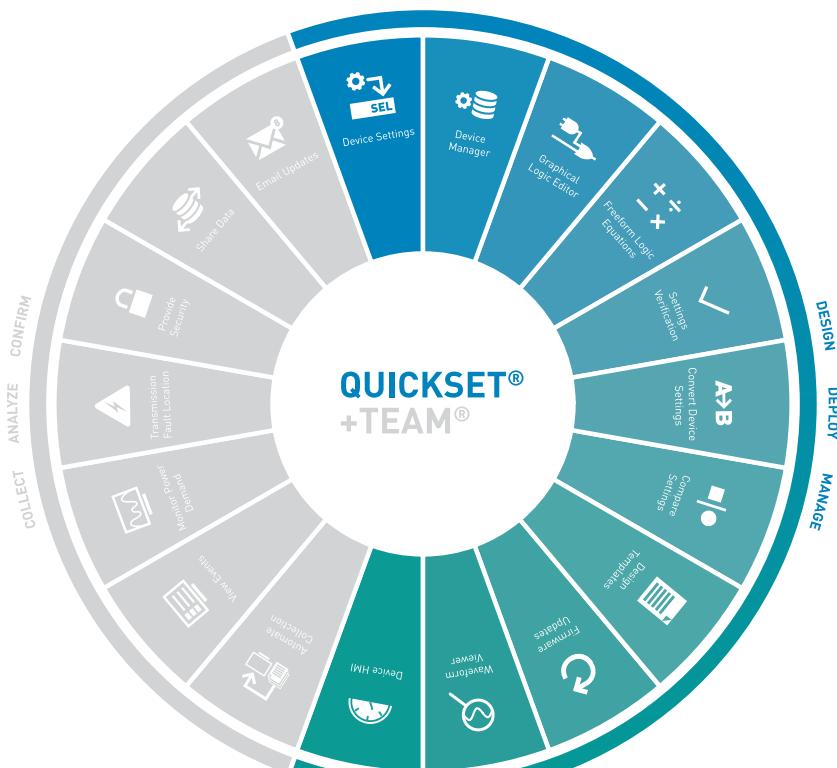


ACCELERATOR QuickSet SEL-5030 Software

Instruction Manual



20250205

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S E C T I O N 1

Install Your Software

Overview

To install the software, you must have at least the following.

Table 1.1 Minimum Requirements

Supported Operating System	Microsoft Windows 10 (64-bit) Microsoft Windows 11 (64-bit) Microsoft Windows Server 2016 (64-bit) Microsoft Windows Server 2019 (64-bit) Microsoft Windows Server 2022 (64-bit)
Processor Speed	1 GHz or faster 2 GHz Quad Core or faster (Device Manager Workstation and Database Server)
RAM	1 GB (32-bit) or 2 GB (64-bit) 4 GB or higher (Device Manager Workstation and Database Server)
Disk Space	1.5 GB (all options), 3 GB if .NET framework is installed 20 GB (Device Manager Database Server)
Printer	Default printer installed for printing settings
Monitor	VGA 1024 x 768 or higher resolution monitor Note: For best viewing of the application windows and text, you may need to enter your Windows operating system settings and adjust the screen resolution settings to make text and other items larger or smaller.
Other Peripherals	Mouse or other pointing device
Communications	Serial or Ethernet connections to allow communications with SEL devices
Required Third-Party Software	Microsoft .NET Framework 4.7.2

Step 1. Obtain the ACCELERATOR QuickSet® SEL-5030 Software installation files from either the website (<https://selinc.com/products/5030/>) or the provided CD.

Step 2. Run the installation file as administrator.

NOTE

Windows does not immediately write changes to disk by default. Data may be lost or corrupted if the computer has a power outage or equipment failure before the write occurs. To avoid loss of data, you can disable Write-Caching on the hard drive where the ACCELERATOR Database is installed. Disabling Write-Caching after installing the ACCELERATOR Database ensures data integrity of the database.

Step 3. On the **License Agreement** page, select **Show advanced options during installations** to run through individual application installation wizards. Leave this unchecked to have the system perform a silent installation and use default installation settings.

2 Install Your Software
Overview

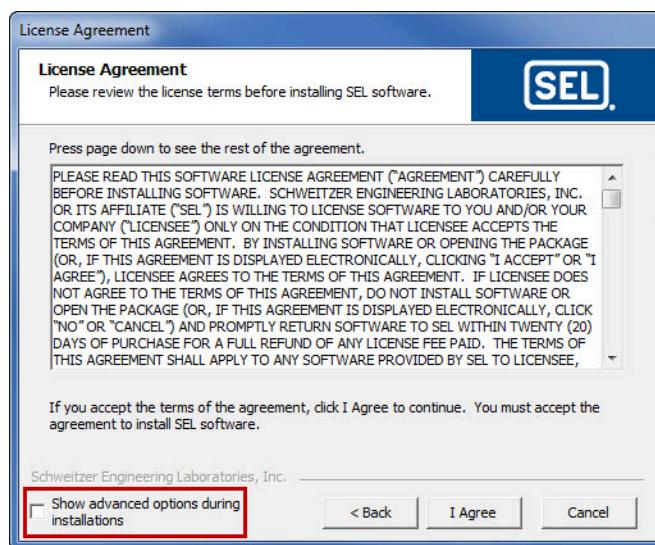
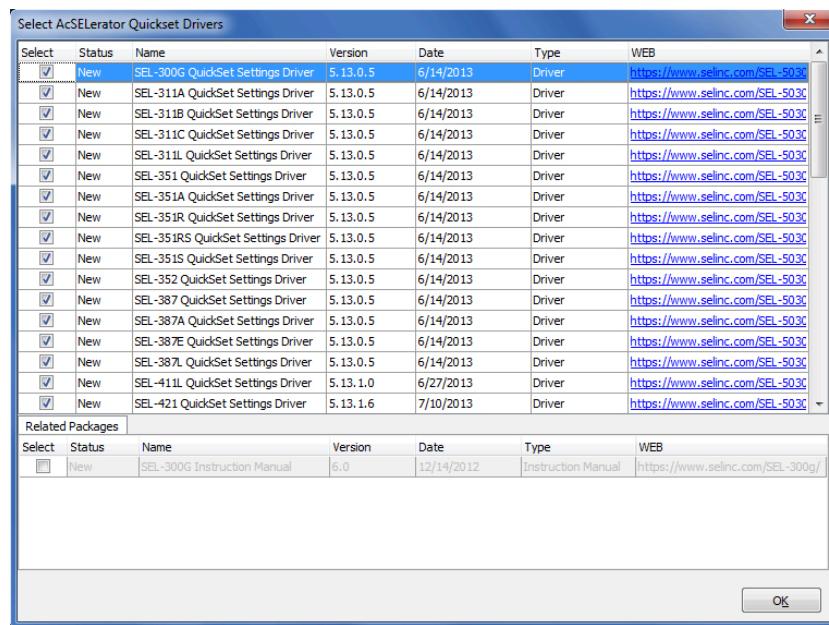


Figure 1.1 Select "Show advanced options during installations" to Walk Through Software and Plugin Installations

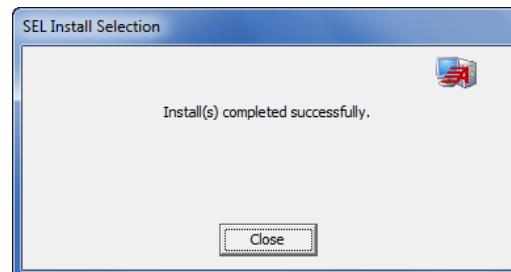
- Step 4. If you agree to the terms of the license agreement, select **I Agree** to begin the installation of SEL Compass® and QuickSet.
- Step 5. Once you have completed installation of SEL Compass and QuickSet, the installer displays the driver selection screen. Select the drivers for the device models with which you plan to communicate. If you want to install only certain drivers, right-click in the window and choose **Deselect All**. When you are finished choosing the devices that you want to install, click the **OK** button to continue with the installation. By default, SEL Compass selects all drivers to be installed.

NOTE

To add drivers and plugins after the initial installation, use the SEL update management software, SEL Compass. For information on SEL Compass, see Section 8: Update Solutions, Products, and Literature Through SEL Compass.

**Figure 1.2 Select the Device Drivers You Want to Install With QuickSet**

- Step 6. After the device drivers have completed downloading, the installer displays a screen from which you can select QuickSet plugins. For details regarding these plugins, please see *Appendix C: ACSELERATOR QuickSet Tools*. Select the plugins you need and click **OK**.
- Step 7. Click **Close** to finish the installation.

**Figure 1.3 QuickSet Installation Completed Successfully**

After completion of the initial installation, use SEL Compass as an update management tool. For instructions on how to use SEL Compass, see *Section 8: Update Solutions, Products, and Literature Through SEL Compass*.

Silent Installation Method

The ACSELERATOR QuickSet installation supports a Silent Installation method to allow QuickSet to be installed without any user input. In order to utilize the Silent Installation, the full installation EXE file will need to be downloaded from the Software Downloads page on the SEL website (<https://selinc.com/>). Once the full installation has been downloaded, the EXE file will need to be extracted into the proper folder structure using a program called 7-Zip. The extracted folder structure will look like *Figure 1.4*.

4 Install Your Software
Default Installed Programs

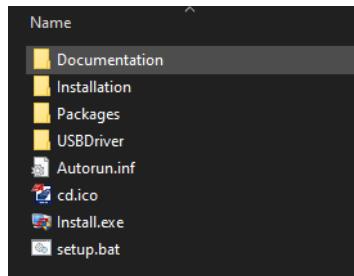


Figure 1.4 Extracted Folder Structure

To run the Silent Installation method, open a Windows Command Prompt running at the Administrator level (right-click on shortcut and select **Run As Administrator**) and navigate to the folder where the installation files are being stored. When at the installation files location type the following into the Windows Command Prompt and press <Enter>:

```
Install.exe S SEL5030ALL /BackupPassword=xxxxxxxxx  
AGREEEULA AGREEEAR
```

- **S**: Initiates the Silent parameter.
- **SEL5030ALL**: Forces install of SEL-5030 and all driver packages.
- **/BackupPassword**: This is the password for the backup file that is created during installation of ACCELERATOR Database/Device Manager plugins. Replace xxxxxxxxx with desired password.
- **AGREEEULA**: Represents an explicit approval of the License Agreement (EULA) to prevent showing the License Agreement form.
- **AGREEEAR**: Represents an explicit approval of the Export Regulations to prevent showing the Export Regulations form.

A screenshot of a Windows Command Prompt window. The title bar says "Administrator: Command Prompt". The command line shows: "C:\Setup\Compass>Install.exe S SEL5030ALL /BackupPassword=xxxxxxxxx AGREEEULA AGREEEAR". Below the command line, there is some text output from the command.

Figure 1.5 Silent Installation Command

A log file will be generated at the end of every silent installation run. If there are errors during the Silent Installation, they will be captured in the log file. The log file will be stored in C:\Documents and Settings\username\Application Data\SEL\SELCompass\SilentLog\xxxx.log.

Default Installed Programs

ACCELERATOR QuickSet installs the following programs by default when running the full setup file downloaded from the SEL website:

- **SEL Compass**: The main installer and extractor for the settings drivers and program plugins. It is also used to open the device-specific instruction manuals.
- **ACCELERATOR QuickSet**: The main program interface where settings, other plugins, and programs can be accessed.

- **ACSELERATOR Database:** The PostgreSQL database installed for the Legacy Device Drivers and the Device Managers in order to store information for ACSELERATOR TEAM® SEL-5045 Software.
- **ACSELERATOR Database ODBC:** The connector that allows Device Manager to access the PostgreSQL database that stores device connection information and settings.
- **SEL Commissioning Assistant:** Validates settings for commissioning the SEL-487E and SEL-787 devices.
- **SEL-5601-2 SYNCHROWAVE® Event Software:** Views event data downloaded from SEL devices.
- **SEL Playback File Conversion Utility:** Converts COMTRADE files to the .ply file format that the device uses for playback.
- **SEL-5025 Secure Port Service:** Creates secure virtual security ports for SEL serial security products.
- **Fabulotechx64Installer:** Installed with the SEL-5025 program to create virtual communication ports in Windows Device Manager.
- **Microsoft Visual C++ Redistributables:** Installs the Redistributable versions needed for QuickSet and all plugins to run properly.

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S E C T I O N 2

Get Started With AcSELERATOR QuickSet

Overview

AcSELERATOR QuickSet[®] SEL-5030 Software is a tool for engineers and technicians to quickly and easily design, deploy, and manage devices for power system protection, control, metering, and monitoring. Through use of this software, you can perform the following:

- ▶ Configure settings for supported devices. For most SEL devices, QuickSet has smart drivers that automatically verify if settings are within an acceptable range. A legacy grid editor supports legacy devices.
- ▶ Organize devices in the QuickSet Device Manager. The Device Manager plugin provides a straightforward way to organize devices and to associate connection parameters, documents, device settings, and device parameters.
- ▶ Create and implement Design Templates. The optional Design Templates allow for consistent setup and reduced configuration time. Lock settings so they match your standards, or lock and hide unused settings to reduce entry error.
- ▶ View operational status or device history at your convenience. The customizable human-machine interface (HMI) displays pertinent device data locally or remotely so that verifying and analyzing device performance becomes easier.

Get Started

This section provides the basic process within QuickSet for creating, validating, and deploying settings for a new device. After ordering an SEL device, you can design settings by using a known device version number. This section describes the process of connecting to a device and deploying settings.

Step 1. Using a Windows PC, open QuickSet by clicking **Start > Programs > SEL Applications > AcSELerator QuickSet** or by double-clicking the **QuickSet** icon ().

Connect to a Device

Step 2. Click **Communications > Parameters** and select the connection type.

NOTE

QuickSet can communicate with devices via serial, network, and modem connections. For more information on communication parameters, read Section 3: Deploy, Monitor, and Log Settings Through QuickSet Communication.

Step 3. In this example, we will set up a serial connection. Select **Serial** under the active connection type and then fill in the communications port, data speed, and additional communications information as necessary (see *Figure 2.1*).

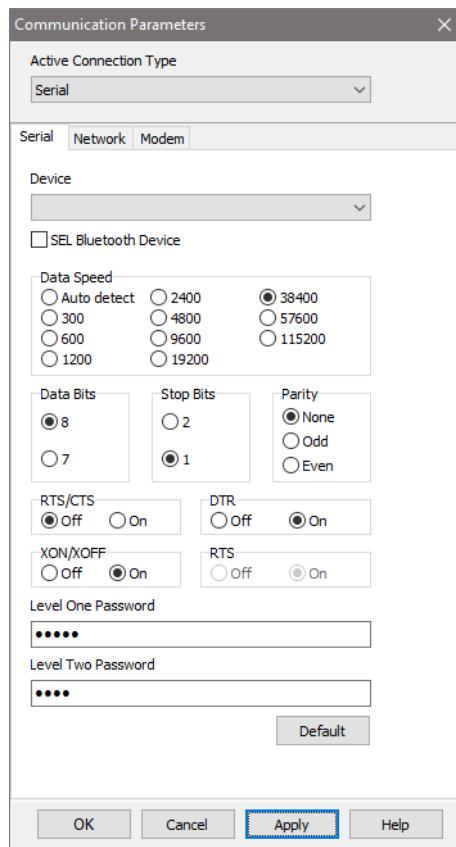


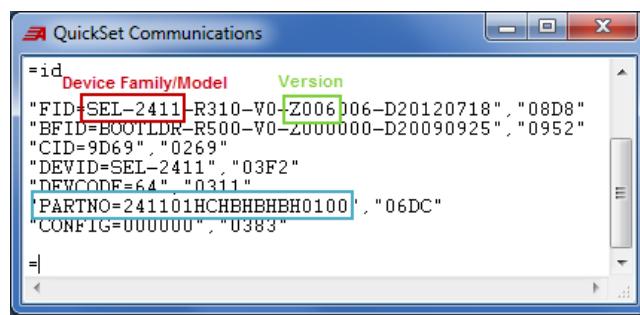
Figure 2.1 Setting Up the Communication Parameters

Step 4. Choose to **Apply** the communication parameters.

The device is now successfully connected. (If the connection was unsuccessful, refer to *Troubleshooting QuickSet Communication on page 40*.)

Configuring Device Settings

Step 5. Select **Communications > Terminal** and type the command **ID<Enter>**. Clicking the **Terminal** (terminal icon) from the toolbar also allows for command entry to a connected device.

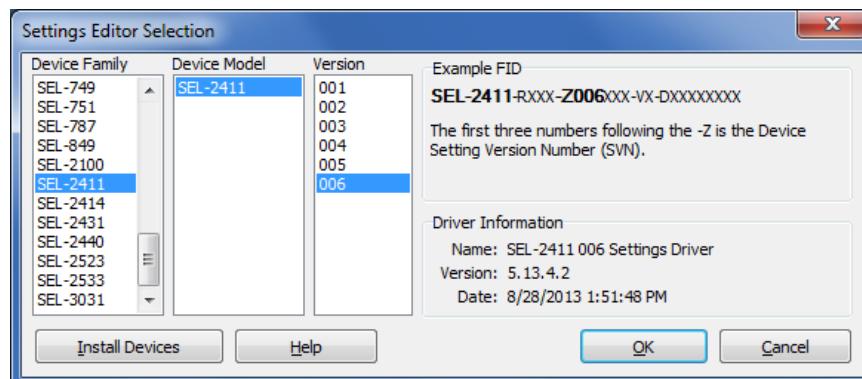
**Figure 2.2 QuickSet Communications Terminal****NOTE**

The firmware identification (FID) string will contain the information necessary to open a device Settings Editor. Make a note of the highlighted information (see Figure 2.2) in the Terminal window for the next step and the part number (PARTNO) for future use.

- Step 6. Click **File > New** and select the Device Family, Device Model, and the Version number. Then click **OK**.

NOTE

Refer to individual instruction manuals for SEL devices to find additional commands that can be issued in the Terminal window.

**Figure 2.3 Opening a New Settings Editor**

- Step 7. Fill in the part number with the information you noted from the Terminal window (you can change this later, but your changes may affect what settings are viewable and usable).

Figure 2.4 shows a screen similar to what will display after you select the device family, model, and version. The dropdown arrows correspond to each slot in the device and show which options you can select. Alternatively, select **Edit** in the lower left-hand corner to paste a part number you previously copied from elsewhere or to type in the part number. Defining the part number in turn defines what settings are editable.

NOTE

Legacy devices will open a window that is similar to the **Edit Part Number** window displayed in Figure 2.4.

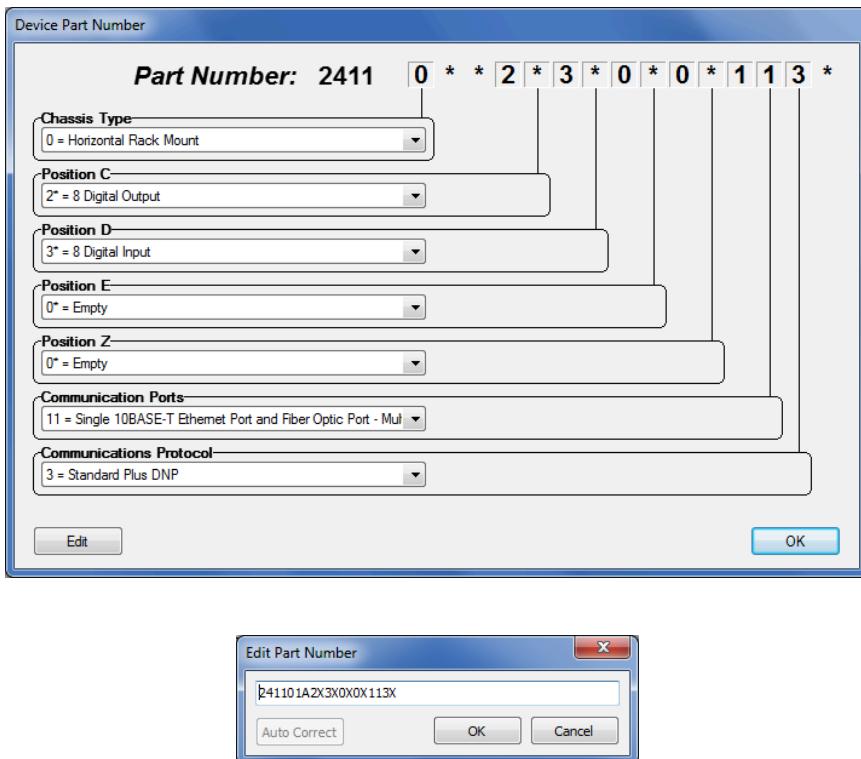


Figure 2.4 Device Part Number and Edit Part Number Windows

Step 8. Click **OK** to open the device Settings Editor.

If the part number selected in QuickSet does not match the part number of the connected SEL devices, QuickSet will display a dialog box specifying the correct device part number in a window similar to *Figure 2.5* when it sends settings to the connected device.

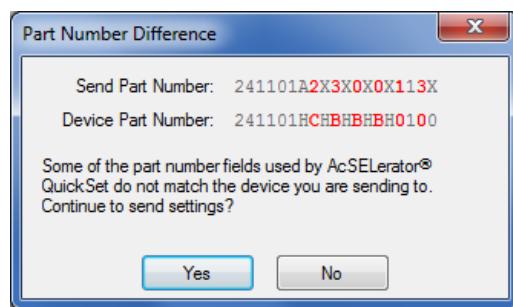


Figure 2.5 Part Number Difference

Settings editors will vary depending on the device. The functionality of the device being configured determines the settings groups that are available. In the Settings Editor, settings are grouped in a tree format and most settings groups have a small triangle (▷) to the left. When you click this triangle, the settings group expands to show further settings classes that relate to the overarching group.

- Step 9. Implement settings by either expanding a settings group and clicking a settings class or by clicking a visible settings group and entering the applicable settings.

Some settings groups are disabled (grayed out) by default. Enable them by finding the group labeled SETTING_TYPE Enables, where SETTING_TYPE is the name of the settings to be enabled. In *Figure 2.6*, four SELOGIC function types (highlighted on the right-hand side) were enabled to allow further device configuration.

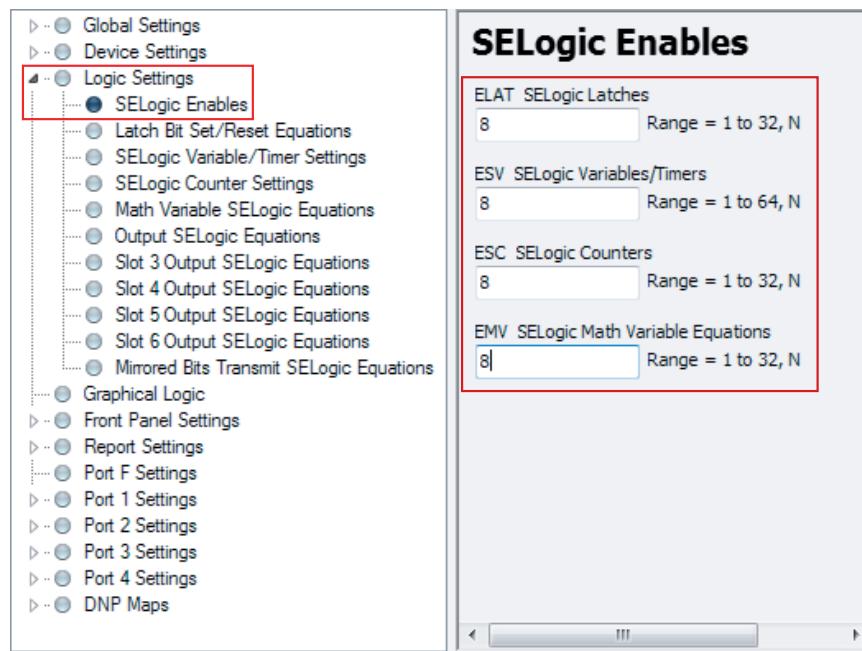


Figure 2.6 SEL-2411 Settings Editor

- Step 10. Resolve any existing errors.

If you enter a settings value into a field and this value is invalid or outside of the acceptable range, then QuickSet highlights that field in red and displays an error window at the bottom of the screen (see *Figure 2.7*). You should correct these errors prior to deploying settings. Double-clicking the error message causes QuickSet to take you to the invalid setting. Enter a value that is within the permitted range, and click out of the setting cell or press <Enter> to revalidate.

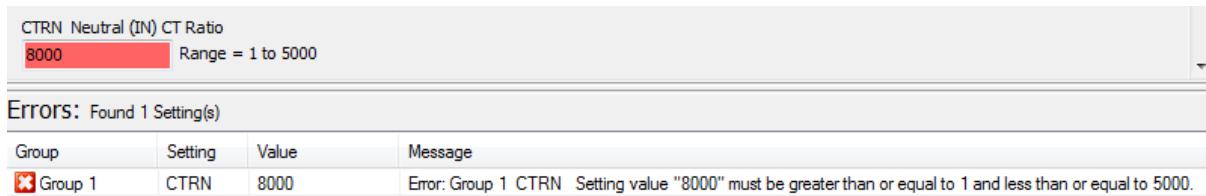


Figure 2.7 QuickSet Error Checking

Step 11. Select **File > Send**. From the selection dialog that displays, choose which settings groups you want to send to the device, as in *Figure 2.8*. Once you have completed making your selections, click **OK**.

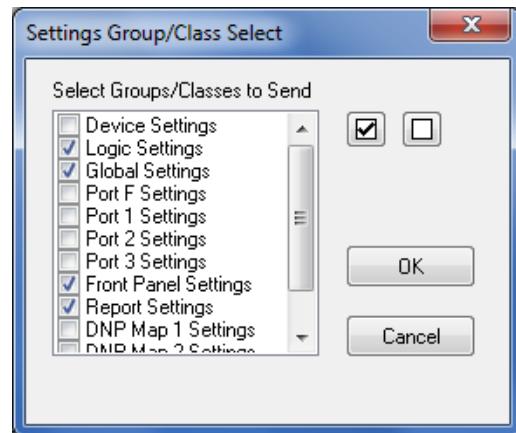


Figure 2.8 Send Settings to the Connected Device

After you click **OK**, QuickSet will begin sending the selected settings groups to the device. If an error occurs during the send process, an error dialog displays. To view additional information on the settings QuickSet sends, open the Terminal window after clicking **OK** in *Figure 2.8*. You will see the files being sent and when the transfer is complete.

Step 12. Click **File > Save As**. Click **New** in the upper right-hand corner of the pop-up window (see *Figure 2.9*).

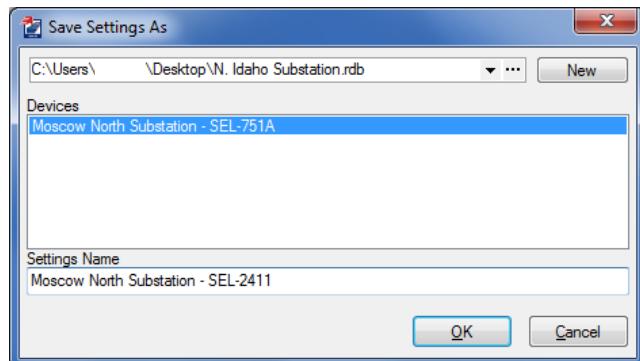


Figure 2.9 Save Settings as Window

Step 13. Select a file location for a new Settings Database (RDB).

QuickSet uses RDB files to store device settings files that can be sent to SEL devices. A single Settings Database can contain many different settings files. For optimal performance, however, it is best not to exceed 500 settings files within a single RDB file. Refer to *Section 5: Manage Device Settings* for more information about working with these databases.

- Step 14. Navigate to the file location where you want to save the RDB, enter a descriptive file name for the RDB (see *Figure 2.10*) and click **Save**.

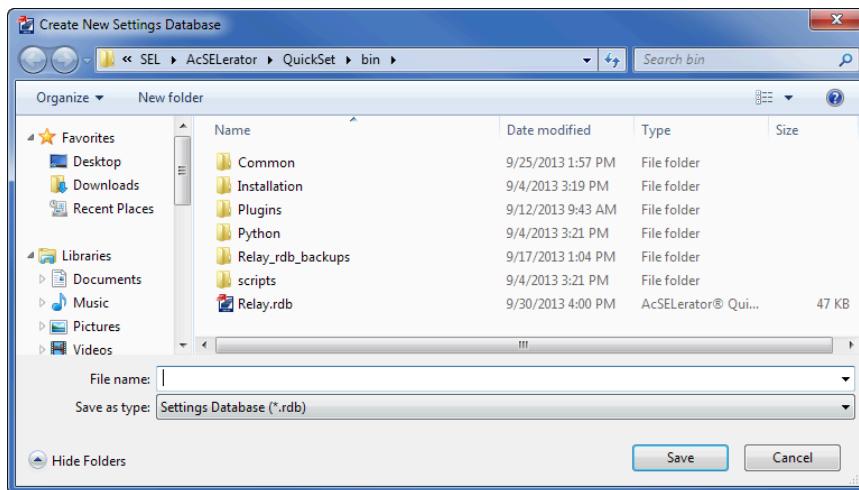


Figure 2.10 Create New Settings Database

- Step 15. Name the settings file and click **OK**.

Alternatively, you can save settings in an existing RDB by clicking the ellipses (...), seen in *Figure 2.9*, and navigating to the file location of the existing RDB as in *Figure 2.10*.

To reduce the risk of save conflicts while saving the settings and settings corruptions because of latency, SEL recommends using an RDB file located on a local directory instead of a network directory when creating, saving, and opening settings. SEL recommends using the Device Management feature of Device Manager within QuickSet if multiple users need access to the settings. When saving files to an RDB that is located on a non-local folder, there will be a warning symbol displayed at the bottom of the save window, as shown in *Figure 2.11*. Users are still allowed to save settings to an RDB on a network location, but it is not recommended and why a warning is shown.

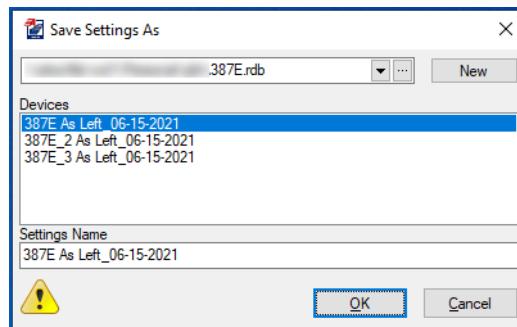


Figure 2.11 Save Window Warning Symbol

Congratulations! You have successfully sent settings to a connected device and saved these settings to a file.

To turn off the Network Save warning, go to **Tools > Options** and unselect the option **Show warning when active RDB file is not a local hard drive**, as seen in *Figure 2.12*.

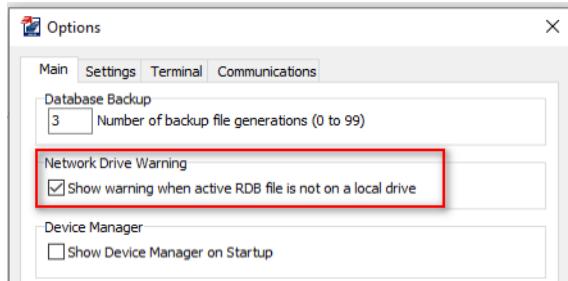


Figure 2.12 Network Save Option

Using Existing Settings

After you generate and deploy device settings, you may still need to edit these settings. Two methods exist for obtaining deployed settings: you can read settings from a connected device or open a settings file contained in an RDB file.

Read Settings

This section describes how to read settings into QuickSet from a connected device.

Connect to the device from which you will read settings.

- Step 1. Select **Communications > Parameters** and select the appropriate connection type in the **Communication Parameters** window. Then specify the remaining communications settings.
- Step 2. Now that the device is connected, click **File > Read** from the QuickSet Welcome Screen, select the **Read Settings From Device** icon (USB drive icon) in the toolbar, or select the **Read** text (see *Figure 2.13*) on the Welcome Screen.

QuickSet issues a command to the relay to read and download the settings. The settings open in a new Settings Editor when the read process is completed. If a progress dialog box does not appear automatically, open the Terminal window to see progress during the read.

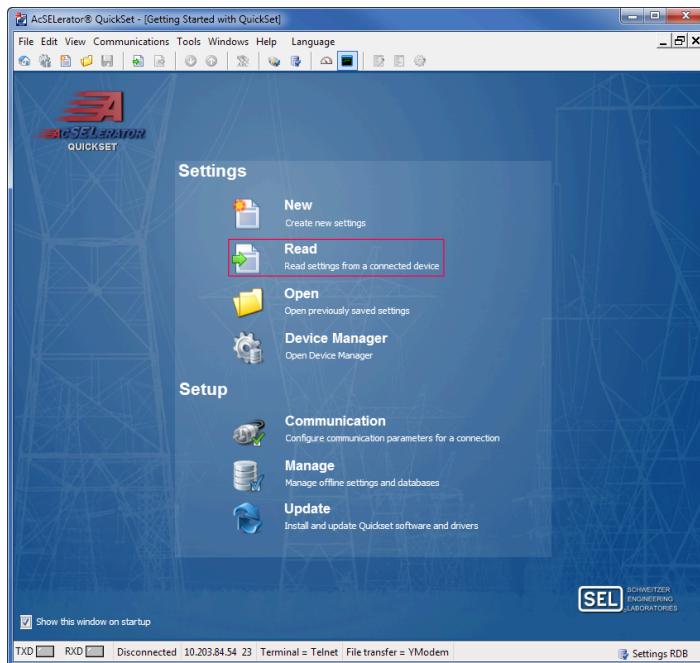


Figure 2.13 Welcome Screen

Open Settings

This section describes how to open previously generated settings through QuickSet. For this process, you must know in which Settings Database (RDB) your settings file is located and how to navigate to that location on your computer.

- Step 1. Select **File > Database Manager > Settings Database** and click the ellipses (...) to navigate to the file location on the computer where the RDB is located. Once you have located the RDB, select the RDB file and click **Open** in the lower right-hand corner of the dialog box.
- Step 2. Click **File > Open**, select the **Open Settings** (📁) icon from the toolbar, or select the corresponding text on the QuickSet Welcome Screen. Click the ellipses (...) to navigate to the file location on the computer where the RDB is located or choose from the recent Settings Databases listed in the dropdown menu. Click the settings file to highlight it and click **OK**, as shown in *Figure 2.14*.

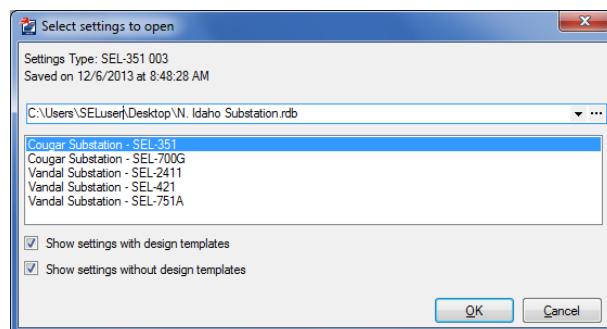


Figure 2.14 Settings File Open Window

Backup RDB Settings

By default, when settings are saved, a backup file is created in case an older version needs to be restored. The default backup file generation is set to save the last three saved settings of an RDB file. This default backup file generation can be modified under **Tools > Options > Main** under the Database Backup setting (*Figure 2.15*).

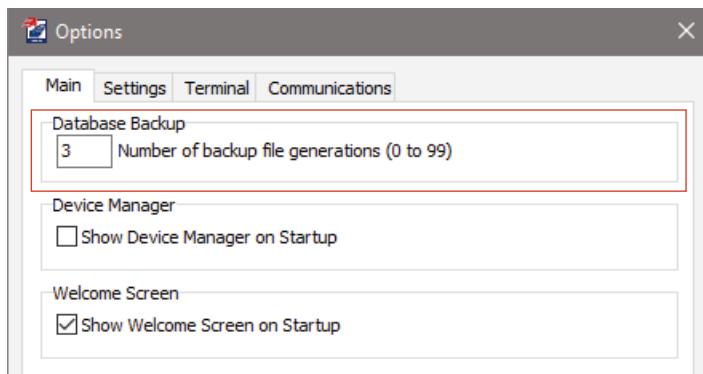


Figure 2.15 Backup RDB Settings

Restore Backup RDB Settings

The RDB backup files are saved in a folder with "_rdb_backups" appended to the end in the same location as the active RDB file in use. Navigate to the backup folder to locate backup files labeled with a numeric extension of .01, .02, etc., depending on how many backup generations are assigned under the Database Backup setting. The file with the smallest numeric extension is the latest saved backup, with larger numeric extensions indicating older backup files.

To restore a previously saved setting, find the backup file that you want to restore and rename the extension on the file from a numeric extension to the .rdb extension. Once the extension is renamed to .rdb, it will be able to open like any RDB file in QuickSet.

Job Done Example

Using Device Manager to Store Device Configuration

This section explains how to use QuickSet to manage system information, open device settings, and associate settings with a specific device. Combine device connection parameters, documents, identifying information, and settings in one location and organize these devices by location, substation, or operation.

Step 1. Open QuickSet and click **Device Manager** from the QuickSet Welcome Screen or click **Tools > Device Manager > Devices** from the main menu.

NOTE

To open straight to Device Manager by default when QuickSet is launched, select **Tools > Options** and then check the box next to **Show Device Manager on Startup**.

- Step 2. Right-click in the **Connection Explorer** on the left-hand side of the window and choose **Add > Folder**, as shown in *Figure 2.16*.

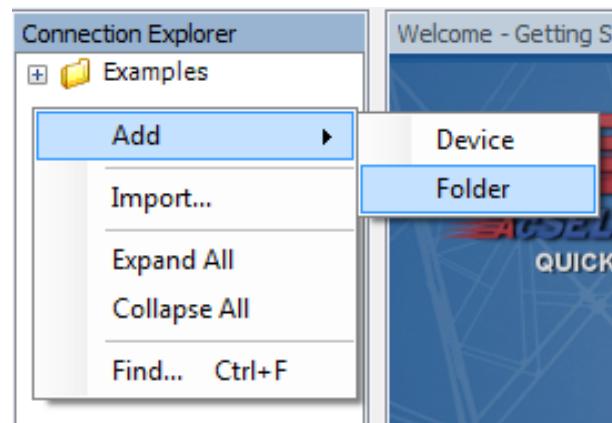


Figure 2.16 Adding a Folder to Device Manager

- Step 3. Right-click the **New Folder** you created and select **Rename**.
Step 4. In the window that displays (see *Figure 2.17*), type in the name you want the folder to have and click **OK**.

NOTE

SEL recommends using folders to organize devices by location, substation, or operation to assist in managing your system.

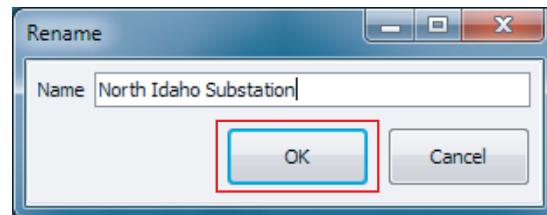


Figure 2.17 Rename Dialog Box

- Step 5. Right-click the folder you renamed and click **Add > Device** (see *Figure 2.18*).

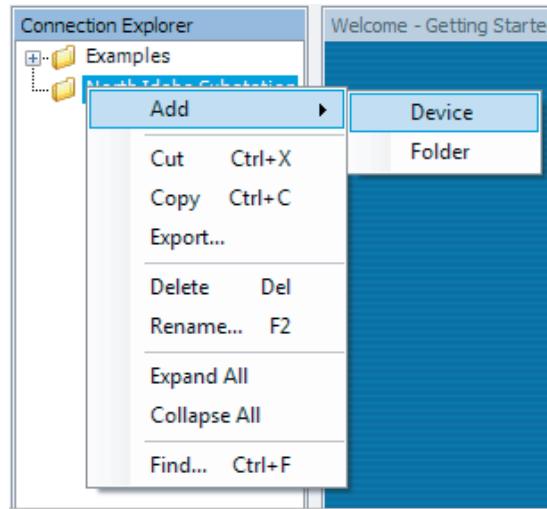


Figure 2.18 Organizing Devices by Folder

Step 6. In the dialog box that displays, select the type of device you want to add (see *Figure 2.19*) to the folder and click **OK**. For this Job Done® example, we select an SEL-751A.

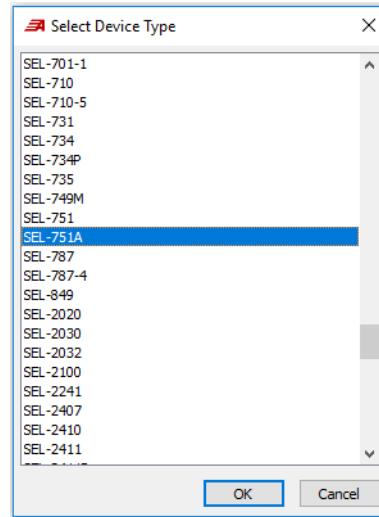


Figure 2.19 Select the Device Type to be Added

Step 7. Double-click the device node, SEL-751A, in the **Connection Explorer**. *Figure 2.20* shows the new device display window that QuickSet opens.

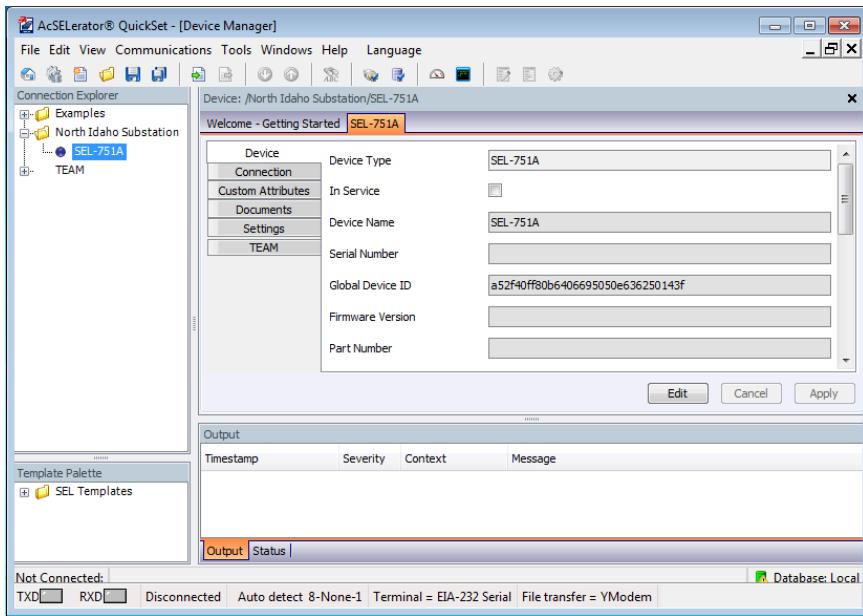


Figure 2.20 SEL-751A Device Tab Workspace

Step 8. Now, click **Edit** in the lower right-hand corner and add applicable information to the **Device**, **Connection**, **Custom Attributes**, **Documents**, and **Settings** tabs. The following steps describe the types of information you can add to each tab and how to add that information.

In the **Device** tab, add such information as the device type, device name, device serial number, global device ID, firmware version, part number, FID string, and device passwords. You could also add a description of the device.

Enter device connection parameters in the **Connection** tab. Select the appropriate connection type, choosing from among Serial, Modem, or Network. This Job Done example uses serial communications. *Figure 2.21* shows a serial connection and the options available. Modem and network connections have similar screens and options pertaining to the connection type. Each connection type is explained in detail in *Section 3: Deploy, Monitor, and Log Settings Through QuickSet Communication*. Please refer to that section for explanations on communication parameters. By entering device connection parameters within Device Manager, you can quickly connect to the device to issue commands in the Terminal window. To do so, right-click the configured device in the **Connection Explorer**, choose **Connect**, and then open the Terminal window.

Step 9. Select the arrow for the dropdown box next to **Connection Type** and choose **Serial**. Also, select the dropdown arrow next to **Device** and choose the correct communications port. Specify any other communication parameters that differ from the defaults in *Figure 2.21* by selecting the dropdown arrow to the right of the parameter and then selecting the correct value.

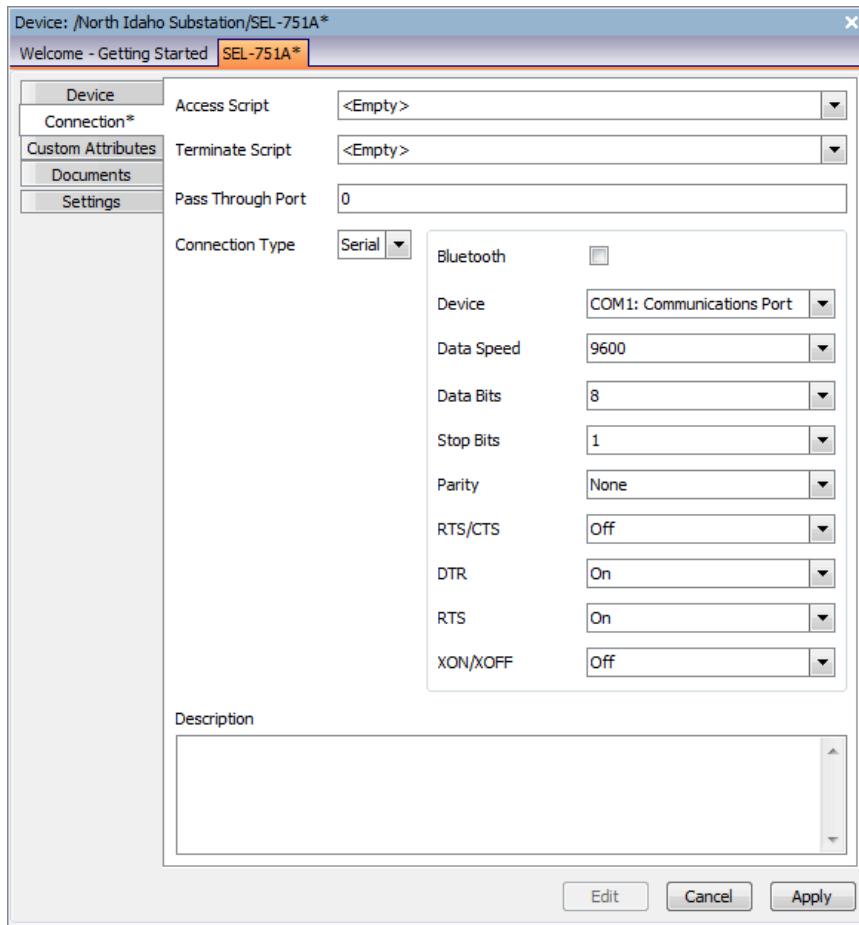
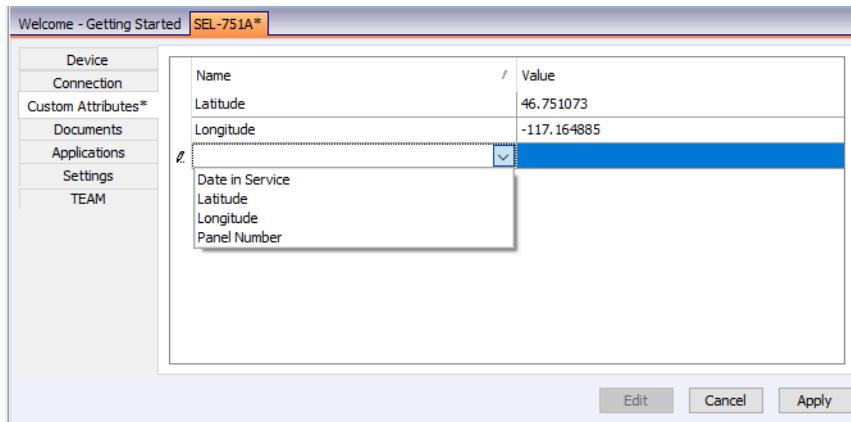


Figure 2.21 Serial Connection

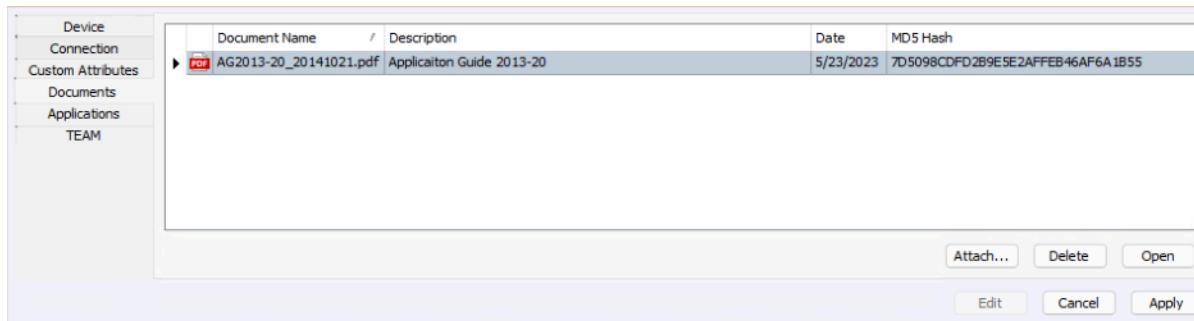
The **Custom Attributes** tab allows the creation and customization of device-pertinent attributes. Use this tab to specify latitude, longitude, and date in service information or to create a new attribute to describe the device.

Step 10. Add name-value pairs to the **Custom Attributes** tab. For example, click in a cell below the **Name** column, select **Latitude** from the dropdown list, and then enter the corresponding latitude. Repeat this in the next row for **Longitude** (see *Figure 2.22*). Now, anyone viewing the **Custom Attributes** tab can quickly assess the location of this device. You can use these names for different devices to assist in organizing device information, and you can create new custom attribute names to match your system needs.

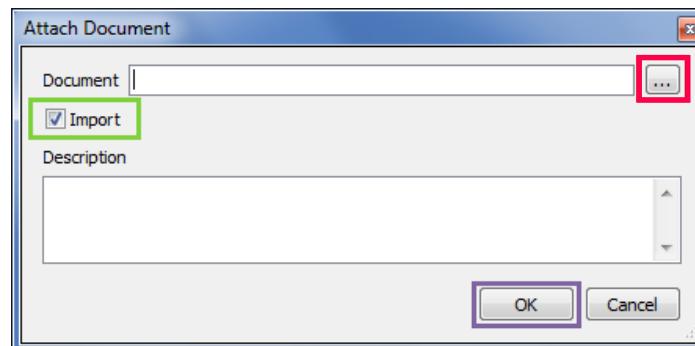
**Figure 2.22 Custom Attributes Tab in Device Manager**

The **Documents** tab allows for storage or association of any type of document or file, such as an instruction manual, settings sheet, or work order, with that device. This helps other engineers or technicians to locate related device information. The **Documents** tab also includes an MD5 Hash column which displays the hash value of the file to verify it is the original.

- Step 11. Attach documents by clicking **Attach** in the lower right-hand corner, see *Figure 2.23*.

**Figure 2.23 Documents Tab in Device Manager**

- Step 12. Click the ellipses (highlighted in red in *Figure 2.24*), locate the document in your file system, highlight it, and click **Open** (see *Figure 2.25*).

**Figure 2.24 Device Manager Document Attachment**

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Job Done Example

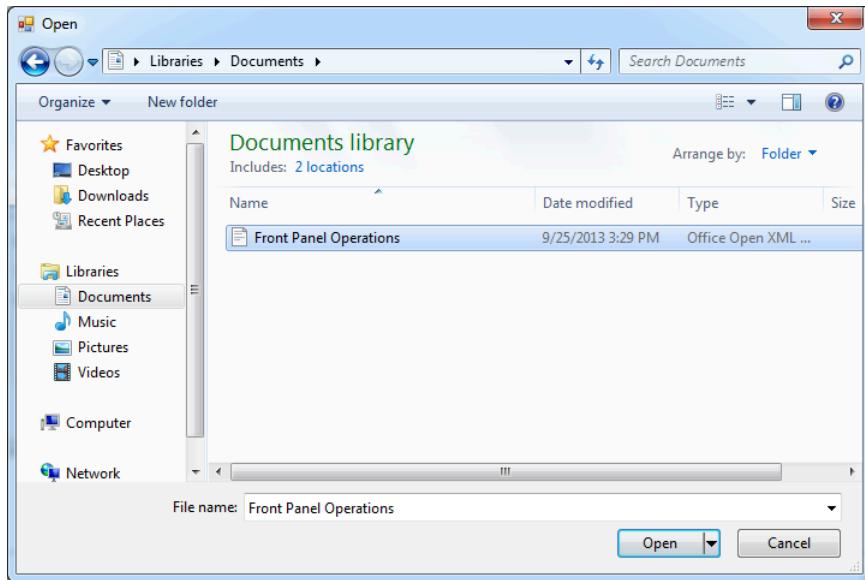


Figure 2.25 Open Document

Step 13. Leave the box next to **Import** checked if the document should be stored in the ACCELERATOR Database. Uncheck the box next to **Import** to only store the location of the document. This allows you to associate a file stored on a network drive with a folder or device within Device Manager. The import option is highlighted in green (see *Figure 2.24*).

Step 14. Add any necessary information to the **Description** field and click **OK** (highlighted in purple in *Figure 2.24*).

The **Settings** tab helps in the association of device settings with the correct device and with viewing of information regarding the most recent settings saved, by whom, and any description provided about their changes. Proceed to *Step 15* for an example that shows how to import a previously saved settings file. This example shows how to import a previously saved settings file. For more details on the other options, refer to *Section 5: Manage Device Settings*.

Step 15. Select **Import Settings** to associate previously generated settings with the device (see *Figure 2.26*).

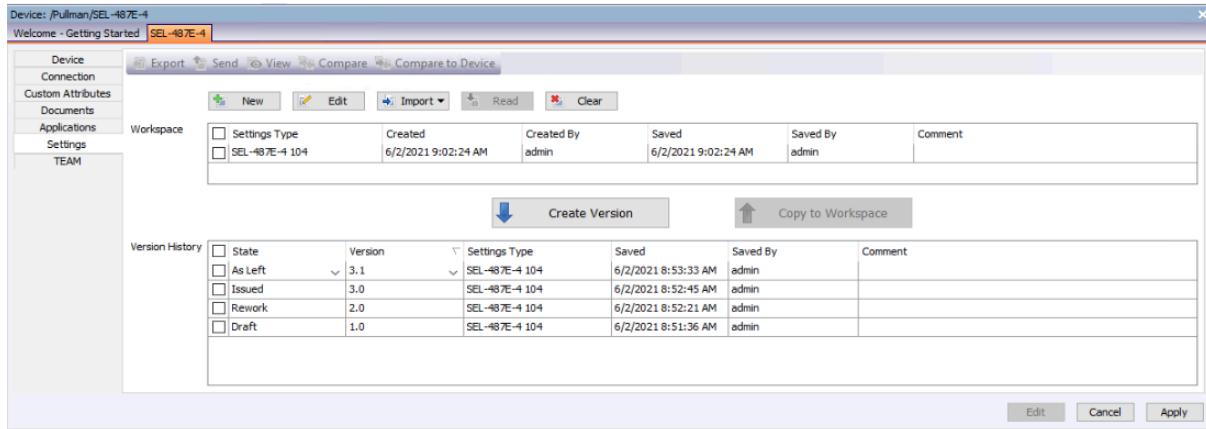


Figure 2.26 Device Settings Tab in Device Manager

Step 16. Click the ellipses (...) to the right of **Import From** (see *Figure 2.27*).

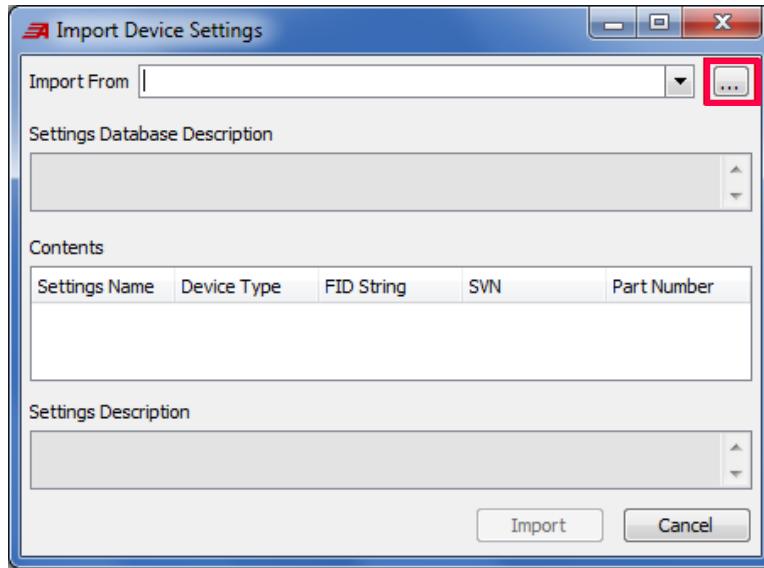


Figure 2.27 Import Device Settings

Step 17. Navigate to the location of the RDB file containing the device settings, highlight it, and select **Open**.

Step 18. Select the correct settings file from the contents of the RDB and click **Import**, as shown in *Figure 2.28*.

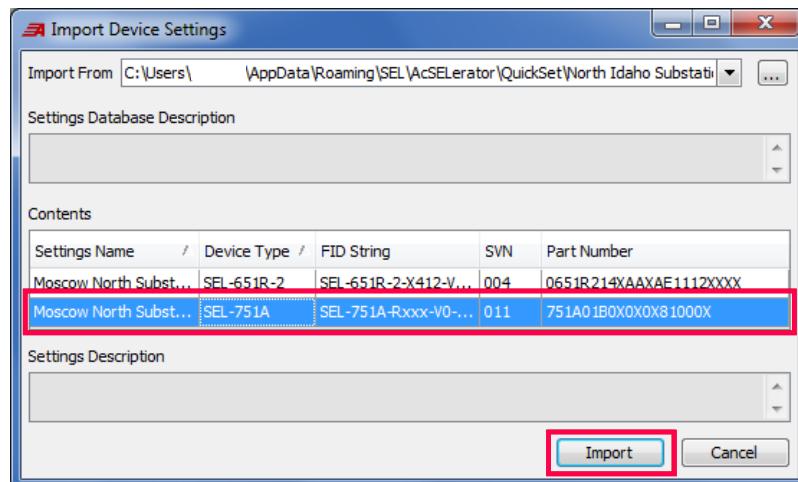


Figure 2.28 Select Settings and Import

Once settings have been associated with the device, you will see something similar to *Figure 2.29*.

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Job Done Example**

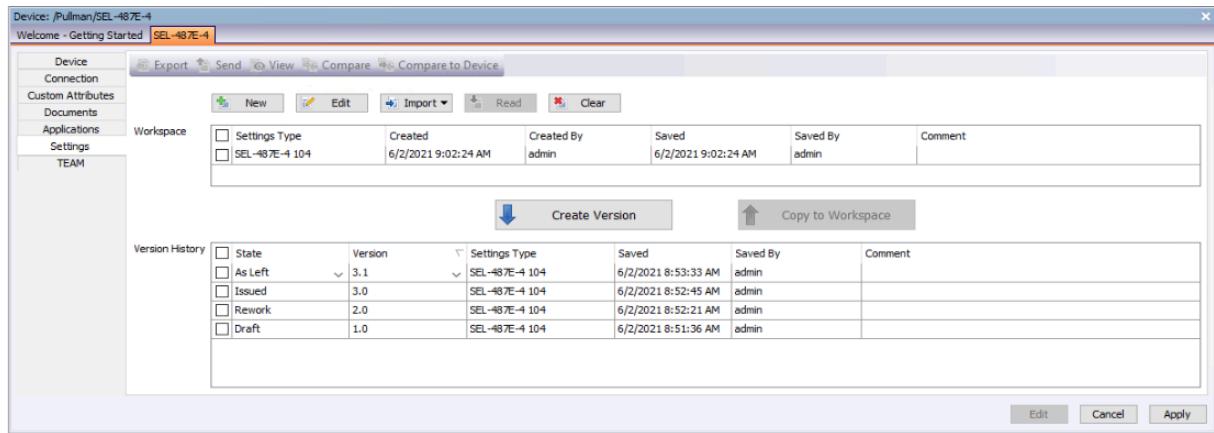


Figure 2.29 Associated Device Settings

Step 19. Click **Apply**.

The device has now been successfully added to Device Manager.

S E C T I O N 3

Deploy, Monitor, and Log Settings Through QuickSet Communication

Overview

ACCELERATOR QuickSet[®] SEL-5030 Software provides communication to any SEL supported device. It can use Ethernet, modem, or serial communication to send and receive settings as well as sustain continuous communication for human-machine interface (HMI) applications.

Parameters

Use the **Communication Parameters** dialog box to configure QuickSet communications. As shown in *Figure 3.1*, the dialog box categorizes the settings into three tabs representing serial, Ethernet, and modem connections, respectively.

Serial

Serial communication consists of a serial port, such as a USB port, that uses either the EIA-232 or EIA-485 standard to send and receive bytes of information one bit at a time. QuickSet uses ASCII data transmission to communicate to the connected device and allow for binary transfer in the form of Ymodem and SEL Fast Meter. *Figure 3.1* displays the available options for serial communications.

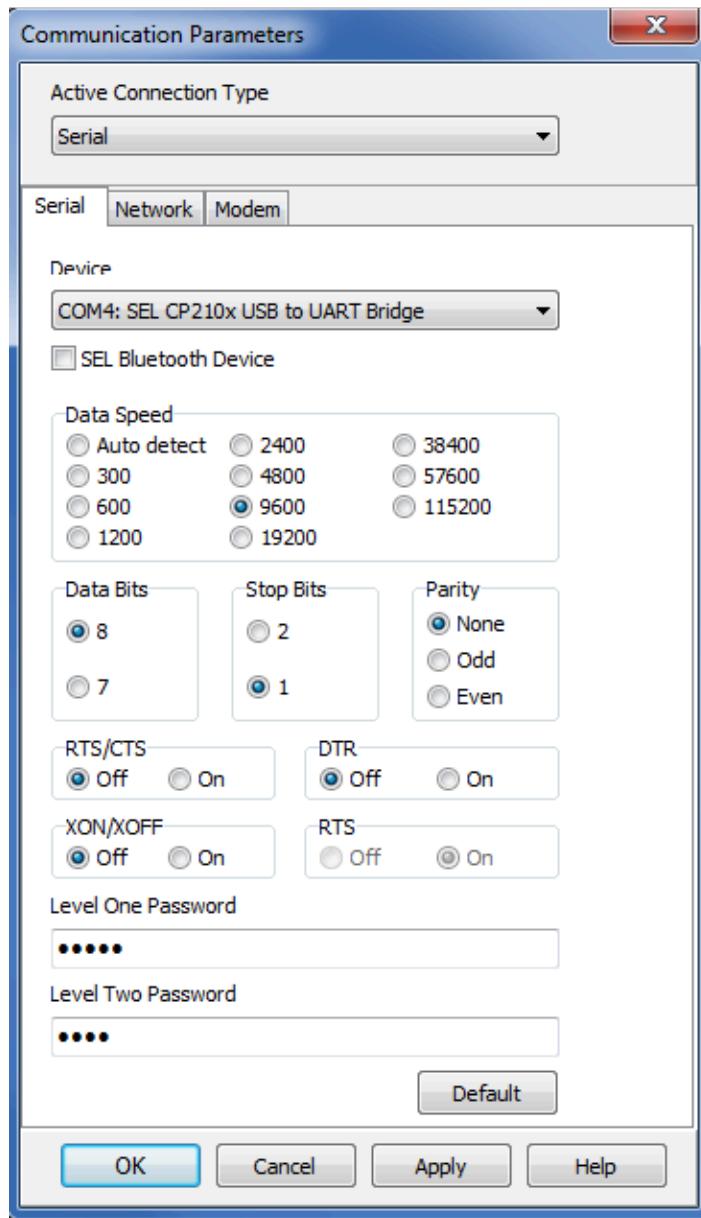


Figure 3.1 QuickSet Serial Communications

Active Connection Type: The connection type (Serial, Network, or Modem) used to communicate.

Device: The serial COM port used to communicate between QuickSet and the supported device.

SEL Bluetooth Device: Select this check box only when configuring an SEL-2924 or SEL-2925 BLUETOOTH® device (The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc., and any use of such marks by SEL is under license).

Data Speed: The rate of data used by the port. The data speed is the number of transitions per second. Please note that the available data speed selections will change when you select **SEL Bluetooth Device**.

Data Bits: The number of data bits used in a transmission.

Stop Bits: The number of stop bits for the port. Stop bits signal the end of a packet of information.

Parity: The parity-checking mode for the port.

RTS/CTS: The hardware flow control options for the port. RTS stands for Request to Send and CTS means Clear to Send.

DTR: The current state of the Data Terminal Ready (DTR) signal.

XON/XOFF: The software flow control options for the port.

RTS: The state of the Request to Send (RTS) signal.

NOTE

To enable the RTS setting, click **Tools > Options** from the QuickSet main menu and then click the **Communications** tab, as shown in Figure 3.2. Select the **Enable Advanced Communication Settings** and the **Allow RTS Selection (Serial)** check boxes to enable configuration of the RTS setting.

Level One Password: The required password for Access Level 1 on the device.

Level Two Password: The required password for Access Level 2 on the device.

Default: Reverts all of the previously listed serial communication settings to their factory defaults.

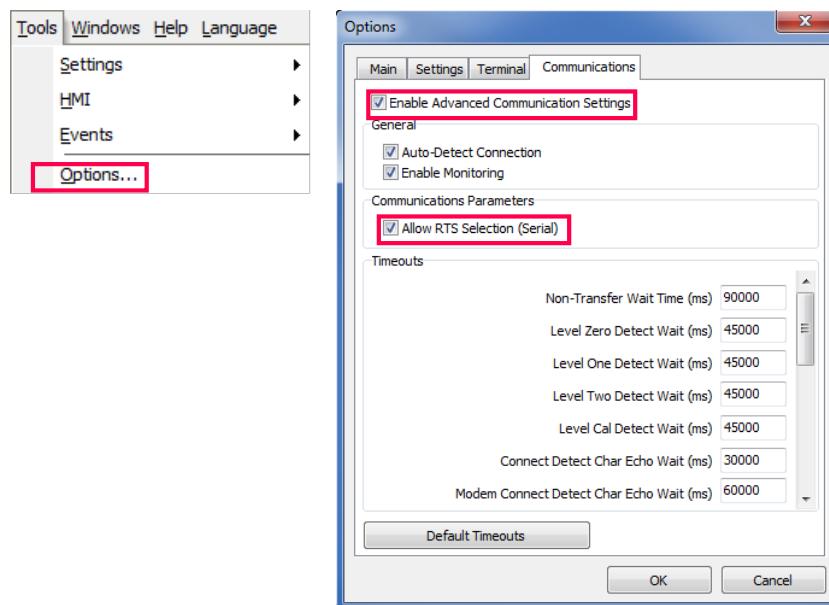


Figure 3.2 Allowing RTS Selection

Please note that *Figure 3.2* also contains an Auto-Detect Connection setting. When enabled, this setting allows QuickSet to automatically detect connections. QuickSet issues a "J" ASCII character and waits for an echo back from any active connections. This causes problems in cases where you have endpoint devices that do not echo back.

Under the **Communications** tab are several QuickSet timeout settings. Depending upon the communications method being used, the following timeouts can improve communication stability. For example, wireless and radio communications can introduce different delays. It may then be necessary to adjust the timeout period to obtain successful communication.

General Devices

Non-Transfer Wait Time: The maximum wait for response after QuickSet reads or sends a settings group to or from a device that does not transfer files.

Level Zero Detect Wait: The maximum wait for a Level Zero prompt (=) from the connected device after a carriage return command is issued during the current access level detection process.

Level One Detect Wait: The maximum wait for a Level One prompt (=>) from the connected device after a carriage return command is issued during the current access level detection process.

Level Two Detect Wait: The maximum wait for a Level Two prompt (=>>) from the connected device after a carriage return command is issued during the current access level detection process.

Level Cal Detect Wait: The maximum wait for a Level Cal prompt (==>>) from the connected device after a carriage return command is issued during the current access level detection process.

Connect Detect Char Echo Wait: The maximum wait for echo of the Connection Detection Character from the device following transmission of the character after the port opens during the connection process. This value is used for the serial and network connection types.

Modem Connect Detect Char Echo Wait: The maximum wait for echo of the Connection Detection Character from the device following transmission of the character after the port opens during the connection process. This value is used for the modem connection type.

Modem Connect Timeout: The maximum time the modem will wait for a connection to open.

Modem Command Response Wait: The maximum time to wait for response from a modem after issuing a command to the modem.

Max Wait For Response: A general delay defined as the maximum time to wait for response(s) when a command is sent to the connected device.

Max Wait For Echo: A general delay defined as the maximum time to wait for echo of a command sent to the connected device.

Write File Level Two Prompt Wait: The maximum time to wait for the level zero prompt from a device after sending a settings file to the connected device through a file transfer (with other than File Transfer Protocol [FTP]).

Delay Between Chars: The delay between each of the characters when a command is sent through QuickSet communications. If this value is set to 0, the command is sent one character at a time without any delay between the characters. If this value is set to -1, all of the command is sent at once.

Inactivity Timeout: The delay when waiting for a response with no transmission of characters.

Bluetooth Command Response Wait: The maximum time to wait for response from a Bluetooth device after issuing a command to the Bluetooth device.

Bluetooth Reconnect Wait: The amount of time to wait before reestablishing connection with a Bluetooth device after the device restarts as a result of configuration changes (e.g., a change in the data speed setting causes the device to restart).

SSH Authentication Timeout: The maximum time to wait for response for SSH Authentication after issuing an authentication request to a connected device.

Legacy Devices

Legacy Wait Response Time: The maximum wait for echo of a command when QuickSet is sending settings (one setting group at a time) to the legacy device. The legacy devices are non-file transfer devices.

Legacy Wait Active Time: The maximum wait time for all output data coming from a legacy device after sending settings to the active group.

Legacy Wait Time: The maximum time to wait for all possible responses for a read group command when such command is sent to a legacy device.

SEL-3025 Serial Shield Devices

SEAP Response Timeout: The maximum delay for communication to completely finish before timing out a non-file transfer operation that uses SEL Encryption and Authentication Protocol (SEAP).

SEAP File Transfer Timeout: The maximum delay for bytes to continue to arrive before timing out a file transfer operation that uses SEAP.

Network

QuickSet provides the ability to communicate over a network to any supported SEL Ethernet-enabled device. From the QuickSet main menu, click **Communications > Parameters** and then select **Network**. *Figure 3.3* shows the network configuration window. Following the figure is a listing of the corresponding network settings.

30 Deploy, Monitor, and Log Settings Through QuickSet Communication Parameters

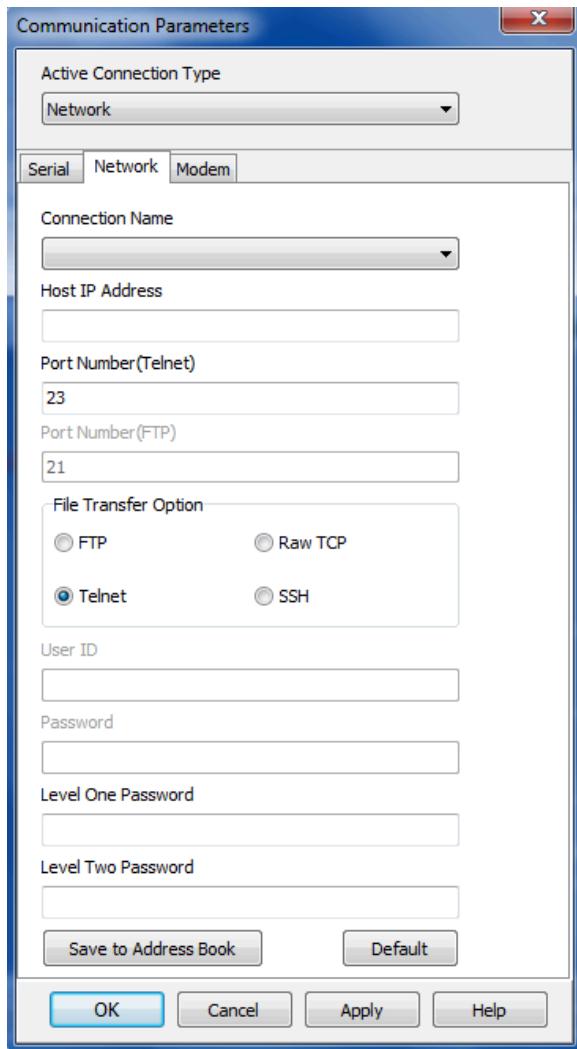


Figure 3.3 QuickSet Network Communications

Connection Name: Provides selection of any previously saved connection configuration.

Host IP Address: The IP address of the host device. An IP address contains a binary number that uniquely identifies devices on a TCP/IP network.

Port Number (Telnet): Refers to the port in use for the Terminal during Telnet communications. A port number is an endpoint to a logical connection.

Port Number (FTP): Refers to the port number in use during FTP communications.

NOTE

The field name immediately following Port Number (Telnet, for example) changes based upon the protocol selected. It will change to Port Number (SSH) if the file transfer option is set to SSH. If the file transfer option is set to Raw TCP, the field name will change to Port Number (Raw TCP).

File Transfer Option: Provides selection of FTP, Raw Transfer Control Protocol (TCP), Telnet, or Secure Shell (SSH) for file transfer.

- **FTP:** Determines FTP as the means for file transfers. Only certain SEL devices provide FTP support. Of those, some devices rely solely on FTP for file transfer.
- **Telnet:** Sets Telnet as the protocol to facilitate file transfers and Terminal communication.
- **Raw TCP:** Sets Raw TCP as the protocol to facilitate file transfers and Terminal communication.
- **SSH:** Specifies Secure Shell protocol as the means for file transfers and Terminal communication.

User ID: The required User ID needed to log in to the FTP and SSH clients.

Password: The required Password needed to log in to the FTP and SSH clients.

Level One Password: The required password for Access Level 1 on the device.

Level Two Password: The required password for Access Level 2 on the device.

Save to Address Book: Saves the network configuration under a specified name that can be accessed in the future through the **Connection Name** dropdown menu.

The Windows AddressBook.txt location is as follows: C:\Users\YOURUSERNAME\AppData\Roaming\SEL\AcSELERator\QuickSet.

NOTE

You may have to show hidden files to navigate to this file location. To show hidden files, open the **Control Panel**, sort by **Category**, select **Appearance and Personalization > Folder Options**, choose the **View** tab, and select **Show hidden files, folders, and drives**.

Default: Reverts all of the previously listed network communications settings to their factory defaults.

Modem

QuickSet provides the ability to communicate with a modem connected to any supported SEL device. From the QuickSet main menu, click **Communications > Parameters** and then select **Modem**. *Figure 3.4* shows the configuration window; following the figure is a listing of settings for modem communication.

32 Deploy, Monitor, and Log Settings Through QuickSet Communication Parameters

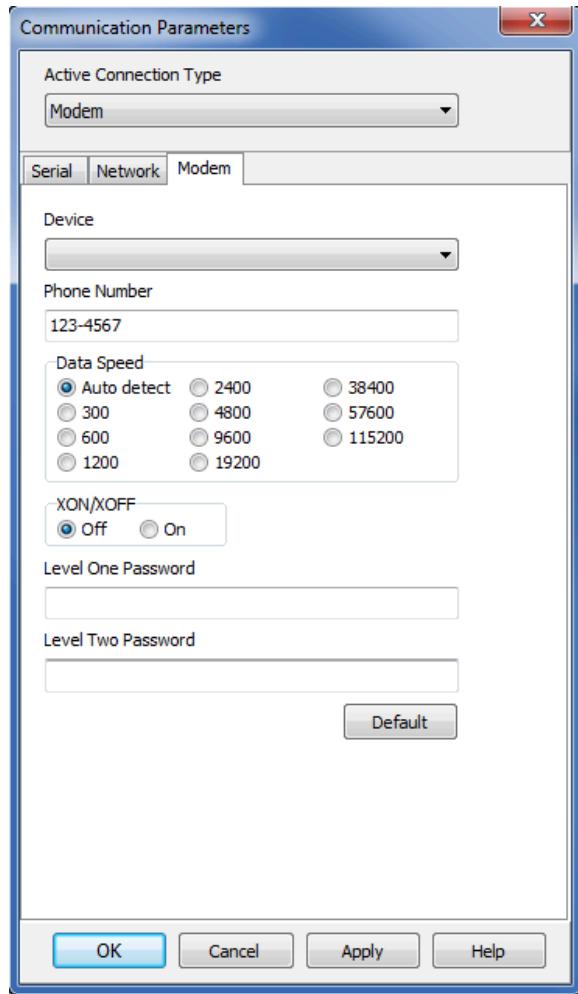


Figure 3.4 QuickSet Modem Communications

Device: The serial COM port used to communicate between QuickSet and the modem.

Phone Number: The phone number the modem needs to dial to access the SEL device.

Data Speed: The rate of data used by the port. The data speed is the number of bits transferred per second.

XON/XOFF: The software flow control options for the port.

Level One Password: The required password for Access Level 1 on the device.

Level Two Password: The required password for Access Level 2 on the device.

Default: Sets all of the previously listed modem communications settings back to their factory defaults.

To achieve the best results for modem communication, disable the Auto-Detect Connection option. To disable this option, click **Tools > Options** from the QuickSet main menu. From the **Communications** tab, select **Enable Advanced Communication Settings** and deselect **Auto-Detect Connection**. *Figure 3.5* shows this process.

NOTE

If you must use a 9 to dial out, then use "9," followed by the connection number. Depending on the modem being used, additional commas may be necessary after the "9."

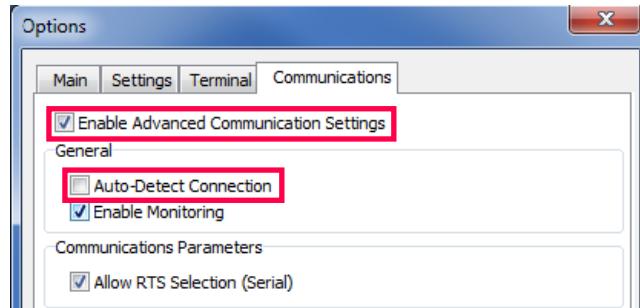


Figure 3.5 Disabling Auto-Detect Connection

Blueframe

QuickSet provides the ability to communicate over an SEL Blueframe® network to any supported SEL device configured through the Blueframe server (for more information, see <https://selinc.com/products/blueframe/>). From the QuickSet main menu, click **Communications > Parameters** and then select **Blueframe**. *Figure 3.6* shows the Blueframe configuration window. Following the figure is a listing of the corresponding Blueframe settings.

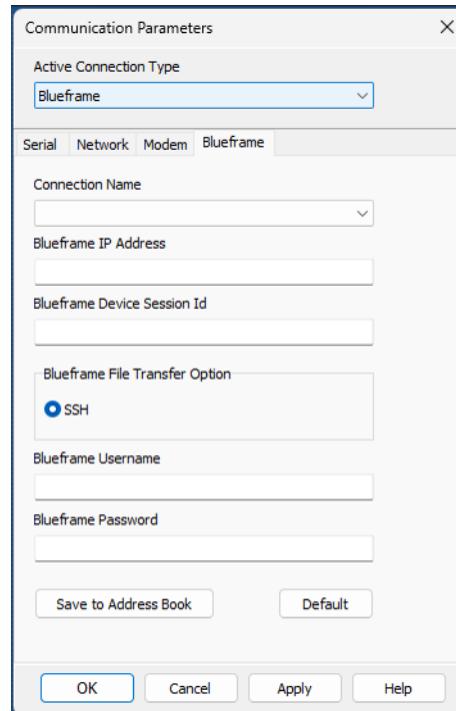


Figure 3.6 QuickSet Blueframe Communications

Connection Name: Enter a new connection name or select a previously saved connection configuration from the dropdown menu.

Completing the Connection

Blueframe IP Address: The IP address of the Blueframe server. An IP address contains a binary number that uniquely identifies devices on a TCP/IP network.

Blueframe Device Session ID: The Session ID of the Blueframe Device. The Blueframe Device ID can be found on the Blueframe server.

Blueframe File Transfer Option: Provides selection of Secure Shell (SSH) for file transfer.

SSH: Specifies Secure Shell protocol as the means for file transfers and Terminal communication.

Blueframe Username: The required username needed to log in to the Blueframe server.

Blueframe Password: The required password needed to log in to the Blueframe server.

Save to Address Book: Saves the Blueframe configuration under a specified name that can be accessed in the future through the Connection Name dropdown menu.

The Windows AddressBook.txt location is as follows:

C:\Users\YOURUSERNAME\AppData\Roaming\SEL\AcSELerator
\QuickSet

Default: Reverts all the previously listed Blueframe communication settings to their factory defaults.

Completing the Connection

After entering all necessary settings, click **OK** in the **Communication Parameters** window. QuickSet will attempt to connect to the supported device. Please keep in mind that QuickSet can only communicate with one connected device at a time. The communications status bar, shown in *Figure 3.7* and located on the bottom of the QuickSet main window, indicates the state of the connection.

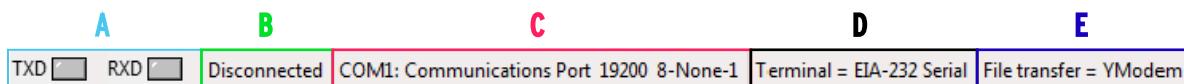


Figure 3.7 Serial Communications Status Bar

The status bar content corresponds to the active connection type.

Refer to *Figure 3.7* for the following:

Section A

- **TXD:** Represents the data to be transferred over the communications link. Blinks when QuickSet transmits data.
- **RXD:** Represents the data that have been received from the communications link. Blinks when QuickSet receives data.

Section B

- **Disconnected:** No connection exists between QuickSet and the supported SEL device.
- **Open: Not Connected:** This lists the connection state in two parts for serial and modem communication. "Open" means that QuickSet has established a connection to the serial port. "Not Connected" indicates that QuickSet did not receive the echo back character "J" from the remote device.
- **Open: Connected:** This is similar to the "Open: Not Connected state." In this case, "Connected" indicates that QuickSet did receive the echo back character "J" from the remote device.
- **Connecting:** QuickSet is attempting to establish communication.

Section C

- When you use serial communications, this section represents the COM port, data speed, data bits, parity, and stop bits in use by the device, respectively.
- When you use network communications, this section represents the IP address and the port number of the end device used for terminal communications, respectively.
- When you use modem communications, this section represents the COM port, the data speed, and the phone number in use by the device, respectively.

Section D

- When you use serial communications, this section represents the serial communication standard in use by the end device.
- When you use network communications, this section represents the terminal communication option in use. Either Telnet, Raw TCP, SSH, or FTP appears here.
- When you use modem communications, this section represents the modem communication standard in use by the device.

Section E

- In all cases, this portion represents the file transfer protocol.

Using ASCII Terminal in QuickSet

QuickSet includes an ASCII terminal with which you can issue commands, such as showing settings, changing settings, viewing device information, etc. to the device. The terminal can run both independently and in conjunction with QuickSet.

Running the ASCII Terminal Inside QuickSet

Once communication exists between QuickSet and the supported device, select **Communications > Terminal** as shown in *Figure 3.8*. Also, while using QuickSet, you can use the keyboard shortcut **<Ctrl+T>** or the shortcut icon included in *Figure 3.8* to open the Terminal window.

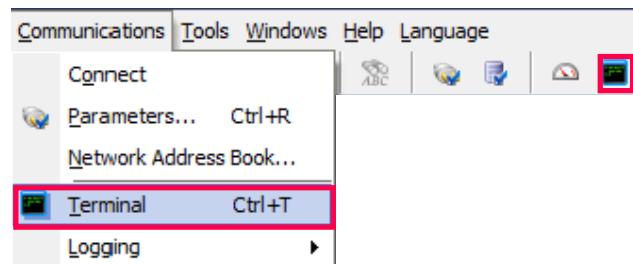


Figure 3.8 Accessing the QuickSet Terminal

Running the ASCII Terminal Independently From QuickSet

To run the terminal outside of QuickSet, go to C:\Program Files\SEL\AcSELERator\QuickSet\bin\Common\Comms and execute it from there. Please note that 64-bit operating systems use the Program Files (x86) location.

A window similar to the one in *Figure 3.9* will display. Under the **Communications** tab, select the communication type and enter the corresponding parameters. Then, check the **Connected** box and click the **Terminal** tab to begin communications with the device.

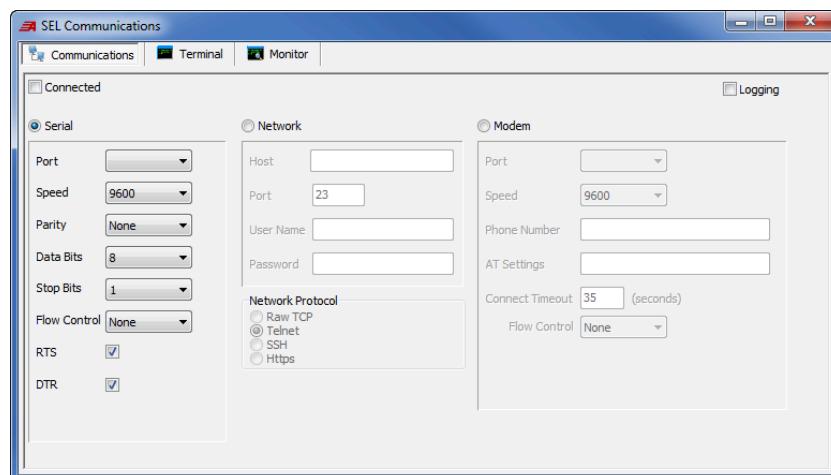


Figure 3.9 Running the Terminal Independently of QuickSet

Using the Logging Features for the QuickSet Terminal

Terminal Logging

QuickSet can log any Terminal session and save it to a text file for future reference. To configure this feature, select **Communications > Logging > Terminal Logging** as shown in *Figure 3.10*. A window will display with a prompt for the text file name and the save location. For this example, the file is **Testing.txt**. This file records all activity in the Terminal window.

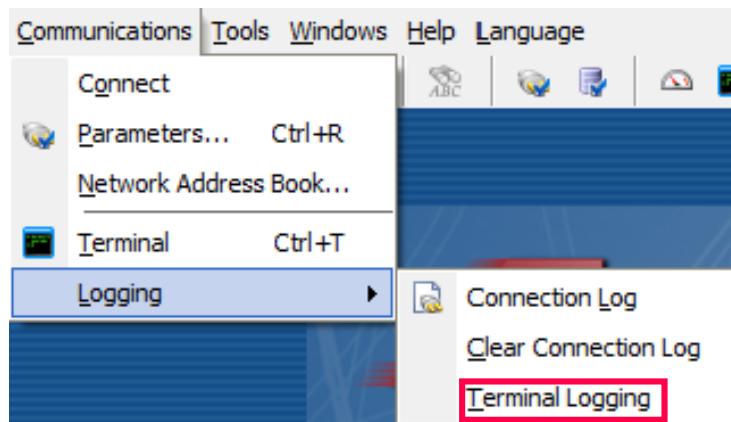


Figure 3.10 Enabling the Terminal Logging

For example, upon issuing the command **SHO P 3**, the Terminal displays all the parameters for Port 3 as shown in *Figure 3.11*. *Figure 3.12* shows the logged text file with the terminal command and output. To stop recording the Terminal, click **Terminal Logging** again, as shown in *Figure 3.10*.

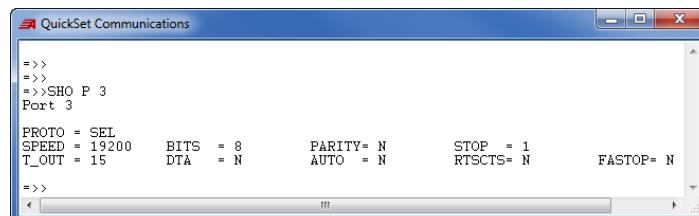


Figure 3.11 Example QuickSet Terminal Window

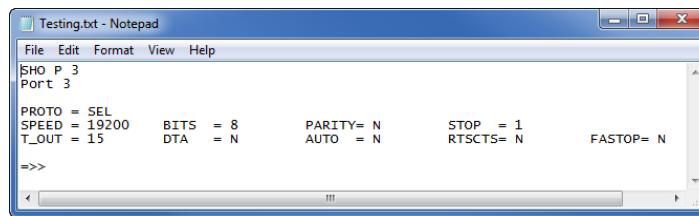


Figure 3.12 Example of the Logged Text File

QuickSet Terminal Logging Example

The Terminal can log any session, so it can sometimes be useful to record event or breaker report data from the Terminal window for later viewing. This can prevent the need for repeated communication to the same relay for the same event or breaker report. This example will therefore consist of issuing

a **BREAKER** command to an SEL-421-4 relay and recording the breaker report data through the use of the QuickSet **Terminal Logging** feature. To apply this example to another SEL relay, please refer to the specific device instruction manual for the correct commands. To begin, start QuickSet and go to **Communications > Parameters**, as shown in *Figure 3.13*.

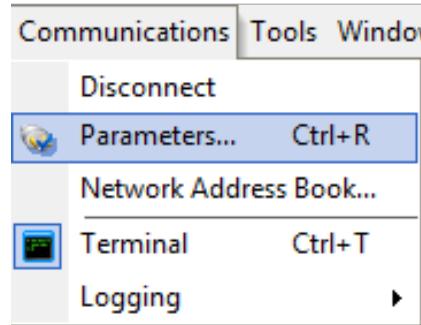


Figure 3.13 Accessing the Communication Parameters

A window will appear similar to *Figure 3.1*. From this window, choose the connection you want, enter the corresponding parameters, and connect to the relay. Then, go to **Communications > Logging > Terminal Logging** as shown in *Figure 3.10*. A window will display with a prompt for the text file name and the save location. Select the save location, enter your preferred file name, and click **Save**.

From the Terminal window, go to Engineering Access Level 1 by typing the command **ACC** and entering the required password. Then issue the command **BRE 1**. This yields a comprehensive circuit breaker report for the most recent Circuit Breaker 1 operation. The data from this report will now be saved to the text file you created.

Terminal Monitoring

The Terminal window can show binary data represented in hexadecimal for all the connections, commands, file transfers, etc. This can be useful when looking at time-stamped data, for example.

Select **Tools > Options** to display a window similar to the one shown in *Figure 3.14*, and then choose the **Communications** tab. Select the **Enable Advanced Communication Settings** check box, choose **OK** in the dialog box that appears, and then select the **Enable Monitoring** check box. Then, click **OK** to save the settings.

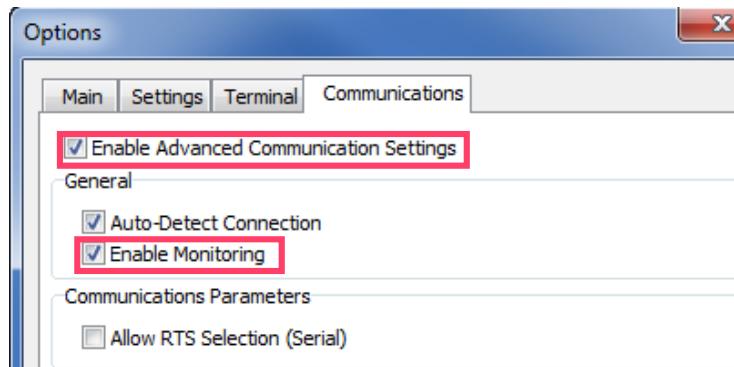


Figure 3.14 Enabling Viewing of Binary Data Transfers

Now, connect to the supported device and open the Terminal. There will be two tabs labeled **Terminal** and **Monitor**. The **Terminal** tab contains the normal view of the Terminal, whereas the **Monitor** tab contains the binary data view, as shown in *Figure 3.15*.

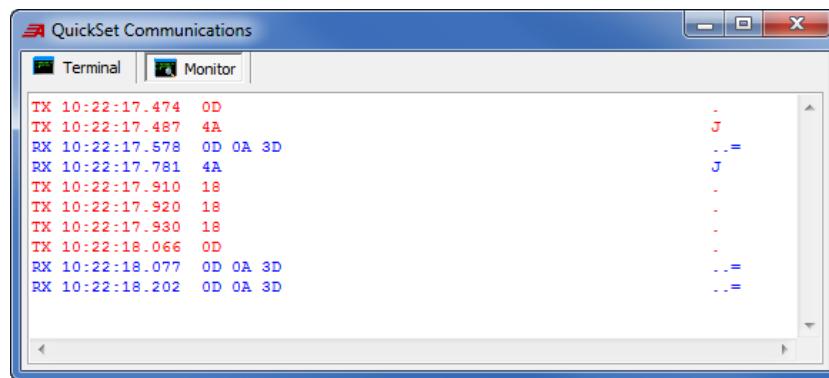


Figure 3.15 Terminal Monitor Tab

To view the Binary Data in a text file, select **Communications > Logging > Connection Log** from the QuickSet main menu, as shown in *Figure 3.16*. To clear the records in the text file, select **Clear Connection Log**, as shown in *Figure 3.16*.

NOTE

The Connection Log maintains a log of the entire QuickSet session until cleared. This can be useful when connecting to multiple devices in one QuickSet session.



Figure 3.16 Viewing the Binary Data in a Text File

Troubleshooting QuickSet Communication

Use this table to identify possible solutions to problems you are having.

Table 3.1 Possible Solutions to QuickSet Communications Problems

Problem	Possible Cause	Solution
Serial communication failed	Incorrect QuickSet parameters	Double check that QuickSet serial parameters match those of the device in use.
	Incorrect choice of extension cable	Verify whether the terminal equipment uses data terminal equipment (DTE) or data communications equipment (DCE), and use a straight-through extension cable for a DTE-to-DCE connection and a null modem cable for a DTE-to-DTE or DCE-to-DCE connection.
	Incorrect DTE/DCE selection on the SEL-C662 cable	Check whether the terminal equipment uses DTE or DCE, and select the correct option on the SEL-C662 cable. When connecting from a PC to a relay, configure the SEL-C662 cable for DCE.
	Two SEL-C234A (null modem) cables are connected together in a DTE-to-DTE or DCE-to-DCE connection	When using two extension cables, make sure they both are not SEL-C234A (null modem) cables. Use one null modem cable and one straight-through cable.
	A USB 3.0 device is in use	Use a USB 2.0 device instead.
QuickSet connected successfully to the device through serial communication, but it is unable to send or receive settings or files	Incorrect use of hardware and software flow control	Click Communications > Parameters to open the Communication Parameters window. Under the Serial tab, change the hardware and software control settings. Use hardware flow control for data speeds above 9600. For data speeds at or below 9600 either software or hardware flow control can be used.
Unable to configure the RTS setting for serial communication	RTS configuration disabled	By default, QuickSet disables editing of the RTS setting. To enable it, click Tools > Options from the QuickSet main menu as shown in <i>Figure 3.2</i> . Check the Enable Advanced Communication Settings and the Allow RTS Selection (Serial) boxes. This enables configuration of the RTS setting.
Unable to perform file transfers through an automation controller, such as the SEL-3530 Real-Time Automation Controller (RTAC)	No implementation of a direct transparent connection	Refer to the instruction manual for your automation controller to employ a direct transparent connection.
Telnet communication failed	Ymodem is the file transfer method used by QuickSet. Some of the Ymodem transfer can be interpreted by the Telnet stack as control characters and cancel out the Ymodem transfer.	Use Raw TCP instead of Telnet. This setting may be adjusted in the window that displays after you click Communications > Parameters .
Network communication over a connection path failed	Not all of the devices in a connection path use matching protocols	Ensure that all devices involved in a connection path contain matching protocol settings.

Problem	Possible Cause	Solution
Very slow opening of relay settings	Running QuickSet in compatibility mode	Do not run QuickSet in compatibility mode. To stop running compatibility mode, right-click the QuickSet shortcut, select Properties and deselect the Run this program in compatibility mode for check box.
Bluetooth communication fails	Third-party Bluetooth adapter does not support hardware flow control	Advanced communications options in QuickSet can be set to increase the delay between characters. Increasing the delay between characters helps with sending or reading data from SEL devices. To increase the delay between characters, go to Tools > Options and then select the Communications tab. On the Communications tab, check the Enable Advanced Communication Settings check box. Find the Delay Between Chars (ms) setting, change this from the default setting of 10 to 100, and then click OK in the Options window.
Jumbled characters being displayed in the QuickSet Terminal during use of an SEL-2810 Fiber-Optic Transceiver/Modem with IRIG-B	SEL-2810 devices do not support the RTS/CTS setting	Slow the communications data speed setting to 2400 on the device if an SEL-2810 is being used. Another option could be to substitute SEL-2814 Fiber-Optic Transceivers with hardware flow control devices for the SEL-2810 devices. A third option is to use an SEL-C273A cable when IRIG-B is not necessary.

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S E C T I O N 4

Asset Management Using Device Manager

Overview

Device Manager is an easy-to-use asset management tool that integrates with ACCELERATOR QuickSet® SEL-5030 Software. The graphical user interface allows you to easily configure and store communications architectures along with settings and documentation related to devices. An essential component of Device Manager is the ACCELERATOR Database, a Structured Query Language (SQL) database that stores information in a centralized location. Storing device information in a centralized location allows authorized users easy access to critical information. The following applications are examples of how to use Device Manager to simplify workflow and reduce system management.

- ▶ Manage device descriptive information for operational and planning purposes.
- ▶ Store, generate, and update passwords to increase security and ensure that access is granted to only authorized personnel.
- ▶ Use in conjunction with SEL security products to manage user permissions for the purpose of limiting access to only needed assets.
- ▶ Store related documentation, such as maintenance history, testing information, and/or instruction manuals.
- ▶ Configure and store communications settings so that data speeds, Internet Protocol (IP) addresses, and phone numbers are available when needed.
- ▶ Collect, save, and associate relay settings with devices to ensure that the correct settings are associated with the correct relay.

NOTE

Windows does not immediately write changes to disk by default. Data may be lost or corrupted if the computer has a power outage or equipment failure before the write occurs. To avoid loss of data, you can disable Write-Caching on the hard drive where the ACCELERATOR Database is installed. Disabling Write-Caching after installing the ACCELERATOR Database and during use of Device Manager ensures data integrity of the database.

Getting Started

After you launch Device Manager from the QuickSet Welcome Screen, QuickSet prompts you to enter a username and password (see *Figure 4.1*). Provide the necessary information to log in to the ACCELERATOR Database to access device configurations. The server field identifies the ACCELERATOR Database to which you are connecting. The software saves this set of information as a connection name. If you connect to a local database (i.e., the ACCELERATOR Database on your PC), use the default settings the logon screen provides. Initially, leave the username as **admin** and the password blank to

connect to the database. This is the default logon password. QuickSet displays a warning recommending that you change the default password to increase security. Until you supply a new password as recommended, the software will continue to display this warning shown in *Figure 4.2*.

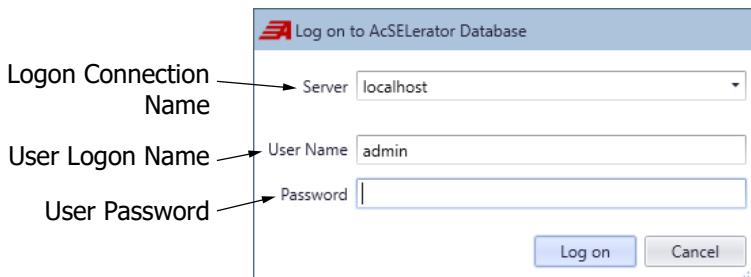


Figure 4.1 Default Settings in the AcSELerator Database Logon

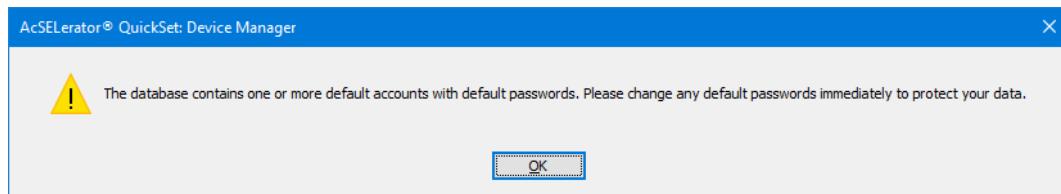


Figure 4.2 Default Password Warning Dialog Window

To change the default password, first log in to the database. Once you are logged in, select **Tools** and then **Change User Password** from the QuickSet toolbar. The software prompts you for the current password (by default, this field is left blank unless it was previously changed) and a new password. You must type the new password twice to ensure that the correct password is saved.

