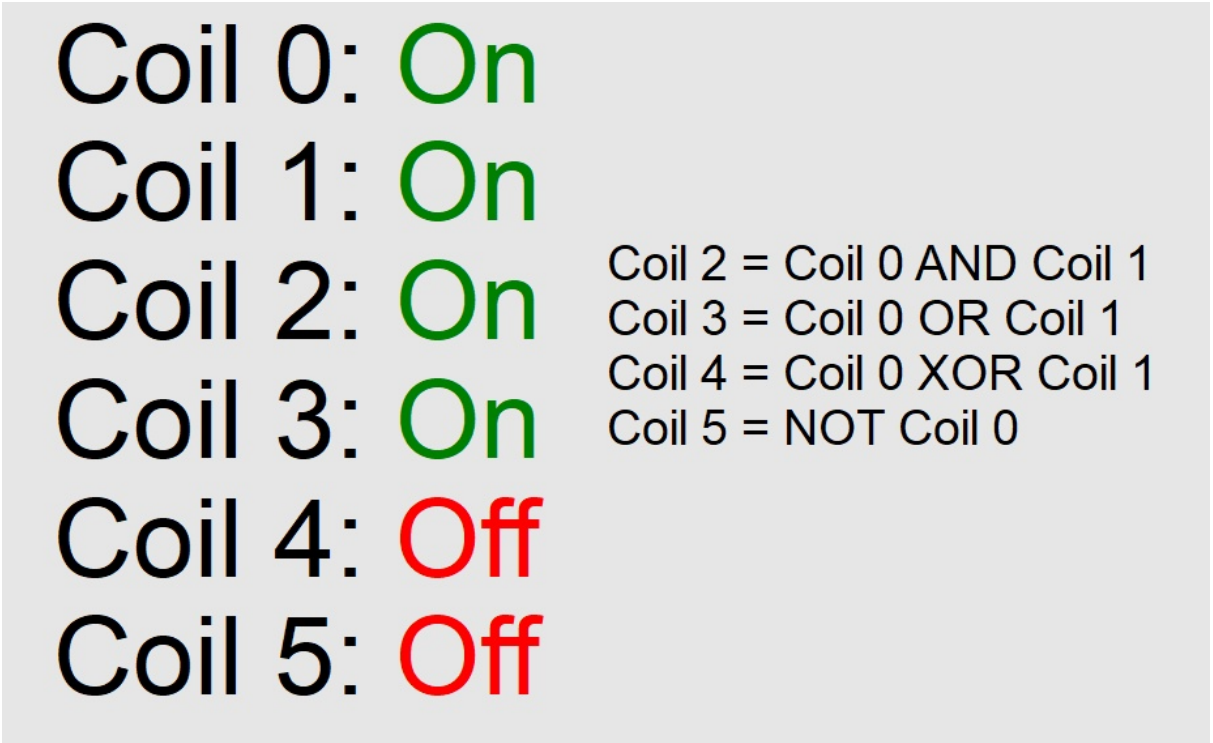
If Reg 5 (PV) > Reg 6 (Lo Lim)
&
Reg 5 (PV) < Reg 7 (Hi Lim)
then
Coil 9 = ON

