

User's manual

Engineer^{IT} Settings Visualisation Tool SVT



ABB

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This is the user's manual for the Settings Visualisation Tool (SVT)*1.0

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Settings Visualisation Tool (optional)

1 SVT functionality

1.1 Settings Visualisation Tool

SVT is a tool for visualizing PST truly steady-state parameters for protection and control terminals. User can run SVT while editing parameters in PST and see the effect of his changes to the terminal operation. Sophisticated analysis of the zones can also be carried out.

It can be used for a variety of terminals supported by PST (product families) with the same user interface.

1.2 Navigation environment

SVT is distributed as an option to the Parameter Setting Tool.

2 Installing SVT

Note!

When installing in Windows NT and Windows 2000, user needs administrator rights.



2.1

Install SVT

The installation starts, when you run “SVTSetup.exe”. The following dialog appears.



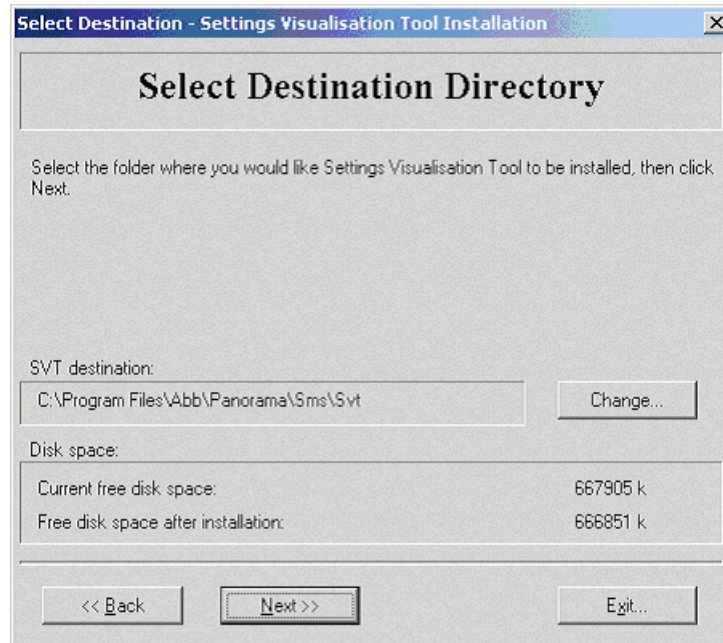
- 1 Read the message and click Ok if you want to continue with the installation.**

The following dialog appears.



- 2 Read the License Agreement and click Agree to continue the installation.**

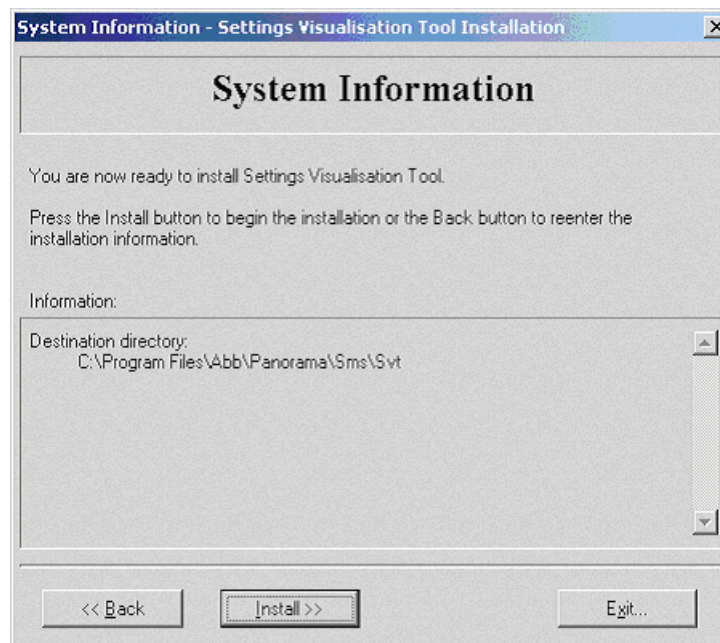
The following dialog appears:



3 If you want to change the destination for the SVT installation, click the Change button to the right of the SVT destination box.

4 Click Next.

The following dialog appears:

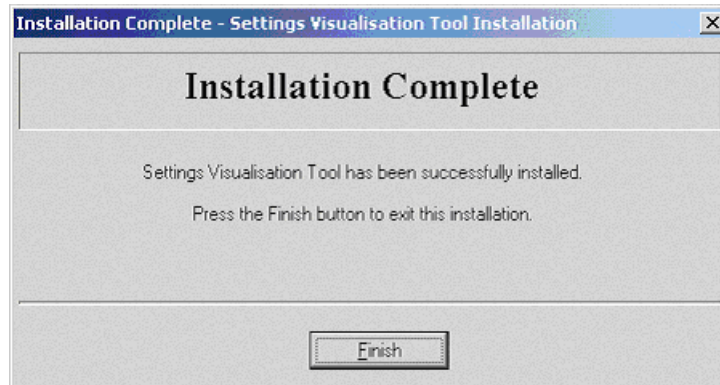


5 Check the information and choose one of the following two steps:

- To reenter any information, click **Back**.
- To start the installation, click **Install**.

The SVT software is now installed in your computer, showing you an installation progress bar.

The following dialog appears:

**6 When the installation is complete, click Finish to exit the installation.**

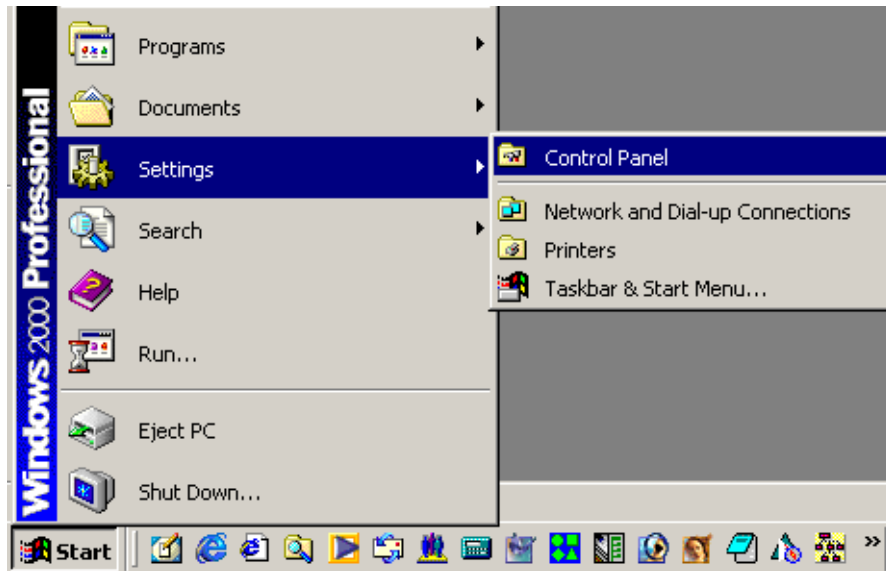
Settings Visualisation Tool, SVT, can be started from Parameter Setting Tool, PST, from Edit menu or by clicking the SVT icon in the toolbox.

Note!