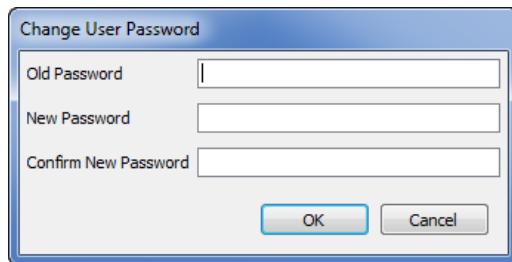


Figure 4.3 Change User Password

Device Manager can use alternative connection records to access different ACSELATOR databases. To access another database, click the **Server** dropdown menu, select the correct server name, enter the **User Name** and **Password**, and click **Log on**. If the software finds the database, and if the username and password are correct for that database connection, it creates a new connection record automatically. This logon connection name will then be the default connection the next time you start Device Manager. Use any previously saved connection name to save time when you next start Device Manager and log in to the ACSELATOR Database. Once you have chosen a server name, the software populates all the other fields (except password) automatically in the logon screen. Enter the password necessary to log in to the connection you have selected.

NOTE

The recommended maximum allowed database connection to the Device Manager database is 100 simultaneous connections at a time.

QuickSet displays the Device Manager screen after you successfully log in to the ACCELERATOR Database. There are four panes associated with Device Manager:

- Connection Explorer
- Template Palette
- Workspace
- Diagnostic Window

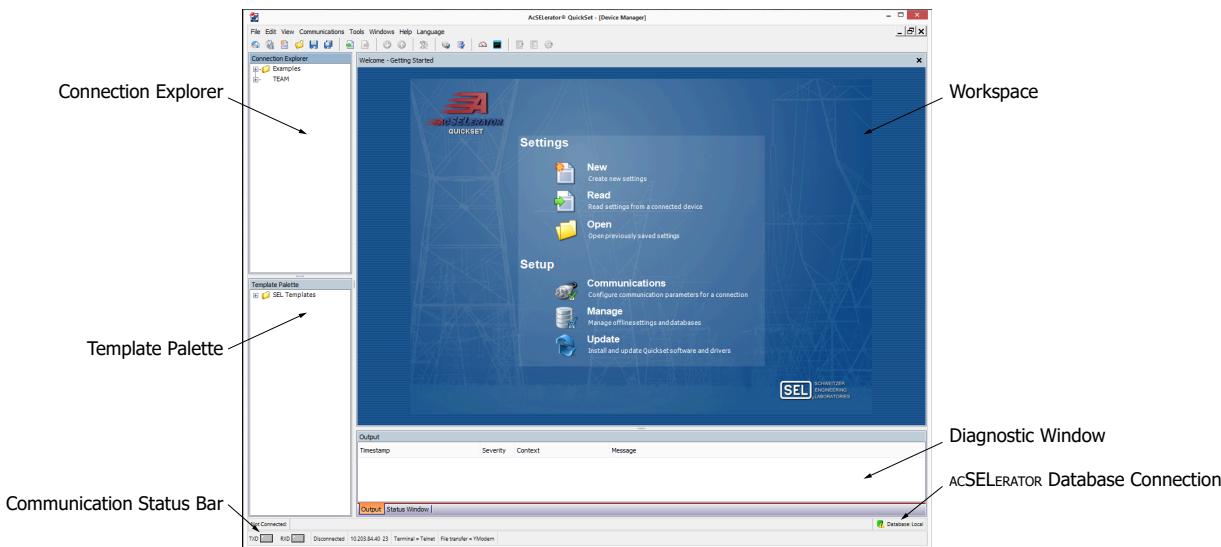


Figure 4.4 Initial Device Manager After Successfully Connecting to the ACCELERATOR Database

Connection Explorer

The **Connection Explorer** is a graphical file tree interface that organizes communications architectures into nodes. There are two types of nodes: device nodes and folder nodes. Device nodes are link-to-device configurations within Device Manager. In this type of node, passwords, communication parameters, documentation, and settings are configured. Folder nodes provide a logical way to organize devices by location (such as a substation) or by purpose (event collection, for example). Use the **Connection Explorer** to create device connections and group devices by physical location or an alternative logical designation.

Managing Nodes

This section covers the following node operations: creation, deletion, finding, moving, editing, and closing opened nodes. To access options for managing nodes, right-click within the **Connection Explorer**. Available options vary, depending upon which item or items are selected. The following is a list of available options:

- **Add:** A submenu allows the selection of device or folder node.
- **Import:** Import a compatible file type.
 - **Import from DMX:** Import a previously exported Device Manager Export (DMX).
 - **Import from Settings Database:** Import settings files from a Settings Database.
- **Expand All/Collapse All:** Expand or collapse any tree structures.
- **Find <Ctrl+F>:** Find any node in the **Connection Explorer**.
- **View Device Report:** Open a device report for all devices in the selected node.

The following options are available when a device node or folder is selected:

- **Connect:** Connect to a device by using the configured communication parameters via the ASCII terminal (only available when a device node is selected).
- **Connect with QuickSet Parameters:** Connect directly to a device node by using the QuickSet Parameters (see *Connect With QuickSet Parameters* on page 47).
- **Cut/Copy/Paste:** Cut, copy, or paste a selected node.
- **Cancel Cut:** Undo the selection for the nodes to be cut.
- **Export:** Export a node and any of its child nodes to a .dmx or .rdb file.
 - **Export to DMX:** Export a connection directory.
 - **Export to Settings Database:** Export a settings file to a Settings Database.
- **Delete:** Delete a selected node and any of its child nodes.
- **Rename <F2>:** Rename the selected node.
- **View Device Report:** Open a device report for all devices in the selected node.

The following multi-select options are available for device and folder nodes:

- **Cut/Copy/Paste:** Cut, copy, or paste multiple device and folder nodes.
- **Delete:** Delete multiple device and folder nodes.
- **Cancel Cut:** Undo the selection for the nodes to be cut.

The following options are available only when a connection is established with a device:

- **Disconnect:** Disconnect from a device.
- **Device Tasks:** Initiate preconfigured tasks for the connected device.
 - **Read:** Read settings.
 - **Send:** Send settings.

- **HMI:** Start the QuickSet HMI (only available for devices that support the HMI).
- **Events:** Collect event files.
- **Change Password:** Change the specified access level password.

Connect With QuickSet Parameters

The **Connect with QuickSet Parameters** option allows you to connect to a device without modifying the connection parameters in the **Connection** tab of the device node. When using Connect with QuickSet Parameters, you can directly connect to a device via the Communication Parameters dialog box by clicking either **Communications > Parameters** or the **Communications Port Parameters** icon on the QuickSet toolbar. The Level One and Level Two Passwords attached to the Device Manager device node are copied to the **Connect with QuickSet Parameters** settings (as shown in *Figure 4.5*), and the other settings configured in the **Communication Parameters** dialog box will not change.

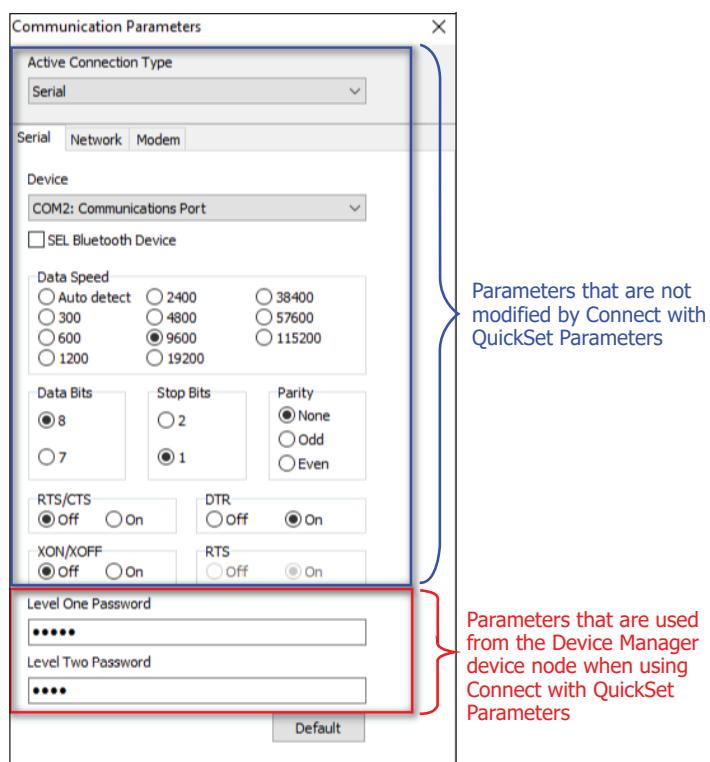


Figure 4.5 Connect With QuickSet Parameters Settings

To use **Connect with QuickSet Parameters**, physically connect the PC to the device through use of one of the supported device ports (i.e., serial or network). Then go to **Communications > Parameters** in the QuickSet menu or click the **Communications Port Parameters** icon on the QuickSet toolbar and select a connection method. Next, close the **Communication Parameters** dialog box and in the Connection Explorer pane, right-click the device node in Device Manager and select **Connect with QuickSet Parameters** (as shown in *Figure 4.6*). Once connected, you can **Read** or **Send** settings that are attached to the device node in Device Manager.

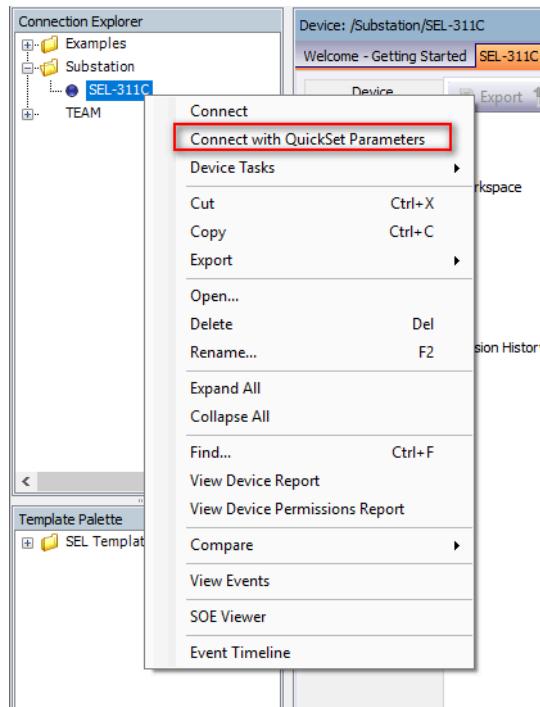


Figure 4.6 Connect With QuickSet Parameters

Moving Nodes

Drag and drop to move nodes throughout the **Connection Explorer**. Select a node, hold down the left mouse button, and drag the node to the necessary location. Similarly, to move multiple nodes at once, select multiple nodes to move by holding down **<Shift>** or **<Ctrl>** while clicking on the nodes and drag the nodes to the necessary location. Using **<Shift>** will select all consecutive nodes between the first and the last selected node, while using **<Ctrl>** will allow you to select non-consecutive nodes. The application indicates whether a move is possible for a particular node type. To place a node or nodes at a level equivalent to another node, hold down **<Shift>** while dragging and dropping the node(s) to the destination node. If you want to place the node or group of nodes as children devices of a parent, do not press **<Shift>** while dragging and dropping.

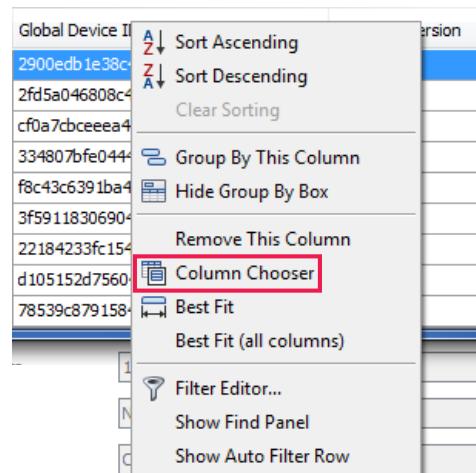
Creating a Device Report

View device information in a customizable report about the devices configured in the **Connection Explorer**. Access the **Device Report** by right-clicking in the white space of the **Connection Explorer** and selecting **View Device Report** to view all devices from the **Connection Explorer** in the report. Alternatively, right-click on a specific folder or device, or multiple devices and folders, and select **View Device Report** for a customized device report based on your selected device(s) or folder(s). This report by default contains the path to the device, Device Type, Device Name, Part Number, indication of whether the device is in service, Firmware Version, Serial Number, FID String, and the Global Device ID, as shown in *Figure 4.7*.

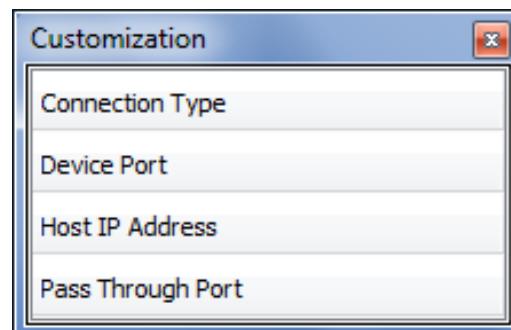
Path	Device Type	Device Name	Part Number	In Service	Firmware Version	Serial Number	FID String	Global Device ID
Engineering Access/Moscow	SEL-351R-2	SEL-351R-2	0351R21284X1XX	<input type="checkbox"/>	R305		SEL-351R-2-R305-V0-Z005005-D20070802	2900edb1e38c4c01848084def1d35fd6
Engineering Access/Moscow	SEL-2020	SEL-2020	202003X20KGOGO	<input type="checkbox"/>	R126		SEL-2020-R126-V0-0980723	2fd5a046808c45548948559cf1d20bf8
Engineering Access/Moscow/SEL-2020	SEL-351-4	SEL-351-4	03514T42533141	<input type="checkbox"/>	R212		SEL-351-4-R212-V0-Z003003-D20060829	f8c43c6391ba40069951a0423108f4b5
Engineering Access/Moscow/SEL-2020	SEL-321-1	SEL-321-1	3211142559HG1X4	<input type="checkbox"/>	R601		SEL-321-1-R601-V65611nb-D941003	cf0a7cbceeeaa4c3f81c6a700b3de538
Engineering Access/Moscow/SEL-2020	SEL-351-3	SEL-351-3	035131H45546X1	<input type="checkbox"/>	R211		SEL-351-3-R211-VM-Z003003-D20030908	334807bfe0444ea794df1e256ead44
Engineering Access/Moscow/SEL-2020	SEL-387-0	SEL-387	03870041H0X4XX	<input type="checkbox"/>	R609		SEL-387-0-R609-V0-Z004004-D20071025	3f59118306904c5b88d4677697974ca0
Engineering Access/Pullman	SEL-311C	SEL-311C	0311C10HA2A1X1	<input type="checkbox"/>	R113		SEL-311C-R113-V0-Z006004-D20110829	22184233fc154469ace9bf287d3ae57
Engineering Access/Pullman	SEL-311L	SEL-311L	0311L1HDD4254K4XX	<input type="checkbox"/>	R414		SEL-311L-1-R414-V0-2105006-D20130307	d105152d756041938c32ff4f5d1590c6a
Engineering Access/Pullman	SEL-421-3	SEL-421-3	042134152COAXH3A40XX1	<input type="checkbox"/>	R130		SEL-421-3-R130-V0-Z015011-D20111004	78539c8791584480a8ed21ef0709fec

Figure 4.7 Device Manager Device Report

You can also add additional information to the report such as connection type, device port, host IP address, and the pass-through port. To add such customizable columns in the **Device Report**, right-click any header and select **Column Chooser**, shown in *Figure 4.8*.

**Figure 4.8 Customize the Available Columns**

This will cause the software to display the **Customization** window, shown in *Figure 4.9*, from where you can click and drag the additional header (**Connection Type**, for example) into the **Device Report** header row.

**Figure 4.9 Device Report Customization Window**

Use the save (💾) and print (🖨️) features to store the report, as necessary. The report can be saved as a .pdf, .xls, .csv, or .txt file.

Template Palette

The **Template Palette** is a convenient repository for node templates. The **SEL Templates** folder contains preconfigured templates for SEL devices. To configure a new template, first add a new category in the **Template Palette** by right-clicking within the **Template Palette** and selecting **Add Category**. Then add to the **Connection Explorer** a node upon which the template is based. After you have configured the device or folder node, drag and drop the node into the **New Category** that you created within the **Template Palette**. All the associated communication parameters, documents, and settings associated with the original node transfer to the template.

To add a template to the **Connection Explorer**, simply drag and drop the template from the **Template Palette** into the **Connection Explorer**. Using templates is a fast and convenient method for configuring communications architectures. When you add templates to the **Template Palette** window, the associated passwords will not be copied into the **Template Palette**.

Workspace

The **Workspace** displays the configuration tabs for the selected (active) node. QuickSet displays the Welcome Screen upon your logging in to the ACCELERATOR Database. To display the configuration tabs for a node, double-click the node in the **Connection Explorer**. To edit node information, click **Edit** at the bottom right corner of the node configuration window. To save changes, click **Apply**, **Save** or <Ctrl+S>. To discard changes, click **Cancel**. The type of node you select determines which tabs are visible and available for configuration. The tab descriptions are as follows:

Folder Tab: Contains options allowing you to provide naming, type, and other identifying attributes for a particular folder node.

- ▶ **Folder Type:** Select any predefined folder types available in the application. To create new folder types, click **Tools** in the menu bar and then click **Configure Types > Folder Types**.
- ▶ **Folder Name:** Change the user-defined folder name.
- ▶ **Description:** Provide descriptive information for the folder node.

Custom Attributes Tab: Contains custom attributes assigned to a node. To add a custom attribute, click the dropdown arrow in the **Name** field, choose the attribute name, and then populate the **Value** field with the appropriate information. When you assign an attribute in the **Name** field, the software adds a line below the previous assigned attribute. To create a new custom attribute name or edit an existing one, click **Tools** in the QuickSet menu and then **Configure Types > Device Custom Attribute Names**.

Documents Tab: Contains files attached to a selected node. Click **Attach** to locate a document, and check the **Import** box (default) if you want to import the document into the database. If the **Import** box is not checked, QuickSet stores a reference to the document location. You can open a document by clicking **Open** or by double-clicking the file name.

Device Tab: Contains descriptive information about a device and options for password generation and password storage. The device node type determines the fields available. The following list describes the fields available in the Device Tab. The first six fields, which store descriptive information about the device, are for information purposes only and have no effect on node functionality.

- **Device Name** (User-defined): Maximum length of 128 characters; can start with either an alpha or numeric character. The Device Name cannot contain any of the following characters: \, ;, *, /, ?, ", |, <, or >.
- **Serial Number** (User-defined)
- **Global Device ID**: Used by Security Gateway and ACCELERATOR Team® SEL-5045 Software. Modification may cause issues with these products. Maximum length of 64 characters; can start with either an alpha or numeric character. (If you are using QuickSet in conjunction with an SEL-3620 Security Gateway, be aware that the gateway has different naming rules for its managed devices. See the *SEL-3620 Instruction Manual* for details.)
- **Firmware Version** (User-defined)
- **Part Number** (User-defined)
- **FID String** (User-defined)
- **Setting Version Number** (User-defined)
- **Device Type**: Specifies the device template. This is a noneditable field.
- **In Service**: Use in conjunction with TEAM to determine if polling jobs are active.
- **Is Managed**: Enable the password management feature for all devices under an applicable SEL security product.
- **WhoAreYou Response**: Fill in the response you expect to receive from a communications processor to the **WhoAreYou** command. You only need this field when you are using QuickSet in conjunction with the TEAM software.
- **Device Passwords**: Contains the presently configured passwords for each access level in a device. The device passwords will need to match the passwords set up on the physical device.
- **Generate Password Script**: Select the script to generate new passwords for a device.
- **Update Child Password Script**: Select the script used to update a child device password. This is only used in conjunction with applicable SEL security products. The password set in the **Update Child Password Script** will need to adhere to the same password restrictions as the product that is being set up.
- **Set Password Script**: Select the script to change passwords for a device. The password set in the **Set Password Script** will need to adhere to the same password restrictions as the product that is being set up.

Connection Tab: Contains device connection information. The options and fields available are dependent on the device node type.

- **Connection Type:** Enter the connection parameters for the device. For more information regarding connection parameters, see *Section 3: Deploy, Monitor, and Log Settings Through QuickSet Communication*.
- **Access Script:** Select the script that is used to access a port on a pass-through server.
- **Terminate Script:** Select the script that is used to terminate a connection on a pass-through server.

The following settings are applicable when you use a port server, RTAC, or communications processor:

- **First Delay:** Specify the idle time required before accepting a termination string on a pass-through server.
- **Second Delay:** Specify the idle time required after receiving a termination string before the connection is terminated on a pass-through server.
- **Termination String:** Specify the string used to terminate a connection on a pass-through server.
- **Pass Through Port:** Specify the port that the **Access Script** uses to establish a connection.
- **Legacy Mode Enabled:** Check this box when you use an Automation Controller product in legacy mode. For more information about **RTAC Legacy Mode**, refer to the SEL-3505 Real-Time Automation Controller Instruction Manual.

The following settings are visible when you use a secured connection such as **FTP**, **SSH**, or **HTTPS**:

The following settings are visible when you use a secured connection such as **FTP**, **SSH**, or **HTTPS**:

- **Credential Source:** Select the source of the username and password.
- **Prompt:** Prompt the user to enter the username and password.
- **Active User:** Apply the credentials used to log in to the ACCELERATOR Database.
- **Titled Password:** Use the preconfigured credentials stored in the Password Manager.
- **Access Level:** Use the access level as the username and the corresponding password.
- **Access Level and User Name:** Use a configured username associated with an access level and corresponding password.
- **Credentials:** Select from the list of preconfigured credentials stored in the Password Manager.

Permission Tab: Contains information related to access permissions for devices connected to an SEL security product capable of user access management.

Applications Tab: Contains user-defined applications and is available on device nodes. Applications are specific to the device upon which they were defined. After configuring this tab, right-click the device in the **Connection Explorer** tree and select **Application > Name** to execute the associated program executable, batch file, or URL. The application options are as follows:

- **Application File Path:** Enter the file directory path to the executable, a UNC path, a URL, or the application name when the application is found in the system path.
- **Name:** Enter the name you would like to appear for this application in the **Connection Explorer** context menu.
- **Description:** Provide a description related to the application.
- **Run from Connection Explorer context menu:** Select this option, right-click the device in **Connection Explorer** and then select **Application > Your Application** to enable a context-sensitive quick-select option. If you leave this option unchecked, you can initiate the application by right-clicking the application row in the **Applications Tab** and selecting **Run**.
- **Arguments:** Supply the application with arguments. Examples include Titled Passwords, connection parameters, and Active User.

Refer to Job Done example *Add ACSELERATOR RTAC as an Application on page 68*.

Settings Tab: Contains device settings options and information.

- **New:** Open a new Settings Editor in QuickSet.
- **Open:** Open settings saved in the ACSELERATOR Database for editing within QuickSet.
- **Import:** Import settings into the ACSELERATOR Database from a Settings Database.
- **Export:** Export settings from the ACSELERATOR Database to a Settings Database.
- **Remove:** Remove settings from the ACSELERATOR Database.

Diagnostic Window

The **Diagnostic Window** has two views, the Output and Status windows. Both views display information designed to inform you about the communication connection state and node configurations. Use the Output window to determine the state of the present communication connection. Use the Status window to view system and configuration events. An event is something noteworthy, such as an invalid configuration. Double-clicking the event in the Status window causes QuickSet to navigate to the proximate cause of the event.

Collect and Analyze Events With the TEAM Plugin

ACSELERATOR TEAM SEL-5045 Software integrates with Device Manager in QuickSet to provide the infrastructure necessary for custom data and report collection. With powerful automation tools available from TEAM, you can spend less time gathering and more time analyzing the information your devices

Manage Passwords

generate. When something happens, whether it is a relay trip, system fault, or security notification, TEAM is ready to help with continuous background monitoring and reporting. This ensures that you have the data necessary to help determine root cause, maintain records for regulatory compliance, and keep your system running at peak efficiency. The **Connection Explorer** only presents the TEAM node when the TEAM plugin is installed. An extra tab, titled **TEAM**, is also added to a device node that enables configuration for specific data collections jobs. TEAM can use the device connection information you define in Device Manager to automatically collect and store the specific types of reports and events you require. The TEAM software is a licensed plugin. To purchase TEAM, please contact your local sales representative (see *Appendix D: Licensing Your Software*). For more information about TEAM software, please consult the ACSELERATOR TEAM flyer and instruction manual.

Manage Passwords

The Password Manager manages global passwords that you create. To access the Password Manager, select **Tools > Device Manager > Passwords** from the QuickSet toolbar. To add a new global password, right-click within the Explorer window and then click **Add > Passwords**. Double-click **New Password** and then click **Edit** to modify the **Password Title**, **Username**, and **Password**.

Use these passwords in the connection parameters of a device node when you have selected **Titled Password** from the **Credential Source** field. You can also use global passwords with scripts that you create for connections (see Create and Manage Custom Scripts for more details on this feature).

Create and Manage Custom Scripts

The Script Manager provides a means by which you can manage both your customized scripts and those that come preloaded with the software. The ability of Script Manager to associate scripts with a device configured in the software provides you a great deal of flexibility when you are working with SEL devices. Example scripts can vary from simple connections to complex breaker commands. You can build scripts to not only collect information, but also to parse and execute an action.

To access the Script Manager, select **Tools > Device Manager > Scripts** from the QuickSet toolbar. In the Explorer window, devices are grouped into product families. To view the scripts associated with a device, expand the node by clicking the plus sign. The following is a list of the categories with which scripts are associated; the category determines how the script is used:

- **Access:** Executed when a connection is initiated in the **Connection Explorer**.
- **Child Password Update:** Executed by selecting **Device Tasks > Change Password > Generate** for a child device when the parent device is a communications processor. Also used in conjunction with an SEL security product that supports password management.
- **Password Generate:** Executed when connected to a device by selecting **Device Tasks > Change Password > Generate**. Also, used in conjunction with an SEL security product that supports password management.

- ▶ **Password Set:** Executed when connected to a device by selecting **Device Tasks > Change Password > OK**. Also, used in conjunction with an SEL security product that supports password management.
- ▶ **Terminate:** Executed when a connection is disconnected in the **Connection Explorer**.

To add a script, right-click the appropriate category and then select **Add > Script**. If you want to add a script that is available globally, add the script in the appropriate category under the **General** node in the **Uncategorized** folder. To construct a new script or edit an existing one, select the **Edit** button. The following lists are the commands and variables available for use in scripts. As you are typing the available commands in the Script Editor, a helper window will appear that is similar to the helper window displayed in *Figure 4.10*.

NOTE

All available SEL commands used in the Script Manager must be preceded by '**SEL**' (for example, SEL.WriteLine(SEL._GetUserName ('Default_ACC'), ['Password'],10)). SEL commands populate in a dropdown menu after '**SEL**' has been typed.



Figure 4.10 Script Editor Helper Window

Available Commands

Write(string, [string, string, string], integer): Use this command to write text to the connected device. Descriptions of command arguments are as follows:

- ▶ Argument 1 is a string containing the text that you want to write to the connected device.
Applications interpreting this command and such additions as a carriage return/line feed (CR/LF) will not alter the argument in any way. Use **Writeln** if you want to add a CR/LF to the argument.
- ▶ Argument 2 is an array of one or more strings that determines when execution can continue to the next line. If any string in this array appears in the read buffer, execution continues to the next statement.
- ▶ Argument 3 is an integer timeout expressed in seconds. Execution moves to the next statement when this timeout expires, regardless of the contents of the read buffer.

Writeln(string, [string, string, string], integer): This command differs from **Write** in that it appends a CR/LF automatically to the text to be written. Otherwise, it behaves identically to the **Write** command.

If(string): Use this command for decision making. It takes a single string argument. If that argument (a substring) exists in the read buffer, then execution of the next script line or group of statements occurs. If the argument does not appear in the read buffer, execution continues with the first statement that appears after the next statement or group of statements.

IfNot(string): If the string text argument is not in the read buffer, then Device Manager executes the next script line or group of statements. This is the inverse of the If statement execution.

Save(): This command takes no arguments, but it causes Device Manager to save read buffer contents to file.

CaptureOn(String): This command causes Device Manager to capture all data written to or read from the connected device. The string argument for this command is the full name of the file to which you will be writing or appending (if the file already exists) the capture. Writing the capture immediately reduces the possibility that helpful troubleshooting information will be lost.

CaptureOff(): This command takes no arguments, but it turns capturing off.

Sleep(integer): Causes the interpreting application to stop processing script commands until expiration of a time interval. This interval, the only argument for the command, is an integer expressing a number of seconds.

ExecuteScript(string): Use this command to trigger the execution of an external application, such as a Python script. The argument for this command provides the name of the program or Python script to be executed.

ExecuteScript(string, string): This command triggers the execution of an external application such as a Python script. Its first argument provides the name of the program or Python script to be executed. The second argument will be the name of the file containing the data upon which you want the external application or script to operate. Normally, the file you saved previously through use of the **Save** command contains this information.

GotoLevel(string): This command takes one argument and navigates a device automatically to the specified access level. Its argument will be a string literal that specifies the destination access level. Strings can include the following (refer to each individual device instruction manual for specific access levels and their functions):

- ▶ ACC: Navigates the device to Access Level 1
- ▶ BAC: Navigates the device to Breaker Access Level
- ▶ 2AC: Navigates the device to Access Level 2

GotoPort(): This command takes no arguments, but it issues an ASCII command automatically with the intent of establishing a transparent connection to the device to which the connection script is assigned. The application that interprets the script will be responsible for determining the command (e.g., POR), the port number from which the connection will be made, and any optional parameters (e.g., D for a communications processor direct connection). For instance, if the application using this script must establish a direct connection via Port 2 to make a connection to the scripted device, the ASCII resulting from this command would be POR 2 D.

Terminate(): This command takes no arguments, but it automatically issues the control codes used to terminate a transparent connection. The application that interprets the script will be responsible for using the First Delay Time and Second Delay Time fields within the Connection tab of the device node during termination of the transparent connection. For instance, if the application using this script needs to terminate a transparent connection via <Ctrl+D> (code \004), the application must at least wait until expiration of the second delay before checking to see if the transparent communication has been terminated.

LogMessage(message): Use this command to log a message to file. Each existence of this command in a script logs to the same file. For instance, if the application using this script comes across the first instance of this command, the application creates the log file and logs the message. Each subsequent instance of this command will use the same file-to-log messages. The next execution of this script will produce another log file.

Save(string): Use this command to save everything found in the read buffer.

FatalTimeout(integer): By default, if no data are read from a device for 60 seconds, the interpreting application will consider the connection lost and terminate execution of the script. This command can be used to change the default value.

GotoDevice(): This command takes no arguments, but it automatically issues an ASCII command to an SEL security gateway with the intent of establishing a transparent connection to a child device.

GeneratePassword(int, [string, string, string]): This command is used to generate passwords. The first argument determines the length of the password to be generated. The second parameter is a list of strings containing valid password characters. At least one character in each string in the list will be used in the generated password. The number of strings in the list must not exceed the specified length for the password.

GeneratePassword(int): This serves the same function as the previous **GeneratePassword** command except that the list of strings parameter is defaulted to the list of lowercase letters, uppercase letters, numbers, and punctuation characters.

GeneratePassword(): This command takes no arguments, but it serves the same function as the previous **GeneratePassword** command except that the generated password defaults to a length of eight characters.

SetGeEnhancedPassword(string account): Updates the enhanced password for the specified account of a GE device. This is for GE devices with firmware version 7.00 and greater.

SetPassword(string, string): Use this to update a device password for the specified access level. The first argument is a string literal that specifies the access level whose password will be updated. The second argument is the proposed new password.

SetPassword(string, string, string): This serves the same function as the previous **SetPassword** command, but it includes an optional parameter for specifying the command necessary for changing the password.

SetPassword(string, string, string, [string, string, string]): This serves the same function as the previous **SetPassword** command, but it includes an optional parameter for specifying a list of possible success messages. This parameter list will include possible responses from the device that would indicate a successful change of the password for the specified access level.

SetPassword(string, string, string, [string, string, string], [string, string, string]): This serves the same function as the previous **SetPassword** command, but it takes an optional parameter for specifying a list of possible failure messages. The parameter list will include possible responses from the device that would indicate a failure to change the password for the specified access level.

UpdateChildPassword(): This command, which takes no arguments, causes an SEL security gateway or Device Manager to exit the child device, navigate to child port settings on the parent device, and attempt to reconfigure that port. The application that interprets the script will be responsible for terminating the connection to the child device, if connected, and for issuing the appropriate commands to force a reconfiguration of the parent device to obtain the updated child passwords.

GenerateNumericPassword(): This command takes no arguments but generates a password consisting of numeric characters.

Halt(): This command takes no arguments but terminates execution of the script.

SetGePassword(): This command takes no arguments but updates a GE device password for the specified account.

Available Variables

_DestinationGlobalDeviceId: The script interpreter replaces this variable with the Global Device ID string of the destination device.

_GetPortNumber(): This command takes no arguments, but the script interpreter replaces this variable with the actual communications port number (**Pass Through Port in the Connection Tab**) that the script will use.

For instance, if a connection uses Port Number 2, then

```
SEL.WriteLine('POR ' + SEL._GetPortNumber() + ' D','[',10')
```

results in the script interpreter sending the following command to the device:
POR 2 D.

_GetPassword('Title'): The script interpreter replaces this variable with the decrypted password from the Password Manager. For instance, assume that the following line appears in the script:

```
SEL.WriteLine(SEL._GetPassword('Default_ACC'), ['Password'],10)
```

Assume also that the Password Manager contains a Titled Password named *Default ACC* with a Password of *Password*. The script interpreter would then send the word *Password*, followed by a CR/LF, to the device.

_GetUserName('Title'): The script interpreter replaces this variable with the username in the device_password database table for which device_password.title equals argument Title. For instance, if the following line appears in the script:

```
SEL.WriteLine(SEL._GetUserName('Default_ACC'), ['Password'],10)
```

the device_password table contains a record where the title is Default_ACC, and a username is ACC. The script interpreter would then send the word ACC, followed by CR/LF, to the device.

_TerminateString(): The script interpreter replaces this variable with the control codes necessary to terminate a transparent connection.

_ProposedPassword: The script interpreter replaces this with the proposed new password necessary for changing the device password.

_DeviceCustomAttribute: The script interpreter replaces this variable with the value of the given device custom attribute.

_Protocol: The script interpreter replaces this variable with the protocol the Security Gateway will use when communicating with the device.

_UnitId: The script interpreter replaces this variable with the device Unit ID necessary to address the device during use of MODBUS protocol.

Centralize User Accounts With LDAP

Many information technology (IT) departments use Lightweight Directory Access Protocol (LDAP) in conjunction with a directory service, such as Active Directory, to manage the users and devices on their corporate networks. LDAP is a powerful and flexible protocol that allows for fast information lookups from servers that are optimized for read access. The information stored on LDAP servers can be any type of record-based information that is stored in a directory structure.

QuickSet includes integration with LDAP as a mechanism for centralized user management. With LDAP, you can manage users at a central server. When a user without a local account requests access to the ACCELERATOR Database, QuickSet polls the central directory to verify that the user is authorized to access the unit (see *Figure 4.11*).

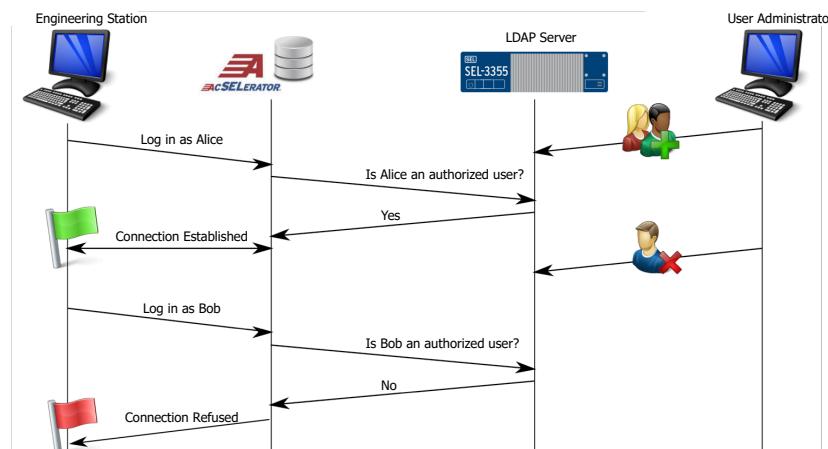


Figure 4.11 QuickSet Polls the Central Directory to Verify User Authorization

For QuickSet to support this behavior, you must configure certain parameters to allow the software to communicate with your LDAP server. All of these parameters are configurable through the QuickSet toolbar by selecting **Tools > Configure LDAP**. Work with your LDAP administrator to determine LDAP settings for your organization. To test the connection to the LDAP server, select the **Test Connection** button. Open the **User Manager** (see *Manage User Accounts on page 60*) once a successful connection has been established, to configure which groups and users have access to the ACCELERATOR Database.

Manage User Accounts

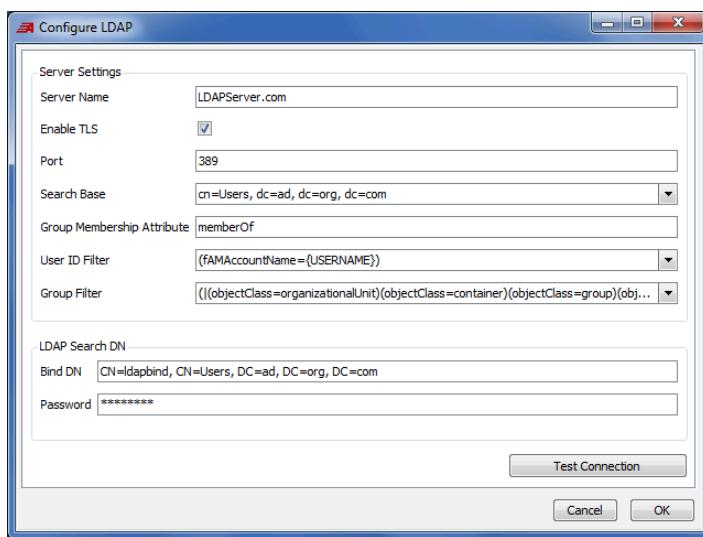


Figure 4.12 Example of a Completed LDAP Setting Screen

Manage User Accounts

The **User Manager**, with which you can manage users/groups and the various permissions granted to them, constitutes a major aspect of the security framework within QuickSet. By using the **User Manager** in conjunction with an SEL security gateway, you can limit access to the ACCELERATOR Database and devices to only people with authorized access. There are two categories of rights holders: those configured locally in the database and those granted access by LDAP authentication. To access the **User Manager**, select **Tools > Device Manager > Users** from the QuickSet toolbar. The Explorer window is organized into four nodes and contains the following rights holders:

- ▶ **LDAP Groups:** Groups granted access through use of LDAP authentication.
- ▶ **LDAP Users:** Users granted access through use of LDAP authentication. LDAP usernames are not case-sensitive.
- ▶ **Local Groups:** Groups configured and stored in the ACCELERATOR Database.
- ▶ **Local Users:** Users configured and stored in the ACCELERATOR Database.

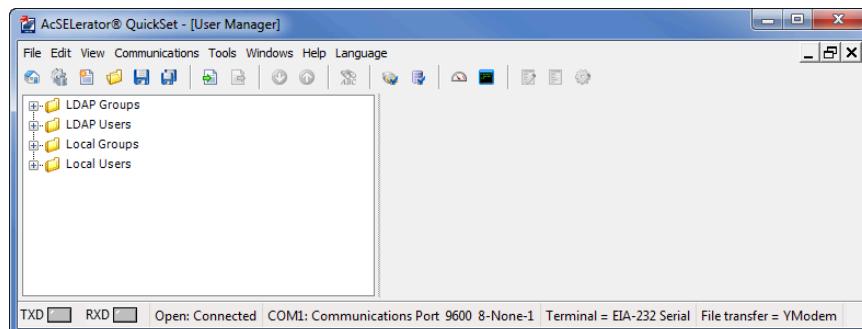


Figure 4.13 User Manager With the Four Types of Rights Holders in the Explorer Window

To add a new group/user, right-click within the Explorer window on the rights holder partition node in which the new group/user will belong and select **Add**. A new window appears that features four tabs. The following is a list of the tabs available when adding a new group:

- **Group:** Configure the **Group Name**, descriptive information, and access rights. If adding an LDAP group, choose the **Group DN** to which you want to associate the group.
- **Members:** Select which users are members of the group. If adding an LDAP group, the members are populated with those belonging to the **Group DN** you specify.
- **Permissions:** Select the devices to which a group is granted access (optional).
- **Log On:** Log in to Device Manager.
- **Update Database:** Make changes to the Device Manager devices and settings. If you do not select this, the Device Manager enters Read-Only view.
- **Update Devices:** Modify the Device Manager settings and connection information.
- **Manage Passwords:** Modify passwords associated with user accounts.
- **Manage Scripts:** Create and modify the Device Manager Connection Scripts.
- **Manage Users:** Add/delete/modify users in Device Manager.
- **Manage Device Permissions:** Change the device node permission settings in Device Manager.
- **Configure LDAP:** Configure LDAP settings for Device Manager.
- **Configure Workflow:** Change the Workflow device settings.
- **Credentials:** Configure the security credentials used in authentication (optional).

Following is a list of tabs available upon addition of a new user:

- **User:** Configure the **User Name**, descriptive information, passwords, and access rights.
- **Group Membership:** Select the group in which the user is a member. When you add an LDAP user, the membership is automatically populated if you enter a correct **User Name** in the **User** tab.
- **Permissions:** Display the permissions available based on group membership.
- **Credentials:** Configure the security credentials used in authentication (optional).

User Report

The User Report can be generated to display what user accounts are available for Device Manager. The User Report can be used to verify the users, their Permissions, Group Membership, and the account Type (*Figure 4.14*). To view the User Report, navigate to **Tools > Device Manager > Users** to open the Users window. In the User Navigator section, right-click on a blank area and then choose **View User Report** (*Figure 4.15*).

Figure 4.14 User Report

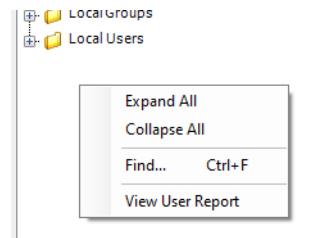


Figure 4.15 View User Report

Job Done Examples

Configuring a System Architecture Using Device Manager

In this Job Done® example, Device Manager is used to manage device communication parameters for the system architecture shown in *Figure 4.16*. The system architecture includes an SEL-2730M Managed Ethernet Switch which provides a routable interface for IP communications on the 192.168.2.xx network. An SEL-3530 and SEL-2032 provide engineering access to the SEL-351A and SEL-387, respectively.

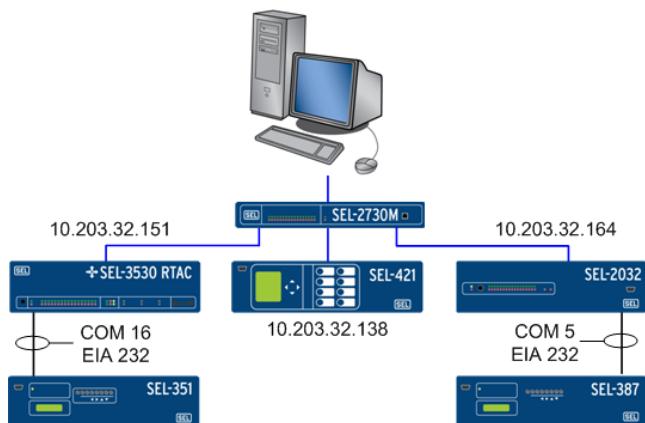


Figure 4.16 Example of a System Architecture

Objectives

Your objective is to configure the architecture and communication parameters in Device Manager necessary for engineering access and to read/send settings. The SEL-2730M, SEL-3530, and SEL-2032 are already configured to allow access to the respective child devices. For more details on the products previously mentioned, please review the appropriate product manual.

Connecting to an SEL-421 Using FTP

Step 1. Select and drag an SEL-421-3 from the **Template Palette** into the **Connection Explorer**.

Step 2. Double-click the SEL-421-3 device node.

Step 3. Navigate to the **Connection** tab.

Step 4. Select **Edit**, and then select **Network** for the **Connection Type**.

Step 5. Fill in the following parameters (substitute the appropriate port parameters from your relay):

- **Host IP Address:** 192.168.2.2
- **Port Number:** 2
- **File Transfer Option:** FTP
- **Port Number (FTP):** 21
- **Credential Source:** Titled Password
- **Credentials:** FTP 2AC User (default Title Password; see *Manage Passwords on page 54* for more information)

Step 6. Click **Apply**.

Step 7. Test the connection by right-clicking the SEL-421-3 device node in the **Connection Explorer** and selecting **Connect**. If the connection is successful, the circle next to the SEL-421 device node turns green.

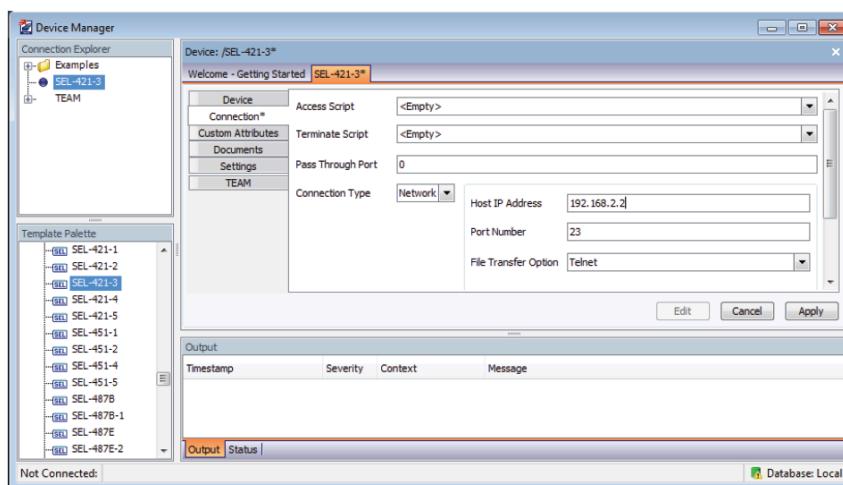


Figure 4.17 The Workspace Shows Correct Connection Parameters for This Example and a Green Dot Indicating Successful Connection

Configuring the SEL-3530 RTAC for Direct Access to SEL-351A Using Legacy Mode

- Step 1. Select and drag an SEL-3530 from the **Template Palette** into the **Connection Explorer**.
- Step 2. Double-click the SEL-3530 device node.
- Step 3. Navigate to the **Connection** tab.
- Step 4. Select **Edit**, and then select **Network** for the **Connection Type**.
- Step 5. Check the **Legacy Mode Enabled** box.
- Step 6. Fill in the following parameters (substitute the appropriate port parameters from your device):
 - **Host IP Address:** 192.168.5.10
 - **Port Number:** 5000 (port number of the access point in the RTAC; see the SEL-3530 instruction manual for more details)
 - **File Transfer Option:** Raw TCP
- Step 7. Click **Apply**.
- Step 8. Select and drag an SEL-351A from the **Template Palette** into the **Connection Explorer**. Place the SEL-351A under the RTAC as shown in *Figure 4.18*.
- Step 9. Double-click the SEL-351A device node.
- Step 10. Navigate to the **Connection** tab.
- Step 11. Select **Edit** and then select **General_RTAC_AP_ACCESS_SCRIPT** in the **Access Script** field.
- Step 12. Select **General_RTAC_AP_TERMINATE_SCRIPT** in the **Terminate Script** field.
- Step 13. Enter **16** in the **Pass Through Port** field. This corresponds to the serial port of the RTAC to which the SEL-351A is connected.
- Step 14. Click **Apply**.
- Step 15. Test the connection by right-clicking the SEL-351A device node in the **Connection Explorer** and selecting **Connect**. If the connection is successful, the circles next to the SEL-351A and SEL-3530 device nodes turn green.

NOTE

The **Connection Type** and communication parameters are not needed for the SEL-351A, because it is a child device to the SEL-3530.

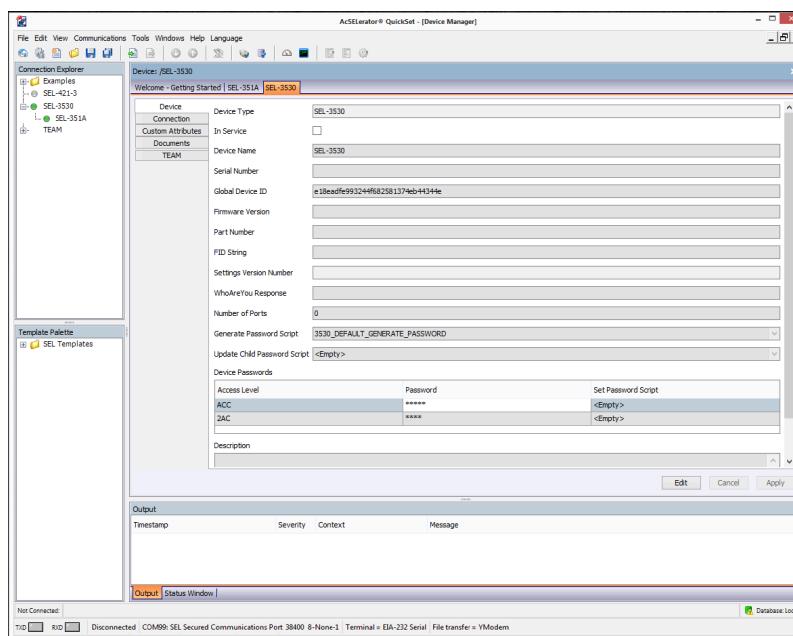


Figure 4.18 The Workspace Shows the Correct Connection Parameters for the SEL-351A Child Device

Configuring the SEL-2032 for Direct Access to SEL-387-6

- Step 1. Select and drag an SEL-2032 from the **Template Palette** into the **Connection Explorer**.
- Step 2. Double-click the SEL-2032 device node.
- Step 3. Navigate to the **Connection** tab.
- Step 4. Select **Edit**, and then select **Network** for the **Connection Type**.
- Step 5. Fill in the following parameters (substitute the appropriate port parameters from your device):
 - **Host IP Address:** 192.168.20.2
 - **Port Number:** 23
 - **File Transfer Option:** Telnet
- Step 6. Click **Apply**.
- Step 7. Select and drag an SEL-387-6 from the **Template Palette** into the **Connection Explorer**. Place the SEL-387-6 under the SEL-2032 as shown in *Figure 4.19*.
- Step 8. Double-click the SEL-387-6 device node.
- Step 9. Navigate to the **Connection** tab.
- Step 10. Select **Edit** and then select **General_20XX_ACCESS_SCRIPT** in the **Access Script** field.
- Step 11. Select **General_20XX_362X_TERMINATE_SCRIPT** in the **Terminate Script** field.
- Step 12. Enter **5** in the **Pass Through Port** field. This corresponds to the serial port of the SEL-2032 to which the SEL-387-6 is connected.
- Step 13. Click **Apply**.

Step 14. Test the connection by right-clicking the SEL-387-6 device node in the **Connection Explorer** and selecting **Connect**. If the connection is successful, the circles next to the SEL-387-6 and SEL-2032 device nodes turn green.

NOTE

The **Connection Type** and communication parameters are not needed for the SEL-387-6, because it is a child device to the SEL-2032.

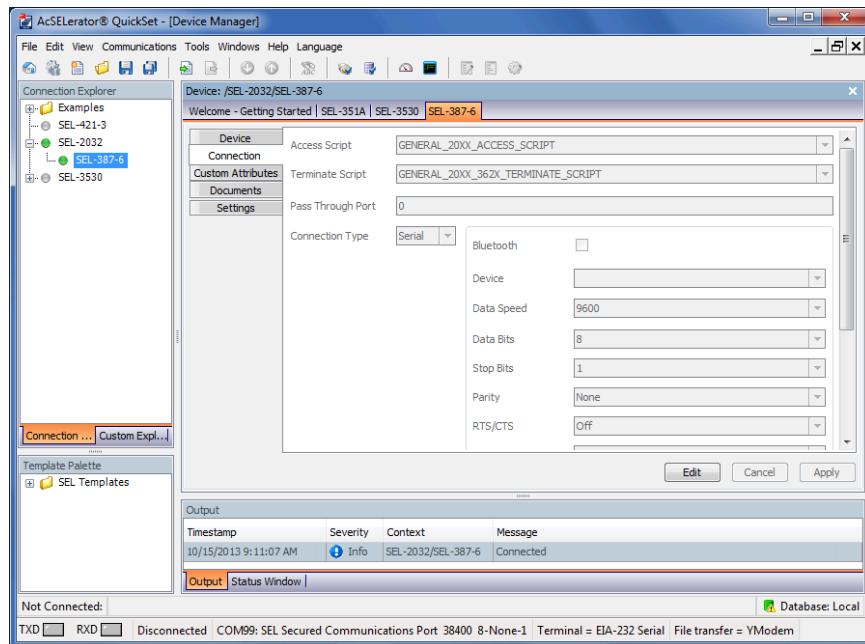


Figure 4.19 The Workspace Shows the Correct Connection Parameters for the SEL-387-6 Child Device

Create a Custom Script to Connect to a Device Using LMD

In this Job Done example, the Script Manager is used to create a custom access script to establish a Telnet connection to a remote device that uses SEL Distributed Port Protocol (LMD) for connectivity.

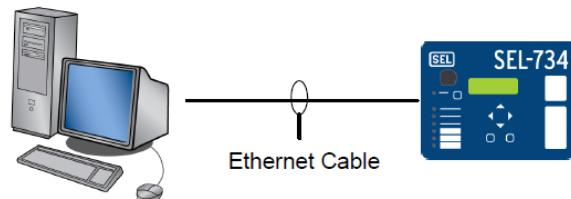


Figure 4.20 Connection Diagram for Establishing a Telnet Connection Using LMD

Objective

Your objective is to configure a custom access script, set the communication parameters for the SEL-734 Relay, and initiate a successful connection using LMD.

Creating a Custom Script

Step 1. Open the **Script Manager** by selecting **Tools > Device Manager > Scripts**.

Step 2. Navigate to the **700** folder and expand it by selecting the plus sign.

Step 3. Navigate to the **734** node and expand it by selecting the plus sign.

Step 4. Navigate to the **Access** node, right-click, then select **Add > Script**.

Note that, by adding the script in this location, it is only accessible in SEL-734 device nodes.

Step 5. Double-click the **New Script** and select **Edit**.

Step 6. Rename the **Script Name** to **SEL-734 Access Script**.

Step 7. Type in the **Script Text** box the following SEL functions (for more detail on each function, refer to **Script Manager**):

```
SEL.WriteLine('#02',[ '=' , '>' ], 5)
```

Step 8. Click **Apply**.

Configure the SEL-734 Connection Parameters in Device Manager

Step 1. Select and drag an SEL-734 from the **Template Palette** into the **Connection Explorer**.

Step 2. Double-click the SEL-734 device node.

Step 3. Navigate to the **Connection** tab.

Step 4. Select **Edit**, and then select **Network** for the **Connection Type**.

Step 5. Select the **SEL-734 Access Script**.

Step 6. Fill in the following communication parameters (substitute the appropriate IP address port parameters from your relay):

► **Host IP Address:** 192.168.2.3

► **Port Number:** 23

► **File Transfer Option:** Telnet

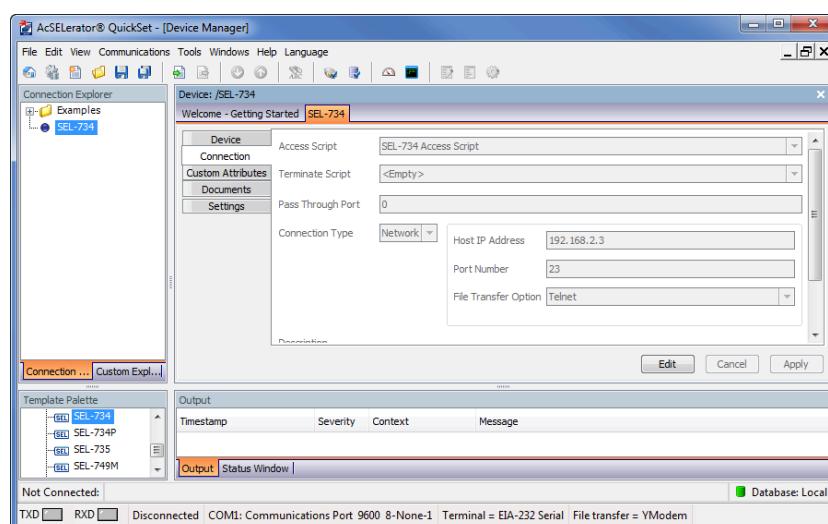


Figure 4.21 SEL-734 Device Node Connection Tab

- Step 7. Click **Apply**.
- Step 8. Test connection.

Add ACCELERATOR RTAC as an Application

Use Device Manager in this Job Done example to launch ACCELERATOR RTAC from a device node.

- Step 1. Launch Device Manager from the QuickSet Welcome Screen. The default credentials are as follows:
 - **Username:** admin
 - **Password:** blank
- Step 2. Right-click in the white space of the **Connection Explorer** and click **Add > Device**.
- Step 3. Select **SEL-3530** and click **OK**.
- Step 4. Double-click **SEL-3530** and select the **Applications** tab.
- Step 5. Click **Edit** on the bottom right to enable the form.
- Step 6. Click **Add** and the **Add Application** window will display, as shown in *Figure 4.22*.

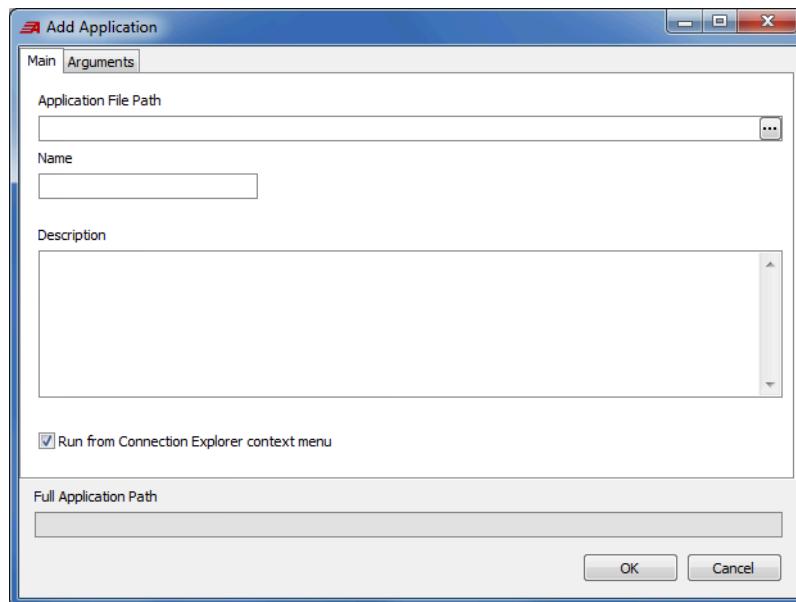


Figure 4.22 Add Application

- Step 7. Click the ellipses (...) button under **Application File Path**.
- Step 8. In the Select Application File window that displays, navigate to the executable file for ACCELERATOR RTAC. The default file location is here: C:\Program Files\SEL\AcSELERator\RTAC\RTAC.exe.
- Step 9. Change the **Name** to **AcSELERator RTAC**.
- Step 10. Enter a **Description**. *Figure 4.23* shows an example description.

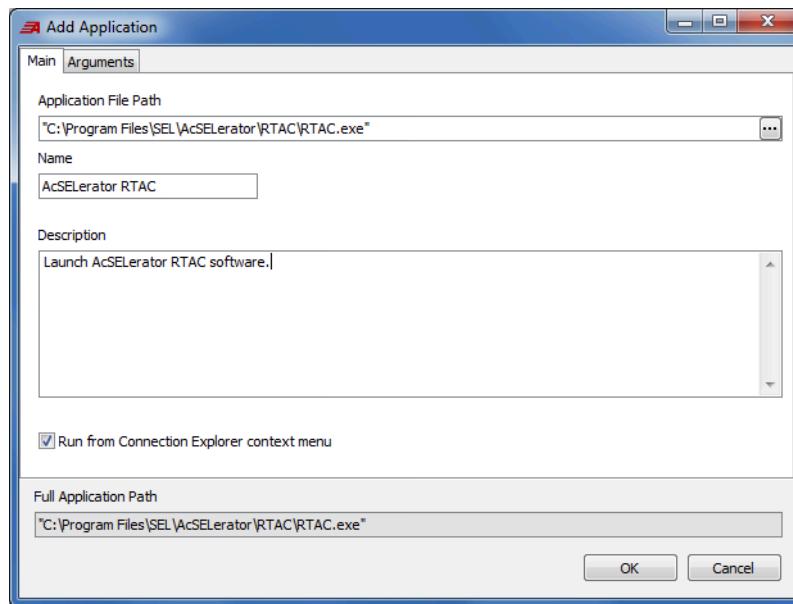


Figure 4.23 Application Description

- Step 11. Ensure the **Run from Connection Explorer context menu** check box is selected.
- Step 12. Click **OK**.
- Step 13. Click **Apply** on the bottom right.
- Step 14. Right-click **SEL-3530** in the **Connection Explorer** and click **Applications > AcSELERator RTAC**, as shown in *Figure 4.24*.

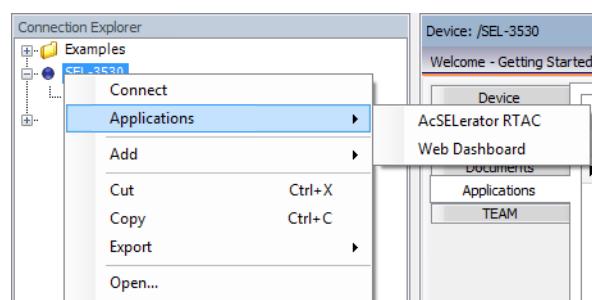


Figure 4.24 Select AcSELERator RTAC

ACSELERATOR RTAC will launch, providing the interface from which to access the appropriate RTAC project for modification or viewing.

Compare Using Device Manager

The Compare feature in Device Manager gives you the ability to compare selected device nodes either with other device node configurations or stored device settings. The Device Manager Compare/Merge feature differs from the QuickSet Tools compare feature in that you can use the QuickSet compare feature only to compare two settings, whereas the Compare using the Device Manager can do multiple node settings and compare multiple nodes against a saved template.

Opening the Device Manager Compare Window

To open the Device Manager Compare window, either highlight multiple nodes that you want to include in the compare or select a single node and compare to a template or settings database (RDB File) by selecting the nodes and using the right-click menu on the selected node(s).

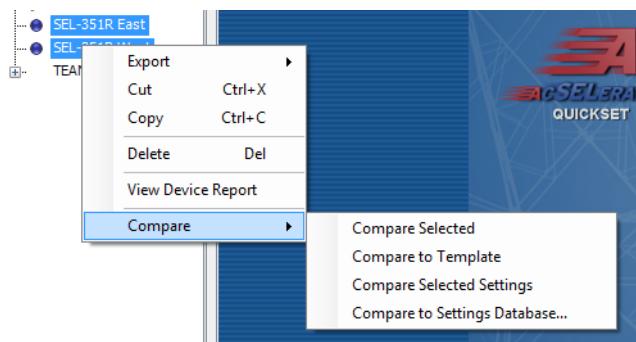


Figure 4.25 Two or More Nodes Selected

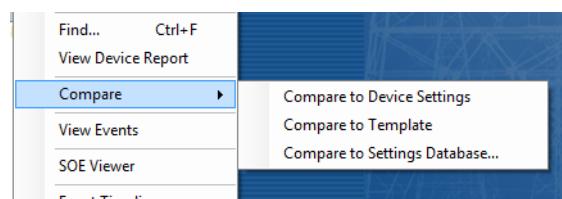


Figure 4.26 Single Node Selected

Compare Selected

This option compares the device node information along with the attached settings for any selected device nodes.

Compare to Template

This option compares all of the information for the selected device node (not including the attached settings) against a selected template in the Template Palette.

Compare Selected Settings

This option compares all of the attached settings for the selected device node (not including the device node settings) for any selected device nodes.

Compare to Settings Database

This option compares attached settings for selected device nodes to a set of settings in an RDB file.

Compare to Device Settings

This option compares saved settings in **Device Manager** to the settings on the device. **Device Manager** connects to and reads from the device when this option is selected. When comparing by device settings, you can choose the **Latest** settings in the workspace of the devices or any of the version history states, as shown in *Figure 4.27*.

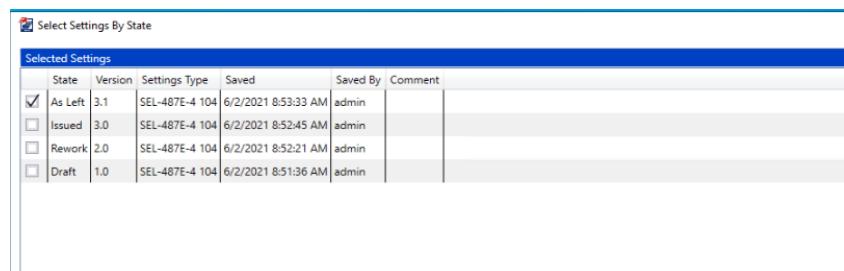


Figure 4.27 Comparing Devices

Layout of the Compare Window

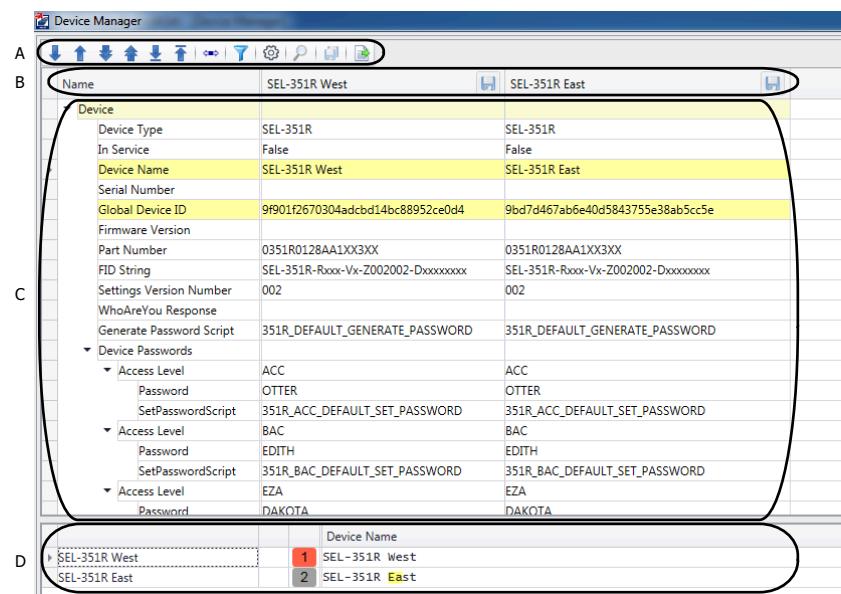
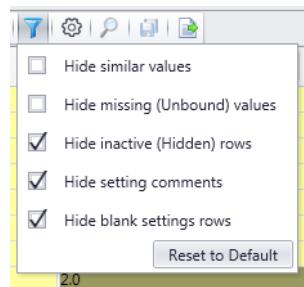


Figure 4.28 Device Manager Compare Window Components

Table 4.1 Device Manager Compare Window Component Descriptions

Component	Description
A	Navigation and Filter Options: This section includes the navigation and filter options for the compare results window.
B	Compare Node names: This section displays the names of selected nodes and enables the Save icon for those nodes that have changes.
C	Compare Results Window: This section displays the node information and attached settings and highlights differences.
D	Difference Output: This section displays the values for and differences, if any, from the selected row in the Compare Results Window.

Filter Options



Hide Similar Values

This option filters out any similar values across the rows of settings being compared so that only rows with differences display.

Hide Missing (Unbound) Values

This option hides any unbound rows that have any missing values denoted by a gray-colored cell in the Compare Results Window.

Hide Inactive (Hidden) Rows

This option filters out device node rows rendered inactive and unchangeable because of either a part number or setting rule.

Hide Setting Comments

This option filters out all setting comments in the device settings.

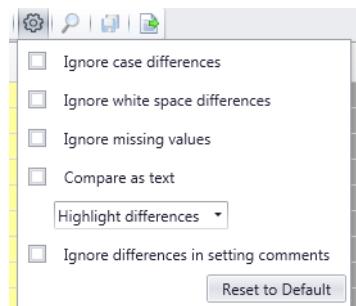
Hide Blank Settings Rows

This option filters out any settings in a comparison that have blank values across the selected device node rows.

Reset to Default

This option resets the filters to original QuickSet default values.

Comparison Options



Ignore Case Differences

When the **Ignore case differences** option is enabled, Device Manager treats values that differ only in their use of uppercase or lowercase letters as if they are identical.

Example: "ABC" and "abc" compare identically when the **Ignore case differences** option is enabled.

Ignore White Space Differences

When the **Ignore white space differences** option is enabled, Device Manager shall ignore whitespace characters when performing a comparison of individual items between entities.

Example: "ABC" and "A B C" compare identically when the **Ignore white space differences** option is enabled.

Ignore Missing Values

When the **Ignore missing values** option is enabled, missing entity items shall be ignored.

Compare as Text

When the **Compare as text** option is enabled, all entity items shall be compared alphanumerically regardless of item data type.

Example: Numeric items "01.1" and "1.10" do not compare equally when you use the **Compare as text** option, but they are equal when you use numeric comparison.

Ignore Differences in Setting Comments

This option ignores any differences in comments included in the attached settings of the nodes being compared.

Comparison Window

Name	SEL-351R West	
Device		
Device Type	SEL-351R	
In Service	False	
Device Name	SEL-351R West	
Serial Number		
Global Device ID	00014670000000000000000000000000	00014670000000000000000000000000

Figure 4.29 Layout of the Comparison Window Rows

Best Fit

Fits a selected column to the size that fits all text in the values.

Best Fit (All Columns)

Fits all columns to the size that fits all text in the values.

Freeze Column

Freezing a column fixes that column at the left so that it does not scroll with the other columns.

Select Reference Column

Selects the column used to generate difference values.

Settings Versions

Configure Workflow

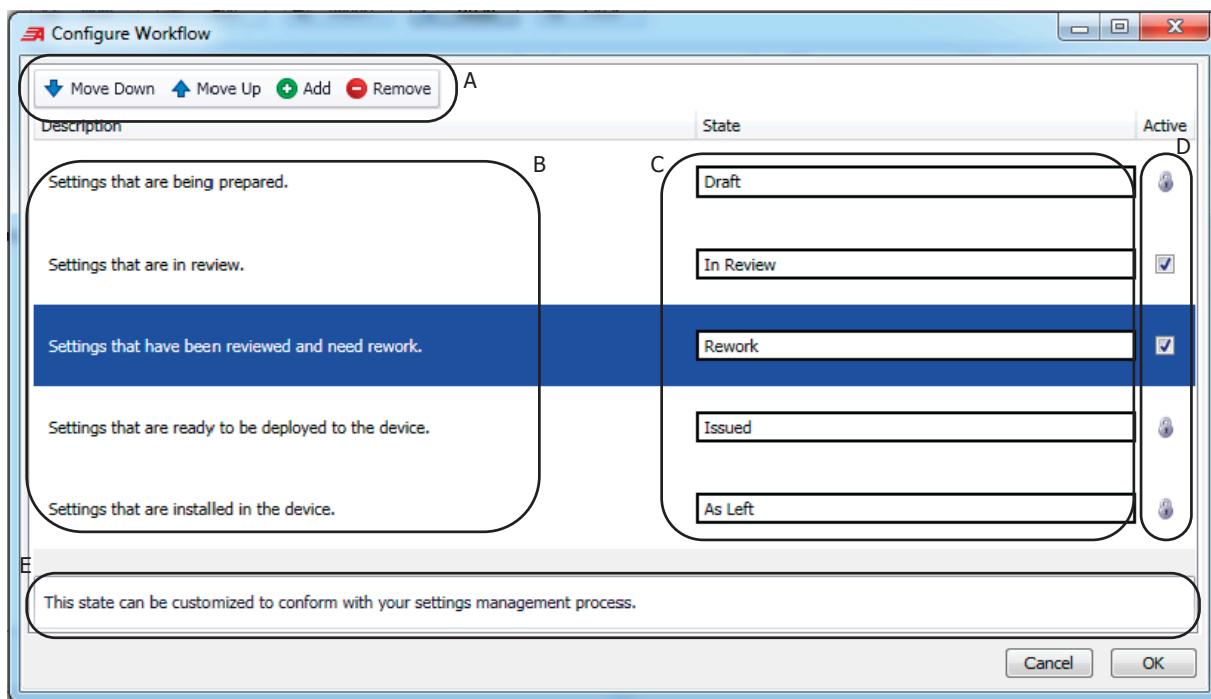


Figure 4.30 Configure Workflow

The following is a short introduction to **Configure Workflow** window functions:

- Configure Workflow menu:** This menu allows the user to **Add** and **Remove** workflows that do not have the **Required** state selected. You can also arrange the workflow task order by selecting a task and clicking the **Move Down** or **Move Up** options.
- Description:** The **Description** area provides you the ability to describe workflow tasks not in the **Required** state. To modify the **Description**, select the workflow task, and an edit box will display in which you can modify the existing description.

- C. **State:** The **State** column displays the workflow states presently available. All workflow states are editable regardless of whether they are in the **Required** state. To modify the **State** fields, click on the workflow state and an edit box will display in which you can modify the existing state name.
- D. **Required:** The **Required** column displays the workflow tasks required in the available lists. This column, which is not editable, shows the required states by default.
- E. **Notes:** The **Notes** field displays information about the highlighted workflow states. The **Notes** field is not editable.

Settings Tab

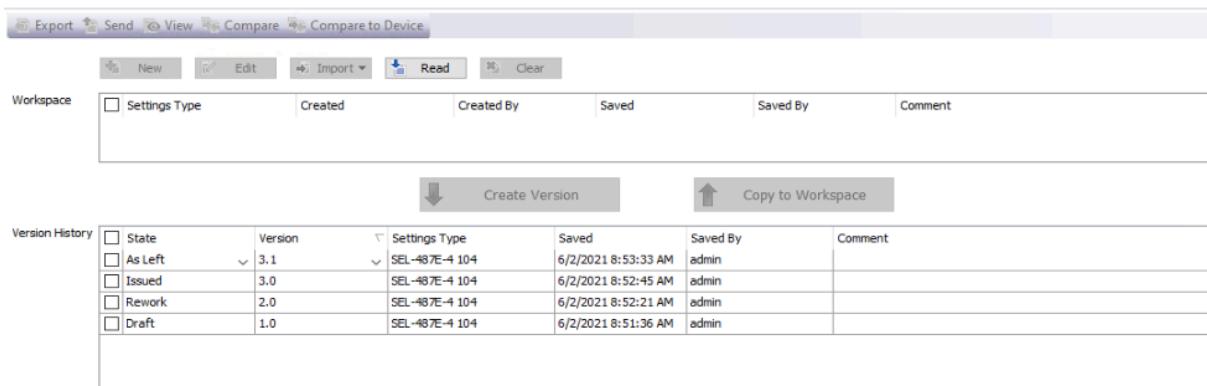


Figure 4.31 Workflow View

The **Settings** tab of Device Manager is separated into two sections: **Workspace** and **Version History**. When you initiate a **Read** from a device node, QuickSet stores the settings in the **Workspace** section. You can use the top menu bar items to make changes to the Workspace.

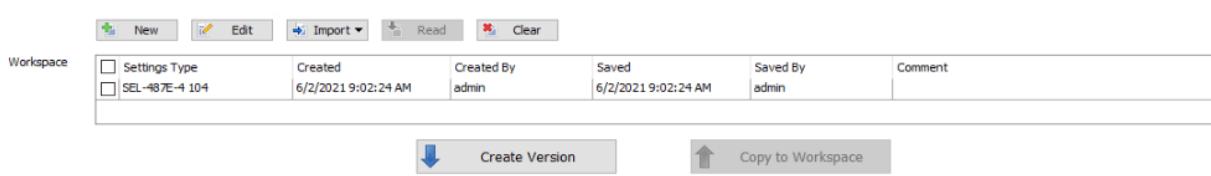
Workspace Menu Items

- **Export:** This option exports either the Workspace settings or a Version History setting into a QuickSet RDB database. Select the settings you want to export from the **Settings** tab by placing a check mark next to each setting you want to export.
- **Send:** This option sends either the Workspace settings or Version History settings to the device. If there are settings that have already been created outside of the active Workspace, you can import those into the active Workspace area.
- **View:** The viewable settings can either be located within the **Workspace** or **Version History** section. When the **Settings** tab is in the Read-Only state and the **View** option is selected, you will be presented with a window of associated settings and their values. When the **Settings** tab is in Edit mode, the Workspace settings will open in a window where the settings can be modified, but settings viewed under the Revision History will still be presented in a Read-Only window.
- **Compare:** This option allows you to view differences between selected settings. You can compare a workspace setting against selected settings in the Version History or compare selected settings from the Version History against each other.

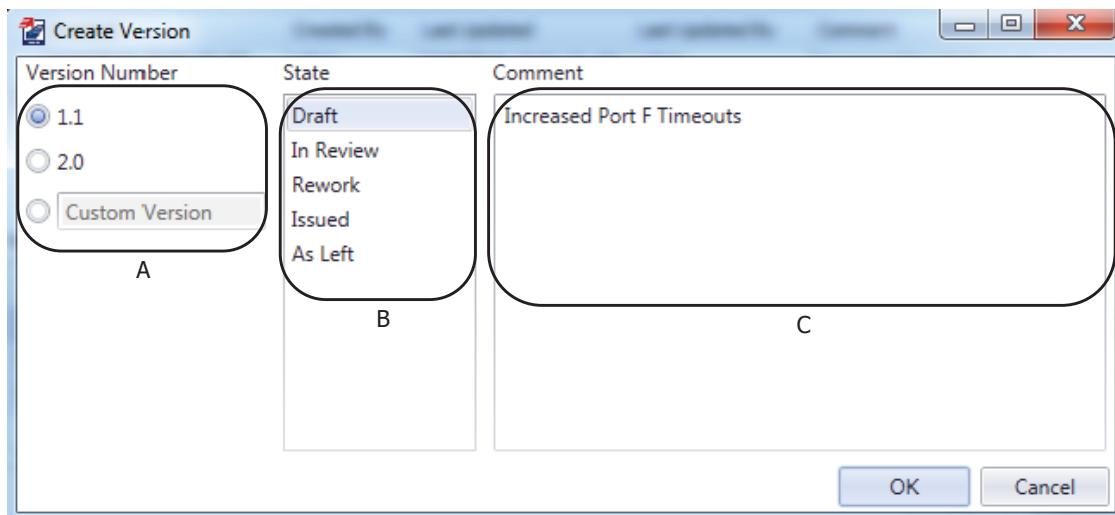
Settings Versions

- **Compare to Device:** This option compares saved settings in **Device Manager** to the settings on the device. **Device Manager** connects to and reads from the device when this option is selected. When comparing to device settings, you can choose the **Latest** settings in the workspace of the devices or any of the version history states, as seen in *Figure 4.27*.
- **New:** This option creates a new Workspace. When you select this option, a new Settings Editor opens with default values that save to the Workspace when you close it.
- **Edit:** This function allows users to open a workspace if there is one present in the **Workspace** section. This opens the **QuickSet Settings Editor** from which you can make changes to the settings and then save them back to the Workspace.
- **Import:** This option imports an already saved Settings Editor that was not created on the active Workspace. If there are settings that have already been created outside of the active Workspace, you can import those into the active Workspace area. You can only import from an existing QuickSet RDB file.
- **Read:** This option reads the device node settings into the Workspace of the **Settings** tab.
- **Clear:** This menu item clears any saved workspace settings that are present. Once the workspace clears, you will need to **Read**, **Import**, **Copy to Workspace**, or **Save** a new Settings Editor to add settings to the Workspace.

Settings Workspace

**Figure 4.32 Workflow**

The currently editable active settings are located in the **Settings Workspace** area (*Figure 4.32*). From the Workspace, you can create a setting version in the **Revision History** section of the **Settings** tab. When you create a version of the Workspace settings, the **Create Version** window (*Figure 4.33*) will display and prompt you to choose a **Version Number** and **State** and to add a **Comment**.

**Figure 4.33 Create Version**

- A. **Version Number:** This shows the number associated with the version of the Version History settings. There will be suggested version numbers, but you can also create a custom number.
- B. **State:** The states are defined in the **Configure Workflow** window (*Figure 4.30*). The **State** option is the state that the settings version will be in when you click **OK** in the **Create Version** window.
- C. **Comment:** The **Comment** section is a freeform text box where comments about the settings version can be included.

Settings Version History

Version History					
	State	Version	Settings Type	Saved	Comment
<input type="checkbox"/> State		3.1	SEL-48TE-4 104	6/2/2021 8:53:33 AM	admin
<input type="checkbox"/> As Left		3.0	SEL-48TE-4 104	6/2/2021 8:52:45 AM	admin
<input type="checkbox"/> Issued		2.0	SEL-48TE-4 104	6/2/2021 8:52:21 AM	admin
<input type="checkbox"/> Rework		1.0	SEL-48TE-4 104	6/2/2021 8:51:36 AM	admin
<input type="checkbox"/> Draft					

Figure 4.34 Version History

The **Version History** section displays information about the saved versions of Workspace settings. The settings saved in the **Version History** section can be moved back to the settings Workspace by selecting one of the settings versions and then clicking on the **Copy to Workspace** option.

- **State:** The **State** field shows the Workflow states that are set up in the **Configure Workflow** window (*Figure 4.30*). To assign a version number, click the **Edit** button in the lower right corner of the **Settings** view and then click the state field to be changed.
- **Version:** The **Version** column allows the user to assign a version to the settings revision. The version can either be an automatic increment or a custom number, as shown in *Figure 4.35*. To assign a version number, click the **Edit** button in the lower right corner of the **Settings** view and then click the version field to be changed for options.

Settings Versions

- **Settings Type:** The Settings Type field displays the Device Type and the Settings Version Number (SVN) of the settings. The SVN is part of the FID string on the firmware and can also be seen on the Device tab. Use this field to keep track of Device Type changes within the settings due to Firmware changes on the device or use the SEL Data Importer to import different versions of settings for the device. This field is not editable.
- **Saved:** The time-stamp field displays the date and time of the last settings save. This field is not editable.
- **Saved By:** The username field displays the user that last saved the settings. This field is not editable.
- **Comment:** The **Comment** field displays any comments that are entered at the time of settings save. This field is not editable.

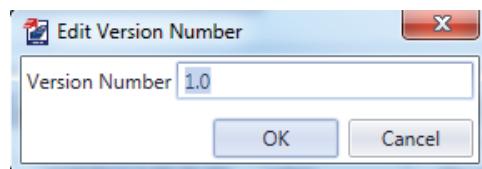


Figure 4.35 Custom Version Number

S E C T I O N 5

Manage Device Settings

Overview

This section provides detailed information on managing device settings by using ACSELERATOR QuickSet® SEL-5030 Software. The design of QuickSet is such that you load all the settings as files rather than one setting at a time, as would be the case if you use a terminal program. QuickSet provides rule-based settings configuration and enables you to develop settings offline.

Manage device settings by using either the QuickSet Settings Editor or Device Manager. These differ in the locations in which they save settings. The QuickSet Settings Editor saves settings files as Settings Databases (RDBs) to a file location you select. Device Manager stores all settings files in the ACSELERATOR Database. To manage settings by using Device Manager, make sure to install the ACSELERATOR Database, the ACSELERATOR Database Device Manager Support plugin, and the QuickSet Device Manager plugin. For more information on plugins, refer to *Appendix C: ACSELERATOR QuickSet Tools*. For a list of supported devices and languages, refer to *Appendix B: Supported Devices and Languages*.

NOTE

Added functionality with QuickSet version 5.13.0.5 allowed the saving of Settings Editor names with as many as 128 characters. QuickSet versions prior to 5.13.0.5 limited Settings Editor names to 31 characters. Users with QuickSet versions prior to 5.13.0.5 could experience truncation of Setting Editor names upon saving or renaming Settings Editors. Update to the latest version of QuickSet to save Settings Editors with as many as 128 characters and avoid truncated Setting Editor names.

Settings Management Using QuickSet Settings Editor

QuickSet uses smart drivers to automatically detect any errors and to verify if the settings are within an acceptable range for supported devices. The user receives immediate feedback on invalid settings. For legacy devices (see *Appendix B: Supported Devices and Languages*), QuickSet uses a legacy grid editor that does not detect errors until the settings are sent to the device.

All device drivers can be downloaded from SEL Compass. Refer to *Section 8: Update Solutions, Products, and Literature Through SEL Compass* for more information on SEL Compass.

If you want to open a settings file for a nonlegacy device, but are unable to download a driver, use the universal driver. To do this, open the settings file to see the prompt shown in *Figure 5.1*. For information on which devices are nonlegacy devices, refer to *Appendix B: Supported Devices and Languages*.

Settings Management Using QuickSet Settings Editor

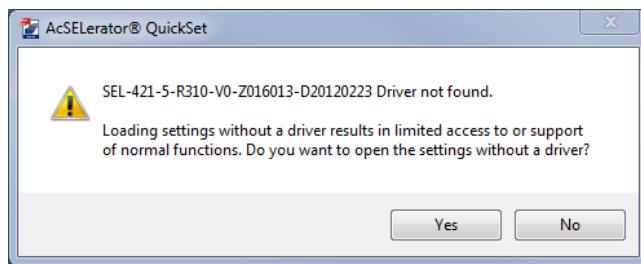


Figure 5.1 Universal Driver

Click **Yes** to open the legacy grid editor. Note that settings opened using the universal driver will not be rule-based; the relay will reject any incorrect settings.

Create New Settings

To create new settings, click **File > New**. From the **Settings Editor Selection** dialog box, select the appropriate device.

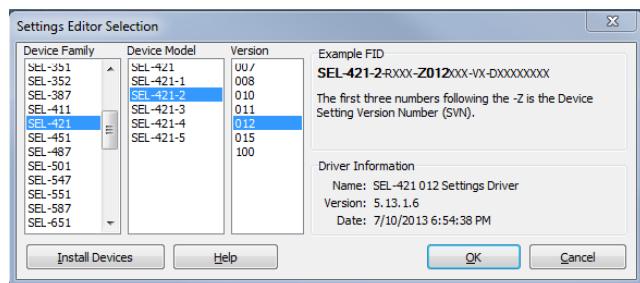


Figure 5.2 Settings Editor Selection

To determine the appropriate device, locate the device part number. This number can be located in multiple places including the rear of the device, the results of an online product configuration search, and the test results sheet shipped with the device. The Device Family column indicates the relay family, the Device Model column lists the specific device type, and the Version column specifies the Settings Editor version the program will create. If this setting version number is unknown, use the highest available setting version number and then refer to *Obtaining the Correct FID String on page 80* and *Convert Settings on page 97* once you create a connection to the device.

Click the **Install Devices** button to install new device drivers.

NOTE

Selecting **Install Devices** will launch SEL Compass. SEL recommends closing QuickSet prior to installing device drivers, updates, or literature.

Obtaining the Correct FID String

To find the firmware revision number in your device, use the serial port **ID** command or the front-panel **STATUS** pushbutton to view the status report. The status report displays the Firmware Identification (FID) label, which will have a form similar to that in *Figure 5.3*.

FID=SEL-xxx-x-Rxxx-V0-Zxxxxxx-Dxxxxxxxx

A B C

Figure 5.3 FID String Components

- A. **Device Family:** The digits immediately following the "SEL" in the FID string represent the device family.
- B. **Device Model:** The digit immediately following the "SEL-xxx-" represents the device model. Note that there may not be a number in this position.
- C. **Setting Version Number:** The three digits immediately following the "Z" represent the settings version number.

For example, the following FID represents the SEL-421 Relay device family, device model SEL-421-2, and settings version number 012:

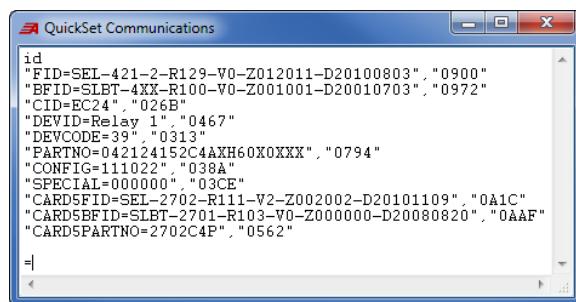
FID=SEL-421-2-R129-V0-Z012011-D20100803

Therefore, when creating a new device, select **SEL-421** for Device Family, **SEL-421-2** for Device Model, and select **012** for Version.

When you are creating device settings and the Z-number is not known, select the largest Z-number presented in the QuickSet **Settings Editor Selection** dialog box. Once you know the correct Z-number, you can convert the settings by using the Z-number convert utility in QuickSet. Refer to *Convert Settings on page 97* for more information.

Obtaining the Correct Part Number

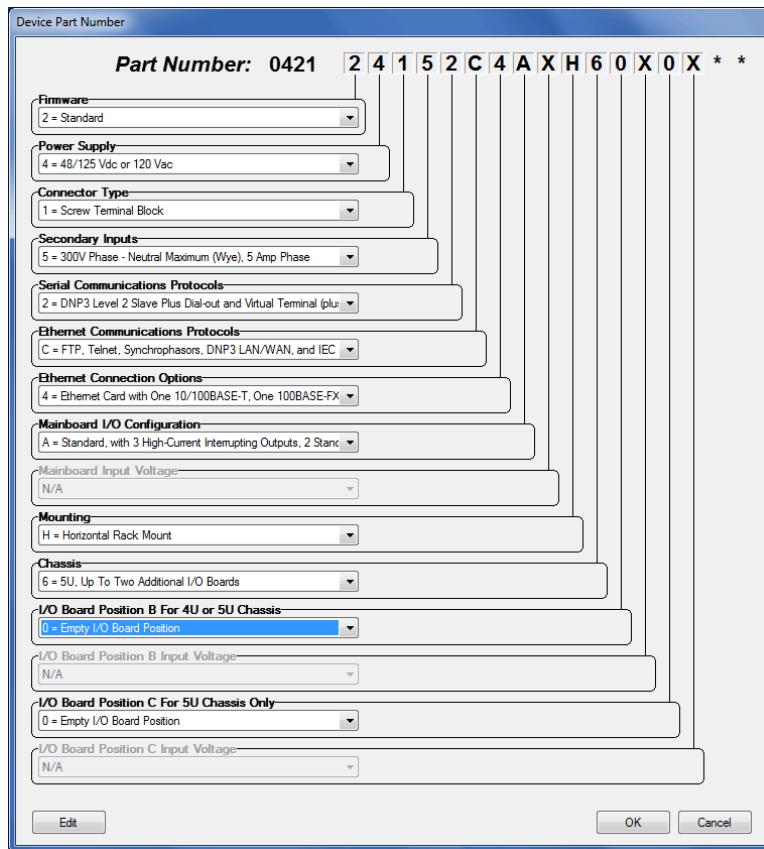
To find the firmware revision number in your device, use the serial port **ID** command or the front-panel **STATUS** pushbutton to view the status report. The status report displays the Part Number (PARTNO) label as shown in *Figure 5.4*.



```
QuickSet Communications
id
"FID=SEL-421-2-R129-V0-Z012011-D20100803", "0900"
"BFID=SLBT-4XX-R100-V0-Z001001-D20010703", "0972"
"CID=EC24", "026B"
"DEVID=Relay 1", "0467"
"DEVCODE=39", "0313"
"PARTNO=042124152C4AXH60X0XXX", "0794"
"CONFIG=111022", "038A"
"SPECIAL=000000", "03CE"
"CARD5FID=SEL-2702-R111-V2-Z002002-D20101109", "0A1C"
"CARD5BFID=SLBT-2701-R103-V0-Z000000-D20080820", "0AAF"
"CARD5PARTNO=2702C4P", "0562"
|=
```

Figure 5.4 Part Number From Terminal Capture

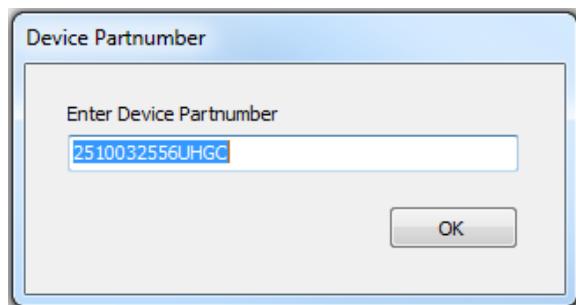
Match the part number from the Terminal window to the QuickSet part number in the **Device Part Number** window, as shown in *Figure 5.5*.

Settings Management Using QuickSet Settings Editor**Figure 5.5 Edit Part Number**

Settings in the QuickSet Settings Editor depend upon the part number, so you must select the correct part number for the relay you are configuring. You can change the part number after you create settings, but there may be some invalid settings resulting from the change in the part number.

Alternatively, select **Edit** in the lower left-hand corner of the dialog box to paste in the part number from the clipboard you previously copied from elsewhere or to type in the part number. Defining the part number in turn defines what settings are editable. Click **OK** to open the device Settings Editor.

Figure 5.6 shows a similar part number form for legacy devices.

**Figure 5.6 Legacy Part Number Form**

The legacy editor lacks smart drivers, so it does not validate settings with those that the device will accept. It is your responsibility to configure the device correctly. The relay may reject any incorrect settings.

Edit Settings

To open a previously created settings file, click **File > Open**. Use the dropdown menu or the ellipses button (…) to specify the Settings Database, then select the settings file and click **OK**.

All the settings are organized into different groups (see *Figure 5.7*); expand each group to edit the settings classes within that group.

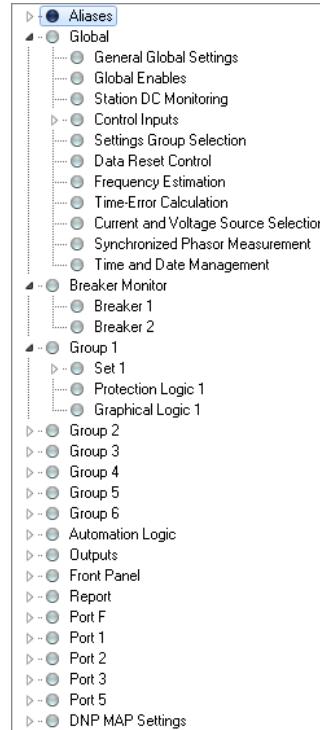


Figure 5.7 Settings Groups

During the settings process, QuickSet validates your input into the selected setting edit box for each form. A validation error causes the edit box to become highlighted in red, as shown in *Figure 5.8*.

The screenshot shows the 'Line Configuration' dialog. At the top, there is a 'Line Configuration Settings' section with two input fields: 'CTRW Current Transformer Ratio - Input W' containing '200000' and 'CTRX Current Transformer Ratio - Input X' containing '200'. Below this is a table titled 'Errors: Found 1 Setting(s)'. The table has columns 'Group', 'Setting', 'Value', and 'Message'. It shows one entry: 'Group 1' for 'CTRW' with 'Value' '200000' and 'Message' 'Error: Group 1 CTRW Setting value "200000" must be greater than or equal to 1 and less than or equal to 50000'.

Figure 5.8 Validation Error

To check validation, select a setting and modify the value. Exit the setting by clicking in another field. Upon your exiting the setting, the program checks the rules for the previous setting.

NOTE

By right-clicking any setting, you can go quickly to the previous or default value. To enable comments for settings, select **Tools > Options** and then select the check box next to **Enable setting comment editing** (as shown in Figure 5.11).

Read Settings

To read from a connected device (see *Get Started on page 7* for information about connecting to a device), do one of the following:

- ▶ Select **Read** in the Welcome Screen.
- ▶ Click the **Read** toolbar button (shown in *Figure 5.9*).
- ▶ Click **File > Read**.



Figure 5.9 Read Settings

By default, a new Settings Editor opens after completion of a read. Change this default by performing the following steps prior to completing a read:

- ▶ Click **Tools > Options**.
- ▶ Select the **Settings** tab. *Figure 5.10* shows the **Options** window.
- ▶ Check the **Prompt for action on settings read** to get a Compare/Merge/Open action on a settings read. If this option is checked, QuickSet prompts you to Compare/Merge/Open on a settings read.
- ▶ Check the **Specify groups on settings read** option to select the groups that you want to read.

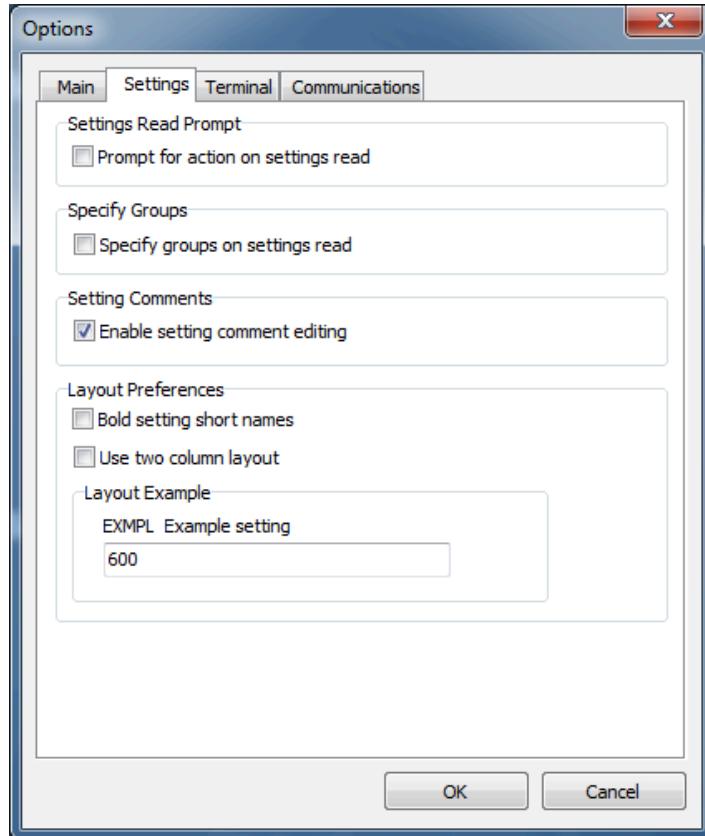


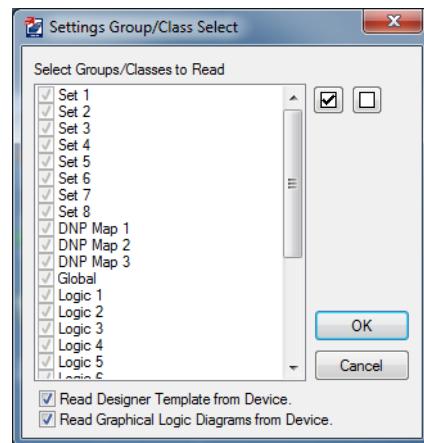
Figure 5.10 Settings Read Options

To complete a read, choose from among the following options in *Figure 5.11* and then click **OK**.

- ▶ Select the checked box button () to read all available settings groups/classes from a connected device.
- ▶ Select the unchecked box button () to deselect all available settings groups/classes from a connected device (note that you must select at least one group/class to read from a connected device before clicking **OK**).
- ▶ Individually select the groups/classes you want to read.

NOTE

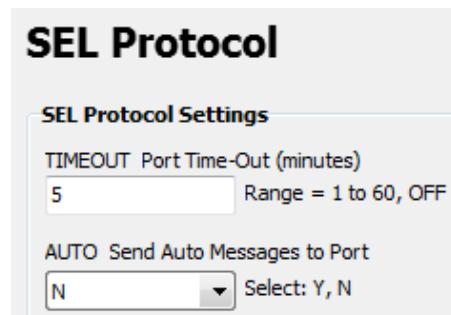
For any group/class you do not select, the software automatically fills in any unselected group/classes with default settings.

Settings Management Using QuickSet Settings Editor**Figure 5.11 Selection of Settings Groups or Classes to Read**

After a read, QuickSet displays a view loaded with the settings you read from the connected device.

Send Settings

The Send option allows selection of settings groups to be sent to a connected device. Select **Global** and **Set 1**, for example, to send Global and Set 1 settings to the device. For a successful settings transfer, ensure that auto-messages are turned off in the device port. To set this, go to the Port Settings for the port you will use to send settings and set **AUTO** to **N** (see *Figure 5.12*).