Coil 9: Off

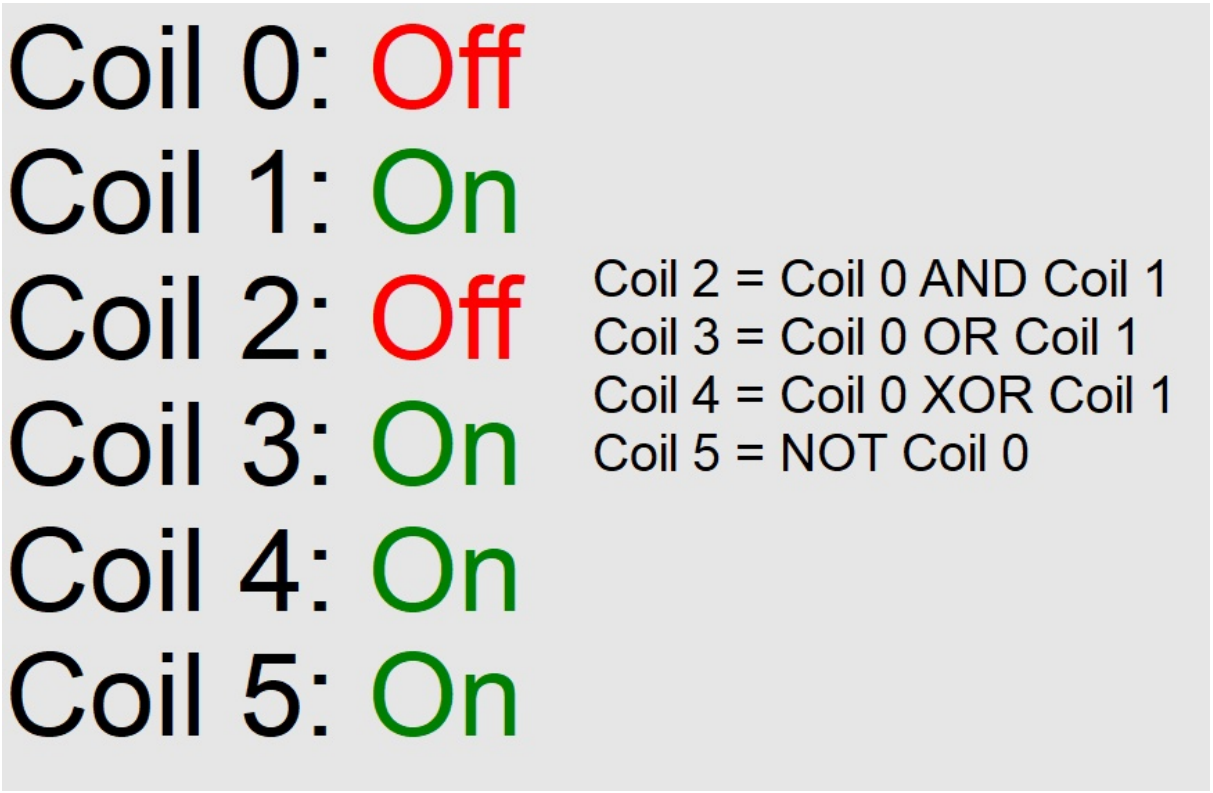
6. Double-click and edit the value of one or more of the Coils.
   Coil 2 = Coil 0 AND Coil 1
   Coil 3 = Coil 0 OR Coil 1
   Coil 4 = Coil 0 XOR Coil 1
   Coil 5 = NOT Coil 0