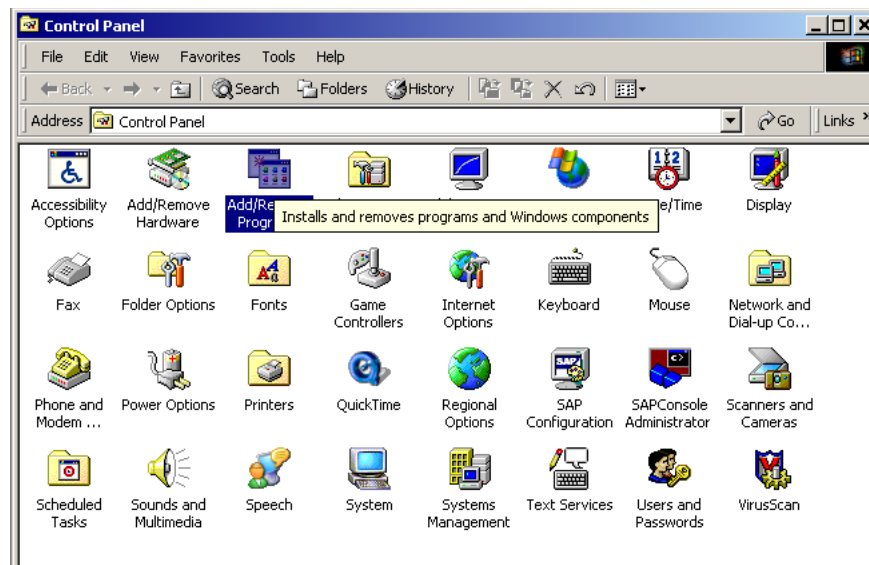
The help function in SVT needs Internet Explorer installed. If you do not have it on your computer, the help function will be unavailable.

**3****Uninstall SVT**

To uninstall SVT, go to the **Start** menu, select **Settings button** then select **Control Panel**.

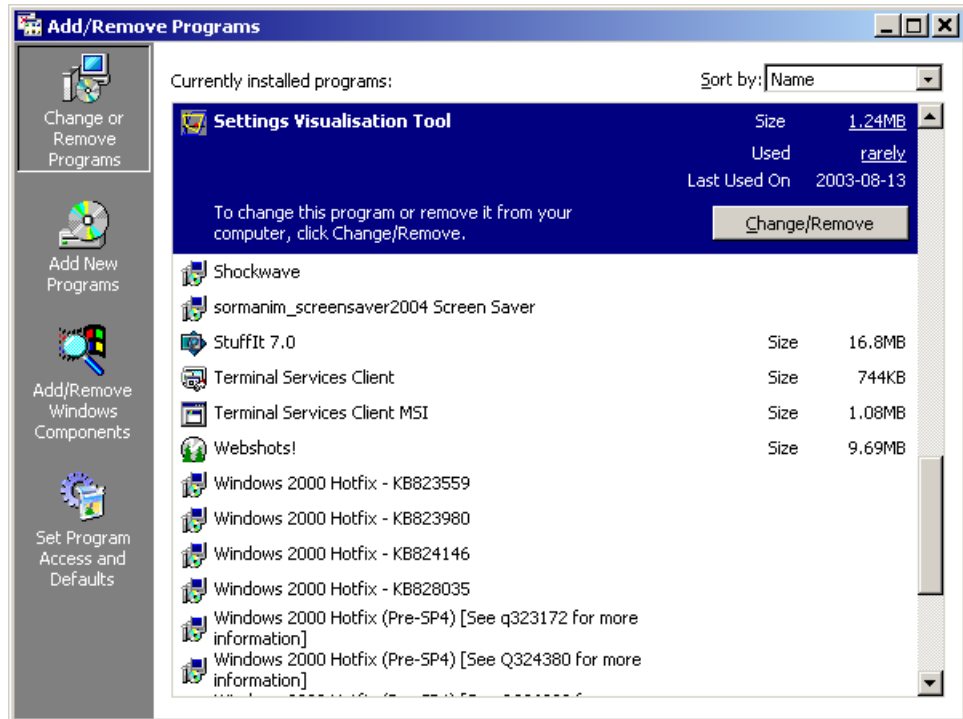


The Control Panel will appear:



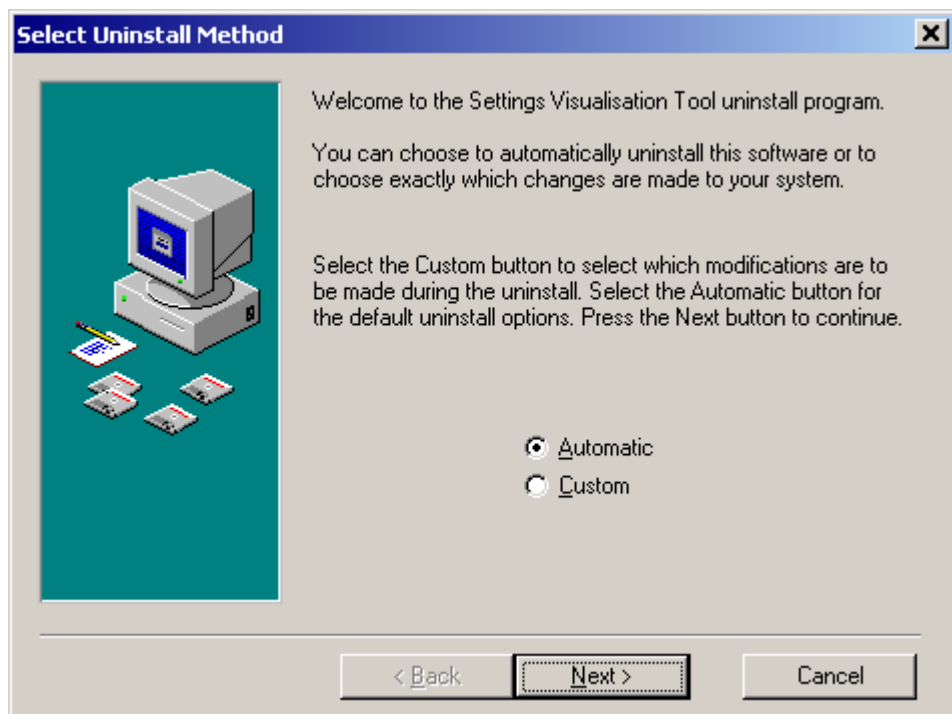
1 Double click on the Add/Remove Programs icon.

The following dialog appears:

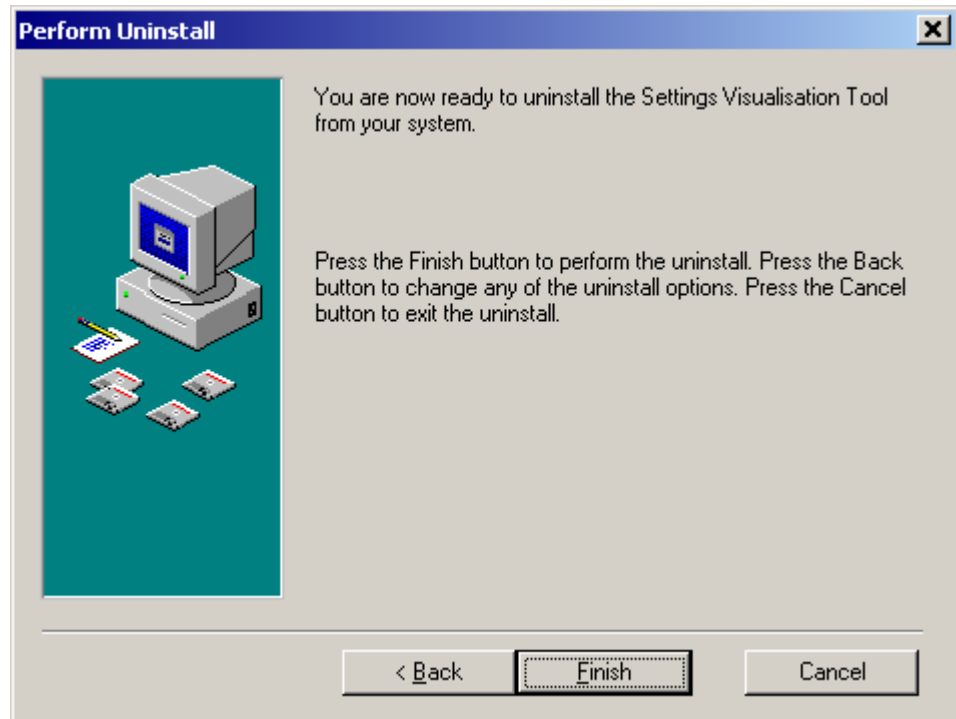


2 Select Setting Visualisation Tool icon. Click on Change/Remove button.

The following dialog appears:



3 Click Next to continue.



4 Click Finish to complete the uninstall.

Note!