**Figure 5.12 Automessages Setting**

To send settings, establish a connection with the device and then do one of the following:

- Click the **Send** toolbar button (shown in *Figure 5.13*).
- Click **File > Send**.

**Figure 5.13 Send Settings**

- Select the checked box button () to send all available settings groups/classes to a connected device.

- Select the unchecked box button () to deselect all available settings groups/classes, then select at least one group/class to send to a connected device.
- Individually select the groups/classes you want to send.

NOTE

For any group/class you do not select, QuickSet automatically selects any group/class where changes have been made (see Figure 5.14).

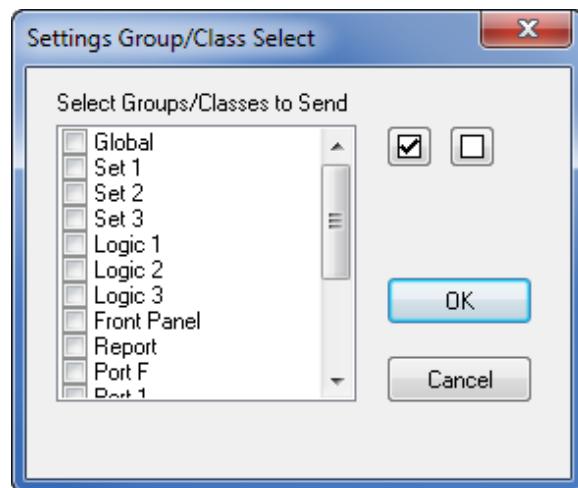


Figure 5.14 Selection of Settings Groups or Classes to Send

Save Settings

Click **File > Save** to save to the Settings Database specified in the lower right-hand corner of the Settings Editor, as shown in *Figure 5.15*. Alternatively, to specify the Settings Database, click **File > Save As** (or **File > Save All** to specify the save location for multiple settings files at once).

On the initial QuickSet installation, the default Settings Database is located at the following Windows location:

C:\Users\YOURUSERNAME\AppData\Roaming\SEL\AcSELERator\\QuickSet\Relay.RDB

With a Settings Editor open, click the icon at the bottom right to get more information on where the Settings Database is saved. Right-click the icon to view more options, as shown in *Figure 5.15*.



Figure 5.15 Default RDB Location

Print Settings

QuickSet has three different types of reports: Classic, Standard, and Custom. Export settings to Microsoft Excel, HTML, or text format from the custom and standard views.

Settings Management Using QuickSet Settings Editor

To export settings from the Custom or Standard view to another format (including Microsoft Excel, HTML, or text format), click **File > Export > All** to export all settings or **File > Export > Selection** to export a selected subset of the settings in the report.

Classic: To print settings, click **File > Print Device Settings > Classic**. Use the Classic print report when simple documentation of the settings is necessary. This report is not customizable. For more customization, refer to the Standard or Custom print reports. The Classic **Print Group Settings** window, shown in *Figure 5.16*, provides you the ability to select the groups that you want to print. If **Print Hidden Settings** is selected, settings hidden or grayed out in the Settings Editor display in the settings report along with the rest of the settings. If you select **Print Setting Sheets**, the settings print without the values. If you select **Print Comments**, the comments print as a separate column.

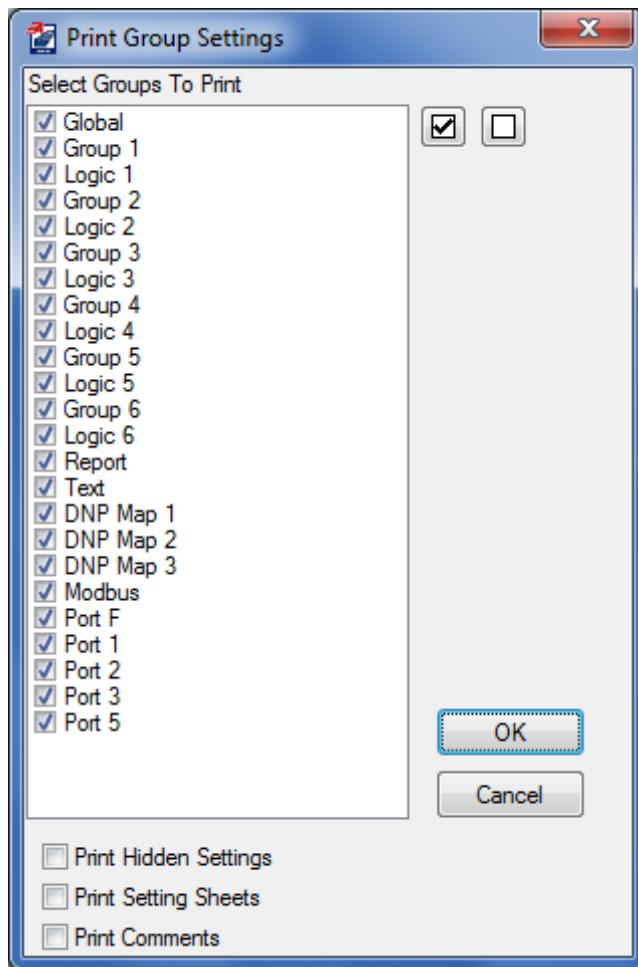
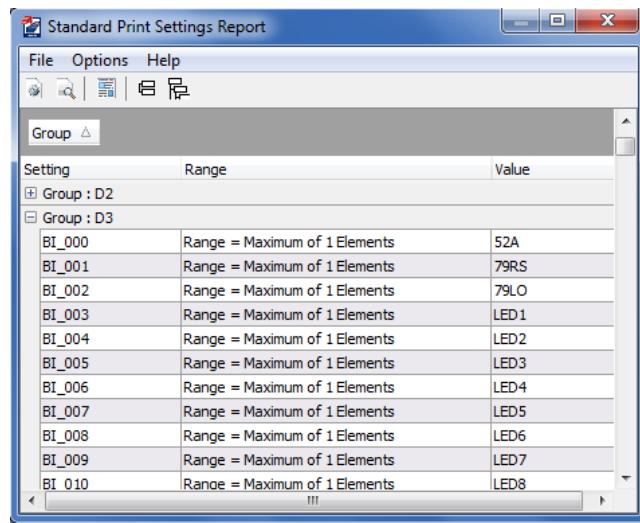


Figure 5.16 Print Group Settings (Classic)

Standard: To print settings, click **File > Print Device Settings > Standard**. The Standard print report is commonly used when a report organized by settings group is necessary. The Standard print report shows the Group, Settings, Range, and Value. You can also choose to export to .html, .xls, or .txt format.



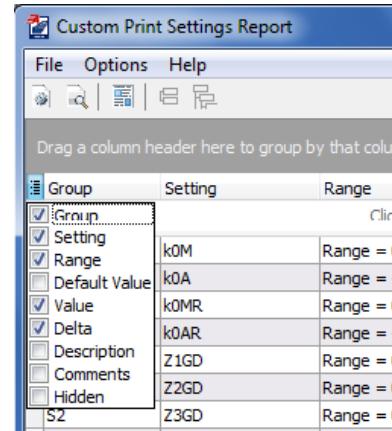
The screenshot shows a Windows application window titled "Standard Print Settings Report". The menu bar includes "File", "Options", and "Help". Below the menu is a toolbar with icons for search, filter, and print. A tree view labeled "Group" shows two groups: "Group : D2" and "Group : D3". Under "Group : D3", there is a table with columns "Setting", "Range", and "Value". The table contains 10 rows, each with a setting name starting with BI_ followed by a 3-digit number, a range description, and a value. The last row has three dots (...).

Setting	Range	Value
BI_000	Range = Maximum of 1 Elements	52A
BI_001	Range = Maximum of 1 Elements	79RS
BI_002	Range = Maximum of 1 Elements	79LO
BI_003	Range = Maximum of 1 Elements	LED1
BI_004	Range = Maximum of 1 Elements	LED2
BI_005	Range = Maximum of 1 Elements	LED3
BI_006	Range = Maximum of 1 Elements	LED4
BI_007	Range = Maximum of 1 Elements	LED5
BI_008	Range = Maximum of 1 Elements	LED6
BI_009	Range = Maximum of 1 Elements	LED7
BI_010	Range = Maximum of 1 Elements	LED8
!!!		

Figure 5.17 Print Group Settings (Standard)

Custom: To print settings, click **File > Print Device Settings > Custom**. The Custom print report provides the most flexibility of all available options for printing settings, enabling you to design a report that matches the reporting needs of your company. With the custom print option, select the settings groups and rearrange the order of columns to suit your needs.

As shown in *Figure 5.18*, select the bulleted list symbol in the first row to select the groups that you want to print.

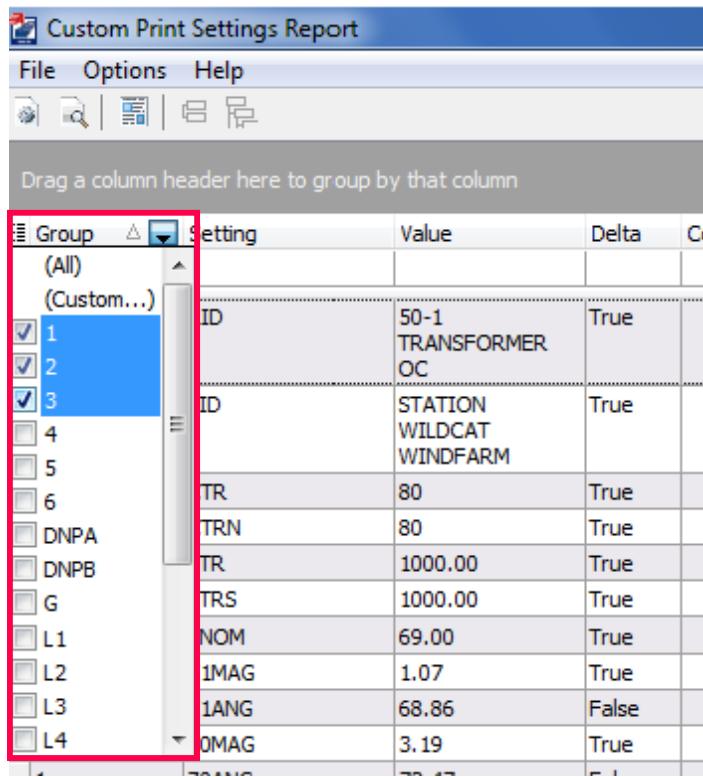


The screenshot shows a Windows application window titled "Custom Print Settings Report". The menu bar includes "File", "Options", and "Help". Below the menu is a toolbar with icons for search, filter, and print. A message "Drag a column header here to group by that column" is displayed above the table. The table has columns "Group", "Setting", and "Range". The first row contains checkboxes next to the column headers. Subsequent rows list various settings like k0M, k0A, etc., with their respective ranges.

Group	Setting	Range
<input checked="" type="checkbox"/> Group		
<input checked="" type="checkbox"/> Setting	k0M	Range = 0
<input checked="" type="checkbox"/> Range	k0A	Range = -
<input type="checkbox"/> Default Value		
<input checked="" type="checkbox"/> Value	k0MR	Range = 0
<input checked="" type="checkbox"/> Delta	k0AR	Range = -
<input type="checkbox"/> Description	Z1GD	Range = 0
<input type="checkbox"/> Comments	Z2GD	Range = 0
<input type="checkbox"/> Hidden	S2	Z3GD
		Range = 0

Figure 5.18 Print Settings (Custom)

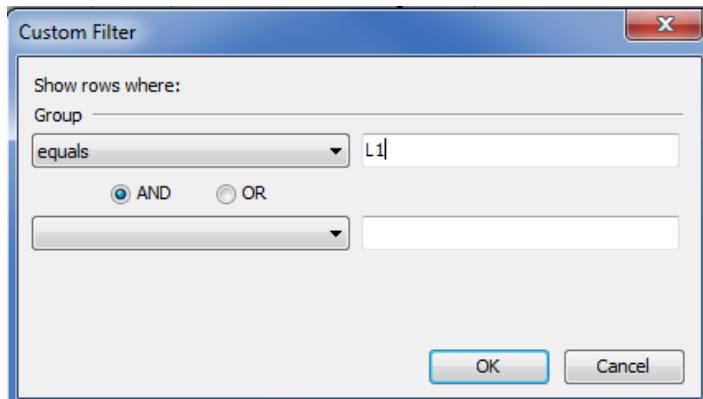
Figure 5.19 shows how you can also customize the data each individual column displays by clicking the title row of that column.



Group	Setting	Value	Delta	Co
(All)	ID	50-1		
(Custom...)		TRANSFORMER		
<input checked="" type="checkbox"/> 1		OC		
<input checked="" type="checkbox"/> 2				
<input checked="" type="checkbox"/> 3	ID	STATION	True	
<input type="checkbox"/> 4		WILDCAT		
<input type="checkbox"/> 5		WINDFARM		
<input type="checkbox"/> 6	TR	80	True	
<input type="checkbox"/> DNPA	TRN	80	True	
<input type="checkbox"/> DNPB	TR	1000.00	True	
<input type="checkbox"/> G	TRS	1000.00	True	
<input type="checkbox"/> L1	NOM	69.00	True	
<input type="checkbox"/> L2	1MAG	1.07	True	
<input type="checkbox"/> L3	1ANG	68.86	False	
<input type="checkbox"/> L4	0MAG	3.19	True	

Figure 5.19 Customize Column Print

From any of the column dropdown menus, select **(Custom...)** to apply your own filter. For example, to show all Logic 1 (L1) group settings, customize the filter as shown in *Figure 5.20*.

**Figure 5.20 Custom Filter**

The **Delta** column displays "False" if the **Value** column and the **Default Value** column have the same value. It displays "True" if they have different values.

Import Settings From Text Files

To import settings from text files, navigate to **Tools > Settings > Import**.

Use this option when there are a couple of saved text settings files for a particular device. Instead of having to import all of the settings, you can select each text file to be imported into the existing device settings. QuickSet will only import files with names corresponding to those files you selected.

Export Settings to Text Files

To export settings to text files, first navigate to **Tools > Settings > Export** and then select the relay groups that you want to export.

This option will export the present settings into separate text files. This can be useful when you must store the settings in a different format or import them into a different database. You can export all visible, valid settings by selecting all groups and no additional options, shown in *Figure 5.21*. Additionally, the various options on the right of the **Export Select** window allow for a customization of what data will be exported to text.

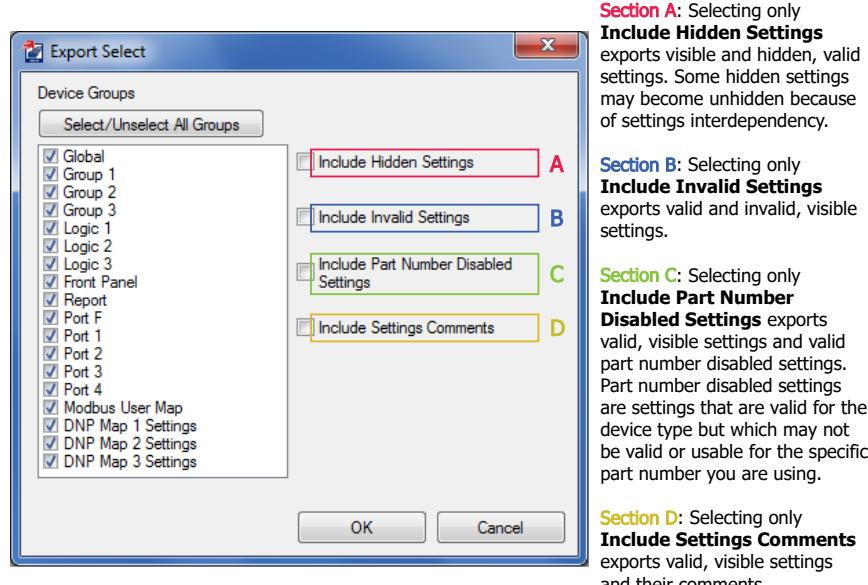


Figure 5.21 Export Settings to Text

Evaluate Settings Differences

The evaluation window, used for comparing (see *Compare Settings on page 94*), converting (see *Convert Settings on page 97*), or merging settings (see *Merge Settings on page 96*), is divided into five sections, as shown in *Figure 5.22*.

Settings Management Using QuickSet Settings Editor

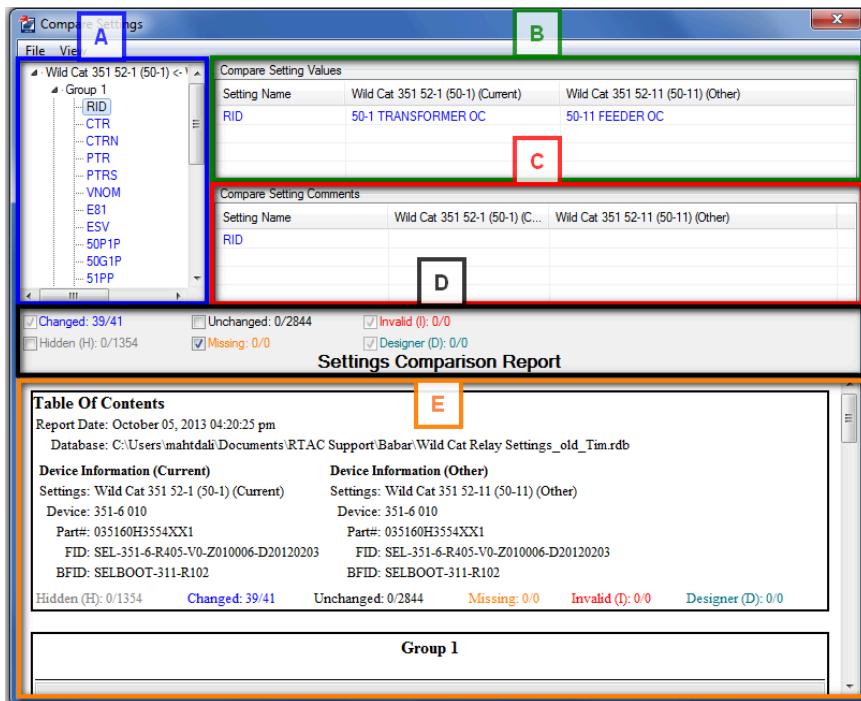


Figure 5.22 The Five Sections of the Compare Settings Window

- **Section A:** The settings tree provides an interactive view that shows filtered settings comparisons. Select a single setting, as shown in *Figure 5.22*, to view the comparison of this setting in the Compare Setting Values screen and the Compare Setting Comments screen. Select a settings group to view all setting comparisons for the highlighted group.
- **Section B:** The Compare Setting Values screen shows the setting or group of settings that have been selected in the tree view. The columns showing settings values are labeled as **Current** and **Other**, as shown in *Figure 5.23*. The column with the **Current** header indicates the active settings. The column with the **Other** header indicates the inactive settings. In the case of a conversion operation, the newly converted settings fall under the **Current** column header and the settings previous to the conversion fall under the **New** column header.

Setting Name	Wild Cat 351 52-1 (50-1) (Current)	Wild Cat 351 52-11 (50-11) (Other)
RID	50-1 TRANSFORMER OC	50-11 FEEDER OC

Figure 5.23 The Current and Other Column Headers

- **Section C:** The Compare Setting Comments screen shows the QuickSet comments or group of QuickSet comments corresponding with what has been selected in the tree view. The columns showing QuickSet comments are labeled as **Current** and **Other**, as shown in *Figure 5.23*. The column with the **Current** header indicates the active settings' comments. The column with the **Other** header indicates comments for the inactive settings. In the case of a conversion operation, the comments for the newly converted settings fall under the **Current** column header and the comments for the settings previous to the conversion fall under the **New** column header.

► **Section D:** The Compare Settings window has six filter options that color and hide settings according to their classification. Three filter types encompass all shared device settings:

- Changed: The settings that exist in both files but have different settings values. In *Figure 5.22*, the **RID** setting is classified as changed, because this setting exists in both files, but the value varies between the two.
- Unchanged: The settings that exist in both files and share the same setting value. In other words, these settings are replicated between the two files.
- Missing: The settings that only exist in one of the settings files. For example, if the setting **CTR** exists in File A and not in File B, this setting will be categorized as missing. The same is true of the opposite situation; if File B contains a setting called **CTR1** and File A does not, this too will fall under the missing category.

The report has three subsets for each of the previously described filter types:

- Hidden: The settings that are not shown in the QuickSet settings driver. These settings are stored and sent to the corresponding device implicitly.
- Invalid: The settings that contain errors. Any settings that fall outside of the driver rules will be listed here.
- Designer: The settings that have been set aside for QuickSet Designer. Any settings that depend on Design Template Variables qualify for the Designer category.

Apply filters for these six categories by selecting the check box next to each category. Additionally, these filters can be applied and removed from the **View** dropdown menu. To ignore QuickSet comments in the comparison report, select **View > Ignore Comments**. This setting should be used when comparing settings being read from a device, because the device does not store QuickSet comments. To sort settings alphabetically within their group, select **View > Sort**.

The report provides two numbers next to each category separated by a slash. The first number indicates how many settings within this category are being viewed. The second number indicates the total number of settings within this category. In *Figure 5.22*, Changed: 39/41 means that the report is showing 39 changed settings out of 41 total possible changed settings. The two changed settings that are not being shown are hidden settings, so they will not be shown unless the **Hidden** check box is selected.

► **Section E:** The Settings Comparison Report screen shows the present filtered settings in a report format.

In the summary, the report lists the date that the report was generated and the database in which the comparison is taking place. The summary also lists device information and the state of the different filter groups.

The body of the report is sectioned into different settings groups. When a setting is being compared, the differences between the two settings are highlighted, as shown in *Figure 5.24*.

Logic 1		
Compared Settings		
Setting	New Settings 5 (Current)	351RS 2nd Push Close (Other)
TR	PB9 + SV1T + 51P1T	OC + 51P1T + 51P2T + 50P2T + 81D1T + PB9
ULTR	I52A	I
S2A	SW 1 * !CLOSE	IN201
CL	PB8 * LT4 * LT7 + SV2T * LT7	(SV11T + SV10) * LT1 * TCCAP + TCCAP * LT1 * LT3 * CC

Figure 5.24 The Settings Comparison Portion of the Settings Comparison Report

Printing a Settings Comparison Report

To print a settings comparison report, click **File > Print Preview** from the **Compare Settings**, **Merge saved settings into current settings**, or the **Converting Settings** windows. Click the **Page Setup** () icon and check the box next to **Print Background Colors and Images**, shown in *Figure 5.25*.

NOTE

If you do not need to see the differences in the printed settings comparison report, then selecting the **Print Background Colors and Images** check box is not necessary.

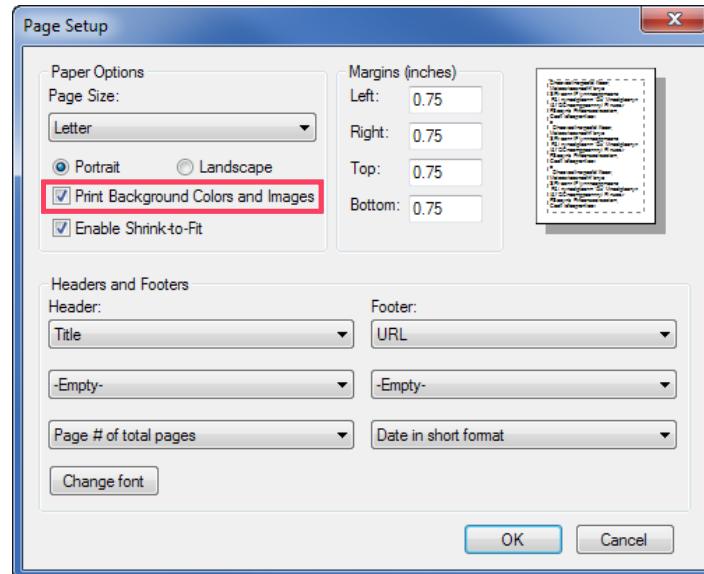


Figure 5.25 Settings Comparison Page Setup

After clicking **OK**, print the comparison report. The printed report will display the highlighted settings differences.

Compare Settings

Use this selection when comparing present device settings with a saved setting scheme. You can use the compare function to select a saved setting in the database and compare this setting to the present settings that are open. You will obtain a list of all settings for which values differ between the two files and a list of all settings in either setting scheme for which there are no matching settings in the other scheme.

To compare settings, click **Edit > Compare**. Then select the Settings Database containing the settings file with which you want to compare, and click **OK**.

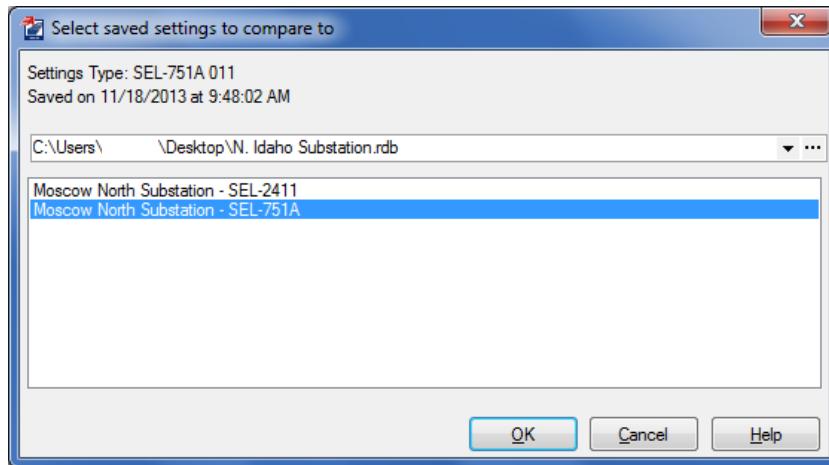


Figure 5.26 Select Saved Settings to Which You Want to Compare

The settings comparison report (*Figure 5.27*) shows the differences between the two settings files. Refer to *Evaluate Settings Differences on page 91* to determine what the different parts of the Compare Settings window mean. To save the settings comparison report in .html format, select **File > Save Report**.

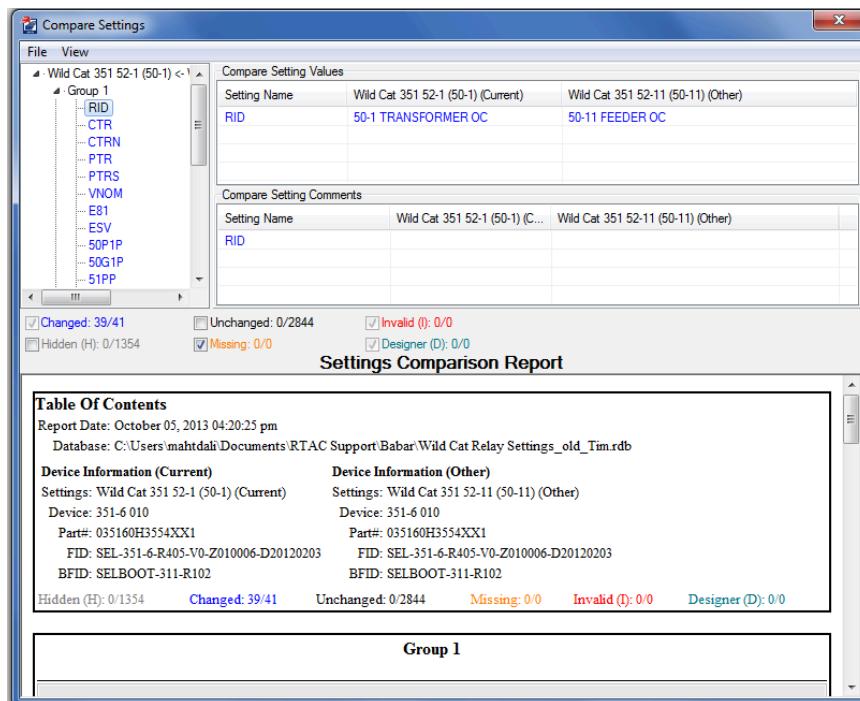


Figure 5.27 Compare Settings

Compare During Read

You can perform the compare operation during a read if you first select that option after navigating to the **Tools > Option** menu. After a read of all the settings from the relay, QuickSet displays the prompt in *Figure 5.28*. Select the Settings Database containing the settings against which you want to compare,

Settings Management Using QuickSet Settings Editor

by using the dropdown menu or the ellipses button (...) to browse to the Settings Database location. Select **Compare settings with saved settings** to compare the settings. Note that this prompt only displays if there is a saved settings file in the Settings Database.

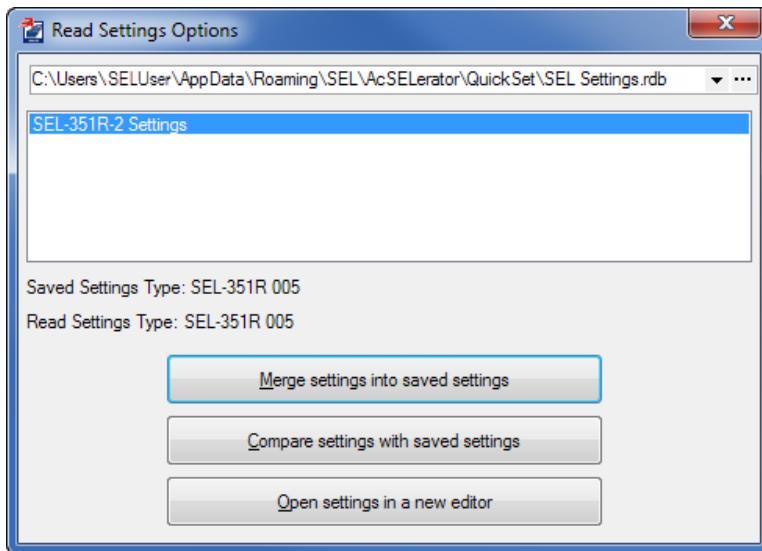


Figure 5.28 Compare/Merge During Read

Merge Settings

To merge settings, click **Edit > Merge**. Select the Settings Database from which you want to merge, choose the settings file, and click **OK**.

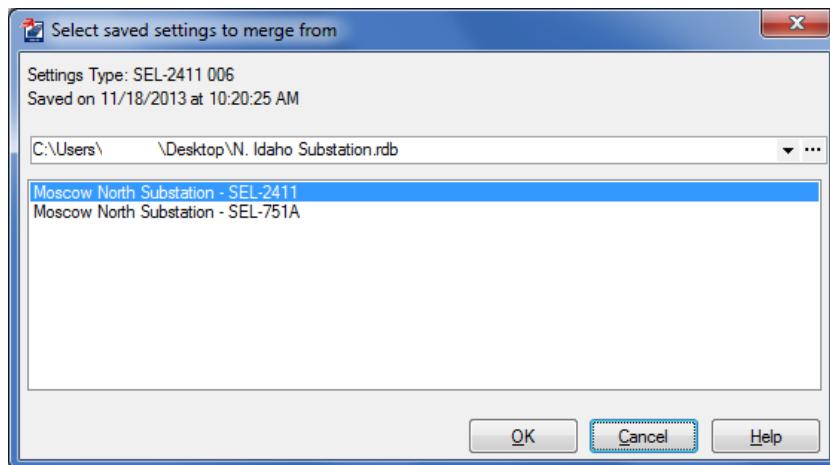


Figure 5.29 Select Settings to Merge From

Using the merge option, merge the present open settings in the editor for the device with settings from a different device. Combine two similar settings files and select certain settings to merge into the open settings file.

Use the merge function to copy settings from one device to another, or use the settings from one device as a source for programming another. For example, if you have an SEL-421 Relay with settings based upon a company standard for SEL-421 Relay applications, use QuickSet to read these settings into a Settings

Database. Then use the merge function to make the standard SEL-421 settings the source data for a similar device (another SEL-421, for example). You can then later customize any SEL-421 settings from the merged SEL-421 settings and send the new settings to another SEL-421 Relay.

Figure 5.30 shows the settings comparison report QuickSet generates during a merge process. Refer to *Evaluate Settings Differences on page 91* to determine what the different parts of the Compare Settings window mean. With the Merge dialog box open, select or deselect groups or settings to merge into the new file. Click **Accept Changes** to merge the new settings file to the one that is currently open.

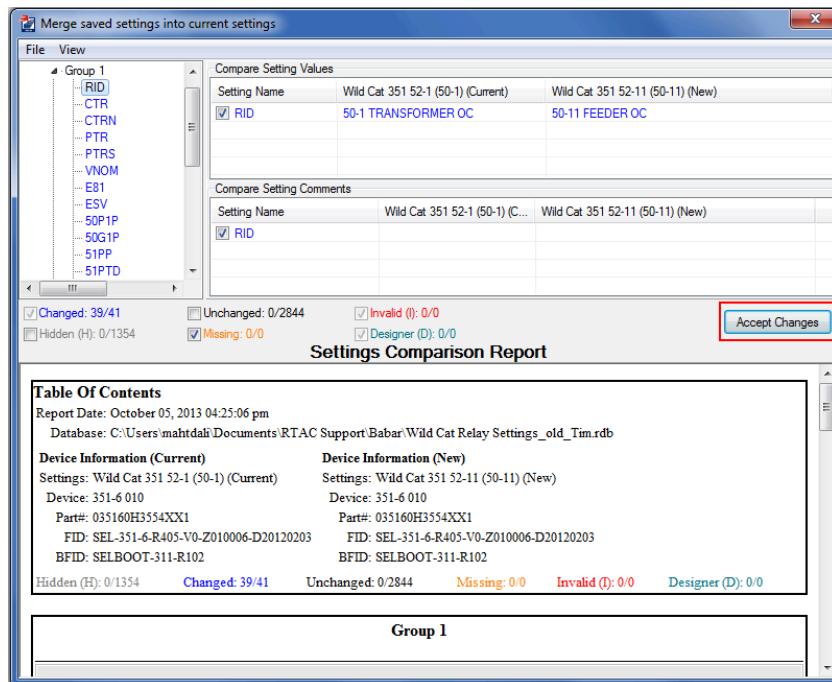


Figure 5.30 Merge Settings Report

Convert Settings

To convert settings, select **Tools > Settings > Convert**. Choose the **Settings to Convert** and then select the device type and choose **Convert** to convert the selected settings. Refer to *Evaluate Settings Differences on page 91* to determine what the different parts of the Compare Settings window mean. This option gives you the ability to change the Z-number of the device. This is helpful when you need to upgrade to a new device or firmware. Without having to start over with new settings, you can update existing settings by selecting the device and Z-number.

NOTE

A conversion can also occur between different product families. While effective, this option requires a greater amount of customization.

Settings Management Using QuickSet Settings Editor

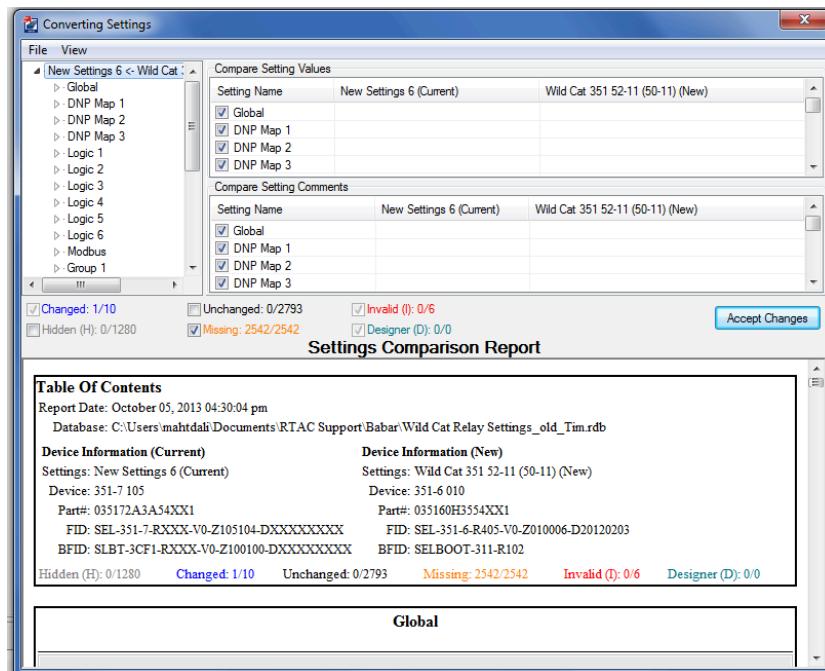


Figure 5.31 Convert Settings Report

Copy Settings

To copy settings groups, click **Edit > Copy**. From the **Copy Groups** dialog box, you can choose to copy among groups of the same type. Use the dropdown box to select the source group from which you want to copy. Check a box or boxes to the left of the target group or groups to which you want to copy the source settings. Select **Copy** to copy settings from the source group you selected to the target group or groups you selected.

NOTE

Upon your selecting a source group, that group becomes unavailable as a target group to which you can copy. Should you cancel without selecting a target group, the program returns to the Settings Editor.

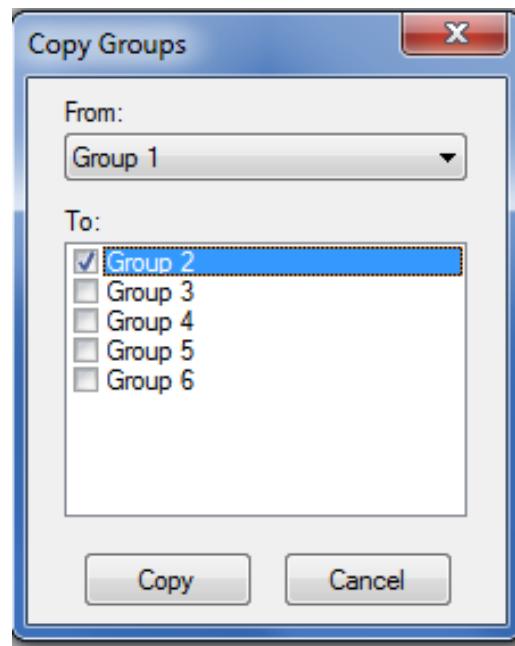


Figure 5.32 Copy Settings

Legacy Grid Editor

QuickSet uses the legacy grid editor for certain SEL devices (refer to *Appendix B: Supported Devices and Languages*). This grid offers a comprehensive arsenal of features for data grouping, sorting, summarizing, and filtering. Use these features to arrange such data as device setting names, setting ranges, and user comments according to your needs.

Column Headers

Legacy grid editors are customized by individual column headers. Drag and drop headers in the column header row into the order you choose. Right-click any column header for a context menu (see *Figure 5.33*) displaying options for header customization.

Group	Setting	Value	Range	
L	SPR1C(123456)	NA	0.1 NA, Relay Word	Sort Ascending
L	3PR1S(123456)	NA	0.1 NA, Relay Word	Sort Descending
L	3PR1C1(123456)	59L	0.1 NA, Relay Word	Clear Sorting
L	SPR2S(123456)	52A1	0.1 NA, Relay Word	
L	SPR2C(123456)	NA	0.1 NA, Relay Word	Group By This Field
L	3PR2S(123456)	52A1	0.1 NA, Relay Word	Group By Box
L	3PR2C(123456)	NA	0.1 NA, Relay Word	
L	RLTCH(123456)	NA	0.1 NA, Relay Word	Footer
L	SLTCH(123456)	NA	0.1 NA, Relay Word	Group Footers
L	RC(123456)	G	0.1 NA, Relay Word	Remove This Column
L	RS(123456)	NA	0.1 NA, Relay Word	Field Chooser
L	ER(123456)	CLS1+CLS2+A	0.1 NA, Relay Word	Best Fit
L	OUT1(123456)	CLS1	0.1 NA, Relay Word	Best Fit (all columns)
L	OUT2(123456)	CLS2	0.1 NA, Relay Word	
L	OUT3(123456)	LOCK	0.1 NA, Relay Word	
L	OUT4(123456)	NA	0.1 NA, Relay Word Elements (+, -, .,)	

Figure 5.33 Context Menu

Context Menu Options

Menu Item	Description
Sort Ascending	Sort column data in ascending order.
Sort Descending	Sort column data in descending order.
Clear Sorting	Return to the order of items that existed in a column prior to a sort.
Group By This Field	Use this option to categorize data according to the field (column header) you select. See more about grouping in the following text.
Group By Box	Use this option to categorize data according to the field (column header) you select.
Footer	Use this option to insert a footer at the end of the grid.
Group Footers	Use this option to insert a footer between the groups.
Remove This Column	Select this option to remove a column from view.
Field Chooser	Use this option to restore any columns you have removed from view. From the Customization window that appears, select the column heading you want and then drag and drop this heading in the column header row into the order you choose.
Best Fit	Use this option to adjust the margins of a column so that all values within the column display fully without truncation.
Best Fit (all columns)	Use this option to apply Best Fit to all columns at the same time.

Layout Options

QuickSet grids provide you with numerous column layout options. Configure layout options through use of the context menu (accessible by right-clicking a column header) or by the following means.

Menu Item	Description
Customizable Column Width	Resize columns by dragging their right-most edges left or right from within a column header.
Customizable Column Visibility and Display Order	Easily customize column order and obtain better visibility by dragging and dropping column headers within the column header row into the order you choose. You can toggle between showing or hiding a column through use of the context menu.
Best Fit	Double-click the right-most edge of a column from within a column header to force a column to adjust its width so that all values within the column display fully without truncation. You can also use the context menu to apply Best Fit to all columns at the same time.

Sorting

By clicking within a column header and then clicking the left-most arrow, you can use QuickSet grids to sort an unlimited number of fields in ascending or descending order as shown in *Figure 5.34*. Note that the arrow changes to indicate the direction of the sort.

Range
0-30 minutes
0-30 minutes
0-8000 cycles
0-8000 cycles
0.025-5 amps
0.025-5 amps
1,2,3
1-30
39 characters
Format: FF

Figure 5.34 Sorting in Legacy Editor

Custom Filter

Through the use of custom filters, you can filter multiple data rows quickly to retrieve information most appropriate to your needs.

To use the legacy grid editor to filter for a specific field, click the right-most arrow button within the appropriate column header (this will be the only arrow that appears if you do not first click within the column header) and select your criteria from the dropdown list. By default, the list contains all field values plus several predefined criteria according to the field type.

You can add custom criteria to the dropdown list by selecting the custom option to open the **Custom Filter** dialog box as shown in *Figure 5.35*.

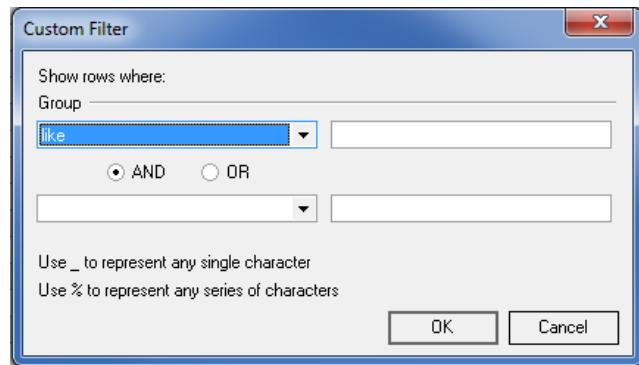


Figure 5.35 Custom Filter

Grouping

You can use QuickSet grids to group data against an unlimited number of columns. You can then sort each grouped column in ascending or descending order or use custom filtering, as previously discussed.

To group by a particular column, drag and drop the column into the panel immediately above the header columns. *Figure 5.36* shows grouping by range.

Group	Setting	Value	Comment	Description
+ Range : 0,1,NA	Relay Word Elements (+,*,!,{})			
+ Range : 0-16000	cycles			
+ Range : 0-250	V H sec			
+ Range : 0-30	minutes			

Figure 5.36 Grouping by Range

Click the plus box to the left of each item in the **Group** column to expand the category and see such data as value, setting, comment, and description.

If you want to then return to the original view, drag and drop the header (**Range** in this case) back into the header columns. You can then choose another header by which to group data.

Graphical Logic Editor

The Graphical Logic Editor (GLE) provides an intuitive CAD interface for developing device logic. QuickSet tools for graphing logical settings help eliminate errors, produce documentation, accelerate commissioning, and ease troubleshooting of SEL devices. Use the following features of the QuickSet graphical tools to obtain the most from your SEL devices:

- ▶ Drag and drop
- ▶ Element palette
- ▶ Integrated settings error notification
- ▶ Decompilation of settings directly to graphical logic
- ▶ Compilation of logic directly to device settings
- ▶ Print and print preview
- ▶ Undo/redo
- ▶ Copy and paste
- ▶ Logic diagram statistics
- ▶ Navigation tools
- ▶ Customized documentation for drawing comments

GLE functionality exists only in nonlegacy devices. Access the GLE in these devices by clicking **Group *n* > Graphical Logic *n*** in an open Settings Editor, where *n* represents the group/logic you want to use. QuickSet supports sending the GLE diagram to specific devices (refer to *Table B.1* for supported devices). When the settings are read from a device that has a GLE diagram stored, QuickSet will also load the stored GLE diagram into the Settings Editor.

The age of a device determines which of two GLE versions it uses. Both versions function similarly. Newer devices use the version shown first in *Figure 5.37*, while older devices use the version shown at the bottom of *Figure 5.37*.

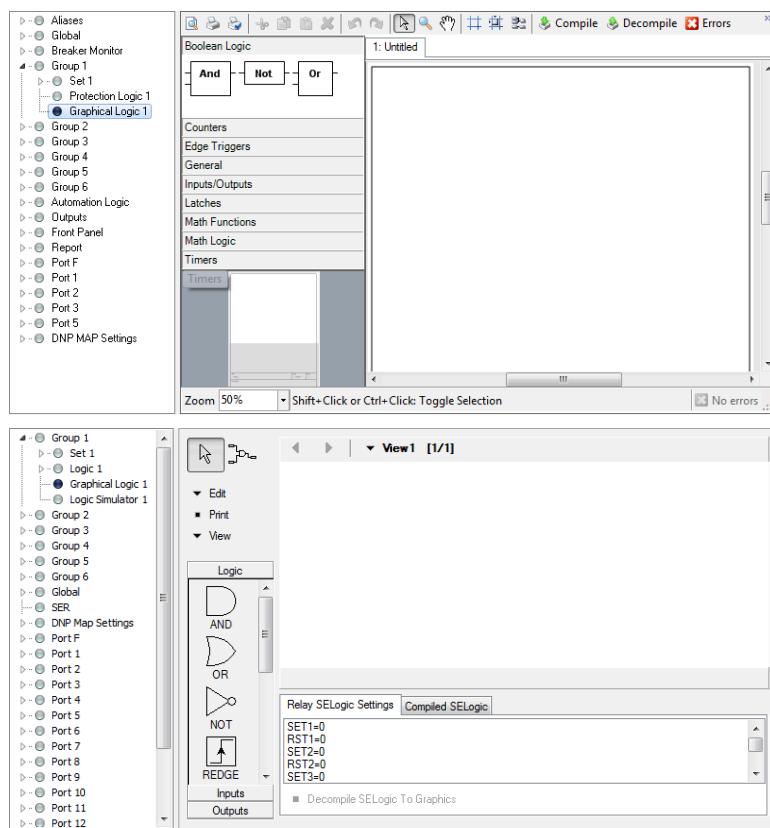


Figure 5.37 GLE Versions (Newer Version Shown First)

View and Navigation

To optimize your experience, it is important to learn the many ways to navigate and view your new logical diagrams. As you continue to work with the product, using shortcuts, scroll wheels, and right-click menus, you will find your productivity increasing when you work with settings.

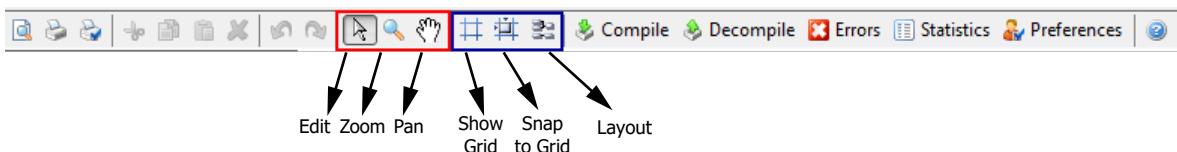


Figure 5.38 Viewing and Navigation Tools

Tools

- **Edit:** The Edit tool allows you to choose from available items within the palette and move objects within the drawing. By using this tool to select and drag your drawing or regions of your drawing, you can select single objects or multiple objects.
- This tool provides you visual indication of items you selected during the design process. Once you select an item with this tool, you can right-click the selected item to obtain additional feature options.
- **Zoom:** The Zoom tool allows you to zoom in and zoom out from a selected page.
 - Click to zoom in
 - <Ctrl> + click to zoom out
 - <Shift> + click to go to original size
- **Pan:** The Pan tool allows you to pan through a diagram by moving the current page within the viewing window.
- **Show Grid:** Use the Show Grid feature for working with large logic drawings. Grid lines, such as those on traditional graph paper, display on each drawing page to help you position shapes visually on the page.

NOTE

Grid lines are not visible in printed documents.

- **Snap to Grid:** Through use of the Snap to Grid feature, you can snap shapes to the grid.
- **Layout:** Use the Layout tool to optimize placement of the graphical elements on your page.

Pages

The graphing tools within the GLE allow great customization in how you create your drawings. The ability to tab multiple drawing interfaces within a single logic group provides a convenient way to create this customization.

You can rename or delete each tab according to your preferences.

- **New:** You can create a new tab by right-clicking any page you have created and selecting **New Page**.
- **Description:** Each page can have a unique description. This can be useful when you work with multiple pages in a drawing.

Errors

The error tool displays problems in logic as you build a diagram. These error notifications can be descriptive and helpful when you create logic.

Statistics

This tool displays statistical use and availability of logic elements within diagram pages.

Working With Logic Diagrams

Compiling Logic

You can compile and save logic diagrams in an opened window to device settings, such as in *Figure 5.39*.

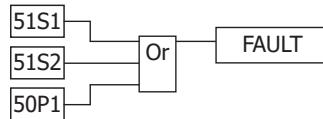


Figure 5.39 GLE Logic Model

When compiled, the previous logic becomes the following:

FAULT := 51S1 OR 51S2 OR 50P1

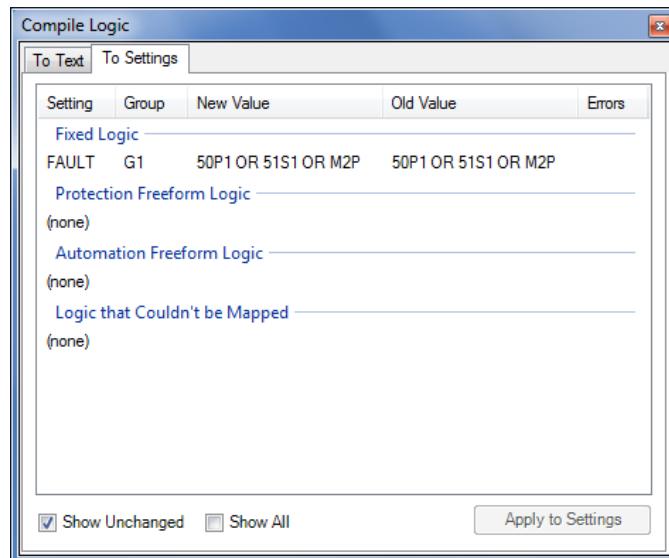


Figure 5.40 Compile Logic to Settings

NOTE

Depending upon the device type, the compiled logic uses either the word operator or the symbol operator. Consult the device instruction manual to determine which operator type a device type uses.

The application then provides you two main options for working with the logic:

- **To Settings:** Compiling to settings allows you to see the new logic compiled to text as well as existing logic already created for the working device.
By modifying the following viewing options, you can see the complete list of logic equations.
 - **Show Unchanged:** shows logic settings within the logic editor that are already in synchronization.
 - **Show All:** shows all logic settings with assigned values.
- **To Text:** Compilation to text is a quick way to see how your logical diagram will compile to standard settings logic.

Decompiling Logic

Decompiling logic is the process of taking existing text logic and decompiling it into graphical logic. During this process, the software interprets the text logic and lays out the drawing to the best of its ability. You may still want to modify the resulting drawing according to your preferences.

Consider, for example, the software decompiling the following text logic equation:

BK1MCL := (CC1 OR PB7_PUL) AND PLT04

This would decompile according to the logic in *Figure 5.41*.

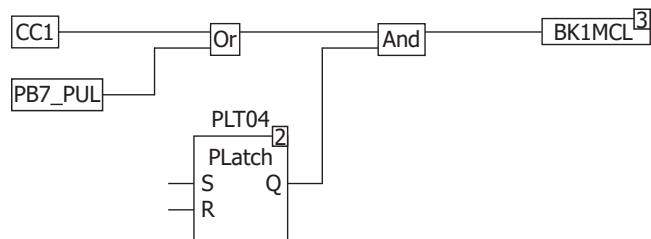


Figure 5.41 Decompiling Logic

The application provides two main methods for decompiling settings:

- **From Settings:** Choosing to decompile from settings causes the software to display a complete list of all settings related to the device you are configuring. You can select one or multiple rows from within the form for decompilation to a graphical model.
- **From Text:** Decompiling from text allows you to quickly type in the editor window to decompile your settings.

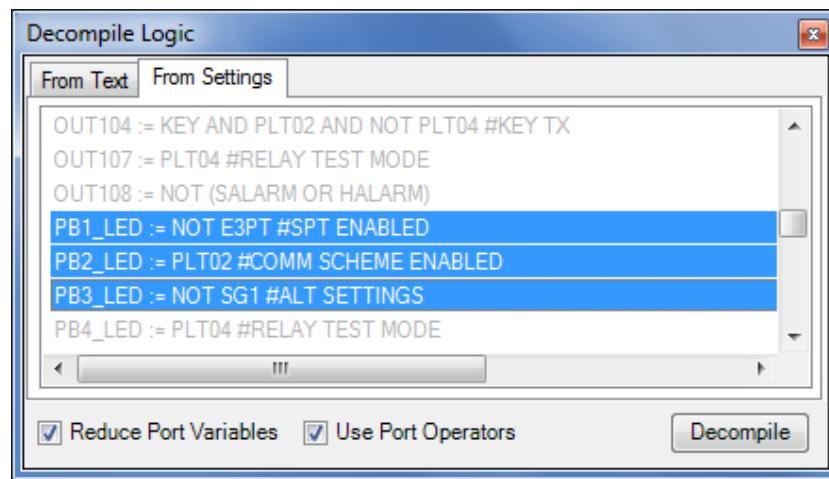


Figure 5.42 Decompile Logic From Settings

Changing Appearance of Logic Diagrams

QuickSet offers different ways to display graphical drawings according to your standards. You can then choose the best means for presenting logic for documentation.

To change the appearance of logic diagrams, click **Preferences** from the GLE toolbar for more options.

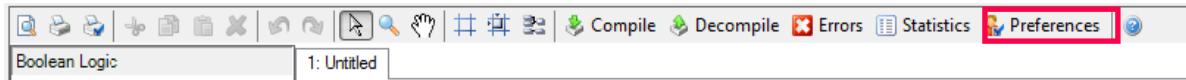


Figure 5.43 Changing Logic Diagram Appearance With Preferences Tab From the GLE Toolbar

- **Diagram Style:** You can switch between drawings with color or simple black and white as shown in *Figure 5.44*.

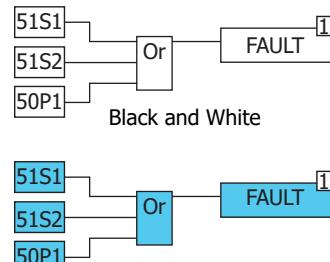
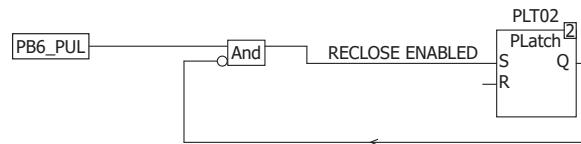
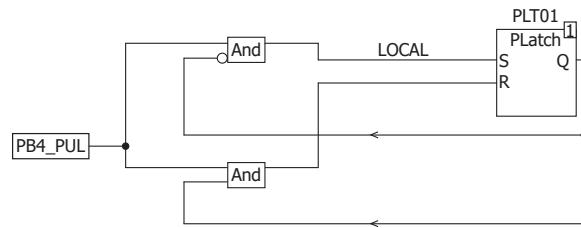
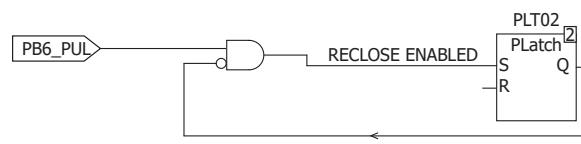
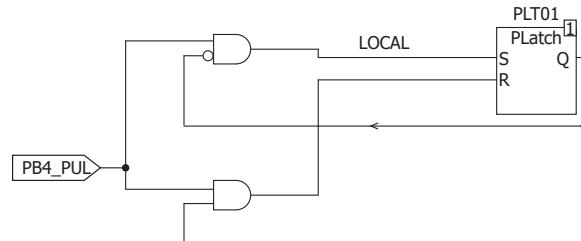


Figure 5.44 GLE Preferences—Diagram Style

- **Element Style:** The drawing tool supports both IEC 61131-3 and IEEE style symbols. You can switch freely between the two types of symbols by right-clicking and changing the selected type.



Example IEC 61131-3



Example IEEE

Figure 5.45 GLE Preferences—Element Style

- **Variable Display Format:** Some SEL devices allow you to create aliases for element names. In these cases, you can link the elements to alias settings within the graphing tool. You can choose to show the aliases, the physical device element names, or both.

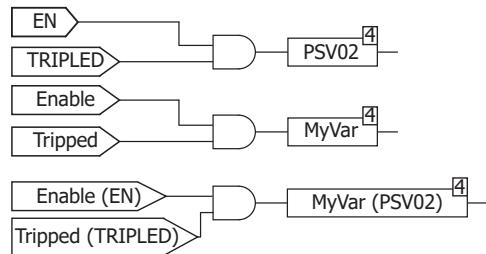


Figure 5.46 Variable Display Format

- **Printing:** Graphical printing tools allow for the printing of single or multiple pages of logic diagrams.
To optimize drawings, printing supports the customization of the following page options:
 - Margins: left, right, top, and bottom
 - Orientation: portrait and landscape
 - Paper and page size: width and height
- **Element Palette:** The software provides a logic element palette through which you can view and select device-specific logic elements, operators, and functions that you want to add to a logic diagram.
- **Elements:** QuickSet groups and provides elements according to categories and types of elements available in the device you are using. Within the General category are the following:
 - Generic: A generic element is an element that you can change to any available element type after you add the element to a diagram.
 - Comment: A comment element allows you to create a single-line comment that, while not associated with a particular element, corresponds to a position within the compiled logic.
 - Text: A text element allows you to display text at any location on the page.
 - Connector/Continuation: A continuation element is an element you can use to represent a connection line symbolically rather than with an explicit line, such as allowing a connection to cross page boundaries.
 - Image: An image can be placed on a page to customize or document a drawing.
- **Logic Operators:** SEL control equation settings use logic similar to Boolean algebra. You can combine one or more of the five control equation operators with Device Word bits to make Boolean expressions that customize the relay functionality to suit individual applications.
Drag and drop logic operators from the element palette or simply right-click the inputs or outputs of individual elements already displayed on a drawing.
- **Editing:** QuickSet attempts, whenever possible, to optimize placement of elements. Even with automatic layout, however, it is often necessary to edit, move, or delete portions of a drawing. QuickSet provides you a number of editing tools for completing your logic diagrams.
- **Lines:** Line editing is simple through use of the graphical logic builder. Simply hover your mouse over any line, and the software highlights in green what lines you can move.
- **Elements:** You can modify each individual element by right-clicking the element and selecting properties. From the **Element Properties** window that displays, you can modify the element name, define an alias value if applicable, include a comment, and modify element execution order if a specific device supports such reordering.

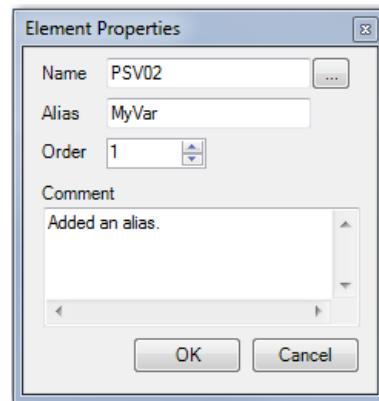


Figure 5.47 Modify Elements From the Element Properties Window

- **Groups:** QuickSet provides you the ability to group any number of elements by dragging or selecting an area and then selecting a group or groups from the right-click menu. Once you have grouped items, you can modify properties or ungroup individual elements or all elements.

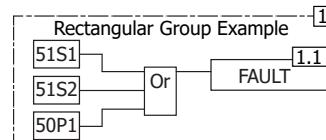


Figure 5.48 Rectangular Group Example

You can define group styles according to your standards. By default, QuickSet selects a rectangular grouping style such as that shown in *Figure 5.48*. Other options include bottom bracket, left bracket, right bracket, and top bracket.

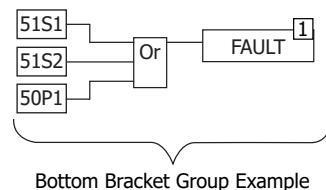


Figure 5.49 Bottom Bracket Group Example

Keyboard Shortcuts

Editing

Select all elements and objects	<Ctrl+A>
Select additional items	<Shift> Left-Click
Copy to the clipboard	<Ctrl+C>
Cut to the clipboard	<Ctrl+X>
Paste contents of the clipboard	<Ctrl+V>
Undo the last action	<Ctrl+Z>
Redo the last action	<Ctrl+Y>

Viewing

Zoom in/Zoom out	<Ctrl> + mouse wheel
Pan left/Pan right	<Shift> + mouse wheel
Pan up/Pan down	Mouse wheel

Expression Builder

SELOGIC control equations are a powerful means for customizing relay operation. QuickSet simplifies this process with the Expression Builder, a rules-based editor for programming SELOGIC control equations. The Expression Builder organizes relay elements and SELOGIC control equation variables and focuses equation decision making.

Access the Expression Builder

Click the ellipsis button to the right of each logic setting to start the Expression Builder, as shown in *Figure 5.50*.

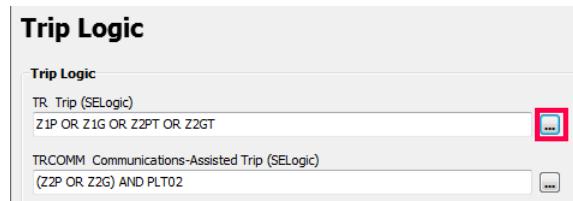


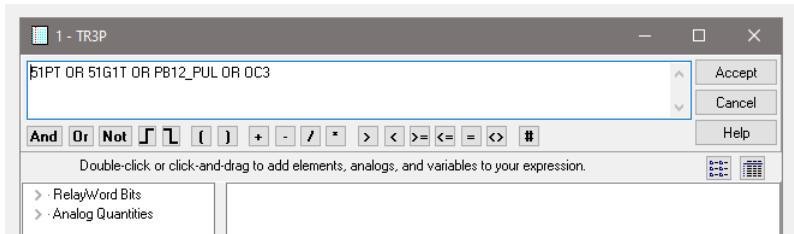
Figure 5.50 Access the Expression Builder

Using the Expression Builder

SELOGIC control equations can be built from a list of Relay Word bits, which are arranged in categories.

- ▶ Select from within the lower right box of the Expression Builder the individual categories in which you want to view the associated Relay Word bits.
- ▶ Double-click a Relay Word bit to place it in the equation box at the top of the Expression Builder.
- ▶ Click the SELOGIC operators below the equation box to add operators to the equation, or type the SELOGIC control equations directly in the equation box.
- ▶ Click **Accept** to exit the Expression Builder and save the equation or **Cancel** to exit without saving.

Please refer to the device instruction manual for more examples of SELOGIC control equations.

**Figure 5.51 Expression Builder**

Settings Management Using Device Manager

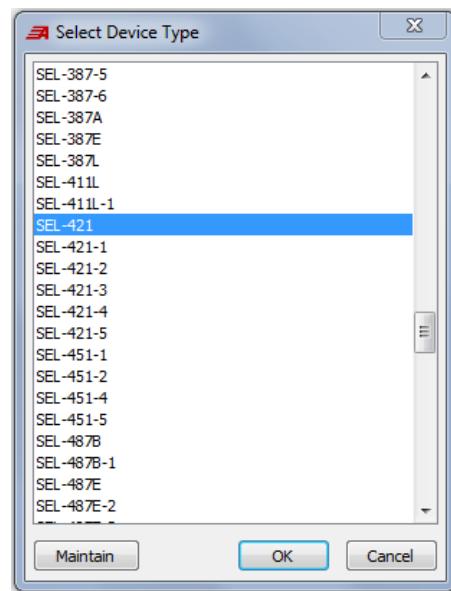
This section provides detailed information on settings management using Device Manager. A central component of the Device Manager plugin is the ACCELERATOR Database, an Open Database Connectivity (ODBC)-compliant structured query language (SQL) database that stores device configurations and settings. You can do the following through use of Device Manager for settings management:

- Associate settings files with devices
- Avoid management of multiple RDB files
- Improve user workflow

It is important to have an easy way to associate device settings with the devices. For example, if you read a settings file from a relay and save it on the local PC, there is no way to associate the device with its settings after you disconnect from the relay. Using Device Manager for settings management eliminates this confusion because the device information and its settings are stored at a central location.

Create New Settings

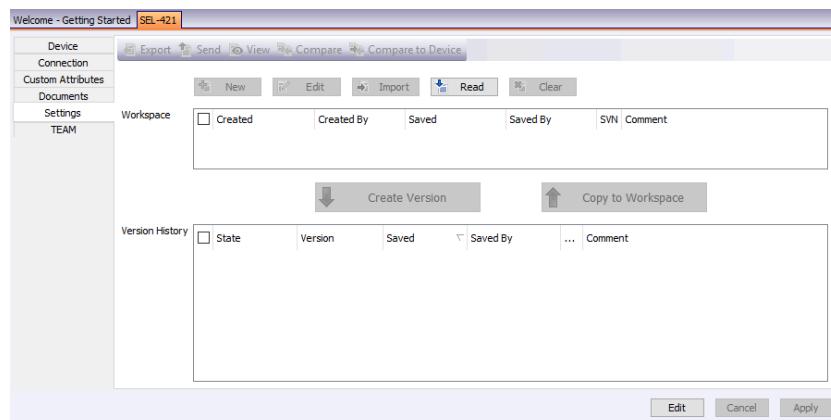
To create new settings, open Device Manager, right-click in the **Connection Explorer**, click **Add > Device**, select the device, and click **OK**.

**Figure 5.52 Select Device Type**

Double-click the device you just added, and then select the **Settings** tab. Click **Edit** on the bottom right to enable the settings form. Then click **New**.

NOTE

Only one settings configuration can be associated with each device node in the **Connection Explorer** at a time.

**Figure 5.53 Settings Tab**

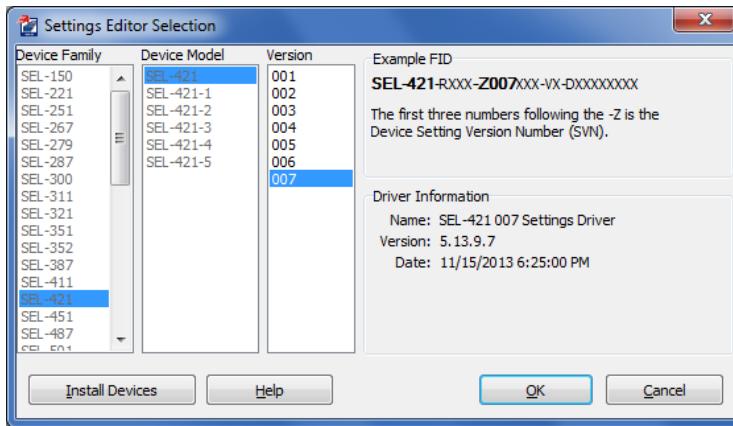


Figure 5.54 Settings Editor Selection—ACSELERATOR Database

The **Device Family** and **Device Model** will be automatically selected based on the device that you added in the **Connection Explorer**. Select the appropriate **Version** number and click **OK**. This will open the QuickSet editor where you can make changes to the settings.

Edit and Save Settings

To edit a settings file, click in the lower right corner of the **Settings** tab, and then click **Edit** in the Workspace menu. This opens the Settings Editor where you can make changes. After making all changes, click **File > Save** and close the editor. After you close the editor, QuickSet returns you to the **Settings** tab view.

NOTE

The asterisk next to the **Settings** tab indicates that the settings are in a pending state and clicking **Apply** will save the settings to the database (see Figure 5.55).

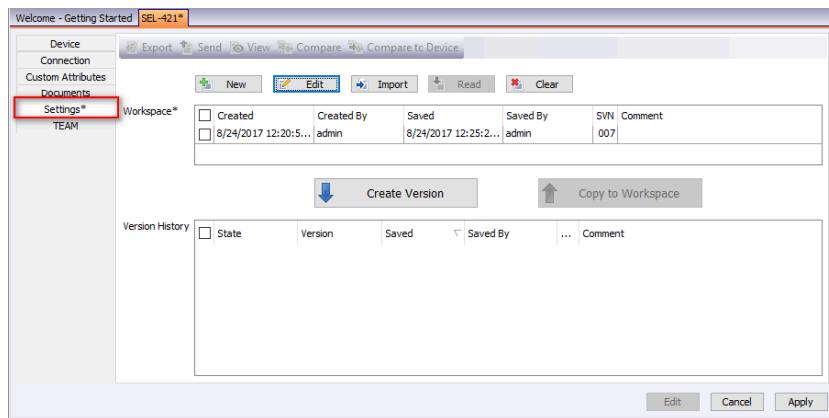


Figure 5.55 Pending Settings

Click **Apply** to save the settings changes to the database.

Read and Send Settings

To read and send settings to devices using Device Manager, right-click the device in the **Connection Explorer**, then select **Device Tasks > Read or Send**.

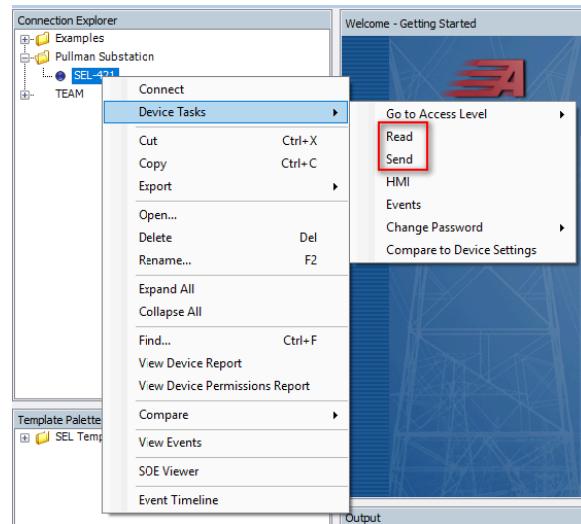


Figure 5.56 Device Tasks

Note that the connection parameters for the device in the **Connection** tab must be defined to read or send settings by using Device Manager. Refer to *Section 4: Asset Management Using Device Manager* for more information on the **Connection** tab.

Once QuickSet reads the settings, you will see the settings displayed in the Workspace area shown in *Figure 5.57*:

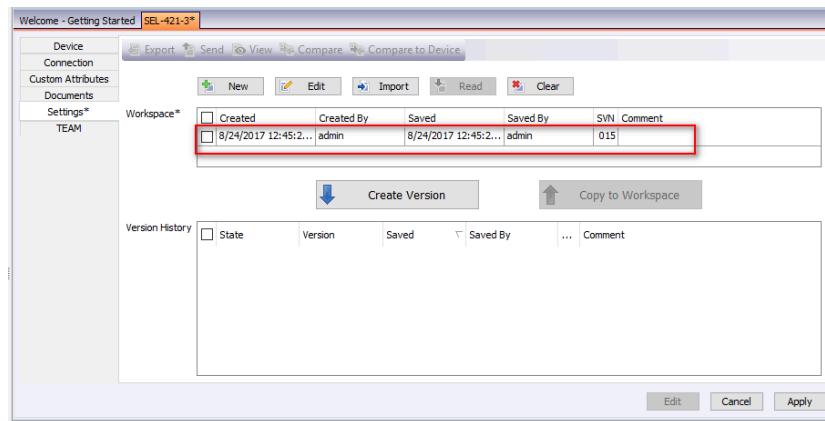


Figure 5.57 Workspace Settings

Merge with Device Settings: You can do a merge of saved settings within the **Workspace** or the **Version History** sections. To merge current device settings, select the **Merge with Device Settings** option in the **Device Tasks** menu, as seen in *Figure 5.58*.

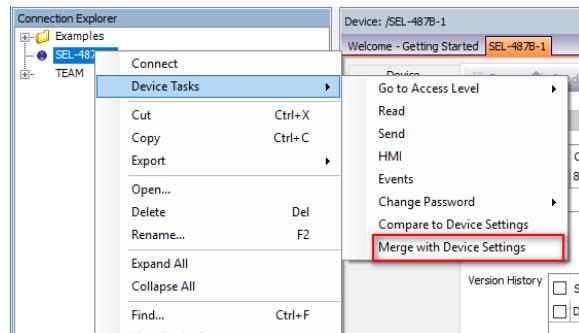


Figure 5.58 Merge Read Settings

Import Settings

To import settings from a Settings Database (RDB file) and associate them with a device in the **Connection Explorer**, double-click the device in the **Connection Explorer**, then select the **Settings** tab. Click **Edit** on the bottom right to enable the **Settings** view. Now click **Import**. From the **Import Device Settings** dialog box, browse to the location of the RDB file. Note that the **Contents** pane shows the settings files that can be associated with the device that you selected. All other settings files are grayed out because the settings do not match the Device Type. Click **Import** to return to the **Settings** tab view, and then click **Apply** to save the changes to the database.

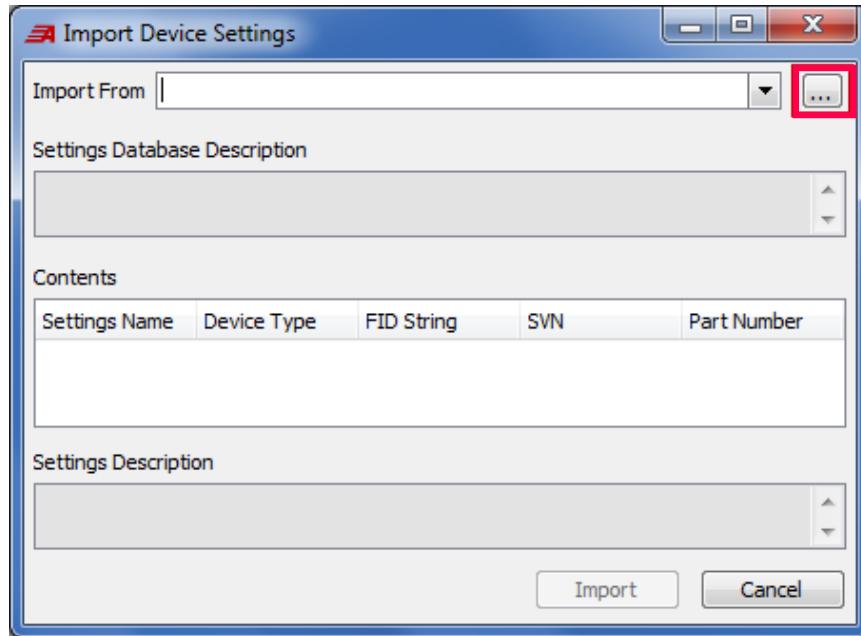


Figure 5.59 Import Device Settings

To import settings from many devices, right-click in the white space in the **Connection Explorer**, select **Import from Settings Database** (see *Figure 5.60*).

If the SEL-5231 SEL Configuration API is installed locally, the SEL Settings Database Importer will be launched. The SEL Settings Database Importer provides advanced import features. If the SEL Configuration API is not installed, a more basic importer is launched.

Basic Importer

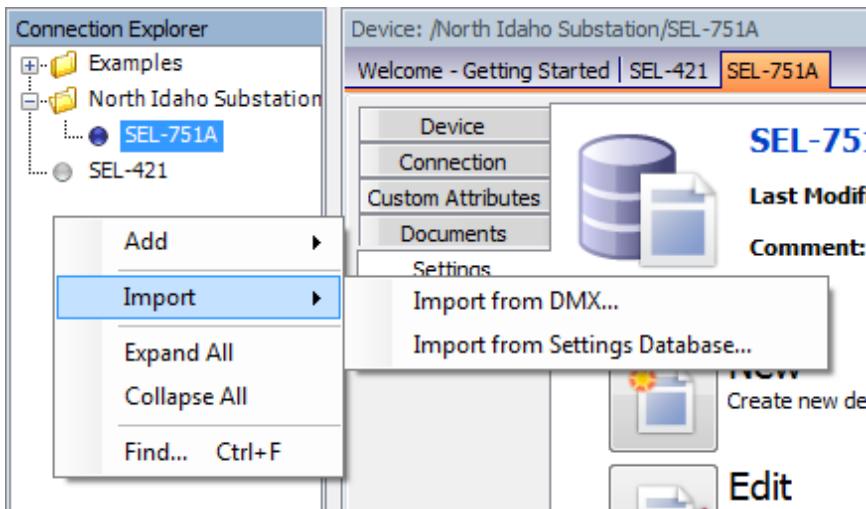


Figure 5.60 Bulk Import

Select the RDB file from which you want to import settings. The **Contents** pane contains five columns. The **Settings Name**, **Device Type**, and **Setting Version Number** columns list all the settings files in the selected RDB. The **Action** column provides you with three options:

- ▶ Create new device: Select this option if you do not already have a device node defined in the **Connection Explorer**.
- ▶ Import to existing device: Select this option if there is a device defined in the **Connection Explorer** and you want to associate the settings file to that device.
- ▶ Ignore: Select this option if you choose not to import the settings file.

You can select the **Target Device** column only when the option in the **Action** column is "Import to existing device." Click the dropdown arrow to select the target device.

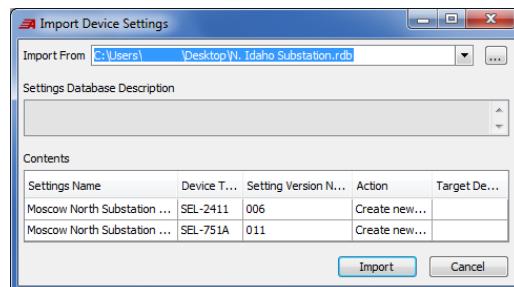


Figure 5.61 Select RDB File Settings for Import

Settings Management Using Device Manager

Right-click a value in the **Settings Name** column (see *Figure 5.61*) to assign one of the following actions to all devices:

- **Ignore All**
- **Mark all as Create New**
- **Mark all as Import to Existing**

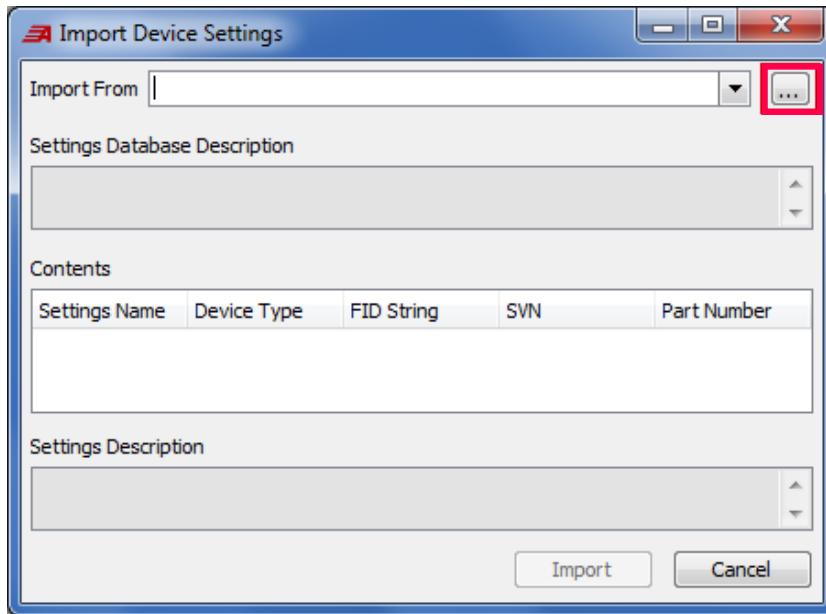


Figure 5.62 Import Device Settings (Apply to All Devices)

SEL Settings Database Importer

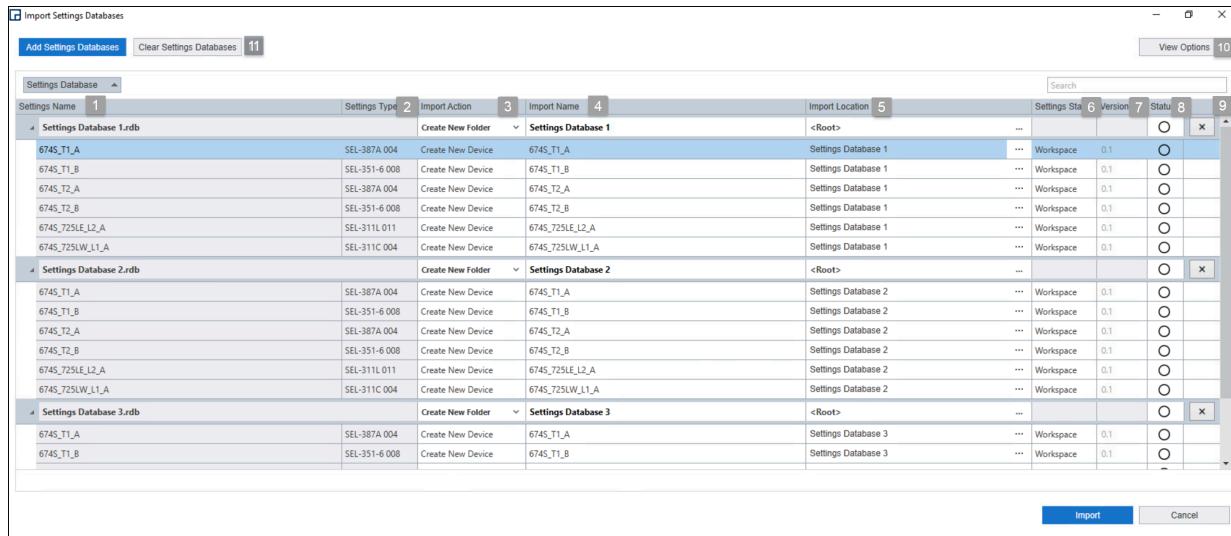
If you have installed SEL-5231 SEL Configuration API locally, then you will use the SEL Settings Database Importer utility when importing Settings Databases into the Connection Explorer. The SEL Settings Database Importer includes a number of features not supported in the default import tool. These include importing multiple Settings Databases simultaneously and importing device settings into new or existing devices. Additionally, the Settings Database Importer generates a report of all actions for later archiving, viewing, and printing as needed for documenting interactions with the ACCELERATOR Database.

The general workflow in the Settings Database Importer includes three steps, which are illustrated in *Figure 5.63*:

- Step 1. Select the target Settings Databases through the **Add Settings Databases** button.
- Step 2. Configure the import options as desired.
- Step 3. Import the device settings into the ACCELERATOR Database via the **Import** button.

The following instructions provide additional details for each of those steps. To begin the process, select **Add Settings Databases** from the SEL Settings Database Importer and browse for one or more Settings Databases. Select the desired Settings Databases and click **Open**. You can also drag and drop the

desired Settings Databases into the SEL Settings Database Importer view. Valid Settings Databases will open in the importer, as shown in *Figure 5.63*. Any invalid files will produce an error dialog to indicate which file was invalid, as shown in *Figure 5.64*.



The screenshot shows the 'Import Settings Databases' window. At the top, there are buttons for 'Add Settings Databases' and 'Clear Settings Databases'. A status bar indicates '11' items. Below is a table with columns: Settings Name (1), Settings Type (2), Import Action (3), Import Name (4), Import Location (5), Settings Sta (6), Version (7), Status (8), and a delete icon (9). The table has three sections: 'Settings Database 1.rdb', 'Settings Database 2.rdb', and 'Settings Database 3.rdb'. Each section contains multiple rows of data. At the bottom right are 'Import' and 'Cancel' buttons.

Figure 5.63 Settings Database Importer

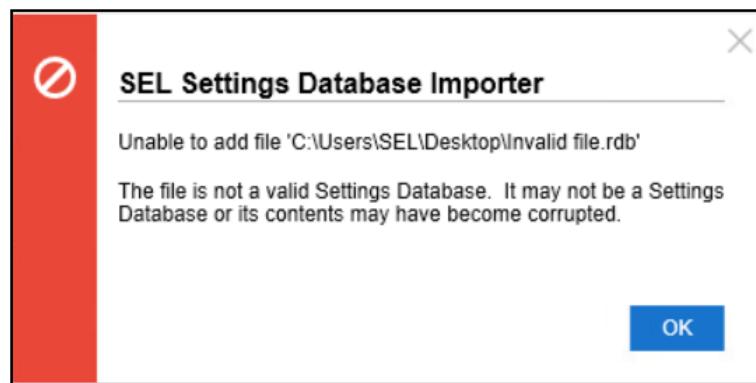


Figure 5.64 Invalid Settings Database

The SEL Settings Database Importer displays the settings and their containing Settings Databases in a tabular view. By default, the SEL Settings Database Importer will create a new folder in the **Connection Explorer** for each Settings Database and will create a new device within that folder for each of the device settings. The SEL Settings Database Importer provides import options to customize the way these folders and devices are created. Multi-select and right-click options are also available and for more information on these features please refer to the Job Done® Example *SEL Settings Database Importer Multi-Select and Right-Click Option on page 132*.

The following is a short introduction to the **SEL Settings Database Importer** window functions:

1. **Settings Name:** This field displays the name of the settings contained within the selected Settings Databases. Click the arrow to the left of the Settings Database name to collapse or expand the settings list.
2. **Settings Type:** This field displays the device model and settings version number (SVN) associated with the settings.

3. **Import Action:** This field enables you to customize the way the Settings Databases and settings are imported into the ACCELERATOR Database. Select the **Import Action** field for any Settings Database or settings entry to configure the desired action.

➤ The Import Actions available for Settings Databases are as follows:

- **Create New Folder:** This option creates a new folder within the ACCELERATOR Database for the Settings Database. By default, new folders will be created at the root of the Connection Explorer and new devices for the settings within the Settings Database will be created beneath the new folder. When you select this option, the Import Location can be used to specify the location within the Connection Explorer to create this new folder.
 - **Add to Folder:** This option enables you to specify an existing folder within the Connection Explorer to be the location where you will create new devices.
 - **Do Not Create Folder:** This option means that a folder will not be created for the specified Settings Database. When you select this option, any contained settings will have their import location defaulted to the root of the Connection Explorer.
- The Import Actions available for settings are as follows:
- **Ignore:** This option will prevent the settings from being imported into the ACCELERATOR Database. If selected, the SEL Settings Database Importer will disable all other options for the settings and the status icon will display **Ignored**.
 - **Create New Device:** This option will create a new device in the Connection Explorer under the selected **Import Location**.
 - **Add to Device:** This option will add the settings to an already existing device in ACCELERATOR Database. You must specify the device in the **Import Location** field when using this option. For more details on how to use this option, refer to *Adding Settings to an Existing Device on page 130*.

NOTE

By default, settings will be added to the workspace of the selected Import Location. If there are currently settings in the workspace of the Import Location, those settings will be overwritten during the import.

4. **Import Name:** This field refers to the name of the device or folder that the settings or Settings Database will be imported into. When a new device or folder will be created, Import Name is editable. Click in the name field to edit the folder or device name. When **Add to Folder** or **Add to Device** is selected, the **Import Name** will be set to the selected **Import Location** and will not be editable.
5. **Import Location:** This field enables you to select a desired import destination. To select an **Import Location**, click the ellipsis button for a list of available import locations and double-click the desired one.
6. **Settings State:** This field enables you to specify the workflow state of the imported settings, when imported as a settings version. To customize the workflow state selections, please see *Configure Workflow on page 74*.

7. **Version:** This field enables you to specify the version number of the settings, when importing as a settings version. The version is displayed within the **Version History** on the **Settings** tab for each device in Device Manager. Versions are not available if targeting the workspace. To edit the version of the imported settings, select a workflow state, other than **Workspace**, in the **Settings State** column. You can type a desired version number, or click the arrows in the version field to increment or decrement the version number. For more details on how to use this field, refer to the Job Done Example *Adding Settings to an Existing Device on page 130*.
8. **Status:** This field provides information on the status of the import. Hover the mouse over the icon in the status column for a description of the import status.
9. **Remove Settings Database:** The **Remove Settings Database** button (the X on the far right of the Settings Database) removes the Settings Database from the view.
10. **View Options:** The **View Options** menu provides options for how settings are displayed within the tabular view, as shown in *Figure 5.65*, there are three options when organizing the Settings view.
 - Select the **Group by Settings Database** option to organize the view by Settings Databases. This provides a better view when you need to customize settings within Settings Databases. This view is also the default option.
 - Select the **Group by Target Device** option to organize the view by device being importing into. This view will provide a better view when multiple settings are being imported into each device, and for enabling you to specify settings version numbers and states.
 - Unselect both options to organize the view into a flat list of settings that may be easier to sort or filter.



Figure 5.65 View Options

11. **Clear Settings Databases:** The **Clear Settings Databases** button removes all settings and Settings Databases from the SEL Settings Database Importer.

Click the **Import** button when ready to import the Settings Databases. A progress dialog will show the status of the import. When the import is completed, click **Close** to close the progress dialog. Clicking **Cancel** during the import operation will stop the import but will not affect those settings that were imported prior to the cancellation. The import status of the settings can be viewed in the **Status** column of the SEL Settings Database Importer.



Figure 5.66 Progress Dialog in Progress



Figure 5.67 Progress Dialog Box Complete

Report

A report is generated for each import operation as a CSV file. When the import is completed, click **View Import Report** on the progress dialog to view the report. The report can be saved or printed to provide traceability for each import. Previous reports can be accessed from the following location:

C:\Users\%CURRENTUSER%\AppData\Roaming\SEL\AcSELERator
\Import Reports

Export Settings

To export the settings in the ACSELERATOR Database to a Settings Database (RDB file), double-click the device in the **Connection Explorer**, then click **Export** in the **Settings** tab. From the **Export Device Settings** window, click the ellipsis to export the settings into a pre-existing RDB or click **New** to create a new RDB. Select **Export**.

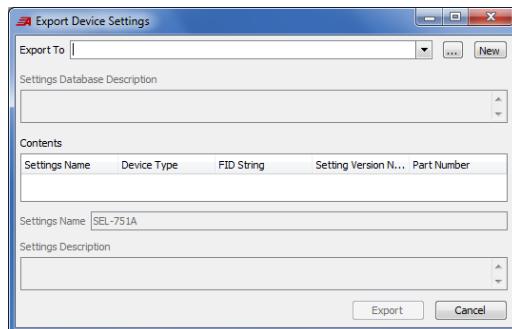


Figure 5.68 Export Device Settings

Remove Settings

To clear the settings associated with the device, double-click the device in the **Connection Explorer**, go to the **Settings** tab, click **Edit** on the bottom right to enable the form for editing, and then click **Remove**. Enter any comment you want and then click **Apply** to remove settings from the database.

Database Management

The QuickSet **Database Manager** allows users to manage the RDB setting files QuickSet uses to store device settings. The **Database Manager** (shown in *Figure 5.69*) is also used to create and restore backups of the ACCELERATOR Database that the Device Manager uses. To open the **Database Manager**, click **File > Database Manager**.

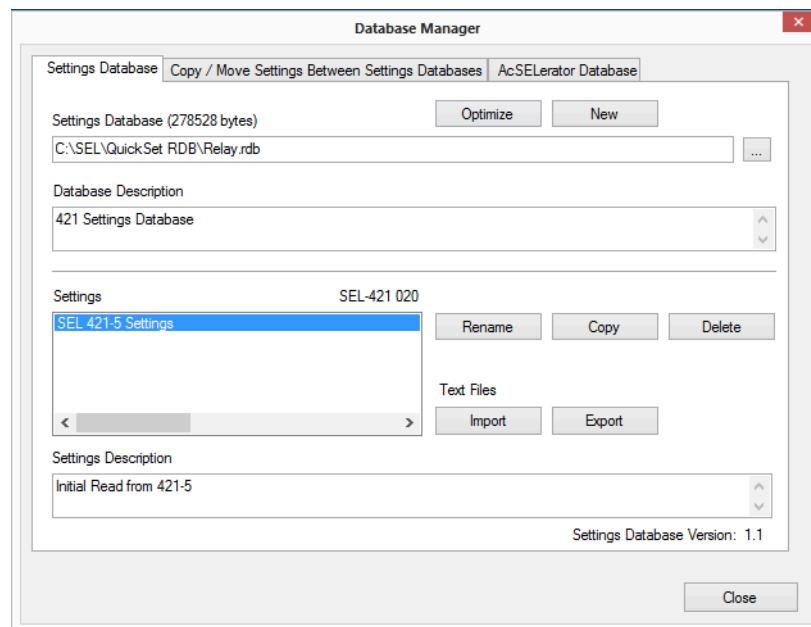


Figure 5.69 Database Manager

Settings Database

- **Optimize:** The Optimize feature of the **Settings Database** tab releases allocated space in the RDB settings files previously used by deleted or modified device settings. If you notice that the file size of an RDB is increasing, use the **Optimize** button to reclaim any unallocated space from the RDB file that is no longer needed.
- **New:** Creates a new empty RDB setting file. This is useful when you need to move device settings to an RDB file not presently available.
- **Settings Database:** Shows the current/last RDB file QuickSet used and its size.
- **Database Description:** Allows entry of a specific description for the RDB database file.

- **Rename/Copy/Delete:** Allows modification of Settings Database device settings by providing the ability to rename a device setting, create a copy of device settings, or delete device settings.
- **Import/Export:** Exports device settings of the Settings Database into text files to send directly to an SEL device or imports device text files into the Settings Database.
- **Settings Description:** Allows entry of a specific description for the device setting selected in the Settings box.

Copy/Move Settings Files

Device settings files can be easily copied and moved to different RDB files. To do this, click the **Copy/Move Settings Between Settings Databases** tab of the **Database Manager** window. There are two columns, which we identify as Settings Database A and Settings Database B. Select the location of each Settings Database, then use the arrows to copy or move the settings between the two databases as shown in *Figure 5.70*.

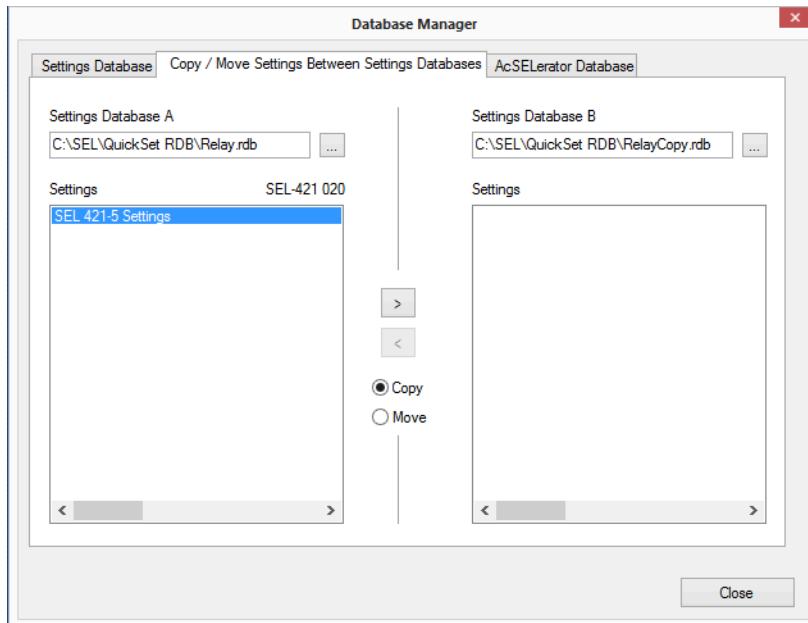


Figure 5.70 Copy/Move Settings Between Settings Databases

ACSELERATOR Database

ACSELERATOR Database is an SQL database that QuickSet uses to store all device configurations of the QuickSet Device Manager.

To back up the ACSELERATOR Database, click the **AcSELERATOR Database** tab of the **Database Manager** window as shown in *Figure 5.71*. Verify the ACSELERATOR Database connection information of the **Database IP Address** and **Database Port Number** fields, choose a directory in which you want to save the database, then click the **Backup Database** button.

NOTE

To take advantage of the Remote Connection functionality of the ACCELERATOR Database, either DNS will need to be enabled on the server computer, or the network Host Table will need to be modified to accept connections from specific client connections.

To restore a backup of the ACCELERATOR Database, click the **AcSELERator Database** tab of the **Database Manager** window as shown in *Figure 5.71*. Enter in the ACCELERATOR Database connection information of the **Database IP Address** and **Database Port Number** fields, select the backup file from which you will restore information, then click the **Restore Database** button.

For the ACCELERATOR backup to complete successfully, the following needs to be verified:

- At least three times the database size in free hard drive space. To find the database size, navigate to C:\ProgramData\SEL\AcSELERator\MasterDatabase\, right-click on the MasterDatabase folder, go into **Properties**, and you will see the size of the database.
- During the backup process, all processes that need access to the ACCELERATOR Database will be temporarily turned off until the backup process is completed.
- Depending on the size of the ACCELERATOR Database, the backup process can take from a few minutes to a few hours. It is important not to interrupt the backup process until it completes.

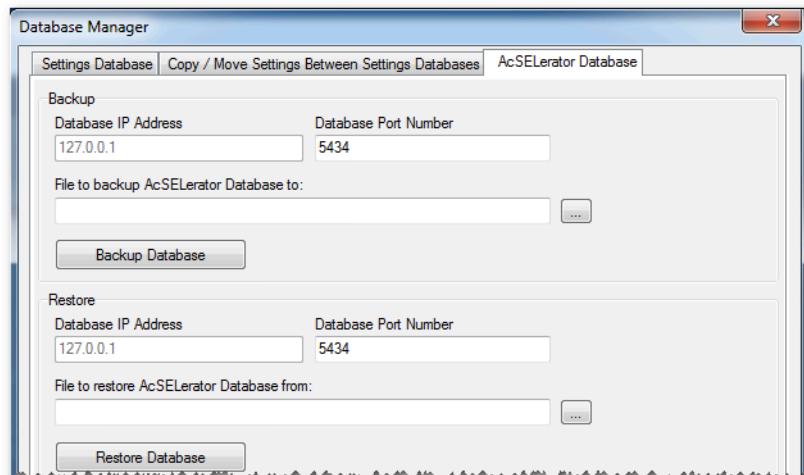


Figure 5.71 Backup ACCELERATOR Database

Sharing Device Manager Database

Device Manager can share Device Manager connections and settings from one computer to multiple clients in a read-only view. To allow remote connections to a Device Manager database, select the **Allow remote database connections to the AcSELERator Database running on this computer** check box in the Connection Configuration section of the **AcSELERator Database** tab in the Database Manager window, as shown in *Figure 5.72*.

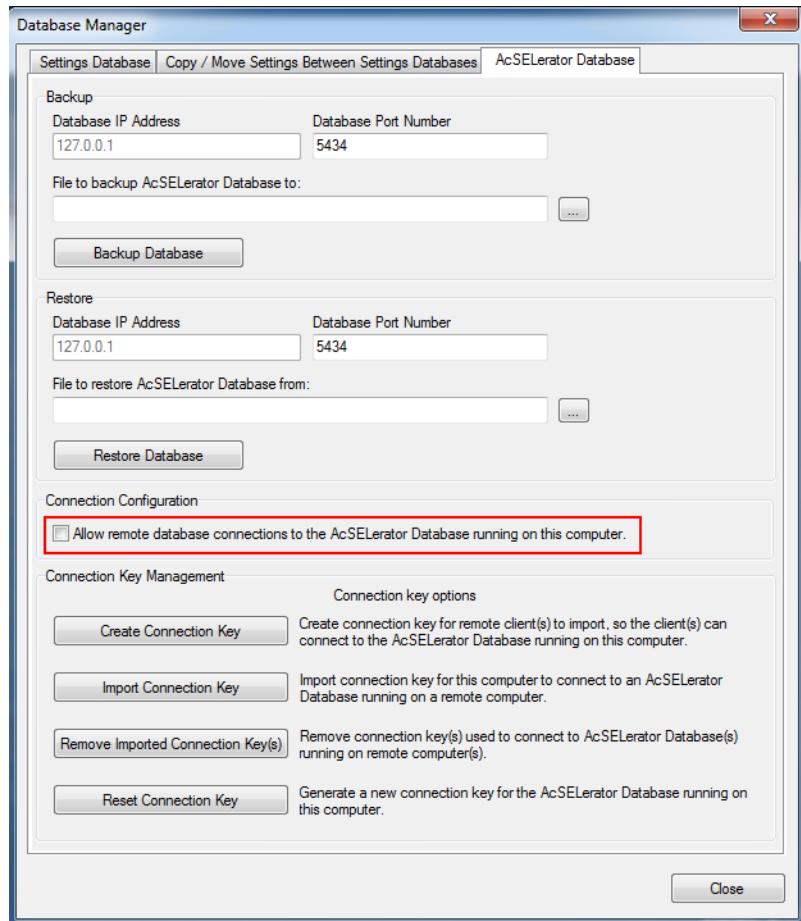


Figure 5.72 Remote Connection Selection

The connection keys used by Device Manager are created in QuickSet on the computer that is sharing the database, and then imported into QuickSet on the clients that will be accessing the shared database in a read-only mode.