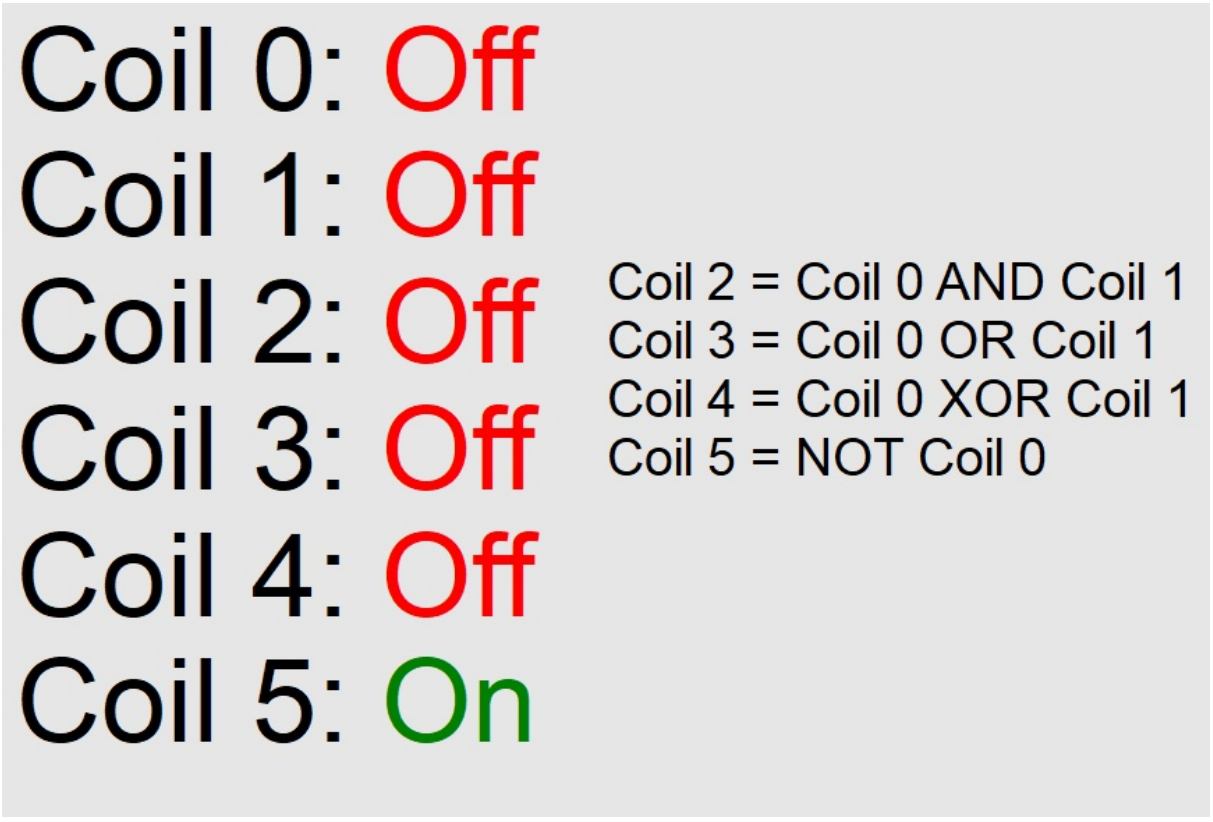
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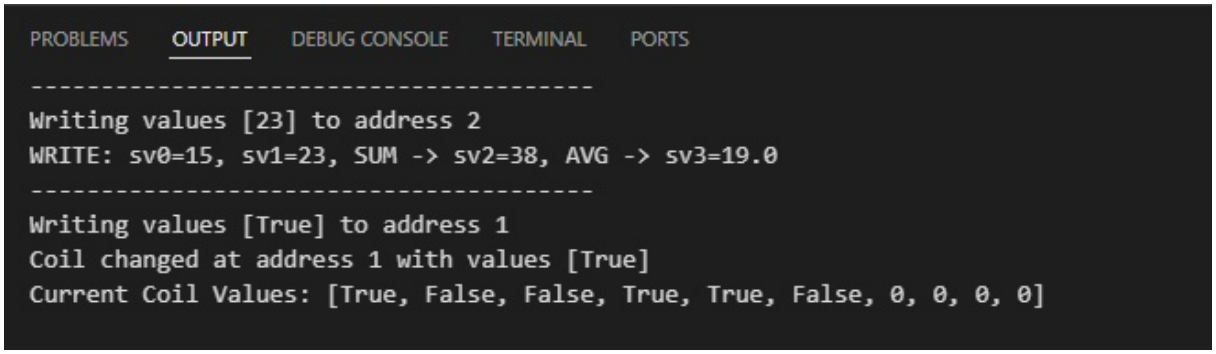




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7. The Output or Terminal window in the IDE or Command Prompt will show a log entry in the format below if the Holding Register has been written to.
   Writing values [23] to address 2
   WRITE: sv0=15, sv1=23, SUM -> sv2=38, AVG -> sv3=19.0

   If the Coils were written to, then the format will be seen as shown below.
   Writing values [True] to address 1
   Coil changed at address 1 with values [True]
   Current Coil Values: [True, False, False, True, True, False, 0, 0, 0]



After verifying that the Example.py script executes without errors, users can confidently begin modifying the Python script to incorporate their specific logic requirements.

21.6 Example.py

The Example.py script is designed to serve as a template, demonstrating how users might structure their custom logic within the application.
This script provides clear guidance on where logic can be programmed to respond to events such as a write operation to either a Holding Register or a Coil.
Within the script, the editable area is explicitly identified using the '##########' comment sections, allowing users to implement their logic as needed for specific application requirements.
It is important to note that there are sections below this editable area which contain functions that should not be modified.
The script includes a clear warning not to change any code in these sections, as doing so may result in the script failing to execute properly.
Users are strongly advised to refrain from editing these protected functions unless they possess absolute confidence in their Python programming capabilities.
Modifying these functions without sufficient expertise can lead to unintended errors and hinder the performance of the script.

Troubleshooting Programming Errors

If users encounter errors during the development of their logic, it is advisable to search online resources for potential causes of these issues.
Utilizing the wealth of information available on the internet can help in diagnosing and resolving errors effectively.
If no viable solutions are available, then contact a SpecView representative.

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