All files, created during SVT installation, are removed by the uninstall program. However, some configuration files created afterwards (faults, versions) may remain in the system. Remove them manually, if necessary.

4

Running SVT

In order to use SVT, it must be installed on the computer.

SVT is supposed to be run from PST.

Not more than one instance of SVT can be running simultaneously.

4.1 Start from PST

SVT can be started, when PST is loaded. There are two ways of starting SVT from PST.

- Using **Edit\SVT** in the menu, or
- Using a toolbar button

SVT prepares some files on the disk (see reference [1], *PST-SVT Interface*) and starts SVT. Then, each time an SVT information update is required, the similar start procedure should be repeated.

5 Basic functions

5.1 Managing zones and figures

5.1.1 Zones, figures, and groups relationship

In SVT a distinction is made between zones and figures.

Zone means a single terminal zone (e.g. ZM1 or GFC), which is solely defined by its parameters in all conditions.

Figure means a single representation of a particular zone. It is a zone view under current conditions. For instance, a zone look for *phase-to-ground* faults and *per phase* measurement is a figure.

Thus, the following statements are valid. A zone consists of one or more figures. A figure cannot exist without a zone.

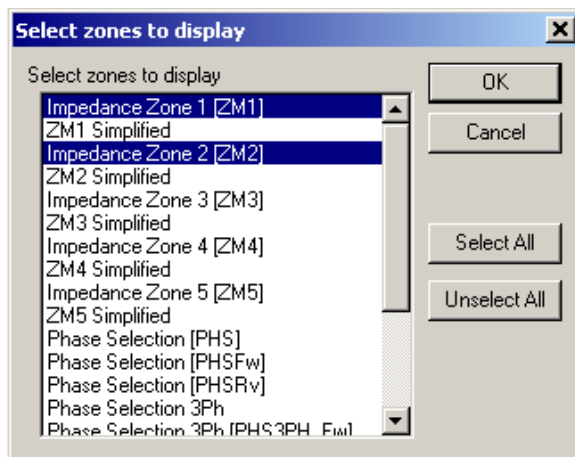
Group is a set of zones united on some basis. Groups are utilized to manage visibilities of the zones.

5.1.2 Changing zones visibility

The most common way to show or hide a zone is to use a “List of zones” dialog.

- 1 To run the dialog, select Zones/List of Zones in the menu or click the Zones icon on the toolbar.

The following dialog appears.



Zones currently enabled in PST are listed in the dialog.

- 2 Change selection in the dialog list clicking once on an item.
- 3 Click “Select All” (Unselect All) button to select (clear selection mark from) all listed items.
- 4 Click “OK” button to accept changes.
- 5 Click “Cancel” button to abandon dialog.

Several supplementary methods to change zone visibility are pointed below.

5.1.3

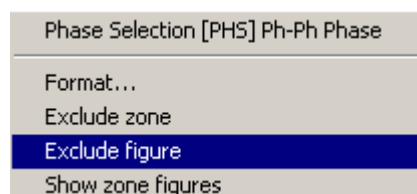
Changing figures visibility

A distinction should be made between showing and hiding of the figures.

To **hide** a figure, follow these steps.

Right-click a figure you wish to hide.

The following context menu appears

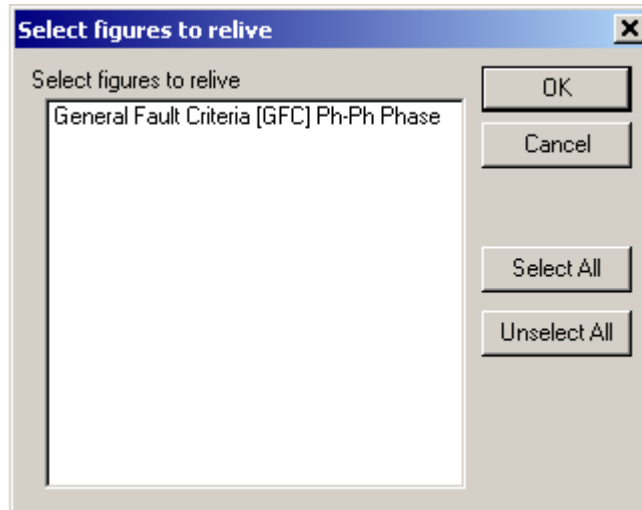


- 1 Select Exclude figure to hide a figure (The figure will not be visible until it is relieved, i.e revoked, shown).

To **show** hidden figure, follow these steps.

1 Select View\Revoke in the menu or click the Revoke icon on the toolbar.

The following dialog appears.



All hidden figures are listed in the dialog.

2 Change selection in the dialog list clicking once on an item.**3 Click “Select All” (“Unselect All”) button to select (clear selection mark from) all listed items.****4 Click “OK” button to accept changes.****5 Click “Cancel” button to abandon dialog.****5.1.4****Switching groups**

Groups are listed in the **Zones** menu after the **List of Zones** item. To toggle visibility of the zones in a group, select the latter in the menu. A check mark beside the group name identifies group visibility.

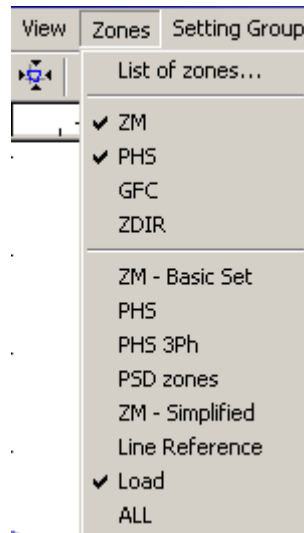
Note!

A zone is displayed if it is present in at least one of the currently selected groups.



In SVT there is no possibility to use groups and “List of zones” dialog at the same time, as there is no strict correspondence between groups content and zones displayed. Therefore, when “List of zones” dialog selection is applied, group selection is cleared. And vice versa, when some group is selected the list of visible zones is rebuilt in accordance with groups selection only.

An example of the *Zones* menu displayed.



5.2 Scaling and moving

SVT has sophisticated scaling functions as well as possibilities to move along the plot. The clicked point on the plane remains under the cursor.

5.2.1 Point scaling

Point scaling means scaling relatively to the point where a mouse click occurred. The scale changes in approximately **1,5** times in both cases of zooming in and out.

To **zoom in** follow these steps:

- 1 **Click left mouse button on the desired point on the plot.**

To **zoom out** follow these steps:

- 1 **Press and hold the <Shift> key.**
- 2 **Click left mouse button on the desired point on the plot. The scale will be changed.**
- 3 **Continue clicking until the desired result is achieved.**
- 4 **Release the key.**

5.2.2 Rectangular scaling

Rectangular scaling is more precise than point scaling. The user is allowed to select a part of the plot, which will be shown in the window.

To magnify a part of the plot follow these steps:

- 1 Press and hold left mouse button in the top left corner of the chosen region.
- 2 Move mouse pointer to the bottom right corner of the chosen region. A grey rectangle will follow mouse pointer.
- 3 Release left mouse button.

The scale is adjusted in order to fit selected area to the window.

Note!

When the selected area is too small, the rectangle is shown in a pink color. If mouse button is released at that moment, a point scaling is applied.



5.2.3

Moving

To move the view to adjacent parts of the plot drag-and-drop technique is implemented.

To move on the plane follow these steps:

- 1 Press and hold the <Ctrl> key.
- 2 Press and hold left mouse button on the plot. The cursor will change to a “hand”.
- 3 Move mouse pointer observing the result.
- 4 Release left mouse button, when complete.
- 5 Release the key.