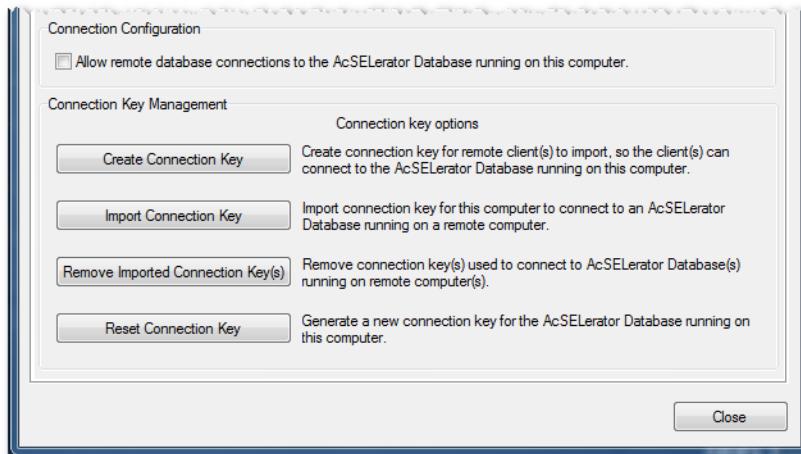


Figure 5.73 Connection Key Options

- **Connection Configuration:** Used to allow remote client PCs to access the Device Manager database on the local PC. Select this option when sharing the local Device Manager database.
- **Create Connection Key:** Creates a shared key that remote clients can import into their installation of QuickSet running on the client computer.
- **Import Connection Key:** Imports a connection key for clients to connect to an ACSELATOR Database running on a remote computer.
- **Remove Imported Connection Keys:** Removes connection keys used to connect to ACSELATOR Databases running on remote computers.
- **Reset Connection Key:** Generates a new connection key for the ACSELATOR Database running on the remote computer.

Creating a Connection Key

- Step 1. Open QuickSet and click **File > Database Manager**.
- Step 2. In the Database Manager window, click the **AcSELerator Database** tab to access the **Connection Key Management** section (which appears below the Backup section).
- Step 3. Click **Create Connection Key** to create the key that will allow connection to the Device Manager database of the computer.
- Step 4. In the **Save connection key file** window, enter a name for the connection key that you will be sharing with clients and click **Save** (see *Figure 5.74*).

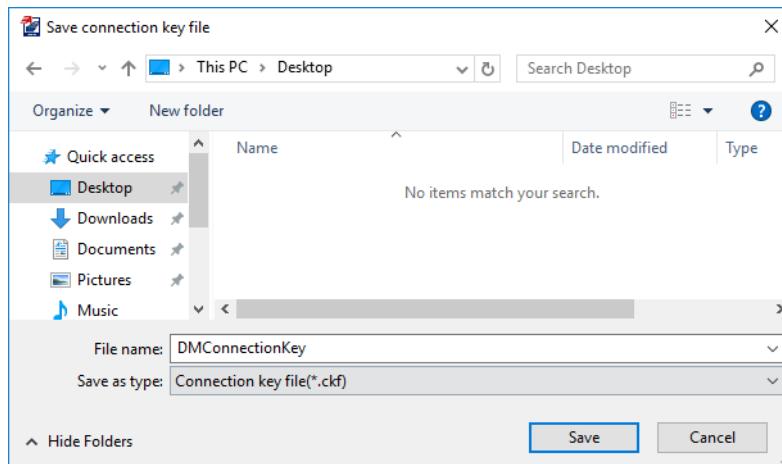


Figure 5.74 Save Connection Key

- Step 5. After you have created and saved the connection key, you can import it to clients running QuickSet that will be connecting to the Device Manager database.

Importing a Connection Key

- Step 1. Acquire the connection key from the computer sharing the Device Manager database.
- Step 2. Open QuickSet on the computer that is importing the connection key and click **File > Database Manager**.

- Step 3. In the Database Manager Window, click the **AcSELerator Database** tab.
- Step 4. Click **Import Connection Key** and navigate to the saved connection key associated with the remote Device Manager database.

Connecting to the Remote Device Manager Database

- Step 1. After importing the remote Device Manager database connection key, click the **Device Manager** option in the QuickSet home screen.
- Step 2. In the **Log on to AcSELerator Database** window, click the **Server** dropdown menu to display the name of the computer on which the remote Device Manager database is stored (see *Figure 5.75*).

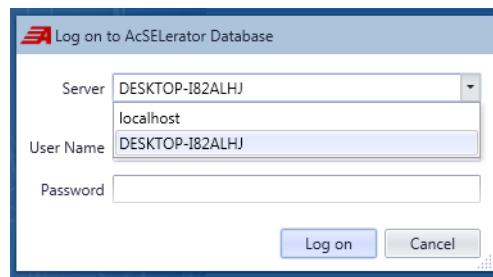


Figure 5.75 AcSELerator Database Login

- Step 3. Select the remote computer name, enter the User Name and Password to access the remote Device Manager database, and then click **Log on**.

Shared Device Manager Database Options for Clients

Because the Device Manager database is read-only for clients, there are features that are not available on client connections and settings that would normally be available if the Device Manager database were on a local connection. *Figure 5.76* shows the available functions for clients connecting to a remote Device Manager database.

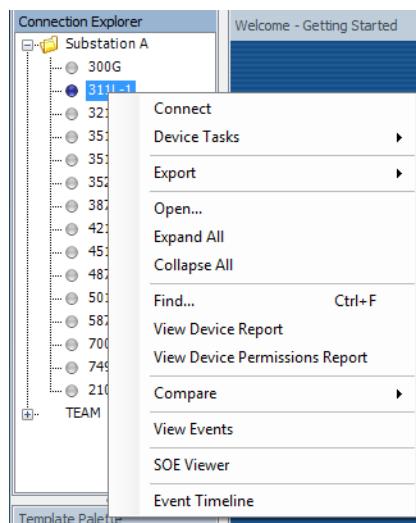


Figure 5.76 Remote Device Options

Job Done Examples

Create, Save, and Share an SEL-421 Relay Settings File Using Device Manager

Use Device Manager in this Job Done example to create, save, and share an SEL-421 Relay settings file.

- Step 1. Launch Device Manager from the QuickSet Welcome Screen. The default credentials are as follows:
 - username: admin
 - password: blank
- Step 2. Right-click in the white space of the **Connection Explorer** and click **Add > Device**.
- Step 3. Select **SEL-421** and click **OK**.
- Step 4. Double-click **SEL-421** and select the **Settings** tab.
- Step 5. Click **Edit** on the bottom right to enable the form.
- Step 6. Click **New**. Note that the **Device Family** and **Device Model** are already selected based on the device you added in *Step 3*. Select **007** for the Version number, and click **OK**. This opens the Settings Editor.

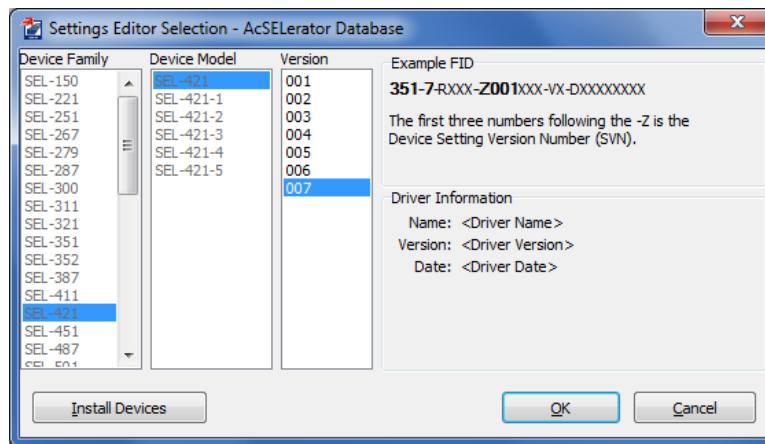


Figure 5.77 Settings Editor With Device Family and Model Information Based on Previous Device Selection

- Step 7. Make edits as necessary to the settings files, then click **File > Save**. Close the Settings Editor to return to the Device Manager view.
- Step 8. Click **Apply**. QuickSet will prompt you to enter a revision description. Add a description and click **OK**.

The settings will be saved and associated with the device in the ACSELERATOR Database.

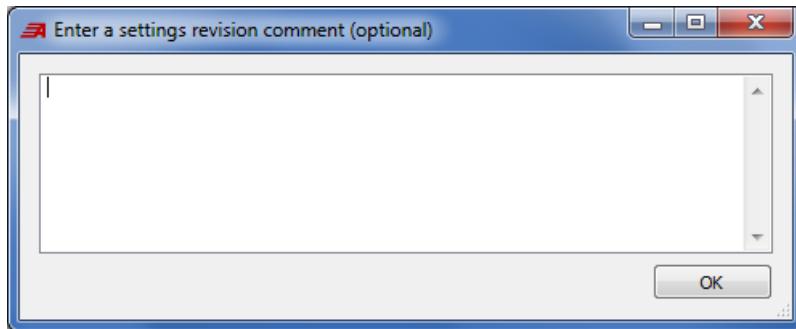


Figure 5.78 Enter an Optional Description of a Settings Revision

- Step 9. Right-click the SEL-421 in the **Connection Explorer** and click **Export > Export to DMX**.
Step 10. Check **Settings**. Then click **OK**.

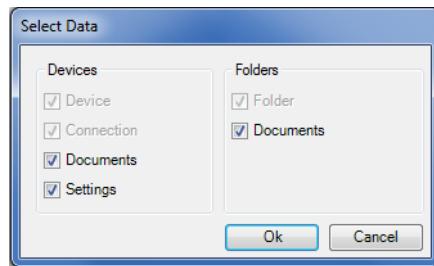


Figure 5.79 Select Data to Export to DMX

Another user can import this file and view all the device information and settings associated with the device.

Adding Settings to an Existing Device

Use the SEL Settings Database Importer in this Job Done example to customize and import a Settings Database into the Connection Explorer.

Your objective is to configure settings so that they are added to an existing device with the correct version number into the Connection Explorer.

To complete this Job Done Example, you will need a Settings Database that contain settings for the same device type as a device in the Connection Explorer.

- Step 1. Launch the SEL Settings Database Importer by right-clicking in the white space of the **Connection Explorer**.
- Step 2. Select **Import > Import from Settings Database**.
- Step 3. Once the SEL Settings Database Importer opens, click **Add Settings Databases** and select a Settings Database. Click **Open**.
- Step 4. Once the Settings Database is added and viewable in the importer, choose the settings to add to an existing device.
- Step 5. Select **Add to Device** from the **Import Action** field.

Step 6. In the **Import Location** field, click the ellipsis button to navigate to the device where you want to add the settings. Notice that you can see all devices within the Connection Explorer, but only valid ones can be selected. The invalid devices are grayed out and italicized. To hide the invalid devices, check the box next to **Hide Invalid Import Locations**. Once you have selected the desired device, click **OK**.

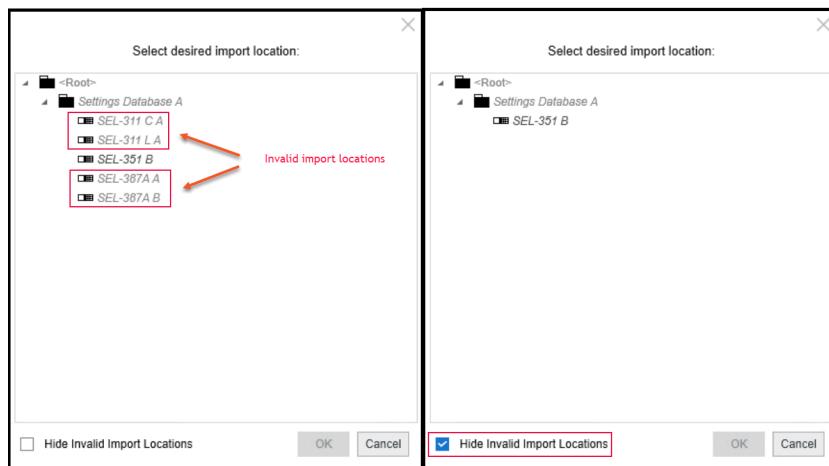


Figure 5.80 Select Desired Import Location

Step 7. Select a desired Settings State (other than Workspace) from the Settings State field.

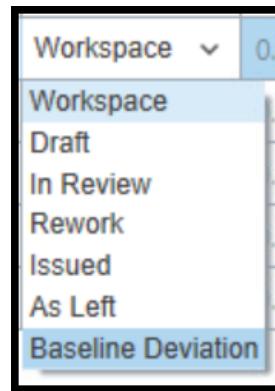


Figure 5.81 Settings State Menu

Step 8. The Version field will be enabled when you change the Settings State to something other than Workspace. Once enabled, you can edit the version to the desired number by manually entering a value or by clicking the Up or Down arrows in the field.



Figure 5.82 Version Number

Step 9. When you are ready to import the settings, click the Import button.

Step 10. When the import is completed, click the Close button on the import progress dialog.

- Step 11. Navigate back to Device Manager and open the device where you imported the settings.
- Step 12. Click on the **Settings** tab to review the Version History to verify the settings have been imported correctly.

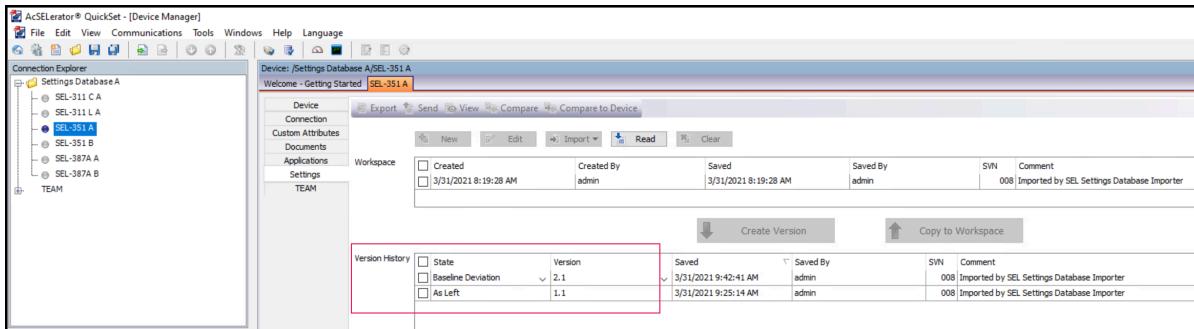


Figure 5.83 Settings Version History in the Connection Explorer

SEL Settings Database Importer Multi-Select and Right-Click Option

In this Job Done Example, the SEL Settings Database Importer will be used to demonstrate the multi-select and right-click options available when importing settings and Settings Databases.

Your objective is to use the multi-select and right-click options to configure specific settings for import.

- Step 1. Launch the SEL Settings Database Importer by right-clicking in the white space of the **Connection Explorer**.
- Step 2. Add multiple Settings Databases into the importer by clicking the **Add Settings Databases** button.
- Step 3. Once the Settings Databases are added and viewable in the importer, highlight the settings to be configured by holding **<Shift>** or **<Ctrl>** and selecting the desired rows.
- Step 4. For this example, we want to set the Import Action to **Add to Device**. To change the **Import Action** for the selected rows, right-click on one of the highlighted rows and select **Set Import Action > Add to Device** from the context menu.

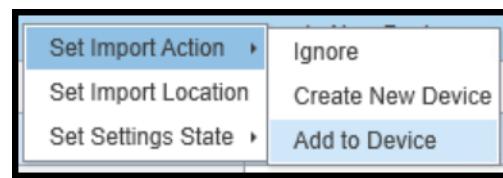


Figure 5.84 Set Import Action

- Step 5. For this example, we want to set the **Settings State** to **Draft**. To change the **Settings State** for the selected rows, right-click on one of the highlighted rows and select **Set Settings State > Draft** from the context menu.

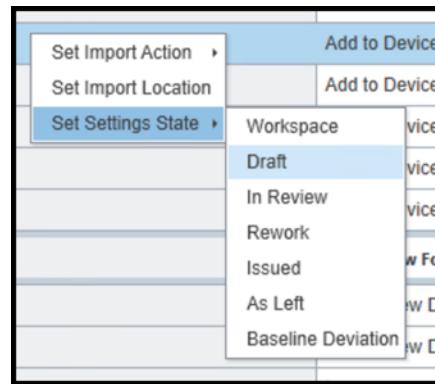


Figure 5.85 Set Settings State

- Step 6. Highlight a different group of settings than those selected previously.
- Step 7. For this example, we want to set the **Set Import Location** to an existing device in Device Manager. Right-click on one of the highlighted rows and select **Set Import Location** from the context menu.

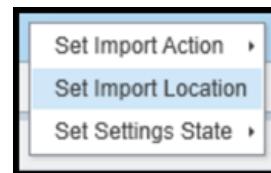


Figure 5.86 Set Import Location

- Step 8. Once the **Select Desired Import Location** dialog opens, select the device in the dialog that corresponds with the existing device in Device Manager and click **OK**. (Note, your devices will be different than the ones displayed in this example.)

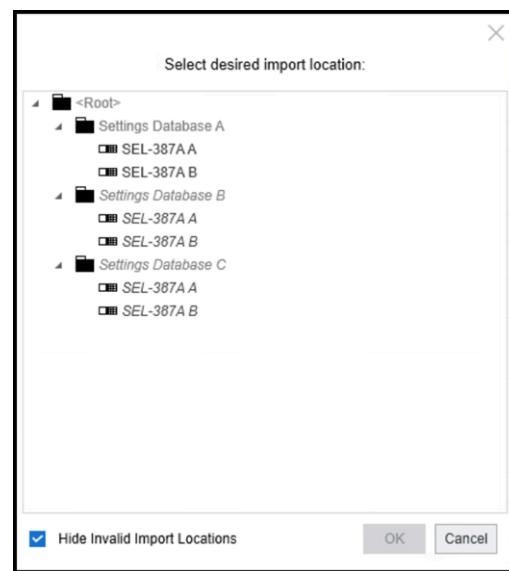


Figure 5.87 Select Desired Import Location

Step 9. Review the SEL Settings Database Importer to verify the settings have been configured as desired.

Connect to a Blueframe Device in Device Manager

In this Job Done example, use the Connection tab of a device node in Device Manager to set up a Blueframe-connected device.

Your objective is to gather the correct information from the Blueframe server in order to add a device node in the Device Manager and configure the connection for a Blueframe connection.

To complete this Job Done example, you will need a device configured on a Blueframe server and the IP address and Blueframe Device Session ID (*Figure 5.88*) from the device.

The screenshot shows the SEL Resource Management interface. The top navigation bar includes 'SEL', 'Resource Management', 'View', 'Permissions', and 'About'. There are also status icons for 'X' and '!' in the top right. Below the header, the path '2270N_SEL-734P' is displayed. The main area has tabs for 'Overview', 'Connections', 'Credentials', and 'Sessions'. The 'Sessions' tab is selected, showing a table with columns: Session, Session Type, Connection, and Roles With Access. One row is listed: 'DRA_TOMeter' (Session), 'Terminal' (Session Type), 'TELNET_To_2270N_SEL-734P' (Connection), and '1' (Roles With Access). To the right of the table are sections for 'Session Parameters' (Name: DRA_TOMeter, Session Type: Terminal, Connection: TELNET_To_2270N_SEL-734P, SSH Access: Available) and 'Role Access' (Roles: admin, Access Levels: ACC). Further down are 'Command Filters', 'Allowlist' (No Allowlist Data Available), and 'Denylist' (No Denylist Data Available). A red box highlights the 'Blueframe Device Session ID' section, which contains the value 'ID: 3487ab9b-3c2d-4bdd-8657-2d94a7fcda1c'.

Figure 5.88 Blueframe Device Session ID

Step 1. With Device Manager open, right-click either on a folder or in the white space of the connection explorer and select **Add > Device**, as shown in *Figure 5.89*. For this example, we will create a connection for an SEL-734 device.

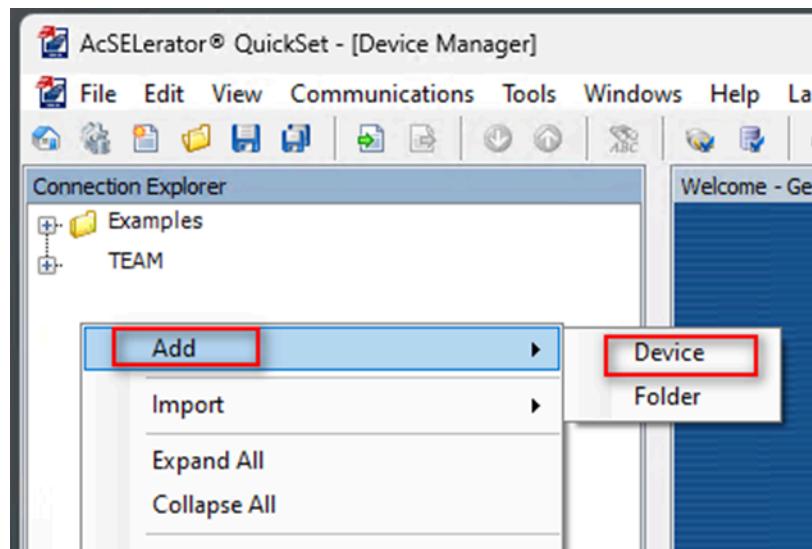


Figure 5.89 Add Blueframe Device Node

- Step 2. Select the SEL-734 device from the Select Device Type window. See *Figure 5.89*.
- Step 3. In the Connection Explorer, right-click on the SEL-734 device node and select **Open**.
- Step 4. With the SEL-734 configuration open, select the Connection tab and then select the **Edit** button at the bottom right of the window.
- Step 5. Select the Connection Type dropdown and select Blueframe as the connection option. Then fill in the required information gathered from the Blueframe server for the IP address and the Device Session Id (*Figure 5.90*). After the information is entered, select **Save** at the lower-right corner of the window.

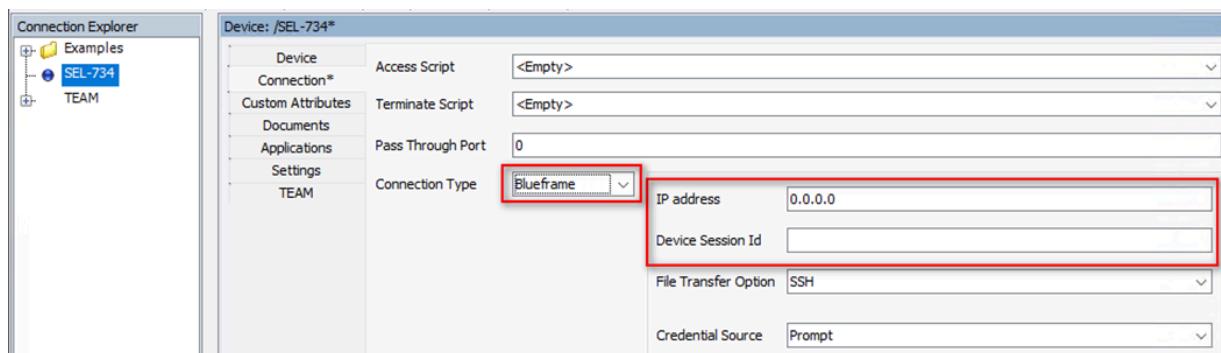


Figure 5.90 Blueframe Connection Parameters

- Step 6. Now that the connection is configured and saved, right-click on the SEL-734 device node and select **Connect**. Device Manager will initiate the connection, prompt you for the Blueframe device connection Username and Password, and then complete the connection to the Blueframe device.

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S E C T I O N 6

Design Your Own Settings Template

Overview

ACSELERATOR® QuickSet Designer, a licensed feature of QuickSet, helps you obtain the most from your SEL devices. QuickSet Designer produces Design Templates—customizable setting schemes that can help you do the following:

- ▶ Quickly and confidently deploy new and existing devices by distributing QuickSet Design Templates for consistent setup and reduced configuration times.
- ▶ Create custom templates to lock settings so they match your standards or to lock and hide unused settings. This simplifies new installations and helps avoid entry errors.

Each template consists of a device settings file, Design Template equations, and template settings with customized labels and comments. If your system has multiple devices of the same type, you can apply a Design Template to set and lock all settings that will remain constant across the devices. The template limits the settings that can be modified to those that you determine will vary between devices. It is also possible to create a custom range for each setting to limit the acceptable input values based on your needs.

Additionally, unused settings are hidden to minimize clutter and prevent unnecessary changes. With fewer settings to edit, you save configuration time while maintaining the standards of your organization and reducing the likelihood of costly mistakes.

Licensing

QuickSet Designer is integrated within QuickSet. While the capability of viewing Design Templates is available without a license, Design Template editing features must be enabled by a license. A single license file provides upgrade support for a year. At the end of this year, if you update QuickSet without purchasing an upgrade license, your license becomes invalid and Design Template editing features will not be available. To purchase a QuickSet Designer license or QuickSet Designer license update, please contact your local sales representative. For information on how to license QuickSet Designer, see *Appendix D: Licensing Your Software*.

QuickSet Components

For you to create a Design Template, it helps to understand how different aspects of the software interconnect. *Figure 6.1* illustrates this relationship.

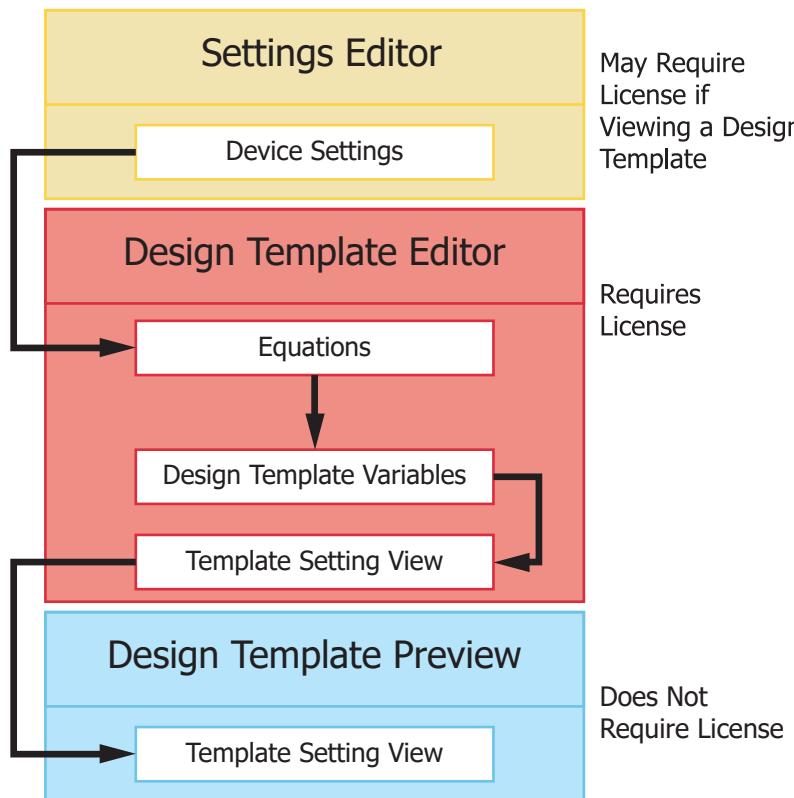


Figure 6.1 The Interaction Among QuickSet Components in a Design Template Application

The Settings Editor is the view that shows the default settings driver for a given device. This is the only view that can be used for settings that are not Design Templates. When QuickSet is licensed for Designer functionality, you can set apart groups and classes in the Settings Editor for Design Template usage. When groups and classes are marked for Design Template usage, these settings move to the Design Template Editor, where they can be further edited in Design Template equations. By default, an unlicensed user will not be able to access the Settings Editor for a Design Template (although a licensed user can change Design Template Settings Editor access).

Design Template settings configuration occurs in the Design Template Editor view. This view is only available when QuickSet has been licensed for Designer functionality. From this view, you can create Design Template equations that deal with both device settings and Design Template Variables, application variables available to assist in Design Template creation. Use Design Template equations to assign device settings to a constant or to an expression containing Design Template Variables and/or other device settings. For example, you can set the system frequency for a device equal to a constant, such as 60 Hz, to force all end devices to have this setting configuration without exposing this setting to the Design Template end user. For another example, you can modify pickup settings on a protection element to better suit your application by dividing minimum trip amperage by the current transformer (CT) ratio, where these two values are Design Template Variables settable by your end user. Design Template Variables can either be defined by an equation or in the Template Setting View, a view for setting the value of Design Template Variables. Within the Design Template Editor, you can modify the Template Setting View to set settings properties such as units or ranges.

The Design Template Preview is the view an unlicensed end user will use. This view provides a view for setting Design Template Variables that have been added to the Design Settings View in the Design Template Editor. By default, this is the only view an unlicensed end user can access when viewing a Design Template.

QuickSet Designer Views

As *Figure 6.1* shows, QuickSet Designer has three major views: the Design Template Editor, the Design Template Preview, and the Settings Editor. To switch among the (Design Template Editor), the (Design Template Preview), and the (Settings Editor) screens, use the **View** dropdown menu or the corresponding icon on the toolbar.

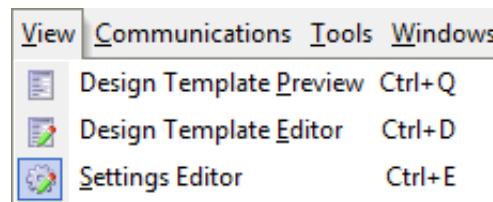


Figure 6.2 Use the View Dropdown Menu to Switch Among Design Template Views

Alternatively, you can use <Ctrl+D> for the Design Template Editor, <Ctrl+Q> for the Design Template Preview, and <Ctrl+E> for the Settings Editor.

Settings Editor

The Settings Editor shows the default settings driver for a given device. This is the only editor for settings that are not using Design Templates. If QuickSet is licensed for Designer, you can always use this view. If QuickSet is not licensed for Designer, you can use this view as long as (a) your device settings are not a Design Template or (b) your settings are a Design Template and a licensed user modified the default Design Template settings so that unlicensed users have access to this view. For details on how to control Settings Editor access within a Design Template, see *Design Template Options* on page 164.

Adding Settings to Design Template

When QuickSet is licensed for Designer, there are Design Template options within the Settings Editor that can drastically expedite the process of creating a new Design Template. These options are **Add to Design Template** and **Add Settings to Design Template as Constant**. To access Design Template options for your settings, right-click either a settings class/group node or an individual setting. If you right-click a node, all settings contained within that selection will be included when you select a Design Template option. Note that if a large settings group is added to the Design Template, it can take significant time to populate the template.

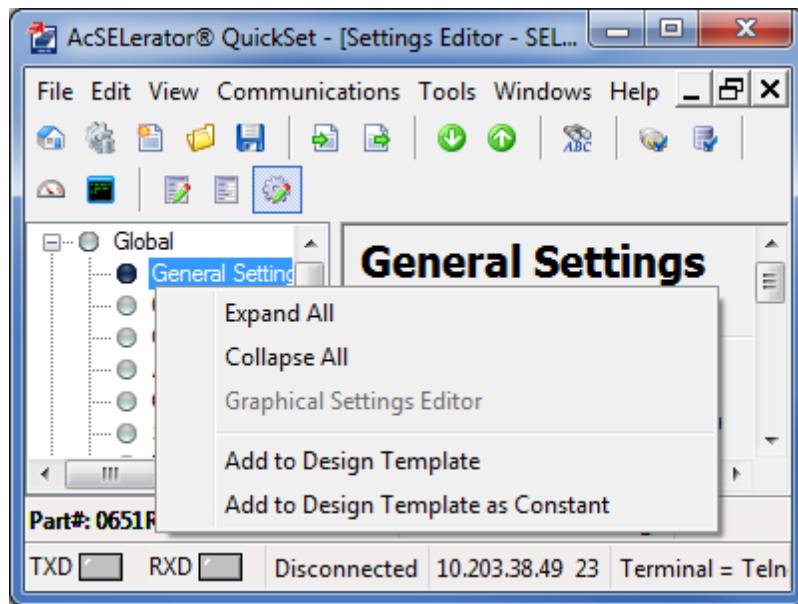


Figure 6.3 Right-Click a Settings Class or Group in the Settings Editor to See Designer Options

Add to Design Template

The **Add to Design Template** option creates an aliasing equation that assigns the device setting(s) to an automatically generated Design Template Variable. Use this method to provide a view to preconfigured groups within your Design Template.

Select **Add to Design Template** to add the selected setting(s) to your design. A change in color (*Figure 6.4*) indicates that the setting has been reserved for the Design Template and is unavailable for further editing within the Settings Editor. Certain settings, such as radio buttons, will be grayed out instead of highlighted.

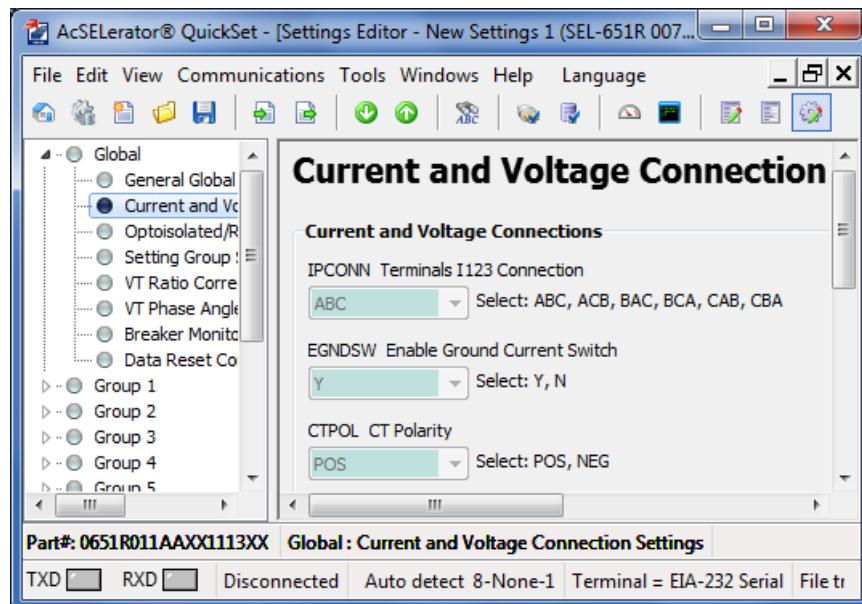


Figure 6.4 Settings Reserved for Design Templates Are Highlighted Green

Add to Design Template as Constant

The **Add to Design Template as Constant** option creates an equation that assigns a constant to the selected setting. The default value of the constant is the current setting in the Settings Editor, but this value can be modified after assignment with the **Equation Builder**. Use this method if you want settings sent to your end device, but you do not want your end user to see or edit these settings.

Click **Add to Design Template as Constant** to add the setting(s) you selected to your design. A change in color indicates that the setting has been reserved for the Design Template and is unavailable for further editing within the Settings Editor. Certain settings, such as radio buttons, will be grayed out instead of highlighted.

Design Template Editor

The Design Template Editor provides a view for Design Template configuration. Use this view to control what settings will be presented to the Design Template end user. This view is only available to users licensed for QuickSet Designer. To switch to the Design Template Editor view, use the **View** dropdown menu or use the  icon. Alternatively, you can use <Ctrl+D> to switch to the Design Template Editor.

This section provides a detailed description of the six sections that comprise the Design Template Editor, along with a Job Done® example at the end of the section. *Figure 6.5* shows the six Design Template Editor sections with the corresponding section names listed as follows:

- *A. Equation Manager on page 142*
- *B. Equation Window on page 144*
- *C. Design Template Manager on page 149*
- *D. Template Setting View on page 151*
- *E. Design Template Variable Selection List on page 154*
- *F. Error/Warning Window on page 155*

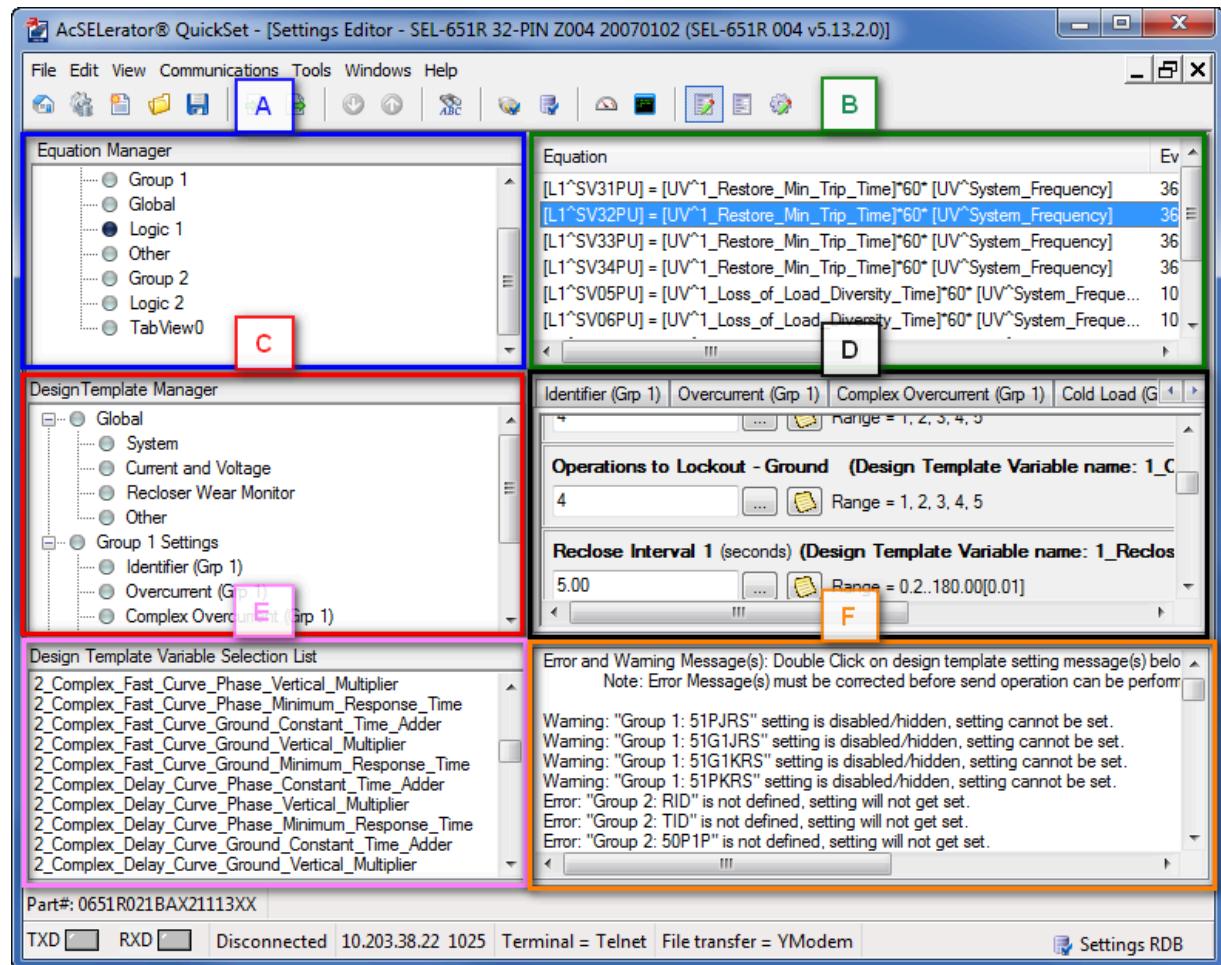


Figure 6.5 Six Sections of the Design Template Editor

A. Equation Manager

Use the **Equation Manager** to add, rename, or delete equation groups within a Design Template. You can also move equations among groups. An equation group is a grouping of Design Template equations used for categorization. In *Figure 6.6, Uncategorized and Group 1* are equation groups.

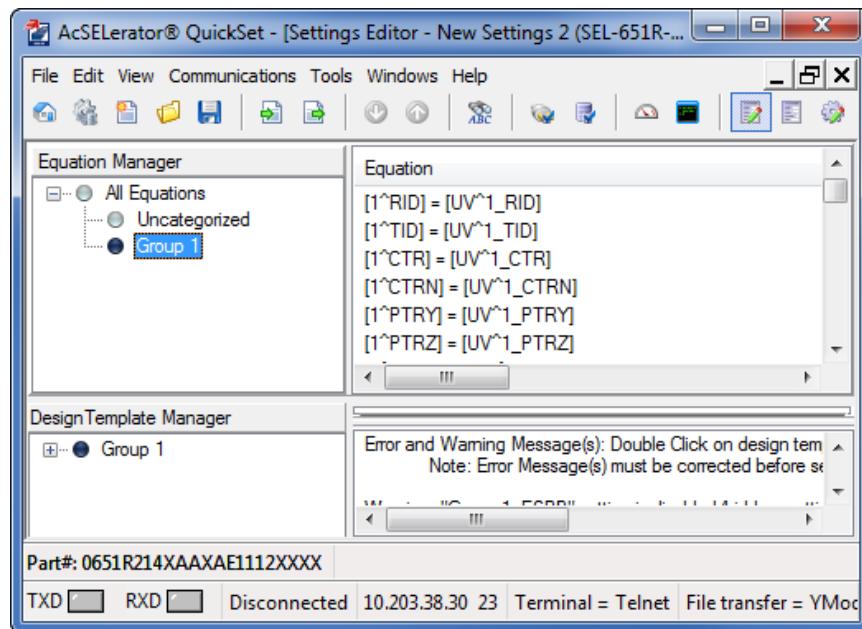


Figure 6.6 Group Your Settings With Equation Categories

Notice the existence of the **Uncategorized** equation group. This group may be used to hold equations for which categorization does not apply, or for which categorization has yet to be determined. The **Uncategorized** equation group cannot be renamed or deleted.

Right-Click Menu

Use the right-click menu to manage equation groups. *Figure 6.7* shows the menu that appears after right-clicking in the **Equation Manager**.

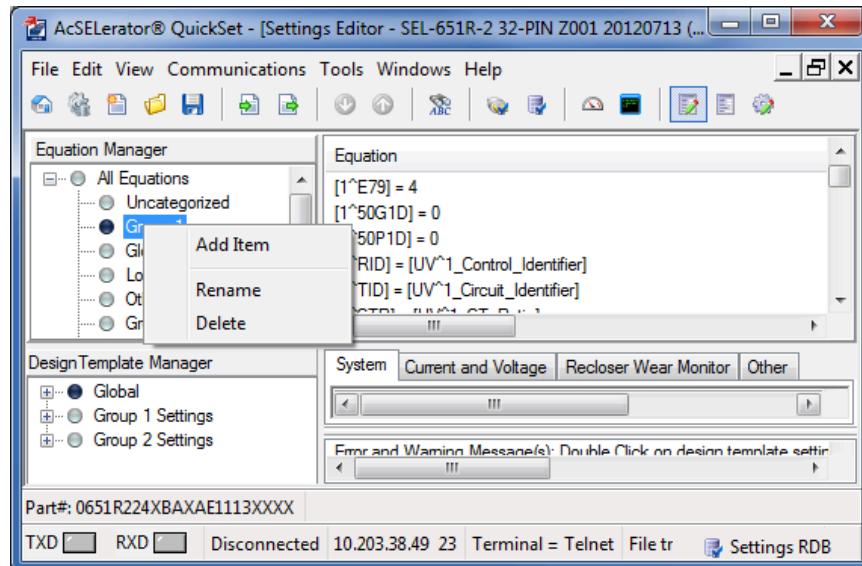


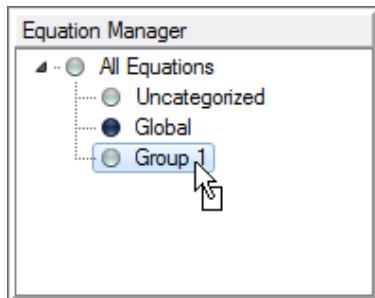
Figure 6.7 Use the Right-Click Menu to Manage Equation Groups

Menu Item	Description
Add Item	Add an equation group to a Design Template by right-clicking in the Equation Manager and selecting the Add Item menu option. Next, type in the name of the new equation group. Equation groups are ordered by creation date, so new additions are placed on the bottom of the list.
Rename	Rename an equation group by right-clicking the node in the Equation Manager and selecting the Rename menu option. Next, type in the new name for the equation group and press <Enter>.
Delete	Delete an equation group by right-clicking an equation group in the Equation Manager and selecting the Delete menu option. Note that deleting an equation group node will delete all equations contained in that group.

Moving Equations

Move equations between equation groups by selecting either a single setting or a group of settings and dragging and dropping the selection into the desired equation group.

To move a set of equations, either hold down <Ctrl> and left-click each equation to be moved, or select a range of sequential equations by first selecting an equation, then hold down <Shift> and select another equation to specify a range, as shown in *Figure 6.8*.



Equation	Evaluation of Equation	Send Value
[G^NFREQ] = [UV^G_NFREQ]	60	60
[G^PHROT] = [UV^G_PHROT]	ABC	ABC
[G^DATE_F] = [UV^G_DATE_F]	MDY	MDY
[G^PWRDN_AC] = [UV^G_PWRDN_AC]	180	180
[G^PWRDN_WU] = [UV^G_PWRDN_WU]	20	20
[G^TESTBATT] = [UV^G_TESTBATT]	NA	NA
[G^FAULT] = [UV^G_FAULT]	51P OR 51G1	51P OR 51G1

Figure 6.8 Move Equations Among Equation Groups

B. Equation Window

The **Equation** window allows the addition, modification, deletion, and display of Design Template equations (see *Figure 6.9*). The equations displayed in the **Equation** window depend on what equation group you have selected in the **Equation Manager**.

Equation	Evaluation of Equation	Send Value	Device Setting Range
[2^RID] = [UV^2_Control_Identifier]	RECLOSER 1	RECLOSER 1	ASCII string with a maximum length of 30
[2^TID] = [UV^2_Circuit_Identifier]	FEEDER 1	FEEDER 1	ASCII string with a maximum length of 30
[2^CTR] = [UV^1_CT_Ratio]	1000.0	1000.0	1.0..6000.0
[2^CTRN] = [UV^1_CT_Ratio]	1000.0	1000.0	1.0..6000.0

Figure 6.9 Modify, Add, and Delete Equations in the Equation Window

The following table explains the **Equation** window columns shown in *Figure 6.9*.

Setting Column	Description
Evaluation of Equation	The exact value of the calculated equation.
Send Value	The value suitable for sending to a device. This is the same as the Evaluation of Equation , unless the evaluated equation is outside of the Device Setting Range . If this happens, the Send Value will be the last valid entry.
Device Setting Range	The valid range of the setting.

Equation Options

Right-click anywhere within the **Equation** window to obtain a context menu that includes the options shown in *Figure 6.10*.

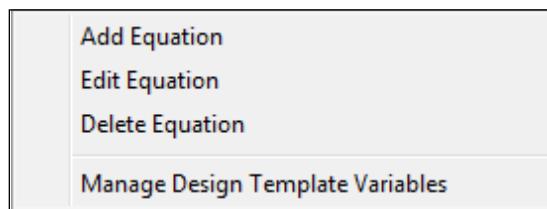


Figure 6.10 Right-Click in the Equation Window to Access Equation Function

Menu Item	Description
Add Equation	Selecting this option opens the Equation Builder dialog box (see <i>Figure 6.11</i>), from which you can develop and modify Design Template equations.
Edit Equation	You can edit equations either by right-clicking an equation and selecting Edit Equation or by double-clicking an equation.
Delete Equation	You can delete equations either by right-clicking equations and selecting Delete Equation or by selecting equations and pressing <Delete>. Once you have deleted an equation, you will be provided the option to either set the associated device setting back to the setting default or keep the present setting value.
Manage Design Template Variables	Opens the Manage Design Template Variables dialog box.

Using the Equation Builder With QuickSet Designer

The **Equation Builder** is very similar to the **Expression Builder** forms provided in the Settings Editor. For information on the **Expression Builder** forms, see *Expression Builder on page 111*. *Figure 6.11* shows the **Equation Builder** form.

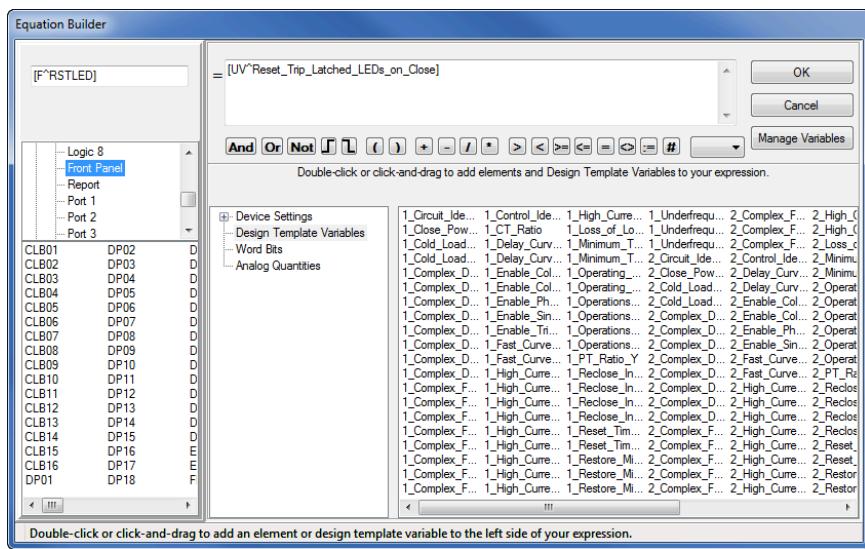


Figure 6.11 Use the Equation Builder to Construct Design Template Equations

When you use the **Equation Builder** within the Design Template Editor, note that there are four noticeable differences from the general **Expression Builder** forms:

- ▶ Element naming is done differently to show from which group an element originates. This also provides a visual indication which elements are Design Template Variables because all of the Design Template Variables start with UV[^]. Element naming is done by using one or two characters to indicate a settings group, a carat (for separation), and then the name of the element. Each setting is surrounded by brackets. In *Figure 6.11*, the [F[^]RSTLED] element refers to the RSTLED element from the Front Panel group. Also, in *Figure 6.11*, [UV[^]Reset_Trip_Latched_LEDs_on_Close] refers to the Reset_Trip_Latched_LEDs_on_Close element, where the UV indicates that the element is a Design Template Variable.
- ▶ There is an additional grouping on both sides of the **Equation Builder**, called Design Template Variables, that contains all created Design Template Variables in a given Design Template.
- ▶ The **Manage Variable** button is available to provide easy access to the **Manage Design Template Variables** menu.
- ▶ The "":=" freeform logic operator is available. Use this operator when dealing with freeform logic (only available in certain device types). *Figure 6.12* shows an example of an SEL-421 freeform logic screen and how this same assignment can be created in the **Equation Builder**.

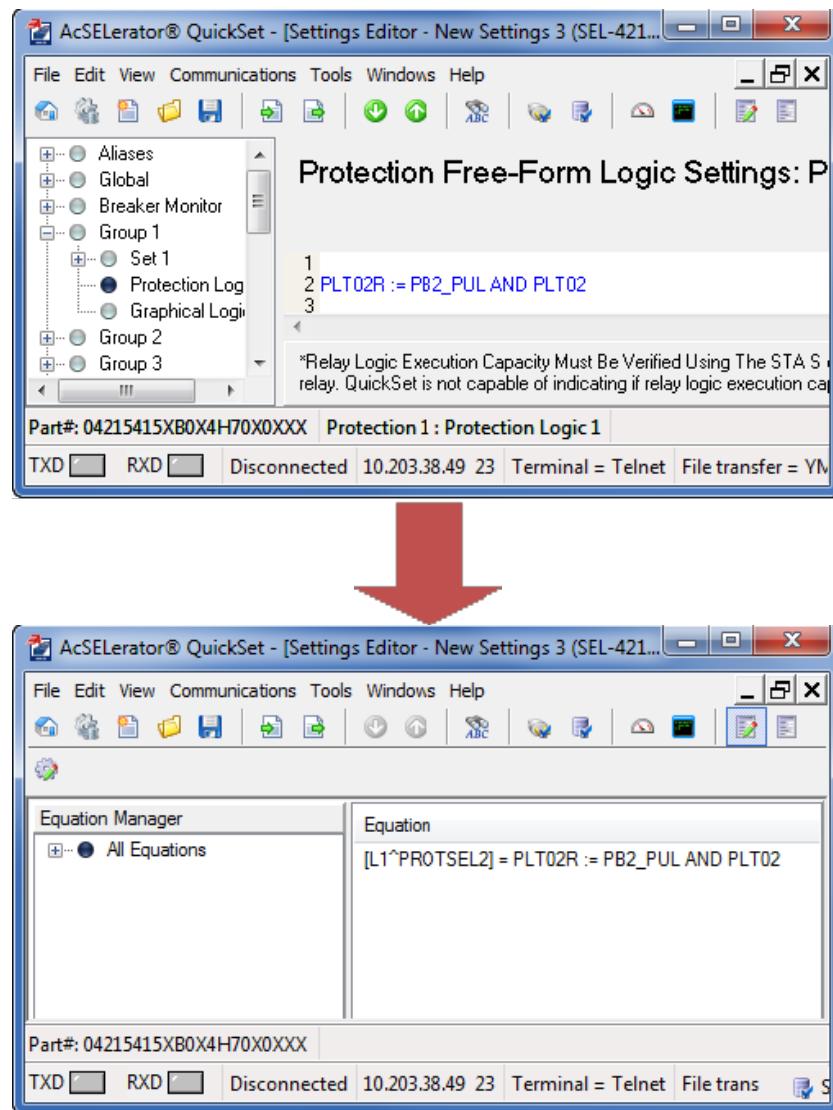


Figure 6.12 Use the ":"=:" Operator in the Equation Builder to Create Freeform Logic

Manage Design Template Variables

Design Template Variables are variables that are strictly used within QuickSet Designer; a Design Template Variable will never be directly sent to a relay as a setting. A Design Template Variable can either be defined by an equation, which could assign it to a constant value or assign it to any combination of Design Template Variables and device settings, or in the Template Setting View. The **Manage Design Template Variables** menu provides a view to add, rename, and delete Design Template Variables. Only Design Template Variables are exposed in the Design Template Preview, so any device settings that need to be exposed in this view must be aliased to a Design Template Variable. The most efficient way to create device settings aliases is to use the Settings Editor view and the **Add to Design Template** right-click menu option.

NOTE

When you use Freeform Logic settings in a Design Template, all lines above the last template setting will be read-only in the normal settings view.

To access the **Design Template Variables** menu, use the **Manage Variables** button within the **Equation Builder** or use the **Manage Design Template Variables** right-click menu option within the **Equation** window.

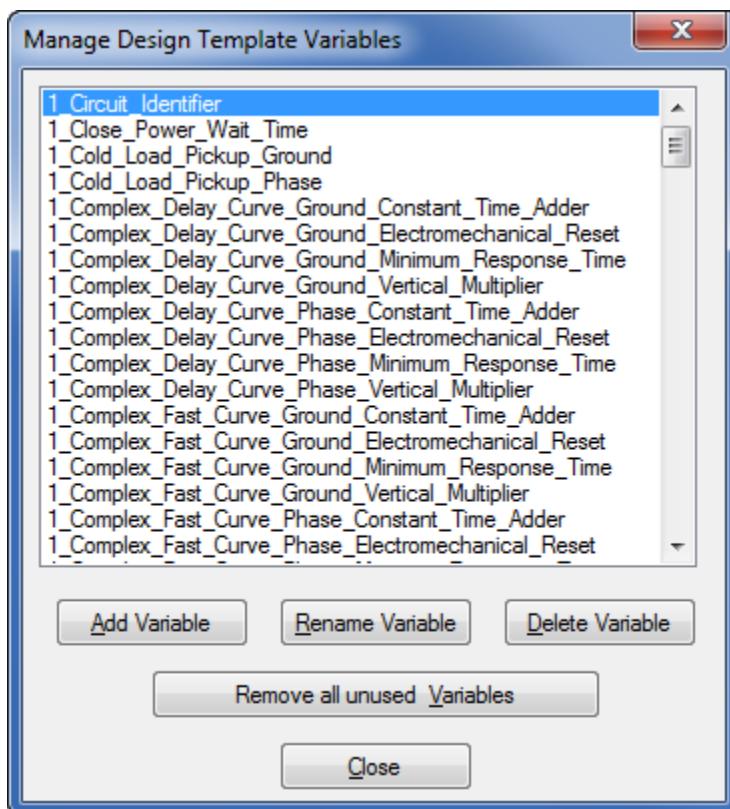


Figure 6.13 Add, Rename, and Delete Design Template Variables With the Manage Design Template Variables Menu

Menu Item	Description
Add Variable	Adds a Design Template Variable to your Design Template.
Rename Variable	Renames an existing Design Template Variable in your Design Template.
Delete Variable	Removes the selected Design Template Variable. Selecting this option causes the program to remove the selected variable from any Design Template equation in which it appears. Each equation affected will display a message indicating that the variable is undefined.
Remove all unused Variables	Removes any Design Template Variable not used in a Design Template equation.

Sizing Columns

A single click in the **Equation**, **Evaluation of Equation**, or **Send Value** column headings causes the respective column to resize to fit any text within that column. Clicking a column heading twice returns the column width to the column width prior to the resizing.

Moving Equations

You can either select individual equations or select several equations by holding <Ctrl> while selecting equations. Drag and drop an equation or group of equations into an equation group within the **Equation Manager** to change the equation group association. If you drop equations on the All Equations node, these equations will be set into the **Uncategorized** group.

C. Design Template Manager

The Design Template Manager appears in both the Design Template Editor and the Design Template Preview. The ability to add, rename, delete, or move tab groups or Design Template Variables, however, is limited to the Design Template Editor.

Add Nodes and Tab Groups

Two types of items can be added to the Design Template Manager tree view:

- Item nodes
- Tab groups

In a manner similar to folders, item nodes provide a means to organize a collection of tab groups. Tab groups are simply a means by which Design Template Variables can be organized. Select a tab group on the tree view to display the associated tab settings in the Template Setting View window. In *Figure 6.14*, "Global" is an item node that contains four tab groups. One of these tab groups, "System," has been selected, and this causes the "System" Design Template Variables to display in the Template Setting View.

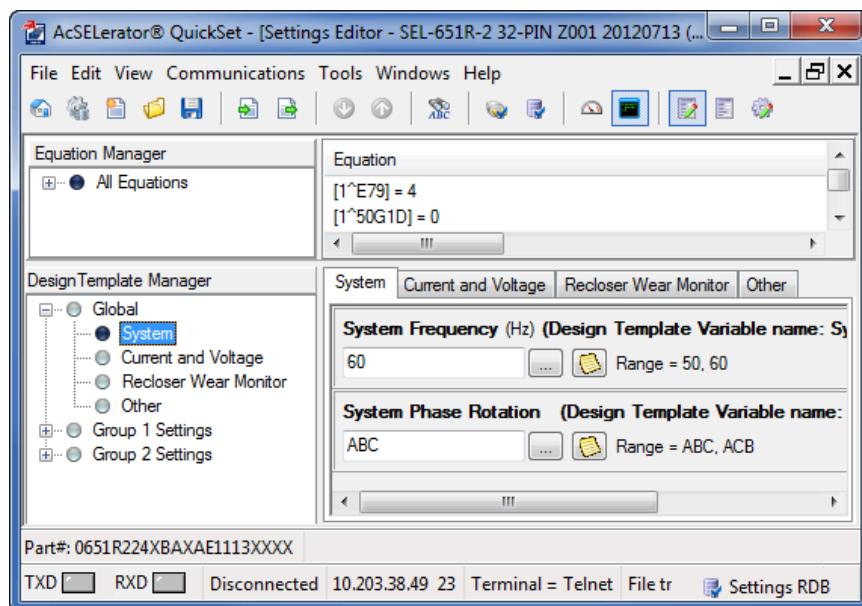


Figure 6.14 Select a Tab Group on the Tree View to Display the Associated Tab Sheet to the Right of the Tree View

Right-Click Menu

Use the right-click menu to manage item nodes and tab groups. The right-click menu is shown in *Figure 6.15*.

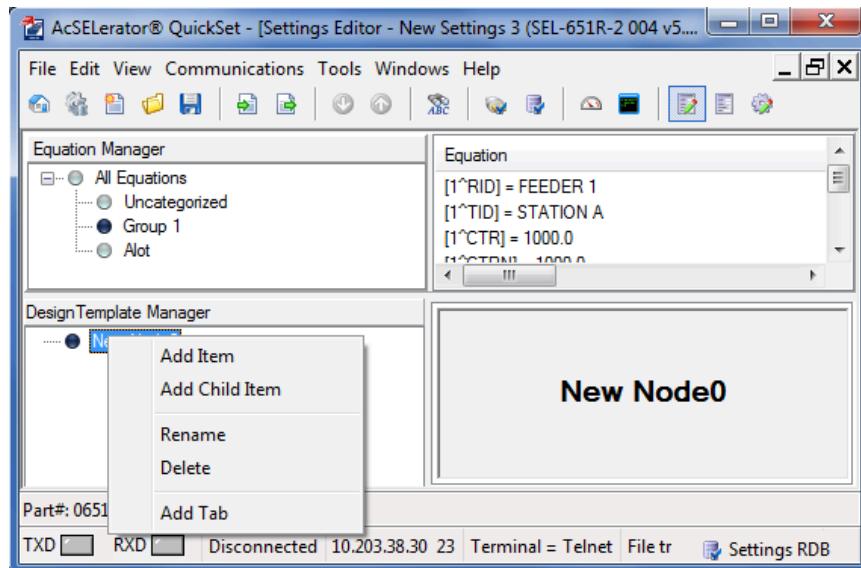


Figure 6.15 Use the Right-Click Menu to Manage Item Nodes and Tab Groups

Menu Items	Description
Add Item	To add an item node to the current tree-view level, right-click either an existing item node or white space within the Design Template Manager window and select the Add Item menu option.
Add Child Item	To add an item node to the next tree-view level below the current one, right-click an existing item node and select the Add Child Item menu option.
Rename	To rename an item node or tab group, right-click, select Rename , type the new name, and press <Enter>.
Delete	To delete an item node or tab group, right-click and select Delete . Alternatively, you can press <Delete>. Note that deleting an item node will also remove all item nodes and tag groups underneath that node.
Add Tab	To add a tab group underneath an item node, right-click an item node and select Add Tab . Alternatively, you can right-click white space and select Add Tab to generate a new item node with a new tab group underneath.

Moving Tab Groups and Design Template Variables

Move tab groups by left-clicking and dragging either the tab group node or the tab within the **Template Setting** View to a new location. Drag the tab group to either another item node or to the **Design Template Variable Selection List** in the lower left of the display window. Dragging item nodes and tab groups into the **Design Template Variable Selection List** window adds all contained Design Template Variables to the list and removes the item node and tab group from the **Design Template Manager**.

D. Template Setting View

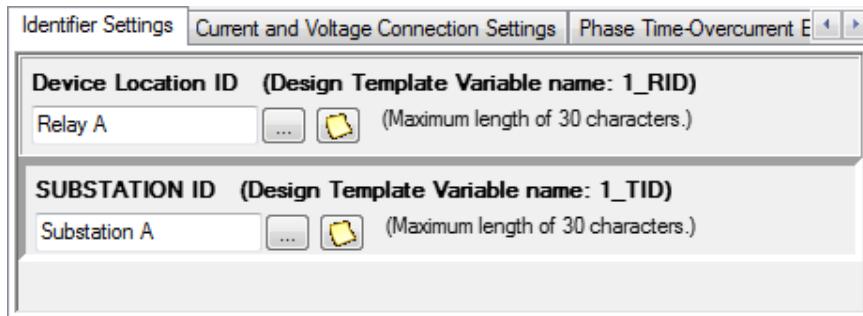


Figure 6.16 Apply Values, Ranges, Units, and Comments in the Template Setting View

The Template Setting View area is the primary means of applying values to device settings through use of Design Template equations and application settings. To populate the Template Setting View, drag and drop a Design Template Variable from the **Design Template Variable Selection List**.

Change the displayed tab by either selecting a tab within the Template Setting View or selecting a tab group within the **Design Template Manager**.

Tab View Right-Click Menu

Use the tab view right-click menu to manage tabs.

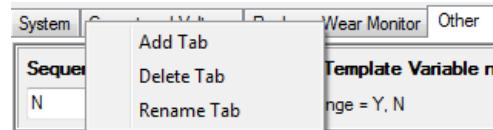


Figure 6.17 Right-Click a Tab Within the Tab View to Present Tab Management Options

Menu Item	Description
Add Tab	Create a new tab.
Delete Tab	Rename the selected or displayed tab.
Rename Tab	Delete the selected or displayed tab and all settings contained within it.

Select a tab view tab and drag and drop it on another tab view location to reorganize tab order. For example, you can drag a tab view tab into the Design Template Manager tree view to insert it in a new location or even into a new tab group.

Template Settings Options

To alter the value of an individual template setting, type the value into the setting text field or click the ellipses (...) button. To change the internal comment of an individual template setting, click the comments (Comment icon) button.

Right-click a template setting and select **Edit Properties** to open the **Set Properties for Panel** window. Alternatively, you can double-click the template settings text to open this same window.

Edit Properties

The **Set Properties for Panel** window is used in the Design Template Editor to modify the panel name, units label, custom range, and comment for a template setting and hide or disable status in the Design Template Preview.

NOTE

Starting with QuickSet version 6.11.0.0, the Set Properties use semicolons instead of commas for value delimiters.

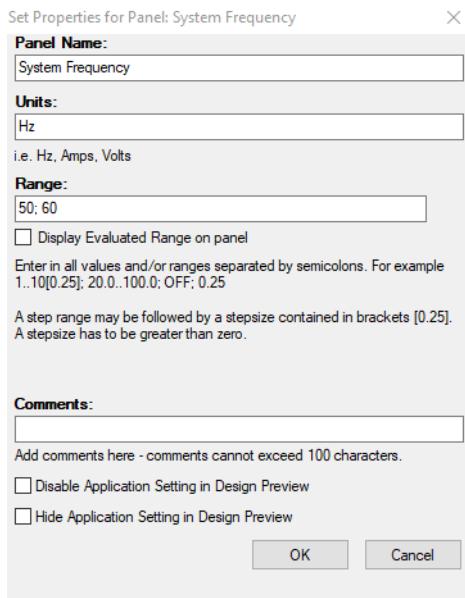


Figure 6.18 Use the Edit Properties Window to Modify Template Settings Options

- **Panel Name:** The panel name is the name given to the Template Setting and displayed on the panel when you are in Design Template Preview. This name can be the same name as other panels and can include any characters or spaces. The panel name cannot be blank or contain all spaces.
- **Units:** The units label can be any string but is meant to display the unit type of the setting value.
- **Range:** Modify the range to restrict what can be assigned to this template setting.

Function	Syntax
Valid options	Provide a list of valid options by using a delimiting semicolon. For example, a range of "1; 2; 3; 4; 5" will accept only those five entries.
Interval	To specify a valid numeric range, place two periods between the starting and ending value. For example, the range "0.5..1.5" will only accept values from 0.5 to 1.5.
Step value	Add a step value within a range by adding the step surrounded by square brackets directly after the ending value of a range. Any settings entries will be forced to the nearest multiple of the step. For example, when a range of "0.00..60.00[0.25]" is used, an entry of 0.12 will resolve to 0 and an entry of 0.13 will resolve to 0.25.

Function	Syntax
Decimal places	If a step has been specified, all setting entries will be forced to match the number of decimal places contained in this setting. If there is no step specified, then the number of displayed decimal places will match the decimal places contained in the interval. For example, the following range will force the displayed setting to show two decimal places: "OFF; 0..600.0[0.25]."
Variable substitution	You can use template variables in combination with simple math (addition, subtraction, division, and multiplication) to define a dynamic range. For example, a range of "180/System_Frequency..600.00" uses the "System_Frequency" Design Template Variable to create an interval minimum.

Figure 6.19 illustrates a combination of all the methods the preceding table describes. If the System_Frequency Design Template Variable is set to "60," then the allowed settings entries are either "OFF" or a number between 3 and 600. Also, all entries round to the nearest hundredth and two decimal places will display.

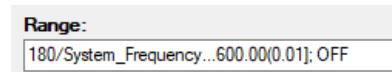


Figure 6.19 Use the Range Setting to Specify Valid Settings for the Selected Template Setting

For a discussion of range syntax errors, please see *Range Editing Errors on page 174*.

- **Display Evaluated Range on panel:** When selected, variable names used in the range equation are displayed after being resolved. The left side of *Figure 6.20* shows the range after evaluation.

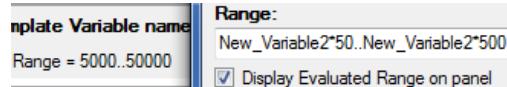


Figure 6.20 Select Display Evaluated Range on Panel to Show Unevaluated Variables

When this is not selected, variables are not evaluated. Instead, the range displays exactly as written. The left side of *Figure 6.21* shows the range without any evaluation.

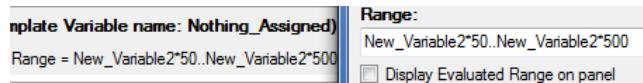


Figure 6.21 Deselect Display Evaluated Range on Panel to Show the Evaluated Range

- **Comments:** The comment can be any string as long as 100 characters and is displayed to the right of the setting panel surrounded by parentheses.
- **Disable Application Setting in Design Preview:** This causes the selected text of the setting to be gray and noneditable when in Design Template Preview. The user can see the panel and the value of it but cannot alter it.
- **Hide Application Setting in Design Preview:** This causes the selected template to be hidden in Design Template Preview. It will only be seen in the Design Template Editor view.

Moving Template Panels

Move Design Template Variable panels by selecting a panel (or hold <Ctrl> to select multiple panels) and performing one of three actions:

- ▶ Drag and drop onto any other Template Setting to insert at that location and change order within a single **Settings** tab.
- ▶ Drag and drop onto another tab view tab to insert panels at the end of that setting sheet.
- ▶ Drag and drop onto tab nodes in the **Design Template Manager** to insert into the tab sheet associated with a node.

E. Design Template Variable Selection List

The **Design Template Variable Selection List** (*Figure 6.22*) holds all Design Template Variables that are being used by the Design Template and which have not been assigned to template settings.

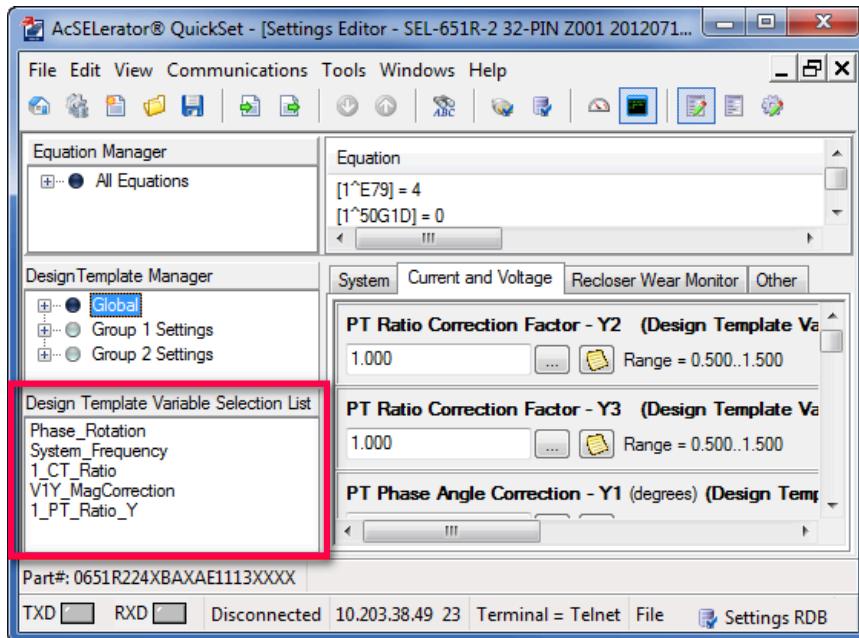


Figure 6.22 Hold Design Template Variables Within the Design Template Variable Selection List

Populating the Design Template Variable Selection List

There are four different ways to add new items to the **Design Template Variable Selection List**:

- ▶ Create an equation in the **Equation** window that has a Design Template Variable on the right side of the equation.
- ▶ Drag and drop a node from the **Design Manager Template**.
- ▶ Delete a template setting from the **Design Manager Template**.
- ▶ Drag and drop either a tab or a Design Template Variable from the Template Setting View.

Assigning Template Settings

You can assign any Design Template Variable listed in the **Design Template Variable Selection List** to an application setting in one of three ways:

- ▶ Double-click the variable name in the list when a Template Setting tab is displayed in the Template Setting View.
- ▶ Drag the variable name from the list to drop on the Template Setting View area of a Template Setting tab.
- ▶ Drag the variable name from the list to drop on a tab node of the **Design Template Manager**.

F. Error/Warning Window

If the **Error Messages** and **Warning Messages** options in the **Design Template Options** menu are set to show the error or warning messages in the current mode, and such an error or warning exists, the **Error/Warning** window displays with the appropriate errors.

Errors

Within the Design Template Editor, the application setting text field turns yellow for entry of an application setting outside a custom range and red for entry of an application setting outside device ranges or if a custom range does not exist (see *Figure 6.23*).

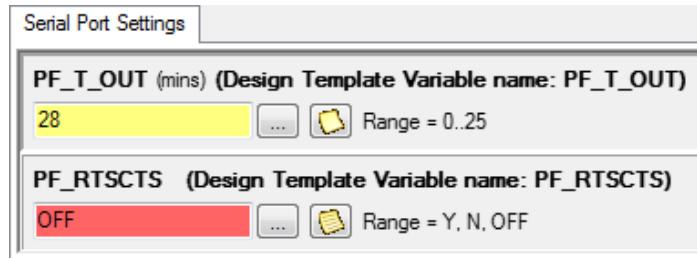


Figure 6.23 Yellow and Red Highlights Indicate Design Template Errors

For a list of common errors, refer to *Interpreting Application Error Messages on page 172*.

Warnings

If you attempt to enter an application setting into an application setting text field for which the associated device setting is hidden or disabled, the text field displays in gray.

Example 6.1 Create a New Settings Template From Default Settings

Following is an example of a very simple QuickSet Design Template being created. This example is not meant to serve as a settings or logic exhibition; it is rather meant to demonstrate the workflow involved in designing a new template. Because this example covers creation of a Design Template, a QuickSet Designer license is required to perform these steps. For licensing instructions, please see *Appendix D: Licensing Your Software*.

- Step 1. Select **File > New** to open the **Settings Editor Selection** window.
- Step 2. Select **SEL-651** for the Device Family, **SEL-651R-2** for the Device Model, and **004** for the version number. Wait for the driver to load and accept the default part number.

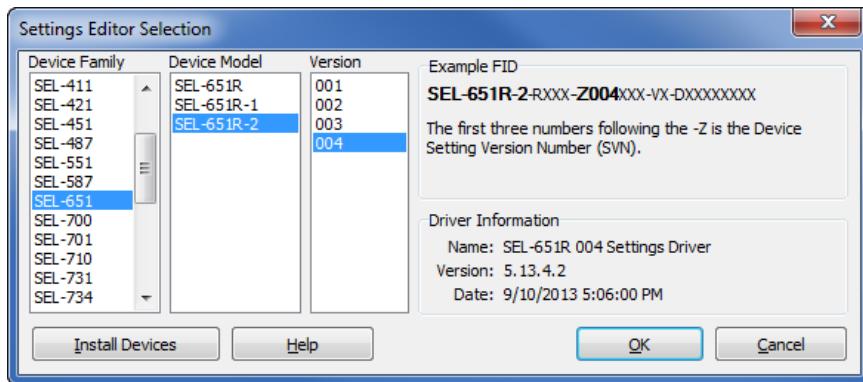


Figure 6.24 Choose the SEL-651R-2 Settings Driver With Settings Version 004

- Step 3. Select **File > Save** and name the settings file "Design Template Example 651R-2."

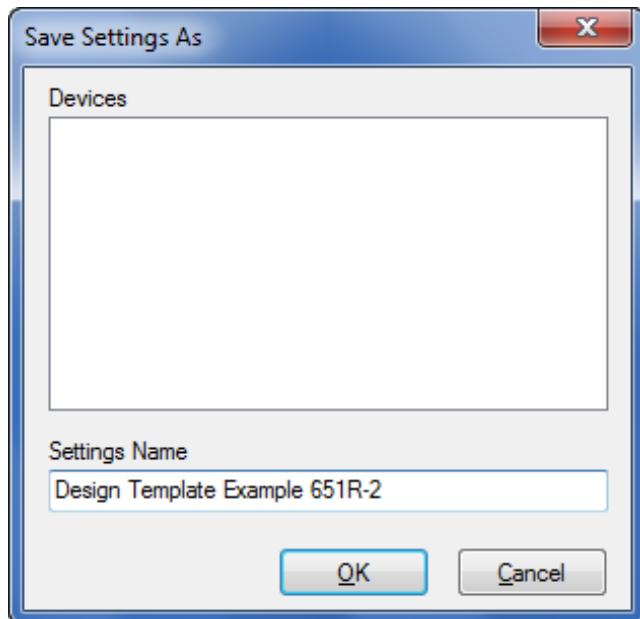
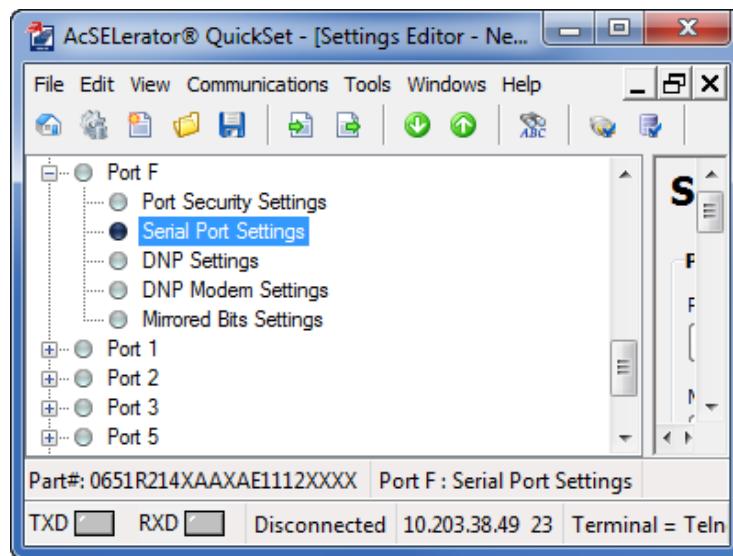
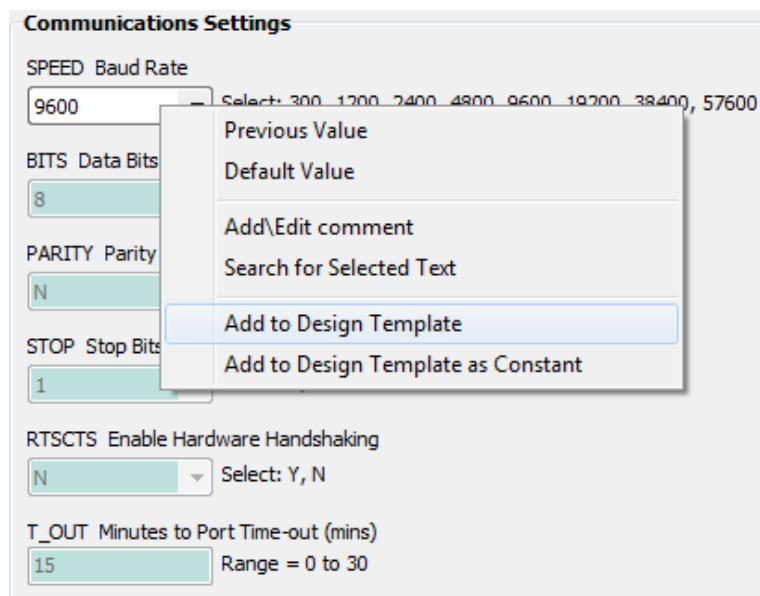


Figure 6.25 Save Your Settings Using File > Save

- Step 4. In the Settings Editor, expand the **Port F** settings group and select the **Serial Port Settings** setting class.

**Figure 6.26 Expand Port F and Select Serial Port Settings**

Step 5. Right-click and select **Add to Design Template** on all settings within the **Communications Settings** categorization, as shown in *Figure 6.26*. Notice that the settings that have been added to the Design Template are now grayed out and lightly highlighted, as shown in *Figure 6.27*.

**Figure 6.27 Add Individual Settings by Right-Clicking and Selecting Add to Design Template**

Step 6. Right-click the **Group 1** settings group and select **Add to Design Template as Constant**. A loading bar will display. Wait for the action to complete and then continue with *Step 7*. The **Add to Design Template as Constant** option sets the selected settings so that they are only configurable from the Design Template Editor.

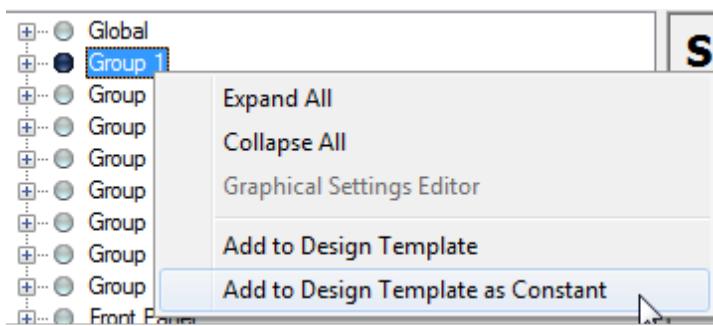


Figure 6.28 Add Group Settings by Right-Clicking and Selecting Add to Design Template as Constant

- Step 7. Go to **View** and switch to the Design Template Editor.
- Step 8. Right-click in the **Equation Manager**, select **Add Item** and name the new equation group "Other." The **Equation Manager** provides equation organization during the design process.

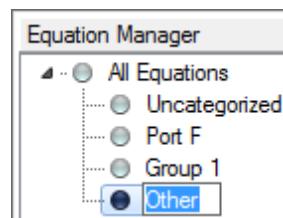


Figure 6.29 Create New Equation Categories

- Step 9. Select the **Group 1** equation group and double-click the VNOM equation to open the **Equation Builder**. Change the value from 120.00 to 240.00 and click **OK**. The Group 1 settings were added as constants, so the only way to modify these settings is to edit the existing equations. For this example, we want to send 240 for VNOM and we do not want this setting adjustable by the end user.



Figure 6.30 Use the Equation Builder to Modify Existing Equations

- Step 10. With the **Group 1** equation group still selected, move the FID, TID, CTR, CTRN, PTRY, and PTRZ equations into the newly created **Other** equation group. To do this, select the top equation, hold **<Shift>** and then select the bottom equation. Next, drag and drop the equations into the **Other** equation group node.

Equation Manager		Equation	Evaluation of Equation
All Equations		[1^RID] = FEEDER 1	FEEDER 1
Uncategorized		[1^TID] = STATION A	STATION A
Group 1		[1^CTR] = 1000.0	1000.0
Port F		[1^CTRN] = 1000.0	1000.0
Other		[1^PTRY] = 120.00	120.00
		[1^PTRZ] = 120.00	120.00
		[1^VNOM] = 240.00	240.00

Figure 6.31 Move the Equations to the Other Equation Group

Step 11. Select the **Other** equation group node, right-click anywhere in the **Equation** window and select **Manage Design Template Variables**.

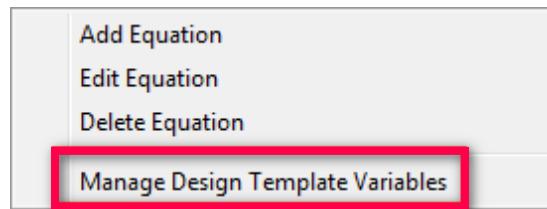


Figure 6.32 Right-Click in the Equation Window and Select Manage Design Template Variables

Step 12. In the **Manage Design Template Variables** window, add four new Design Template Variables: RID_1, TID_1, CTR_1, PTR_1. To add a new Design Template Variable, click **Add Variable** and enter in the name of the new variable. The **Manage Design Template Variables** screen should appear as shown in *Figure 6.33*. Notice that there already are existing Design Template Variables, created from the **Add to Design Template** option used on the front-panel communications settings.

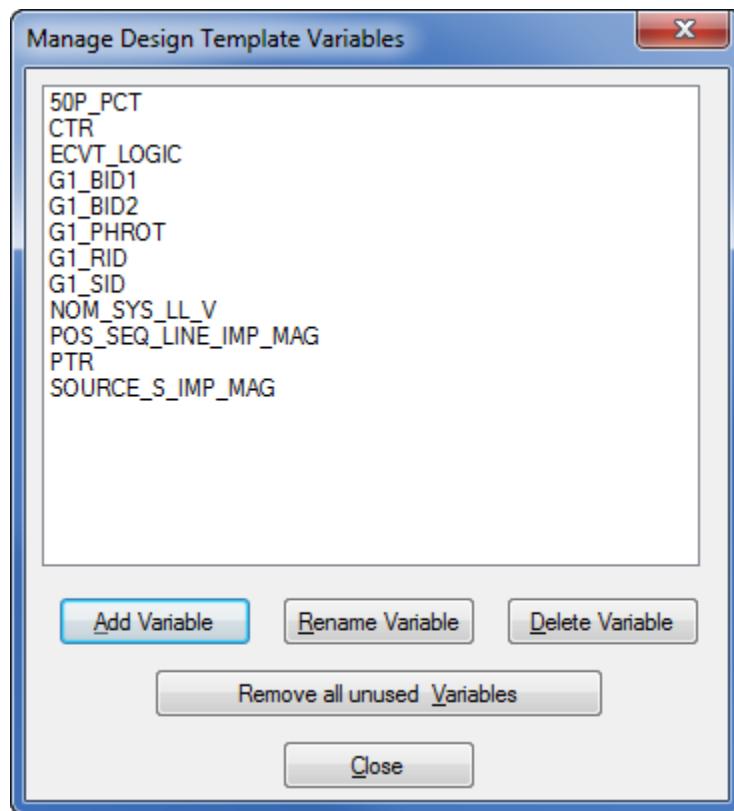


Figure 6.33 Add New Design Template Variables by Selecting Add Variable

Step 13. Close the Design Template Variables window. Within the **Equation** window, right-click the RID equation and select **Edit Equation** (see *Figure 6.34*).

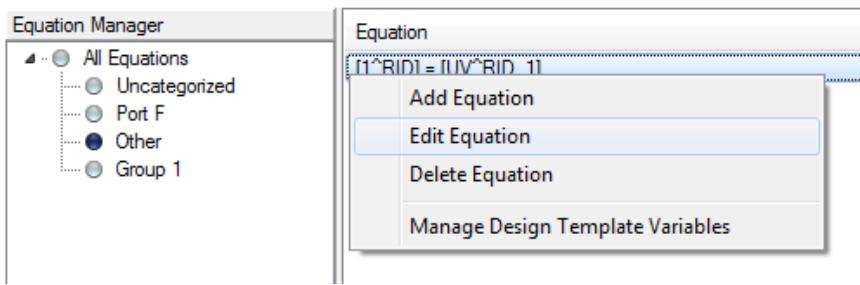


Figure 6.34 Right-Click the RID Equation and Select Edit Equation

Step 14. In the right side of the **Equation Builder**, highlight the "FEEDER 1" text and delete it. Next, select the **Design Template Variables** group and double-click the RID_1 element (see *Figure 6.35*). When finished, click **OK** to apply the equation edits.

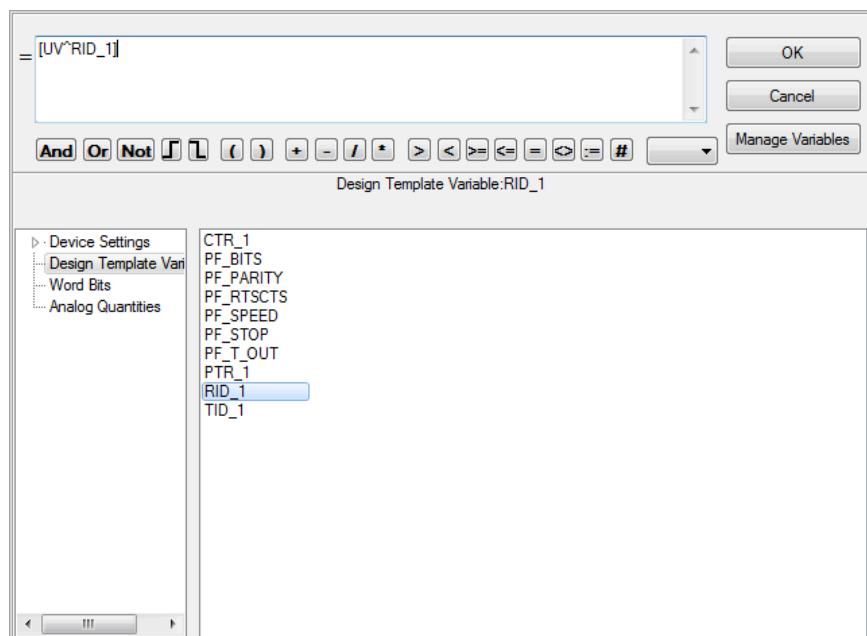


Figure 6.35 Double-Click an Element to Add It to the Equation

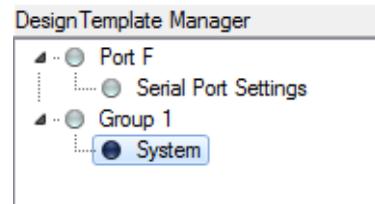
Step 15. Repeat the process outlined in *Step 13* to obtain a set of equations matching *Figure 6.36*. The "UV[^]" prefix indicates that these elements are Design Template Variables. The "1[^]" prefix indicates that these elements are from **Group 1**. By assigning device settings to Design Template Variables, we expose these settings to the end user. In the case of the CTR and PTR settings, we simplify things for the end user by forcing the CTR settings to the same value and PTR settings to the same value.

Equation	Evaluation of Equation	Send Value
[1^RID] = [UV^RID_1]	^NOTDEFINED	FEEDER 1
[1^TID] = [UV^TID_1]	^NOTDEFINED	STATION A
[1^CTR] = [UV^CTR_1]	^NOTDEFINED	1000.0
[1^CTRN] = [UV^CTR_N]	^NOTDEFINED	1000.0
[1^PTRY] = [UV^PTR_1]	^NOTDEFINED	120.00
[1^PTRZ] = [UV^PTR_N]	^NOTDEFINED	120.00

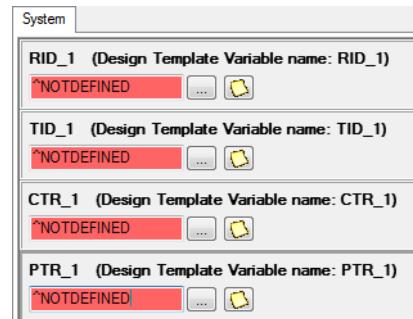
Figure 6.36 Resulting Equation Window Display

Step 16. In the **Design Template Manager**, right-click and select **Add Item** to create a new item node. Name the node "Group 1."

Step 17. Right-click the newly created item node and select **Add Tab** to create a tab group under the item node. The result should look like *Figure 6.37*. Notice that the **Port F** item node and the **Serial Port Settings** tab group were created when you used the **Add to Design Template** option in *Step 5*.

**Figure 6.37 Create a New Tab Group Under the Item Node**

Step 18. Drag all four Design Template Variables from the **Design Template Variable Selection List** into the **System** tab group. To select multiple Design Template Variables, hold <Ctrl> and select each element. The **Design Template Variable Selection List** is populated by Design Template Variables that have been assigned to device settings and have not been defined in another equation. The resulting Template Setting View should appear as *Figure 6.38*.

**Figure 6.38 Drag the Design Template Variables Into the Template Setting View**

Step 19. Now that the Design Template Variables have been made available to the Template Setting View, we need to set a range, add units, add comments, and modify the panel name for each variable. Within the Template Setting View, right-click the RID_1 panel and select **Edit Properties**.

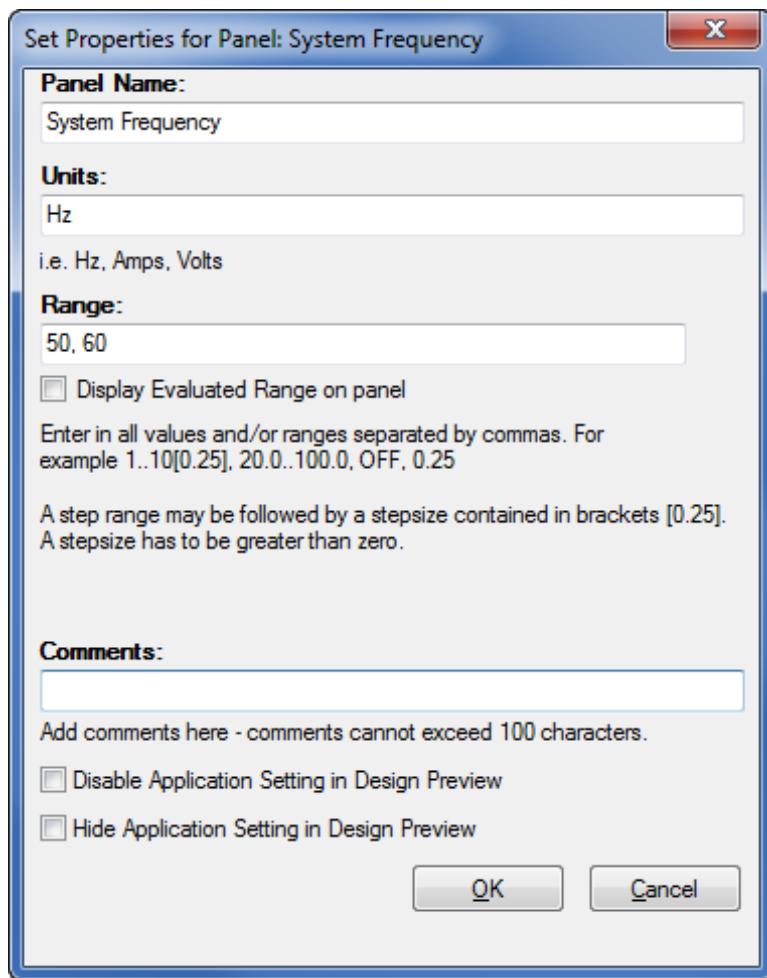


Figure 6.39 Use the Edit Properties Menu Option to Configure Your Setting Interface

Step 20. Configure the properties of RID_1 according to *Figure 6.39*. When finished, click **OK**. Repeat this configuration process by using the following table. Your result should look like *Figure 6.40*.

Panel	Panel Name	Units	Range	Comments
RID_1	Control Identifier	30 characters		ASCII string
TID_1	Circuit Identifier	30 characters		ASCII string
CTR_1	CT Ratio		1.0..6000.0	
PTR_1	PT Ratio		100.00..500.00	

Step 21. Enter default settings entries for all four panels. For this example, as shown in *Figure 6.40*, we use "Recloser 1," "Feeder 1," "120.0," and "120.00."

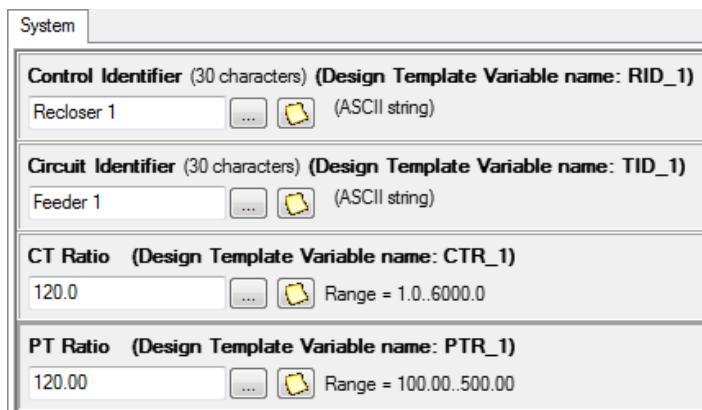


Figure 6.40 Use the Design Template Preview View to Validate the Template Setting View

Step 22. Select Design Template Preview from the View menu and validate that the settings are shown as expected. This is the view that an unlicensed end user will use when configuring device settings with your Design Template.

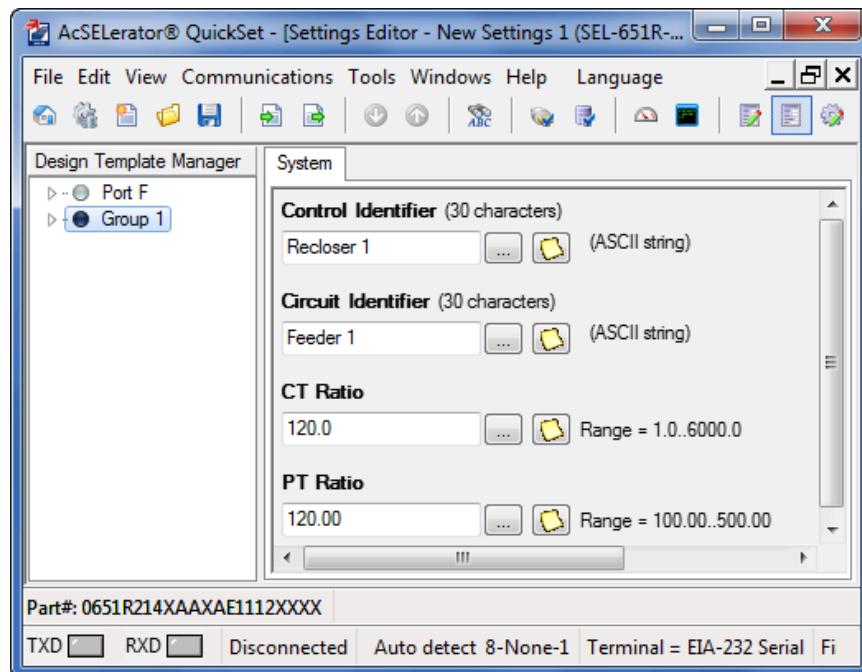


Figure 6.41 Validate Your Design Template by Using the Design Template Preview View

Step 23. Save the Design Template and distribute it to your end users.

Design Template Preview

The Design Template Preview provides an interface to view what the end user will see. If the **Allow switching to Settings Editor from Design Template Preview** setting is unselected in **Tools > Design Template Options**, this view is the only one that a non-licensed viewer will see. To switch to the Design

Configure Your Design Template Options

Template Preview view, use the **View** dropdown menu or use the **Enable Design Templates Preview** (document icon). Alternatively, you can use <Ctrl+Q> to switch to the Design Template Preview. This view consists of three windows: the **Design Template Manager**, the **Error/Warning** window, and the **Template Setting View**. These windows function similarly to their Design Template Editor counterparts, with the exception that template settings entries are the only modifiable fields.

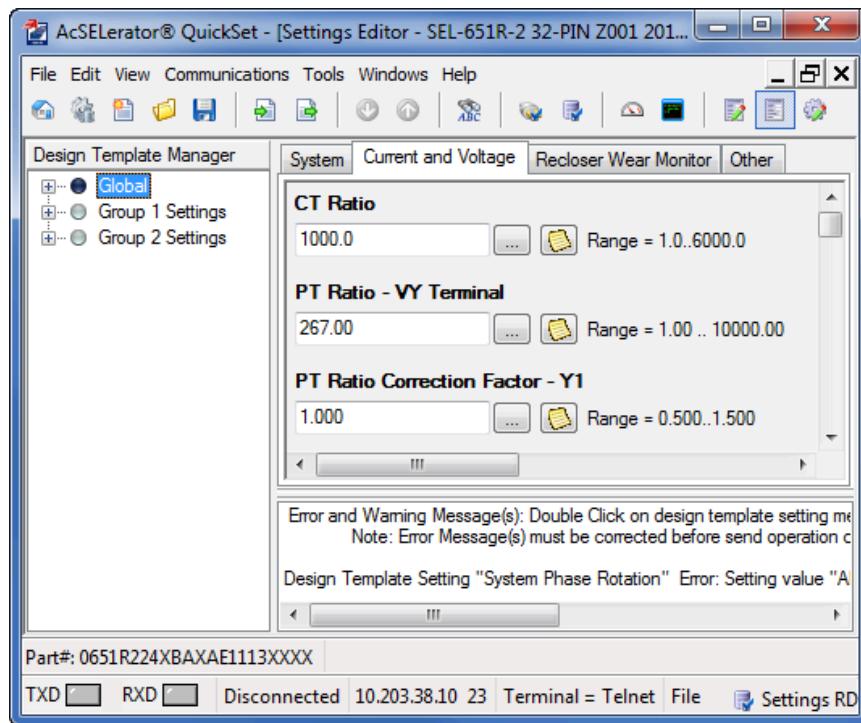


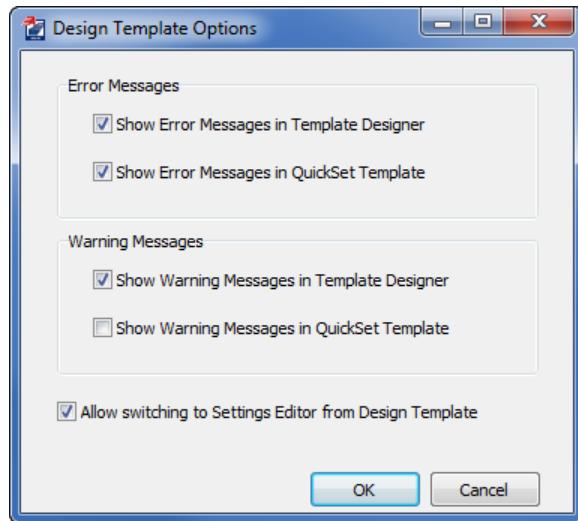
Figure 6.42 Preview of the Design Template End Result With the Design Template Preview View

Configure Your Design Template Options

There are three Designer-specific option menus when QuickSet Designer is enabled and the active view is either the Design Template Editor or the Design Template Preview. These options include **Groups to Send**, **Design Template Options**, and **Print Design**. Notice that the settings defined in these options apply only to the setting file that is currently open; these options are not shared among settings files.

Design Template Options

The **Design Template Options** menu contains all warning and error message settings as well as a restrictive setting for the Settings Editor. From the **Tools** dropdown menu, select **Design Template Options** to access the **Design Template Options** menu.

**Figure 6.43 Design Template Options Menu**

Menu Item	Description
Show Error Messages in Template Designer	By default, setting errors are shown within the Design Template Editor. To hide error messages in the Design Template Editor, deselect this option.
Show Error Messages in QuickSet Template	By default, setting errors are shown within the Design Template Preview. To hide error messages within the Design Template Preview, deselect this option.
Show Warning Messages in Template Designer	By default, setting warnings are shown within the Design Template Editor. To hide warning messages within the Design Template Editor, deselect this option.
Show Warning Messages in QuickSet Template	By default, setting warnings are not shown within the Design Template Preview. To expose warning messages within the Design Template Preview, select this option.
Allow switching to Settings Editor from Design Template	This option controls Settings Editor access for unlicensed users. If you want to restrict your Design Template end user to Design Template Variable settings, check this setting.

Groups to Send

The **Groups to Send** option menu controls which settings QuickSet sends to the device. Note that these settings can be circumvented if **Allow switching to Settings Editor from Design Template** is checked, because an unlicensed user can then switch to the Settings Editor and send all groups from there. If **Allow switching to Settings Editor from Design Template** is unchecked, then an unlicensed user is restricted to only sending the groups the **Groups to Send** option menu specifies.

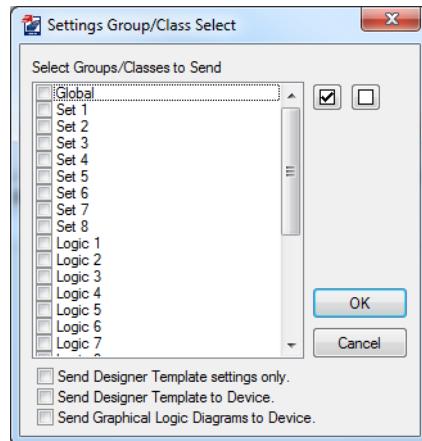


Figure 6.44 Settings Group/Class Select Options Menu

Menu Item	Description
Select Groups/Classes to Send	Select each group to send individually or, alternatively, use the check box (✓) and the clear box (□) to select all groups or remove all groups, respectively. If Send Designer Template to Device is selected, all settings will be sent and this section will not be editable.
Send Designer Template settings only.	This setting provides a filter for the groups selected in Settings Group/Classes to Send . When this is selected, each selected group will only send device settings that are used in your Design Template equations.
Send Designer Template to Device.	When this setting is selected, all settings files (including the file that contains the Design Template configuration) will be sent to the end device. This option is only available if the device being configured supports Design Template storage. For a list of devices that support Design Template storage, please see <i>Appendix B: Supported Devices and Languages</i> .

Print Design

Design Template settings require a different printing format than default device settings drivers, so the **Print Design** option must be used to print Design Template reports. To generate a Design Template report, select **File > Print Design**.

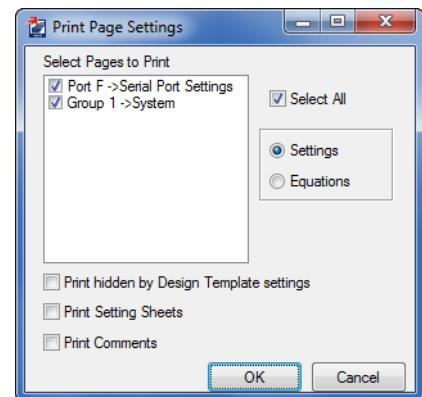


Figure 6.45 Print Design Options Menu

Menu Item	Description
Select Pages to Print	Check each tab group that you want to print individually, or use the Select All check box to select or deselect all tab groups.
Settings	Click OK with the Settings radio button selected to generate the Design Template settings report. This report contains a table for each selected Design Template setting, with the associated setting for each group and name, range, value, units, and legend for each setting.
Equations	If you click OK with the Equations radio button selected, the program generates the Design Template equations report. This report contains two tables. The first table contains a mapping of application variables to associated application settings. The second table contains all Design Template equations with left-side and right-side components for each equation, the evaluated value for each equation, and the value that the program sends to the device.
Print hidden by Design Template settings	If Print hidden by Design Template settings is checked, settings hidden by the Design Template are printed along with the rest of the settings.
Print Setting Sheets	If Print Setting Sheets is checked, setting values are omitted so that the report can be printed and used for manually writing in setting values.
Print Comments	If Print Comments is checked, the resulting Design Template settings report contains a row for comments.

Read and Send Your Settings

In addition to the read/send options already available in QuickSet, QuickSet Designer has extra read/send functionality to more adequately suit Designer Template needs. To read settings from your current device connection, go to **File** > **Read** or choose the **Send Active Settings** () icon.

Read

You can read settings from a device and use these device settings as a baseline for the Design Template. If the device from which you are reading does not support Design Template file storage and the **Prompt for action on settings read** setting in **Tools** > **Options** > **Settings** is not enabled, then the settings read takes place just as it would for any other QuickSet settings read. If the device from which you are reading does support Design Template file storage or **Prompt for action on settings read** is enabled, then there will be options unique to QuickSet Designer. For a list of devices that support Design Template file storage, please see *Appendix B: Supported Devices and Languages*.

Reading From a Device That Supports Design Template File Storage

Certain devices can store Design Template configuration files. When devices have this capability, the Design Template settings are maintained on a read. When a device does not support Design Template configuration file storage, there is no way to obtain the Design Template configuration used on that device.

By default, when you read settings from a device that supports Design Template file storage, QuickSet reads the Designer Template configuration file off of the device and puts it into effect. If you do not want to read from the Design Template configuration file, go to **Tools > Options > Settings** and select **Specify groups on settings read**. This provides a prompt such as that shown in *Figure 6.46* that provides you the option of reading this file with the **Read Designer Template from Device** setting.

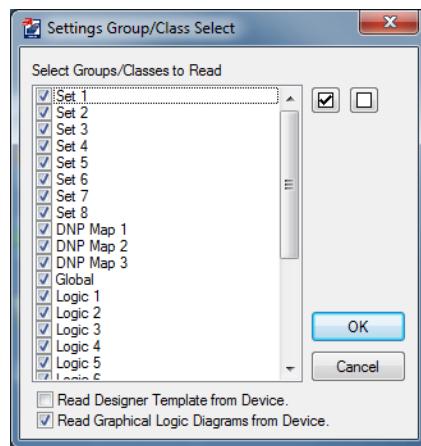


Figure 6.46 Use Read Designer Template From Device to Determine if the Design Template Configuration Is Read

Select each group to read individually or, alternatively, use the check box () and the clear box () to select all groups or remove all groups, respectively. If **Read Designer Template to Device** is selected, all settings will be read and this section will not be editable.

If you read a Design Template configuration file from a device that supports Design Template configuration file storage and there is a mismatch between the Design Template configuration file and the settings currently applied to the device, QuickSet displays a prompt as shown in *Figure 6.47*. Devices can enter this state if settings are changed without the Design Template configuration file being sent or if settings are changed over the terminal.

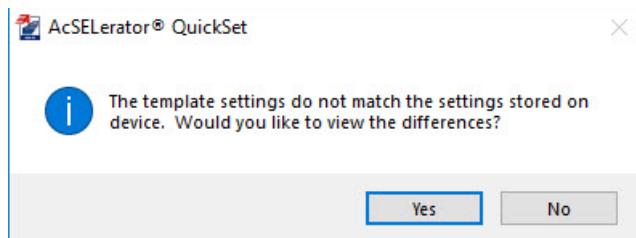


Figure 6.47 Settings Differences Prompt

Select **No** to ignore any differences. Select **Yes** to obtain a comparison between the device settings and the settings contained within the Design Template configuration file. *Figure 6.48* shows the comparison window.

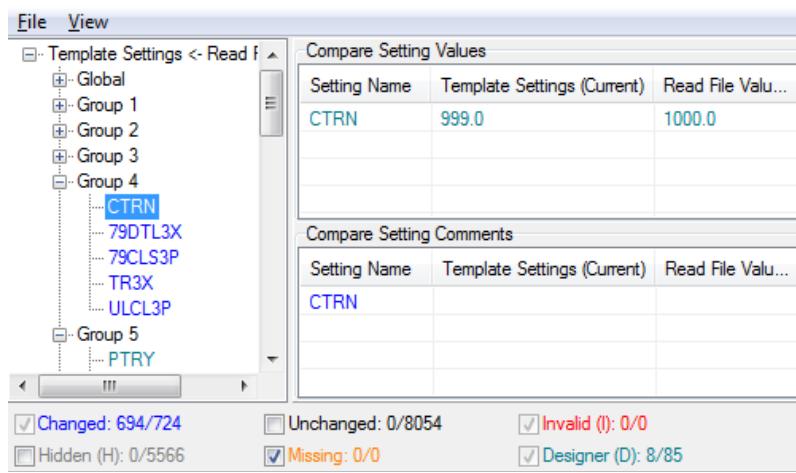


Figure 6.48 Comparison Between Design Template Configuration File and Device Settings

Within the comparison, green indicates settings that are dependent on Design Template Variables. Once you finish viewing the comparison, click the Close button () to continue. Rules for reading Design Template configuration files are as follows:

- ▶ If a device setting is dependent on a Design Template Variable, QuickSet applies the setting contained in the Design Template configuration file. Because of the possible complexity of Design Template equations, there is no way to determine what certain Design Template Variables are simply from a device setting. For example, if you sent to a device a Design Template configuration file with a setting of RID = "RELAY A" (and this setting was dependent on Design Template Variables) and you then used the terminal to change the setting to RID = "RELAY B," the setting read into QuickSet would be RID = "RELAY A."
- ▶ If a device setting is not dependent on a Design Template Variable, then the device setting active on the device is the applied setting. For example, if you sent to a device a Design Template configuration file with a setting of RID = "RELAY A" (and Designer is not using this setting) and you then use the terminal to change the setting to RID = "RELAY B," the setting read into QuickSet would be RID = "RELAY B."

Reading From a Device That Does Not Support Design Template File Storage

To receive the **Read Settings Option** menu, you must first ensure that **Prompt for action on settings read** is enabled. To do this, go to **Tools > Options > Settings** and select the **Prompt for action on settings read** check box.

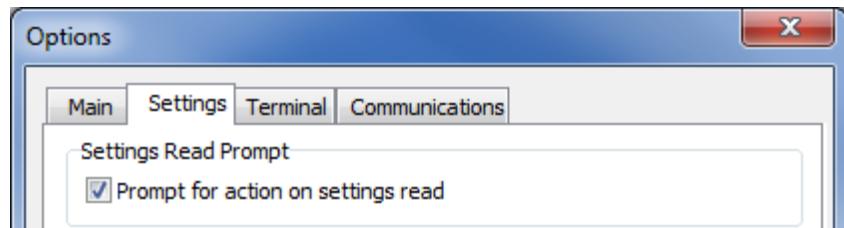


Figure 6.49 Select "Prompt for action on settings read" to Enable Designer Read Options

After you select this box, you invoke the **Read Settings Options** screen (*Figure 6.50*) any time you read settings from a device that has a corresponding Design Template.

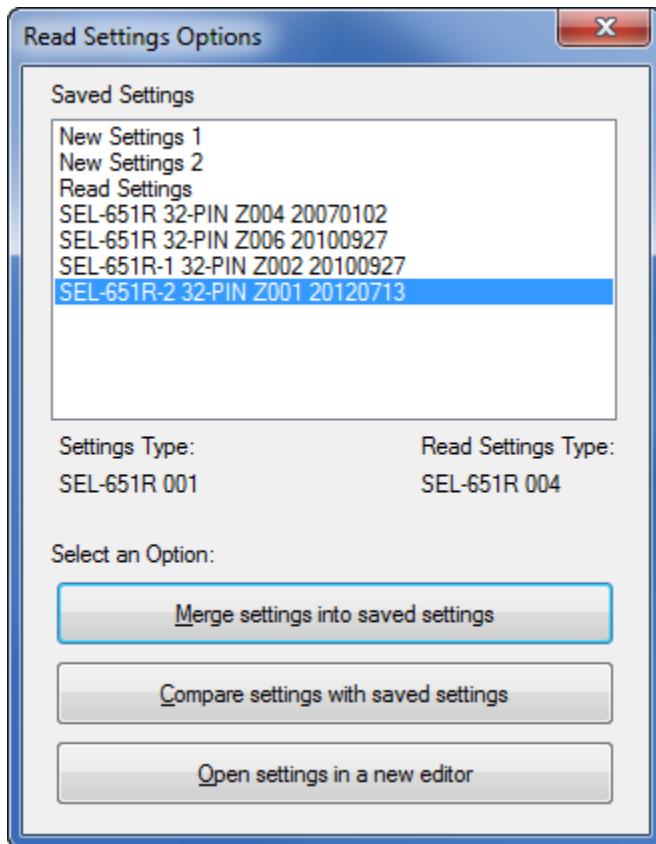


Figure 6.50 Compare, Merge, and Open Settings With the Read Settings Options Prompt

Menu Item	Description
Saved Settings	Select the saved Design Template settings file against which you want to compare or with which you want to merge. For a settings file to appear in this list, the file must be of the same device family.
Merge settings into saved settings	Select this option to merge the read settings groups into your current Design Template. If the read of settings causes any Design Template reserved device settings to change, QuickSet displays a warning message with three options in the Merge Design Template window: <ul style="list-style-type: none"> ► Yes, accept the modifications and complete the merge: This merges all read settings except the Design Template reserved settings; these remain as they were before the merge. ► No, cancel the merge and view the unmodified settings: This loads the read settings into a new editor without performing any merging. Selecting this option is equivalent to choosing Open settings in a new editor at the Read Settings Options screen. ► View the difference report before deciding: This performs a comparison to show which settings cannot be merged. Once you view the comparison, click the Close button to return to the Merge Design Template selection screen.
Compare settings with saved settings	Select this option to present a comparison between what QuickSet just read and the Design Template setting highlighted in the Saved Settings box. If you choose this option, the read settings file opens in a new editor when the comparison is complete.
Open settings in a new editor	This opens your read settings in a new Settings Editor window without modifying your current templates.

Send

After configuring your Design Template, you can send the settings to a connected device. The three different QuickSet Designer views have different send options. To send your active settings, go to **File > Send** or choose the **Send Active Settings** () icon.

Sending From the Design Template Editor and Design Template Preview

If you have either the Design Template Editor or the Design Template Preview active, QuickSet displays a confirmation box showing the groups it will send (see *Figure 6.51*).

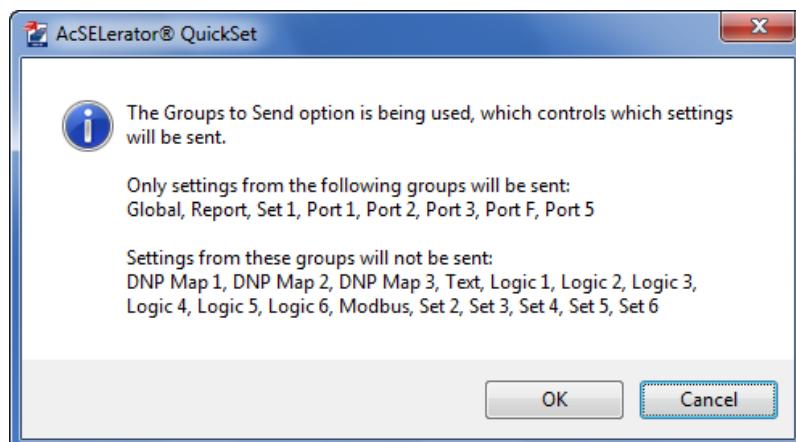


Figure 6.51 Confirmation Dialog You Receive When Sending From the Design Template Editor and Preview Screens

If you have selected no **Groups to Send** and the Design Template Editor is active, QuickSet prompts you to choose the groups you want to send. If you have selected no **Groups to Send** and the Design Template Preview is active, QuickSet displays a notification that no groups have been selected and no settings will be sent to the device.

Unlicensed users restricted to the Design Template Preview (see *Design Template Options on page 164*) can only send the groups specified in **Groups to Send** under the **Tools** dropdown menu.

Sending From the Settings Editor

To circumvent using the **Groups to Send** option, switch to the Settings Editor and select **File > Send**. QuickSet displays a dialog box with a list of groups, as in *Figure 6.52*.

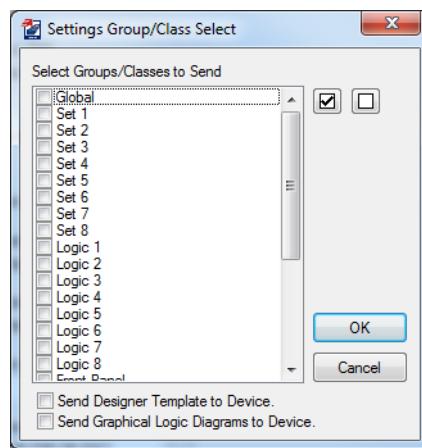


Figure 6.52 Select the Groups You Want to Send to the Connected Device

Select each group to send individually or, alternatively, use the check box () and the clear box () to select all groups or remove all groups, respectively. If **Send Designer Template to Device** is selected, all groups will be selected and grayed out. This option is only available if the device to which you are connected supports Design Template storage. For a list of devices that support Design Template storage, please see *Appendix B: Supported Devices and Languages*.

Interpreting Application Error Messages

Equation Builder Errors

The **Error/Warning** window displays messages when there are errors or warnings in your Design Template equations. Use the following table to interpret these messages.

Error	Definition
Incorrect number of parentheses.	There is a mismatch in the number of opening and closing parentheses.
Cannot have nested parentheses with non-word SELOGIC control equation.	There can be no nested parentheses with older SELOGIC control equation settings. Products that use older style SELOGIC control equation settings include the SEL-2100, SEL-311 series, and SEL-351 series.

Error	Definition
Incomplete Equation: Missing Operands.	An operator is by itself (as in "+").
Incomplete Equation: Missing Operand to the right of <Operator missing operand>.	An operator is missing a right-side value (as in "4 +").
Incomplete Equation: Missing Operand to the left of <Operator missing operand>.	An operator is missing a left-side value (as in "+ 4").
Math functions can only be followed by opening parentheses "(".	A math function is used without parentheses (as in "ABS + 4").
Logic operators cannot be used with non-logic left-hand settings.	A logic operator is used with numeric or mixed setting type on the left (as in "[1^50P1P] = [RB^EN] AND [RB^25A1]").
Non-logic operators cannot be used with logic left-hand settings.	A non-logic operator is used with logic setting type on the left (as in "[L1^OUT1] = 5 + 4").
The freeform logic operator ":=" cannot be used with non-freeform logic settings.	A freeform logic := is used with non-freeform setting (as in "[1^50P1P] = [RB^MV01] := 1").
A comment operator "#" is not allowed at the beginning of the right-side equation.	A comment operator is used at the beginning of a right-side equation.
A comment is not allowed with left settings which are not Boolean or freeform SELOGIC.	A comment is used with a setting that does not allow comments.
<First Operator> cannot be followed by <Second Operator>.	An operator cannot follow another operator (as in the case of + and /).
The right or left side of equation cannot be empty.	One or the other side of the equation is empty in the Equation Builder.
The left side can only have one setting or application variable.	The left side of the equation has more than one item such as "[1^RID] + 1 = [UV^VAL]".
<Invalid Item> is not a valid application variable for left side of the equation.	An invalid item such as [INVALID^NAME] is found in the left side of the equation.
<Invalid Item> is not a valid application variable for right side of the equation.	An invalid item such as [INVALID^NAME] is found in the right side of the equation.
<Invalid Item> is not a valid application variable, operator, or constant for the right side of the equation.	A circular reference would be caused by adding the equation.

Template Settings Errors

The **Error/Warning** window displays messages when there are errors or warnings in your application settings. Use the following table to interpret these messages.

Error	Definition
Warning: "<Group> <Setting>" setting is disabled/hidden, setting cannot be set.	This warning displays if a device setting is disabled or hidden.
Error: Setting value must be greater than or equal to <Low value or min length> and lower than or equal to <High value or max length>. "<Group> <Setting name>" setting will not get set.	This error displays if the value being assigned to a relay setting is outside of the allowed range for that relay. The displayed error is according to the type of setting.
Error: <Invalid element of string> is not valid for this setting value. "<Group> <Setting name>" setting will not get set.	This error displays for an invalid setting.

Error	Definition
Error: "<Group>: <Setting name>" is not defined, setting will not get set.	A variable assigned to that setting is "^NOT DEFINED," either having just been added from the Application Variable Selection list or not currently added to a tabsheet.
Error: "<Group>: <Setting name>", equation has a circular reference.	A variable assigned to that setting is "^CIRCULAR" because there is a circular reference formed by either the application settings or the relay settings used directly or indirectly in the right side of that equation.
Design Template Setting: <var name> Setting value is outside of the custom range, value will not get set.	This error displays when the value of an application setting is outside the corresponding custom range for that setting.
Design Template Setting: "<Name of var>" <error warning>: "<Left val Group>: <Left val Setting Name>" <matching error to above>.	If an error or warning displays for one or more application settings associated with the left-hand setting, then additional errors/warnings will display for each such error or warning for which an associated application setting is visible in the current mode. Left-side settings association can be direct (as in <Left Value> = <Var 1>) or indirect (as in <Left> = <Var 1>; <Var 1> = <Var 2> + <Var 3>), in which case all are associated (Var 1, 2, and 3) and all have errors. An application setting is hidden and, thus, will have no associated error/warning if it is found in the Application Variable Selection list, is found as the left-side value of an equation in the equations list, or has a hidden property and is in Setting Form mode. If the setting is in Setting Form mode the panel will not display.

Range Editing Errors

The **Set Properties** form displays range errors in the base of the form when your range does not follow the correct syntax.

The form will not close until you enter a valid range or click the **Cancel** button. The form will expand to show an error text field that contains the range string, and any invalid subrange items in the range string will be determined. Any blank subrange will display a <VALUE NEEDED> tag after or before the invalid comma. All invalid subranges, including <VALUE NEEDED> tags, will be highlighted in red. For example:

1..25..5, 10, 20.. would highlight as **1..25..5, 10, 20..**

..1, OFF, would highlight as **..1, OFF, <VALUE NEEDED>**

Errors During Renaming

The **Design Template Variable name** window displays a message when errors occur in the Design Template Variable name. Use the following table to interpret this message.

Error	Definition
Application Variable already exists.	The variable already exists in the list.
Application Variable cannot be all spaces.	The variable consists only of spaces.
Application Variable name cannot be a number.	The variable is a number in any format (integer, decimal, or E notation).
Application Variable name cannot be an operator.	Variables cannot be named any of the following reserved operators: AND, OR, NOT, F_TRIG, R_TRIG, ABS, ASIN, ACOS, CEIL, COS, EXP, FLOOR, LN, LOG, SIN, SQRT.

Error	Definition
Used by <Driver Name>.	The variable was some setting or bit used by the driver.
Application Variable cannot contain an operator.	The variable contains any of the following operators: (,) , + , - , / , * , < , > , = , : , [,]
Application Variable cannot contain double quotes.	The variable contains a double quote ("").
Application Variable cannot contain commas.	The variable contains a comma (,) character.
Application Variable contains an invalid character.	The variable contains an invalid character.

QuickSet Designer Case Study

Overview

This application deals with double-ended, overhead 500 kV parallel lines with SEL-421 protection at each end of the first circuit. These transmission lines have zero-sequence mutual coupling.

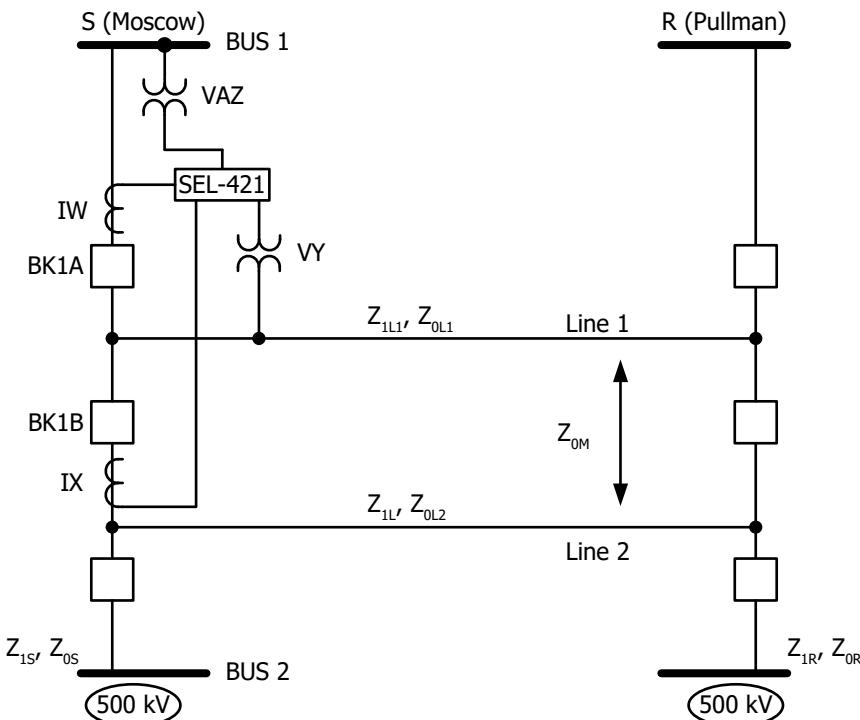


Figure 6.53 500 kV Parallel Overhead Transmission Lines

This case study explains how to calculate settings for the SEL-421 at Station S for protection of Line 1 between Stations S and R. It uses communications-assisted tripping with a digital communications channel to provide high-speed protection for faults along the 500 kV circuit. Distance protection is enabled.

To minimize settings entry, the communications-assisted tripping settings will be hidden in the Design Template. To simplify settings entry, the distance protection settings will be calculated using system data. *Figure 6.54* depicts the workflow of this application.

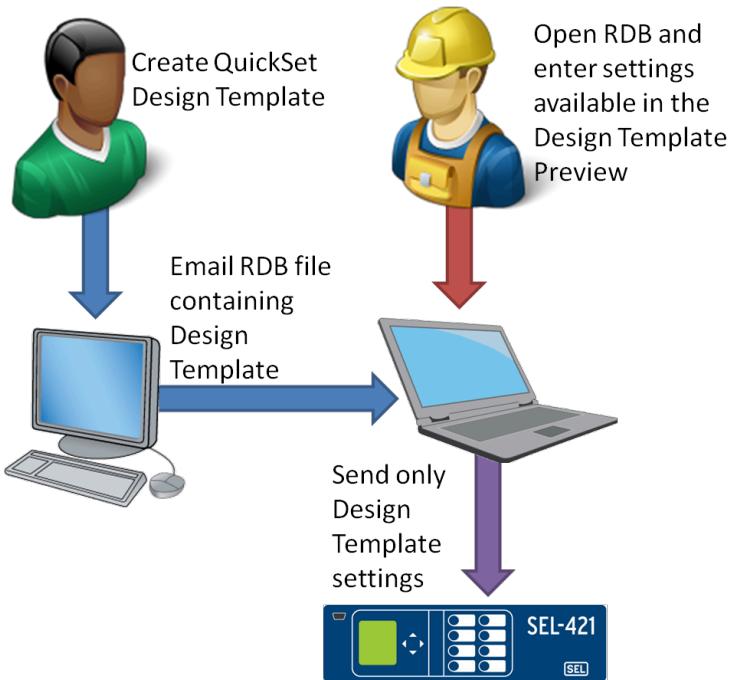


Figure 6.54 Workflow Outlined in This Case Study

- Step 1. The Design Template creator chooses which settings need to vary among applications, chooses which settings need to be sent to the relay as constants, and designs the template accordingly. This use case focuses on the details of creating the Design Template.
- Step 2. Upon finishing the Design Template, the template creator emails the resulting RDB file to end users (technicians who have QuickSet but no license for QuickSet Designer).
- Step 3. The technician receives the RDB file, sets it as the active database, and then opens the template settings. The technician is not licensed for Designer, so the technician only has access to settings exposed by the Design Template creator. The technician enters settings specific to the application.
- Step 4. Finally, the technician sends the Design Template (a combination of the initial Design Template configuration from the creator and the application-specific settings the technician entered) to the relay.

The system data shown in the following table are all we need to create a full protection package. Note that QuickSet provides line and source parameters in primary values. QuickSet Designer software allows easy scaling of the system data to be sent to the device.

Parameter	Value
Nominal system line-to-line voltage	500 kV
Nominal relay current	5 A secondary
Nominal frequency	60 Hz
Line length	75 miles
Line impedances: $Z_{1L1} = Z_{1L2}$ $Z_{0L1} = Z_{0L2}$	$44.78 \Omega \angle 87.6^\circ$ primary $162.9 \Omega \angle 82.1^\circ$ primary

Parameter	Value
Zero-sequence mutual coupling: Z_{0M}	$88.35 \Omega \angle 76.6^\circ$ primary
Source S Impedances: $Z_{1S} = Z_{0S}$	$50 \Omega \angle 88^\circ$ primary
Source R Impedances: $Z_{1R} = Z_{0R}$	$20 \Omega \angle 88^\circ$ primary
PTR (potential transformer ratio)	500 kV:111.11 V = 4500
CTR (current transformer ratio)	2000:5 = 400
Phase rotation	ABC

You can use QuickSet Designer software to create a template that will do the following:

- ▶ Allow for the entry of system data, as shown previously.
- ▶ Derive the applicable protection settings used in the example.
- ▶ Set and hide any additional settings used in the example.

It is important to understand that QuickSet Designer software does not alter the settings handling of the device itself. In this example, the station identification is stored in the device as Global setting SID. The software allows for design of a custom interface that can receive user input and then send that information to the corresponding setting in the device, [G1^SID] in this example.

QuickSet Designer software has multiple options for sending settings to the device.

- ▶ A setting can be sent to the device as a constant value, receiving no input from the end user after the initial template design: **[G1^SID] = MOSCOW-500 kV**.
- ▶ A setting can be sent to the device as a template variable, receiving input from the end user after the initial template design: **[G1^SID] = [UV^STA_ID]**.

Getting Started

Before getting started with configuration in the Design Template Editor, perform the following steps to organize the Design Template by creating item nodes and group tabs within the **Design Template Manager** window and equation groups in the **Equation Manager**.

- Step 1. Right-click within the **Design Template Manager** and select **Add Item** to add an item node. Name the item node "Parallel Transmission Lines" to indicate our application.
- Step 2. To create a new tab group, right-click the previously created item node and select **Add Group**. Name the group "Line Data." Repeat this process for "System Data," "Source Data," "Protection Philosophy," and "General Global Settings" to match *Figure 6.55*.

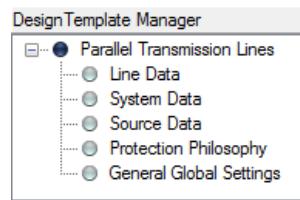


Figure 6.55 Create an Item Node and Multiple Tab Groups to Help With Organization

Step 3. Right-click in the **Equation Manager** window and select **Add Equation** to create a new equation group. Name the group "Line Data." Repeat this process for "50P1P" and "ECVT."

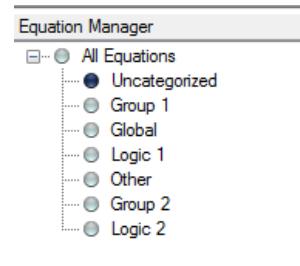


Figure 6.56 Create Equation Groups to Help With Organization

Configuring Global Settings

In this case study, we handle the general Global settings in the following manner:

Setting	Description	Entry
General Global (Global)		
SID	Station Identifier (40 characters)	MOSCOW-500 kV
RID	Relay Identifier (40 characters)	SEL-421 Relay
NUMBK	Number of Breakers in Scheme (1, 2)	2
BID1	Breaker 1 Identifier (40 characters)	Circuit Breaker 1
BID2	Breaker 2 Identifier (40 characters)	Circuit Breaker 2
NFREQ	Nominal System Frequency (50, 60 Hz)	60
PHROT	System Phase Rotation (ABC, ACB)	ABC
DATE_F	Date Format (MDY, YMD, DMY)	MDY
FAULT	Fault Condition (SELOGIC Equation)	50P1 OR 51S1 OR M2P OR Z2G OR M3P OR Z3G
Current and Voltage Source Selection (Global)		
ESS	Current and Voltage Source Selection (Y, N, 1, 2, 3, 4)	3
LINE1	Line Current Source (IW, COMB)	COMB

Setting	Description	Entry
BK1I	Breaker 1 Current Source (IW, IX, NA)	IW
BK2I	Breaker 2 Current Source (IX, COMB, NA)	IX

- **SID** will be sent as template variable **[UV^STA_ID]**; "Station ID," which will be located on the "Naming Information" Design Template group tab.
- **RID** will be sent as template variable **[UV^REL_ID]**; "Relay ID," which will be located on the "Naming Information" Design Template group tab.
- **BID1** will be sent as template variable **[UV^BK1]**; "Breaker 1 Identifier," which will be located on the "Naming Information" Design Template group tab.
- **BID2** will be sent as template variable **[UV^BK2]**; "Breaker 2 Identifier," which will be located on the "Naming Information" Design Template group tab.
- **PHROT** will be sent as template variable **[UV^G1_PHROT]**; "Phase rotation," which will be located on the "System Data" Design Template group tab.

- Step 1. Switch to the Settings Editor view and navigate to **Global > General Global Settings**.
- Step 2. Right-click and select the **Add to Design Template** option for each previously listed setting to automatically create an alias within QuickSet Designer. To add BID2 to the Design Template, you must first enable the setting by choosing "2" for NUMBK. Disabled settings cannot be added to a Design Template through this method.

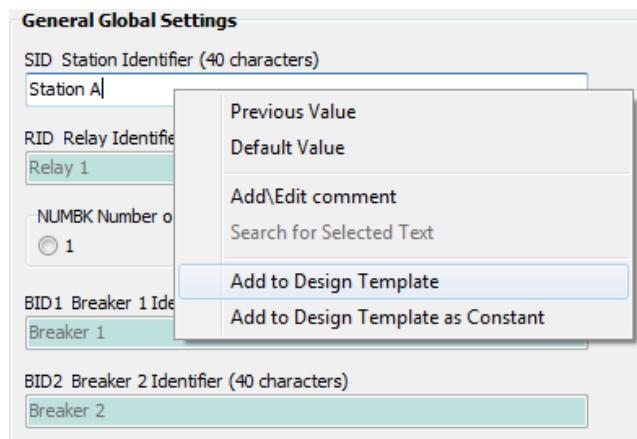


Figure 6.57 Certain Group Settings Are Added to the Design Template

The following device settings are set to constants because these do not vary among locations:

- **NUMBK** will be sent as constant **2**.
- **NFREQ** will be sent as constant **60**.
- **DATE_F** will be sent as constant **MDY**.
- **FAULT** will be sent as constant **50P1 OR 51S1 OR M2P OR Z2G OR M3P OR Z3G**.
- **ESS** will be sent as constant **3**.

- **LINEI** will be sent as constant **COMB**.
- **BK1I** will be sent as constant **IW**.
- **BK2I** will be sent as constant **IX**.

Step 3. Go to **Global > General Global Settings** and set the first four settings as listed above (i.e., NUMBK = 2, NFREQ = 60). Once you have adjusted the settings, right-click each setting and select **Add to Design Template as Constant**, as shown in *Figure 6.58*.

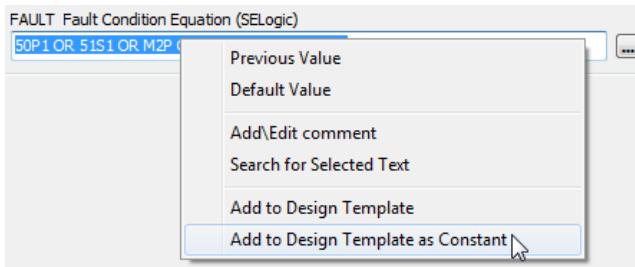


Figure 6.58 Certain Group Settings Are Added to the Design Template as Constants

Step 4. Repeat *Step 3* for the last four device settings located in **Global > Current and Voltage Source Selection**.

Step 5. Switch back to the Design Template Editor, and select the newly created **Global** equation group. View the resulting Design Template equations, as shown in *Figure 6.59*.

Equation	Evaluation of Equation	Send Value
[G1^PHROT] = [UV^G1_PHROT]	ABC	ABC
[G1^BID2] = [UV^G1_BID2]	Breaker 2	Breaker 2
[G1^BID1] = [UV^G1_BID1]	Breaker 1	Breaker 1
[G1^RID] = [UV^G1 RID]	Relay 1	Relay 1
[G1^NUMBK] = 2	2	2
[G1^SID] = [UV^G1_SID]	Station A	Station A
[G1^DATE_F] = MDY	MDY	MDY
[G1^FAULT] = 50P1 OR 51S1 OR M2P OR Z2G OR M3P OR Z3G	50P1 OR 51S1 OR M2P...	50P1 OR 51...
[G1^BK1I] = IW	IW	IW
[G1^BK2I] = IX	IX	IX
[G1^LINEI] = COMB	COMB	COMB
[G1^ESS] = 3	3	3

Figure 6.59 Equations Resulting From the Addition of Global Settings

Configuring Line Settings

In addition to hiding settings and simplifying settings entry, QuickSet Designer software can calculate settings before sending them to the device. In this application, the software must perform a couple of calculations for the Zone 1 phase distance element reach setting before it can send this setting to the relay:

- Convert the system positive-sequence line impedance (Z_{IL1}) from primary quantities to secondary quantities to match the device convention.
- Calculate the desired percentage reach for the Zone 1 phase distance protection ($Z1P$).

In this case study, we handle the applicable settings in the following manner:

- ▶ **CTRW** and **CTRX** will be sent as Design Template Variable **[UV[^]CTR]**, "CTR (current transformer ratio)," which will be located on the "System Data" Design Template group tab.
- ▶ **PTRY** and **PTRZ** will be sent as Design Template Variable **[UV[^]PTR]**, "PTR (potential transformer ratio)," which will be located on the "System Data" Design Template group tab.

- Step 1. Select the **Line Data** equation group in the **Equation Manager**. Right-click in the **Equation** window and select the **Manage Design Template Variables** menu option.
- Step 2. In the **Manage Design Template Variables** dialog box, select **Add Variable** and name the first variable "CTR." Through this method, also create the following Design Template Variables:

- ▶ 50P_PCT
- ▶ ECVT_LOGIC
- ▶ NOM_SYS_LL_V
- ▶ POS_SEQ_LINE_IMP_MAG
- ▶ PTR
- ▶ SOURCE_S_IMP_MAG

QuickSet should display a list as shown in *Figure 6.60*.

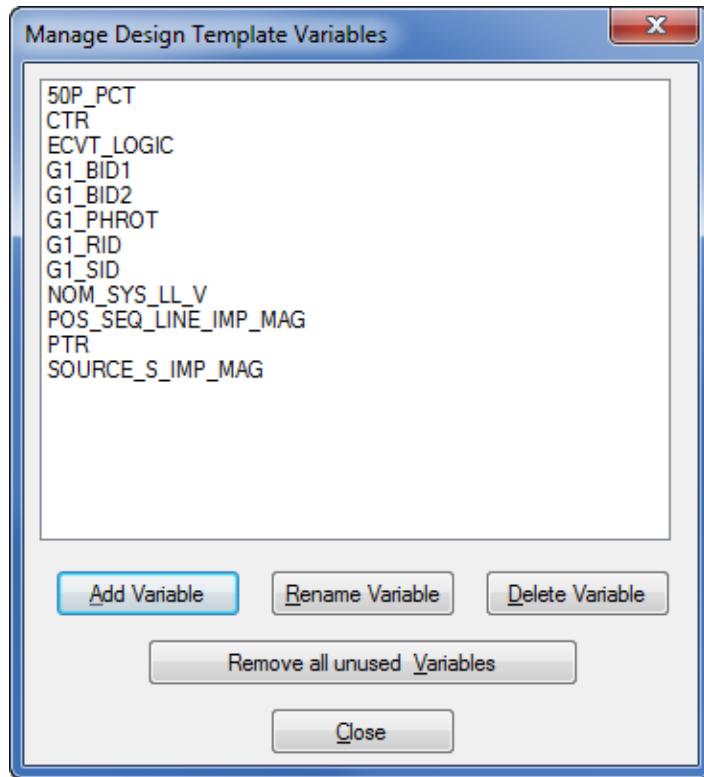


Figure 6.60 Design Template Variables Used in This Case Study

Once we have defined our variables, we can convert the system line-impedance magnitude from primary to secondary quantities as follows:

- ▶ **Z1MAG:** sent as template calculation $[UV^CTR] * [UV^POS_SEQ_LINE_IMP_MAG] / [UV^PTR]$
- ▶ Design Template Variable $[UV^POS_SEQ_LINE_IMP_MAG]$, "Positive-sequence line impedance magnitude," will be located in the "Line Data" Design Template tab group.

- Step 3. With the **Line Data** equation group selected, right-click in the **Equation** window and select **Add Equation**.
- Step 4. Within the **Equation Builder**, add elements by double-clicking them in the tree view. Click **Apply** when you finish an equation.
 - a. For the first two equations, set $[S1^PTRY]$ and $[S1^PTRZ]$ to $[UV^PTR]$.
 - b. For the next two, set $[S1^CTR_X]$ and $[S1^CTR_W]$ to $[UV^CTR]$.
 - c. Next, implement the Z1MAG equation outlined previously. For the math functions, you can either use the $<*>$ and $</>$ keys or you can click the corresponding buttons in the **Equation Builder**.
 - d. After you add the five equations, click **Close**. The resulting equations should display as shown in *Figure 6.61*.

Equation	Evaluation of Equation
$[S1^Z1MAG] = [UV^CTR] * [UV^POS_SEQ_LINE_IMP_MAG] / [UV^PTR]$	3.98
$[S1^CTRW] = [UV^CTR]$	400
$[S1^CTRX] = [UV^CTR]$	400
$[S1^PTRY] = [UV^PTR]$	4500
$[S1^PTRZ] = [UV^PTR]$	4500

Figure 6.61 The Z1MAG Conversion Equations

Configuring the Phase Instantaneous Overcurrent Element

The phase instantaneous overcurrent element pickup setting requires a couple of calculations before QuickSet can send it to the relay.

From the application example:

To rapidly clear faults, set 50P1P equal to 50 percent of the fault current measured at the local terminal for a close-in three-phase fault; use weak source conditions so that the relay operates for low-level fault current.

- ▶ Calculate the minimum three-phase fault current for the remote terminal.
- ▶ Calculate the desired fault current percentage for the overcurrent protection (50P1P).

In this case study, we handle the applicable settings in the following manner:

- ▶ **VNOMY** will be sent as Design Template equation $[UV^NOM_SYS_LL_V] * 1000 / [UV^PTR]$.
- ▶ Design Template Variable $[UV^NOM_SYS_LL_V]$, "Nominal system line-to-line voltage" will be located on the "System Data" Design Template tab group.
- ▶ **E50P** will be sent as constant 1.

With this information, QuickSet calculates the phase instantaneous overcurrent element pickup as follows:

- ▶ **50P1P** will be sent as Design Template equation $[UV^NOM_SYS_LL_V] * 1000 / \text{SQRT}(3) / [UV^SOURCE_S_IMP_MAG] / [UV^CTR] * [UV^50P_PCT] / 100$.
- ▶ Design Template Variable $[UV^ SOURCE_S_IMP_MAG]$, "Source S impedance magnitude," will be located on the "Source Data" Design Template tab group.
- ▶ Design Template Variable $[UV^ 50P_PCT]$, "50 pickup as a percentage of 3PH FLT," will be located on the "Protection Philosophy" Design Template tab group.

Step 1. Select the **50P1P** equation group in the **Equation Manager**. Right-click in the **Equation** window and select **Add Equation** from the menu option.

Step 2. Within the **Equation Builder**, add elements by double-clicking them in the tree view. Click **Apply** when you finish an equation. Create the following equations:

- a. $[S1^VNOMY] = [UV^NOM_SYS_LL_V] * 1000 / [UV^PTR]$
- b. $[S1^E50P] = 1$

$$c. [S1^{50P1P}] = [UV^{NOM_SYS_LL_V}] * 1000 / \sqrt{3} / [UV^{SOURCE_S_IMP_MAG}] / [UV^{CTR}] * [UV^{50P_PCT}] / 100.$$

- Step 3. After you add the three equations, click **Close**. The resulting equations should display as shown in *Figure 6.62*.

Equation	Eval...
$[S1^{VNOMY}] = [UV^{NOM_SYS_LL_V}] * 1000 / [UV^{PTR}]$	
$[S1^{E50P}] = 1$	
$[S1^{50P1P}] = [UV^{NOM_SYS_LL_V}] * 1000 / \sqrt{3} / [UV^{SOURCE_S_IMP_MAG}] / [UV^{CTR}] * [UV^{50P_PCT}] / 100$	

Figure 6.62 Overcurrent Equations

Configuring CVT Transient Detection

QuickSet Designer software can assist you in making settings determinations based on calculations.

From the application example:

You do not need capacitance voltage transformer (CVT) transient detection if the source impedance ratio (SIR) is less than five. SIR is equal to the ratio of the local source impedance to the relay reach. Calculate the ratio based on the Zone 1 reach because you do not want Zone 1 distance protection to overreach during an external fault. Double the source impedance magnitude because the relay measures half the total fault current when the parallel line is in service and the fault is located at the remote bus.

We evaluate the previous equation to determine a value for the **ECVT** device setting.

In this case study, we handle the applicable settings by sending **ECVT** as a constant per the following recommendation:

Enter **N** if **ECVT_LOGIC** evaluates to a 0. Enter **Y** if **ECVT_LOGIC** evaluates to a 1.

- Step 1. Select the **ECVT** equation group in the **Equation Manager**. Right-click in the **Equation** window and select **Add Equation** from the menu option.

- Step 2. Within the Equation Builder, add elements by double-clicking them in the tree view. Click **Apply** when you finish an equation. Create the following equations:

- $[UV^{ECVT_LOGIC}] = (2 * [UV^{CTR}] * [UV^{SOURCE_S_IMP_MAG}] / ([UV^{PTR}]) / (0.8 * [S1^{Z1MAG}]) >= 5$
- $[S1^{ECVT}] = N$

- Step 3. After you add the two equations, click **Close**. The resulting equations should display as shown in *Figure 6.63*.

Equation	Eval...
$[UV^{ECVT_LOGIC}] = (2 * [UV^{CTR}] * [UV^{SOURCE_S_IMP_MAG}] / ([UV^{PTR}]) / (0.8 * [S1^{Z1MAG}]) >= 5$	0
$[S1^{ECVT}] = N$	N

Figure 6.63 Transient Detection Equations

Designing the Template Setting View

After addition of the equations containing Design Template Variables on the right side of the equation, QuickSet adds these Design Template Variables to the **Design Template Variable Selection List**, as shown in *Figure 6.64*.

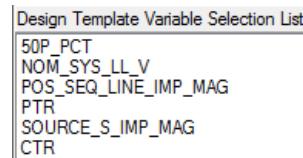


Figure 6.64 Design Template Variables Used in the Right Side of an Equation

To make these settings available to the end user as configurable settings, drag and drop the variables into the appropriate Design Template group tab. Drag and drop the Design Template Variables according to the following table:

Line Data	System Data	Source Data	Protection Philosophy
POS_SYS_LL_V	CTR PTR NOM_SYS_LL_V	SOURCE_S_IMP_MAG	50P_PCT

After you add settings to the **Template Setting View**, double-click and edit the properties for the settings panels. Modify the settings panel properties to match the following table:

Design Template Variable	Panel Name	Units
50_PCT	50 pickup as a percentage of 3PH FLT	
NOM_SYS_LL_V	Nominal system line-to-line voltage	kV
POS_SEQ_LINE_IMP_MAG	Positive-sequence line impedance magnitude	Ohms
PTR	Potential transformer ratio	
SOURCE_S_IMP_MAG	Source S impedance magnitude	Ohms
CTR	Current transformer ratio	

Figure 6.65 shows the resulting **System Data** group tab.

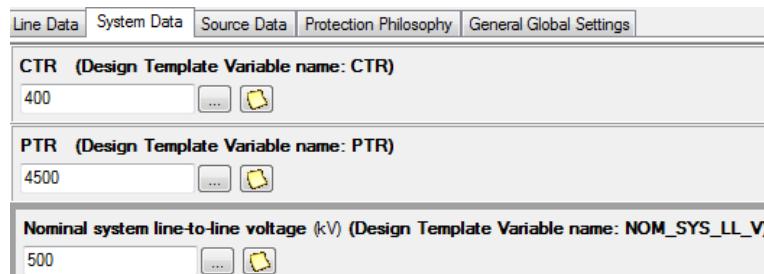


Figure 6.65 Resulting System Data Group Tab

Restricting the Settings That Will Be Sent to the Relay

We want to restrict the settings that are sent to the relay so that only Designer Template settings are sent. Go to **Tools > Groups to Send** and configure the group selection as shown in *Figure 6.66*.

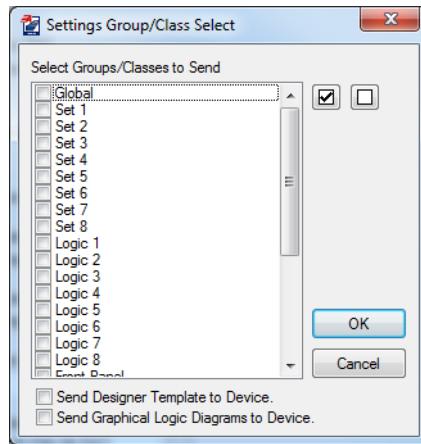


Figure 6.66 Restrict the Settings That Will Be Sent to the Relay

Conclusion

In this case study, QuickSet Designer addressed setting challenges as follows:

- ▶ Settings names and descriptions were renamed to match internal standards and preferences.
- ▶ Settings units and ranges were customized to match available system data.
- ▶ Unused settings were hidden.
- ▶ Settings were supervised or calculated to minimize entry.

S E C T I O N 7

Maximize Resources With Additional Tools

Analyze Events

Overview

ACCELERATOR QuickSet® SEL-5030 Software has integrated analysis tools that help you quickly and easily retrieve information about protection system operations. SEL-5601-2 SYNCHROWAVE® Event Software performs such functions as displaying phasors or combined event oscillography. SYNCHROWAVE Event, installed as the default event viewer in ACCELERATOR QuickSet, provides the necessary tools to aid disturbance analysis.

SYNCHROWAVE Event

When SYNCHROWAVE Event is launched, a Default View display shows the following four windows:

- ▶ Analog Chart: Voltage
- ▶ Analog Chart: Current
- ▶ Phasor Diagram
- ▶ Digital Chart

To meet your event analysis needs, you can add or remove windows by using the buttons in the upper right corner of each window () or by right-clicking the mouse on the applicable window. You can also add or remove quantities from any of these windows (see *Quantity Selection on page 187*).

Quantity Selection

Use the **Available Quantities** menu (see *Figure 7.1*) to add or remove quantities from any of the chart windows or phasor diagram windows. This pop-up menu can be accessed by either right-clicking on the chart and choosing **Add/Remove Chart Options** or clicking the settings cog in the upper right corner of the chart.

NOTE

The 1: to the left of each of the quantities represents the index of the applicable event report. If multiple events (see *Events List on page 190*) are displayed, quantities are prepended with 2:, 3:, etc., corresponding to the index shown in the **Events** list.

The top portion of the **Available Quantities** pop-up menu displays all available quantities for this type of chart. For example, the sampled data waveform (oscillography) VA has derived quantities of VA.Phasor (phasor quantity) and VA.Mag (Phasor magnitude). VA and VA.Mag will be available for the analog chart but VA.Phasor will not; VA.Phasor will be available for the phasor

Analyze Events

diagram. The displayed list of available quantities can be filtered by entering text in the box at the top. For example, entering "V" and "V*Mag" as shown in the 2nd and 3rd frames of *Figure 7.1*. Clicking the **Add All** button to the right will add this search term to the **Selected Quantities** list. Any new quantities (see *Custom Calculations on page 191*) that match this form will be automatically included in the chart. Clearing the search box then displays the full list again.

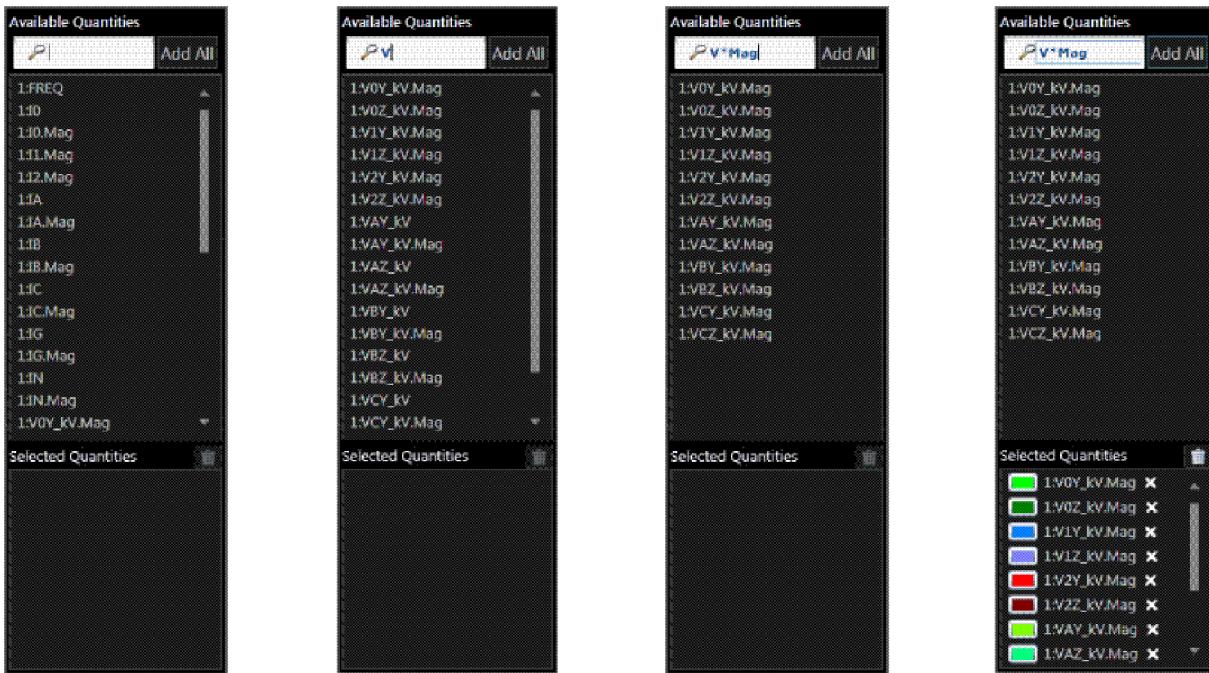


Figure 7.1 Quantity Selection

Supported quantity filter wildcards include the question mark (?), which represents one unknown character; the asterisk (*), which represents zero or more unknown characters; and the period (.), which indicates that quantities with characters after the period should be excluded (e.g., "VA." would show VA, VB, and VC, but not VA.Mag).

The bottom portion shows a list of the presently selected quantities. All selected quantities can be removed by clicking the garbage can button or removed individually by clicking the X next to the quantity. The displayed color for each quantity is shown in the button to the left of the quantity name and can be changed by clicking that button.

Navigating the Analog and Digital Charts

To fully explore the event data, the analog and digital charts support zooming and panning. When zooming, all charts display the same range on the time axis. Pressing the <Z> key will set the zoom level to display all event data. Three methods of zooming are supported:

NOTE

Try right-clicking any window in Event to see a dropdown menu of available navigation options.

1. **Mouse Wheel:** In the analog chart, rotating the mouse wheel zooms in/out along the time axis centered on the location of the mouse. All charts will scale in the horizontal (time) axes accordingly.
In the digital chart, rotating the mouse wheel scrolls the digital chart up and down.
2. **Double-click:** Double-clicking on a chart has the same effect as zooming in via the mouse wheel.
3. **Box Zoom:** Holding the <Ctrl> key and dragging a box inside a chart with the mouse will cause the contents of the selected box to zoom to fill the entire chart area. All other charts will scale along the horizontal axis to match the horizontal axis for the selected chart.

When zoomed in, the mouse can also be used to pan the charts by clicking and dragging the mouse cursor.

Cursors

One or two cursors can be added to the charts to provide additional information. Add a cursor by right-clicking on a chart and selecting **Cursors > Add Time Cursor**. Hovering your mouse over the cursor displays a time stamp and the value of all the displayed quantities on the chart viewable in a pop-up window. If two cursors are added, the time difference between the two cursors is displayed in the cursor hover-over as ΔT . If the cursor is between data points, the time and data values are interpolated.

The cursor is displayed simultaneously on all charts and is required for using the Phasor Diagram and the Spectral Analysis Chart.

Navigating the Phasor Diagram

You need one cursor to operate the phasor diagram. Use the cursor to specify the instant in the event report where Event should calculate the phasors. The phasor diagram will display the magnitude (if enabled from the phasor diagram chart options) and angle of all selected phasor quantities. You can select which cursor affects a specific phasor diagram with the **Cursor Selection** box in the Phasor Diagram chart options. You can also select a reference quantity to aid in viewing relative phasor angles (see *Options on page 192*). By default, the reference quantity is set to **None** and the phasors rotate with movement of the selected cursor. If a reference quantity is chosen, the angle of the reference quantity will be subtracted from the angles of all phasor quantities derived from the sinusoidal waveforms in the event report. This angle normalization is applied prior to any custom calculations.

NOTE

Following a trip, a voltage or current signal may be disconnected from power and go to zero. If one of these disconnected phasors is chosen as a reference, the reference angle may become unreliable following the trip.

Navigating the Spectral Analysis Chart

You need two cursors to operate the Spectral Analysis window. Use the two cursors to specify the subset of data on which you want to perform spectral analysis (spectral analysis is only performed on the data between the two cursors). Spectral analysis is only performed on actual data points, not the interpolated values. Therefore, the spectral analysis display will be blank when no data points are between the cursors.

The range of the frequency axis is dependent on the sampling frequency in the event report. For example, the maximum frequency displayed for an event report with four samples per cycle at a nominal 60 Hz would be $4*60/2$ Hz = 120 Hz. The number of points in the spectral analysis display is equal to half the number of points in the event report.

The range of the vertical axis is from 0 dB to –60 dB. The majority of signals to be analyzed by spectral analysis are expected to be voltages or currents, so the Spectral Analysis window uses the $-20 \log(x)$ definition of dB instead of the $-10 \log(x)$ used for power signals.

Calculated Quantities

SYNCHROWAVE Event loads the sampled data waveforms directly from the event report. From these waveforms, several additional quantities are automatically calculated as follows:

Type	Example	Description
Sample Data	1:VAX	Original data from event report
Phasor Data	1:VAX.Phasor	Phasor quantity derived from sample data, peak magnitude
Sequence Phasor	1:VIX.Phasor	Symmetric component calculated from A, B, C
Phasor Magnitude	1:VAX.Mag	Magnitude of derived phasor

Common Displays

The following are common for all of the different display types. Each of these displays is collapsible and resizable.

Events List

The Events list shows descriptive information for each event. Events are assigned an event number for this session, which is used to uniquely identify quantities. For example, if two events are loaded from the same relay, the quantity name for the A-phase voltage at the Y terminal would be 1:VAY for the first event and 2:VAY for the second event.

- ▶ **Relay Settings:** Displays additional information available from the relay such as settings, line parameters, etc.
- ▶ **Adjust Time:** If two relays are not time-synchronized, two event reports for the same event may not be time-aligned. Clicking **Adjust Time** causes the software to display a menu allowing you to shift the time of an event report to more closely represent the actual timing of the event.

When you are viewing multiple unrelated events, the various events can be separated by large periods of time. The detailed waveforms may display poorly because of the wide time scale. Upon initial load, Event will ask if you want to align the trip times for time-separated events. Clicking **Yes** causes the software to align the events, while clicking **No** causes the software to keep them at their present time. The event data may be translated along the time axis by an arbitrary amount to facilitate event comparison. The time offset to align events 2, 3, etc. to the first event is precalculated, so if you want to align the trip times for events 1 and 2, click **Adjust Time** for Event 2, select **Event 1** under Option 1, and click **Adjust**. Alternatively, click **Adjust Time** for Event 2, use **Option 2: Manually adjust event time**, and click **Adjust** to specify the amount of time between the two events.

Custom Calculations

In addition to the automatically calculated quantities, SYNCHROWAVE Event supports custom declarative (i.e., not procedural) calculations. Many standard spreadsheet and SELOGIC operators are supported. Some of the supported calculations include the following:

Analog Number Functions:	SQRT, ABS, SIN, COS, ASIN, ACOS, EXP, LN, LOG, CEIL, POW, FLOOR, MIN, MAX, LIMIT
Complex Number Functions:	CONJ, MAG, ANG, REAL, IMAG, POW, COMPLEX_MA, COMPLEX_RI, MIN, MAX, LIMIT
Power System Functions:	SEQ0, SEQ1, SEQ2, LINE_Z, LINE_Y

NOTE

If a phasor reference quantity is selected, the reference angle is subtracted from all phasor quantities prior to performing any custom calculations.

The following operators are supported:

Analog/Complex Operators:	* , / , + , - , > , = , >= , , =
Digital Operators:	AND, *, OR, +, NOT, !, >, =, >=, , =

A more detailed explanation of the calculation capability is available by clicking the help (?) button in the **Custom Calculations** area.

For example, if you wanted to display the sample waveform equivalent of the ground current, enter the equation $I_0 = I_A + I_B + I_C$. The result is shown in *Figure 7.2*.

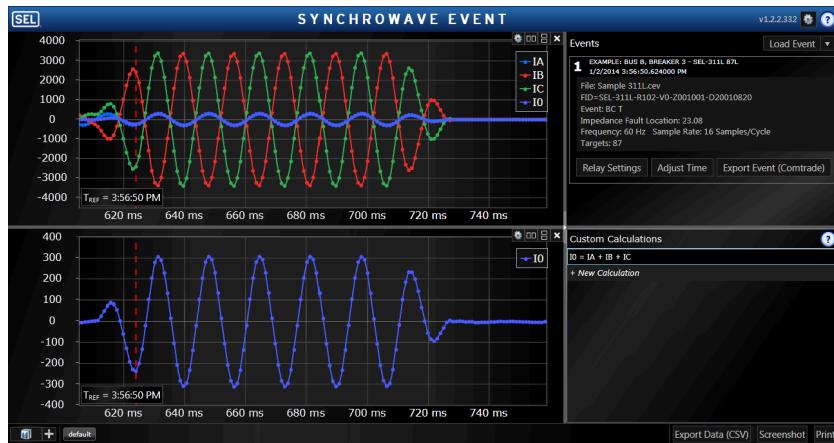


Figure 7.2 Event Custom Calculations

Options

You can display the options dialog (*Figure 7.3*) by clicking the settings cog (⚙️) in the upper right corner of the SYNCHROWAVE Event application.

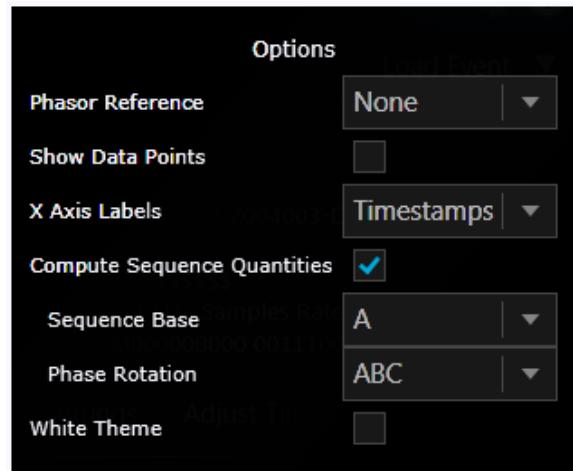


Figure 7.3 Event Options

The **Phasor Reference** option specifies which quantity will serve as a reference for the rotating phasor reference frame. When "None" is selected, the phasors will rotate with movement of the selected cursor. When a quantity is selected as the reference, the angle of the reference quantity is subtracted from the angle of all automatically calculated phasors.

The **Show Data Points** option enables or disables (default) the display of markers for the individual data points reported by the event report file, as shown in *Figure 7.4*. The data points are interpolated to give an approximate waveform. Depending on the sample rate and zoom level, not all points may be displayed when viewing the full event. Zooming in on the time axis will display additional points in this situation.

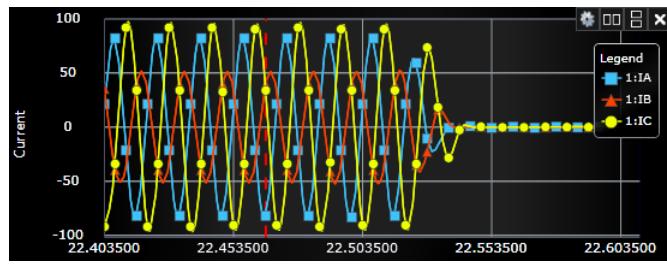
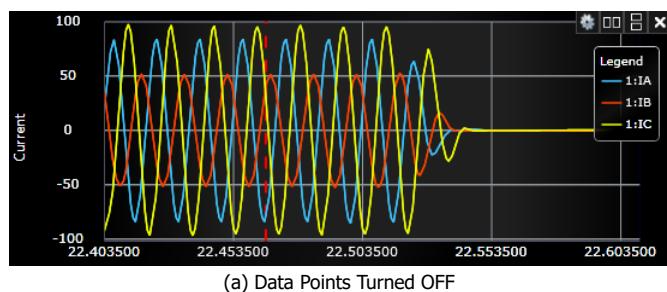


Figure 7.4 Analog Chart

The **X-Axis Labels** option allows you to select the horizontal axis to be labeled in either clock time stamps or cycles from the beginning of the event report file.

NOTE

Cycles are calculated from the frequency in Event 1. If multiple events are loaded, the cycles label may not match the additional reports.

The **Compute Sequence Quantities** check box enables computation of symmetric component waveforms (e.g., positive-sequence, negative-sequence, zero-sequence) for both currents and voltages at each terminal. The new sequence quantities are automatically added to the quantity selection list. The sequence base for sequence quantity calculation and phase rotation can also be specified here.

The **White Theme** check box inverts the colors to change the background to a white theme.

Other Controls

At the lower right corner of SYNCHROWAVE Event is the **Data Export** button that allows saving the screen data to a file. The file options are binary COMTRADE, ASCII COMTRADE, or .csv. When you export data, the software displays a pop-up window from which you can either view the data in the selected format or save the data in the selected format. The data saved are the data presently shown on the display. This allows easy graphical selection of the data and the time ranges to export.

An additional button, labeled **Print Screen**, in the lower right corner provides the ability to save an image file (in .jpg format) of the present display.

NOTE

If you want to take a print screen with a white background for a more printer-friendly version, check the **White Theme** check box in the SYNCHROWAVE Event Options.

ACSELERATOR Analytic Assistant SEL-5601

Relays record power system events for all trip situations and for other operating conditions programmed with SELOGIC control equations.

The relays provide two types of event data captures:

- Event report oscillography that uses filtered sample-per-cycle data
- Unfiltered (raw) data

Use the ACSELERATOR Analytic Assistant plugin to view event report oscillograms, phasor diagrams, harmonic analysis, and relay settings.

The ACSELERATOR Analytic Assistant plugin supports ASCII events (.cev), binary COMTRADE events (.dat), and standard ASCII event files (.eve).

Standard ASCII events are only fully supported for the following relay types:

- SEL-49
- SEL-100 series
- SEL-200 series
- SEL-321 types
- SEL-BFR, SEL-2BFR types
- SEL-PG10, SEL-2PG10 types
- SEL-501 types
- SEL-587 types except SEL-587Z
- SEL-551

Reading Event History

Event files can be stored in the relay and transferred to a computer. To download event files from the relay, open the QuickSet **Tools > Events** menu on the QuickSet toolbar and click **Get Event Files**. QuickSet displays the **Event History** window (similar to *Figure 7.5*).

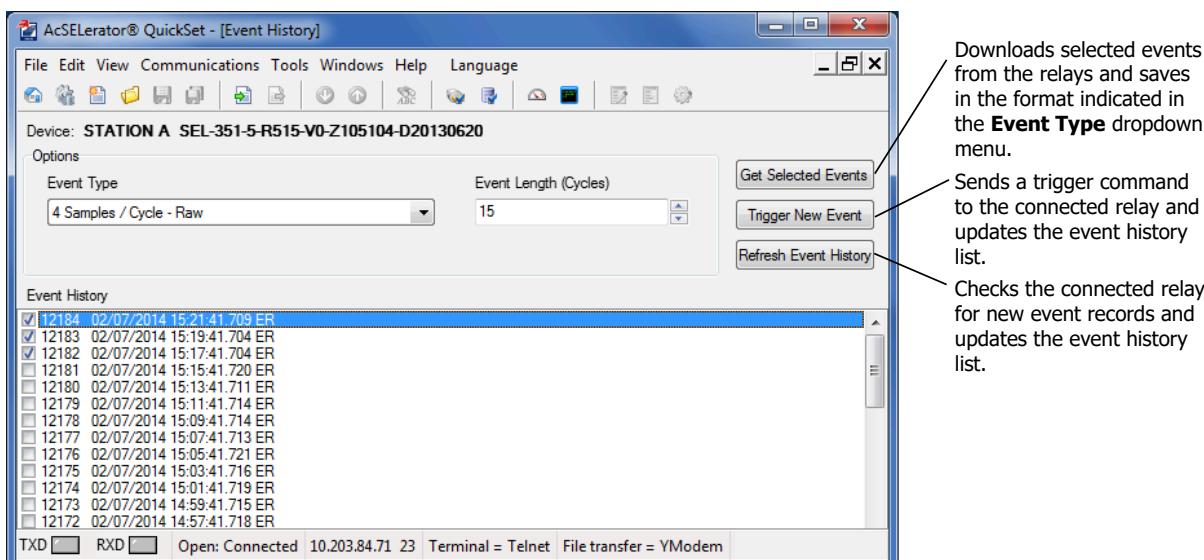


Figure 7.5 Retrieving an Event History

Retrieve and View an Event

From the **Options** section, select **Event Type** and **Event Length** (for more information on the different event types and event lengths, refer to the instruction manual for your device). Highlight the event(s) you want to view and click the **Get Selected Events** button. QuickSet prompts for a location on your computer to save the file(s). View an existing event file on your computer by selecting **Tools > Events > View Event Files**. ACSELERATOR Analytic Assistant displays the **Event Waveform** dialog box and the event oscilloscope (see *Figure 7.6* and *Figure 7.7*).

When viewing the event oscilloscope, use keyboard function keys to measure the time of oscilloscope occurrences. These function keys and related functions help in event analysis.

- <F2>: go to trigger
- <F3>: Cursor 1
- <F4>: Cursor 2

The display shows the time difference between Cursor 1 and Cursor 2.

To see high-accuracy time-stamp information on the event oscilloscope, click the **Pref** button at the bottom of the oscilloscope and select **Time** (under **Time Units, Starting/Ending Row**); click **OK**. Click any point in a graph to observe the event time in microseconds of that data point at the bottom of the oscilloscope.

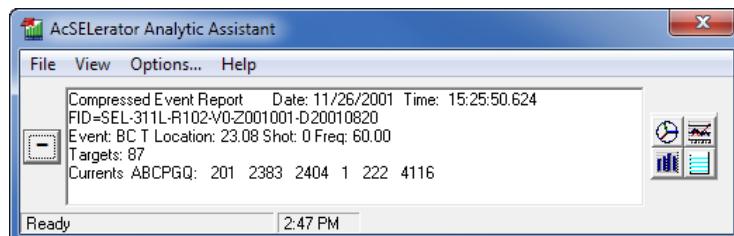


Figure 7.6 Event Waveform Window

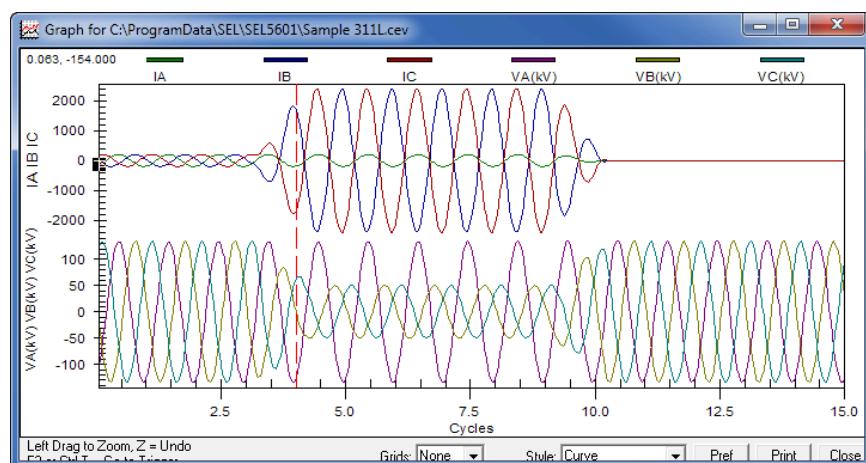


Figure 7.7 Sample Event Oscilloscope

Analyze Events

Other event displays are available through the **Event Waveform** dialog box. Select the **View** menu and click **Phasors**, as shown in *Figure 7.8*, to view a sample-by-sample phasor display. The phasor display should be similar to *Figure 7.9*.

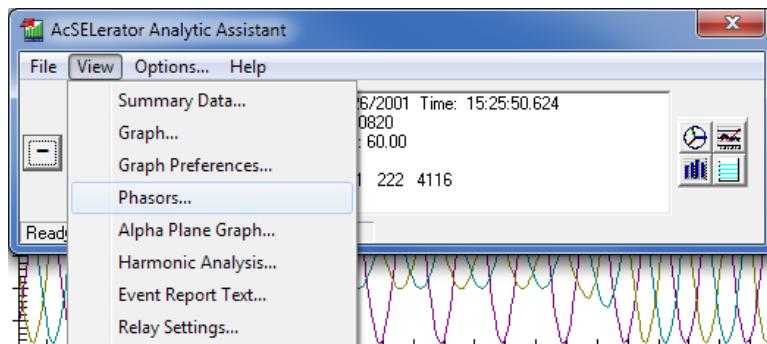


Figure 7.8 Retrieving Event Report Waveforms

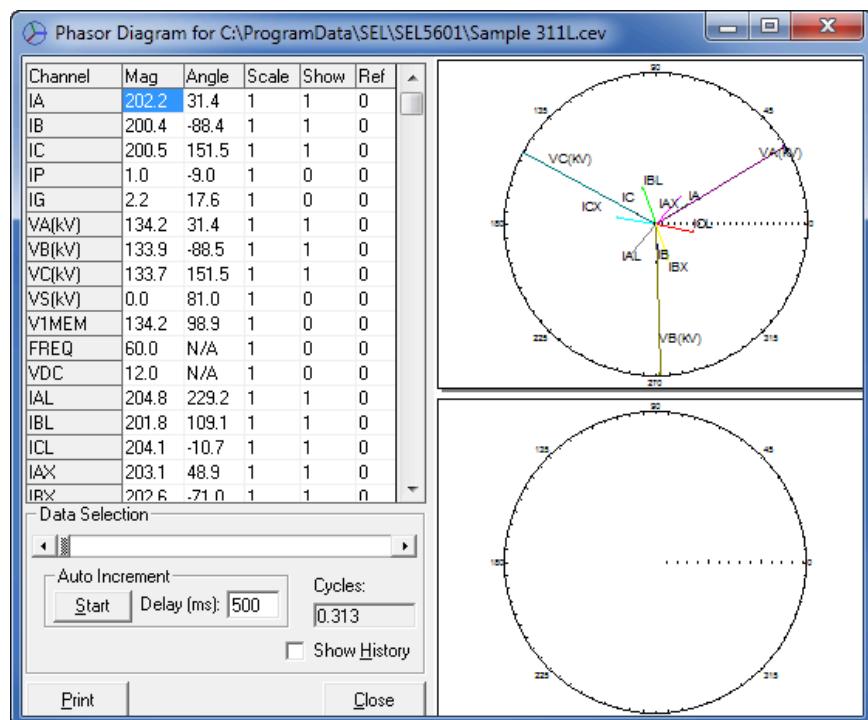


Figure 7.9 Sample Phasors Event Waveform Screen

ACSELERATOR Analytic Assistant also presents a harmonic analysis of power system data for raw data event captures. From the **View** menu, click **Harmonic Analysis**. The window screen that displays will be similar to *Figure 7.10*. On the left side of the **Harmonic Analysis** screen, choose the relay voltage and current channels to monitor for harmonic content. Click the arrows of the **Data Scroll** box or the **# Cycles** box to change the data analysis range.

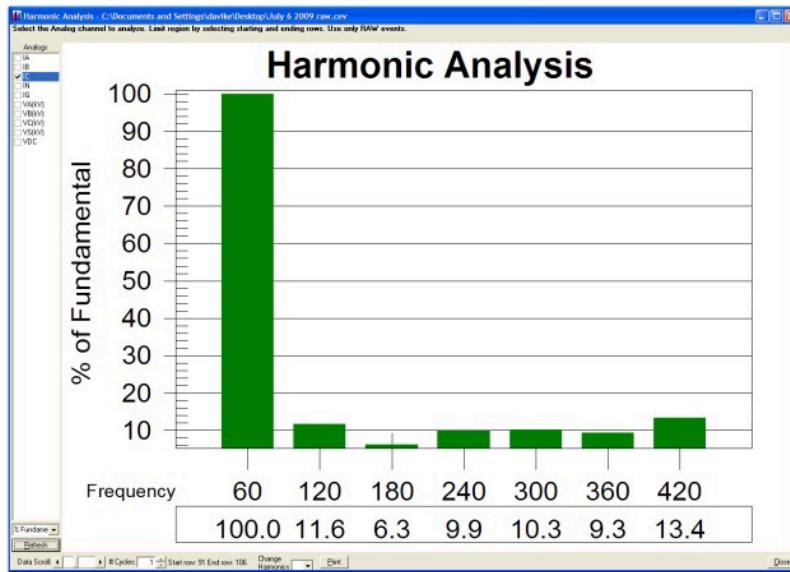


Figure 7.10 Sample Harmonic Analysis Event Waveform Screen

Click **Summary Data** on the **View** menu to see event summary information and to confirm that you are viewing the correct event. *Figure 7.11* shows a sample ACCELERATOR Analytic Assistant **Event Report Summary** screen.

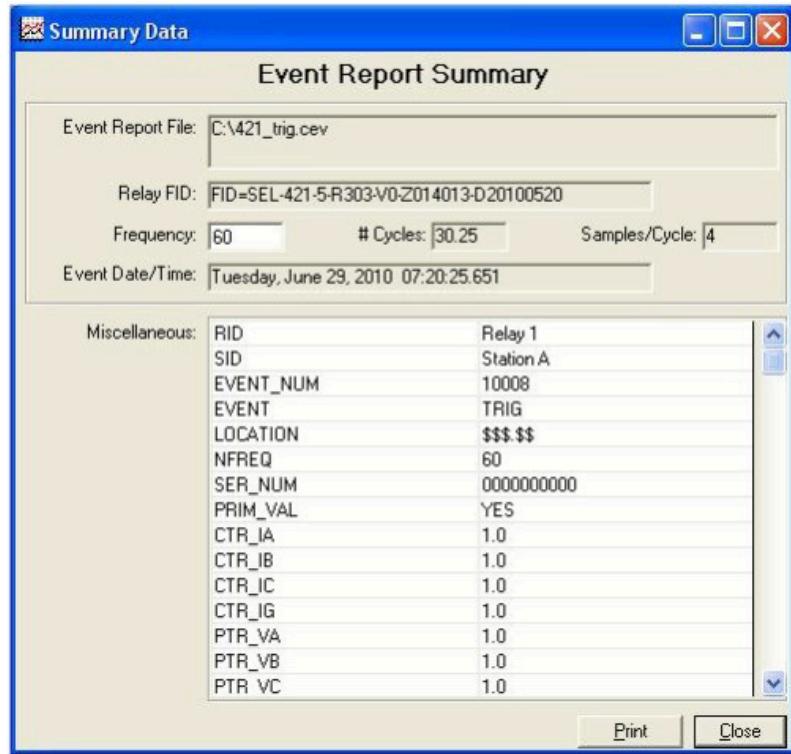


Figure 7.11 Sample Event Report Summary Screen

Click **Relay Settings** on the **View** menu to view the relay settings that were active at the time of the event. *Figure 7.12* shows a sample CEV-type event settings screen.

Analyze Events

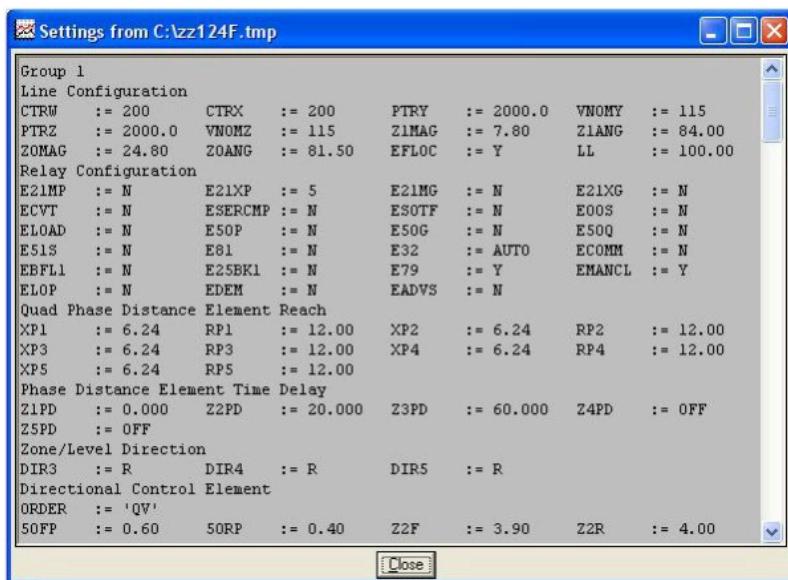


Figure 7.12 Sample Event Waveform Settings Screen

View Combined Events

Two or three events can be combined into one virtual event. The events must be from time-synchronized relays, where the relay clock times are synchronized. SEL-421, SEL-451, and SEL-487B relays are examples of relays that include time synchronization capability. The combined event file capability is a licensed feature of QuickSet. To purchase a license, contact your customer service representative (see *Appendix D: Licensing Your Software*).

To open the **Combine Events** form, select **File > Combine Time-Synchronized Events** from the main window of ACSELERATOR Analytic Assistant, or from QuickSet, select **Tools > Events > View Combined Event Files**.

Event Requirements

The events you select must overlap in time by at least one data point, or they will not combine. The events must also be of the same samples per cycle as well as the same system frequency and have equal numbers of analog and digital data points (i.e., same samples per cycle for analogs and digitals).

Select Events to Combine

As shown in *Figure 7.13*, there are two methods for reading in the events you want to combine.

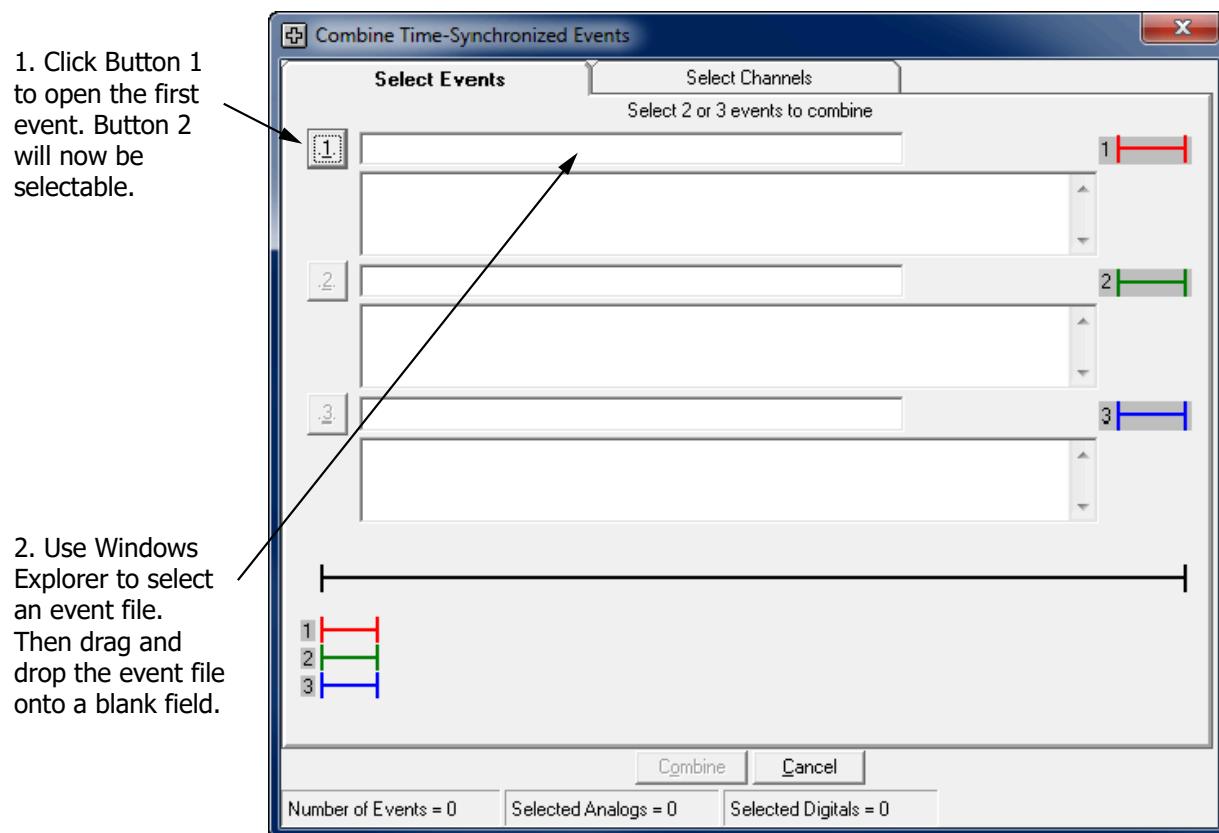


Figure 7.13 Select Events to Combine

The file name must use an extension of .cev, .txt, or .dat for the ACCELERATOR Analytic Assistant to recognize it as a file with events to combine.

As you select the events, the time bar near the bottom of the form shows the event times and indicates event overlap. A dashed vertical line indicates the trigger time, as shown in *Figure 7.14*.

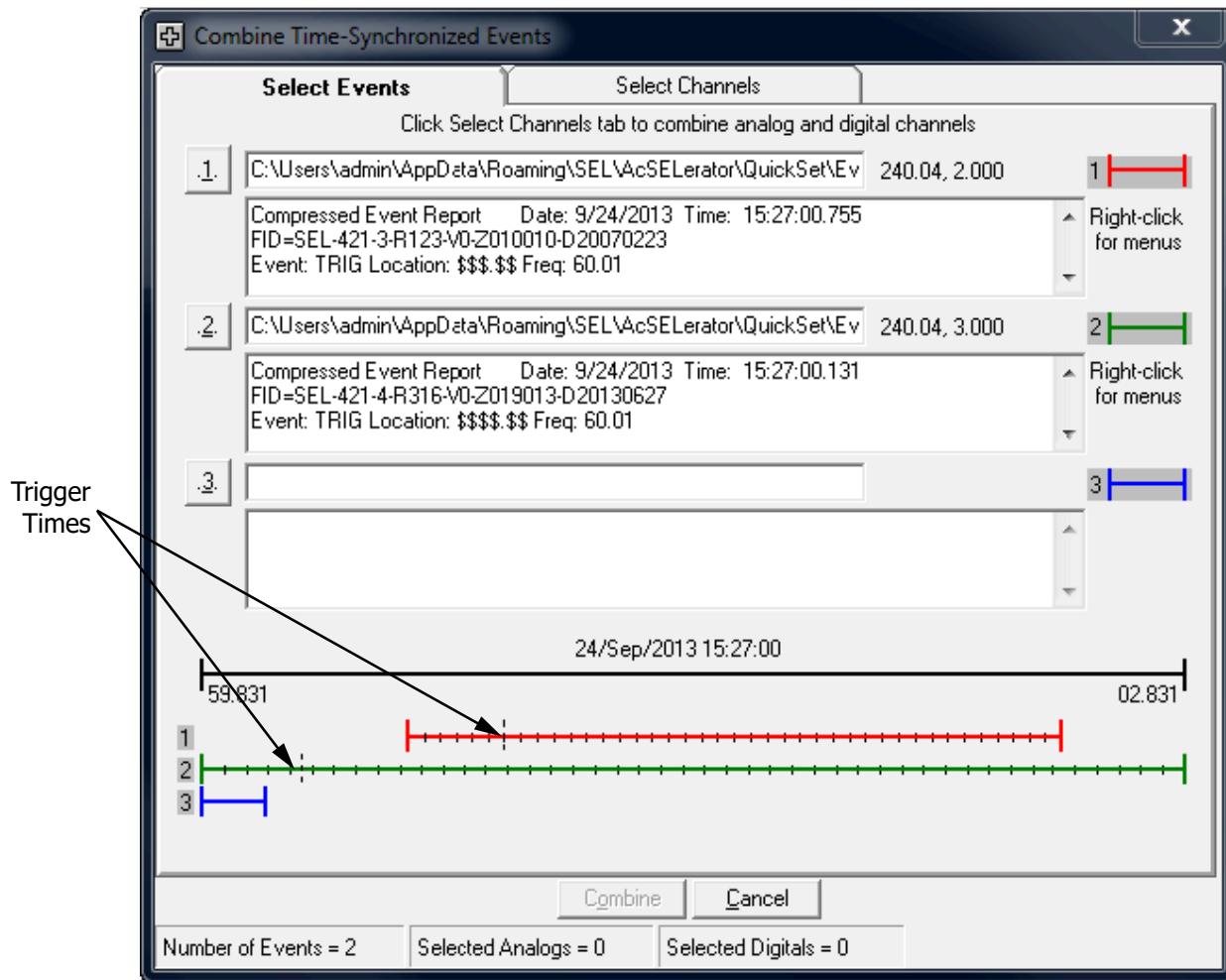


Figure 7.14 Select Overlapping Events

Once you have selected an event, you can select from several menus to view data for that event. Right-click in the area to the right of the event summary to display a context menu. Use this menu to view phasors, harmonics, event text, and general event information. You can also select **Erase Event** to remove this event from your selection. Any subsequent events will also be removed.

Select Data Channels to Combine

You must select channels from at least two different events. Until you do, the **Combine** button is disabled.

Step 1. Once you have selected two or three event files, click the **Select Channels** tab.

Step 2. Use the tree-view controls on the left of the form to add channels you want to combine.

There are various ways to select channels for combination. Reference the example shown in *Figure 7.15*.

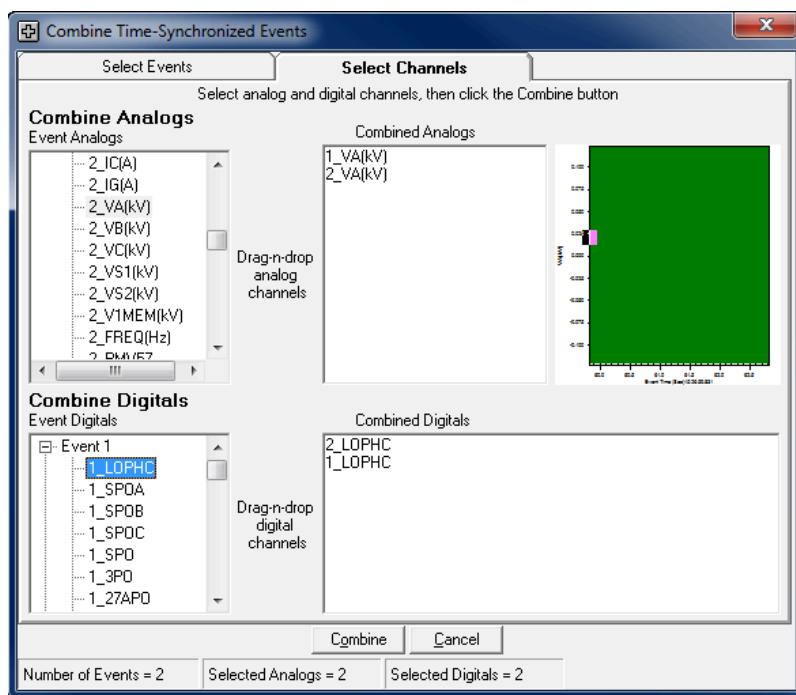


Figure 7.15 Select Channels to Combine

- Click an individual analog or digital channel, then right-click and drag it to the **Combined Analogs** or **Combined Digitals** list.
- Select an individual channel and press <A> to add it.

NOTE

You can undo your last channel addition by pressing <Ctrl+Z>.

- To select all channels from an event, select **Event 1** or **Event 2** and right-click to drag and drop the channels for the event onto the list.
- To remove channels from the analog or digital list, select the channels and press <Delete>.

View Analog Preview

- Step 1. Click a single analog channel to show a small preview graph of the data in a channel.

NOTE

You can also click a single analog channel from within the analog tree view or from within the Combined Analogs list box to display a small preview graph of data in a channel.

- Step 2. Use the splitter tool found between the analog list and the graph to resize the graph. Do this by positioning the mouse cursor between the list box and graph and dragging the splitter to the right or left.

Combining Channels Into a Virtual Event

- Step 1. Select at least two channels from at least two different events.

- Step 2. Select the **Combine** button to create a virtual event.

Analyze Events

The **Graph Preferences** form will display as shown in *Figure 7.16*.

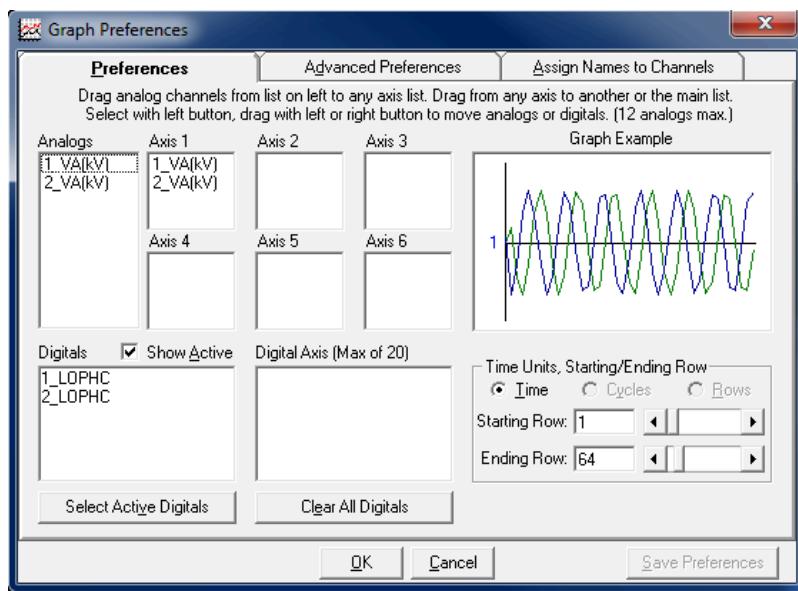


Figure 7.16 Select Graph Preferences

From the **Graph Preferences** form, select analog and digital channels to graph from the combined event. Right-click and drag a channel into an Axis window to add it to a new axis. You could also choose to add multiple channels to a single axis. Once you have completed your configuration, click the **OK** button to display oscillography for the combined event. Please reference the ACCELERATOR Analytic Assistant help menu for additional details on the **Graph Preferences** form.

NOTE

Right-click and drag to select multiple channels. Left-click and drag when selecting a single channel.

Combining events results in an expanded main form, as shown in *Figure 7.17*. This main form displays the combined event followed by the events you have selected for combination. A toolbar appears to the right of each event summary and provides buttons for viewing oscillography, phasors, harmonics, and event text.

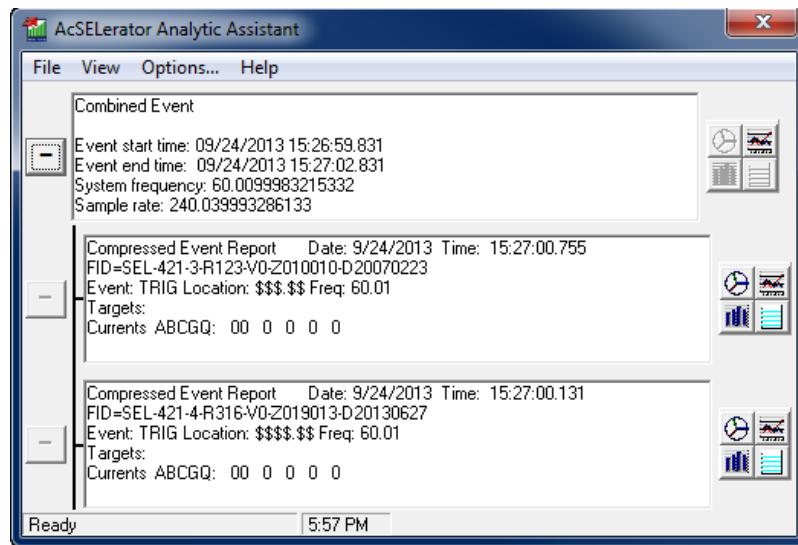


Figure 7.17 Expanded Main Form

A combined event is virtual (exists only in memory). Only **Graph** and **Graph Preferences View** menu items are available. Only the graph toolbar is enabled for the combined event.