5.2.4

Undo

Most scaling operations can be undone. The number of undo operations is limited to 100. Undo buffer stores both position on the impedance plane and scale.

To undo last scaling and moving operations follow these instructions:

- 1 Select **View**, then **Undo scaling** in the menu, or click the **Undo** item on the toolbar. (Undone information is removed from the buffer).

5.2.5

Fitting figures to the window

To fit all figures (except for the “Load” zone) select **View/Full plot** in the menu or click the **Full plot** icon in the toolbar.

5.3

Switching between modes

There are four modes in SVT to constrain visibility of the figures. They are composed out of two significant switches: display basis and fault type. Here is a list of modes:

PPP	Phase-to-Phase,	per Phase basis
PEP	Phase-to-Earth,	per Phase basis
PPL	Phase-to-Phase,	per Loop basis
PEL	Phase-to-Earth,	per Loop basis

Note!

Faults and some zones are impossible to display in PEP mode due to flexibility of the relay settings.

Modes with the same basis (Loop or Phase) cannot be displayed together on one plot. Thus, the user can select either Loop or Phase basis. Meanwhile, PE and PP modes are switched on/off independently.

To switch between modes select appropriate step from the table:

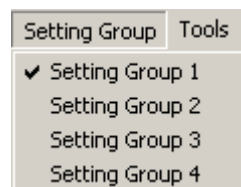
Table 1: Mode	Table 2: Menu	Table 3: Type	Table 4: Toolbar
PP	View\Phase-to-Phase	Check button	Phase-to-Phase
PE	View\Phase-to-Earth	Check button	Phase-to-Earth
Loop	View\per Loop	Radio button	Loop
Phase	View\per Phase	Radio button	Phase

When a certain mode is chosen, the plot area is updated in order to reflect changes.

5.4

Switching between setting groups

There are four sets of settings available in PST. To display a specific group select appropriate setting group in SVT Setting Group menu.



5.5 Working with legend window

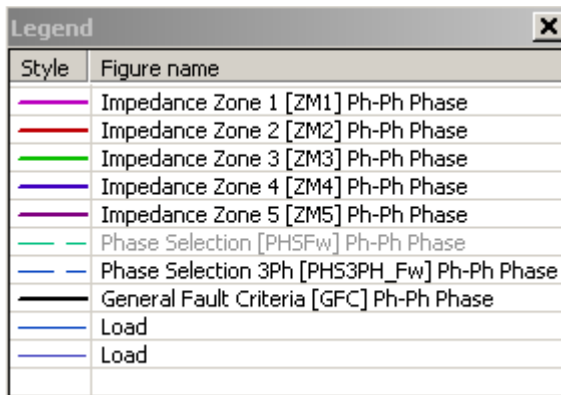
Legend window is a floating always-on-top window, which lists all figures enabled by zones and mode filters. It displays line samples and names of the figures. If a figure is selected in legend window, it is marked with a thick line on the plot area. Thus, legend window is a tool for identifying figures using both line sample and its name. Right-click on the figure in legend window provides the same functionality as on the plot.

5.5.1 Displaying legend window

To display the legend window:

- 1 **Open the View menu and select Legend, or click the Legend icon on the toolbar.**

The legend window appears in the bottom right corner of the screen.



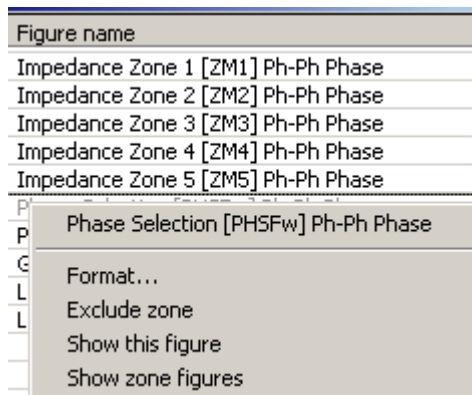
Figures excluded from the view are shown in grey color.

5.5.2 Figures visibility

To show hidden figure follow these steps:

- 1 **Right-click the hidden figure.**

The context menu appears:



- 2 Select Show this figure item to redisplay only selected figure.
- 3 Select Show zone figures item to show all hidden figures of the figure's zone.

5.6

Managing faults

Faults can be displayed together with a plot of figures.

The phase-to-earth fault calculation should be based on a single source power model and without simulating load current superimposed to the fault current. This is due to the static representation of zone characteristics. The fault presentation in the impedance diagram can then be used as a first basis for selecting zone parameters. Detailed verification on how the implemented protection functions respond to a fault situation is best carried out by secondary injection tests using test equipment applying currents and voltages directly to the terminal.

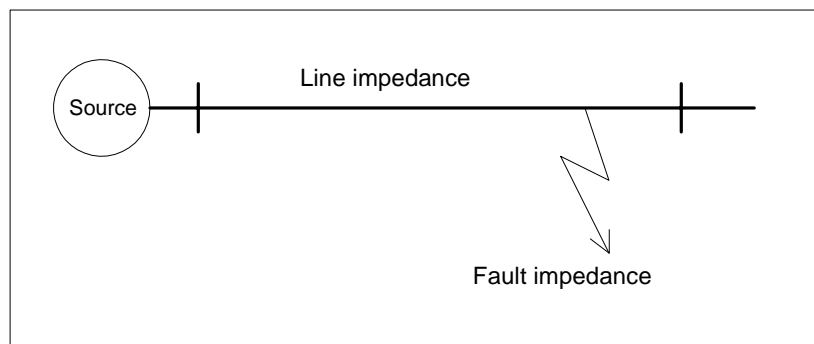


Figure 1: Power system fault simulating model to be used with SVT



Note!

Phase-to-earth characteristics built in per phase basis do not correspond to real faults in general case, as characteristics are calculated without considering a return loop and a remote power source.

5.6.1

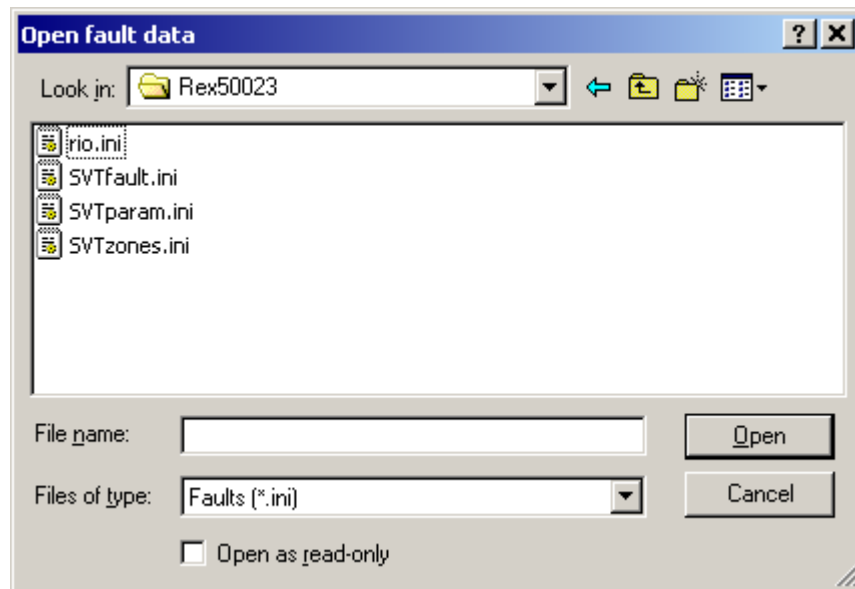
Loading faults file

Faults are stored in a separate file, “SVTfault.ini” by default.

To change the faults file follow these steps:

1 Select File\Open faults in the menu.

An “Open file” dialog appears:

**1 Find and select a file you wish to load.****2 Click “Open” to finish.**

Only the most recently loaded faults are shown on the plot.

5.6.2

Displaying faults

When faults are loaded (by default or using an open dialog), they can be displayed on the plot.

To **show** faults follow these instructions:

1 Select View\Faults in the menu or click the Faults icon on the toolbar.

A check mark appears on the icon and in the menu. The faults are displayed on the plot. To **hide** all faults repeat the same procedure. A check mark is removed.

5.6.3

Defining faults

All faults are represented by 3 voltages and 3 currents in a standard INI file. The format of the *Faults* section in the file is as follows.

```
[Faults]
;Name= U1r U1f U2r U2f U3r U3f I1r I1f I2r I2f I3r I3f
Bus2= 200 30 190 -90 205 150 2 10 90 -90 5 150
```

Unique fault name is a key. The value is composed of voltages and currents (in polar form) divided by tabulation symbols (“\t”). Angles are measured in degrees.

The user can specify as many faults in one file as necessary.

5.6.4

Selecting fault loop

There are six loops of faults, which can be presented on the plot:

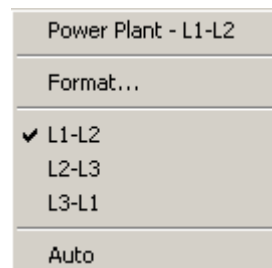
MODE	
PE	PP
L1 (A)	L1-L2 (A-B)
L2 (B)	L2-L3 (B-C)
L3 (C)	L3-L1 (C-A)

The figures loop filter is applied to faults too. When you observe one fault loop, you may select another loop also.

To **show** the loop, follow these instructions:

- 1 **Display faults, if they are not present on the plot.**
- 2 **Right-click on the desired fault.**

A context menu appears:



Displayed fault loops are marked to the left.

- 3 **Select loop you wish to add to the view.**

To **hide** some loop, repeat procedure and click checked item in the context menu.

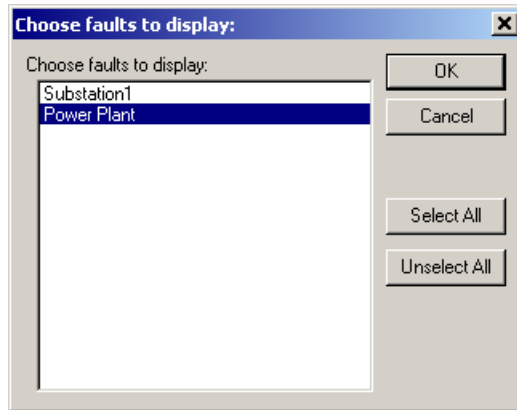
To let SVT select the best loop **automatically**, select **Auto** in the context menu. Only one loop, which has the lowest absolute value of impedance, remains on the plot. The PE/PP flag is also taken into account.

5.6.5**Switching faults**

To show/hide some faults follow these steps:

1 Select View\Faults list in the menu.

A dialog appears:



All loaded faults are displayed. If any loop of the fault is visible, it is marked in the list.

- 1 Change selection in the dialog list clicking once on an item.**
- 2 Click “Select All” (Unselect All) button to select (clear selection mark from) all listed items.**
- 3 Click “OK” button to accept changes.**
- 4 Click “Cancel” button to abandon dialog.**

When enabling previously hidden fault, only “L1” and “L1-L2” loops are shown.

5.7**Context menu**

SVT supports context menu on the plot and in the legend window. Its main purpose is providing user with direct and fast access to the services. To call the context menu:

1 Right-click the object.

Context menu consists of the following elements:

- 1 Object name.**
- 2 Format item.**
- 3 Object-specific items.**

There are three types of objects on the plot:

- Figures
- Faults
- Backgrounds

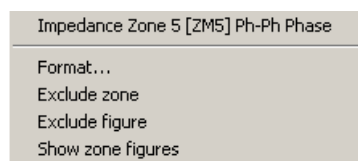
Background is selected, if no other object is found close to the mouse pointer).

The appearance of the object is changed using **Format**. Click the **object name** to safely exit the menu. No action is performed.

5.7.1

Figure context menu

Figure context menu example.



Menu functionality is described in the following table.

Item	Action
Exclude zone	Hide zone. Operates similar to unselect in "List of zones" dialog.
Exclude figure	Hide selected figure.
Show zone figures	Show all previously hidden figures of the zone.

For some figures, which are supposed to be cut by GFC zone, an extra row appears in the context menu:

Item	Action
Intersect figure	Intersect current figure with the GFC (or another specified in configuration) zone and prepare it for output to RIO file.

When a figure is generated as an intersection, the following item is enabled:

Item	Action
Export to RIO	Export this particular intersected figure to a RIO file.

5.7.2 Background context menu

The background has no special adjustment. The only item available in its context menu is **Format**.

5.7.3 Fault context menu

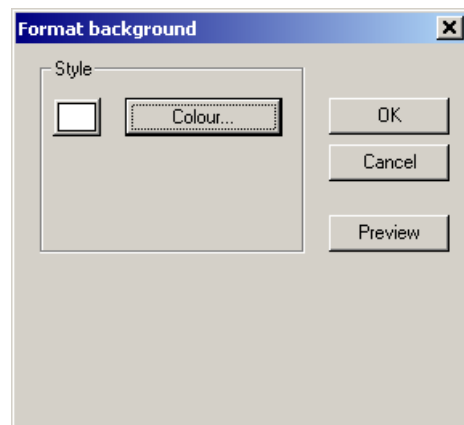
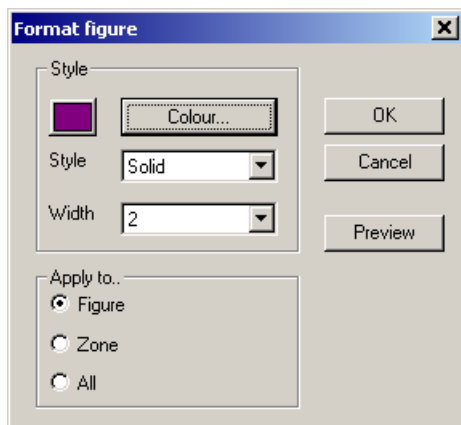
The fault context menu additions have been considered above (Managing faults Managing faults).

5.8 Formatting objects

To display a “Format dialog” for the desired object follow these steps:

- 1 **Right-click the object. An appropriate context menu appears. Ensure you have selected the right object verifying its name.**
- 2 **Click the Format item in the context menu.**

The Format dialog is shown.



Dialog content (controls) depends on the object selected. So, in case of a figure all properties are visible and enabled for modification, while the background and faults have the only visualisation parameter – fill color.

Note!

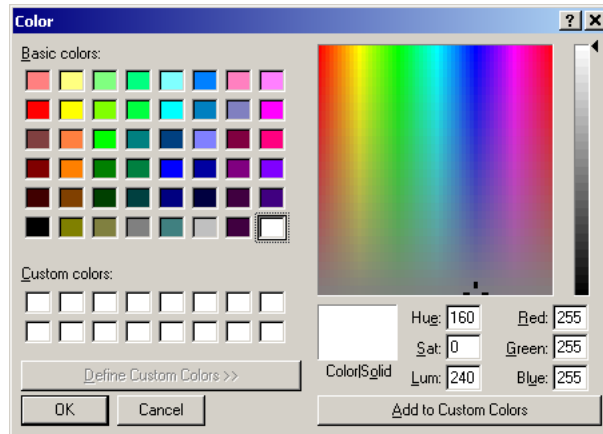
Formatting is applied to all loops of the fault.



Object formatting includes these steps:

- 1 Click “Color...” button to change object’s color. It is accepted as line color for a figure or as fill color for the background and a fault point.