Event Playback

QuickSet includes Event Playback testing tools for supported devices. If the device that you are connected to supports Event Playback, the **File Conversion Utility** and **Playback Dashboard** are available for further testing and commissioning of your SEL device. One example device that supports the Event Playback function is the SEL-T400L (refer to the device instruction manual to see if Event Playback is supported with the connected device).

Click **Tools > Event Playback** in the menu bar to access the Event Playback test tools, as shown in *Figure 7.18*.

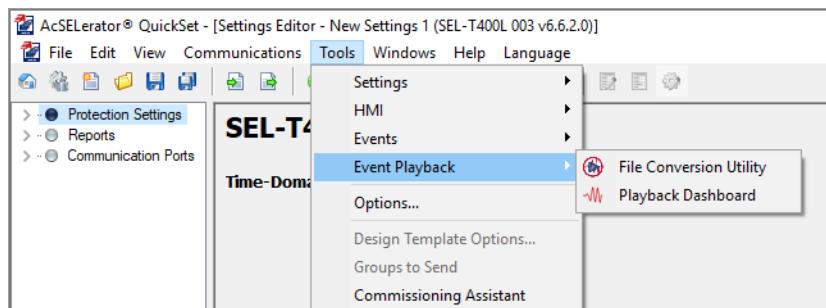


Figure 7.18 Select Event Playback

Playback File Conversion Utility

The Playback File Conversion Utility converts COMTRADE files to the .ply file format that the device uses for playback.

Event Playback Dashboard

The Playback Dashboard allows you to select as many as five .ply test files, send them to the supported SEL device, manage them in the relay, control playback test parameters, and execute playback tests on the uploaded test files.

Upgrade Your Relay With the Firmware Loader in QuickSet

Overview

QuickSet provides a simple method for upgrading or downgrading firmware on a connected device.

Please note the following information about the **Firmware Loader** in QuickSet:

- The **Firmware Loader** *cannot* update a disabled device. If your device is disabled, please contact the factory for support.
- The **Firmware Loader** will *not* work under the following circumstances:
 - The communications link to the device cannot be established.
 - The **Firmware Loader** does not support the connected device.
 - The physical connection is via a port that does not support SELBOOT.
 - The connected device is disabled.
 - The user aborts the process.
- Most SEL relays support firmware upgrades over EIA-232 or EIA-485 serial communication only. SEL-651 devices support firmware upgrades over Ethernet as well as serial communication.

Acquire Firmware Files

Contact SEL to acquire the needed files for upgrading the firmware according to the hardware model. Firmware files are delivered over email or through secure file transfer. These files will be in an .s19 or .z19 file format.

You can place the firmware files on the Windows Desktop or save the upgrade firmware in a specific folder (e.g., C:\Firmware).

The .z19 files are compressed versions of the .s19 files and will load into the device much more quickly. Check your device manual to determine the compatibility with .s19 and .z19 file types.

Prepare the Relay

If the relay is in service, follow your company practices for removing a relay from service. Typically, these practices include disabling input and output control functions.

Configure Communication Parameters

Follow the steps in *Section 3: Deploy, Monitor, and Log Settings Through QuickSet Communication* to configure QuickSet to communicate with the relay.

Upgrade Firmware

Step 1. Click **Tools** in the toolbar, and select **Firmware Loader**.

QuickSet attempts to establish a connection based on the current communication parameters. See *Section 3: Deploy, Monitor, and Log Settings Through QuickSet Communication* for details on configuring the communication parameters. Note that, depending on the device, firmware may be loaded either over a serial or Ethernet connection.

When successfully connected, the **Firmware Loader** window displays as shown in *Figure 7.19*.



Figure 7.19 Firmware Loader Window

The **Terminal** button at the bottom left corner of the window enables you to load firmware by using ASCII commands, as explained in the instruction manual of the connected device.

Step 2. Configure the **Firmware Loader** window.

- Locate the directory location of the .s19 or .z19 upgrade file by clicking the ellipses (...) button.

NOTE

A .z19 file loads much faster than a .s19 file.

- Select the maximum data speed for the SELBOOT firmware currently installed on the relay. *For firmware transfer over a serial connection, SEL recommends setting the data speed at the maximum allowed value to minimize loading time.*
- It is strongly recommended that you save the settings and events by clicking the associated check box(es).
- Click the **Next** button.

Upgrade Your Relay With the Firmware Loader in QuickSet

Step 3. Save settings or event files.

- If you selected the **Save calibration settings**, **Save device settings**, or **Save events** options, QuickSet prompts you to indicate the target directory and specific subsections or events you want to save.
- Next, QuickSet loads firmware over Xmodem. A progress bar, as seen in *Figure 7.20*, shows the relative percentage of upload completion.

Expect between 15 and 40 minutes for firmware to load. This time depends on the device model and firmware file type.

When the firmware upgrade is complete, the relay reboots. The **Firmware Loader** then reconnects and tests the device, as shown in *Figure 7.21*.

- Click **Next** at the completion of the firmware upgrade.

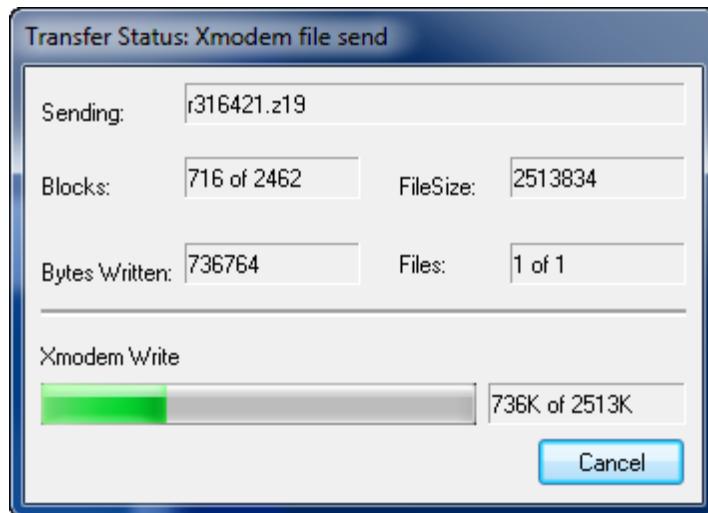


Figure 7.20 Firmware Load Status Screen



Figure 7.21 Firmware Upgrade Completion

Step 4. Verify the device settings (optional step).

- ▶ Test device communications.
- ▶ Compare device settings.
- ▶ Restore device settings.
- ▶ Load firmware into another device.

Refer to the device instruction manual for additional procedures to verify correct operation and return the device to service.

Streamline Field Testing With Commissioning Assistant

Overview

QuickSet enables users to quickly and efficiently commission SEL-487E and SEL-787 relays for transformer protection schemes with the integrated **Commissioning Assistant** software tool.

When installing a new protection system, it is imperative that you confirm the following:

- ▶ System ac and dc connections are correct.
- ▶ The relay functions as intended while using your settings.
- ▶ Auxiliary equipment operates as you intended.

Commissioning tests should provide a simple check of protection elements. They should also check all connected or monitored inputs and outputs as well as verify polarity and phase rotation of ac current connections.

Commissioning Assistant assists you during commissioning by checking for single-contingency wiring errors and then calculating a matching compensation matrix for a test winding with respect to a user-defined reference winding.

Table 7.1 shows the measurement methods used by **Commissioning Assistant**.

Table 7.1 Measurement Methods to Identify Various Causes of Operating Current

Error	Measuring Method
Insufficient load current	Current magnitude measurement
Two crossed phases	Negative-sequence current measurement
CT connected to the incorrect tap	Expected current to measured current magnitude comparison; negative-sequence current measurement
Incorrect CT polarity	Angular comparison between a reference phase and all other phases
Vector-group compensation selection	Operating current and phase angle measurement

Be aware of the following limits:

- Wiring errors must not be present, and the transformer must be set on the nominal tap, to ensure reliable matrix calculations. Nominal tap is where the transformer turns ratio equals the system voltage ratio.
- The error-detection algorithm is designed to identify single errors; it may or may not correctly identify multiple errors.
- The error-detection algorithm is reliable for a system with as much as 25 percent unbalance.
- CT ratio error calculations can detect an incorrect CT tap. This CT tap value is inversely proportional to the magnitude of the load current. At the minimum load current (five percent of full-load current), the CT ratio error must exceed 30 percent for the consistent CT ratio error check to detect the error. At 20 percent load, the CT ratio error must exceed only 10 percent. At full load, this value drops to 4 percent.

Figure 7.22 shows the flow diagram of the process.

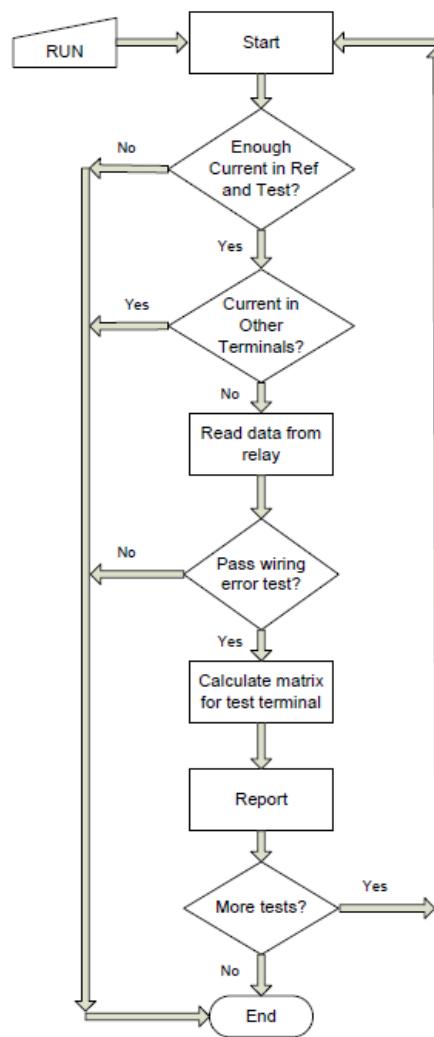


Figure 7.22 Process Flow Diagram

Commissioning Assistant Interface

Commissioning Assistant provides a simple layout to streamline the commissioning process.

Figure 7.23 shows the configuration screen, consisting of the following areas:

- **Control Area:**
 - **Home Tab:** Run tests, reset/start a new diagram, and save the report.
 - **View Tab:** Configure communication parameters, select a new test relay, display application information/relay communications, and customize the Commissioning Assistant color scheme.
- **Test Step Area:** This area shows all the steps in the testing procedure and highlights the present step. As you complete a step in the process, the highlight moves to the next step to guide you through the selection process.
- **Configuration Selection Area:** Select the HV and LV CT configuration, and the transformer type in this area.

Streamline Field Testing With Commissioning Assistant

- **Configuration Reference Area:** This area displays the selections from the Configuration Selection Area to give you an overall picture of the bay configuration.
- **Application Button:** Click this button to exit the application.
- **Screen Navigation Buttons:** Use these buttons to navigate about the configuration screen.

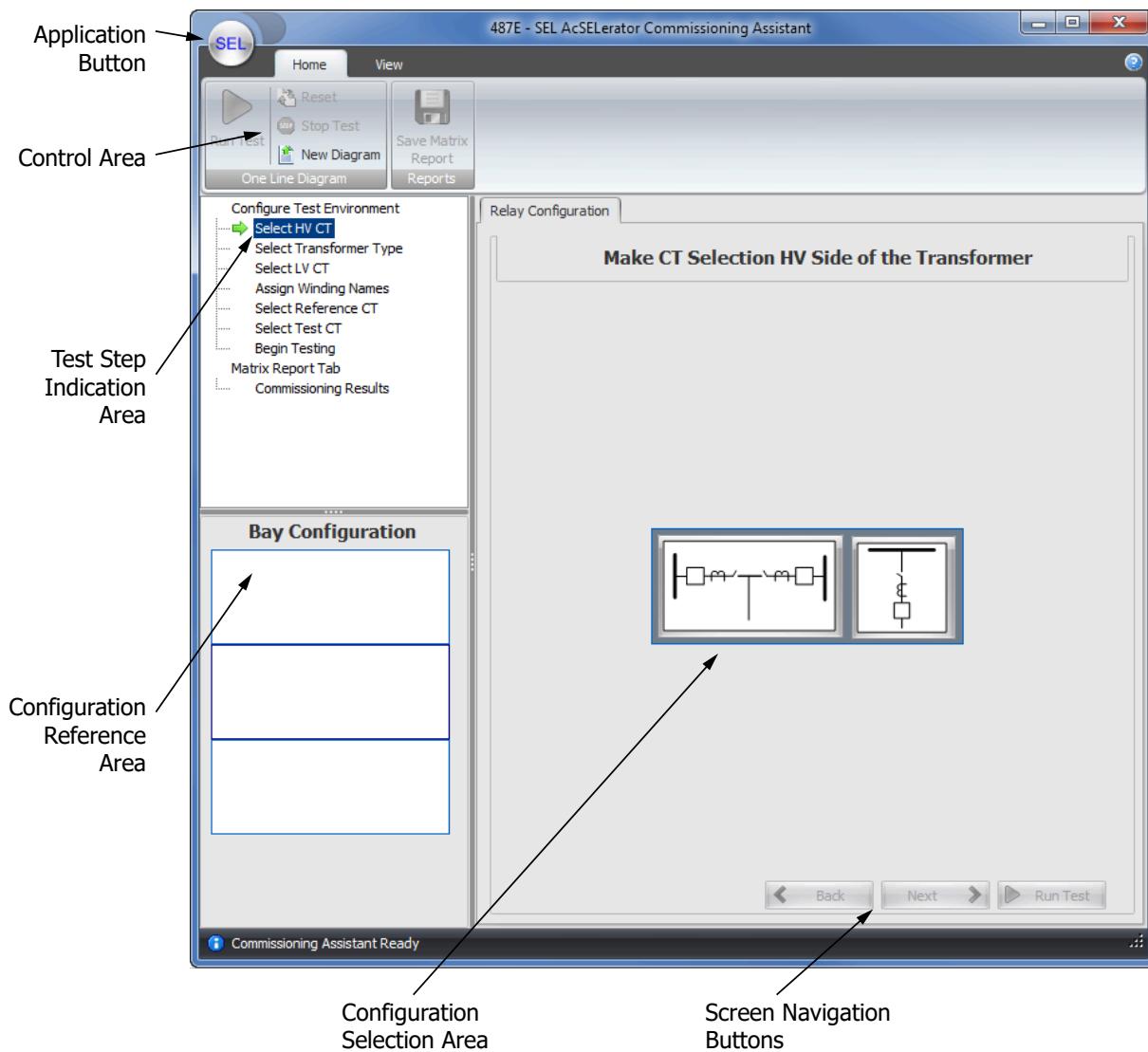


Figure 7.23 Configuration Screen

Commissioning Example Using the SEL-487E

Commissioning Assistant compares quantities from a test terminal against quantities from a reference terminal. To avoid ambiguous results, **Commissioning Assistant** processes only two terminals in each test. For multiterminal applications, use one of the terminals from the first test in subsequent tests for the remaining windings. As an example, consider the station shown in *Figure 7.24*. This station has a breaker-and-a-half busbar on the high-voltage (HV) side of the wye/wye (star/star) transformer, and a single busbar on the low-voltage (LV) side. All CTs are wye (star) connected.

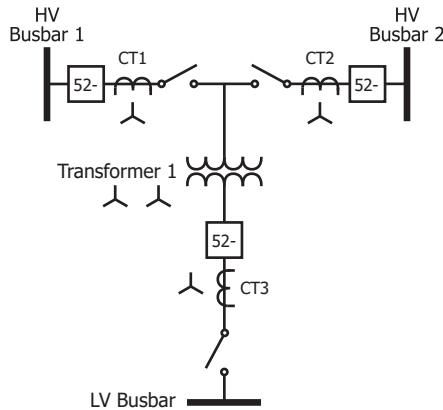


Figure 7.24 Example Substation

Step 1. Launch **Commissioning Assistant** from QuickSet by selecting **Commissioning Assistant** under the **Tools** menu, as in *Figure 7.25*.

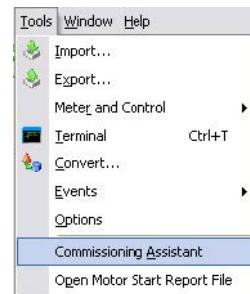


Figure 7.25 Launch Commissioning Assistant

Step 2. If you agree with the disclaimer message that displays, click the **I Agree** button to continue testing. Click **OK** on the **Select Relay Type** dialog box to select **487E** (*Figure 7.26*). Alternatively, you can choose **787** from the dropdown menu.

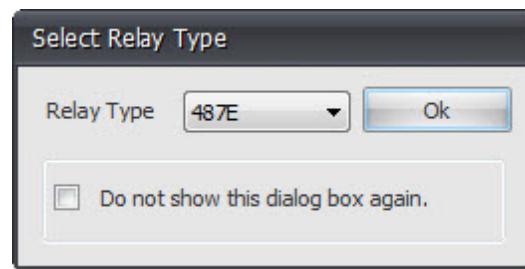


Figure 7.26 SEL Relay Selection

Step 3. To configure the HV part of the example substation, select the encircled image shown in *Figure 7.27*. Observe that your selection now displays in the Reference Area.

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Streamline Field Testing With Commissioning Assistant

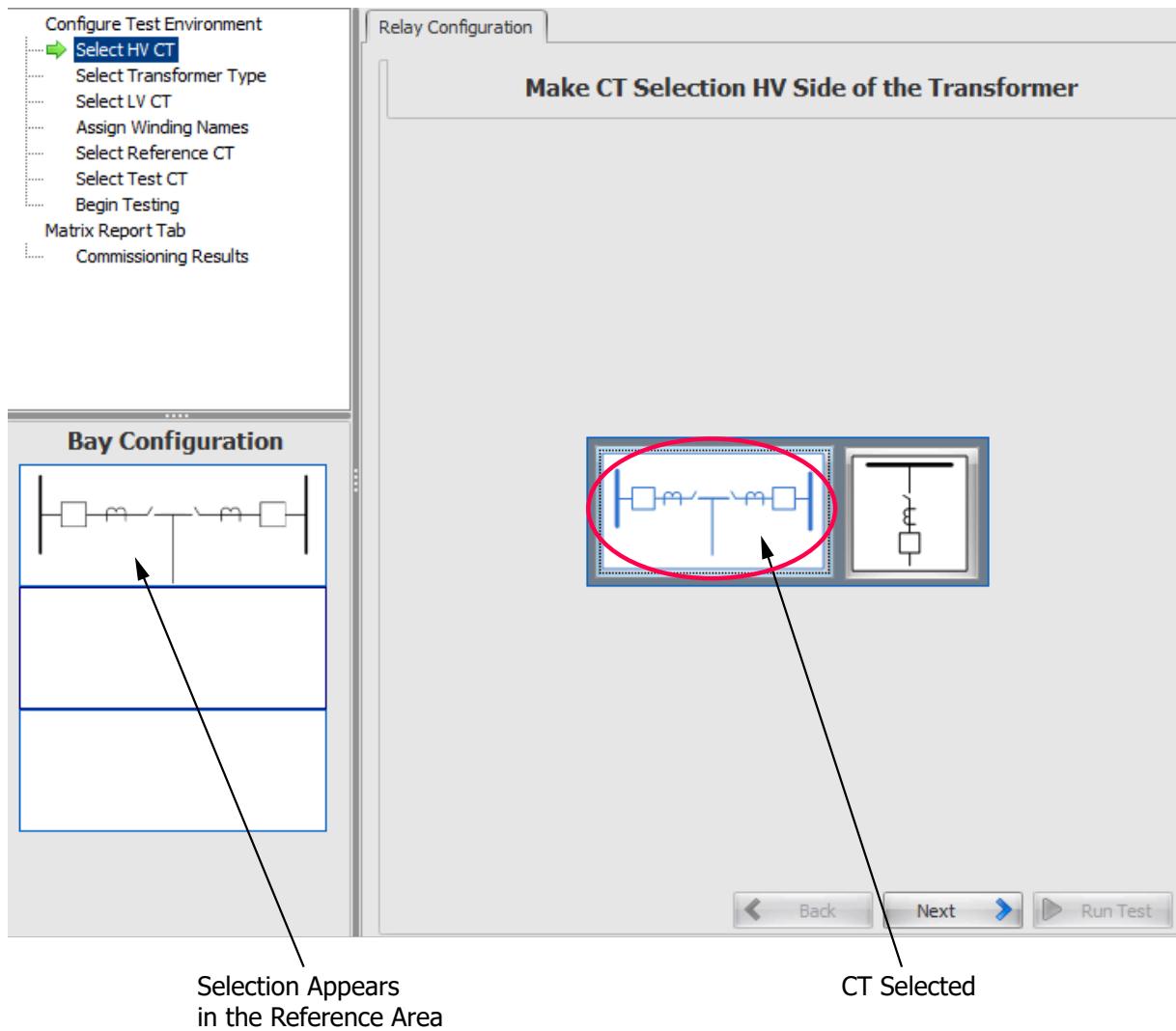


Figure 7.27 HV CT Selection

Step 4. Click the **Next** button to move to the screen displayed in *Figure 7.28*. Select the appropriate transformer type, and notice that the selection displays in the Reference Area. Also, notice that **Select Transformer Type** is highlighted in the Test Step Area. If you want to select a different HV CT arrangement, click the **Previous** button to go to the previous screen.

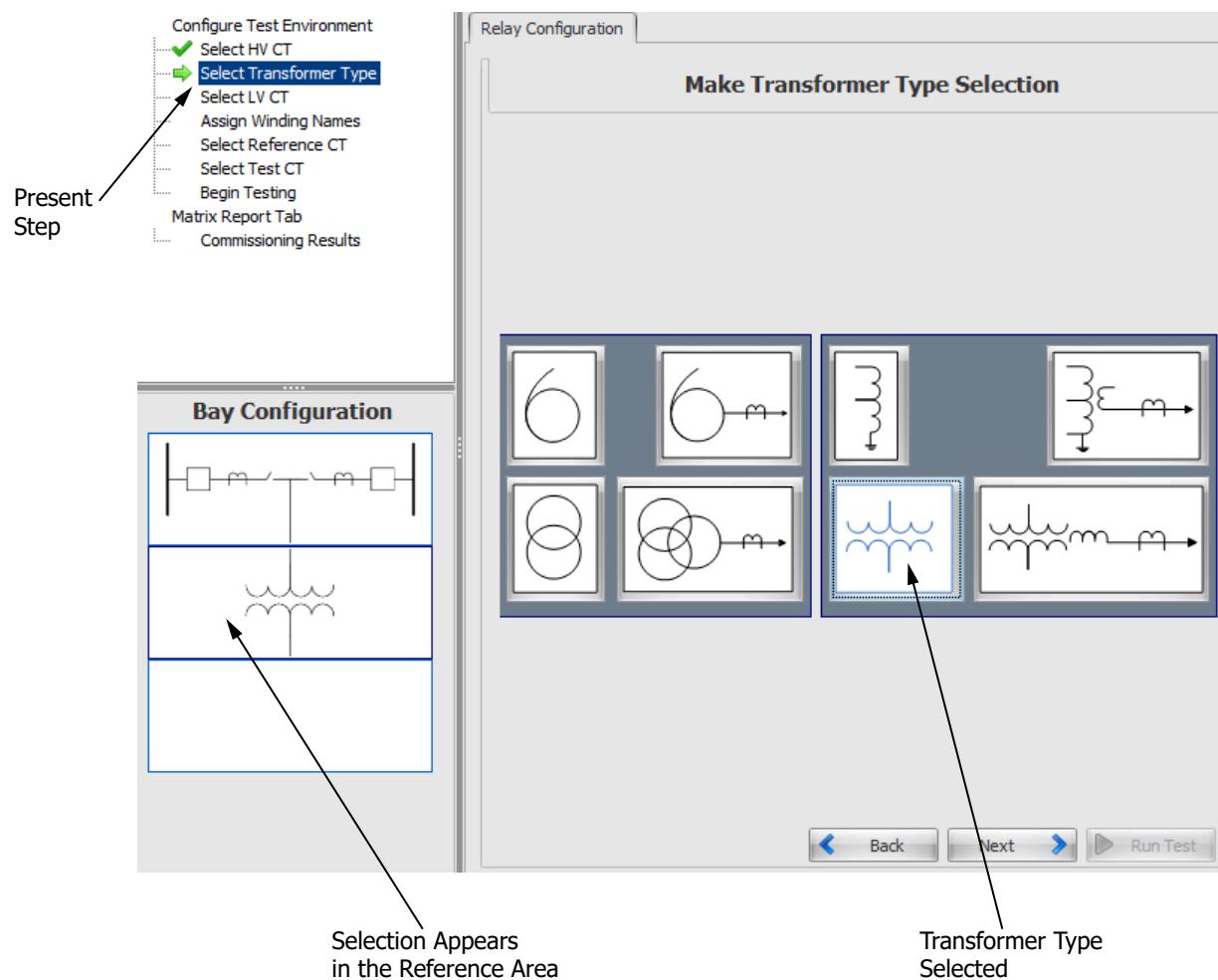


Figure 7.28 Transformer Type Selection

Step 5. Click the **Next** button, and select the LV CT configuration as in *Figure 7.29*. This completes the configuration of the transformer bay.

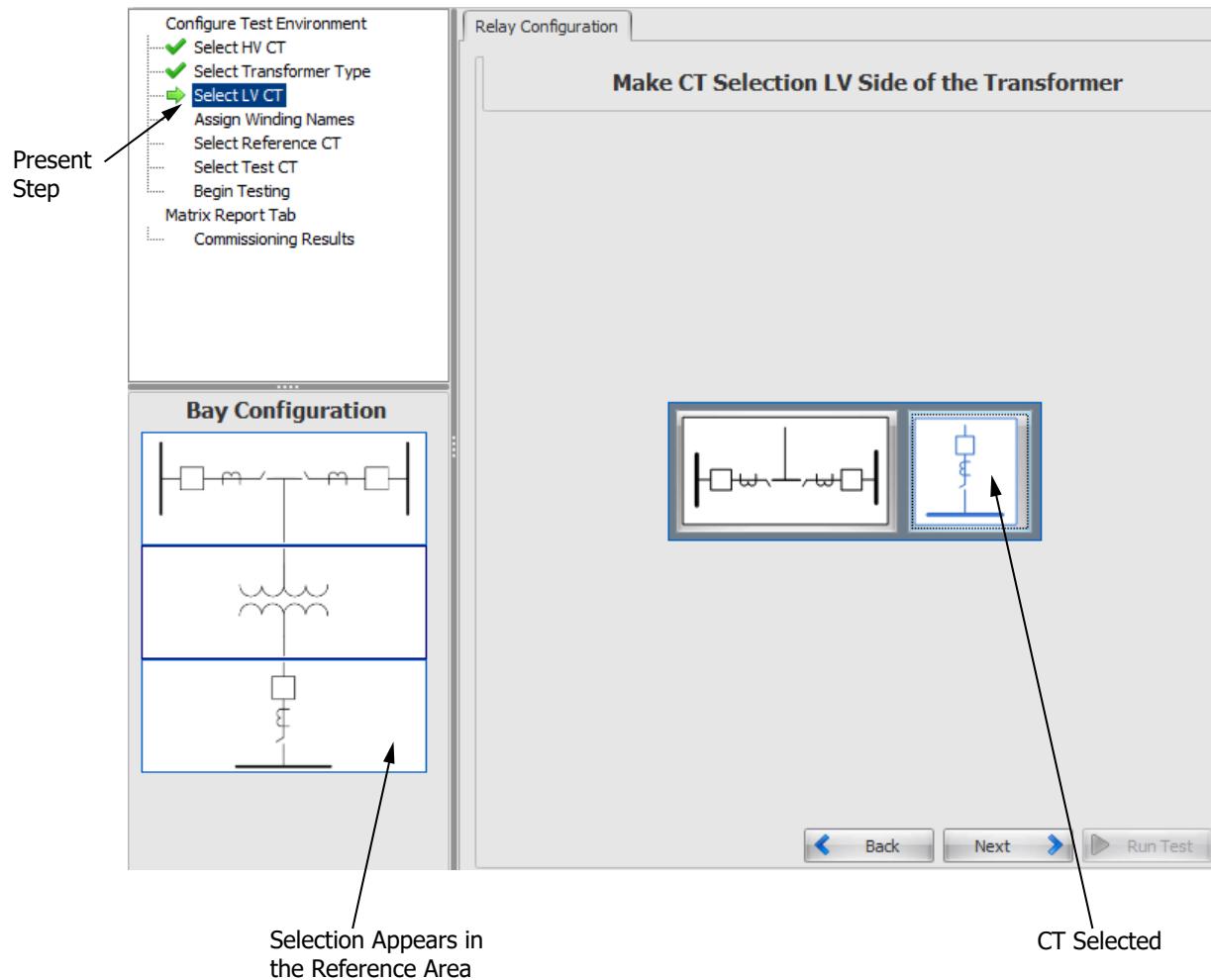


Figure 7.29 LV CT Selection

Step 6. Click the Next button to move to the screen displayed in *Figure 7.30*. The terminals and CTs are not fixed because the SEL-487E accepts widely varying substation configurations with differing CT allocations. Therefore, you must associate a terminal with each CT.

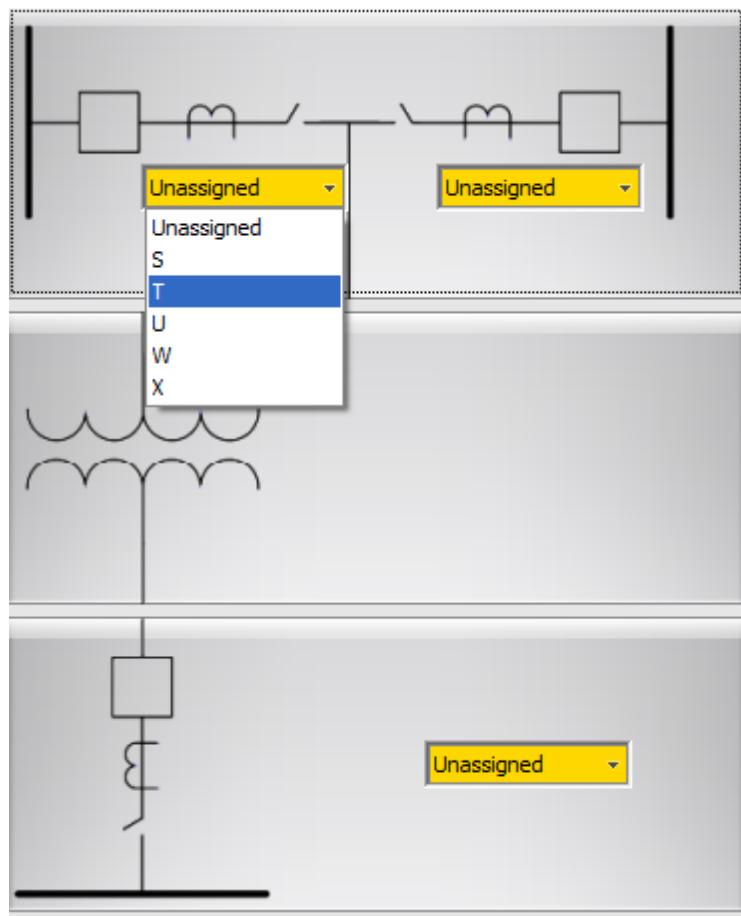


Figure 7.30 CT S Assignment

Make sure you assign the CTs to match the wiring of each terminal.
Assume the following for this example:

- Terminal S: HV left-hand CT (CT1 in *Figure 7.24*)
- Terminal T: HV right-hand CT (CT2 in *Figure 7.24*)
- Terminal U: LV CT (CT3 in *Figure 7.24*)

Step 7. Click in the box below CTS and observe in *Figure 7.30* that all five windings are available.

Choose S from the dropdown menu and then click the box below CTT, as shown in *Figure 7.31*. Notice that because S is already assigned, only T, U, W, and X are available.

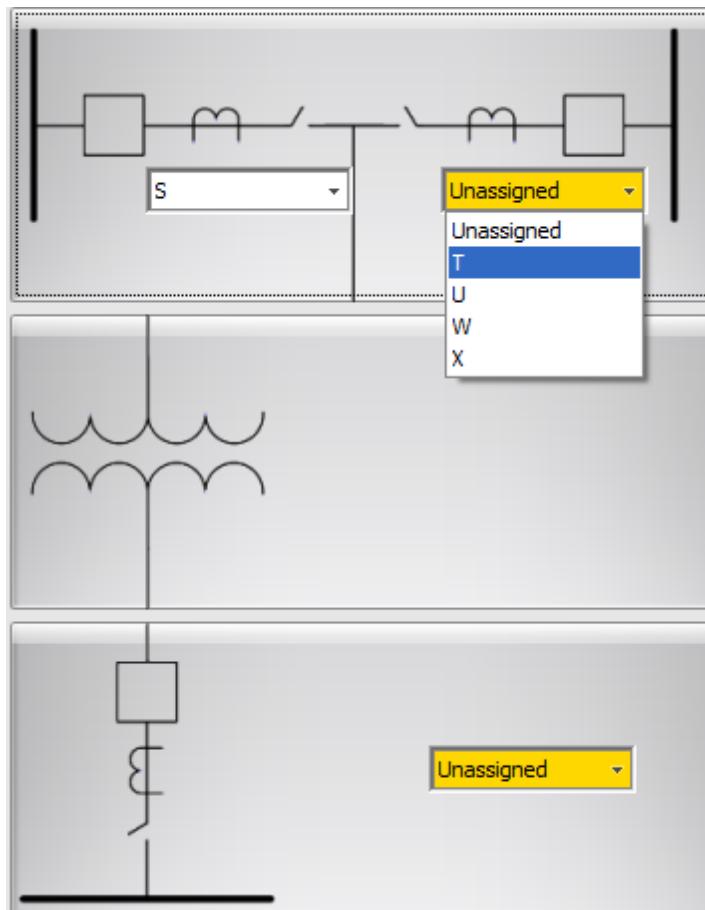


Figure 7.31 CT T Assignment

Step 8. Choose T from the dropdown menu. If you want to reassign an already assigned winding, first unassign the winding (*Figure 7.32*), then choose from the available windings.

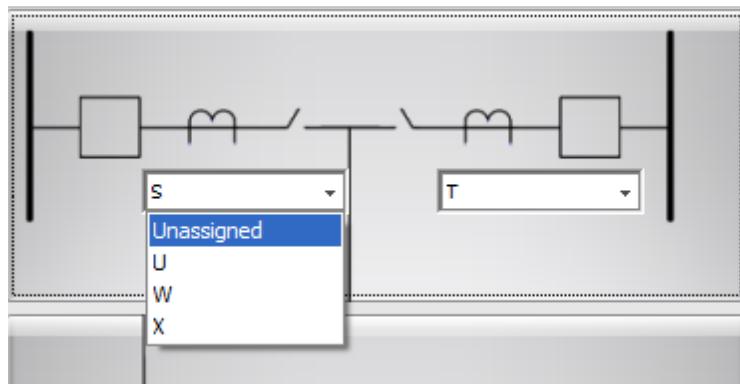


Figure 7.32 Unassign Winding S

Step 9. Similarly, assign Terminal U to the LV CT (CTU), as shown in *Figure 7.33*.

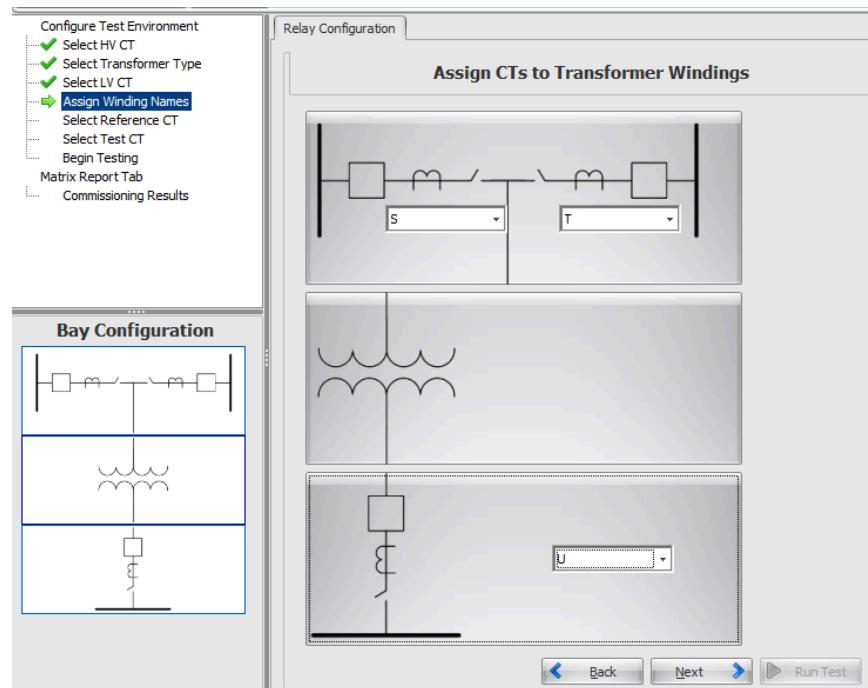


Figure 7.33 Completed CT Assignment

Step 10. The final step in the configuration process is to choose a reference winding and a test winding. For example, arbitrarily select **Winding S** as reference and **Winding U** as test. *Figure 7.34* shows the selection of **S** as reference winding. Notice that the text "Reference Winding S" appears below CTS.

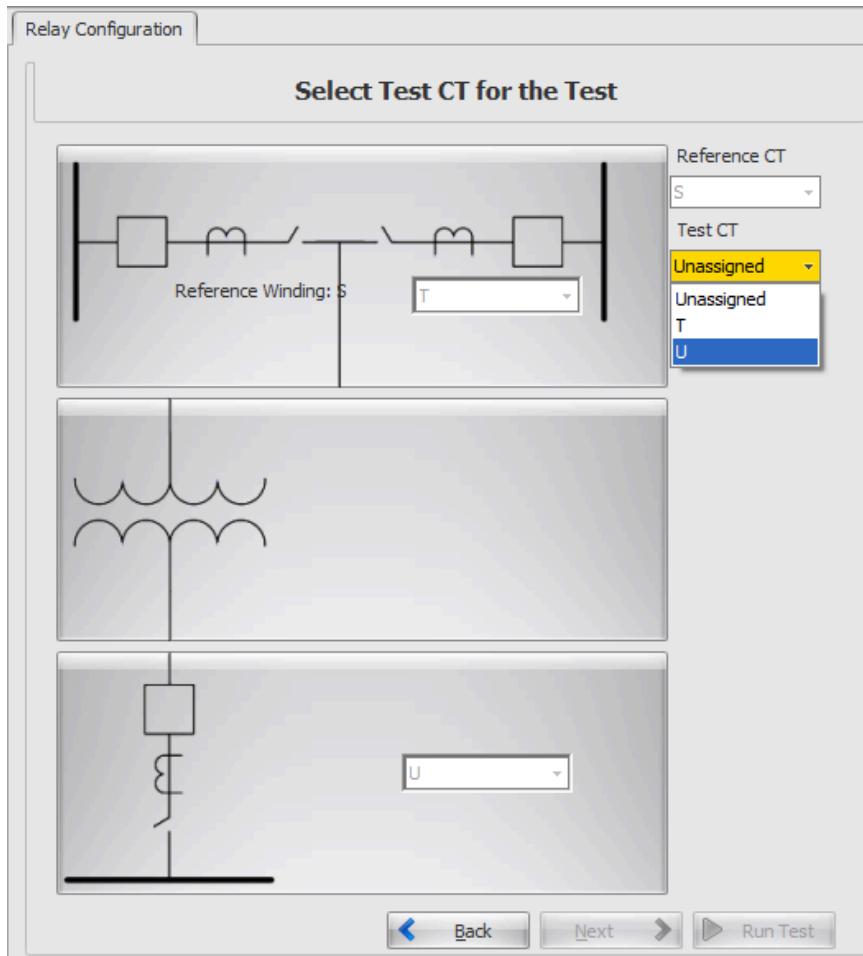


Figure 7.34 Selection of S as Reference Winding

Step 11. After assigning Winding U as test winding, click **Next** to move to the screen shown in *Figure 7.35*. Notice that the text "Test Winding U" appears next to CTU.

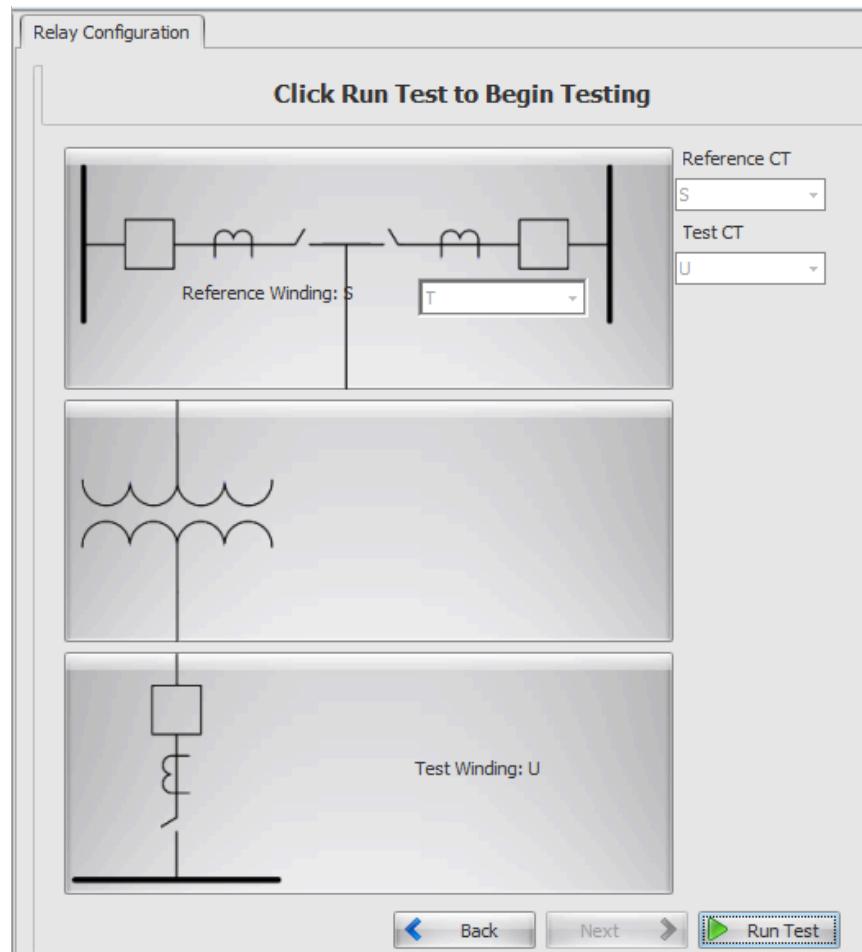


Figure 7.35 Ready to Run the Test

Because Commissioning Assistant allows only two windings per test, open both Breaker 52-2 and the disconnect to ensure that no current flows through CTT. *Figure 7.36* shows the correct flow of current for this test.

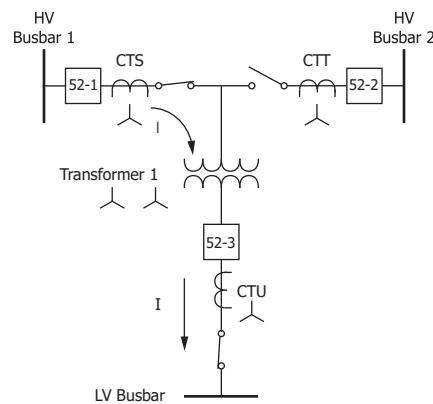


Figure 7.36 Current Flow Through CTS and CTU Only

Step 12. Click the **Run Test** button and note the message shown in *Figure 7.37*. Commissioning Assistant uses the voltage ratio to calculate certain quantities, so please ensure that the transformer is on the nominal tap.

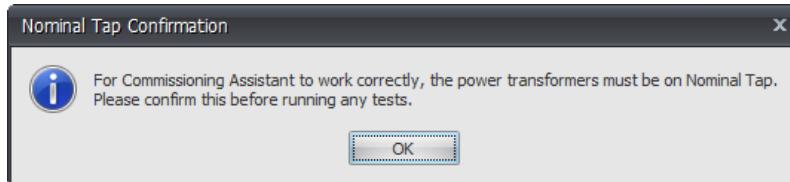


Figure 7.37 Nominal Tap Position Reminder

Step 13. After clicking the **OK** button, the screen with communication parameters (*Figure 7.38*) displays. Select the correct values, and click **OK**.

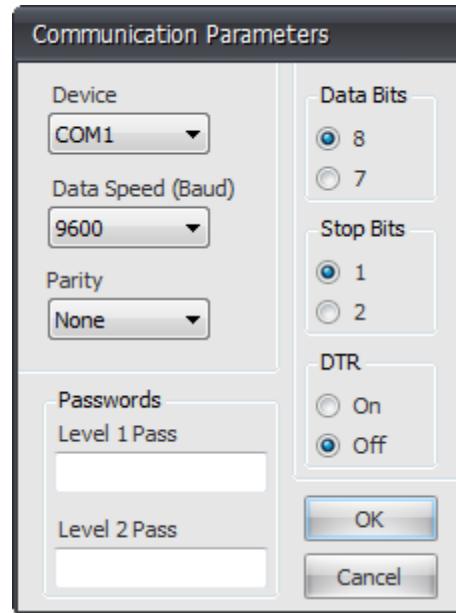


Figure 7.38 Communication Parameters

Step 14. Click **Run Test** to start the matrix calculation process. Commissioning Assistant now uses ASCII **MET** commands to read selected information from the relay. Commissioning Assistant first performs two current checks: Check 1 ensures that more than five percent of the full load current flows in both Terminal S and Terminal U; Check 2 ensures that no current flows in Terminal T. If either check fails, the relay reports the error and aborts the test, as shown in *Figure 7.39*.

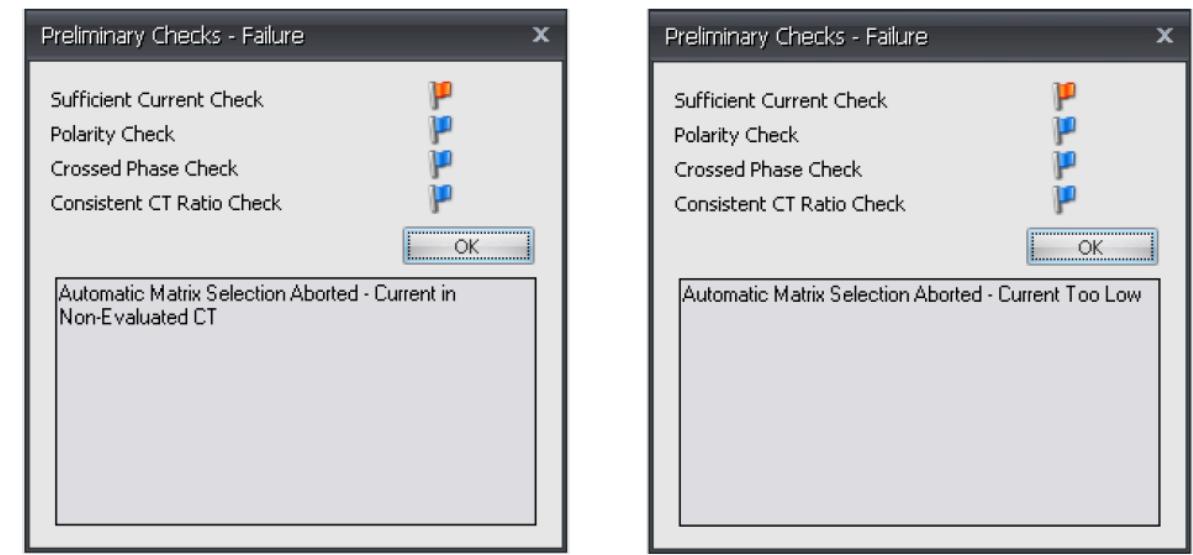


Figure 7.39 Current in Non-Evaluated CT and Current Too Low Error

Commissioning Assistant then tests for the following before calculating the matrix for the test winding:

- ▶ Correct polarities
- ▶ Correct phase matching (checks for two crossed phases)
- ▶ Consistent CT ratio

If the installation fails any of these wiring tests, Commissioning Assistant flags the error and aborts the test. For example, assume that the B-phase HV CT has an incorrect polarity. Commissioning Assistant finds this error and specifies the offending CT. *Figure 7.40* shows the error messages for the three wiring checks.

- ▶ Green: passed
- ▶ Red: failed
- ▶ Blue: not tested yet

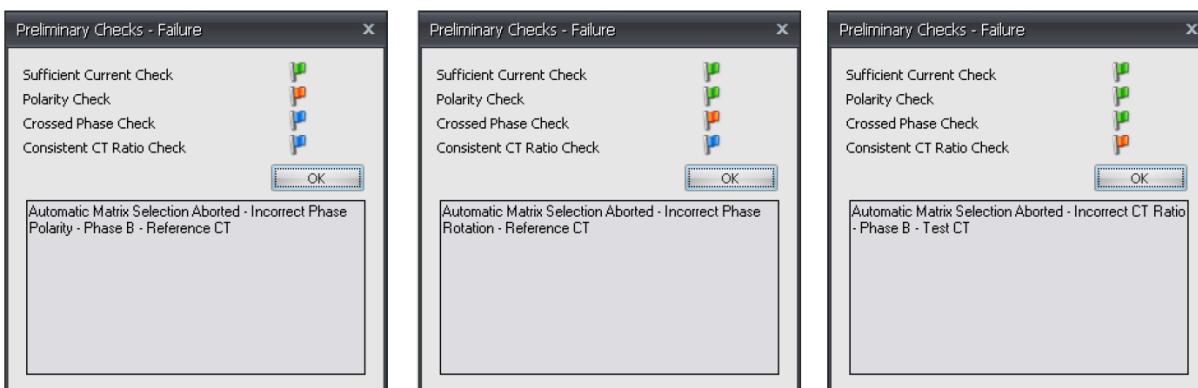


Figure 7.40 Failed Wiring Checks

If the relay passes the wiring tests, Commissioning Assistant calculates the matrix for the test winding. Using the present settings in the relay, Commissioning Assistant assigns the existing matrix setting to the reference winding. Assume that the following are the present compensation settings in the relay:

- TSCTC = 11
- TTCTC = 12
- TUCTC = 10

With a wye/wye connected transformer and all CTs connected in wye, these settings are clearly incorrect. For the differential elements to balance, all compensation settings must have the same value: all set to 11, 12, or 10. Because Commissioning Assistant uses the present settings for the reference terminal (11 in this case because Terminal S is the reference), all compensation settings must equal 11. For the first test (testing Terminal S and Terminal U), Commissioning Assistant must therefore calculate a matrix value of 11 for Terminal U. *Figure 7.41* shows the report of the first test, with the expected result.

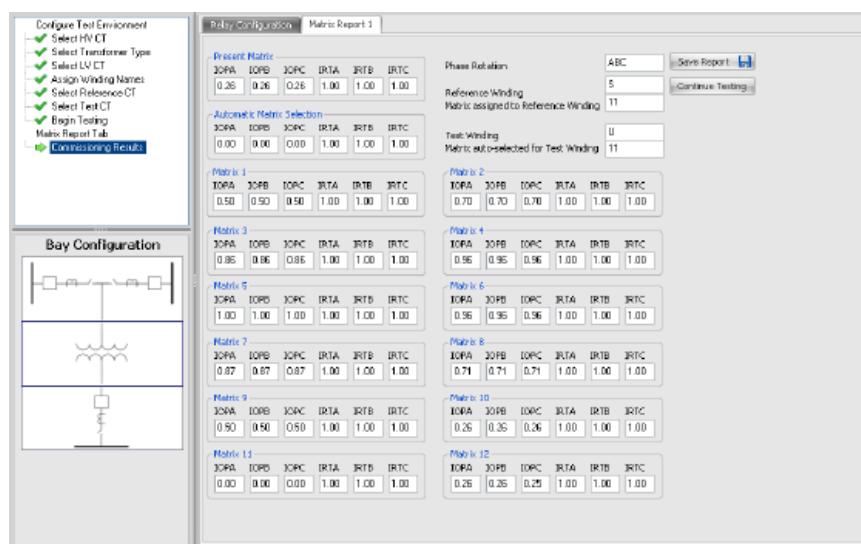


Figure 7.41 Results of Testing Terminal S and Terminal U

The report shows the relevant information for this test:

- Operate and restraint current with the present settings
- Operate and restraint current with the calculated matrix
- Phase rotation
- Matrix number of the reference winding
- Calculated matrix number of the test winding
- Results of all other matrix combinations

Step 15. Click **Save Report** to save the report to your hard drive or to any other convenient location, then click **Continue Testing** to also test Terminal T. For subsequent tests, use any qualified winding as a reference. Qualified windings are windings that have already been successfully matched with matrices that produce (almost) zero

differential current. In this case, either Winding S or Winding U is a qualified winding, but Winding T is not. For the next test, assign Terminal U as reference winding and Terminal T as test winding, as shown in *Figure 7.42*.

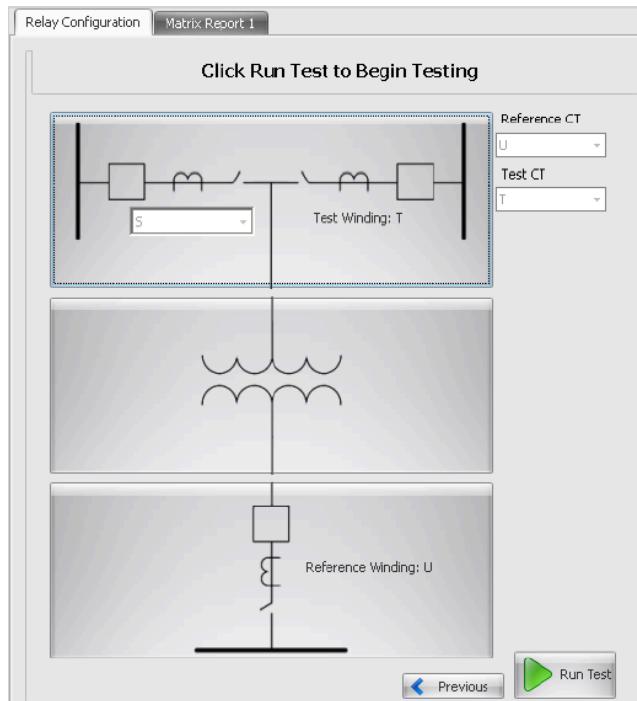


Figure 7.42 Assign Terminal U as Reference Winding and Terminal T as Test Winding

For this test, be sure that current flows only in Terminal T and Terminal U, as shown in *Figure 7.43*.

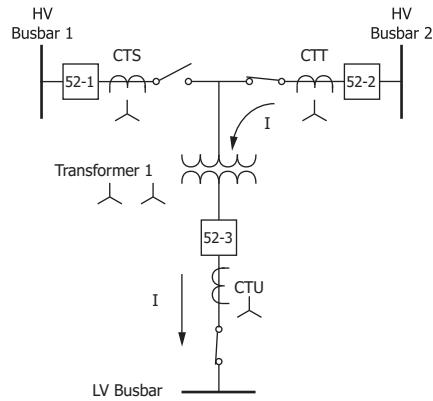


Figure 7.43 Current Flow Through CTT and CTU Only

Step 16. Follow the steps described in the first test. As with the first test, the correct matrix number for Terminal T is 11, as shown in *Figure 7.44*.

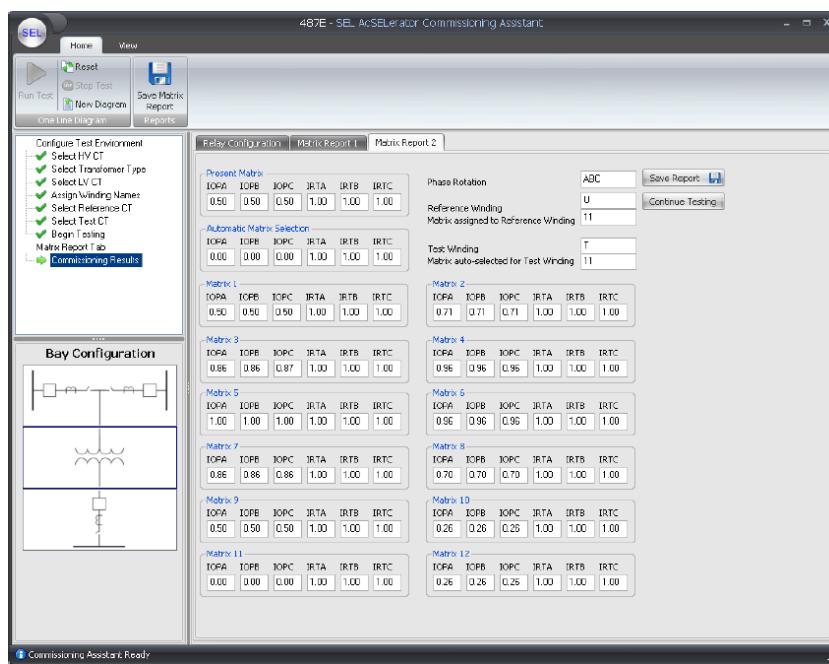


Figure 7.44 Results of Testing Terminal S and Terminal T

Be sure to save all test results. After you save these results, the screen shown in *Figure 7.45* displays. Click **No** to conclude the tests.

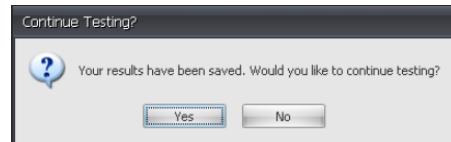


Figure 7.45 Conclusion of the Testing

Monitor Motor Performance With the Motor Start Report in QuickSet

Overview

QuickSet provides a quick and easy way to analyze motor start reports generated by SEL motor control relays, including the SEL-701, SEL-710, SEL-710-5, SEL-749M, and SEL-849.

When an induction motor starts, its rotor and windings can store heat at a rate more than 100 times faster than for balanced load conditions. Therefore, a clear view of motor performance during the starting cycle is imperative. Each SEL motor control relay records motor start data for each motor start. The relay stores the five latest motor start reports in nonvolatile memory. Any of the five stored motor start reports can be viewed through a terminal session via the serial port command **MSR n**, where $n = 1-5$, and $n = 1$ is the most recent report. Each report consists of two parts: summary data and start data.

Summary Data

The summary shows the following information:

- ▶ Date and time of the motor start
- ▶ Number of starts since last reset
- ▶ Motor start time
- ▶ Start % rotor thermal capacity used (%TCU)
- ▶ Maximum start current
- ▶ Minimum start voltage, if the voltage inputs card option is installed on the SEL-701, SEL-710, SEL-710-5, or SEL-849

The relay calculates the motor start time from the time the starting current is detected until the running state is declared. The %TCU value is the rotor thermal element capacity used at the end of the start, expressed in percent of the trip value.

Start Data

The motor start data are taken periodically after the starting current is detected. The relay stores 720 sets of the data with the period determined by the motor start report resolution (MSRR) setting. The following data are stored:

- ▶ Magnitude of A-, B-, and C-phase currents
- ▶ Magnitude of residual-ground current, IG (SEL-849 only)
- ▶ Magnitude of neutral current, IN (SEL-701, SEL-710, SEL-710-5, and SEL-749M only)
- ▶ % rotor thermal capacity used (%TCU)
- ▶ Magnitude of AB, BC, and CA phase-to-phase voltages, if included
- ▶ Calculated % slip for the motor (SEL-710 and SEL-710-5 only)

Figure 7.46 shows data from an example SEL-849 motor start report.

```

=>>MSR <Enter>
SEL-849 Date: 10/05/2012 Time: 01:46:48.197
MOTOR RELAY
FID=SEL-849-X251-VO-Z001001-D20120927 CID=DA18
Start Date = 10/05/2012
Start Time = 01:46:12.881
# Starts 22
Start Time (s) 0.3
Start TCU (%) 0.2
MaxCurrent (A) 1.0
MinVoltage (V) 115.8
CYCLE IA IB IC IG VAB VBC VCA TCURTR
(A) (A) (A) (V) (V) (V) (%)
0.00 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
0.25 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
0.50 1.0 1.0 1.0 0.0 115.8 115.9 116.0 0.2
0.75 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
1.00 1.0 1.0 1.0 0.0 115.8 115.9 116.0 0.2
1.25 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
1.50 1.0 1.0 1.0 0.0 115.8 115.9 116.0 0.2
1.75 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
2.00 1.0 1.0 1.0 0.0 115.8 115.9 116.0 0.2
2.25 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
2.50 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
2.75 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
3.00 1.0 1.0 1.0 0.0 115.9 115.9 116.0 0.2
3.25 1.0 1.0 1.0 0.0
=>>

```

Figure 7.46 Example Motor Start Report From an SEL-849

Retrieve Motor Start Reports From the Relay

You can collect motor start reports according to the following two methods:

1. Use a terminal emulator to connect to the relay.
 - a. From Access Level 1, execute the **CMSR n** command while running a text capture utility. Recall that $n = 1\text{--}5$, with $n = 1$ as the most recent report.
 - b. Save the file with an extension of .cmsr.

Example: Using HyperTerminal

- a. Select **Transfer > Capture Text** before executing the **CMSR n**.
- b. Save the file with an extension of .cmsr.

2. Use the relay web interface.

The SEL-849 publishes a graphical user interface from its integrated web server.

- a. Select the **Motor Start** tab from the web interface as shown in *Figure 7.47*. All available motor start reports will be listed as available for download.
- b. Click a report and specify a save location.

SEL-849 Motor Start						
Date	Time	# Starts	Start Time (s)	Start TCU (%)	Max Current (A)	Min Voltage (V)
01/10/2014	14:49:41.490	7889	0.9	14.1	604.0	188.5
01/10/2014	13:16:49.281	7888	0.9	14.0	603.7	188.4
01/10/2014	10:20:21.422	7887	0.9	14.1	602.9	188.3
01/10/2014	07:24:26.738	7886	0.8	14.0	617.3	191.9
01/10/2014	04:32:30.759	7885	0.8	14.0	620.9	192.3

The SEL-849 records motor start data for each motor start. Motor Start Reports are available for the last five motor starts.

To view the Motor Start Report contents, click on the report in the table to download the report file to your computer and open it with the Motor Start Report viewer in AcCELERator QuickSet® SEL-5030.

Figure 7.47 SEL-849 Motor Start Report Webpage

View Motor Start Reports in QuickSet

To open a motor start report in QuickSet, select **Tools > Open Motor Start Report File** and select the .cmsr file from the appropriate directory. Alternatively, if the SEL-710, SEL-710-5, or SEL-849 drivers have been installed in QuickSet through SEL Compass, the human-machine interface (HMI) presents an option to retrieve and graph a .cmsr file.

Perform the following instructions to retrieve motor start reports from the SEL-710, SEL-710-5, and SEL-849 through use of the QuickSet HMI Motor Start Report.

NOTE

Beginning with version 1.7.1 of SYNCHROWAVE Event, users are able to open motor start reports by using SYNCHROWAVE Event. This can be used as an alternative to using the built-in MSR Reporting features included with QuickSet. To open motor start reports in SYNCHROWAVE Event, you will need to launch the program separately and use SYNCHROWAVE Event to open motor start report files.

Step 1. Select a record number (1–5). The relay stores as many as five motor start reports.

Step 2. Click **Graph** or **Data**.

► **Graph:**

- Displays a graph of the selected motor start report.
- Shows the selected report in .cmsr format in the text area.
- **Data:** Shows the selected report in .msr format in the text area.

Step 3. Click **Save or Print**.

► **Save:**

- Displayed data will be saved to a text file.
- The data will be saved exactly as it is displayed in the text area.
- The selected file extension (.txt/.cmsr/.msr) has no effect on the data format being saved.

► **Print:** Sends the displayed data directly to the default printer.

Once a .cmsr file is selected, a graphical representation of the motor start report will be displayed, as shown in *Figure 7.48*.

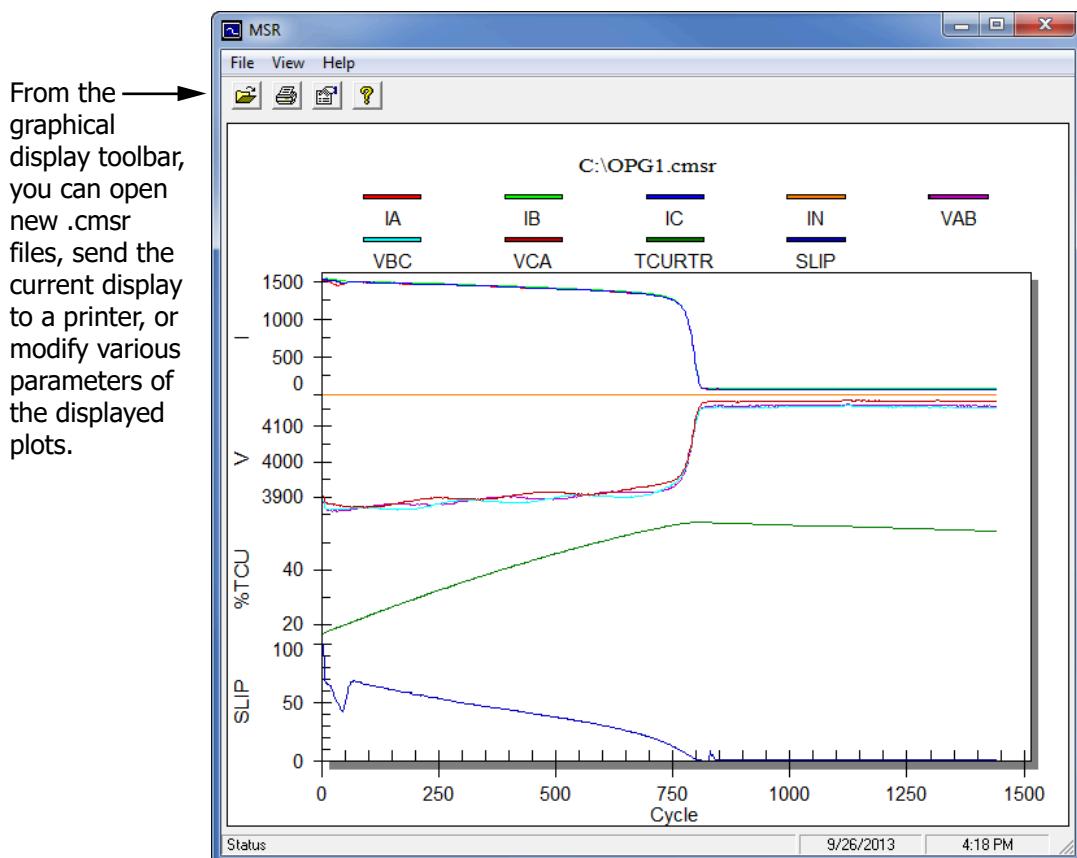


Figure 7.48 Graphical Display of Motor Start Report

The original text of the motor start report can be accessed directly from the display by selecting **View > Report Data**. View summary and start data via the **Summary** and **Data** tabs as shown in *Figure 7.49*.

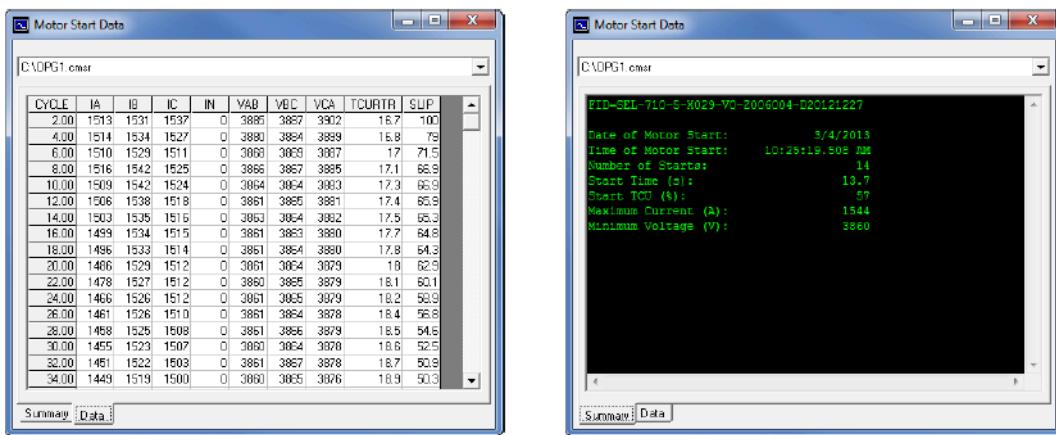


Figure 7.49 View Motor Start Summary and Start Data From QuickSet

Accelerate Report Analysis With Chart Viewer in QuickSet Overview

The QuickSet Chart Viewer tool provides a quick and easy way to graphically represent time series and averaged data from the meter reports of a variety of products. For example, Chart Viewer can display such reports as load profile (LDP), voltage sag/swell/interrupt (VSSI), and harmonic analysis from SEL-734 and SEL-735 meters.

Chart Viewer supports a variety of standard charting functions including the following:

- ▶ Channels to display
- ▶ Chart style
- ▶ Chart dimensionality (2D/3D)
- ▶ Zoom, pan, and rotation options

There are two ways to access Chart Viewer: through the QuickSet **Tools** menu and through the QuickSet HMI.

From the QuickSet main window, select **Tools > Chart Viewer**.

A blank Chart Viewer window opens and provides **Notepad** and **Browse** options as shown in *Figure 7.50*.

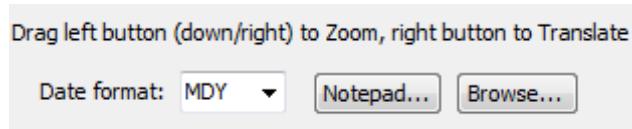


Figure 7.50 Dedicated Chart Viewer Instance Options

NOTE

The **Notepad** and **Browse** buttons appear only when Chart Viewer is opened from the QuickSet **Tools** menu.

Accelerate Report Analysis With Chart Viewer in QuickSet

Click the **Browse** button to navigate to a saved report on your hard drive. Browser-supported formats include the following:

- .csv (Chart File)
- .txt (Report File)
- .ssi (VSSI Report File)
- .ldp (LDP Report File)
- .bin (LDP Binary File)

The **Notepad** option launches a separate window, as shown in *Figure 7.51*.

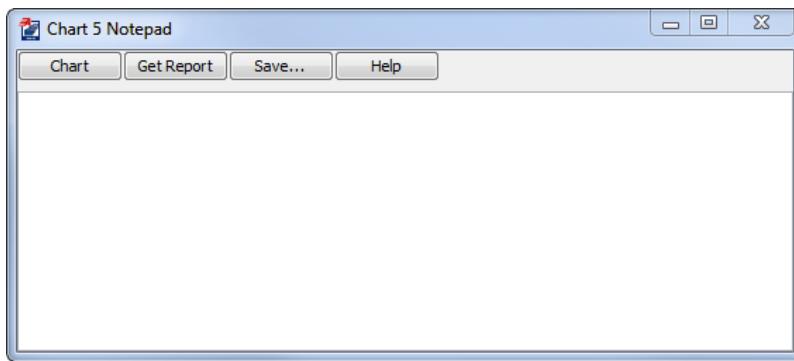


Figure 7.51 Chart Viewer Notepad Interface

You can copy and paste ASCII report data from the QuickSet Terminal window to the notepad window and then select the **Chart** button to chart the data. This feature enables the charting of LDP and VSSI data obtained from devices other than SEL-734 or SEL-735 meters.

Alternatively, the **Get Report** button displays an ASCII report corresponding to the data presently displayed in the chart window, as shown in *Figure 7.52*. The report appears in the Notepad text field and you can save it in .txt format via the **Save** button.

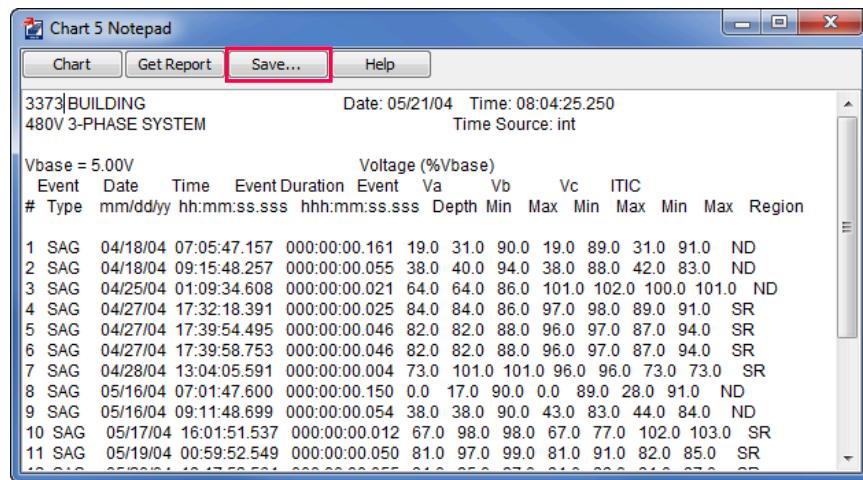


Figure 7.52 Get ASCII Report and Save

The Chart Viewer is also accessible from the QuickSet HMI while you are connected to an SEL meter. Retrieving a report from the SEL meter enables the Chart button for that report type. For example, an HMI connection to an SEL-734 provides a **Chart VSSI** option after you select the **Update VSSI** button, as shown in *Figure 7.53*.

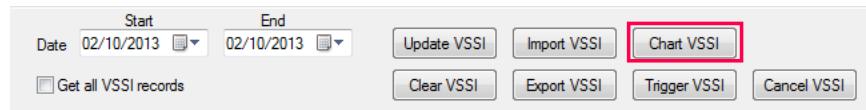


Figure 7.53 Chart Reports From QuickSet HMI

Configure the Main Display

The Chart Viewer display takes multiple forms based on the report type. Possible report types include the following:

- ▶ Voltage Sag/Swell/Interrupt (VSSI)
- ▶ Load Profile (LDP)
- ▶ Harmonics

All displays share a common set of tool bar options as shown in *Figure 7.54*.



Figure 7.54 Chart Viewer Toolbar

The Chart Viewer Toolbar buttons provide the following functions (from left to right in the figure):

- ▶ Deactivate enabled tool bar buttons
- ▶ Rotate plot in 3D
- ▶ Translate plot
- ▶ Zoom plot
- ▶ Modify plot depth
- ▶ Toggle 2D/3D view
- ▶ Enable data cursor
- ▶ Display time stamps or record numbers along X axis
- ▶ View chart labels
- ▶ Show device information
- ▶ Reset zoom level
- ▶ Configure chart properties
- ▶ Copy plot to clipboard
- ▶ Send plot to a printer

All plot manipulation actions such as translation, rotation, zoom, and plot depth can be executed by clicking and dragging the cursor over the plot area.

Select the plot type via the **Chart** setting at the bottom left corner of the window. Choose to display the chart as a line or as a solid area below the line. Selecting **Area** enables the **Transparency** selection option.

Voltage Sag/Swell/Interrupt (VSSI) Reports

When a VSSI report is charted from the HMI, the Chart Viewer application appears with a display similar to *Figure 7.55*.

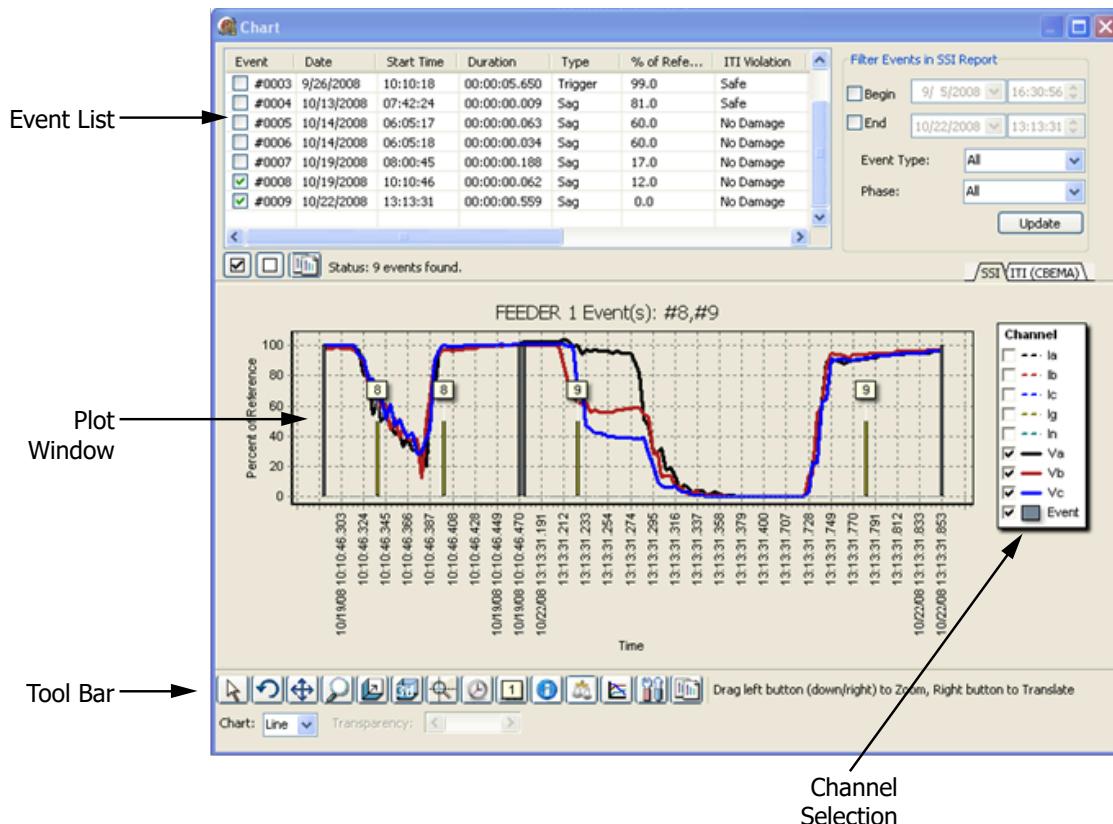


Figure 7.55 VSSI Chart

The VSSI report is segregated into multiple events. Select one or more events from the Event List to display the desired segments of the cumulative data set. All selected events display in the Plot Window with numbered markers indicating start and end times, as shown in *Figure 7.55*. Events can be filtered by time stamp, type (Sag, Swell, or Interrupt), and phase. The **Update** button causes the new filter specifications to be applied in the extraction and displays the events that satisfy the filter criteria.

Alternatively, each VSSI report displays one of the following three CBEMA/ITIC event regions in a dedicated window.

- ▶ Prohibited region (PR)
- ▶ No damage region (ND)
- ▶ Safe function region (SR)

Click the **ITI (CBEMA)** tab to access this display.

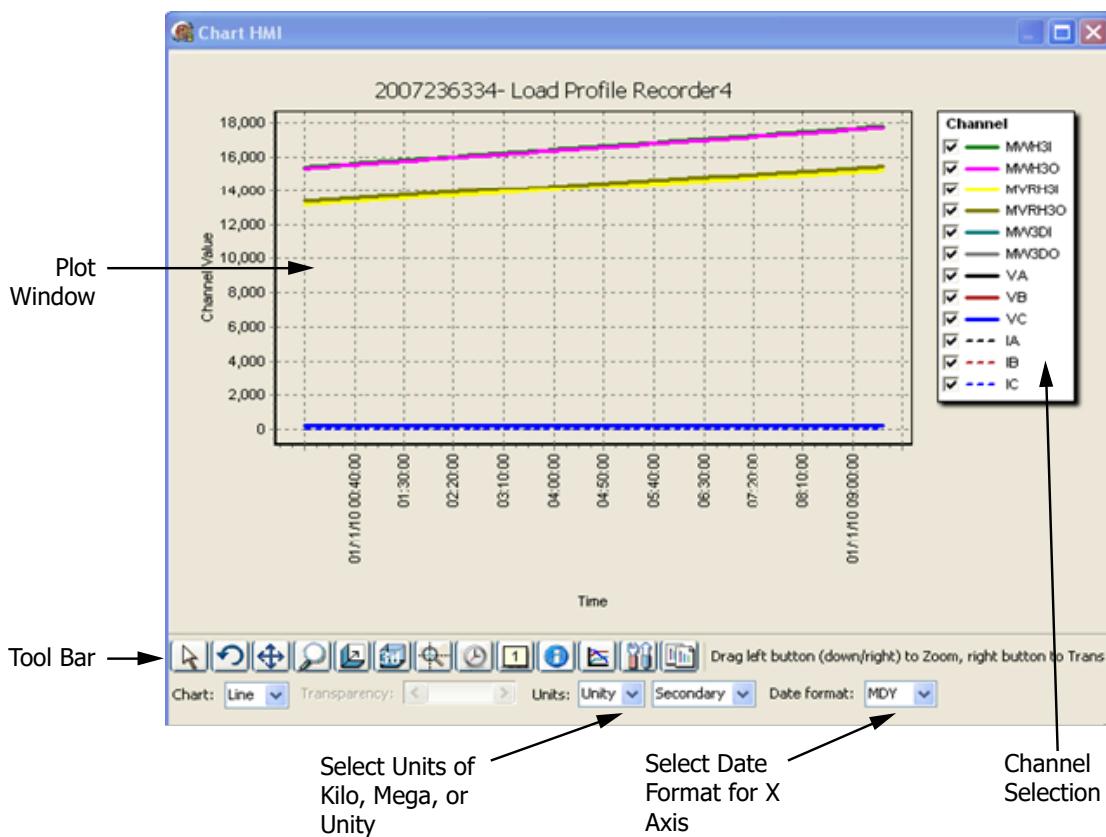
Available information from the **Device Information** toolbar button includes time stamp, device ID, etc., as shown in *Figure 7.56*.

Device Information		
Item	Property	Value
1	Chart Type	VSSI
2	Date	05/21/2004
3	Time	08:04:25
4	Time Source	Internal
5	Device ID	2440 BUILDING
6	Device FID	SEL-734-R106-V0-Z002001-D20040213
7	Device TID	480V 3-PHASE SYSTEM
8	NOMINAL_ABCG	5.00
9	NOMINAL_N	5.00
10	VBASE	0.28

Figure 7.56 VSSI Device Information

Load Profile Reports

Open a load profile report in .csv, .bin, .txt, or .hhf format from Chart Viewer or load directly from the HMI. *Figure 7.57* shows an example load profile report display.


Figure 7.57 LDP Chart Viewer Display

Accelerate Report Analysis With Chart Viewer in QuickSet

Select the **Device Information** tool bar button and click one of the three available tabs at the top of the **Device Information** window to access an extended set of device information, as shown in *Figure 7.58*.

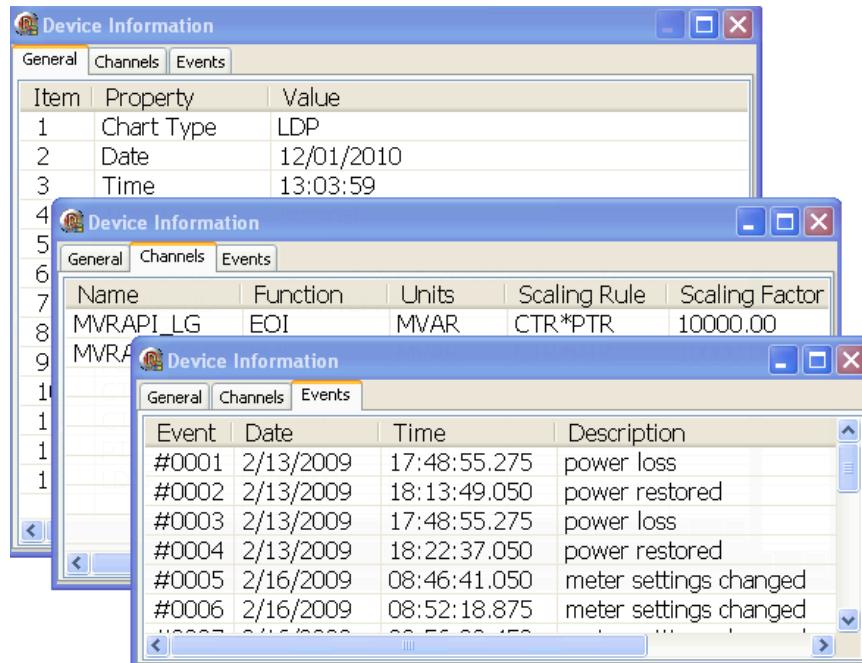


Figure 7.58 Load Profile Report Device Information

Harmonic Data Report

Harmonic data reports are exclusively accessible through the HMI. Configure the report to display by selecting the data set and harmonics, then clicking the **Chart** button as shown in *Figure 7.59*.

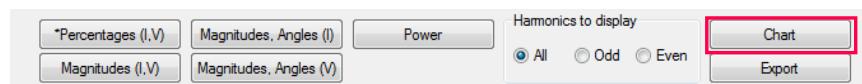


Figure 7.59 Chart Harmonic Data Reports From QuickSet HMI

Selecting either the **Percentages (I, V)** or **Magnitudes (I, V)** data set enables the Harmonic Spectral Analysis view, as shown in *Figure 7.60*.

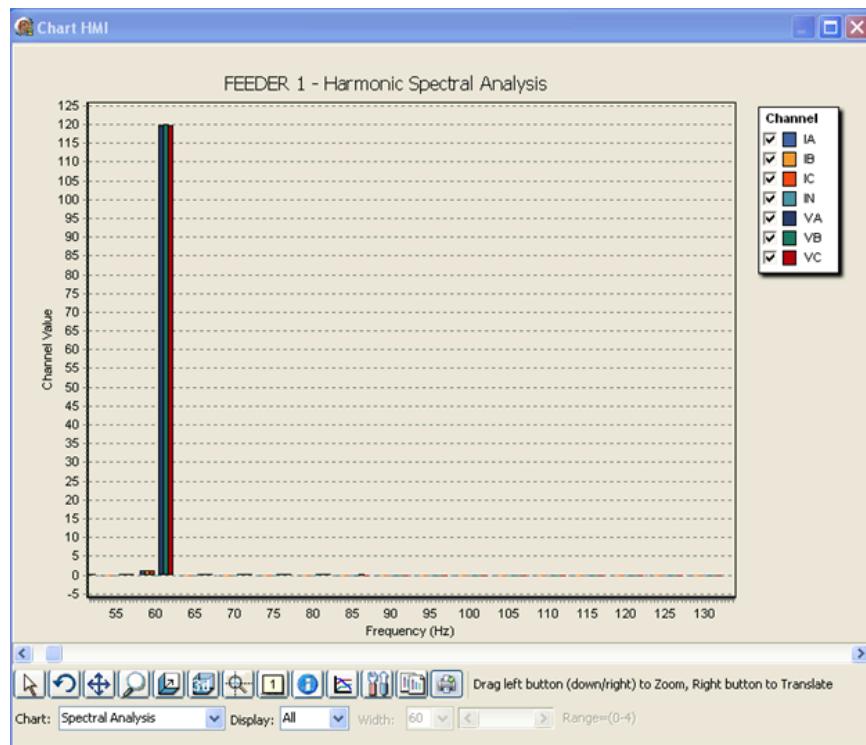


Figure 7.60 Harmonic Magnitude Chart

Alternatively, selecting **Magnitude, Angles (I)** or **Magnitude, Angles (V)** from the HMI generates a polar plot as shown in *Figure 7.61*.

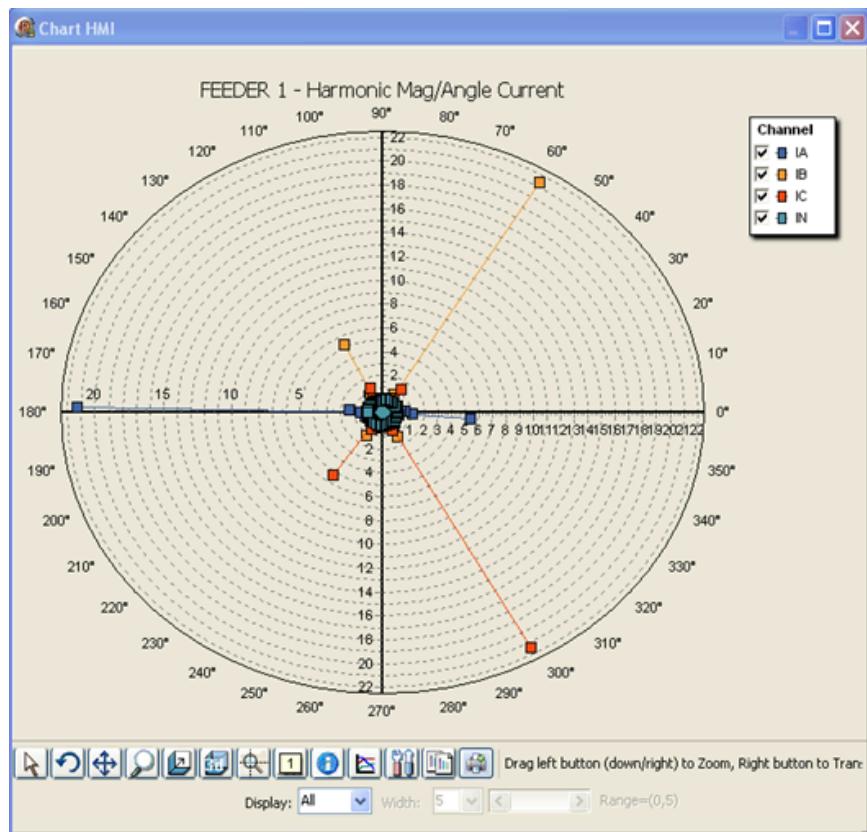


Figure 7.61 Harmonic Polar Chart

The display option supports the display of all harmonic values (or frequencies), odd or even harmonic values (or frequencies), or a range of harmonic values (or frequencies). If the interval option is chosen, the user is presented with controls that facilitate the selection of the interval width and the starting harmonic value (or frequency) of the interval. The range of harmonic values (frequencies) presently being charted is displayed next to the width control.

Monitor Device Performance With Integrated Human-Machine Interface (HMI)

Overview

Use the QuickSet built-in HMI to quickly and easily verify and analyze device performance. The HMI provides a graphical representation of analog and digital data specific to each SEL device and provides user control functionality. Please reference the QuickSet help menu from the HMI view for HMI information. For more detailed information on Metering, Targets, Status, or SER data, refer to the device-specific instruction manual from which you are displaying the HMI information.

To access the HMI window, QuickSet must first establish communication with the device. Refer to *Section 3: Deploy, Monitor, and Log Settings Through QuickSet Communication* for communication parameter configuration. The HMI can now be accessed in two ways.

1. Select **Tools > HMI > HMI**.
2. Click the dedicated HMI button () from the tool bar.

The HMI provides a tree-view list. Select a report or control entry from the list to display the contents on the right side of the window. *Figure 7.62* shows an example HMI view for an SEL-421 Relay.

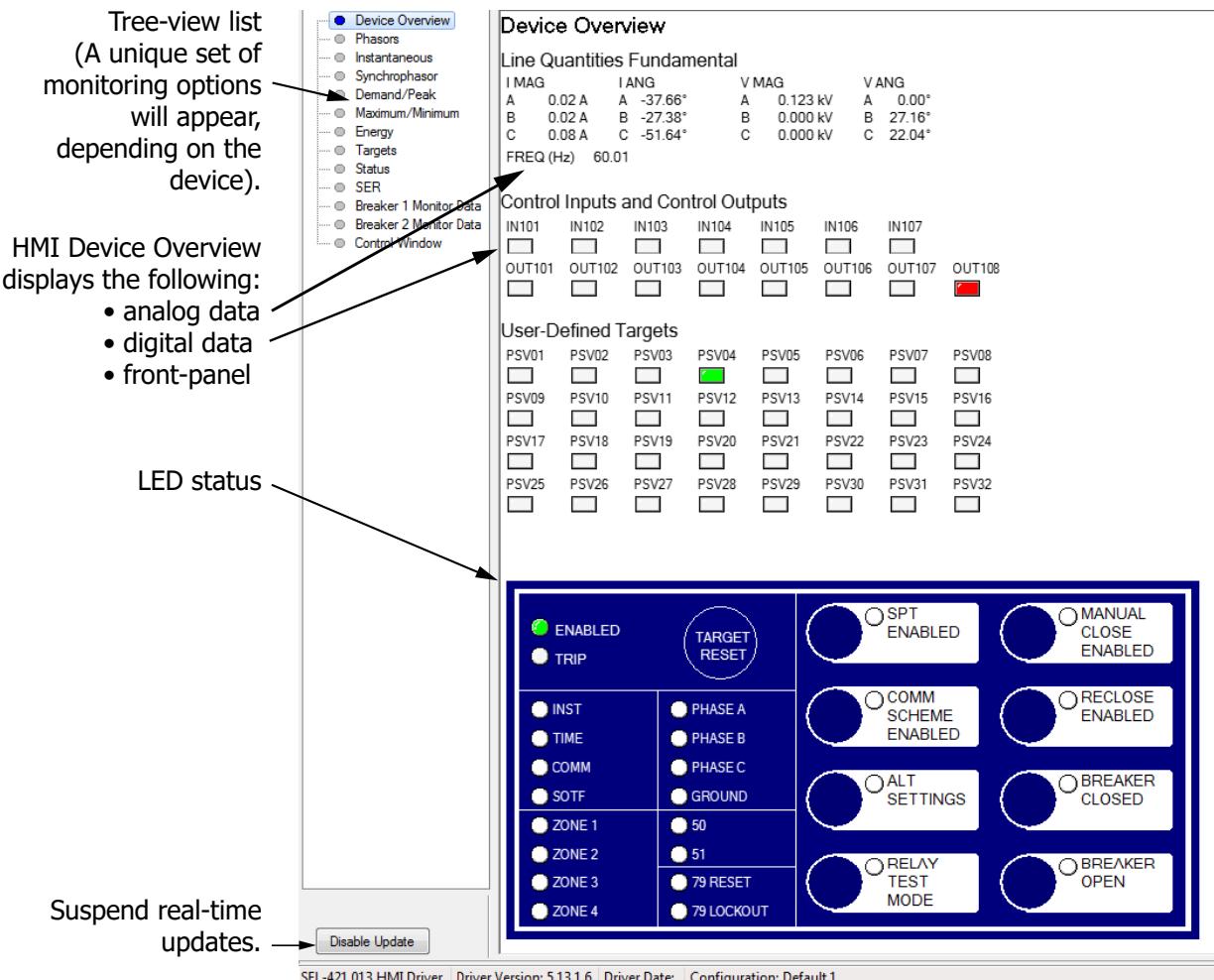


Figure 7.62 Example SEL-421 HMI Display

Many QuickSet HMI pages provide real-time updates by maintaining continual communication with the device. The **Disable Update** function suspends use of the communications channel by the HMI. Use this feature to increase alternating file transfer communications availability to other clients such as an event collection server.

NOTE

If you want to use the HMI when connecting to a device through a controller, ensure that you use a direct transparent connection. Refer to the individual device instruction manual to determine the connection being used.

The **Device Overview** colors and text can be customized. White LED symbols indicate a deasserted condition, while LED symbols with any other color indicate an asserted condition. Click an LED symbol to change its assert color. Double-click the LED label to change the label.

HMI Control Window

Select **Control Window** from the tree-view list to reset metering values, clear event records, trip and close reclosers/breakers, pulse output contacts, and set and clear remote bits (as shown in *Figure 7.63*).

NOTE

The HMI Control window requires the 2AC access level.

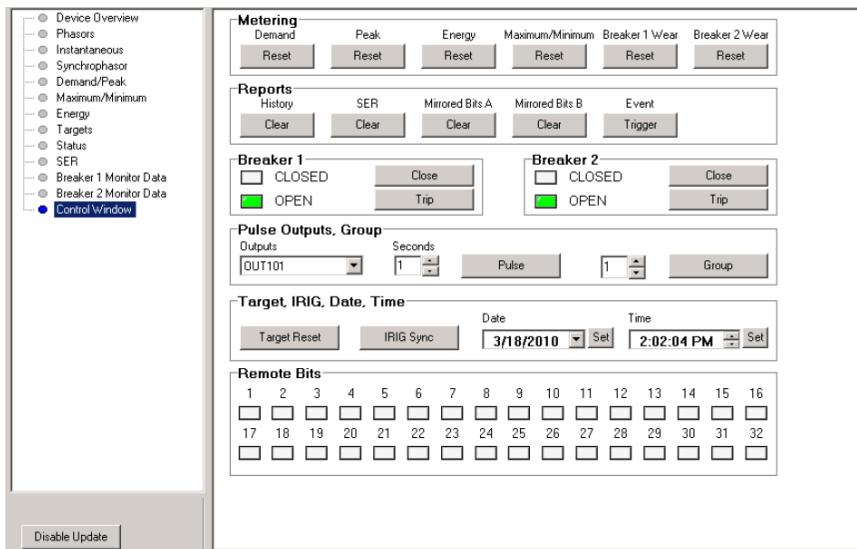


Figure 7.63 Control Window Display

Additional Tree-View Functions

Refer to your device manual for additional details on device-specific HMI tree-view functions.

HMI Configurations

Customized **Device Overviews** can be saved as HMI configurations. To save the present configuration under the existing name, select **Tools > HMI > Save Configuration**. To specify a configuration name, select **Tools > HMI > Save Configuration As**. Note that there can be only one default configuration per device.

HMI configurations are identified by relay type and a configuration name. To use an existing configuration, select **Tools > HMI > Select Configuration**. To view available configurations, select **Tools > HMI > Manage Configurations**. To make an existing configuration the default configuration for a given relay type, select the configuration in the **Manage Configurations** window, select **Edit**, and select the **Default** check box.

If you want to move HMI configurations between computers, note that the configuration file is saved at the following location: C:\Users\YOURUSERNAME\AppData\Roaming\SEL\AcSELERator\QuickSet. This file can be copied from the first location and pasted in the same file location on a second computer.

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S E C T I O N 8

Update Solutions, Products, and Literature Through SEL Compass

Overview

SEL Compass[®] is a companion software package to ACCELERATOR QuickSet[®] SEL-5030 Software. SEL Compass provides a tool for effectively managing the updating (locating, downloading, and installing) of new versions of your installed SEL software, including QuickSet. Use it to keep the various components of your installation, including software packages, drivers, and product literature, up-to-date. Update installation components on demand. Use the enhanced sorting capabilities of the program to organize and distribute information, and to learn about the many available SEL products. This section describes how to install and update QuickSet.

Initial Setup and Configuration—When SEL Compass Opens the First Time

When SEL Compass is opened for the first time, user account information or an update source location will need to be added before updates can occur. Additionally, further options may be adjusted to customize how SEL Compass functions. Open SEL Compass by double-clicking on the desktop shortcut or by clicking **Start > Programs > SEL Applications > SEL Compass**. Select **Tools > Options** to reach the **SEL Compass Options** dialog shown in *Figure 8.1* and see the section descriptions for further information.

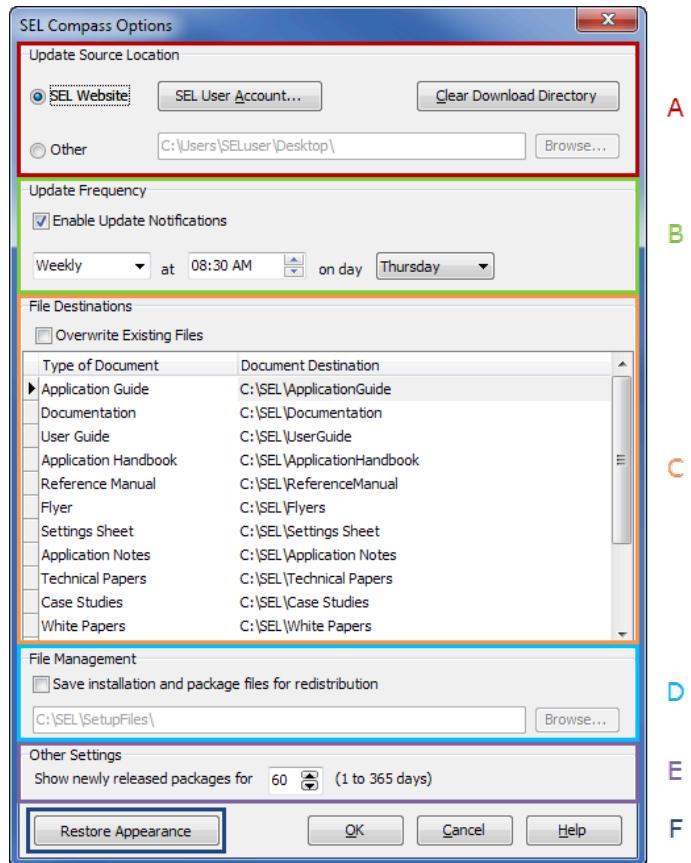


Figure 8.1 SEL Compass Options

- A. **Update Source Location:** Selects where updates come from. You can choose here to add **SEL User Account** information (see *Figure 8.2*) and to remove temporary files by choosing **Clear Download Directory**. Click the **Other** check box to select a location other than the SEL website from which to load updates. You would also use the **Other** check box when one computer connects to the SEL website as a server and all other computers point to that computer (as a local server).
- B. **Update Frequency:** Enables automatic checking for updates and chooses when they will occur.
- C. **File Destinations:** Designates the storage site for downloaded documents. To change the document destinations, click the directory that you would like to change and use the ellipses (...) button that displays to browse to the new folder.
- D. **File Management:** Choose to retain downloads for easy access at a later time. This is useful for reinstalling any of the applications without downloading the installation files again.
- E. **Other Settings:** Select how long updates will be shown as available in the **What's New** window.
- F. **Restore Appearance:** Resets all views to default view. Grid views within SEL Compass may have been set for customized appearance.

SEL User Account Logon Information

To add or change account information, choose **SEL User Account** from the **SEL Compass Options** window (see *Figure 8.1*) to open the **SEL User Account Logon Information** window. Use this window to enter SEL website connection details, including your user logon information and proxy server settings. This information must be correct for SEL Compass to get the most recent updates from the server. See *Troubleshooting SEL Compass* on page 248 if logon fails. *Figure 8.2* shows sample input information. The proxy settings should reflect your network configuration. Check with your computer support personnel for the correct settings for your company network.

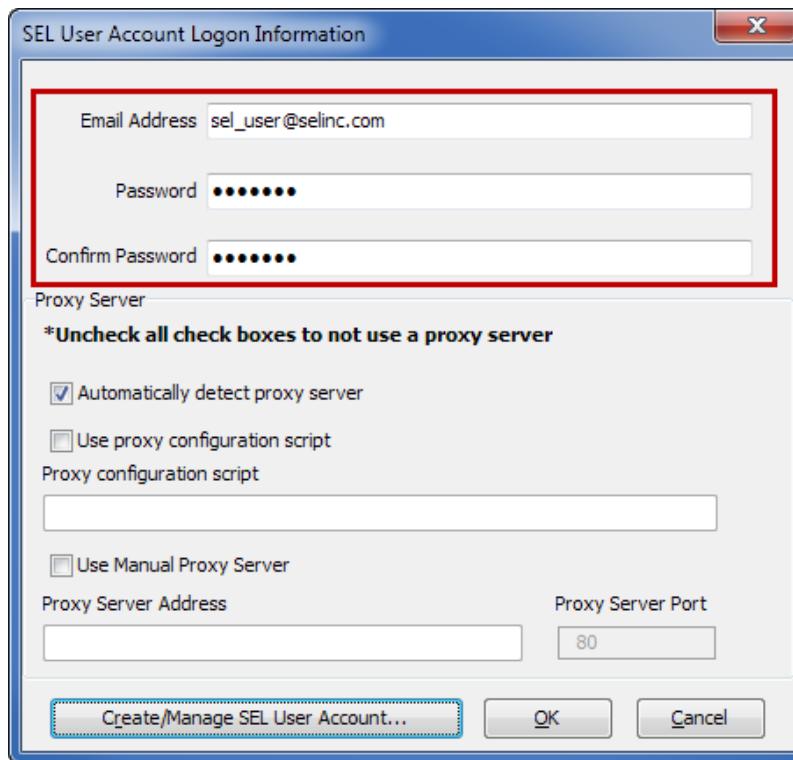


Figure 8.2 SEL User Account Logon Information

Initial Install of QuickSet Through SEL Compass

With SEL Compass launched, select the **Products** icon. Choose **AcSELerator QuickSet** under the **Product Name** column. Check the box under the **Select** column next to "AcSELerator QuickSet SEL-5030" and any needed SEL device drivers or plugins (see *Figure 8.3*). An SEL device driver must be installed for a device before you attempt to open a Settings Editor in QuickSet for that device.

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Initial Install of QuickSet Through SEL Compass

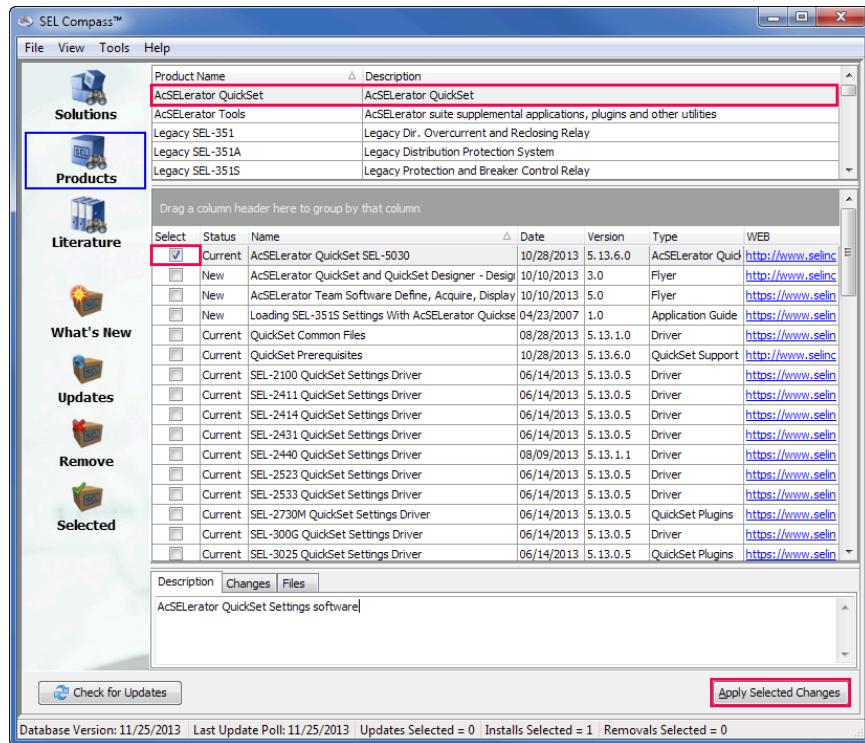


Figure 8.3 Installing QuickSet and Device Drivers

Choose **Apply Selected Changes** when you have selected the files that need to be downloaded. Choose to continue when you see the **Review Changes** window, as shown in *Figure 8.4*.

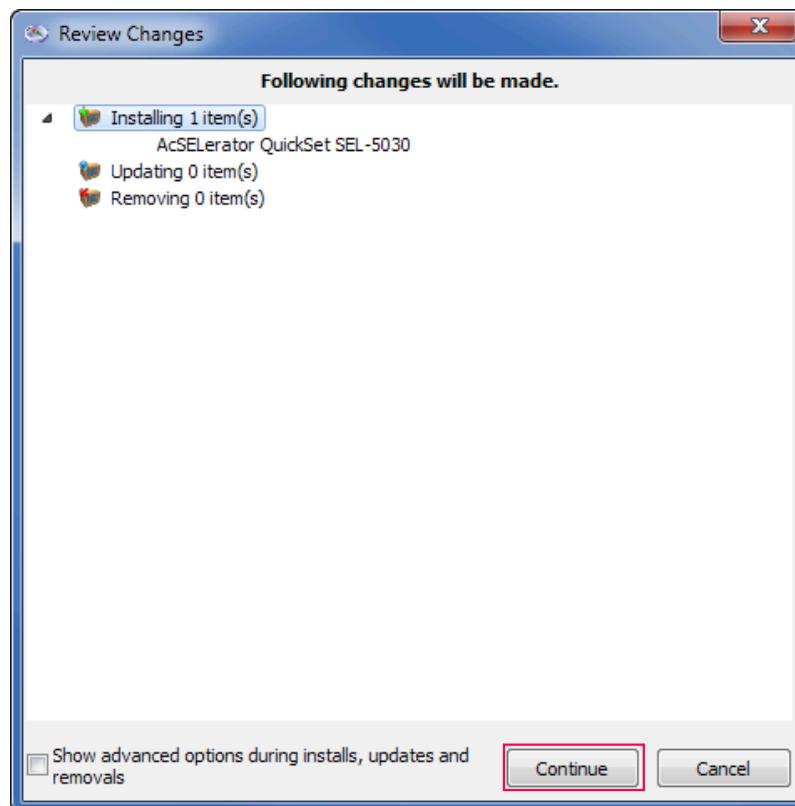


Figure 8.4 Review Changes

If you agree with the **License Agreement** window that displays (see *Figure 8.5*), select **I Agree** to continue with the installation.



Figure 8.5 License Agreement

SEL Compass will apply your selections and indicate completion of the changes (see *Figure 8.6*). You may now continue using QuickSet.

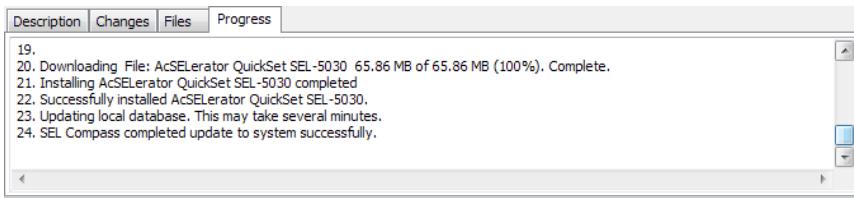


Figure 8.6 Progress Window

Accessing SEL Compass From QuickSet

Perform the following instructions to access QuickSet updates.

Step 1. From the QuickSet Welcome Screen (see *Figure 8.7*), click **Update** to exit QuickSet and open SEL Compass.

NOTE

To update QuickSet, it is necessary to close the QuickSet application. (To start SEL Compass directly, go to **Start > All Programs > SEL Applications > SEL Compass**).

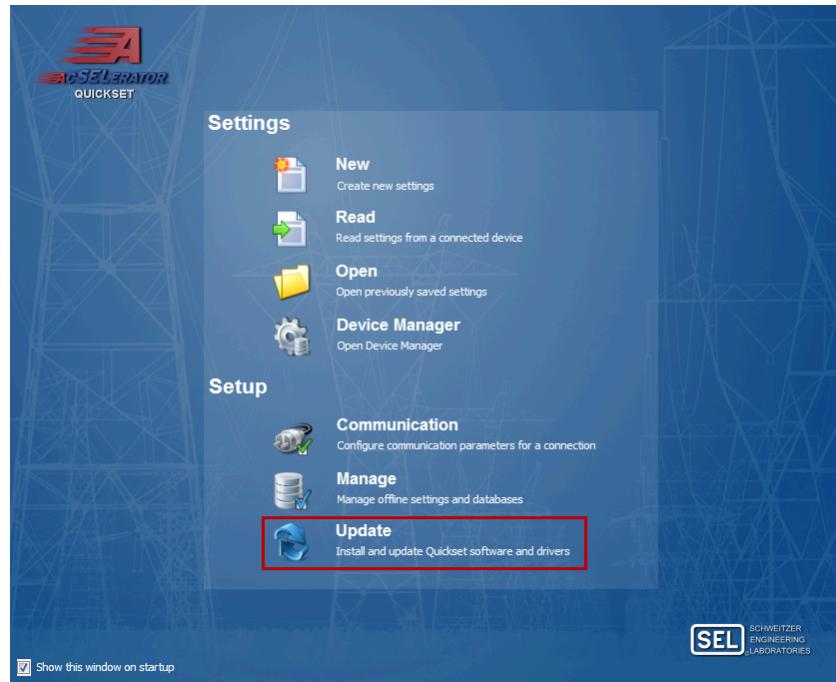


Figure 8.7 Selecting Update in QuickSet

Step 2. Confirm that you want to close QuickSet (see *Figure 8.8*).

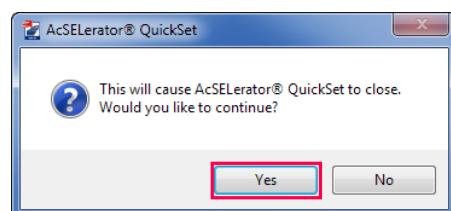


Figure 8.8 Confirm Closing QuickSet

QuickSet will then close, and SEL Compass will open. As SEL Compass opens, an informational dialog box (*Figure 8.9*) will display for a short time.

NOTE

Similar dialog boxes will display during the operation of SEL Compass; because these dialog windows are informational only and require no user interaction, they are not further mentioned in this document.

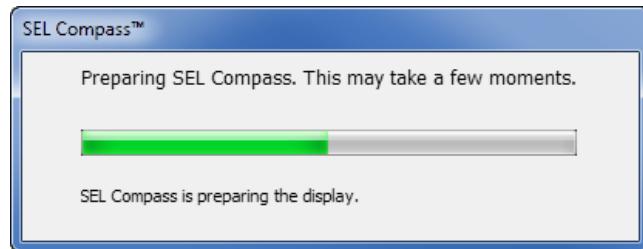


Figure 8.9 Informational Dialog Verifying That SEL Compass Is Working

SEL Compass Updates Page

The SEL Compass Updates page (*Figure 8.10*) is the first navigational window that displays after you exit QuickSet (and after initial setup of the SEL Compass Options). First-time users should refer to *Initial Setup and Configuration—When SEL Compass Opens the First Time* on page 241 before proceeding to *Initial Install of QuickSet Through SEL Compass* on page 243. Select any updates necessary for QuickSet by selecting the box under **Updates** next to the necessary application. Then click **Apply Selected Changes**. Note that any pending updates will display on the **Updates** page.

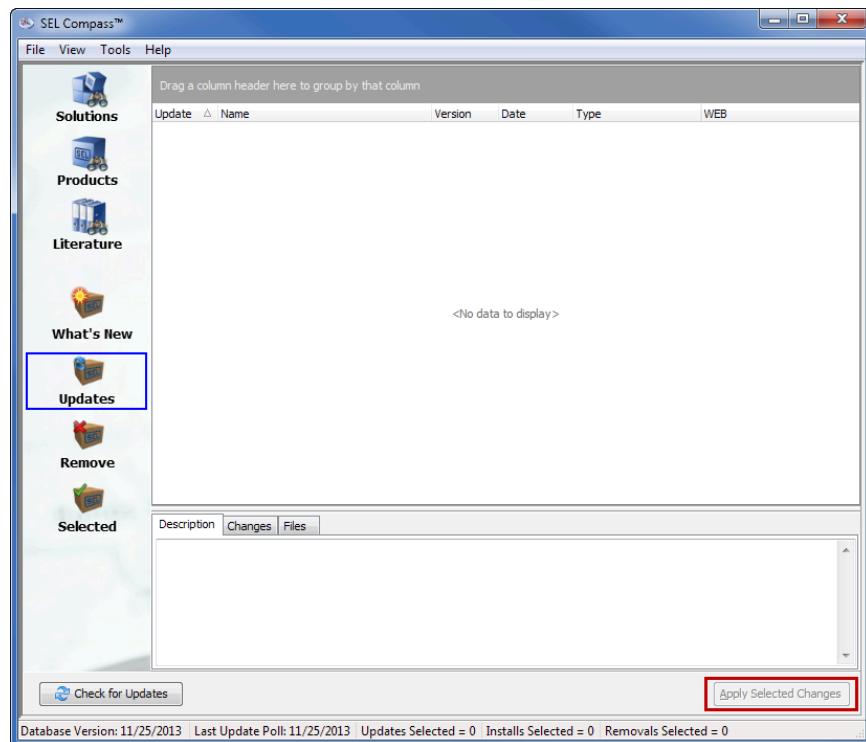


Figure 8.10 SEL Compass Updates Page

Additional Options in SEL Compass

- **Solutions:** Use this view to organize updates by literature and SEL product line, so information is just a click away.
- **Products:** Maintain a comprehensive list of SEL products, plus group and organize the products most important to you.
- **Literature:** Use SEL Compass to synchronize and maintain all of your SEL documentation.
- **What's New:** Use this view to display newly released literature and applications. This makes it easy to see new and/or updated solutions and products provided by SEL.
- **Updates:** Take advantage of the ability of SEL Compass to track updates to SEL software, literature, and solutions to keep your computer up-to-date. Note: SEL Compass only shows updates to programs that are installed on your local PC. To keep your computer up-to-date, you must instruct SEL Compass to install any updates it detects (see the following two options).
- **Remove:** Use this view to facilitate the removal of installed software and documents that you no longer need. You can also see from this view what applications and documents are presently installed through SEL Compass.
- **Selected:** Display all applications and documents presently selected for updating or installation.

For more information about SEL Compass, refer to <https://selinc.com/products/compass/>.

Troubleshooting SEL Compass

Issue

An error message similar to *Figure 8.11* states that SEL Compass is unable to connect to the SEL website.

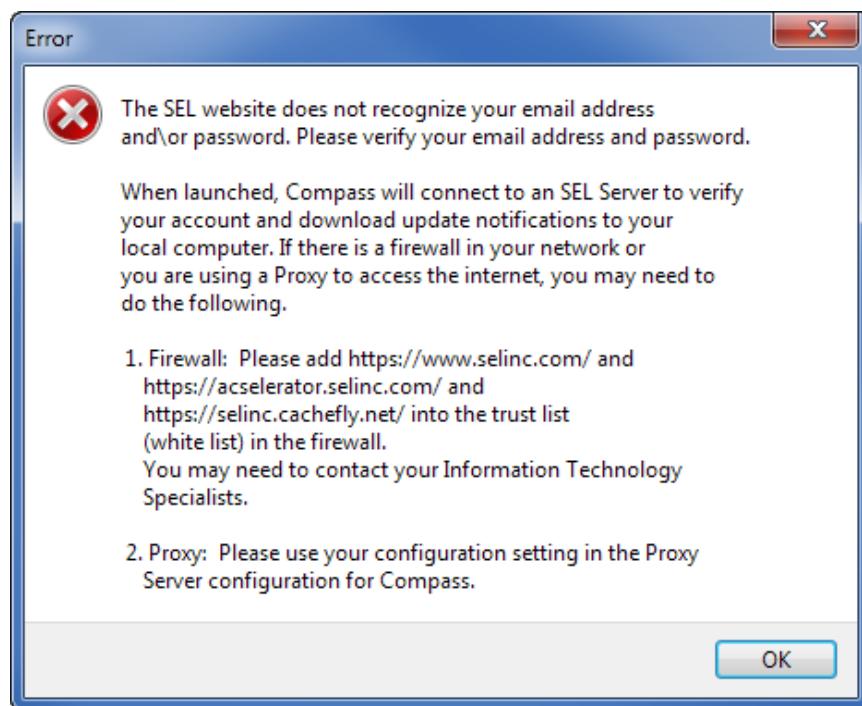


Figure 8.11 Error Message Indicating a Connection Problem

Solution

In the upper left-hand tool bar in SEL Compass, select **Tools > Options**. Then, in the **SEL Compass Options** dialog box, select the **SEL User Account** button (see *Figure 8.1*). The **SEL User Account Logon Information** window should display (see *Figure 8.12*). Make sure your logon information is correct. You must also be sure the proxy server settings are correct. Check with your computer support personnel about this setting and about your firewall settings, if applicable.

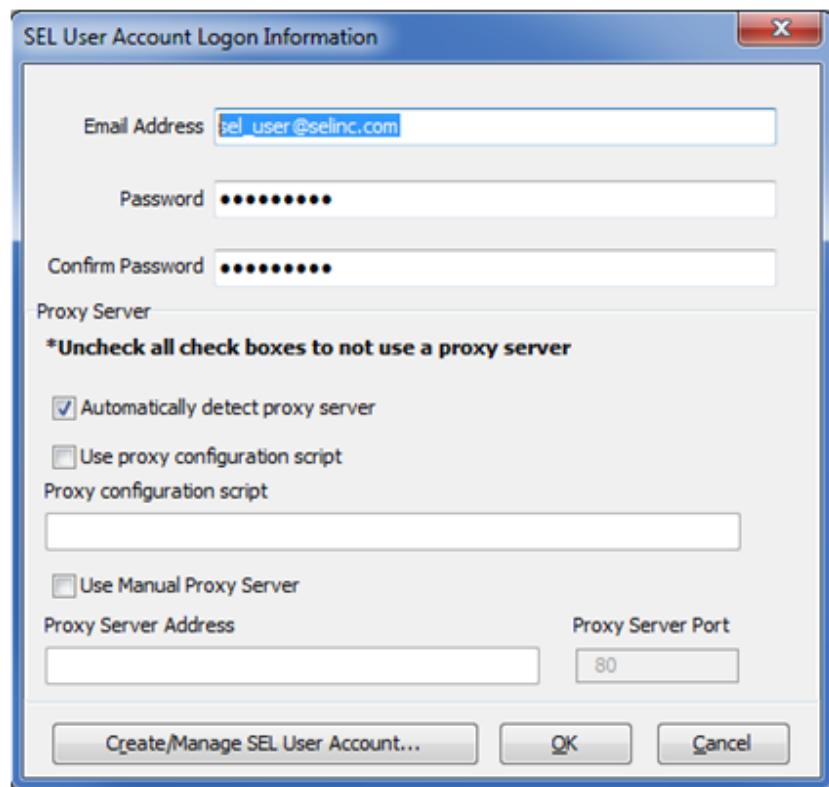


Figure 8.12 SEL User Account Logon Information Window

SECTION 9

Bring in Connection Directories From SEL-5010

Overview

ACSELERATOR QuickSet® SEL-5030 Software supports importing of the connection directory from SEL-5010 Relay Assistant Software, providing users an easy migration from SEL-5010 Relay Assistant to QuickSet.

The path within QuickSet to SEL.DataImporter.exe, the SEL-5010 import tool, varies according to your operating system, as follows:

- ▶ **32-bit operating systems:** C:\Program Files\SEL\AcSELERator\Quickset\bin\Plugins
- ▶ **64-bit operating systems:** C:\Program Files (x86)\SEL\AcSELERator\Quickset\bin\Plugins

The data importer tool allows you to import the connection directory from an SEL-5010 database into the Device Manager **Connection Explorer** within QuickSet. The imported connection directory is saved to the ACSELERATOR Database.

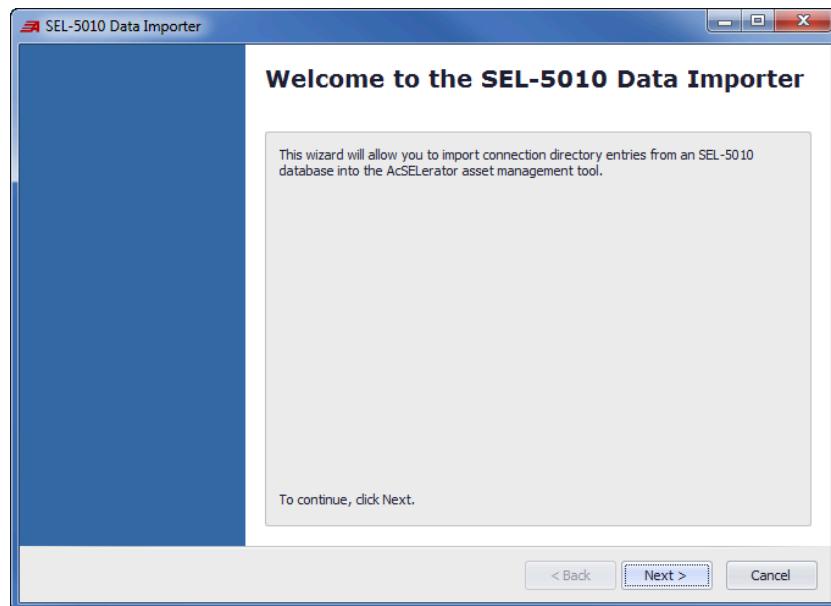


Figure 9.1 SEL-5010 Data Importer

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Overview

Perform the following instructions to log in to the ACCELERATOR Database and select the SEL-5010 connection directory.

- Step 1. Double-click **SEL.DataImporter.exe** to launch the data importer tool and display the SEL-5010 Data Importer welcome screen.
- Step 2. Click **Next** to specify the ACCELERATOR Database.
- Step 3. Enter the username and password necessary to log in to the ACCELERATOR Database. The default username is **admin** with no password. The port number is 5434. You can verify that you have the correct connection parameters by clicking the **Test Connection** button, seen in *Figure 9.2*.

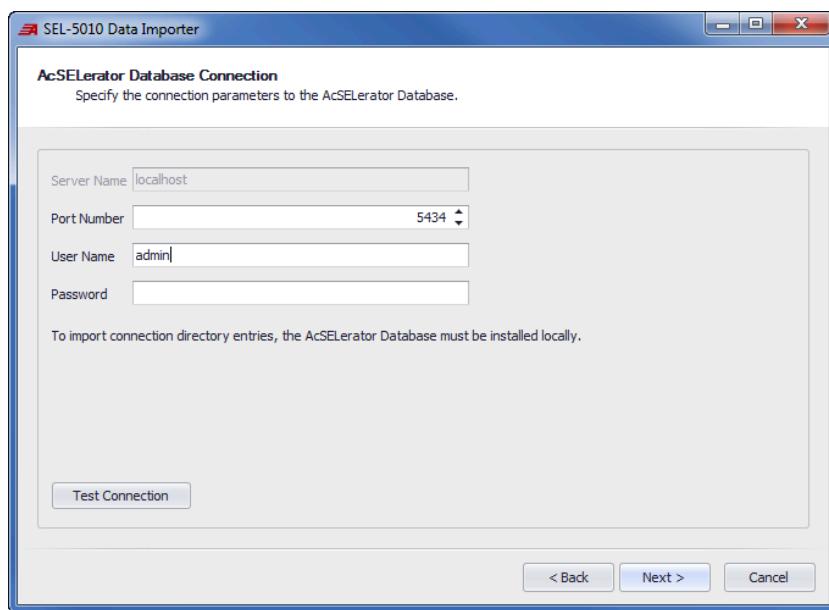


Figure 9.2 Log in to the ACCELERATOR Database

- Step 4. Click **Next** to proceed.
- Step 5. To import existing SEL-5010 Database files, select the **SEL-5010 Database** source type and click **Next**. If settings are in a specifically formatted CSV file, select **CSV File** and click **Next**.

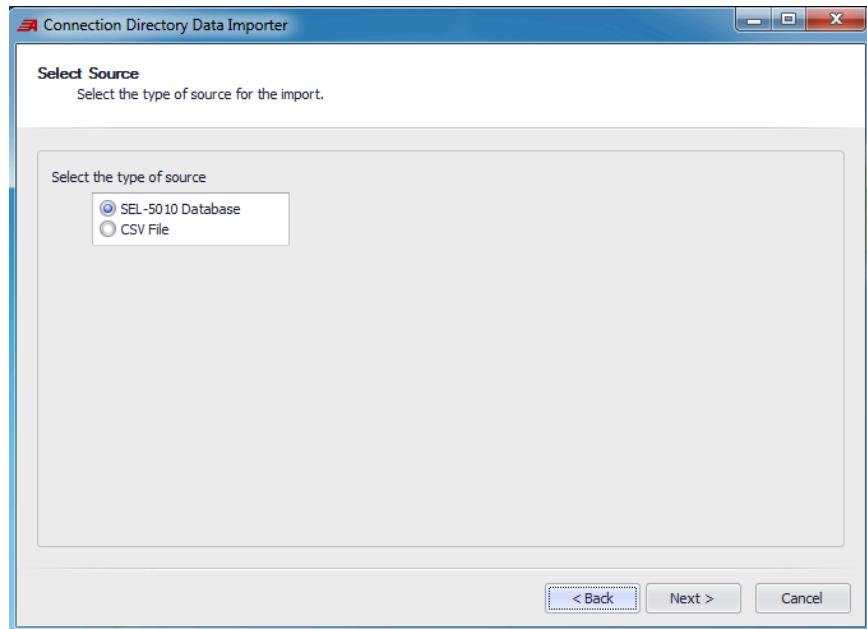


Figure 9.3 Import Source Files

Step 6. On the **Select SEL-5010 Database** page, click **Browse** to select the SEL-5010 database file (as seen in *Figure 9.4*).

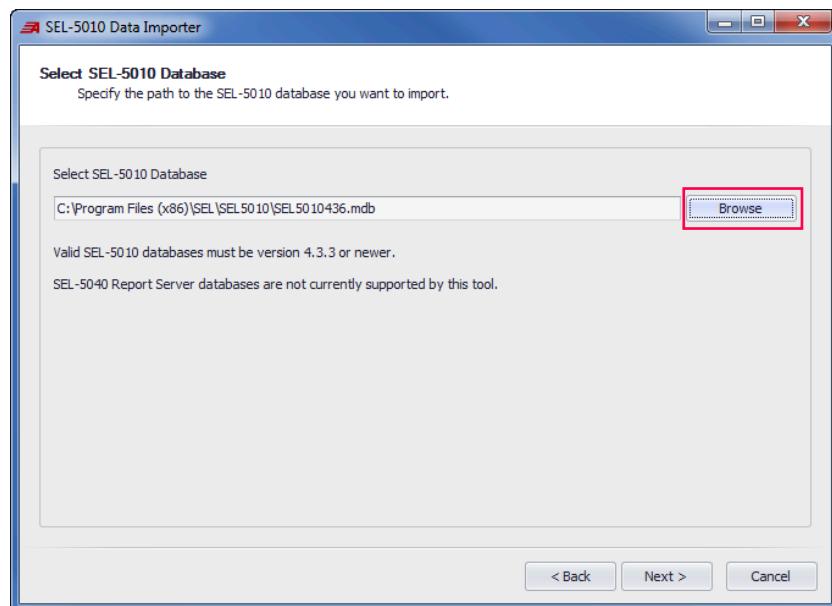


Figure 9.4 Specify the Path to an SEL-5010 Database

Step 7. In the pop-up dialog box that displays, choose the SEL-5010 database that you want to import and click **Open** (see *Figure 9.5*).

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Overview

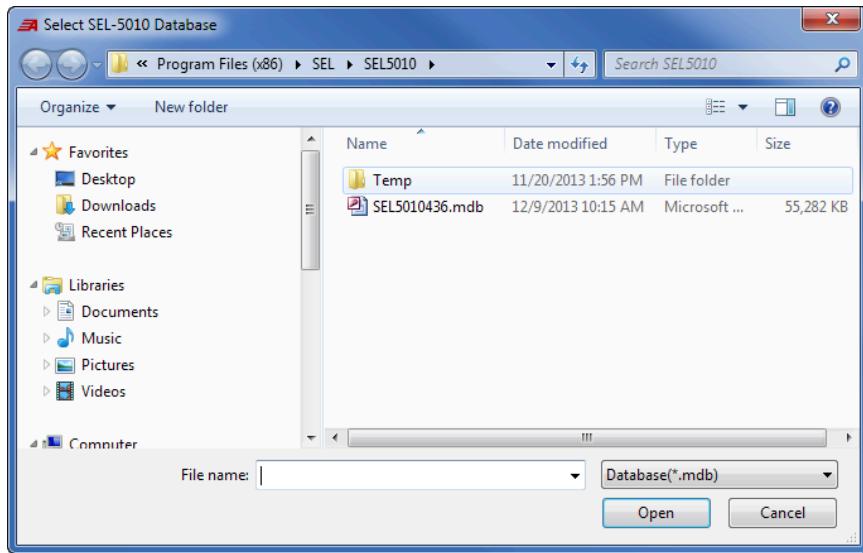


Figure 9.5 Select SEL-5010 Database to Import

Step 8. Click **Next** to proceed (see *Figure 9.4*).

Step 9. Specify the import options. You can choose to import all connection directory entries, all entries per area, or select individual entries to import. In this example, select **Import connection directory entries by area**, and then click **Next**.

NOTE

Selecting **Import SEL-5010 Equipment field as a Location Node** creates a new node in the Connection Explorer with the imported devices. Selecting **Import any attached settings** will import settings for any entry that has attached settings.

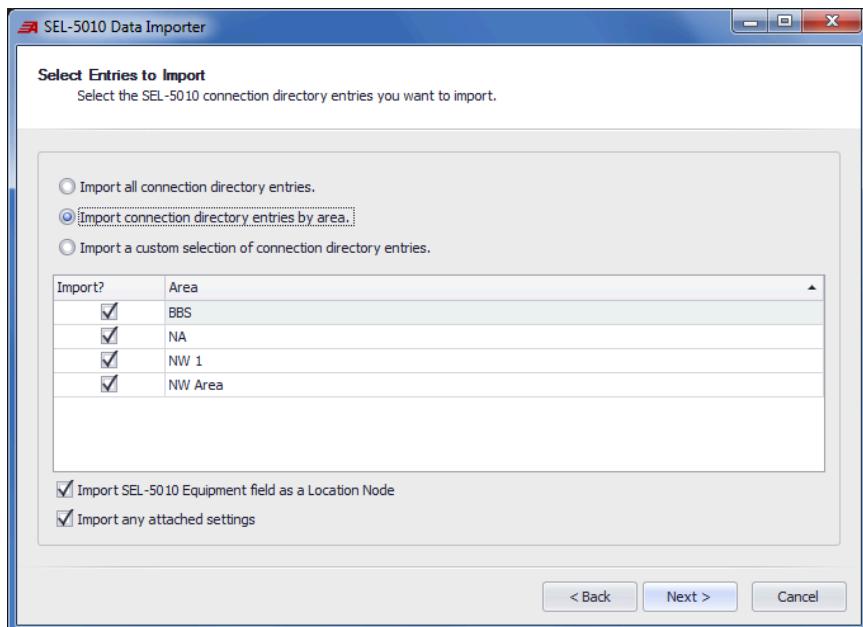


Figure 9.6 Specify Import Options

Step 10. Choose what version state will be associated to the attached settings from the imported database. If you have any pass-through communications devices, you can specify the device type of the imported pass-through devices. If the pass-through communications device is not listed, a new device type can be created by clicking the **Create New Device Type** button.

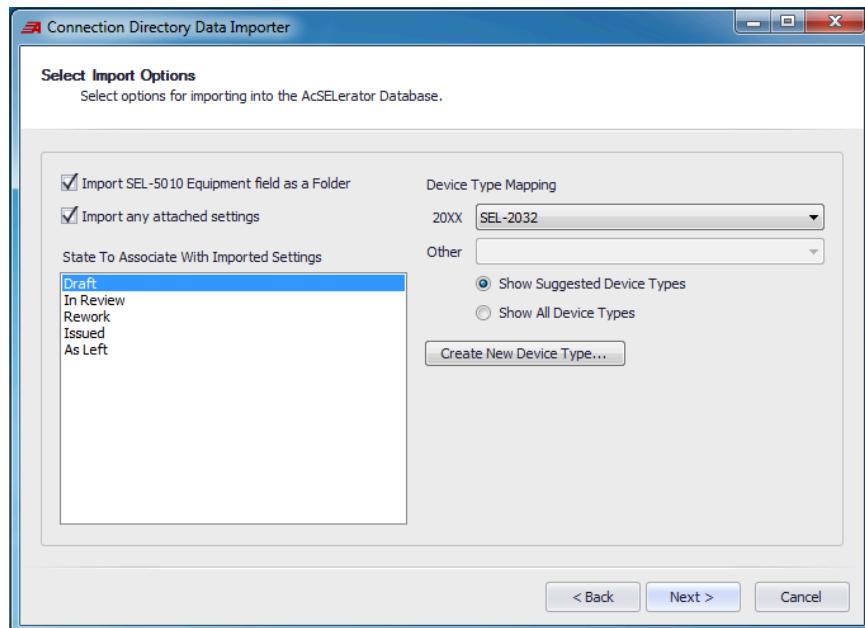


Figure 9.7 Choose a Version State

Step 11. Click **Next** on the **Ready to Import** window to display the **Import Progress** screen in *Figure 9.8*.

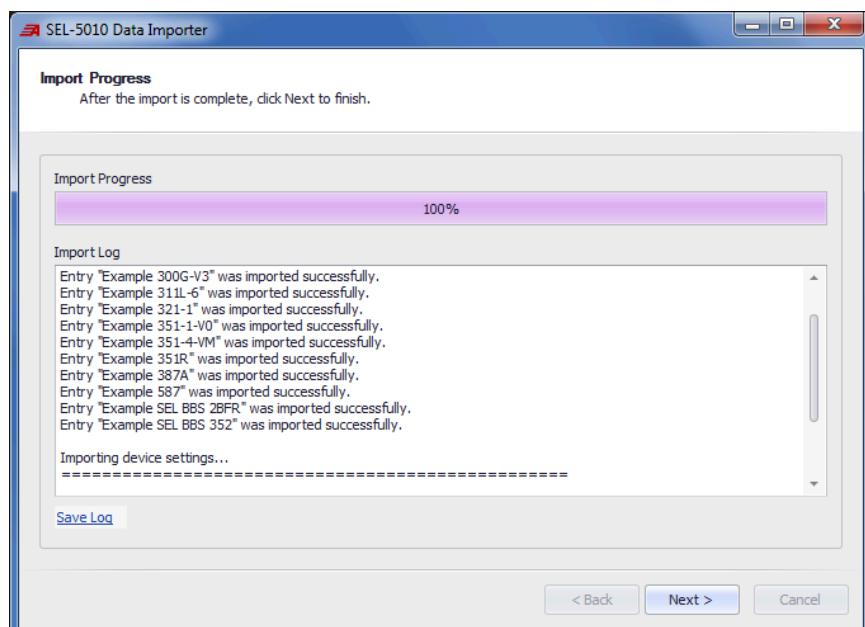


Figure 9.8 Follow Progress of Import

Step 12. Click **Next**.

Step 13. Click **Finish** to end the process and close the data import tool.

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Overview

- Step 14. Open QuickSet and click **Device Manager** on the Welcome Screen.
Step 15. Verify that the connection directory entries have been successfully imported into the Device Manager **Connection Explorer**.
Figure 9.9 shows that the Example 321-1 connection has been successfully imported into Device Manager.

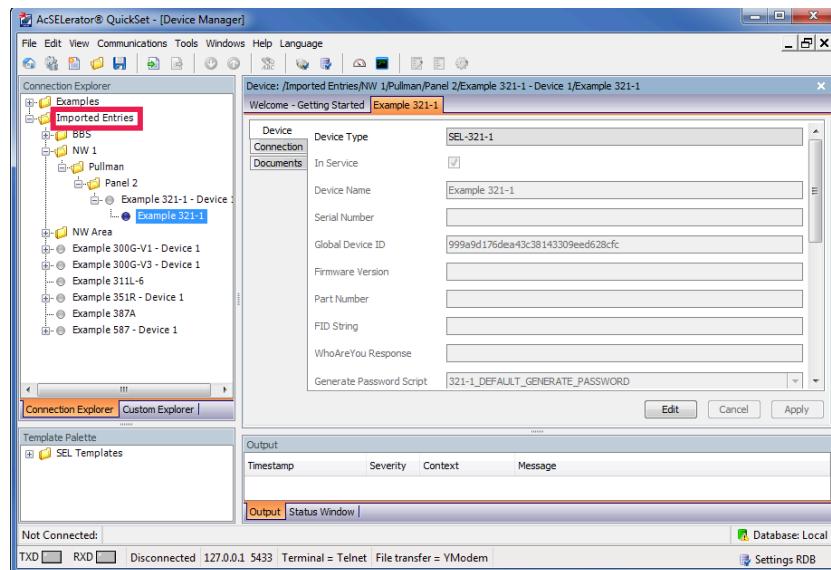


Figure 9.9 Verify Import of the SEL-5010 Connection

A P P E N D I X A

Software and Manual Versions

Software

To find the software version of ACSELERATOR QuickSet® SEL-5030 Software, click **Help > About** to display the version number in a window such as *Figure A.1*. For this example, the software version of QuickSet is 6.10.7.0.

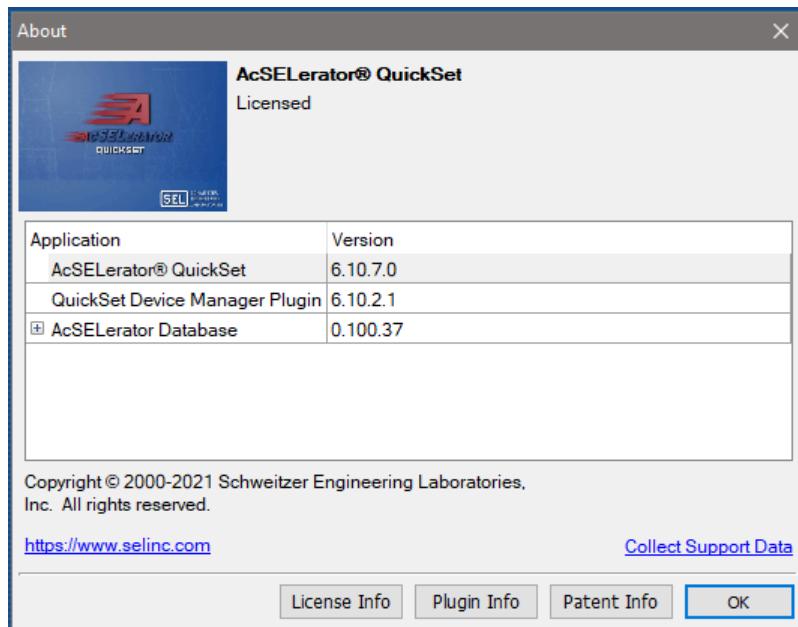


Figure A.1 About QuickSet Window

Table A.1 lists the software versions, a description of modifications, and the date code corresponding to the software version. The table lists the most recent software version first.

Starting with revisions published after March 1, 2022, changes that address security vulnerabilities are marked with "[Cybersecurity]". Other improvements to cybersecurity functionality that should be evaluated for potential cybersecurity importance are marked with "[Cybersecurity Enhancement]".

Table A.1 is frequently updated. For the most recent software release notes, go to <https://selinc.com/products/software/latest-software-versions/>, find the SEL-5030 ACSELERATOR QuickSet Software entry, and select the **Driver Release Information** link.

NOTE

This instruction manual does not cover software revisions previous to 5.0.0.6.

Table A.1 Software Version History

Software Version Number	Summary of Revisions	Manual Date Code
7.5.0.0	<p>ACSELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ➤ Updated to include a ResourceId and a SessionId when establishing communications with devices managed in Blueframe Resource Communication Services. ➤ Adjusted the data that are shown in the Convert Settings report to only show settings that have changed or are missing after the conversion. <p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ➤ Addressed an issue where the Meter Reports software could not connect to ACSELERATOR Database versions 4.0.0.0 or 4.0.1.2. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ➤ Updated to include a ResourceId and a SessionId when establishing communications with devices managed in Blueframe Resource Communication Services. <p>ACSELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ➤ No changes. The new version is compatible with ACSELERATOR Database version 4.0.2.x. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ➤ Updated to include a ResourceId and a SessionId when establishing communications with devices managed in Blueframe Resource Communication Services. <p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Addressed an issue in the SEL-735 Z104 where the DNP Binary map group was not a selectable group to send to the device when the Communications Protocol part number was set to Continuous Waveform Streaming. <p>SEL-2440 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Addressed an issue in the SEL-2440 Z005–Z009 where the DNP Binary Input map settings were incorrectly converting 0 to NA. <p>All Other QuickSet-Related Packages</p> <ul style="list-style-type: none"> ➤ No changes. The new version is compatible with QuickSet version 7.5.0.x. 	20250305
7.4.10.0	<p>ACSELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ➤ Updated the digital format of Design Templates. ➤ Addressed an issue where Blueframe was not a selectable communications option if the computer did not have any serial ports installed. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ➤ Addressed an issue where versions of ACSELERATOR Database Device Manager Support prior to version 7.4.4.0 would not directly update to version 7.4.6.0 or later. <p>QuickSet GLE Plugin</p> <ul style="list-style-type: none"> ➤ Updated the SEL-487E-3, -4 GLE to increase the number of Automation SELOGIC sequencing timers to 48. ➤ Updated the SEL-487E-3, -4 GLE to increase the number of Automation SELOGIC latches to 80. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ➤ Added SEL-401 screen 203. ➤ Added SEL-411L screen 203. <p>SEL-400G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for SEL-400G-0, -1 Z007: <ul style="list-style-type: none"> ➤ Added the High-Availability Seamless Redundancy (HSR) protocol feature to the five-port Ethernet card. ➤ Added Port 5 setting BUSMODE to allow merged mode when using the five-port Ethernet card. 	20250205

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-487E-3, -4 Z116: <ul style="list-style-type: none"> ➢ Added second-harmonic blocking logic for all current terminals. This feature is included as a relay ordering option. ➢ Added Group setting ALTVm (where $m = S, T, U, W, X, Y$) to allow dynamic voltage source selection for each current terminal. ➢ Added Group setting EATAP2 to allow manual or automatic calculation of TAPm2 in A secondary (where $m = S, T, U, W, X, Y$). ➢ Modified the Group settings to allow different CT ratios for combined terminal applications. ➢ Increased the number of available Protection SELOGIC variables to 96. ➢ Increased the number of available Automation SELOGIC sequencing timers to 48. ➢ Increased the number of available display points to 256. ➢ Increased the number of available Automation SELOGIC latches to 80. <p>SEL-487E QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support SEL-487E-3, -4 Z116 driver (Spanish, French). <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue in the SEL-700BT Z001–Z003 where the default values for the Directional Impedance Level settings (Z2FY, Z2RY, Z0RY, and Z0FY) did not account for the IYNOM value. ► Addressed an issue in the SEL-700BT Z001–Z003 where the step size of the Z0MAGY setting was incorrect. ► Addressed an issue in the SEL-700BT Z003 where the FNOM setting value was not included in the LEA current sensors clipping limit calculation when CS_TYPE = RCOIL. ► Addressed an issue in the SEL-700BT Z003 that prevented the Directional Impedance Level settings (Z2FY, Z2RY, Z0RY, and Z0FY) from being enabled when the EDIRY setting equals "Y". <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue in the SEL-700G Z009 where the FNOM setting value was not included in the LEA current sensors clipping limit calculation when CS_TYPE = RCOIL. <p>SEL-710 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue in the SEL-710-5 Z006 where the FNOM setting value was not included in the LEA current sensors clipping limit calculation when CS_TYPE = RCOIL. <p>SEL-787 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue in the SEL-787-4 Z006 where the FNOM setting value was not included in the LEA current sensors clipping limit calculation when CS_TYPE = RCOIL. <p>SEL-787L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue in the SEL-787L Z001–Z002 where the list of available Analog Quantities in the Modbus Map was incorrect. <p>SEL-849 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where using the HMI Maximum and Minimum Metering Values reset would issue the incorrect command. ► Addressed an issue where the text on the HMI Device Overview screen would overlap. <p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-2411 Z102: <ul style="list-style-type: none"> ➢ Added support for display points screens on the touchscreen display. ➢ Increased the number of circuit breakers supported on a bay screen to 8. 	
7.4.9.2	<p>ACSELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ► Added support to select .evzip files from the View Event Files with SYNCHROWAVE Event menu option in QuickSet. 	20250108

Software Version Number	Summary of Revisions	Manual Date Code
	<p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ➤ Addressed an issue where the installation of ACSELERATOR Database would fail if the machine it was being installed on did not have version x86 of Microsoft Visual C++ 2015–2022 Redistributable installed. ➤ The pgAdmin management tool is no longer installed with ACSELERATOR Database. <p>ACSELERATOR Database Device Manager Support, AcSELERator Database Legacy Driver Support</p> <ul style="list-style-type: none"> ➤ No changes. The new version is compatible with ACSELERATOR Database version 4.0.1.x. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ➤ Added SEL-401 screen 202. ➤ Added SEL-411L screen 202. ➤ Added SEL-451-4 screen 924. ➤ Added SEL-451-5 screen 1041. ➤ Added SEL-487E screens HV173, TRI53, and LV133. <p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Updated support for SEL-411L-0, -1, -A, -B Z016–Z020: <ul style="list-style-type: none"> ➤ Updated Part Number options for I/O Board Positions D and E for the 6U or 7U Chassis so that option X (N/A) is only allowed when the Chassis is set to 4U or 5U. <p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Addressed an issue where some settings would reset to their default values when SEL-735 Z009 was updated to later versions. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for SEL-751 Z102: <ul style="list-style-type: none"> ➤ Forced the INOM setting to be hidden and set to a value of 1 A. ➤ Widened the application range of LEA current sensors by allowing the user to set and save LEA settings even if the sensor output voltage, at 30 times FDR_CURR, exceeds the relay analog-to-digital converter's clipping limit. ➤ Adjusted the minimum range of pickup setting 50BFG to 5 percent of INOM. ➤ Extended the IEC 61850 simulation mode setting SC850SM for Fixed GOOSE protocol. Added Fixed GOOSE quality bits FG1RQ–FG4RQ. ➤ Updated Relay Word bit, STORMDET, to be accessible (unhidden). <p>SEL-787L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for SEL-787L Z002: <ul style="list-style-type: none"> ➤ Forced the INOM setting to be hidden and set to a value of 1 A. ➤ Widened the application range of LEA current sensors by allowing the user to set and save LEA settings even if the sensor output voltage, at 30 times FDR_CURR, exceeds the relay analog-to-digital converter's clipping limit. ➤ Adjusted the minimum range of pickup setting 50BFG to 5 percent of INOM. ➤ Extended the IEC 61850 simulation mode setting SC850SM for Fixed GOOSE protocol. Added Fixed GOOSE quality bits FG1RQ–FG4RQ. ➤ Updated Relay Word bit, STORMDET, to be accessible (unhidden). <p>SEL-849 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for SEL-849 Z007: <ul style="list-style-type: none"> ➤ Modified the part number check to allow a low voltage power supply with 110–125 ac/dc inputs. ➤ Added support to allow soft keys of SEL-3421 to be configured as pushbuttons via the settings PB01_LBL–PB08_LBL. 	
7.4.8.0	<p>ACSELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ➤ Addressed an issue with not being able to edit HMI configurations if the configuration description field was empty. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ➤ Added support for SEL-3350 and SEL-3360. 	20241204

Software Version Number	Summary of Revisions	Manual Date Code
	<p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ► Addressed an issue that could trigger an error message when users attempted to open multiple Device Nodes in quick succession. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ► Added SEL-451-5 screen 1040. <p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated support for SEL-411L-0, -1, -A, -B Z021: <ul style="list-style-type: none"> ➢ Updated Part Number options for I/O Board Position D and E for 6U or 7U Chassis so that option X (N/A) is only allowed when Chassis is set to 4U or 5U. <p>SEL-551 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where the range for 50NxP ($x = 1-2$) settings were incorrect if the part number of the device had a secondary input current value of 6 = 5 Amp Phase, 1 Amp Neutral. The range displayed as if it were for 5 Amp Neutral, which caused the device to reject values outside the 1 Amp Neutral range. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue in the SEL-700G Z008–Z009 versions where Global settings 89OR3PE1 and 89OR3PE2 had incorrect default values. 	
7.4.7.0	<p>ACSELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ► Addressed an issue with QuickSet not being able to automatically reconnect to a device after sending Port Settings to the device over an FTP connection. ► Corrected an issue where copying or moving settings between RDB files in the Database Manager could fail. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ► Added SEL-411L screens 200–201. ► Added SEL-451-5 screen 1039. ► Updated SEL-487E screen LV126. ► Added SEL-487E screens HV169–172, TRI49–52, and LV129–132. ► Added SEL-487V screen 528. <p>SEL-351 QuickSet Settings Driver, SEL-351A QuickSet Settings Driver, SEL-351S QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Corrected an issue with the a0 setting value being loaded incorrectly when opening saved settings if the KGN setting value was not set to OFF. <p>SEL-400G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue with the SEL-400G Z001–Z006 Device Part Number form label text being cut off. <p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated support for SEL-451-5 Z032: <ul style="list-style-type: none"> ➢ Added OFF to the range of the HIFLLRT setting. <p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue with the SEL-487E-3, -4 Z108–Z115 Device Part Number form label text being cut off. <p>SEL-T401L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-T401L Z004: <ul style="list-style-type: none"> ➢ Added the HSZ setting to allow the use of voltage traveling waves for double-ended, traveling-wave-based fault locating and line monitoring. ➢ Added Relay Word bits 59An, 59Bn, and 59Cn ($n = 1-2$) to indicate an instantaneous overvoltage condition on a per-phase basis. ➢ Added the ability to remotely upgrade relay firmware over an Ethernet network. <p>SEL-787 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue that prevented the SEL-787-4 Z006 Maximum-to-minimum TAP ratio error message from showing when the Maximum-to-minimum Tap ratio was ≤ 32.00. 	20241106

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-2414 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Addressed an issue with SEL-2414 Z100 having Display Point Settings disabled when the device has a Large Display Module touchscreen. <p>SEL-2431 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Addressed an issue with SEL-2431 Z011–Z013 where an error was displayed if IPADDR equaled the DNPIPn ($n = 1–5$) setting value and the Port E (Ethernet port) DNP Session was disabled. 	
7.4.6.0	<p>ACSELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ➤ Renewed the digital signature certificate. <p>ACSELERATOR Database, ACSELERATOR Database ODBC Driver</p> <ul style="list-style-type: none"> ➤ [Cybersecurity Enhancement] Updated PostgreSQL to version 16.4. <p>ACSELERATOR Database Device Manager Support, ACSELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ➤ No changes. The new version is compatible with ACSELERATOR Database version 4.0.0.x. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ➤ [Cybersecurity Enhancement] Updated to use Python version 3.12.6. <p>QuickSet TEAM Plugin</p> <ul style="list-style-type: none"> ➤ Updated to work with PostgreSQL version 16.4. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ➤ Added SEL-451-5 screen 1038. <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Corrected the cropping seen with some Analog values displayed in the HMI Metering Overview. ➤ Added support for new device driver SEL-700BT Z003: <ul style="list-style-type: none"> ➤ Added part number support pertaining to the new LEA card on Slots E and Z. ➤ Added new Group settings pertaining to the new LEA card. ➤ Added new Global settings pertaining to the new LEA card. ➤ Added new Relay Word bits and updated usage rules. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Corrected the cropping seen with some Analog values displayed in the HMI Metering Overview. ➤ Added support for new device driver SEL-700G Z009: <ul style="list-style-type: none"> ➤ Added part number support pertaining to the new LEA card on Slots E and Z. ➤ Added new Group settings pertaining to the new LEA card. ➤ Added new Global settings pertaining to the new LEA card. ➤ Added new Relay Word bits and updated usage rules. <p>SEL-710 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Corrected the cropping seen with some Analog values displayed in the HMI Metering Overview. ➤ Added support for new device driver SEL-710-5 Z006: <ul style="list-style-type: none"> ➤ Added part number support pertaining to the new LEA card on Slot Z. ➤ Added new Group settings pertaining to the new LEA card. ➤ Added new Global settings pertaining to the new LEA card. ➤ Added new Relay Word bits and updated usage rules. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Corrected the cropping seen with some Analog values displayed in the HMI Metering Overview. ➤ Removed Math Variable Analog Quantities (MV01–MV32) from the Modbus Map. 	20241002

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-787 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Corrected the cropping seen with some Analog values displayed in the HMI Metering Overview. ▶ Added DNET Protocol to Port 4 PROTO setting when Slot C is configured as OX (empty slot). ▶ Added support for new device driver SEL-787-4 Z006: <ul style="list-style-type: none"> ➢ Added part number support pertaining to the new LEA card on Slots E and Z. ➢ Added new Group settings pertaining to the new LEA card. ➢ Added new Global settings pertaining to the new LEA card. ➢ Added new Relay Word bits and updated usage rules. <p>SEL-787L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Corrected the cropping seen with some Analog values displayed in the HMI Metering Overview. ▶ Added 89OC Relay Word bits and 89OC pairing capabilities to the DNP Binary Output Map. <p>SEL-787Z QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Corrected the cropping seen with some Analog values displayed in the HMI Metering Overview. ▶ Added 89OC Relay Word bits and 89OC pairing capabilities to the DNP Binary Output Map. <p>SEL-2414 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where Slot 6 Output SELOGIC settings will be hidden when a 4 DI/3 DO card is selected for Slot Z. 	
7.4.5.0	<p>ACCELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated to remove dependency on unsupported Microsoft C++ runtime redistributables. <p>ACCELERATOR Database</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated to remove dependency on unsupported Microsoft C++ runtime redistributables. <p>ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ Addressed an issue that prevented the SEL-411L-A, SEL-411L-B, and SEL-451-A DEFAULT_GENERATE_PASSWORD scripts from running. <p>ACCELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ▶ No changes. The new version is compatible with ACCELERATOR Database version 3.1.10.x. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-411L screens 198–199. ▶ Added SEL-451-5 screens 1036–1037. ▶ Added SEL-487E screens HV168, TRI47–48, and LV128. ▶ Added SEL-487V screens 526–527. 	20240904
7.4.4.0	<p>ACCELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ Addressed an issue where the Firmware Loader screen and message dialogs did not show the Device Model of the selected firmware. ▶ Addressed an issue where devices that use the SEL-2701 and SEL-2702 Ethernet Processor cards could not read settings or events over FTP. ▶ Addressed an issue where SEL-2730M and SEL-2488 settings that were imported from a .dmx file could not be opened. <p>ACCELERATOR Database, ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ Addressed an issue where SEL-2730M and SEL-2488 settings that were imported from a .dmx file could not be opened. <p>ACCELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ▶ No changes. The new version is compatible with ACCELERATOR Database version 3.1.9.x. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ▶ Improved the message shown to users when .dmx files fail to export. 	20240807

Software Version Number	Summary of Revisions	Manual Date Code
	<p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-451-5 screen 1035. ▶ Added SEL-487E screens HV167, TRI46, and LV127. <p>SEL-2488 QuickSet Plugin</p> <ul style="list-style-type: none"> ▶ Addressed an issue where SEL-2488 settings that were imported from a .dmx file could not be opened. <p>SEL-2730M QuickSet Plugin</p> <ul style="list-style-type: none"> ▶ Addressed an issue where SEL-2730M settings that were imported from a .dmx file could not be opened. <p>SEL-2488 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where SEL-2488 settings that were imported from a .dmx file could not be opened. <p>SEL-2730M QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where SEL-2730M settings that were imported from a .dmx file could not be opened. <p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-735 Z104: <ul style="list-style-type: none"> ▶ Added new settings to support Continuous Waveform Streaming. 	
7.4.3.1	<p>ACSELERATOR QuickSet SEL-5030</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ Addressed an issue with device settings not being read correctly through FTP if the device setting value contains a double quote. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ Addressed an issue that prevented devices that used FTP from reading the settings correctly if the setting's value contained a double quote. ▶ Added Event History and Firmware Loader support for SEL-451-A Z032. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ Addressed an issue that prevented devices that used FTP from reading the settings correctly if the setting's value contained a double quote. <p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ Added support for SEL-451-A Z032. <p>ACSELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ▶ No changes. The new version is compatible with ACSELERATOR Database version 3.1.8.x. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. <p>QuickSet GLE Plugin</p> <ul style="list-style-type: none"> ▶ Added support for Automation Conditioning Timer function blocks to the SEL-451-5 SVN 028-032 GLE. <p>QuickSet TEAM Plugin</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-451-5 screen 1034. 	20240703

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for new device driver SEL-451-A Z032. ▶ Added support for SEL-451-5, -A Z032: <ul style="list-style-type: none"> ➢ Added Relay Word bit CLDSTRT to indicate that a power cycle occurred. ➢ Added Relay Word bits LOL_A, LOL_B, and LOL_C to indicate loss of load for the HIF algorithms. ➢ Added Relay Word bits TUNSTLA, TUNSTLB, and TUNSTLC to indicate when HIF algorithms tuning is stalled. ➢ Added Relay Word bits TUNRSTA, TUNRSTB, and TUNRSTC to indicate when HIF algorithms tuning values are reset. ➢ Added Relay Word bits HIFARMA, HIFARMB, and HIFARMC to indicate when HIF algorithms are armed. ➢ Added the Group setting HIFLLRT to delay the reset of the tuned values of HIF algorithms following a loss of load. ➢ Added the Group setting HIFITND to specify the initial tuning duration of the HIF algorithms, instead of a fixed 24-hr duration. ➢ Added the Group settings HIFHSL and HIFNSL to specify high and normal HIF interharmonic algorithm sensitivity levels, respectively. ➢ Added the Group setting MPHGDUR to define the time window used to detect arcing in multiple phases. ➢ Modified the default value of the setting HIFITUN from 0 to R_TRIG CLDSTRT. ➢ Enhanced the loss-of-potential (LOP) logic by including additional supervision based on incremental change in negative-sequence current magnitude and angle. ➢ Added the SELOGIC control equation LOPEXT to initiate a LOP condition from an external device such as a miniature circuit breaker. ➢ Added the Group setting LOPTC to provide torque control for the LOP logic. ➢ Added FLIA, FLIB, FLIC, FLIG, and FLIQ event summary analog quantities to DNP communications. <p>SEL-451 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated to support the SEL-451-5 Z032 driver (French). ▶ Added support for the SEL-451-A Z032 driver (French). <p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where the SEL-487E 104 HMI Driver did not correctly display the Terminal V line-to-line and Terminal Z line-to-line voltages on the Phasors screen. ▶ Addressed an issue in the SEL-487E Z112–Z114 versions where the TAPS–TAPX settings, if calculated automatically, were being indicated as in error when the corresponding TAPMAX/TAPMIN ratio was less than 35. 	
7.4.2.0	<p>ACSELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ Resolved an issue introduced in version 7.4.1.3 that prevented the user from loading settings for devices with Large Display Module (LDM) support. 	20240613
7.4.1.3	<p>ACSELERATOR QuickSet SEL-5030, QuickSet Common Files, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated the uninstaller to control access to the uninstall directory. ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. <p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated the uninstaller to control access to the uninstall directory. ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated the uninstaller to control access to the uninstall directory. ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ Added support for the SEL-5231 SEL Configuration API folder type operations. 	20240605

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	<p>ACSELERATOR Database ODBC Driver, ACSELERATOR Database Utilities, ACSELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ► [Cybersecurity Enhancement] Updated the uninstaller to control access to the uninstall directory. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ► Addressed a login failure with the RDB import feature while the SEL-5231 SEL Configuration API is installed. <p>QuickSet GLE Plugin</p> <ul style="list-style-type: none"> ► Added support for Automation Conditioning Timer function blocks to the SEL-400G-0, -1 SVN 002–006 GLE. <p>QuickSet TEAM Plugin, SEL Commissioning Assistant, SEL Motor Start Report Plugin</p> <ul style="list-style-type: none"> ► [Cybersecurity Enhancement] Updated the uninstaller to control access to the uninstall directory. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ► Added SEL-411L screens 191–196. ► Added SEL-451-5 screens 1028–1033. ► Added SEL-487E screen HV166. ► Added SEL-487V screen 525. <p>SEL-400G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-400G-0, -1 Z006: <ul style="list-style-type: none"> ➢ Added support for the 6U and 7U chassis ordering options. ➢ Added support for EIA-232 serial communications with the SEL-2664 Field Ground Module. ➢ Increased the resolution of Group settings 46Q1P1, 46Q1P2, 46Q2P1, and 46Q2P2. ➢ Modified Group setting EBUP to allow the enabling of both phase distance (21P) and voltage controlled/restrained overcurrent elements (51C/51V). ➢ Modified the default value of Group settings ULTRnn to include the RSTTRGT Relay Word bit (where $nn = 01\text{--}08$). ➢ Modified the front-panel rotating display settings to allow the use of insulation and stator ground meter screens. ➢ Added support for converting settings from Z001–Z005 to Z006 and later. <p>SEL-401 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where voltage values were not displayed correctly on the HMI Device Overview and Phasor screens. <p>SEL-421 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where voltage values were not displayed correctly on the HMI Device Overview and Phasor screens. <p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where voltage values were not displayed correctly on the HMI Device Overview and Phasor screens. <p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where voltage values were not displayed correctly on the HMI Device Overview and Phasor screens. <p>SEL-T400L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where voltage values were not displayed correctly on the HMI Device Overview and Phasor screens. <p>SEL-T401L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where voltage values were not displayed correctly on the HMI Device Overview and Phasor screens. 	

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	<p>SEL-651R-2 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for the SEL-651R-2 Z102: <ul style="list-style-type: none"> ➢ Added Voltage Controlled/Restrained Time-Overcurrent Element Settings. ➢ Added Inverse Time Under-Voltage Element Settings. ➢ Added Inverse Time Over-Voltage Element Settings. ➢ Added LOLTHR, LOLTMR, HIFHISEN, HIFNORM, TUNDUR, and MPHHDUR to High-Impedance Fault Detection Settings. ➢ Updated High-Impedance Fault Detection setting names and prompts. ➢ Added new Relay Word bits for AST, 51C/V, and 27I/59I. ➢ Added new Analog Quantities for AST, 51C/V, and 27I/59I. <p>SEL-651RA QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated support for SEL-651RA Z001 to Z006: <ul style="list-style-type: none"> ➢ Updated the Extra Inputs/Outputs part number option in QuickSet to match the ordering page. 	
7.4.0.1	<p>QuickSet, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ Added support for QuickSet and Device Manager to communicate with devices managed in Blueframe Resource Communication Services version 1.16.4-24095.ce95981 or later. ▶ Addressed an issue where, on some computers, the local connection to the ACSELERATOR database was not working. <p>Device Manager Plugin, ACSELERATOR QuickSet SEL-5030 Language Files</p> <ul style="list-style-type: none"> ▶ Added support for QuickSet and Device Manager to communicate with devices managed in Blueframe Resource Communication Services version 1.16.4-24095.ce95981 or later. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Added support for QuickSet and Device Manager to communicate with devices managed in Blueframe Resource Communication Services version 1.16.4-24095.ce95981 or later. ▶ Addressed an issue where, on some computers, the local connection to the ACSELERATOR database was not working. ▶ Added Event History and Firmware Loader support for SEL-411L-B Z021. <p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ▶ Addressed an issue where, on some computers, the local connection to the ACSELERATOR database was not working. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ Added support for QuickSet and Device Manager to communicate with devices managed in Blueframe Resource Communication Services version 1.16.4-24095.ce95981 or later. ▶ Addressed an issue where, on some computers, the local connection to the ACSELERATOR database was not working. ▶ Added support for SEL-411L-B Z021. <p>ACSELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ▶ No changes. The new version is compatible with ACSELERATOR Database version 3.1.6.x. <p>QuickSet Bay Control Editor Plugin</p> <ul style="list-style-type: none"> ▶ Increased the upper range limit of the MIMIC bay control setting from 999 to 9999 for the SEL-451-6. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-411L screens 189–190. ▶ Added SEL-451-5 screens 1023–1027. ▶ Added SEL-487E screens HV165 and LV126. 	20240501

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for new device driver SEL-411L-B Z021. ▶ Added support for SEL-411L-0, -1, -A, -B Z021: <ul style="list-style-type: none"> ➢ Enhanced the loss-of-potential (LOP) logic by adding the LOPEXT SELOGIC control equation to initiate an LOP condition from an external device, such as a mini circuit breaker. ➢ Enhanced the loss-of-potential (LOP) logic by adding the LOPTC Group setting to supervise the LOP logic. ➢ Added the EHS (enable high-speed elements) setting to Group settings. ➢ Added the 87DDSUP (Disturbance Detector Supervision) SELOGIC control equation to Group settings. <p>SEL-411L QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated to support the SEL-411L-0, -1, -A Z021 driver (Spanish, French). ▶ Added support for the SEL-411L-B Z021 driver (Spanish, French). <p>SEL-421 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-421-4, -5 Z033: <ul style="list-style-type: none"> ➢ Enhanced the loss-of-potential (LOP) logic by adding the LOPEXT SELOGIC control equation to initiate an LOP condition from an external device, such as a mini circuit breaker. ➢ Enhanced the loss-of-potential (LOP) logic by adding the LOPTC Group setting to supervise the LOP logic. ➢ Added the EHS (enable high-speed elements) setting to Group settings. <p>SEL-421 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated to support the SEL-421-4 SVN 033 and SEL-421-5 SVN 033 drivers (French). <p>SEL-2730M QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-2730M Z010. <p>All Other QuickSet-Related Packages</p> <ul style="list-style-type: none"> ▶ No changes. The new version is compatible with QuickSet version 7.4.0.x. 	
7.3.1.0	<p>QuickSet, QuickSet Prerequisites, QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Addressed an issue where QuickSet will classify hidden and QuickSet-only settings in the Compare Report as having differences in all cases, regardless of how two settings files are being compared. Previous versions, depending on what was selected as the settings to compare against, may not show settings that have differences without selecting the Hidden and QuickSet-only settings options. ▶ Addressed an issue where spaces were removed from between operators and variables in Designer Template equations. ▶ Addressed an issue where spaces were added after variables that were not followed by an operator or a space in Designer Template equations. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-400G screen 9. ▶ Added SEL-411L screens 179–188. ▶ Added SEL-451-5 screens 1020–1022. ▶ Added SEL-487E screens HV163–164, TRI44–I45, and LV120–125. ▶ Added SEL-487V screen 524. <p>SEL-501 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where, when the setting value is "IN" for 50NTC, 51PTC, or 51QTC, the "IN" value is not read and the settings editor shows as a blank value. <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where settings could not be saved in Device Manager. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where settings for SEL-700G Z002 and later could not be saved in Device Manager. 	20240329

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-734 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated support for the SEL-734B and SEL-734W Human Machine Interface: <ul style="list-style-type: none"> ➢ Added Ambient Temperature to the Meter section of the Capacitor Bank Controller Overview. ➢ Updated the Front Panel view to allow for custom LED labels based on new device templates. ➢ Updated the Controller Status view to allow for Time and Temp Control status based on new device templates. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the NETASPD setting to be available when a part number does not support the Dual Ethernet option. <p>SEL-787L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the NETASPD setting to be available when a part number does not support the Dual Ethernet option. 	
7.3.0.4	<p>QuickSet, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Added remote server identity information to ACCELERATOR Database Connection Keys to enhance X.509 server certificate processing, which only allows connection to the identified database. ▶ Added support for SEL-751 Z101. ▶ Added support for SEL-787L Z001. ▶ Added support for SEL-TWFL Z001. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Added remote server identity information to ACCELERATOR Database Connection Keys to enhance X.509 server certificate processing, which only allows connection to the identified database. ▶ Added support for SEL-751 Z101. ▶ Added support for SEL-787L Z001. ▶ Added Event Collection, Firmware Loader, and HMI support for SEL-TWFL Z001. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Added protection against an authenticated attacker maliciously modifying files that would allow arbitrary code execution. ▶ [Cybersecurity Enhancement] Added remote server identity information to ACCELERATOR Database Connection Keys to enhance X.509 server certificate processing, which only allows connection to the identified database. ▶ Added support for SEL-TWFL Z001. <p>ACCELERATOR Database, ACCELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Added remote server identity information to ACCELERATOR Database Connection Keys to enhance X.509 server certificate processing, which only allows connection to the identified database. <p>ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Added remote server identity information to ACCELERATOR Database Connection Keys to enhance X.509 server certificate processing, which only allows connection to the identified database. ▶ Added support for SEL-787L Z001. ▶ Added support for SEL-TWFL Z001. <p>QuickSet Meter HMI Plugin</p> <ul style="list-style-type: none"> ▶ Added the CALCQ General setting with the FUND and VECTOR VAR calculation method options. ▶ Added the vector VAR analog quantities under the “Vector Method” selection form. ▶ Addressed an issue where QuickSet could not display, import, or export HRMM1_xx_yy quantities in the Load Profile HMI. ▶ Addressed an issue where QuickSet could not read settings from an SEL-735 with a chassis part number of F. ▶ Modified the default LDP export format from Binary to CSV in the LDP Data Viewer HMI. 	20240306

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated support for SEL-700BT Z100: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ▶ Updated support for SEL-700BT Z002: <ul style="list-style-type: none"> ➢ Addressed the Port 2 Send issues when the E49RTD setting value is set to EXT. ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated support for SEL-700G Z006: <ul style="list-style-type: none"> ➢ Addressed the Port 2 Send issues when the E49RTD setting value is set to EXT. ▶ Updated support for SEL-700G Z007: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ▶ Updated support for SEL-700G Z008: <ul style="list-style-type: none"> ➢ Addressed the Port 2 Send issues when the E49RTD setting value is set to EXT. ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. <p>SEL-710-5 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated support for SEL-710-5 Z004: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ▶ Updated support for SEL-710-5 Z005: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. <p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added the CALCQ General setting with the FUND and VECTOR VAR calculation method options. ▶ Added the vector VAR analog quantities under the “Vector Method” selection form. ▶ Addressed an issue where QuickSet could not display, import, or export HRMM1_xx_yy quantities in the Load Profile HMI. ▶ Addressed an issue where QuickSet could not read settings from an SEL-735 with a chassis part number of F. ▶ Modified the default LDP export format from Binary to CSV in the LDP Data Viewer HMI. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated support for SEL-751 Z007: <ul style="list-style-type: none"> ➢ Addressed the incorrectly calculated range for 51N[y]P settings. ▶ Updated support for SEL-751 Z008: <ul style="list-style-type: none"> ➢ Addressed the incorrectly calculated range for 51N[y]P settings. ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ▶ Updated support for SEL-751 Z009: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ▶ Updated support for SEL-751 Z010: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ▶ Updated support for SEL-751 Z100: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ▶ Added support for SEL-751 Z101: <ul style="list-style-type: none"> ➢ Added the AUTO2 option for the EDIR setting. ➢ Added residual current to the Breaker Failure Supervision logic. ➢ Added Voltage Supervision Check settings to the Frequency Elements. ➢ Added Manual Closing Voltage check conditions. ➢ Added the ability to use the Vbat Channel as a 3V0 input. ➢ Added 97FM settings and Relay Word bits. ➢ Added SELOGIC settings for breaker CILO logical nodes. ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ➢ Addressed EMV for Logic 2, 3, and 4 to follow the respective logic group's EMV input setting. ➢ Addressed Alias settings to be forced to NA when disabled. ➢ Addressed Report Alias settings so they do not allow "/" as part of the setting value. <p>SEL-787-4 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated support for SEL-787-4 Z004: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. ▶ Updated support for SEL-787-4 Z005: <ul style="list-style-type: none"> ➢ Addressed DNP Binary Outputs missing the 89OC and 89CC bits. 	

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-787L QuickSet Settings Driver ► Added support for SEL-787L Z001.</p> <p>SEL-787Z QuickSet Settings Driver ► Updated support for SEL-787Z Z001: ➤ Addressed Alias settings to be forced to NA when disabled.</p> <p>SEL-2414 QuickSet Settings Driver ► Added support for SEL-2414 Z100: ➤ Added the PTP and RSTP settings to Port 1. ➤ Added Large Display Module touchscreen support. ➤ Added a dynamic Human Machine Interface graphic to allow for LDM (8 pushbuttons) and non-LDM (4 pushbuttons). ➤ Added EPAC to Port settings. ➤ Added the IEC 61850 Simulation Configuration settings. ➤ Added the Port Access Control settings. ➤ Added SC850LS and MLTLEV Relay Word bits. ➤ Updated Part Number to separate fiber-optic serial from Ethernet options. ➤ Updated the PROTO range rule to exclude DNP when the Comms Protocol equals 0 or 1. ➤ Updated the VCHAL Relay Word bit position.</p> <p>SEL-TWFL QuickSet Settings Driver ► Added support for SEL-TWFL Z001.</p> <p>All Other QuickSet-Related Packages ► No changes. New version is compatible with QuickSet version 7.3.0.4.</p>	
7.2.2.4	<p>QuickSet, QuickSet Prerequisites ► Modified the Firmware Loader to support .zds digitally signed firmware upgrade files that contain multiple firmware images. See the firmware upgrade instructions in the product instruction manual for SELBOOT and firmware compatibility with .zds files.</p> <p>ACSELERATOR Database, ACSELERATOR Database Device Manager Support, ACSELERATOR Database Legacy Driver Support ► [Cybersecurity] Addressed a security vulnerability that could allow an authenticated attacker to execute arbitrary code when the computer starts.</p> <p>ACSELERATOR Database Utilities ► Added support for SEL-2488 Z010.</p> <p>SEL-400G QuickSet Settings Driver ► Added support for SEL-400G-0, -1 Z005: ➤ Modified the software to allow Overcurrent Element Levels 1–3 to be set independently instead of sequentially. ➤ Modified the default value of the settings ESERDEL, SRDLCNT, and SRDLTIM to Y, 10, and 0.5, respectively. ➤ Modified the default value of the setting ERDIG from S to A. ➤ Increased the upper range value of the thermal trip limit for the IEC 60255-149 thermal elements from 100% to 150%. ➤ Modified the default value of the setting CLn to include the CCn Relay Word bit (where $n = S, T, U, Y$). ➤ Added three SELOGIC settings, FTSSV[3] (where [3] is 1, 2, 3), to correctly calculate system frequency for dual breaker synchronizing systems. ➤ Modified the minimum range for the compensated and uncompensated sync-check angle settings, 25ANGn and 25ANGCn (where $n = S, T, U, Y$), from 3.0 deg to 0.1 deg. ➤ Addressed an issue in the SEL-400G Z001–Z004 versions where the 87STAP–87YTAP settings, if calculated automatically, were being indicated as in error when the corresponding TAPMAX/TAPMIN ratio was less than 35.</p>	20231222

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	<p>SEL-651R-2 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-651R-2 Z101: <ul style="list-style-type: none"> ➢ Added Frequency Window Element Settings node to tree and associated settings. ➢ Added Frequency Window Element Relay Word bits. ➢ Added Analog Quantities FREQY and FREQZ for Load Profile and Display Points. ➢ Increased the upper limit of the Time-Overcurrent Elements' time dial setting for recloser curves from 2.00 to 30.00. <p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated support for SEL-2411 Z100: <ul style="list-style-type: none"> ➢ Added ECLASSFn to Port 1 DNP settings. ➢ Updated the hide rule for NETPORT to hide when the NETMODE value is set to either PRP or SWITCHED. ➢ Updated the alignment of Metering text in the HMI Device Overview screen. ➢ Updated the DNPNIA_n setting range to reduce the upper limit from 7200 to 120 seconds. ► Added support for SEL-2411 Z101: <ul style="list-style-type: none"> ➢ Added Precision Time Protocol settings to Port 1. ➢ Added Rapid Spanning Tree Protocol settings to Port 1. ➢ Added ECLASSFn to Port 1 DNP settings. ➢ Updated the hide rule for NETPORT to hide when the NETMODE value is set to either PRP or SWITCHED. ➢ Updated the alignment of Metering text in the HMI Device Overview screen. ➢ Updated the DNPNIA_n setting range to reduce the upper limit from 7200 to 120 seconds. <p>SEL-2488 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-2488 Z101: <ul style="list-style-type: none"> ➢ Added Active-Backup settings. 	
7.2.1.12	<p>QuickSet, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ► Improved the performance of large Designer Templates. ► Addressed an issue with not being able to convert older SEL-734 settings to newer settings versions. <p>Device Manager</p> <ul style="list-style-type: none"> ► Addressed an issue in which device workspace setting changes were not present when saving conflicting data. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ► Added SEL-400G screen 8. ► Added SEL-487E screen HV162. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ► Updated Event Collection to support SEL-487E-3, -4 Z115. ► Updated HMI support for SEL-487E-3, -4 Z115. <p>QuickSet Bay Control Editor Plugin</p> <ul style="list-style-type: none"> ► Added support for a sixth circuit breaker (Breaker Y) for SEL-487E-3, -4 Z115 and SEL-487E-5 Z205. <p>QuickSet GLE Plugin</p> <ul style="list-style-type: none"> ► Added support for Automation Conditioning Timer function blocks to the SEL-487E-3, -4, -5 GLE. ► Updated the SEL-487E-3, -4 GLE to increase the number of Automation SELOGIC Latches to 64. 	20231114

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	<p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-411L-0, -1, -A Z020: <ul style="list-style-type: none"> ➢ Modified the default value of the settings ESERDEL, SRDLCNT, and SRDLTIM to Y, 10, and 0.5, respectively. ➢ Modified the default value of the setting ERDIG from S to A. ➢ Increased the upper range value of the thermal trip limit for the IEC 60255-149 thermal elements from 100% to 150%. ➢ Addressed an issue where the Synchrophasor Alias settings were in error when identical values were entered in separate Synchrophasor Data Configurations. <p>SEL-421 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-421-4, -5 Z032: <ul style="list-style-type: none"> ➢ Improved Automation SELOGIC capacity of SEL-421-4 to support 1,000 lines of logic. ➢ Modified the default value of the settings ESERDEL, SRDLCNT, and SRDLTIM to Y, 10, and 0.5, respectively. ➢ Modified the default value of the setting ERDIG from S to A. ➢ Increased the upper range value of the thermal trip limit for the IEC 60255-149 thermal elements from 100% to 150%. <p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-451-5 Z031: <ul style="list-style-type: none"> ➢ Modified the default value of the settings ESERDEL, SRDLCNT, and SRDLTIM to Y, 10, and 0.5, respectively. ➢ Modified the default value of the setting ERDIG from S to A. ➢ Increased the upper range value of the thermal trip limit for the IEC 60255-149 thermal elements from 100% to 150%. <p>SEL-487B QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-487B-1 Z018: <ul style="list-style-type: none"> ➢ Addressed an issue in the SEL-487B-1 Z007–Z018 versions where Check Zones elements CZ1–CZ3 were not available to be used as a value in Alias settings. ➢ Modified the default value of the settings ESERDEL, SRDLCNT, and SRDLTIM to Y, 10, and 0.5, respectively. ➢ Modified the default value of the setting ERDIG from S to A. 	

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-487E-3, -4 Z115: <ul style="list-style-type: none"> ➢ Added the capability to configure Terminal Y as a single- or three-phase current input. This enhancement is available on model options with matching Terminal Y (IY1, IY2, and IY3) nominal current ratings. ➢ Added support for a sixth circuit breaker, Breaker Y. ➢ Added a second differential element. This feature is included as a relay ordering option. ➢ Enhanced the capability of the differential element by supporting as many as six three-phase current terminals. ➢ Added three-pole autoreclose functionality. This feature is included as a relay ordering option. ➢ Added Y to the range of Group setting ELOP. This allows forward-looking directional overcurrent elements to effectively become nondirectional during an LOP condition. ➢ Added the Group SELOGIC setting EXBFSPm (where $m = S, T, U, W, X, Y$) for additional breaker failure supervision. ➢ Increased the number of available inverse-time overcurrent elements to 20. ➢ Added the advanced Group setting 32GVSm (where $m = S, T, U, W, X, Y, 1, 2, 3, 4, L1$) to allow users to configure the voltage supervision threshold used in zero-sequence directional elements. ➢ Updated HMI to include Terminal Y, Breaker Y, and a second differential element zone. ➢ Updated HMI to allow date values to be entered into the fields on the Sequential Events Recorder and Analog Signal Profile forms. ➢ Updated HMI to include a Save button on the Analog Signal Profile form that allows the data to be saved to a file. ➢ Modified the default value of the settings TRm and CLm to include the OCm and CCm Relay Word bits, respectively (where $m = S, T, U, W, X$). ➢ Modified the software to allow overcurrent element Levels 1–3 to be set independently. Previously, these had to be configured sequentially. ➢ Added support for the 9U chassis ordering option, which adds support for a third or fourth I/O board. ➢ Modified the default value of the settings ESERDEL, SRDLCNT, and SRDLTIM to Y, 10, and 0.5, respectively. ➢ Modified the default value of the setting ERDIG from S to A. ➢ Replaced the Group settings PTCOMPV and PTCOMPZ with CTCOMPm (where $m = S, T, U, W, X, Y$) to allow an independent CT connection type on each current terminal. ➢ Modified the default value of the settings O87P and SLP1 to 0.3 and 0.15, respectively. ➢ Increased the number of available local bits to 96. ➢ Increased the number of available Automation SELOGIC conditioning timers to 48. ➢ Increased the number of available Automation SELOGIC latch bits to 64. ➢ Increased the upper range value of the thermal trip limit for the IEC 60255-149 thermal elements from 100% to 150%. ➢ Addressed an issue in the SEL-487E-3, -4 Z100–Z114 versions where the maximum SELOGIC elements allowed in settings OUT101–OUT108 was 30 instead of 15. ➢ Addressed an issue where the software would not hide the 87CORE setting when waveshape blocking was not used. ➢ Modified the software to remove zero-sequence analog quantities from setting ranges for applications that use delta-connected CTs or PTs. <p>SEL-487V QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Removed the SEL-487V Z002 driver from QuickSet because this version is not supported by an available firmware revision. <p>SEL-487E QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support SEL-487E-3, -4 Z115 driver (Spanish, French). 	

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-849 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-849 Z006: <ul style="list-style-type: none"> ➢ Added Second- and Fifth-Harmonic Blocking Logic. ➢ Added subgroups to Harmonic Blocking settings. ➢ Increased the SEL-849 baud rate to allow for 57600. ➢ Updated EIP Maps to accept NA when reading settings from the device. ➢ Updated EIP Maps to error out when both binary and analog lists are empty. ➢ Updated Harmonic Metering voltages to appear when DELTA_Y = DELTA. ➢ Updated the minimum delay setting threshold for overcurrent elements to 0.00 instead of 0.10. ➢ Updated the minimum setpoint of the CTRN setting to 50. ➢ Updated to allow Target rows 0 and 1 to be used in SELOGIC control equations. ➢ Addressed Port 2 send abilities when the firmware does not support it. 	
7.2.0.0	<p>QuickSet, QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] QuickSet now checks the authenticity of the digital signature of the software and will warn if it has been tampered with. ▶ [Cybersecurity Enhancement] QuickSet now provides access to the digitally signed certificate information via the Help > About screen. ▶ [Cybersecurity Enhancement] Updated installer options to allow for disabling QuickSet password storage. This allows customers during installation to turn off the ability for QuickSet to store Level 1, Level 2, or authentication passwords. ▶ [Cybersecurity Enhancement] Enabled additional compiler features to help prevent execution of malicious code. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Added Event Collection and Firmware Loader support for SEL-787Z Z001. <p>ACCELERATOR Database</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Upgraded PostgreSQL role password hashes from MD5 to a more secure algorithm. ▶ [Cybersecurity Enhancement] Enabled additional compiler features to help prevent execution of malicious code. <p>ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Removed LDAP user credentials that may have been saved by Device Manager. ▶ [Cybersecurity Enhancement] Enabled additional compiler features to help prevent execution of malicious code. ▶ Added support for SEL-787Z Z001. ▶ Added support for additional SEL Configuration API resource operations. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Addressed an issue in which LDAP user credentials could be saved. Previously saved credentials will be removed. ▶ [Cybersecurity Enhancement] Added password complexity requirements for application user account passwords. ▶ [Cybersecurity Enhancement] Removed the ability to ignore the warning for default accounts using default passwords. ▶ [Cybersecurity Enhancement] Enabled additional compiler features to prevent execution of malicious code. ▶ Addressed an issue in which some device settings workspaces could not be changed. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-411L screen 174–178. ▶ Added SEL-421 screens 176–179. ▶ Added SEL-451-5 screen 1019. ▶ Added SEL-487E screens HV158–161, TRI42–I43, and LV119. ▶ Added SEL-487V screen 523. <p>SEL Commissioning Assistant</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. 	20230828

Software Version Number	Summary of Revisions	Manual Date Code
	<p>QuickSet GLE Plugin ► [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support.</p> <p>SEL-700G QuickSet Settings Driver ► Addressed SYNCXPX incorrectly being forced to values based on DELTAX_Y.</p> <p>SEL-787Z QuickSet Settings Driver ► Added support for SEL-787Z Z001.</p> <p>SEL-400G QuickSet Settings Driver ► Addressed an issue in the SEL-400G Z001–004 versions where the 87STAP–87YTAP settings, if calculated automatically, were not being correctly indicated as in error when the corresponding TAPMAX/TAPMIN ratio was greater than 35.</p> <p>SEL-487E QuickSet Settings Driver ► Addressed an issue in the SEL-487E Z112–114 versions where the TAPS–TAPX settings, if calculated automatically, were not being correctly indicated as in error when the corresponding TAPMAX/TAPMIN ratio was greater than 35.</p> <p>All Other QuickSet Packages ► [Cybersecurity Enhancement] Enabled additional compiler features to help prevent execution of malicious code.</p>	
7.1.4.0	<p>QuickSet, QuickSet Prerequisites ► [Cybersecurity] Addressed an issue in which a user could name a custom script to appear as the placeholder value "<Empty>", which would appear as if no script was assigned when using it.</p> <p>QuickSet Common Files ► Added Event History support for SEL-2411 Z100.</p> <p>QuickSet Device Manager Plugin ► [Cybersecurity] Addressed an issue in which a user could name a custom script to appear as the placeholder value "<Empty>", which would appear as if no script was assigned when using it. ► [Cybersecurity] Added validation when importing DMX files. ► [Cybersecurity Enhancement] Added a hash of the contents of internal documents to the information about attached documents for devices and folders. ► [Cybersecurity Enhancement] Added a preview of attached documents to be imported from a DMX file. ► [Cybersecurity Enhancement] Added a preview of custom scripts to be imported from a DMX file.</p> <p>ACCELERATOR Database Device Manager Support ► [Cybersecurity] Addressed an issue in which a user could name a custom script to appear as the placeholder value "<Empty>", which would appear as if no script was assigned when using it.</p> <p>QuickSet Bay Control Screens ► Added SEL-451-5 screen 1010. ► Added SEL-487V screen 522. ► Added SEL-411L screen 173. ► Added SEL-421 screens 174–175. ► Added SEL-451-5 screens 1011–1018. ► Added SEL-487E screen HV157.</p> <p>SEL-651R QuickSet Settings Driver ► Corrected an issue when loading saved settings or reading settings from a device. Specifically, if EGNSW is set to "N", settings E50G, E51G1, E51G2, 51G1JP, 51G1KP, E32, and GDEMP are set to default values. The affected versions are SEL-651R Z003–Z007 and SEL-651R-1 Z001–Z006.</p> <p>SEL-2411 QuickSet Settings Driver ► Added support for SEL-2411 Z100: ➤ Includes the same functions as the SEL-2411 Z012 driver. ➤ Revised the firmware for replacement of the microprocessor and field-programmable gate array (FPGA).</p>	20230615

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-2431 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-2431 Z013: <ul style="list-style-type: none"> ➢ Added new Flexible Distributed Generation operation mode (available via group setting OPMODE := FLEXDG). ➢ Added new Group settings BIASEMODE, FLEX_50, TAPDELT, and TAPDELTH (the last three settings are exclusively for new Flexible Distributed Generation operation mode). ➢ Added new Global settings ZREGMAG, ZREGANG, and VADJUST. ➢ Updated the low range of the 50LnP (where n equals 1 to 7), 50FWDP, and 50REVP settings to be 0.002 when 50TYPE is changed to A sec. ➢ Added FASTOP to Port E settings to support Fast Operate over Telnet functionality. ➢ Enhanced Group setting ELDC so that it has a wider setting range when the new Flexible Distributed Generation operation mode is operational. 	
7.1.3.0	<p>QuickSet, QuickSet Prerequisites, QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Addressed an issue where QuickSet may send unintended settings to a device when using Design Templates. This can occur if a setting is changed and the project is saved without navigating away from the setting value. As a result, the new setting value will not be saved. QuickSet now forces all Design Template values into appropriate device settings for all cases. ▶ Modified QuickSet to notify and prevent an unlicensed Design Template user adding/deleting a row in Free-Form Logic editor in logic lines prior to settings controlled by a Design Template. 	20230524
7.1.2.2	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ Corrected an issue with Designer Template settings that had dependencies on other settings being flagged as invalid when they were valid. ▶ Corrected an issue with ACSELERATOR Databases not restoring from backups created with SEL Configuration API SEL-5231. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ Added Event History support for SEL-651R-2 Z100. ▶ Added Event History support for SEL-751 Z100. ▶ Increased the number of Remote Bits from 32 to 64 in the SEL-751 Z100 HMI Control window form. ▶ Added support for COMTRADE event collection for SEL-2411 Z012. <p>ACSELERATOR Database, ACSELERATOR Database Device Manager Support, ACSELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ Updated PostgreSQL to version 14.7 for updated time zone data. <p>QuickSet Prerequisites, QuickSet GLE Plugin, QuickSet TEAM Plugin, QuickSet Bay Control Editor Plugin, and SEL-2488 QuickSet Plugin</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. <p>QuickSet Device Manager Plugin v7.1.2.0</p> <ul style="list-style-type: none"> ▶ Addressed an issue in which settings exported in DMX files would use the default part number of the device type instead of the assigned part number. Settings values themselves are not affected. <p>QuickSet Device Manager Plugin v7.1.1.2</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. ▶ [Cybersecurity Enhancement] Fixed an issue where users without the "Manage Device Permissions" role could export device permissions to a DMX file. 	20230324

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	<p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-400G screen 7. ▶ Added SEL-411L screen 172. ▶ Added SEL-451-5 screens 1006–1007. ▶ Added SEL-451-5 screens 1008–1009. ▶ Added SEL-487E screen HV154. ▶ Added SEL-487E screens HV155–156, TRI40–I41, LV118. ▶ Added SEL-421 screen 173. <p>SEL-400G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-400G-0, -1 Z004: <ul style="list-style-type: none"> ➢ Added support for the five-port Ethernet card. This card provides Parallel Redundancy Protocol (PRP) for both the process bus and the station bus and a dedicated Ethernet port for engineering access. ➢ Modified rules to allow bipolar unblocking logic to be set independently of the negative-sequence percentage-restrained differential element or waveshape-based inrush detection logic. ➢ Addressed an issue in the SEL-400G Z001-003 versions where the software could incorrectly hide the E87UNB1 and E87UNB2 settings. ➢ Addressed an issue in the SEL-400G Z001-004 versions where the software could incorrectly hide the 87CORE1 and 87CORE2 settings. <p>SEL-487V QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where Input and Output Relay Word bits for I/O boards 2 and 3 were not available. <p>SEL-651R QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-651R-2 Z013: <ul style="list-style-type: none"> ➢ Added support for the Ethernet communications option with 10/100BASE-T and 100BASE-FX ports. ➢ Added support for the extra I/O board option with either 48 Vdc or 220 Vdc rated inputs for IN101 and IN102. ➢ Added support for the Siemens SDR Recloser (RECL_CFG := A4, A5) and Undesignated Three-Phase Recloser (RECL_CFG := A6, A7) for the Multi-Recloser Interface. ➢ Addressed an issue in the software where Math Variables were made available for LDP settings. Now the software will flag Math Variables as invalid if used in LDP settings. ▶ Added support for SEL-651R-2 Z100: <ul style="list-style-type: none"> ➢ Includes the same functions as the SEL-651R-2 Z013 driver. ➢ Revised the firmware for replacement of the microprocessor and field-programmable gate array (FPGA). <p>SEL-651RA QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-651RA Z006: <ul style="list-style-type: none"> ➢ Added support for the Ethernet communications option with 10/100BASE-T and 100BASE-FX ports. ➢ Addressed an issue in the software where Math Variables were made available for LDP settings. Now the software will flag Math Variables as invalid if used in LDP settings. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated support for SEL-700G Z006: <ul style="list-style-type: none"> ➢ Addressed an issue where the Modbus User Map form was not properly loading. 	

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	<p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-751 Z100: <ul style="list-style-type: none"> ➢ Added 81R/81 Pick Up Relay Word bits. ➢ Added Fixed GOOSE settings and Relay Word bits. ➢ Added support for E curves to 51 elements. ➢ Added CONAM to Group settings. ➢ Increased the number of Virtual Bits from 128 to 256. ➢ Increased the number of SELOGIC Enables items from 32 to 64. ➢ Increased the number of Alias settings from 32 to 64. ➢ Removed I850MOD analog quantity from IEC 60870-5-103 maps. ➢ Removed MV01–MV64 and FGnRAAn from the Modbus User Map. ► Updated support for SEL-751 Z006: <ul style="list-style-type: none"> ➢ Addressed an issue where the Modbus User Map form was not properly loading. ► Updated support for SEL-751 Z007: <ul style="list-style-type: none"> ➢ Addressed an issue where the Modbus User Map form was not properly loading. <p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-2411 Z012: <ul style="list-style-type: none"> ➢ Added Global settings and Device Word bits for multilevel and station-level supervision for IEC 61850 Local/Remote control. ➢ Added SPD1 and DUP1 Device Word bits for devices with a single Ethernet port. ➢ Added SPD1A, SPD1B, DUP1A, and DUP1B Device Word bits for devices with dual Ethernet ports. <p>SEL-2440 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated support for SEL-2440 Z009: <ul style="list-style-type: none"> ➢ Added Miscellaneous category for SELOGIC and SER settings that was inadvertently removed in the initial release of Z009 support, addressing an issue where settings that used bits contained in this category (e.g., HALARM, SALARM, etc.) errored when converting settings from a prior version to Z009. ➢ Updated the driver to allow the Default Router Gateway (DEFRTR) and Subnet Mask (SUBNETM) to use the same IP address. <p>SEL-2488 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. <p>SEL-2730M QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. <p>SEL-3045 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► [Cybersecurity Enhancement] Updated third-party components to ensure continuity of support. 	
7.1.1.1	<p>QuickSet and QuickSet Prerequisites</p> <ul style="list-style-type: none"> ► Corrected issue with Designer Template settings not being flagged as disabled for part number disabled settings. ► Corrected issue with spaces being removed from Designer Template settings for settings added as constants to Designer Templates. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ► Modified SEL-487V HMI so users can save Analog Signal Profile data. <p>QuickSet Bay Control Editor Plugin</p> <ul style="list-style-type: none"> ► Increased the upper range limit of the bay control setting MIMIC from 999 to 9999 for SEL-451-5 Z030. <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ► Updated SEL-451-5 screen 996. ► Added SEL-451-5 screens 1000–1004. ► Added SEL-487E screens HV151, TRI36-I37, LV116-117. ► Addressed an issue where SEL-451-5 screen 996 was unavailable for Z029 and earlier. ► Added SEL-451-5 screen 1005. ► Added SEL-487E screens HV152-153 and TRI38-I39. ► Added SEL-487V screen 521. 	20221215

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	<p>SEL-451-5 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-451-5 Z030: <ul style="list-style-type: none"> ➢ Increased the upper range limit of the bay control setting MIMIC from 999 to 9999. <p>SEL-487V QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-487V-0, -1 Z006: <ul style="list-style-type: none"> ➢ Added rules to notify users of duplicate values in DNP settings. ➢ Updated to accept only valid alias names in Alias Name settings. ➢ Addressed an issue where Bay Control settings were displaying incorrect error messages when duplicate names were entered. ➢ Added Relay Word bits supporting addition of IEC 61850 CILO Logical Node. ➢ Added Relay Word bits EACC and E2AC to support port access control SELOGIC control equations. ➢ Added settings EACC, E2AC, and EPAC to support port access control through the use of SELOGIC control equations. ➢ Added settings for IEC 61850 Mode/Behavior Configuration. ➢ Added Isolated IP mode (NETMODE = ISOLATEIP), which permits IEC 61850 GOOSE messages on two ports but restricts IP traffic to just one port. ➢ Updated to accept only valid Relay Word bits in SER Points and Aliases. ➢ Increased the number of available virtual bits to 256. ➢ Added SELOGIC variable SC850SM to change the IEC 61850 simulation mode of the relay. ➢ Updated default value for DNP Binary Input Map. ➢ Updated to allow SNTPPIP to be set to 0.0.0.0 when ESNTP = BROADCAST. ➢ Added local time and date analog quantities. ➢ Modified descriptions for Relay Word bits and analog quantities related to time and date. <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added IEC 61850 Local/Remote Control settings and Relay Word bits. <p>SEL-710-5 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added IEC 61850 Local/Remote Control settings and Relay Word bits. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added IEC 61850 Local/Remote Control settings and Relay Word bits. <p>SEL-787-4 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added IEC 61850 Local/Remote Control settings and Relay Word bits. <p>SEL-2440 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-2440 Z009: <ul style="list-style-type: none"> ➢ Added ERAFAST setting. ➢ Added PTP settings. ➢ Added IEC 61850 Test Mode settings. ➢ Removed raw INxxx Device Word bits from SER settings default. <p>SEL-2664S QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-2664S Z003: <ul style="list-style-type: none"> ➢ Added P_LOGIC1, P_LOGIC2, IN_CLIP, and VFD_STRT Relay Word bits. ➢ Added VFD_STRT, P_LOGIC1, and P_LOGIC2 Group settings. ➢ Updated default value of WARNING in Group settings. ➢ Updated lower range of 59N1P and 59NRMSP to 2.5 in Group settings. ➢ Updated range of PROFAR to add 0.1 in Group settings. ➢ Updated range of MOD_SRC to add P_LOGIC in Group settings. ➢ Updated default value for SER3, EALIAS, and ALIAS10 in Report settings. 	