A standard “Change color” dialog appears:



- 2 Change to the color of choice.
- 3 Click OK to ultimately select the color or Cancel to quit without changes. Change color dialog is closed.
- 4 Click “OK” to apply your changes to the object and close the dialog, or click “Cancel” to quit dialog without changes, or click Preview, to apply changes and continue formatting.

For a figure the following steps may be taken in addition:

- 1 Change line style in the “Style” list box.
- 2 Change line width in the “Width” list box.
- 3 Select scope, which will be affected by the selected formatting:

Dialog choice	Scope description
Figure	Selected figure only.
Zone	All figures of the zone, which selected figure belongs to.
All figures	All figures of all zones.

5.9

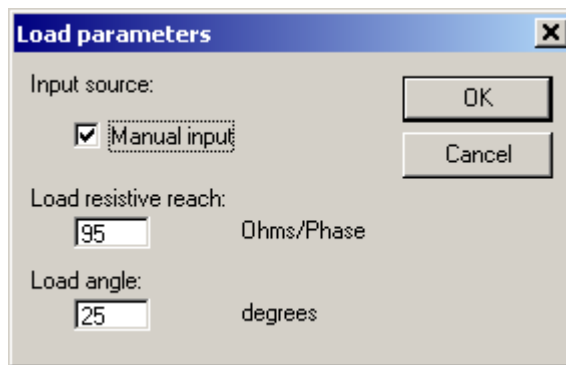
Configuration of parameters for the Load

SVT has two modes of Load calculation:

- 1 Using PST parameters (the algorithm is defined in zone description).
- 2 Using data input from the user.

Select **Tools\Configuration** of Load zone from the menu.

The following dialog appears:



Current settings are shown in the dialog.

- 1 Check “Manual input” check box to enable load parameters fields. Enter resistive reach for the load and load angle.
- 2 Press “OK” button to apply changes and quit the dialog, or press “Cancel” to finish editing and abandon dialog.

Parameters set in the dialog are then saved/restored in SVT.

5.10

Managing cursors

SVT provides users with the possibility to set cursors on the impedance plane. They can be used to mark certain position as well as to measure distances on axes between points on the plot.

Cursors will also appear in the printed and clipboard copies, if they are switched on for viewing.

Horizontal and vertical cursors are controlled separately.

5.10.1

Switching cursors

To switch on cursors:

- 1 Select the **View\Cursors\Resistance axis (R)** item from the menu, or click **R Cursors** icon on the toolbar, if you want to see vertical cursors.
- 2 Select the **View\Cursors\Reactance axis (X)** item from the menu, or click **X Cursors** icon on the toolbar, if you want to see horizontal cursors.

Note!

If one of the cursors cannot be displayed in the visible area, both axis cursors are positioned automatically on the screen.



To switch off cursors:

- 1 Select “**View\Cursors\Resistance axis (R)**” item from the menu or click **R Cursors** icon on the toolbar if you want to hide vertical cursors.
- 2 Select **View\Cursors\Reactance axis (X)** item from the menu or click **X Cursors** icon on the toolbar if you want to hide horizontal cursors.

5.10.2**Moving cursors**

Cursors can be moved one at a time. To move a cursor to another place, follow these instructions:

- 1 **Click on the cursor in its ruler area and hold mouse button.**
- 2 **Move cursor (mouse pointer) to the desired position (observe movement on the ruler and on the plot area).**
- 3 **Release mouse button.**

As a result, the cursor will stay at the new position.

5.11**Obtaining help**

To obtain help information supplied with SVT, press <F1> key or select **Help\Topics** in the menu.

SVT help is a standard Windows HTML Help. To get more information on using it, refer to its **Help** menu.

6 Advanced features

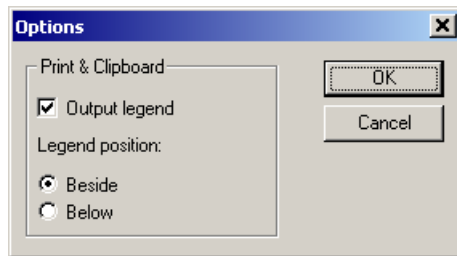
6.1 Data output

SVT provides two possibilities to output the plot, to the:

- Windows Clipboard
- System printer

To set export parameters “Options” dialog is used. To configure your output, follow these steps:

1 Select Tools\Options in the menu to start the dialog.



2 Check “Output legend” if you wish legend to appear in the output (both Clipboard and printer version).

3 Select location for the legend in printed version. If “Beside” is selected, the legend is output to the right of the plot. If “Below” is selected, the legend appears under the plot.

Note!

If legend does not fit the output in vertical direction, it is cut.



4 Click “OK” button to set parameters or “Cancel” to quit dialog and abandon changes.

6.1.1

Clipboard

To export the plot to the Clipboard, do the following:

1 Select File\Copy to Clipboard in the menu.

The status bar text reflects successive execution of the procedure. Previous content of the Clipboard is cleared. Clipboard copy precisely corresponds to the screen view. Legend is always added to the right (if enabled in “Options” dialog).

6.1.2**Printing**

To **print** the plot, follow these instructions:

- 1 Select File\Print in the menu. A standard “Print” dialog appears.**
- 2 Select printer and its parameters.**
- 3 Click “OK” to print the plot immediately.**

To adjust paper orientation and margins, you need to do the following:

- 1 Select File\Page setup in the menu. A standard “Page setup” dialog appears.**
- 2 Change orientation of the paper (portrait or landscape) and printing margins.**
- 3 Click “OK” to apply changes.**

To **preview** the result, follow these steps:

- 1 Select File\Preview in the menu. A new window is opened. It contains standard preview controls and a view. Main window is disabled.**
- 2 Zoom in and out the view.**
- 3 Click Close to finish preview mode.**
- 4 Click Print to run “Print” dialog.**

6.1.3**Export to RIO file**

Program allows exporting of figures available in SVT to the RIO file. This file is supposed to be used by test equipment software and, therefore, contains characteristics the way they operate (trip) in the terminal. Thus, impedance measurement zones are cut by the GFC (if switched on). On the screen these characteristics remain the same, because SVT presents settings, rather than operation.

In order to have correct testing for the equipment, PE and PP figures are output using different bases. Phase-to-Earth faults characteristics are exported in Ohms/Loop basis, while Phase-to-Phase faults characteristics are output in Ohms/Phase basis. Therefore, one impedance in testing software corresponds to different locations of the PE and PP faults.

There are two modes of figures available for output to RIO files:

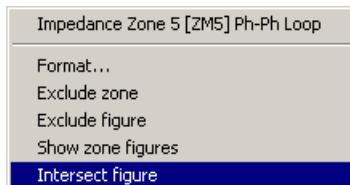
- One-figure mode
- All figures output

To output **one** figure to a RIO file follow these steps:

- 1 Right-click a figure you wish to output. Remember, this operation is available on Impedance measurement figures only.**

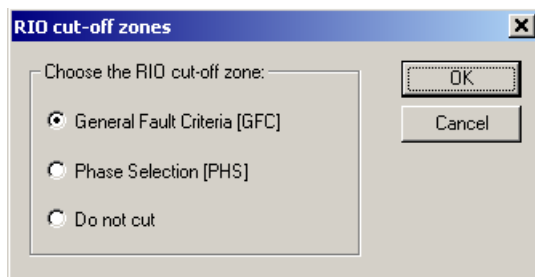
The intersection works in cooperation with the output function and, therefore, it is accessible only in Ohms/Loop basis for uniformity.

The context menu appears:



- 2 Select Intersect figure to intersect current figure with GFC (or PHS), if its operation is allowed, or just select for RIO output otherwise.**

The following dialog apperas:



- 3 Choose the zone to cut-off the figure. Only one zone can be selected at a time. Select nothing if no cut-off required.**
- 4 Click OK button to continue with the specified settings or Cancel to choose no cut-off.**

The new figure is highlighted on the plot.

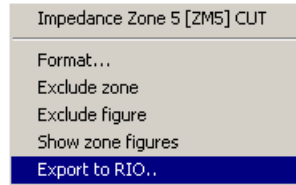
Note!

Once the figure is intersected, the temporary figure will be visible on the screen until it is output to a RIO file or hidden using a regular interface.



5 Right-click a new figure.

The following context menu appears:

**6 Select Export to RIO to output a figure to a file.**

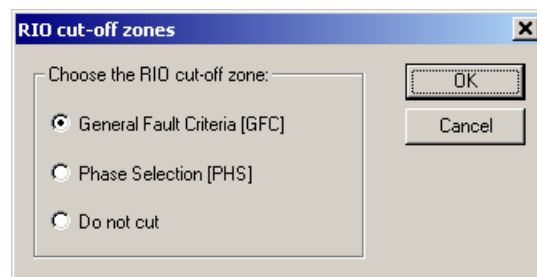
A standard “Save RIO file” dialog is called.

7 Select file location on the disk and click “Save”. The temporary figure will disappear from the view. The file contains information on one figure and a common relay data.

To output **all** available figures to a RIO file, follow these steps:

1 Select File\Export all to RIO item from the main menu or click a Export all to RIO icon on the toolbar.

The following dialog apperas:

**2 Choose the zone to cut-off the figure. Only one zone can be selected at a time. Select nothing if no cut-off required.****3 Click OK button to continue with the specified settings or Cancel to choose no cut-off.**

A standard “Save RIO file” dialog is called.

4 Select file location on the disk and click “Save”. The file contains information on all figures and a common relay data. Figures are automatically cut by the GFC figure, if available.



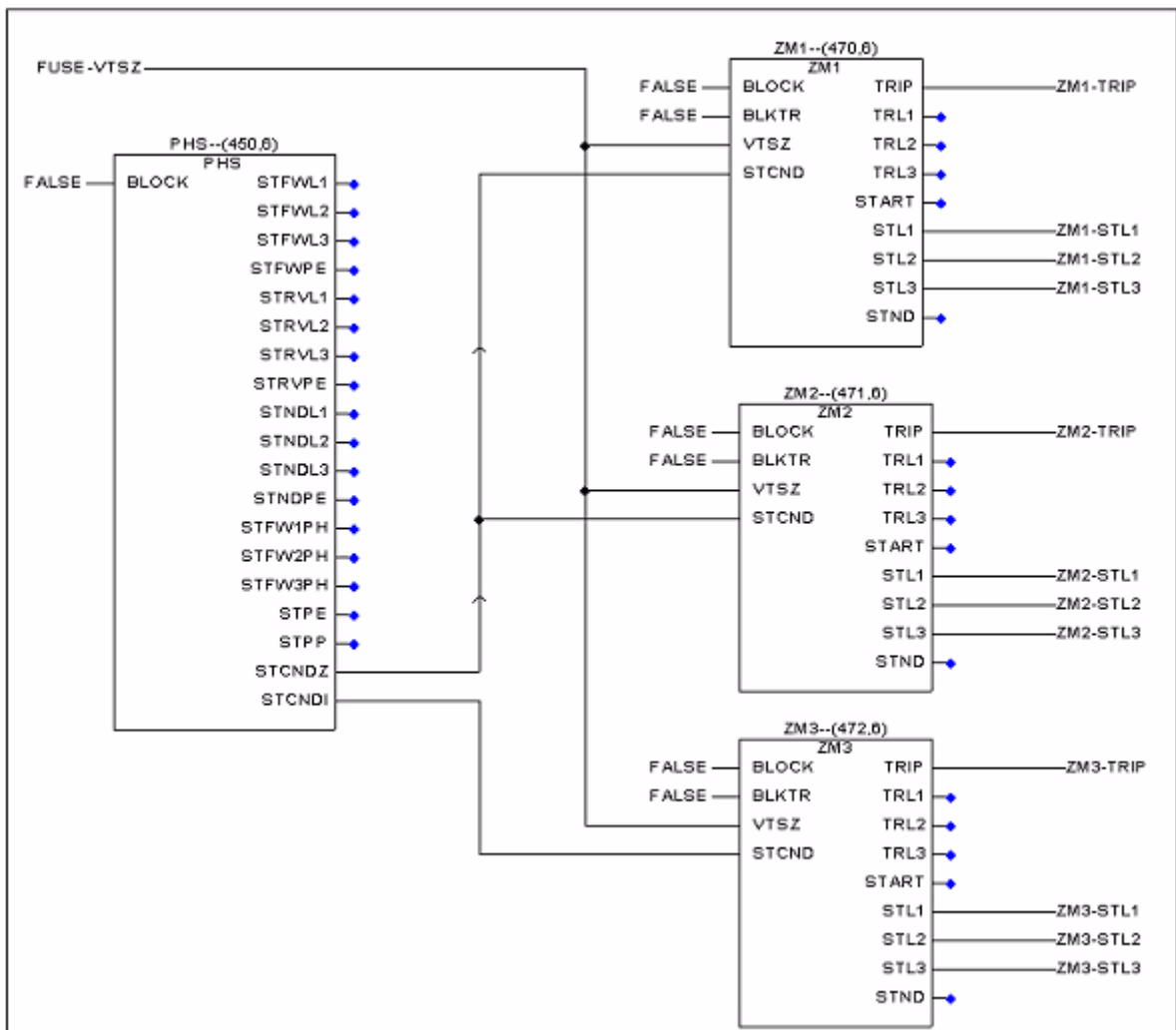
Note!

If the current mode contains both phase-to-earth and phase-to-phase loops, only one of them is left to exclude malfunction.

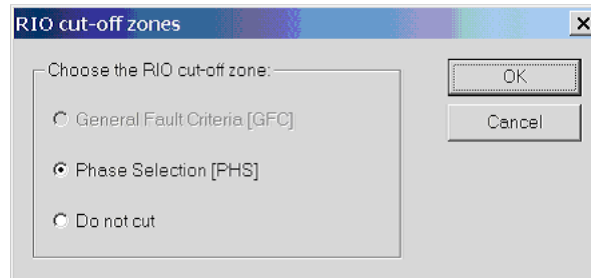
The previous example was done for a terminal equipped with impedance protection based on GFC - ZM interaction (REL 511, REL 501).

In those terminals where impedance protection is the interaction between PHS and ZM (REL 521, REL 531, REL 561), before exporting the RIO file SVT will ask for information about configuration of impedance protection (connection of STCND signals).

Considering the following example:



When SVT is requested to export the RIO file, it will show you the following window:

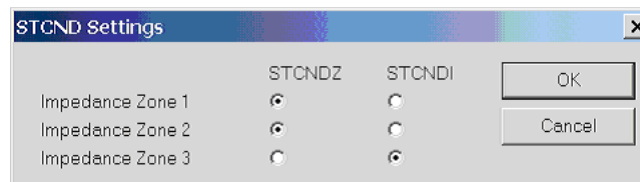


If GFC function is not grayed, it is probably because “read options” has not been run against the terminal (or against terminal option files). In that case check that PHS is selected.

After pressing OK you will be prompted with the next window:



where you have to answer according to your CAP 531 configuration. With reference to the example of above this is the correct answer:



Result of this choice is that ZM1 and ZM2 characteristics will be cut considering PHS impedance characteristic. ZM3 will not be affected by any cutting, in the exported RIO file as it is driven only by overcurrent criteria in PHS.

By pressing on OK the RIO file will be generated.

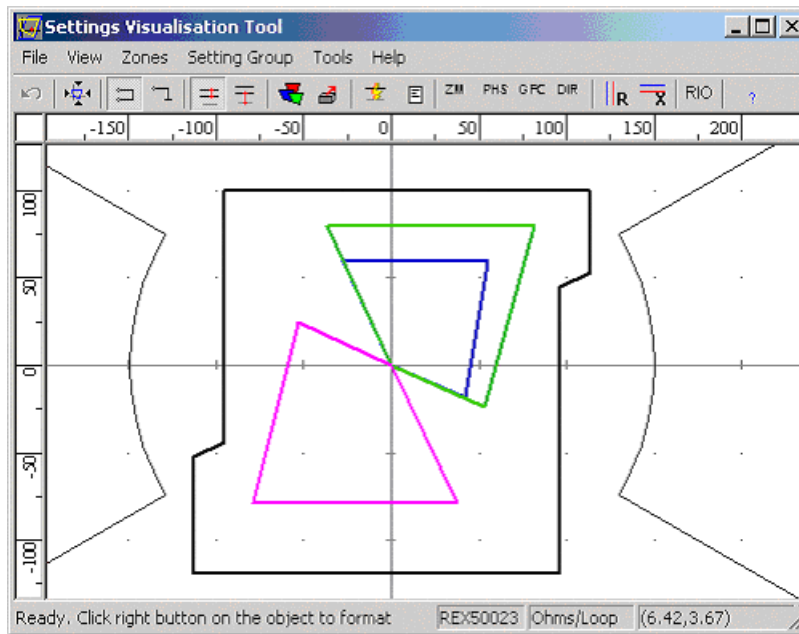
7 Graphical User Interface

This chapter describes the graphical user interface of SVT. It explains all elements and controls available to the user window, menu, toolbar, status bar, and views. The names of the elements, which are used throughout the document, are defined here.

7.1 Window design

The main window of SVT contains the following elements:

- 1 A title bar at the top.
- 2 A menu bar.
- 3 A toolbar.
- 4 Rulers (horizontal and vertical).
- 5 A plot.
- 6 A status bar at the bottom.



7.1.1 Plot

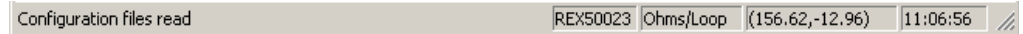
A plot displays a part of the impedance plane in accord to the current scale and position. All zones (figures) and faults are shown on the plot. It is the main user's working area.

7.1.2 Rulers

Rulers show the current position and scale used on a drawing. The scale step is automatically adjusted to display nice numbers near the ticks.

7.1.3**Status bar**

A status bar is divided into several regions displaying current information.



The table describes each region (from left to right).

Region	Description
Status text	Current operation comment or a hint. Some messages appear for 5 seconds.
Instance module	Current PST instance module.
Units	Units of the plane (Ohms/Loop or Ohms/Phase). Depends on current mode.
Mouse pointer coordinates	Cartesian coordinates of the mouse pointer in Ohms.
Time stamp	Current time.

To show/hide a status bar select **View\Status bar** in the menu.

7.1.4**Toolbar**

A toolbar provides fast access to most frequently used functions of the menu.

To show/hide a toolbar, select **View\Toolbar** in the menu.

7.2


Menus

The main menu consists of the following items.

Item	Description
File	Configuration operations, faults loading, export.
View	Modes selection, view adjustment.
Zones	Zones and groups.
Setting Group	Setting groups selection.
Tools	System options. Parameters of load zone.
Help	Help system.












7.2.1

File menu

Menu item	Toolbar button	Short-cut key	Description
Open faults...			Load faults information.
Open config			Open configuration file.
Save config			Save configuration file.
Page setup...			Open "Page setup" dialog.
Print preview			Print preview.
Print...		<Ctrl+P>	Print the plot.
Copy to Clipboard		<Ctrl+C>	Export the plot to Windows Clipboard.
Export all to RIO...			Export all figures to a RIO file.
Exit			Exit from SVT.


7.2.2





View menu

Menu item	Toolbar button	Short-cut key	Description
Faults			Show/hide faults on the plot. Check box.
Legend		<Alt+L>	Show/hide legend window. Check box.
Cursors\ Resistance axis (R)			Show/hide cursors for resistance axis. Check box.
Cursors\ Reactance axis (X)			Show/hide cursors for reactance axis. Check box.
Revoke...			Revoke hidden figures dialog.
Faults list...			"Faults list" dialog.
Phase-to-Phase			PP mode. Check box.
Phase-to-Earth			PE mode. Check box.
per Loop			Loop basis. Radio button.
per Phase			Phase basis. Radio button.
Full plot			Adjust scale to fit all figures to the window. The zero-point is centred in the view.
Toggle status bar			Show/hide the status bar.
Toggle toolbar			Show/hide the toolbar.
Undo scaling		<Back Space> <Ctrl+Z>	Undo most recent scaling operation. Disabled if Undo stack is empty.
Refresh		<F5>	Refresh window.

7.2.3

Zones menu

Menu item	Toolbar button	Short-cut key	Description
List of zones...			"List of zones" dialog.

ZM			Impedance measurement standard group. Check box.
PHS			Phase selection standard group. Check box.
GFC			General fault criteria standard group. Checkbox.
ZDIR			Directional measurement standard group. Check box.
Other items			A group of zones. Check box.


7.2.4 Setting group menu

Menu item	Toolbar button	Short-cut key	Description
Setting Group <i>N</i>			Switching to parameters of setting group <i>N</i> .

7.2.5 Tools menu

Menu item	Toolbar button	Short-cut key	Description
Options...			"Options" dialog. Export parameters.
Configuration of load zone			Configuration of load zone parameters.

7.2.6 Help menu

Menu item	Toolbar button	Short-cut key	Description
Index		<F1>	Help system.
About...			About SVT dialog.

8

System errors and messages

Errors and messages sources are explained in this chapter.

Message	Explanation	Advice
Configuration file svt.ini not found. Using default settings.	SVT file cannot be found or it contains improper information.	Check if SVT registry entry is correct and SVT.ini file exists at the pointed location.
Error reading configuration files.	Configuration files cannot be found or read. Application will be closed.	Check your software package for completeness. Verify paths in SVT.ini
Failed to put image to the Clipboard.	Clipboard operation failed.	Restart Windows.
No appropriate files found.	Some files cannot be loaded. Most probably it is a configuration file (cfg.ini).	Check if the files exist and contain valid information.
No faults loaded.	Faults file cannot be found or contains improper information.	Verify SVTfault.ini file for the version if you need it to be read.
No formula found.	Unknown formula is defined in SVTzones.ini.	Verify formula names in the file.
No language library found. Using English by default.	PST language database cannot be found or COM component cannot be initialised.	Check if PST is properly installed on the machine.
No menu string found.	Menu string cannot be loaded.	Verify PST language database on presence of strings for the selected language.
No timers are available. Auto-update will be disabled.	SVT failed to initialise timers. Auto update on timer event is disabled.	Continue.
Not enough memory.	Memory cannot be allocated for new data.	Possibly, too many applications are running simultaneously. Close SVT.
Possibly, the color selected is too dark.	Warning about dark shade of the color selected for the background.	Continue.
The language selected is not supported. Using English.	PST language is not supported. Default program English is used instead.	Check if PST is properly installed on the PC and that selected language is supported.

PST module changed. SVT might display data incorrectly. Close SVT and open again.	User started another instance in PST.	Close SVT and start from PST again.
Configuration file failed: <i>description</i> .	Failed to initialise or calculate while reading configuration files.	Either registry or configuration files should be modified in order to imply with program conventions.
Wrong fault parameters.	Most probably division by zero in fault calculation.	Correct fault values and reload file.
Non-requested parameter found.	PST has put down invalid parameter.	Reinstall SVT or refer to developers.
Parameter: <i>parameterID</i> .	PST has put down invalid value for the parameter.	Reinstall SVT or refer to developers.
<i>Other messages</i> .	Information about the state.	Follow on-screen instructions.

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Human-machine interface	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	Excellent				Poor
Total impression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Illustrations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Readability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easy to find	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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