Software Version Number	Summary of Revisions	Manual Date Code
7.1.0.2	<p>QuickSet, QuickSet Prerequisites, and QuickSet Common Files</p> <ul style="list-style-type: none"> ► QuickSet now requires Microsoft Windows 10 (64-bit), Microsoft Windows Server 2016 (64-bit), or later. If QuickSet is installed on a system that does not meet minimum operating system requirements, a version error will be shown and the installer will exit, leaving the system unchanged. ► Addressed an issue where Designer Template settings may append spaces to string settings that may cause the setting to exceed its character limit. ► Addressed an issue where using "NA" in the DNP map may maintain this value where the device will remove and condense the map. QuickSet was updated to match the behavior of the device and will condense if "NA" is used. ► Enhanced the software to allow sending Active FTP port settings, Design Templates, and GLE data over FTP. ► Improved the custom event report naming when DEVID is selected. It will now remove checksum information, if the device includes the checksum as part of its DEVID. ► Enhanced the software to allow users to turn off network checking (through the Tools > Options menu) when saving settings in an .rdb file on a shared network drive. <p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ► [Cybersecurity Enhancement] Updated PostgreSQL to version 14.5. <p>ACSELERATOR Database Utilities</p> <ul style="list-style-type: none"> ► Initial release. ► Contains shared support for applications that access the ACSELERATOR Database. <p>ACSELERATOR Database ODBC Driver, ACSELERATOR Database Device Manager Support, and ACSELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ► [Cybersecurity Enhancement] Updated to support PostgreSQL version 14.5. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ► Changed the file format for DMX files. <p>NOTE</p> <p>DMX files exported from this and later versions of Device Manager cannot be imported by previous versions.</p> <p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where QuickSet may fail to reconnect after sending Port 87 settings. ► Enhanced Bay Control Mimic error handling to give an error if B1CTLNM and B2CTLNM are identical in value, even if the Mimic Image displays only one breaker. <p>SEL-487V QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where Analog Quantities were missing from the logic helper forms in Bay Control settings. <p>SEL-651R QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where some settings may revert back to their default value on save and open. Versions affected are SEL-651R 003-007 and SEL-651R-1 001-006. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue with the HMI where compensated generator voltage values were not displayed correctly. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where Port 4 settings may appear in settings to send when Position C does not have a serial communications card. <p>SEL-2414 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where the Nameplate setting, Cooling Stage Average Winding Temperature Rise (THWR1), may override the value of THWR if the Enable Transformer Nameplate and Test Data Form setting (NNPLTRM) was set to "N". 	20221122

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-2440 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where the HMI Device Overview front panel was not displaying 300-level asserted outputs correctly. <p>All Other QuickSet-Related Packages</p> <ul style="list-style-type: none"> ► No changes. New version is compatible with QuickSet version 7.1.x.x. 	
7.0.0.7	<p>QuickSet</p> <ul style="list-style-type: none"> ► [Cybersecurity] Improved the security of encrypted stored data by using a unique key generated when the database is installed. ► [Cybersecurity] Improved the security of encrypted user data by using a unique key based on user credentials. ► [Cybersecurity] Addressed an issue in which tampering with the installation could allow unauthorized access to data. ► [Cybersecurity] Updated the installer to protect against maliciously placed files. ► [Cybersecurity Enhancement] Added support for more secure SSH key exchange algorithms and encryption ciphers. ► [Cybersecurity] Added the ability to provide a password for database backup and restore operations. ► Added Windows 11 support. ► Removed support for Windows 7, Windows 8, Windows Server 2008 R2 SP1, and Windows Server 2012. ► Updated the Graphical Logic Editor in the following drivers: <ul style="list-style-type: none"> ➢ SEL-2100 Z002-Z003 ➢ SEL-351A Z003-Z008 ➢ SEL-351-5, -6, -7 Z003-Z010 ➢ SEL-351S-5, -6, -7 Z002-Z010 ► Removed the license requirement for Device Manager for Workgroups. <p>ACCELERATOR Database</p> <ul style="list-style-type: none"> ► [Cybersecurity] Improved the security of encrypted stored data by using a unique key generated when the database is installed. ► [Cybersecurity] Updated the installer to protect against maliciously placed files. ► [Cybersecurity Enhancement] Updated the software component used in certificate generation. ► [Cybersecurity] Added the ability to provide a password for database backup and restore operations. ► Added support for new device driver SEL-2488 Z009. ► Addressed an issue that could cause certain simultaneous operations to fail. <p>ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ► [Cybersecurity] Improved the security of encrypted stored data by using a unique key generated when the database is installed. ► [Cybersecurity] Updated the installer to protect against maliciously placed files. ► [Cybersecurity] Added the ability to provide a password for database backup and restore operations. ► Added support for new device driver SEL-2488 Z009. ► Added support for SEL-411L-A. <p>ACCELERATOR Database ODBC Driver</p> <ul style="list-style-type: none"> ► [Cybersecurity] Updated the installer to protect against maliciously placed files. <p>ACCELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ► [Cybersecurity] Updated the installer to protect against maliciously placed files. <p>QuickSet TEAM Plugin</p> <ul style="list-style-type: none"> ► [Cybersecurity] Updated the installer to protect against maliciously placed files. <p>SEL Commissioning Assistant</p> <ul style="list-style-type: none"> ► [Cybersecurity] Updated the installer to protect against maliciously placed files. 	20220628

Software Version Number	Summary of Revisions	Manual Date Code
	<p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Improved the security of encrypted stored data by using a unique key generated when the database is installed. ▶ [Cybersecurity] Improved the security of encrypted user data by using a unique key based on user credentials. ▶ Updated the Graphical Logic Editor in the following drivers: <ul style="list-style-type: none"> ➢ SEL-2100 Z002–Z003 ➢ SEL-351A Z003–Z008 ➢ SEL-351-5, -6, -7 Z003–Z010 ➢ SEL-351S-5, -6, -7 Z002–Z010 ▶ Updated Event History support for the SEL-651R-2 Z012. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ [Cybersecurity Enhancement] Added support for more secure SSH key exchange algorithms and encryption ciphers. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Improved the security of encrypted stored data by using a unique key generated when the database is installed. ▶ Removed the license requirement for Device Manager for Workgroups. <p>QuickSet GLE Plugin</p> <ul style="list-style-type: none"> ▶ Updated the Graphical Logic Editor in the following drivers: <ul style="list-style-type: none"> ➢ SEL-2100 Z002–Z003 ➢ SEL-351A Z003–Z008 ➢ SEL-351-5, -6, -7 Z003–Z010 ➢ SEL-351S-5, -6, -7 Z002–Z010 <p>QuickSet Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-400G, SEL-411L, SEL-421, SEL-451-5, SEL-487E, SEL-487E-5, and SEL-487V screens. <p>SEL-2100 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the Graphical Logic Editor in the following drivers: <ul style="list-style-type: none"> ➢ SEL-2100 Z002–Z003 ➢ SEL-351A Z003–Z008 ➢ SEL-351-5, -6, -7 Z003–Z010 ➢ SEL-351S-5, -6, -7 Z002–Z010 <p>SEL-311C QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ SEL-311C-1, -2, -3 Z103 and later: <ul style="list-style-type: none"> ➢ Addressed an issue where the autocalculation values were not correct for the k0A1, k0A, and k0AR settings when k0M1 was set to AUTO. <p>SEL-351 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the Graphical Logic Editor in the following drivers: <ul style="list-style-type: none"> ➢ SEL-2100 Z002–Z003 ➢ SEL-351A Z003–Z008 ➢ SEL-351-5, -6, -7 Z003–Z010 ➢ SEL-351S-5, -6, -7 Z002–Z010 <p>SEL-351A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the Graphical Logic Editor in the following drivers: <ul style="list-style-type: none"> ➢ SEL-2100 Z002–Z003 ➢ SEL-351A Z003–Z008 ➢ SEL-351-5, -6, -7 Z003–Z010 ➢ SEL-351S-5, -6, -7 Z002–Z010 <p>SEL-351S QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the Graphical Logic Editor in the following drivers: <ul style="list-style-type: none"> ➢ SEL-2100 Z002–Z003 ➢ SEL-351A Z003–Z008 ➢ SEL-351-5, -6, -7 Z003–Z010 ➢ SEL-351S-5, -6, -7 Z002–Z010 	

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	<p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-411L-0, -1, -A Z019: <ul style="list-style-type: none"> ➢ Added support for PTP Power Utility Automation profile (IEC/IEEE 61850-9-3). ➢ Added support for Synchrophasor Measurement: IEC/IEEE 60255-118-1:2018 (IEEE Std C37.118.1-2011, 2014a). ➢ Added support for Broken Conductor Detection. ➢ Added rules to notify user of duplicate values in DNP settings. ➢ Added Relay Word bit 87DTTTX to indicate a direct transfer trip via the 87L element. ➢ Addressed an issue where the Port 87 settings failed to send when the device did not have support for Port 87. ➢ Added Relay Word bits supporting addition of IEC 61850 CILO Logical Node. ➢ Added support for 7U chassis with four I/O boards. ➢ Added support for two additional I/O board variants (INT4 and INT8). ➢ Added support for converting settings from SEL-411L Z001-Z018 to Z019 and later. ➢ Added settings 87R1DLY and 87R2DLY to Port 87 settings category to compensate channel delay for remote DSS relays. ➢ Added Relay Word bits SPT_A, SPT_B, and SPT_C to Trip logic elements. ➢ Added Relay Word bits 87FDFID and FTMPH to Miscellaneous FID logic elements. ➢ Added support for 10 blocks of 100 lines each of automation logic on SEL-411L-0 and SEL-411L-A. ► Updated support for SEL-411L-0, -1 Z017 and later: <ul style="list-style-type: none"> ➢ Updated to accept only valid Relay Word bits in SER Points and Aliases. ➢ Addressed an issue where the autocalculation values were not correct for the k0A1, k0A, and k0AR settings when k0M1 was set to AUTO. ► Updated support for SEL-411L-A Z018 and later: <ul style="list-style-type: none"> ➢ Addressed an issue where the autocalculation values were not correct for the k0A1, k0A, and k0AR settings when k0M1 was set to AUTO. <p>SEL-411L-0, -1, -A QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support SEL-411L-0, -1, -A Z019 driver (Spanish, French). <p>SEL-421-4, -5 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support SEL-421-4, -5 Z031 driver (French). <p>SEL-451-5 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support SEL-451-5 Z029 driver (French). <p>SEL-487B-1 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support SEL-487B-1 Z017 driver (Spanish, French). <p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where the SEL-487E-3, -4 settings driver for Z108 and earlier could not be converted to Z114. <p>SEL-487E-3, -4 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support SEL-487E-3, -4 Z114 driver (Spanish, French). <p>SEL-651R QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for new device driver SEL-651R-2 Z012. ► Added support for Media Access Control Security (MACsec). <p>SEL-651RA QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for new device driver SEL-651RA Z005. ► Added support for Media Access Control Security (MACsec). <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated to support SEL-700BT Z002: <ul style="list-style-type: none"> ➢ Added new settings to describe port properties used by the RSTP protocol. ➢ Addressed an issue where right-clicking on the mapped elements section in the Modbus map does not allow users to select an option for the default map. ➢ Updated rounding of 59PPY1P and 59PPY2P values. ➢ Increased the number of Aliases from 20 to 32. <p>SEL-700BT QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated localization files to support new prompts, error messages, and form headings. 	

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	<p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated to support SEL-700G Z008: <ul style="list-style-type: none"> ➢ Added new settings to describe port properties used by the RSTP protocol. ➢ Added IEC 61850 Local/Remote Control settings and Relay Word bits. ➢ Addressed an issue where right-clicking on the mapped elements section in the Modbus map does not allow users to select an option for the default map. ➢ Updated rounding of 59PPY1P and 59PPY2P values. ➢ Updated send names so the correct files are selected and sent to the device. ➢ Increased the number of Aliases from 20 to 32. <p>SEL-700G QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated localization files to support new prompts, error messages, and form headings. <p>SEL-710-5 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated to support SEL-710-5 Z005: <ul style="list-style-type: none"> ➢ Added new settings to describe port properties used by the RSTP protocol. ➢ Updated the default value of setting 89OR3PE. ➢ Updated to relocate AOOUTSLOT setting placement. ➢ Increased the number of Aliases from 20 to 32. <p>SEL-710-5 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated localization files to support new prompts, error messages, and form headings. <p>SEL-734 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated and replaced third-party components. <p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated and replaced third-party components. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated to support SEL-751 Z010: <ul style="list-style-type: none"> ➢ Added new settings to describe port properties used by the RSTP protocol. ➢ Addressed an issue where right-clicking on the mapped elements section in the Modbus map does not allow users to select an option for the default map. ➢ Addressed incorrect default value for the 50PDIRP directional setting. ➢ Addressed an issue where 50GFP, 50GRP, and A0 are hidden when some ORDER values are selected. ➢ Addressed an issue where Z2R and Z0F are not being marked as invalid when some incorrect values are entered. ➢ Increased the number of Aliases from 20 to 32. ➢ Updated to relocate AOOUTSLOT setting placement. ▶ Updated SEL-751 Z007 to allow 0 in DNP map settings. <p>SEL-751 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated localization files to support new prompts, error messages, and form headings. <p>SEL-751A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated SEL-751A Z013 to relocate AOOUTSLOT setting placement. <p>SEL-787-4 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated to support SEL-787-4 Z005: <ul style="list-style-type: none"> ➢ Added new settings to describe port properties used by the RSTP protocol. ➢ Added IOP and IRT Analog Quantities. ➢ Increased the number of Aliases from 20 to 32. ➢ Updated send names so the correct files are selected and sent to the device. ➢ Expanded VIWDG setting range from "3 or 12" to "1, 2, 3, or 12" when setting CCW12 value is Y. <p>SEL-787-4 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated localization files to support new prompts, error messages, and form headings. 	

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	<p>SEL-2488 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for new device driver SEL-2488 Z009: <ul style="list-style-type: none"> ➢ Added support for Precision Time Protocol (PTP) over Parallel Redundancy Protocol (PRP). ▶ Corrected the range of PTP_GRANDMASTER_ST when the PTP profile IEEE C37.238-2011 is selected. ▶ Addressed a scenario where PTP_VLAN_ID_ST and PTP_VLAN_PRIORITY_ST could become enabled while PTP_ENABLE_VLAN_ST = "Disabled". <p>SEL-2523 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-2523 Z004: <ul style="list-style-type: none"> ➢ Updated TIME_SRC setting range to be IRIG1 and IRIG2. ➢ Updated part number for new firmware options related to rear ports. <p>SEL-2533 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-2533 Z002: <ul style="list-style-type: none"> ➢ Updated TIME_SRC setting range to be IRIG1 and IRIG2. ➢ Updated part number for new firmware options related to rear ports. ➢ Addressed QuickSet HMI LEDs ordering to match the device front-panel LEDs. <p>All Other QuickSet Packages</p> <ul style="list-style-type: none"> ▶ No changes. New version is compatible with QuickSet version 7.0.0.x. 	
6.12.0.2	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Corrected an issue with not being able to allow or disallow remote connections to the ACSELERATOR Database. ▶ Updated to display a message to the user when saving device settings to an RDB file on a network location. ▶ Improved notification if device settings fail to save to an RDB file. ▶ Added a Load Profile settings preset to SEL-735 settings version 101 and later to include all three-second aggregated harmonic quantities to support full IEEE 519 reporting through Synchrowave Reports, "IEEE 519 for Synchrowave Reports [All-50th, 3-second]". This preset is available for meters with "Advanced PQ and Reporting". ▶ Raised the limit of load profile recorders with sub-minute LDAR values from 15 to 19 to support the new "IEEE 519 for Synchrowave Reports [All-50th, 3-second]" preset. ▶ Addressed an issue where modifications to the load profile settings after applying the "Clear All Recorder Configurations" preset could be lost when saving or sending the settings. Starting with SEL-735 settings driver version 6.8.1.0, modifications could be overwritten without notifying the user. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ Addressed an issue in which an upgrade could cause previously cleared device settings Workspaces to be unable to add new settings. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ▶ Addressed an issue in which exporting a DMX file would identify the wrong device settings version as the latest version. ▶ Addressed an issue in which some large DMX files would be unable to be imported. ▶ Addressed an issue in which an upgrade could cause previously cleared device settings Workspaces to be unable to add new settings. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Corrected an issue with not being able to allow or disallow remote connections to the ACSELERATOR Database. ▶ Updated to display a message to the user when saving device settings to an RDB file on a network location. ▶ Improved notification if device settings fail to save to an RDB file. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ [Cybersecurity] Corrected an issue with not being able to allow or disallow remote connections to the ACSELERATOR Database. ▶ Updated to display a message to the user when saving device settings to an RDB file on a network location. ▶ Improved notification if device settings fail to save to an RDB file. 	20220311

Software Version Number	Summary of Revisions	Manual Date Code
	<p>Bay Control Screens ► Added SEL-411L, SEL-421-5, SEL-451-5, SEL-487E, and SEL-487E screens.</p> <p>SEL-311C QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms.</p> <p>SEL-351 QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms.</p> <p>SEL-351A QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms.</p> <p>SEL-351S QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms.</p> <p>SEL-400G QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. ► Added support for SEL-400G-0, -1 Z003: ➤ Added Relay Word bits to support the addition of IEC 61850 CILO logical node. ➤ Added support for IEC 61850-9-3.</p> <p>SEL-401 QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms.</p> <p>SEL-411L QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. ► Added support for new device driver SEL-411L-A Z018. ► Addressed an issue where the auto calculation values may not be correct, for k0A1, k0A, and k0AR settings, when k0M1 was set to AUTO.</p> <p>SEL-421 QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. ► Added support for SEL-421-4, -5 Z031: ➤ Added support for IEC 61850-9-3. ➤ Updated to accept only valid Relay Word bits in SER Points and Aliases. ➤ Added rules to notify user of duplicate values in DNP settings. ➤ Addressed an issue where the autocalculation values were not correct for the k0A1, k0A, and k0AR settings when k0M1 was set to AUTO.</p> <p>SEL-451 QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. ► Added support for SEL-451-5 Z029: ➤ Added Relay Word bits to support the addition of IEC 61850 CILO logical node. ➤ Added support for IEC 61850-9-3. ➤ Updated to accept only valid Relay Word bits in SER Points and Aliases. ➤ Added rules to notify user of duplicate values in DNP settings.</p> <p>SEL-487B QuickSet Settings Driver ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. ► Added support for SEL-487B-1 Z017: ➤ Added support for IEC 61850-9-3. ➤ Updated to accept only valid Relay Word bits in SER Points and Aliases. ➤ Added rules to notify user of duplicate values in DNP settings.</p>	

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	<p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. ► Added support for SEL-487E-3, -4 Z114: <ul style="list-style-type: none"> ➢ Added support for IEC 61850-9-3. ➢ Added rules to notify user of duplicate values in DNP settings. ➢ Added voltage THD analog quantities. ➢ Added rules to LINE1L1 to check that the CTRn values are the same before allowing selection of combination terminals (where n = S, T, U, W, X). <p>SEL-487V QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-T400L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-T401L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-551 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-587 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-651R QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Corrected an issue so Display Point settings can have spaces in the value. ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-651RA QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Corrected an issue so Display Point settings can have spaces in the value. ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Corrected an issue so Display Point settings can have spaces in the value. ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Corrected an issue so Display Point settings can have spaces in the value. ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-710 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Corrected an issue so Display Point settings can have spaces in the value. ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue in SEL-735 settings version 102 where previously saved load profile settings could be overwritten to a Load Profile Preset after loading the settings from an RDB file. The settings in the RDB file are not affected. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Corrected an issue so Display Point settings can have spaces in the value. ► Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. 	

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	<p>SEL-751A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Corrected an issue so Display Point settings can have spaces in the value. ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-787 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Corrected an issue so Display Point settings can have spaces in the value. ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-849 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Corrected an issue so Display Point settings can have spaces in the value. ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated FP_TO to be forced to OFF when LDM is enabled. ▶ Removed LDM-related hide rules for Control Configuration settings. ▶ Moved SC850SM Relay Word bit to the correct category and removed the unused category. ▶ Added additional hide rules related to VSCALE = CUSTOM and DELTA_Y != WYE. ▶ Updated filters for analog quantity I850MOD. ▶ Updated rules for RTSCTS. ▶ Addressed miscellaneous Relay Word bit issues. ▶ Alphabetized Device Words and Analog Quantities. ▶ Added HideAndForce rule to E61850 in Port 1 settings based on PARTNO. ▶ Updated error rules for SNTPRATE. ▶ Changed the row width of EPORT in order to fix the alignment of MAXACC. ▶ Updated SNTPPSIP and SNTPBSIP rules. ▶ Removed settings-based hide rules for ETEMPxxF. ▶ Added Port Access Control settings. ▶ Added setting EETHFWU to Port 1 settings. ▶ Added new temperature fault bits. ▶ Added LTC Control settings to Software. ▶ Added LTPC Monitoring settings to Software. ▶ Corrected an issue so Display Point settings can have spaces in the value. ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-2414 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated DNP Binary Inputs to allow Always Report 0. ▶ Corrected an issue so Display Point settings can have spaces in the value. ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-2431 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-2440 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-2523 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-2533 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. <p>SEL-2664S QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Improved layout and added autofilter of Relay Word bits and Analog Quantities in SELOGIC settings helper forms. 	

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	<p>All Other QuickSet Packages</p> <ul style="list-style-type: none"> ► No changes. New version is compatible with QuickSet version 6.12.0.x. 	
6.11.1.3	<p>QuickSet</p> <ul style="list-style-type: none"> ► Updated to support SEL-751 Z009. ► Improved settings storage handling to support SEL Configuration API changes. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ► Improved settings storage handling to support SEL Configuration API changes. ► Updated Event History to support SEL-751 Z009. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ► Improved settings storage handling to support SEL Configuration API changes. ► Updated to support SEL-751 Z009. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ► Improved settings storage handling to support SEL Configuration API changes. ► Improved performance for creating settings versions from workspace copies. ► Added the ability to generate a report of the local and LDAP user accounts. ► Added the ability to multiselect devices when adding device permissions for a Group, allowing bulk assignment. ► Added the "Delete Devices" permission to further refine user roles beyond the existing "Manage Devices" permission. ► Added the choice to not import identical settings as a new version when importing a DMX file. ► Improved logging for user management and authentication. ► Improved performance for saving settings. ► Addressed an issue in which after using "Connect with QuickSet parameters", Device Tasks would still validate connection data from the device's Connection tab. ► Addressed an issue in which a credentials prompt could appear for some serial connections that did not require it. ► Addressed an issue in which all users could be removed from the Administrators group under certain circumstances. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ► Improved settings handling to support saving settings of non-SEL provided and third-party device types. ► Addressed an issue in which upgrades between certain releases could fail. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ► Added SEL-411L, SEL-451-5, SEL-487E, and SEL-487V screens. 	20220204

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-487E-3, -4 Z113: <ul style="list-style-type: none"> ➢ Added group settings to support the new distance elements: ➢ Mho and Quadrilateral Distance Elements ➢ Phase and Ground Distance Fault Detectors ➢ Zero-Sequence Compensation Factor ➢ Zone Level Direction ➢ Distance Element Common Time Delay ➢ Directional Control Settings ➢ Out-of-Step Blocking ➢ Pole Open Detection ➢ Load Encroachment ➢ Switch-On-to-Fault ➢ Harmonic Blocking Logic ➢ Added Group setting ELOP to support control of loss-of-potential (LOP) supervision. ➢ Updated the default value for DIRBLKm setting to 87XBK2 OR 87XBK5 (where $m = S, T, U, W, X, 1, 2, 3, 4$). ➢ DIRBLK$m$ has been moved to the Winding category. ➢ Updated the default value for 50FPm, 50RPm, Z2Fm, Z2R, Z0Fm, and Z0Rm (where $m = S, T, U, W, X, 1, 2, 3, 4$). ➢ Increased the allowable TAP Mismatch and now use the nominal rating of the CTs. ► Added support of the graphical settings editor for the Mho Phase Distance Element Reach page and the Load Encroachment page. ► Added support on Part Number page for selection of distance elements in the MOT. ► Updated support for SEL-487E-3, -4 Z100 and later: <ul style="list-style-type: none"> ➢ Modified HMI to display PHROT setting value on the Phasor diagram. <p>SEL-487E QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated localization files to support new prompts, error messages, and form headings. <p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated to be compatible with Device Manager settings management. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for new device driver SEL-751 Z009: <ul style="list-style-type: none"> ➢ Added part number support for LEA card on Slots E and Z. ➢ Added new Group settings pertaining to new LEA card. ➢ Added new Global settings pertaining to new LEA card. ➢ Added new Relay Word bits and updated usage rules. ➢ Added new analog quantities. ➢ Added a new Incipient Cable Fault HMI screen. ► Updated hide rules associated with rotating display screens. ► Updated the Control Window HMI screen to add a clear button for the Incipient Cable Fault screen. ► Improved the resolution of neutral overcurrent settings with the 200 mA CT from 0.01 A to 0.001 A. ► Updated DNP maps and analog quantities to reflect correct inputs and outputs based on the device part number. ► Updated the default value of setting 89OR3PE. ► Updated serial and Ethernet port usage rule to fix a send error that was occurring as QuickSet was attempting to send port group settings even if the group was disabled. <p>SEL-751 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Added Spanish language support for Incipient Cable Fault HMI screen, new settings, Relay Word bits, and analog quantities. <p>SEL-751A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated Report Tree structure to match device requirements as specified. <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated the default value of setting 89OR3PE. ► Updated serial port 2 usage rule to fix a send error that was occurring as QuickSet was attempting to send port group settings even if the group was disabled. 	

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the default value of setting 89OR3PE. ▶ Updated serial port 2 usage rule to fix a send error that was occurring as QuickSet was attempting to send port group settings even if the group was disabled. <p>SEL-710 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added part number support for the 4 DI/DO board (hybrid DO) for Slots D and E. <p>SEL-710-5 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the default value of setting 89OR3PE. <p>SEL-787-4 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the default value of setting 89OR3PE. ▶ Updated serial and Ethernet port usage rule to fix a send error that was occurring as QuickSet was attempting to send port group settings even if the group was disabled. <p>SEL-849 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Corrected the navigation tree to place setting DNPADR on its own DNP Protocol Configuration form. <p>SEL-2414 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated to be compatible with Device Manager settings management. <p>SEL-2431 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated to be compatible with Device Manager settings management. 	
6.11.0.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Updated SEL QuickSet Design templates to handle number decimal symbol localization. ▶ Addressed an issue with ACCELERATOR Database backups not working if backup filename or path contained spaces. ▶ Addressed an issue in ACCELERATOR Database restore if restoring a backup created from version 6.10.1.2 of ACCELERATOR QuickSet containing Power Profile Data. ▶ Addressed an issue where QuickSet may not be able to write Support Data files to certain directory paths. ▶ Enhanced Designer Templates to now allow searching equations for usage of settings or template variables. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ Updated SEL QuickSet Design templates to handle number decimal symbol localization. ▶ Addressed an issue with ACCELERATOR Database backups not working if backup filename or path contained spaces. ▶ Addressed an issue in ACCELERATOR Database restore if restoring a backup created from version 6.10.1.2 of ACCELERATOR QuickSet containing Power Profile Data. ▶ Addressed an issue where QuickSet may not be able to write Support Data files to certain directory paths. ▶ Enhanced Designer Templates to now allow searching equations for usage of settings or template variables. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Updated SEL QuickSet Design templates to handle number decimal symbol localization. ▶ Addressed an issue with ACCELERATOR Database backups not working if backup filename or path contained spaces. ▶ Addressed an issue in ACCELERATOR Database restore if restoring a backup created from version 6.10.1.2 of ACCELERATOR QuickSet containing Power Profile Data. ▶ Addressed an issue where QuickSet may not be able to write Support Data files to certain directory paths. ▶ Enhanced Designer Templates to now allow searching equations for usage of settings or template variables. 	20211217

Software Version Number	Summary of Revisions	Manual Date Code
6.10.14.1	<p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ▶ Addressed an issue with ACSELERATOR Database backups not working if backup filename or path contained spaces. ▶ Updated to PostgreSQL 10.19 to address vulnerabilities in which database accounts could perform actions above their intended role (CVE-2020-25695) and some connections could become unsecure (CVE-2020-25694, CVE-2021-23214). <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ Addressed an issue with ACSELERATOR Database backups not working if backup filename or path contained spaces. <p>ACSELERATOR Database ODBC Driver</p> <ul style="list-style-type: none"> ▶ Updated to PostgreSQL 10.19 to address vulnerabilities in which database accounts could perform actions above their intended role (CVE-2020-25695) and some connections could become unsecure (CVE-2020-25694, CVE-2021-23214). <p>Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-411L and SEL-451-5 screens. <p>SEL-751A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ SEL-751A Z010 and Z011: <ul style="list-style-type: none"> ▶ Updated upper range for Frequency Trip Pickup to 240.0. <p>SEL-651R QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where, when converting settings from a 651R-2 Z003 and Z004 to a 651R-2 Z010, users may receive an error that the settings editor could not load. <p>All Other QuickSet Packages</p> <ul style="list-style-type: none"> ▶ No changes. New version is compatible with QuickSet version 6.11.0.x. 	
6.10.14.1	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Added support for the updated PTP Power System Profile (IEEE C37.238-2017) in SEL-2488 Z008. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ Added support for the updated PTP Power System Profile (IEEE C37.238-2017) in SEL-2488 Z008. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-451-5 screens. <p>SEL-2488 QuickSet Settings Driver/SEL-2488 Plugin</p> <ul style="list-style-type: none"> ▶ Added support for SEL-2488 Z008: <ul style="list-style-type: none"> ▶ Added C37.238 2017 Profile for PTP. ▶ Updated to ensure that front and back port IP addresses are not the same. 	20211217
6.10.13.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Added support for SEL-T401L Z003 display points. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ Added support for SEL-T401L Z003 display points. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Added support for SEL-T401L Z003 display points. <p>SEL-T401L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-T401L Z003. <ul style="list-style-type: none"> ▶ Added display points. ▶ Added support for T401L#0019 model. ▶ Increased the number of local and remote bits to 32. 	20211014

Software Version Number	Summary of Revisions	Manual Date Code
	<p>No changes made. New versions updated for compatibility with QuickSet version 6.10.13.0 and later.</p> <ul style="list-style-type: none"> ▶ SEL-421 QuickSet Settings Driver ▶ SEL-451 QuickSet Settings Driver ▶ SEL-487B QuickSet Settings Driver ▶ SEL-487E QuickSet Settings Driver ▶ SEL-487V QuickSet Settings Driver 	
6.10.12.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Added support for SEL-2414 Z013 Nameplate and Test Data form. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ▶ Added support for SEL-2414 Z013 Nameplate and Test Data form. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Added support for SEL-2414 Z013 Nameplate and Test Data form. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ▶ Corrected issue with not being able to connect to devices under Ethernet Security Gateways, RTACs, and Communications Processors that have custom attributes defined. <p>QuickSet GLE Plugin</p> <ul style="list-style-type: none"> ▶ Added support for IEC 61850 Interlock Relay Word bits used in Protection Free-Form Logic Settings. ▶ Addressed an issue for the SEL-400 series devices where the Graphical Logic Editor would flag valid LVALUE Relay Word bits LOC and MLTLEV in error and not allow setting Protection Logic equations using those bits during the compile operation. <p>ACSELERATOR Bay Screen Builder</p> <ul style="list-style-type: none"> ▶ Upgraded encryption to use FIPS approved algorithms. <p>QuickSet Touchscreen Display Bridge Plugin</p> <ul style="list-style-type: none"> ▶ Upgraded encryption to use FIPS approved algorithms. <p>Bay Control Screen</p> <ul style="list-style-type: none"> ▶ Added SEL-400G, SEL-421, SEL-451-5, and SEL-487E screens. ▶ Replaced SEL-487E HV139, HV140, LV106, and LV107 screens. <p>SEL-421 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-421-4, -5 Z030: <ul style="list-style-type: none"> ▶ Added Relay Word bits supporting addition of IEC 61850 CILO Logical Node. <p>SEL-421 QuickSet Settings Driver Language Files</p> <ul style="list-style-type: none"> ▶ SEL-421-4, -5 Z030: <ul style="list-style-type: none"> ▶ Updated to support new descriptions. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Z007: <ul style="list-style-type: none"> ▶ Added missing part number option “A0” to part number selection form. <p>SEL-2414 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Z013: <ul style="list-style-type: none"> ▶ Added Nameplate and Test Data form. ▶ Added support for IEC 60076-7:2018 Thermal Model. ▶ Added support for the 14 DI card. ▶ Added support for 1-minute load profile data. ▶ Added analog control variables. ▶ Added Parallel Redundancy Protocol (PRP). ▶ Added support for load tap position and control monitoring. ▶ Added fast analog processing option for remote analogs (ERAFAST). ▶ Expanded maximum and minimum temperature ranges for RTD and thermocouple measurements. ▶ Enhanced RTD temperature measurements to provide 0.1°C resolution. 	20210722

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-2730M QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Z009: <ul style="list-style-type: none"> ➢ Added support for a new ordering option that permits two fiber ports and two copper ports in a specific bank of four ports. Consult the MOT for details. ➢ Added support for SEL-supplied copper SFPs to the SEL-2730M. The device now supports both copper and fiber SFPs and the appropriate settings for each SFP. <p>SEL-3025 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added IEC 60870-5 as an option for Trusted Interface Protocol. ▶ Added configuration for Parity and Stop Bits on the DTE port. <p>SEL-T401L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ No changes, new version to be compatible with QuickSet version 6.10.12.x. 	
6.10.8.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Modified the MDELE helper form so all Analog values are presented for MDELE labels in Bay Control. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Modified the MDELE helper form so all Analog values are presented for MDELE labels in Bay Control. <p>ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ Added support for the SEL Configuration API operation to change the device type of an existing device. ▶ Improved Device Manager internal notifications to avoid saving extraneous data generated by automated TEAM jobs, which can cause Device Manager login to be slow. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ▶ Added Setting Type, which indicates the device type and SVN of each settings version in the settings history for a device. ▶ Changed settings history to sort by version number by default rather than by creation date. ▶ Addressed an issue where an internal error would occur when attempting to create a settings version from the workspace when the workspace contained settings for a device type that did not match the device. ▶ Addressed an issue where a colon or single quote character in a device password could cause the device's Access Script to fail during execution. ▶ Addressed an issue that could cause login to be slow when excessive notification data was present. ▶ Added the SEL Settings Database Importer, which is a utility for importing settings from one or more Settings Databases (RDB files) into the ACCELERATOR Database. The SEL Settings Database Importer requires a local installation of the SEL-5231 SEL Configuration API. 	20210615

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-451-5 Z028: <ul style="list-style-type: none"> ➢ Added settings EACC, E2AC, and EPAC to support port access control using SELOGIC control equations. ➢ Added breaker monitor analog quantities for accumulated trip current, last interrupted current, operating times, and number of operations. ➢ Modified rules so that group settings Z2F, Z2R, and a2 can be set independent of group setting ORDER. ➢ Added conditioning timers to Automation SELOGIC. ➢ Increased the number of available local and remote bits to 64. ➢ Increased the number of DNP binary output points to 160. ➢ Increased the number of available display points to 192. ➢ Added SELOGIC variable SC850SM to enter the relay into IEC 61850 simulation mode. ➢ Updated localization files to support new prompts, error messages, and form headings. ➢ Added support for Arc Sense technology (AST). ► Updated support SEL-451-5 Z015 and later: <ul style="list-style-type: none"> ➢ Updated localized descriptions and messages to display completely. ➢ Modified the MDELE helper form so all Analog values are presented for MDELE labels in Bay Control. ➢ Corrected the rule for E32IV to force its default value when E32 = Y and ORDER = Q. ➢ Updated the OPEN/CLOSE LEDs for each breaker in the HMI Control Window to correctly reflect the breaker status when the corresponding 52AAn and 52ACLn bits change state. ► Updated support for SEL-451-6 Z100: <ul style="list-style-type: none"> ➢ Settings INOM value is now verified with the device before sending settings to the device. <p>SEL-451 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Added support for SEL-451-5 Z028: <ul style="list-style-type: none"> ➢ Updated localization files to support new prompts, error messages, and form headings. 	
6.10.7.0	<p>QuickSet</p> <ul style="list-style-type: none"> ► Addressed an issue where certain Display Point settings may be in error if there is a space leading a quotation mark in the setting value. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ► Updated Playback Dashboard to support SEL-T400L Z005. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ► Addressed an issue where QuickSet could retrieve the wrong event record from an SEL-T400L or SEL-T401L if the record number matches the time stamp of another event record file name. <p>SEL-311C QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Enhanced SEL-311C driver to prevent Text settings from being sent when the device is configured as a 2U vertical rack mount in version Z104 and greater. ► Addressed an issue in version Z104 and greater where FWFPC (Port 5) was included in the settings sent to the device when the device was not configured as a 2U vertical rack mount. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Removed "OFF" from FTIME setting range Z001 to Z005. <p>SEL-849 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed an issue where the serial port DNP Protocol settings for Z005 did not match the setting names in the device. <p>SEL-2488 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Removed support for the DES Encryption Protocol in SNMP v3. <p>SEL-2533 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Improved the SEL-2533 HMI to show output contacts for OUT01–OUT15. ► Addressed an issue where the SEL-2533 HMI incorrectly mapped the LEDs on the front-panel control. 	20210226

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6.10.6.0	<p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ➤ Modified installer to add the TLS certificate of the ACSELERATOR Database into the Windows certificate store as a trusted certificate to prevent delays because of certificate validation when logging in with Device Manager. <p>QuickSet</p> <ul style="list-style-type: none"> ➤ Updated to support SEL-T401L Z002. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ➤ Updated to support SEL-T401L Z002. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ➤ Modified calculation of the margin between the power-swing impedance supervisory zone and the encompassed distance zones of protection associated with the SEL-T401L Impedance Characteristics plot. See the SEL-T401L instruction manual for more details. ➤ Updated to support SEL-T401L Z002. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ➤ Added support for SEL-851 and SEL-411L-2. ➤ Added a "Baseline Deviation" settings workflow state. <p>QuickSet Device Manager Plugin</p> <ul style="list-style-type: none"> ➤ Added a new "Baseline Deviation" settings workflow state to support warning users when settings for a device do not conform to approved baselines. ➤ Addressed an issue where an error could occur when attempting to apply setting changes to multiple devices within a Compare window. ➤ Increased the amount of time to wait when attempting to connect to the ACSELERATOR Database before a timeout occurs. ➤ Modified Device Manager to retain the dimensions of the Connection Explorer between sessions. <p>SEL-T401L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for Z002: <ul style="list-style-type: none"> ➤ Increased the upper limits for TD67P and TD67G settings for 5 A-rated CTs to 150 A and 100 A, respectively, and for 1 A-rated CTs to 30 A and 20 A, respectively. ➤ Modified calculation of the margin between the power-swing impedance supervisory zone and the encompassed distance zones of protection associated with the SEL-T401L Impedance Characteristics plot. See the SEL-T401L instruction manual for more details. 	20210226
6.10.5.3	<p>QuickSet</p> <ul style="list-style-type: none"> ➤ Updated LDM components to accept read-only files imported or published from Bay Screen Builder. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ➤ Updated LDM components to accept read-only files imported or published from Bay Screen Builder. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ➤ Updated HMI components. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ➤ Added SEL-421, SEL-451-5, and SEL-487E screens. <p>SEL-351 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for Z107: <ul style="list-style-type: none"> ➤ Added FRQ81OK, FRQ81FZ, and 27B81A Relay Word bits. ➤ Added the torque-control setting 81TC to the over- and underfrequency elements. ➤ Addressed an issue where the 3V0 Relay Word bit was missing from LDLIST. <p>SEL-351A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for Z107: <ul style="list-style-type: none"> ➤ Added FRQ81OK, FRQ81FZ, and 27B81A Relay Word bits. ➤ Added the torque-control setting 81TC to the over- and underfrequency elements. 	20210226

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	<p>SEL-351S QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for Z107: <ul style="list-style-type: none"> ➢ Added FRQ81OK, FRQ81FZ, and 27B81A Relay Word bits. ➢ Added the torque-control setting 81TC to the over- and underfrequency elements. ► Addressed an issue where the 3V0 Relay Word bit was missing from LDLIST. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added hide rules for CTRY, E87, and E78 settings. ► Updated the available elements in the Modbus User Map. <p>SEL-710 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► SEL-710: <ul style="list-style-type: none"> ➢ Updated the sending order of RTDnLOC, EWDGV, and EBRGV. ➢ Updated the ERTDBIAS hide rule. ➢ Added a text box for user input in HMI Motor Start Report. ► SEL-710-5: <ul style="list-style-type: none"> ➢ Added a text box for user input in HMI Motor Start Report. <p>SEL-710 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated Spanish language support. <p>SEL-734 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Enhanced the Cap Bank Control Overview page to update each time the page is displayed. ► Enhanced user feedback when the Cap Bank Control Overview page is in process of updating information on the screen. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added an error message to notify the users that a “space” in alias settings will not be accepted by QuickSet. <p>SEL-787 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated the CADI driver to fix a QuickSet issue where the voltage input values were incorrectly flagged. ► Updated the Demand and Peak Demand metering command in HMI. ► Updated the available inputs for the Digital Inputs card in Slots C, D, and E. 	
6.10.4.1	<p>QuickSet</p> <ul style="list-style-type: none"> ► Enhanced QuickSet to display, via QuickSet menu Tools > Open Spectrum Report, Fourier Transform reports retrieved and saved from an SEL-710-5. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ► Enhanced the SEL-400 series drivers Expression Builder form by making it resizable. ► Updated Display Point setting validation to allow quotation marks as valid input to be used within the Format Text section. ► Added condition to HMI to handle mismatches between device DNA command and Fast Message response for Target values. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ► Added support for SEL-400G Z001. ► When collecting event reports, users can now save all collected events in a SYNCHROWAVE Event-supported .evzip format. ► Updated DNP forms to prevent running of rules until after all settings are condensed. <p>ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ► Added support for SEL Configuration API script and user account operations. ► Added support for SEL-400G Z001. ► Update for Large Display compatibility. <p>SEL QuickSet Spectrum Viewer Plugin</p> <ul style="list-style-type: none"> ► Added support for viewing saved Fourier Transform reports without having to connect to an SEL-710-5. <p>SEL-400G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for Z001. 	20201118

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	<p>SEL-2730M QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for Z008: <ul style="list-style-type: none"> ➢ Added support for Port Monitoring settings. ➢ Added support for mirroring multiple source ports to one target port. <p>SEL-2431 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for Z012: <ul style="list-style-type: none"> ➢ Added categories to Device Word bits. ➢ Updated DNP Port settings. ➢ Updated the Print settings for DNP Maps. 	
6.10.3.0	<p>QuickSet</p> <ul style="list-style-type: none"> ► Addressed an issue where touchscreen analog quantity or device word bit assignments could be flagged as incorrect until navigating to another settings page. ► Addressed an issue where LCD Display settings could reappear after publishing screens from Bay Screen Builder. <p>QuickSet Prerequisites</p> <ul style="list-style-type: none"> ► Addressed an issue where touchscreen analog quantity or device word bit assignments could be flagged as incorrect until navigating to another settings page. ► Addressed an issue where LCD Display settings could reappear after publishing screens from Bay Screen Builder. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ► Update for Large Display compatibility <p>QuickSet Meter HMI Plugin</p> <ul style="list-style-type: none"> ► Addressed an issue in the LDP Data Viewer where an error displayed for selection of a future End Date and End Time. ► Addressed an issue in the LDP Data Viewer where Available Channels may not load in geographical regions for which a comma serves as a decimal separator. <p>ACCELERATOR Bay Screen Builder Definitions</p> <ul style="list-style-type: none"> ► Added touchscreen support for SEL-735 102 device. ► Added touchscreen support for SEL-2411 010 device. <p>ACCELERATOR Bay Screen Builder</p> <ul style="list-style-type: none"> ► Improvements to the user experience. ► Added stability against application crashes and data loss. <p>QuickSet Touchscreen Display Bridge Plugin</p> <ul style="list-style-type: none"> ► Added touchscreen support for SEL-735 102 device. ► Added touchscreen support for SEL-2411 010 device. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ► Added SEL-451-5 and SEL-487E screens. <p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for Z010. ► Added 1 minute to the range available for SPAR in Report Settings. <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Update for Large Display compatibility. <p>SEL-710 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated to be compatible with QuickSet core changes. 	—

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	<p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Z102 settings. ▶ Added support for a color touchscreen on the SEL-735. ▶ Added the device word bit LOGFULL to indicate full audit log storage. ▶ Addressed an issue where setting of recorder function (LDFUNCn) to AVG did not properly cause flagging of demand values as being in error. ▶ Addressed an issue where the LDLIST1 setting did not reflect channel selections in the helper form for Load Profile Recorder 1 after the user closed the helper form. ▶ Addressed an issue in the LDP Data Viewer where an error displayed for selection of a future End Date and End Time. ▶ Addressed an issue in the LDP Data Viewer where Available Channels may not load in geographical regions for which a comma serves as a decimal separator. 	
6.10.2.1	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Added support for new device driver SEL-700BT. ▶ Added Spanish translation for an import error message from Bay Screen Builder for a project file newer than the device version. ▶ Updated DNP forms to prevent loading of edit value helper forms when a value is blank. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Added support for new device driver SEL-700BT. ▶ Updated DNP forms to not load edit value helper forms when value is blank. ▶ Addressed issue with T401L HMI not loading. <p>ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ Added support for new device driver SEL-700BT. <p>ACCELERATOR Bay Screen Builder</p> <ul style="list-style-type: none"> ▶ Improvements to the user experience. ▶ Added stability against application crashes and data loss. <p>QuickSet Touchscreen Display Bridge Plugin</p> <ul style="list-style-type: none"> ▶ Added touchscreen support for SEL-700BT 001 device. <p>ACCELERATOR Bay Screen Builder Definitions</p> <ul style="list-style-type: none"> ▶ Added touchscreen support for SEL-700BT 001 device. <p>SEL-700BT QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for new device driver SEL-700BT Z001. <p>SEL-700BT QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Added Spanish language support. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Increased flexibility for user inputs on the HMI SER form. ▶ Added Contact Input and Output status to the Device Overview page on the HMI. ▶ Updated the Port 4 PROTO setting so it defaults to "SEL". ▶ Updated HMI LDP edit boxes to accept numeric input and valid special characters. <p>SEL-700G QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated the Spanish translation for "Device Date Format" on the Control Window screen of the HMI. <p>SEL-710-5 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added PIDOUT and 97FM [1-5] Analog Quantities. <p>SEL-710-5 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated the Spanish translation for "Device Date Format" on the Control Window screen of the HMI. <p>SEL-710 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added PIDOUT and 97FM [1-5] Analog Quantities. <p>SEL-751 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ▶ Updated the Spanish translation for "Device Date Format" on the Control Window screen of the HMI. 	—

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	<p>SEL-751A QuickSet Settings Driver ► Added Contact Input and Output status to the Device Overview page on the HMI.</p> <p>SEL-787 QuickSet Settings Driver ► Updated HMI LDP edit boxes to accept numeric input and valid special characters.</p> <p>SEL-751 QuickSet Settings Driver ► Updated HMI LDP edit boxes to accept numeric input and valid special characters.</p> <p>SEL-849 QuickSet Settings Driver ► Added a new device driver for SEL-849 Z005. ► Added support for PRP settings. ► Added support for DNP settings. ► Added support for Ethernet/IP Assembly Map Settings. ► Added Contact Input and Output status to the Device Overview page on the HMI. ► Added conversion kits for 001 to 004 and 005. ► Updated hide rules for NETPORT and NETMODE when they are set to PRP. ► Updated IP address rules to restrict certain addresses.</p>	
6.10.1.2	<p>QuickSet ► Added support for Windows Server 2019. ► Improved processing of user-entered Activation IDs to prevent common issues, such as trailing spaces or hyphens having been converted to long dashes. ► Updated .NET Framework to 4.6.1. ► Addressed an issue where reading or sending Designer Templates required write access to the ProgramData folder, which standard Windows user accounts do not have. ► Addressed an issue where the check to see if a software license would remain valid after QuickSet update could fail. In these cases, the user would not be notified their licensed features would be disabled after the software update. ► Addressed an issue where QuickSet incorrectly reports canceled ACCELERATOR Database restore operations as having been successfully completed.</p> <p>QuickSet GLE Plugin ► Updated .NET Framework to 4.6.1.</p> <p>SEL Commissioning Assistant ► Improved protection against maliciously modified XML files.</p> <p>Device Manager ► Improved performance of client data refreshes when a large amount of data is imported into a remote ACCELERATOR Database. ► Sensitive data passed between Device Manager and the script execution engine are now encrypted. ► Updated the SEL.GeneratePassword method, used in device Password Generate scripts, to use a more cryptographically sound random number generator to generate random device passwords. ► Changed the display of a user name in Device Manager from "User name (deleted)" to "User name (not active)" for a user who is associated with a settings version but not found in the ACCELERATOR Database. ► Updated Python to 3.8.0. ► Updated DevExpress components to 19.2.6. ► Updated Npgsql to 4.0.3. ► Updated .NET Framework to 4.6.1. ► Limited the number of Devices and Folders than can be exported to DMX to 1000 or fewer and limited the number of Devices with settings to 50 or fewer to prevent memory issues on import. ► Addressed an issue where an error could occur when attempting to configure the device permissions for an LDAP group when the configured LDAP server was unreachable. ► Addressed an issue where right-clicking within the Permissions area of a Device could raise an error. ► Addressed an issue where the copying of a node in the Connection Explorer could result in a name that exceeded the maximum allowed length for names. Copied nodes will now have their names limited to the 128-character limit.</p>	20200918

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	<p>TEAM Plugin</p> <ul style="list-style-type: none"> ▶ Updated DevExpress components to 19.2.6. ▶ Updated Npgsql to 2.2.7. ▶ Updated .NET Framework to 4.6.1. <p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ▶ Updated PostgreSQL to 10.12. ▶ Updated pgAdmin4 to 4.19.0. ▶ Updated OpenSSL to 1.1.1g. OpenSSL is used to generate certificates to support encrypted communication with the ACSELERATOR Database. <p>ACSELERATOR Database ODBC Driver</p> <ul style="list-style-type: none"> ▶ Updated PostgreSQL ODBC driver to 12.1. <p>ACSELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ▶ Added support for SEL Configuration API Audit operations. <p>SEL-2488, SEL-2730M, SEL-3025, and SEL-3045 QuickSet Settings Drivers</p> <ul style="list-style-type: none"> ▶ Updated .NET Framework to 4.6.1. 	
6.10.0.4	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Updated the FTP transfer location so that Unix slashes convert to DOS slashes when reading Design Templates or GLE data. ▶ Added support for SEL-T401L Z001. <p>SEL-411L, -1 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue in SEL-411L, -1 Z016 where the search function was not finding all values or setting s in Protection and Automation Free-Form Logic. <p>SEL-487E-3, -4 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue in SEL-487E-3, -4 Z111 where the search function was not finding all values or settings in Protection and Automation Free-Form Logic. 	20200814
6.9.1.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Addressed an issue where settings could not be sent to an SEL-351RS or to either an SEL-734 or SEL-735 in which Time-of-Use was enabled. <p>SEL-734 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added a Capacitor Bank Control Overview page to the HMI for an SEL-734B or SEL-734W device. The page displays controller status, metering data, and the front panel of the device. <p>SEL-735 QuickSet Settings Driver</p> <p>Meter HMI Plugin</p> <ul style="list-style-type: none"> ▶ Improved the handling of regional formatting differences affecting the LDP Data Viewer and the Wave View interfaces. ▶ Updated Wave View error messaging to make it more informative when Wave View is active on multiple interfaces. ▶ Modified how time stamps display in the LDP Data Viewer. The QuickSet HMI ignores computer daylight-saving time settings and displays time stamps as they display in the meter. ▶ Addressed an issue where some Configurable Register settings prevented the LDP Data Viewer from displaying channels in the QuickSet HMI. 	20200701

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6.9.0.2	<p>QuickSet</p> <ul style="list-style-type: none"> ► Improved licensing by being more lenient in checking current licenses against a computer's HOST ID. Licenses will now remain valid more often after computer hardware changes. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ► Compatibility update for the SEL-651R-2 Z010. ► Added support for new Relay Word bit and analog quantity categories for SEL-487E Z111. New category Automation Conditioning Timers will now be visible in setting helper forms. ► Addressed an issue where all delimiting comma characters were being removed when exporting the BAY_SCREEN.txt file using the Tools > Settings > Export feature. The export now retains the delimiting comma characters, which is required for compatibility if sent to a device. ► Addressed an issue where settings can be flagged in error when the value does not match the casing of displayed range list. Settings values now automatically update to match the casing of the displayed range list. ► Addressed an issue in language translation where the range description was not being displayed properly in a localized language. ► Updated to support SEL-700G Z007. ► Updated to support SEL-710-5 Z004. ► Updated to support SEL-751 Z008. ► Updated to support SEL-787-4 Z004. ► Updated to support new LDM settings. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ► Added SEL-411L, SEL-451-5, and SEL-487E screens. <p>ACCELERATOR Bay Screen Builder</p> <ul style="list-style-type: none"> ► Fixed screen flickering issue when loading or exporting packages with many custom screens. ► Updated three-position disconnect screen element. <p>QuickSet Touchscreen Display Bridge Plugin</p> <ul style="list-style-type: none"> ► Added support for controllable two-position disconnect. ► Added support for monitor-only and controllable single-pole breaker. ► Added support for monitor-only and controllable three-position disconnect. <p>ACCELERATOR Bay Screen Builder Definitions</p> <ul style="list-style-type: none"> ► Added Bay Screen Builder configuration information for SEL-700G Z007, SEL-710-5 Z004, SEL-751 Z008, SEL-787-4 Z004, and SEL-2411 Z009. <p>SEL-411L, -1 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support new SEL-411L, -1 Z016 driver (Spanish, French). <p>SEL-421-4, -5 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support new SEL-421-4, -5 Z028 driver (French). <p>SEL-451-5 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support new SEL-451-5 Z027 driver (French). <p>SEL-487B-1 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support new SEL-487B-1 Z015 driver (Spanish, French). 	20200601

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	<p>SEL-487E-3, -4 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for Z111. ➤ Added the setting EETHFWU to enable Ethernet firmware upgrade. ➤ Added Conditioning Timers analog quantities and Relay Word bits to support automation logic enhancements. ➤ Added the Conditioning Timers category to the Automation SELOGIC helper form for Automation Free-Form Logic settings. ➤ Added the Group settings EISYNC, SYNCPS, SYNCPT, SYNCPU, SYNCPW, SYNCPX, ASYNPS1, ASYNPT1, ASYNPU1, ASYNPW1, ASYNPX1, and others to support enhancements to the synchronism-check function. ➤ Addressed an issue in SEL-487E-3, -4 Z101 and later. ➤ For DNP Map Settings 2–5, MAXDIST and MINDIST were not showing an error when MAXDIST was less than or equal to MINDIST. ➤ Addressed an issue with the setting rules allowing C37.238 Default Profile when NETMODE = PRP for IEC 61850-9-3 compatibility. ➤ Simplified entry of Target LED settings by improving the front-panel layout. <p>SEL-487E-3, -4 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ➤ Updated to support new SEL-487E-3, -4 Z111 driver (Spanish, French). <p>SEL-487V-0, -1 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for Z005: <ul style="list-style-type: none"> ➤ Adjusted the range from –90 degrees to +90 degrees for settings Z1ANGW and Z0ANGW. ➤ Added an error rule to block the range of –5 degrees to +5 degrees for settings Z1ANGW and Z0ANGW. ➤ Adjusted the default value of 32OPP_n settings when INOMW = 1. <p>SEL-651R-2 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for Z010. ➤ Added Enhanced Arc Sensing Technology support. ➤ Updated binary outputs to allow remote bit pairing. <p>SEL-651RA QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for Z003. ➤ Added Enhanced Arc Sensing Technology support. ➤ Updated binary outputs to allow remote bit pairing. ➤ Increased the range of V_nYPAC and V_nZPAC from –10.0 to –20.0. ➤ Updated QuickSet to display an error message upon an attempted impermissible entry of a blank for SELOGIC settings. ➤ Added WEARA, WEARB, WEARC, and MAXWEAR Analog Quantities. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for Z007. ➤ Added Ethernet/IP protocol assemblies and settings. ➤ Added Three Position Disconnects for Global and Touchscreen settings. ➤ Added IEC 61850 Mode Control. ➤ Added HTTP settings to Port 1. ➤ Added PTP settings to Port 1. ➤ Added the Port 1 setting EETHFWU to enable/disable firmware upgrades via an Ethernet port. ➤ Added the CFI SELOGIC control equation setting as part of the auto-sync breaker close failure logic. ➤ Increased range of 81D_nTD (<i>n</i> = 1 to 4) from 240.00 to 400.00 seconds. ➤ Updated QuickSet conversion tool to support SVN conversions of BSB (.ldme) files. <p>SEL-700G QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ➤ Updated to support new SEL-700G Z007 driver (Spanish). 	

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	<p>SEL-710-5 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for Z004. ► Added Ethernet/IP protocol assemblies and settings. ► Added Three Position Disconnects for Global and Touchscreen settings. ► Added IEC 61850 Mode Control. ► Added Incipient Cable Fault Detection settings. ► Added HTTP settings to Port 1. ► Added PTP settings to Port 1. ► Added Vibration Monitor settings. ► Added the Port 1 setting EETHFWU to enable/disable firmware upgrades via an Ethernet port. ► Increased range of 81DnTD ($n = 1$ to 4) from 240.00 to 400.00 seconds. ► Added the Motor Maintenance report. ► Added PID Controller settings. ► Added 97FM Frequency Component Magnitude settings. ► Added the SINGLEI setting. ► Added the CMETSRTG setting. ► Updated QuickSet conversion tool to support SVN conversions of BSB (.ldme) files. <p>SEL-710-5 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support new SEL-710-5 Z004 driver (Spanish). <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for Z008. ► Added Ethernet/IP protocol assemblies and settings. ► Added Three Position Disconnects for Global and Touchscreen settings. ► Added IEC 61850 Mode Control. ► Added Incipient Cable Fault Detection settings. ► Added HTTP settings to Port 1. ► Added PTP settings to Port 1. ► Added the Port 1 setting EETHFWU to enable/disable firmware upgrades via an Ethernet port. ► Increased range of 81DnTD ($n = 1$ to 6) from 240.00 to 400.00 seconds. ► Added the Group setting MPHDLUR. ► Added the Breaker Failure settings BFISID, BFRTD, BFTR, and BFULTR. ► Updated QuickSet conversion tool to support SVN conversions of BSB (.ldme) files. <p>SEL-751 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support new SEL-751 Z008 driver (Spanish). <p>SEL-751A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated support for Z012. ► Modified Maximum Slip Frequency range. <p>SEL-787-4 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for Z004. ► Added Ethernet/IP protocol assemblies and settings. ► Added Three Position Disconnects for Global and Touchscreen settings. ► Added IEC 61850 Mode Control. ► Added HTTP settings to Port 1. ► Added PTP settings to Port 1. ► Added the Port 1 setting EETHFWU to enable/disable firmware upgrades via an Ethernet port. ► Increased range of 81DnTD ($n = 1$ to 4) from 240.00 to 400.00 seconds. ► Updated QuickSet conversion tool to support SVN conversions of BSB (.ldme) files. <p>SEL-787-4 QuickSet Settings Driver Language File</p> <ul style="list-style-type: none"> ► Updated to support new SEL-787-4 Z004 driver (Spanish). 	

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	<p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Z009. ▶ Added LDM support. ▶ Added 14 digital input card part number support. ▶ Added support for IEC 61850 mode/behavior. ▶ Added communication time-out indication for DNP and Modbus. ▶ Added analog control variables. ▶ Added run-time configurable timers and more variables/timers. ▶ Added support for analog input event buffers for DNP. ▶ Increased the number of math variables that can be configured from 32 to 64. ▶ Expanded setting ranges for variables/timers. ▶ Addressed an issue in SEL-2411 Z007 and later where Power Factor Relay Word Bits were not available. 	
6.8.2.2	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Added support to the Firmware Loader for improved digitally signed firmware file indicated by .zds. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ▶ Added support for SEL-400 series relays. <ul style="list-style-type: none"> ▶ Addressed issue of localized French text being truncated in the Reports SPAQ form. ▶ Addressed issue of localized Spanish text overlapping in Bay Control form. <p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Z016: <ul style="list-style-type: none"> ▶ Enhanced 87CHpSN rule, where $p = 1$ or 2, to force value to "T" when E87CH = 2E, 3E, or 4E. ▶ Added setting EETHFWU to enable Ethernet firmware upgrade. ▶ Added Group settings EISYNC, SYNCPI, SYNCPI2, ASYNP11, ASYNP21, and others to support enhancements to the synchronism-check function. ▶ Added settings for Zones 2–5 fault detector settings (Z50Pn and Z50Gn, $n = 2–5$) to phase and ground-distance elements. ▶ Addressed an issue in SEL-411,-1 Z001 and later in which MAXDIST and MINDIST were not showing an error when MAXDIST was less than or equal to MINDIST (for DNP Map Settings 2–5). <p>SEL-421 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Z028: <ul style="list-style-type: none"> ▶ Added setting EETHFWU to enable Ethernet firmware upgrade. ▶ Added setting ESPQUAD to enable a self-polarized quadrilateral distance element added in firmware. ▶ Added Group settings EISYNC, SYNCPI, SYNCPI2, ASYNP11, ASYNP21, and others to support enhancements to the synchronism-check function. ▶ Added settings for Zones 2–5 fault detector settings (Z50Pn and Z50Gn, $n = 2–5$) to phase and ground-distance elements. ▶ Addressed an issue in SEL-421-4, -5 Z016 and later in which MAXDIST and MINDIST were not showing an error when MAXDIST was less than or equal to MINDIST (for DNP Map Settings 2–5). ▶ Addressed an issue in SEL-421-7 Z100 and later in which MAXDIST and MINDIST were not showing an error when MAXDIST was less than or equal to MINDIST (for DNP Map Settings 2–5). <p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Z027: <ul style="list-style-type: none"> ▶ Added Group settings EISYNC, SYNCPI, SYNCPI2, ASYNP11, ASYNP21, and others to support enhancements to the synchronism-check function. ▶ Added setting EETHFWU to enable Ethernet firmware upgrade. ▶ Addressed an issue in SEL-451-5 Z015 and later in which MAXDIST and MINDIST were not showing an error when MAXDIST was less than or equal to MINDIST (for DNP Map Settings 2–5). ▶ Addressed issue in SEL-451-5 Z024 to allow Design Templates to be sent to the device. 	20200601

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6.8.2.0	<p>QuickSet</p> <ul style="list-style-type: none"> ➤ Updated for compatibility with the latest release of SEL Compass, which no longer uses Microsoft Access database files. ➤ Addressed an issue where ACCELERATOR Database backups could fail because the file save operation was executing under the context of the ACCELERATOR Database service user (NETWORK SERVICE). The file save operation now correctly executes under the context of the user who initiated the backup. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ➤ Added SEL-411L, SEL-421, SEL-451-4, SEL-451-5, and SEL-487E screens. <p>ACCELERATOR Database Device Manager Support</p> <ul style="list-style-type: none"> ➤ Added support for SEL-400G and SEL-400G-1. ➤ Addressed an issue where ACCELERATOR Database backups could fail because the file save operation was executing under the context of the ACCELERATOR Database service user (NETWORK SERVICE). The file save operation now correctly executes under the context of the user who initiated the backup. <p>ACCELERATOR Database Legacy Driver Support</p> <ul style="list-style-type: none"> ➤ Addressed an issue where ACCELERATOR Database backups could fail because the file save operation was executing under the context of the ACCELERATOR Database service user (NETWORK SERVICE). The file save operation now correctly executes under the context of the user who initiated the backup. <p>QuickSet Common Files</p> <ul style="list-style-type: none"> ➤ Addressed an issue where ACCELERATOR Database backups could fail because the file save operation was executing under the context of the ACCELERATOR Database service user (NETWORK SERVICE). The file save operation now correctly executes under the context of the user who initiated the backup. ➤ Updated for compatibility with SEL-651R-2 Z009. <p>Device Manager Plugin</p> <ul style="list-style-type: none"> ➤ Added support for SEL-400G and SEL-400G-1. ➤ Increased the timeout for loading device drivers when launching a settings comparison. Some users were experiencing failures due to timeouts when connected to a remote ACCELERATOR Database. <p>QuickSet Meter HMI Plugin</p> <ul style="list-style-type: none"> ➤ Added import and export functionality to the new LDP Data Viewer in the QuickSet HMI. <p>SEL-651R QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for configuring SEL-651R-2 Z009. <ul style="list-style-type: none"> ➤ Added Siemens Recloser Compatibility support for the Multi-Recloser Interface. ➤ Updated the VnYPAC and VnZPAC settings range from -10.0 to -20.0. ➤ Addressed an issue where a SELOGIC setting could be set to an empty value, which left the setting on the device unchanged when sent. The software now displays an error message when a SELOGIC setting value is empty. <p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ➤ Added support for configuring SEL-2411P Z002. <ul style="list-style-type: none"> ➤ Added Pump Logic settings. ➤ Added Analog Control Variable settings. ➤ Added support for 14 digital input card part numbers. ➤ Updated Input Debounce settings to allow 14 inputs for Slots 3 to 6. ➤ Updated Relay Word bit and analog quantity defaults to support station types. ➤ Updated default DNP maps. 	20190930

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	<p>SEL-735 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue in driver version 6.8.1.0 that caused an occasional DISPLAY_LP setting error in previously saved settings. ▶ Improved Load Profile settings layout to increase efficiency of workflow and recorder visibility. ▶ Added Load Profile setting presets for common power quality applications. ▶ Added import and export functionality to the new LDP Data Viewer in the QuickSet HMI. ▶ Improved the legacy load profile interface to provide MV-90 integration functionality. ▶ Improved the auto-scaling of axis values in the LDP Data Viewer and Wave View charts. ▶ Improved the resolution of data for small values in the LDP Data Viewer table view. ▶ Improved date and time selection controls in the LDP Data Viewer. ▶ Added support for settings version Z101, adding HARM and INTERHARM options to HARMCAL and removing INCIHQ. <p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for the 24/48 Vdc low-voltage power supply. 	
6.8.1.0	<p>ACSELERATOR Database</p> <ul style="list-style-type: none"> ▶ Updated database version to 0.100.29. <p>QuickSet</p> <ul style="list-style-type: none"> ▶ Addressed an issue in the HMIs for the SEL-451-4, -5 and SEL-451-6, where the status of the remote bit LED would not update correctly. ▶ Added support for SEL-587 and SEL-587-1 Z000. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-411L, SEL-421, SEL-451-5, SEL-487E, and SEL-487V screens. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ Added support for SEL Configuration API. <p>Legacy SEL-587 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-587 and SEL-587-1 Z000. <p>SEL-421 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-421-7 Z104. ▶ Added new setting ESPQUAD and associated Relay Word bits and analog quantities to support Self-Polarized Quadrilateral Elements. ▶ Added support for new I/O boards options. ▶ Added low-voltage option main board power supply (24/48 V). ▶ Added low-voltage option to I/O boards input voltage (24 V). ▶ Addressed an issue in SEL-421-7 Z100 and Z101 where MAXGRP was unavailable for use in DNP Analog Input settings. ▶ Addressed an issue in SEL-421-7 Z100 and later where QuickSet Search failed to find EPOLDIS. ▶ Addressed an issue in the SEL-421-4, -5 Z024 to Z027 and SEL-421-7 Z100 to Z104 setting drivers and versions where impedance settings Z2F and Z0F could be modified from their saved values when reloaded in QuickSet. <p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue in SEL-451-5 Z026 where part number selection items for the I/O Board Position B option were unavailable for an 8U Chassis selection. ▶ Addressed an issue in the SEL-451-5 Z023 to Z026 and SEL-451-6 Z100 setting drivers and versions where impedance settings Z2F and Z0F could be modified from their saved values when reloaded in QuickSet. <p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for converting settings from SEL-487E-3, -4 Z104-Z108 drivers to Z109 and later. <p>SEL-411L QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue in the SEL-411L, -1 Z012 to Z015 setting drivers and versions where impedance settings Z2F and Z0F could be modified from their saved values when reloaded in QuickSet. 	20190930

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	<p>SEL-401 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-401 Z104. ▶ Added support for new I/O board options. ▶ Added low-voltage option main board power supply (24/48 V). ▶ Added low-voltage option to I/O boards input voltage (24 V). ▶ Addressed an issue in SEL-401 Z100 and Z101 where MAXGRP was unavailable for use in DNP Analog Input settings. ▶ Addressed an issue in SEL-401 Z103 where local bits LB01–LB32 were unavailable for use in the LB_ELE1–LB_ELE32 settings. <p>SEL-710 QuickSet Settings Driver</p> <p>SEL-710 Z008</p> <ul style="list-style-type: none"> ▶ Added EPORT to allow the enabling or disabling of all settings on a port. ▶ Modified logic so that setting either SNTPPSIP or SNTPBSIP to the same IP address as IPADDR results in an error message. ▶ Added a verification check that prohibits MIRRORED BITS channel assignment to PROTO on more than a single port. ▶ Modified logic to disable the STOP setting and force its value to 2 for a PROTO setting of MOD. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ For the SEL-751 Z006 and Z007, modified logic to exclude Port 2 settings from the results of a send operation when a communicating port lacks an ST fiber port. <p>SEL-849 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Modified the SEL-849 Z004 HMI to address an issue of P, Q, and S displaying incorrect analog quantity values. <p>SEL-2664S QuickSet Settings Driver</p> <p>Z001</p> <ul style="list-style-type: none"> ▶ Revised the firmware to remove Option D from the NETPORT setting. ▶ Modified the prompt for the DNP Master IP address settings DNPIP_n to distinguish it from the device IP address. ▶ Resolved an issue in which the analog quantity IN_RMS was incorrectly hidden. ▶ Eliminated the mounting option from part number selection because the mounting does not influence the settings. <p>Z002</p> <ul style="list-style-type: none"> ▶ Added the enable port setting EPORT to all the communications ports. ▶ Revised the firmware to remove Option D from the NETPORT setting. ▶ Modified the prompt for the DNP Master IP address settings DNPIP_n to distinguish it from the device IP address. ▶ Resolved an issue in which the analog quantity IN_RMS was incorrectly hidden. ▶ Eliminated the mounting option from part number selection because the mounting does not influence the settings. <p>SEL-T400L QuickSet Settings Driver</p> <p>Z004</p> <ul style="list-style-type: none"> ▶ Added IEEE C37.94 configuration support. ▶ Added DNP configuration support. ▶ Updated setting categories in navigation tree. ▶ Changed Communication Ports to Communications. ▶ Changed MB Port X to Port X (where X = 1, 2, or 3). ▶ Modified E3PT, E3PT1, and E3PT2 device setting descriptions. ▶ Modified E3PT, TOP, 3PT, and SPT Relay Word bit descriptions. ▶ Added KEYTW and PT87LTW Relay Word bits. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated the SEL-700G Z006 driver to include the PB05–PB08 bits. <p>SEL-651RA QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-651RA Z002. ▶ Addressed issue where the software would not allow the user to set a class value for binary inputs in versions Z001 and later. 	

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	<p>SEL-651R QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-651R-2 Z008. ▶ Addressed issue where the software would not allow the user to set a class value for binary inputs in versions Z004 and later. ▶ Modified deadband range to allow a value of zero in versions Z007 and later. ▶ Updated versions Z006 and later to make Group settings RID (Relay Identifier) and TID (Terminal Identifier) available for display points. <p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Modified SEL-2411P QuickSet driver to support all SEL-2411 card configurations. <p>TEAM Plugin</p> <ul style="list-style-type: none"> ▶ Resolved handling of zip compression when reading events out of the database. ▶ Enhanced email subject line for RTAC Encrypted Database collected events. 	
6.8.1.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Updated QuickSet to use TLS 1.2 when communicating with licensing.selinc.com over HTTPS. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ Addressed an issue where SEL-251C and SEL-251CD devices could not be saved. ▶ Addressed an issue where SEL-251C, SEL-251CD, and SEL RTAC devices were created without an assigned Generate Password Script. ▶ Addressed an issue where importing a DMX erroneously reported a version incompatibility with the ACCELERATOR Database. ▶ Added a "Connect with QuickSet Parameters" menu option for devices in the Connection Explorer. ▶ Added a new Terminate Script (GENERAL_RTAC_SEL_SERVER_TERMINATE_SCRIPT) that invokes the SEL.Terminate() function and respects the Delay Time field values of the device. 	20190304
6.8.0.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Updated the software licensing system. SEL software licensing now provides users with greater access and control over their software licenses. Users can now license QuickSet from within the software as well as via a web browser. In addition, licenses can now be deactivated and reactivated to support migrating licenses from one computer to another. ▶ Updated the 7-Zip component that is used for the ACCELERATOR Database backups and restores. <p>Driver Updates</p> <ul style="list-style-type: none"> ▶ Updated for compatibility with new software licensing system in QuickSet version 6.8.0.0. 	20190122
6.7.7.2	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Addressed an issue where QuickSet would delay detection of a device prompt when QuickSet was connected over a USB-to-serial cable. ▶ Addressed an issue in Device Manager that resulted in unsuccessful initial sends to an SEL Security Gateway. ▶ Removed support for importing event reports for the legacy logic simulator. The component for parsing compressed event reports was a part of ACCELERATOR Analytic Assistant® SEL-5601, a deprecated product for which support is no longer available. ▶ Improved QuickSet print report performance to expedite the opening of print reports for drivers that were previously slow to open. ▶ Updated the driver base for SEL-400 Series Relays. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ Updated internal zip component to address CVE-2018-1002205. <p>SEL-MSR Plugin</p> <ul style="list-style-type: none"> ▶ Changed SEL-MSR package from zip to an installer, so it can deploy shared components previously installed by Analytic Assistant, a deprecated product that no longer installs automatically as a part of QuickSet. 	20181220

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	<p>SEL-401 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue that occurred upon opening an SEL-401 Relay driver when that was the only driver installed. <p>SEL-2730M QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for Alarm Contact Trigger ETH F. ▶ Added new settings for configuring the ETH F Link. ▶ Updated SNMP settings to allow setting the ETH F Link as an SNMP trap for the trap servers. <p>SEL-421 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-421-4-5 Z027. ▶ Added support for IEC 61850 modes: <ul style="list-style-type: none"> ➢ Port 5 settings: E850MBC, EOIFFMTX ➢ Relay Word bits/SELOGIC variables: SC850TM, SC850BM ➢ Analog quantity: I850MOD <p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for SEL-451-5 Z026. ▶ Added support for IEC 61850 modes: <ul style="list-style-type: none"> ➢ Port 5 settings: E850MBC, EOIFFMTX ➢ Relay Word bits/SELOGIC variables: SC850TM, SC850BM ➢ Analog quantity: I850MOD <p>SEL-751A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue where a decimal in a display point setting was incorrectly flagged as invalid in Z010 and Z011. 	
6.7.6.1	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Updated the driver base for SEL-400 Series Relays. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ Added TEAM support for the SEL-3560. ▶ Added TEAM SOE support for the following SEL devices: <ul style="list-style-type: none"> ➢ SEL-311C-3 ➢ SEL-487B-1 ➢ SEL-849 ➢ SEL-2411P ➢ SEL-401 ➢ SEL-421-7 <p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed an issue in SEL-487E Z105–Z108 where MAXGRP was unavailable for use in DNP Analog Input settings. ▶ Added support for SEL-487E Z110. ▶ Added support for IEC 61850 modes: <ul style="list-style-type: none"> ➢ Port 5 settings: E850MBC, EOIFFMTX ➢ Relay Word bits/SELOGIC variables: SC850TM, SC850BM ➢ Analog quantity: I850MOD ▶ Added support for front-panel display of rack-type breaker mosaics: <ul style="list-style-type: none"> ➢ Bay control settings: 52kRACK, 52kTEST ➢ Relay Word bits: 52kRACK, 52kTEST ▶ Added settings for determining whether individual disconnect switches are HMI-controllable: <ul style="list-style-type: none"> ➢ Bay control settings: 89CTLn ➢ Relay Word bits: 89CTLn 	20181220

Software Version Number	Summary of Revisions	Manual Date Code
6.7.5.3	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Corrected issue where device prompt went undetected during a connection to a device through an SEL RTAC. ▶ Corrected issue where user was not warned when sending port settings for the active port. ▶ Corrected issue where scrollbar would not appear for list of events on Event History window. ▶ Corrected issue where attempting to map elements to a DNP map could cause QuickSet to become unresponsive. ▶ Corrected issue with help files not opening on Windows 10. ▶ Updated HTTPS implementation to validate HTTPS certificates by using UTC rather than local time. ▶ Enhanced QuickSet to read design templates over FTP. <p>QuickSet Support Files</p> <ul style="list-style-type: none"> ▶ Added firmware loader support for SEL-451-5,-6, SEL-487B-2, and SEL-487E-5. ▶ Added event collection support for SEL-451-5,-6, SEL-487B-2, and SEL-487E-5. <p>QuickSet Language Files</p> <ul style="list-style-type: none"> ▶ Updated Chinese, French, Portuguese, Russian, Spanish, and Turkish translations. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ▶ Added SEL-411L, SEL-421, and SEL-487E screens. <p>Bay Control Editor</p> <ul style="list-style-type: none"> ▶ Addressed an issue where transformer mosaics could get cut off in the bay screen display. ▶ Addressed an issue in the SEL-487E bay screens where part of the low voltage screen would not be included when sent to the device. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ Addressed an issue where updating the ACSELERATOR Database to the latest version could fail for some users. ▶ Added support for SEL-487E-5, SEL-451-6, and SEL-487B-2. <p>GLE</p> <ul style="list-style-type: none"> ▶ Updated the list of SEL-400 series devices that have only 16 protection conditioning timers to include the SEL-487B-2. ▶ Fixed GLE issue that prevented compilation of SC950 bits and Fast Operate bits. <p>SEL-2411 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Addressed issue where SNTP settings are not being hidden when EPORT = N. <p>SEL-2431 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Updated to allow AI_00–AI_99 settings deadband range to be set to 0 for the SEL-2431 Z010 driver. <p>SEL-2440 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Support new main board hardware. ▶ Support 10 Fast Hybrid Digital Output board option. ▶ Increase maximum MIRRORED BITS speed to 115200 bps (new HW only). <p>SEL-401 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ▶ Added support for IEC 61850 modes: <ul style="list-style-type: none"> ▶ Port 5 Settings: E850MBC, EOIFFMTX ▶ Relay Word bits/SELOGIC variables: SC850TM, SC850BM ▶ Analog: I850MOD ▶ Added support for front-panel display of rack-type breaker mosaics: <ul style="list-style-type: none"> ▶ Bay control settings: 52kRACK, 52kTEST ▶ Relay Word bits: 52kRACK, 52kTEST ▶ Added settings for determining whether individual disconnect switches are HMI-controllable: <ul style="list-style-type: none"> ▶ Bay control settings: 89CTLn ▶ Relay Word bits: 89CTLn ▶ Added 24/48 Vdc power supply MOT option. 	20181220

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-421 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added Relay Word bit SVBK_EX. ► Removed default protection SELOGIC and alias settings for PCT01. ► Added support for IEC 61850 modes: <ul style="list-style-type: none"> ➢ Port 5 settings: E850MBC, EOFFMTX ➢ Relay Word bits/SELOGIC variables: SC850TM, SC850BM ➢ Analog: I850MOD ► Added support for front-panel display of rack-type breaker mosaics: <ul style="list-style-type: none"> ➢ Bay control settings: 52kRACK, 52kTEST ➢ Relay Word bits: 52kRACK, 52kTEST ► Added settings for determining whether individual disconnect switches are HMI-controllable: <ul style="list-style-type: none"> ➢ Bay control settings: 89CTLnn ➢ Relay Word bits: 89CTLnn ► Added 24/48 Vdc power supply MOT option. <p>SEL-451 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-451-6 Z100 device. <p>SEL-487B QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-487B-2 Z100 device. <p>SEL-487E QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-487E-5 Z200 device. <p>SEL-751 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Updated the SEL-751 Z006 and Z007 for the following: <ul style="list-style-type: none"> ➢ Spanish and Chinese language translations ➢ Inadvertent cropping of the text when Spanish is selected as the language option ➢ Resolve a display point syntax issue <p>SEL-751 QuickSet Settings Driver Language Files</p> <ul style="list-style-type: none"> ► Updated Spanish and Chinese translations. <p>SEL-751A QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added support for SEL-751A Z012. ► Added the METHRES setting (Global settings) to turn off the squelching of currents and voltages. ► Revised the QuickSet driver to remove the "D" option from the NETPORT setting range. ► Added the LOPBLK SELOGIC control equation setting (with a default setting value of 0) so that the LOP logic can be blocked for user-defined conditions. ► Increased the maximum set point of the frequency trip delay setting 81DnTD ($n = 1$ to 6) from 240.00 to 400.00 seconds. ► Increased the maximum set point of the time-overlight (TOL) pickup setting to 80 percent for the point and bare-fiber sensors. ► Modified the QuickSet driver to make the MATHERR Relay Word bit available for SELOGIC settings. <p>SEL-751A QuickSet Settings Driver Language Files</p> <ul style="list-style-type: none"> ► Updated Spanish and Chinese translations. <p>SEL-849 QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Addressed issue where QuickSet could abort sending settings to an SEL-849 Z004 device. 	
6.7.4.2	<p>QuickSet</p> <ul style="list-style-type: none"> ► Updated SELOGIC selection process form for XML-based devices. ► Updated screen settings selection form for devices that support touch screens. ► Updated event history and HMI components. ► Added support for SEL-700G, SEL-710-5, and SEL-787-3, -4. <p>Bay Control Screens</p> <ul style="list-style-type: none"> ► Added SEL-421-5 and SEL-487V screens. <p>SEL-700G QuickSet Settings Driver</p> <ul style="list-style-type: none"> ► Added touch screen capability, 27I/59I, PRP, IEC 60870, and 14 DI support. 	20181220

Software Version Number	Summary of Revisions	Manual Date Code
	<p>SEL-710 QuickSet Settings Driver ► Added touch screen capability, 27I/59I, PRP, IEC 60870, and 14 DI support.</p> <p>SEL-787 QuickSet Settings Driver ► Added touch screen capability, 27I/59I, PRP, 14 DI, and two winding support.</p> <p>SEL-849 QuickSet Settings Driver ► Increased FLA setting range to 256 A.</p>	
6.7.3.1	<p>QuickSet SEL-400 Series Compatibility Update ► Added HMI support for display of rack-type breakers and corresponding settings 52kRACK and 52kTEST.</p> <p>► Added the 89CTLnn disconnect control setting to provide the capability to individually control disconnects in the relay front-panel HMI.</p> <p>SEL-352 QuickSet Settings Driver (6.7.1.0) ► Addressed an issue in the SEL-352-2, -3 QuickSet Driver where some settings could be set back to default values: ➤ SEL-352-2 Z102 and Z103 ➤ SEL-352-3 Z001</p>	20180810
6.7.2.2	<p>Device Manager</p> <ul style="list-style-type: none"> ► Enhanced software to prevent deletion of in-use Custom Attributes, Titled Passwords, and Scripts. ► Enhanced software with new Tools > Configure Types menu item. This new central location simplifies the management of the following Device Manager types that were previously accessed from various locations: <ul style="list-style-type: none"> ➤ Device Types ➤ Folder Types ➤ Device Custom Attributes Names ➤ Folder Custom Attribute Names ► Added support for TLS 1.2 with LDAP. ► Added new script (SetGeEnhancedPassword) for GE devices with firmware 7.00 or greater that sets new complex alphanumeric passwords. ► Added new shortcut key <Ctrl+D> to the Hide Similar Values option for comparison and merge operations. ► Enhanced software to allow user to change their password when connected to a remote database without the Device Manager for Workgroups license. ► Addressed an issue where new LDAP users were unable to connect to a remote database without the Device Manager for Workgroups license. ► Addressed an issue with General_RTAC_AP_ACCESS_SCRIPT where the script would fail to execute because of syntax errors. 	20180702
6.7.1.0	<ul style="list-style-type: none"> ► Addressed an issue where settings could be set to a default state when using the Print Reports or GLE functions for certain device types. 	20180529
6.7.0.2	<ul style="list-style-type: none"> ► Added QuickSet driver support for the SEL-T400L Z003002 version of the firmware. ► Added support for Event Playback for SEL-T400L Relay. ► Added Playback File Conversion Utility to convert a compliant C37.111 COMTRADE file to the SEL-T400L playback file format. ► Added Playback Test Dashboard to upload and manage playback test files in the relay memory and to execute event playback tests. ► Updated Firmware Loader to better handle upgrades with SEL-401 and SEL-421-7 devices. 	20180221
6.6.1.1	<p>QuickSet</p> <ul style="list-style-type: none"> ► Added support for the SEL-751 Z007 device. <p>Device Manager</p> <ul style="list-style-type: none"> ► General maintenance release. ► Added support for the Applications Tab. 	20171222

Software Version Number	Summary of Revisions	Manual Date Code
6.6.0.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Added Russian language support. ▶ Added support for the SEL-2730M Z006 device. ▶ General maintenance release. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ General maintenance release. ▶ Added new Merge with Device Settings option that allows users to merge settings read from a device with a selected settings version. ▶ Added new Import and Merge option that allows users to merge settings from a Settings Database with a selected settings version. ▶ Improved Comparison Report functionality to maintain Compare correlation collapse state within generated reports. 	20170912
6.5.5.0	<ul style="list-style-type: none"> ▶ Compatibility update for the SEL-2488. 	20170730
6.5.4.10	<ul style="list-style-type: none"> ▶ Compatibility update for the SEL-401 and SEL-421-7. 	20170726
6.5.3.1	<ul style="list-style-type: none"> ▶ General maintenance release. ▶ Upgraded ACCELERATOR Database version to Postgres version 9.6.2. ▶ Improved performance when reading device settings from ACCELERATOR Database. ▶ Improved the management and reporting of compatible application and database versions. ▶ Corrected issue when connecting to an SEL-734P. ▶ Corrected issue with DPI Scaling on Windows 8.1 and Windows 10 with Device Manager. ▶ Added Device Manager's version information to the About QuickSet Window. 	20170531
6.5.0.11	<ul style="list-style-type: none"> ▶ Added support for SEL-T400L, including support for Time versus Length plot, reading event reports over FTP, and enhanced Help. ▶ Required that Event Viewer selection occur during launch of an event report for analysis. ▶ Enhanced Print Device Settings. ▶ Enhanced the Firmware Loader event saving process. 	20170314
6.4.1.0	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Corrected issue where the Send dialog window did not display changes to settings groups. ▶ Updated SEL-751 driver. <p>Device Manager</p> <ul style="list-style-type: none"> ▶ Corrected issue with importing settings into Device Manager from an RDB file created by SEL-5010. 	20170224
6.4.0.2	<p>QuickSet</p> <ul style="list-style-type: none"> ▶ Updated for interface changes. <p>Device Manager (6.4.1.0)</p> <ul style="list-style-type: none"> ▶ Removed SEL-3533 as an RTAC device type. Any configured devices of this type are converted to SEL-3555 when upgrading to this release of Device Manager. ▶ Increased the default RTAC connection script timeout from 10 seconds to 30 seconds. ▶ Corrected issue changing BRE level password on SEL-321 devices. ▶ Corrected issue where reading of settings versions can cause a database timeout. ▶ Corrected issues with name assignments for devices imported from CSV files. 	20170125
6.4.0.2	<ul style="list-style-type: none"> ▶ Updated for interface changes. 	20161215
6.3.0.7	<ul style="list-style-type: none"> ▶ Improved ACCELERATOR Database management features. ▶ Added support for ACCELERATOR Database SSL connections. ▶ Added support for remote ACCELERATOR Database key management features. ▶ Added support for GLE diagram to be sent and stored on device. 	20160902
6.2.3.0	<ul style="list-style-type: none"> ▶ General maintenance release to support Device Manager changes. 	20160707

Software Version Number	Summary of Revisions	Manual Date Code
6.2.0.0	<ul style="list-style-type: none"> ► General maintenance updates. ► Expanded text options to include a number of advanced features for settings documentation in Graphical Logic Editor (GLE). ► Added support to send Break command for SSH connections. ► Added device settings versioning and management. Each version of settings can now be tracked with a state and version number. States can be defined in accordance with your defined settings management process. Versions of settings can be compared, both for a single device and across devices. ► Added the ability to configure different authentication mechanisms for engineering access through Device Manager and collection access through TEAM. ► Added support for new RTAC models. 	20160412
6.1.0.4	<ul style="list-style-type: none"> ► General maintenance release. ► Improved event collection including addition of event file automatic naming. ► Added search capability to Expression Builder for SEL-400 series devices. ► Introduced the ability to double-click an RDB file while QuickSet is running to add the RDB file to the list of most recently used files. ► Added the ability to toggle aliases off and on for devices that support aliasing. ► Improved the detection of when a Bluetooth communications device loses connectivity. ► Resolved inability to send legacy device settings at faster data rates. ► Resolved inability to edit SEL-5010 settings that do not contain a valid part number. ► Resolved issue of excessive RDB file growth. 	20151103
6.0.3.1	<ul style="list-style-type: none"> ► Resolved issue with ACSELERATOR Database backup utility that would cause Profile data to be duplicated. 	20150819
6.0.2.3	<ul style="list-style-type: none"> ► General maintenance release. ► Improved ACSELERATOR Database backup and restore process. ► Improved SEL-351P-2, -3 read/send capability. 	20150715
5.18.0.2	<ul style="list-style-type: none"> ► General maintenance release. ► Enhanced TEAM configuration work flow to reduce configuration steps. ► Added compare/merge feature to Device Manager. ► Improved ACSELERATOR Database backup and restore capability. ► Resolved device information from showing as blank on Classic print reports. 	20150327
5.17.0.2	<ul style="list-style-type: none"> ► General maintenance release. ► Added support for 87L over Ethernet to the SEL-411L Z008. ► Added support for the SEL-787-4 Z001. 	20150122
5.16.0.2	<ul style="list-style-type: none"> ► General maintenance release. ► Added support for Windows 8. ► Removed support for Windows XP. ► Updated the QuickSet Team plugin to add support for GE SOE collection with ACSELERATOR TEAM. ► Added support for the SEL-735 Z007 device. ► Added support for SEL-2PG10 Z000, SEL-351-6 Z001, SEL-351R-2 Z003, SEL-387-5 Z002, SEL-387-5 Z102 legacy devices. 	20140930
5.15.0.4	<ul style="list-style-type: none"> ► Added support for SEL-2664S Z001 device. ► Improved performance and storage of RDB files. ► Moved Send Ctrl Characters option to a check box at the top of the Terminal window. ► Event Collection now sends the CHI command instead of the HIS command on supported devices. ► Added ability to create Device Reports in QuickSet Device Manager. ► Added support to select either synchroWAVE Event or AcSELERator Analytic Assistant as the default event viewer. ► Added Universal Driver Support for settings reads over FTP. ► General maintenance release. 	20140708
5.14.2.1	<ul style="list-style-type: none"> ► Resolved communications issue with SEL Bluetooth devices while using hardware flow control. ► Resolved issue with valid IN2XX/IN3XX bits being flagged as invalid in SEL-400 series relays when saving and reopening these bits in DNP binary map settings. 	20140416

Software Version Number	Summary of Revisions	Manual Date Code
5.14.1.1	<ul style="list-style-type: none"> ► Redesigned event collection form. ► Enabled sending of Ctrl characters to device by default for the Terminal window. ► Improved SEL-734 and SEL-735 drivers. ► Added event collection support for legacy devices. ► Added functionality to open settings from a Settings Database by double-clicking the Settings Database. 	20140307
5.14.0.13	<ul style="list-style-type: none"> ► Added FTP port number setting to Communication Parameters form. ► Added device settings management to the Device Manager plugin. ► Improved communications. ► Performed general maintenance. ► Added support for QuickSet to work with multiple setting database files simultaneously. ► Added new instruction manual. 	20140130
5.13.7.6	<ul style="list-style-type: none"> ► Added support for the SEL-2730M Z002 and SEL-734 Z107. Also added FTP pass-through support for the SEL-3620. 	20131216
5.13.6.0	<ul style="list-style-type: none"> ► Added support for the SEL-735 Z005, SEL-487V Z002, SEL-487B Z009, and SEL-411L Z006. 	20131028
5.13.5.4	<ul style="list-style-type: none"> ► Added additional bay control screens. 	20131023
5.13.4.2	<ul style="list-style-type: none"> ► Updated to support new TEAM features and the SEL-710-5 Z001. 	20131004
5.13.3.5	<ul style="list-style-type: none"> ► Reduced communication time-outs for legacy devices to improve settings send speed. 	20130817
5.13.0.5	<ul style="list-style-type: none"> ► General maintenance release. 	20130730
5.12.3.2	<ul style="list-style-type: none"> ► Added changes to support backward conversions of SEL-400 series relay settings containing Design Templates. 	20130518
5.12.2.0	<ul style="list-style-type: none"> ► Updated the SEL-734 and SEL-735 drivers. 	20130510
5.12.1.0	<ul style="list-style-type: none"> ► Updated the general device and plugins. 	20130502
5.12.0.1	<ul style="list-style-type: none"> ► Updated all QuickSet packages. 	20240813
5.11.1.0	<ul style="list-style-type: none"> ► Updated the general device and plugins. 	20130202
5.11.0.0	<ul style="list-style-type: none"> ► Updated TEAM and Device Manager plugins. 	20121103
5.10.0.4	<ul style="list-style-type: none"> ► Added QuickSet menu and message support for Spanish. 	20121030
5.9.0.2	<ul style="list-style-type: none"> ► Updated the SEL-411L, SEL-421, SEL-651R, and Bay Screen packages. 	20120922
5.8.0.3	<ul style="list-style-type: none"> ► Updated Bay Screens. 	20120829
5.7.0.0	<ul style="list-style-type: none"> ► Updated the SEL-2411 and SEL-651R drivers. 	20120713
5.6.0.2	<ul style="list-style-type: none"> ► Updated the Device Manager plugin, Device Manager Database, Legacy Database, Common Core, and TEAM plugin. 	20120525
5.5.4.2	<ul style="list-style-type: none"> ► Updated SEL-351, SEL-351A, and SEL-351S drivers. 	20120319
5.5.0.7	<ul style="list-style-type: none"> ► Added the Bay Control plugin. 	20120227
5.4.0.1	<ul style="list-style-type: none"> ► Added support for the SEL-487E. 	20111216
5.3.0.1	<ul style="list-style-type: none"> ► Added support for the SEL-700G, released the Graphical Logic Editor plugin, and added support for bay control screens. 	20111208
5.2.0.1	<ul style="list-style-type: none"> ► Added device drivers for the SEL-311A, B, and C. Released the Device Manager plugin. 	20110901
5.1.3.1	<ul style="list-style-type: none"> ► Improved the Graphical Logic Editor plugin. 	20110706
5.1.1.4	<ul style="list-style-type: none"> ► Added device support for the SEL-2431 Z008, SEL-710 Z006, SEL-751A Z010, SEL-751 Z001, SEL-735 Z001, SEL-787 Z003, SEL-411L Z001, and SEL-651R-1 Z004. 	20110622

Software Version Number	Summary of Revisions	Manual Date Code
5.1.0.1	► Added support for the SEL-351P-3.	20110427
5.0.4.3	► Improved menu display across different operating systems.	20110408
5.0.3.4	► Improved SEL-451 display point loading.	20110317
5.0.2.4	► Added support for the SEL-351R Z007.	20110310
5.0.1.1	► Added Design Templates to QuickSet shell.	20110225
5.0.0.6	► Added the SEL-734 and SEL-2411 drivers.	20110120

Instruction Manual

The date code at the bottom of each page of this manual reflects the creation or revision date.

Table A.2 lists the instruction manual versions and revision descriptions. The most recent instruction manual version is listed first.

Table A.2 Instruction Manual Revision History

Date Code	Summary of Revisions
20250305	Appendix A ► Updated for version 7.5.0.0.
20250205	Section 7 ► Updated <i>Acquire Firmware Files</i> . Appendix A ► Updated for version 7.4.10.0. Appendix B ► Updated <i>Table B.1: Supported Devices and Languages</i> .
20250108	Appendix A ► Updated for version 7.4.9.2. Appendix B ► Updated <i>Table B.1: Supported Devices and Languages</i> .
20241204	Appendix A ► Updated for version 7.4.8.0.
20241106	Appendix A ► Updated for version 7.4.7.0. Appendix B ► Updated <i>Table B.1: Supported Devices and Languages</i> .
20241003	Appendix A ► [Cybersecurity Enhancement] Corrected the following entries for version 7.4.6.0: ➤ Changed “screen” to “seen” in the SEL-700BT, SEL-700G, SEL-710, SEL-751, SEL-787, SEL-787L, and SEL-787Z QuickSet Settings Driver entries. ➤ Removed “Slot E” reference in the SEL-710 QuickSet Settings Driver entry. ➤ Changed “98OC” to “89OC” in the SEL-787L and SEL-787Z QuickSet Settings Driver entries.
20241002	Section 1 ► Updated <i>Table 1.1: Minimum Requirements</i> . Section 4 ► Updated <i>Figure 4.2: Default Password Warning Dialog Window</i> .

Date Code	Summary of Revisions
	<p>Section 6 ► Updated <i>Figure 6.1: The Interaction Among QuickSet Components in a Design Template Application</i>.</p> <p>Appendix A ► [Cybersecurity Enhancement] Updated for version 7.4.6.0.</p> <p>Appendix B ► Updated <i>Table B.1: Supported Devices and Languages</i>.</p>
20240904	<p>Appendix A ► [Cybersecurity Enhancement] Updated for version 7.4.5.0.</p> <p>Appendix B ► Updated the SEL-749M information in <i>Table B.1: Supported Devices and Languages</i>.</p>
20240807	<p>Appendix A ► Updated for version 7.4.4.0.</p>
20240703	<p>Section 1 ► Updated Microsoft .NET Framework version in <i>Table 1.1: Minimum Requirements</i>.</p> <p>Appendix A ► Updated for version 7.4.3.1.</p>
20240613	<p>Appendix A ► Updated for version 7.4.2.0.</p>
20240605	<p>Appendix A ► Updated for version 7.4.1.3.</p> <p>Appendix B ► Updated <i>Table B.1: Supported Devices and Languages</i>.</p>
20240501	<p>Section 3 ► Added <i>Blueframe</i> in <i>Parameters</i>.</p> <p>Section 4 ► Updated <i>Figure 4.5: Connect With QuickSet Parameters Settings</i>.</p> <p>Section 5 ► Added <i>Connect to a Blueframe Device in Device Manager</i> in <i>Job Done Examples</i>.</p> <p>Section 7 ► Updated <i>Overview</i> in <i>Analyze Events</i>.</p> <p>Appendix A ► Updated for version 7.4.0.1.</p> <p>Appendix B ► Updated <i>Table B.1: Supported Devices and Languages</i>.</p>
20240329	<p>Appendix A ► Updated for version 7.3.1.0.</p>
20240306	<p>Appendix A ► [Cybersecurity] Updated for version 7.3.0.4.</p>
20240202	<p>Appendix A ► Added the SEL-651R-2 and SEL-2488 QuickSet Settings Driver and ACCELERATOR Database Utilities entries to version 7.2.2.4.</p>
20231227	<p>Appendix A ► Added the SEL-2411 QuickSet Settings Driver entry to version 7.2.2.4.</p>

Date Code	Summary of Revisions
20231222	<p>Appendix A</p> <ul style="list-style-type: none"> ► [Cybersecurity] Updated for version 7.2.2.4. ► Added the following QuickSet Bay Control Screens to version 7.2.1.12: <ul style="list-style-type: none"> ➢ SEL-400G screen 8 ➢ SEL-487E screen HV162
20231121	<p>Appendix A</p> <ul style="list-style-type: none"> ► Added the SEL-849 QuickSet Settings Driver entry to the version 7.2.1.12 Summary of Revisions.
20231114	<p>Appendix A</p> <ul style="list-style-type: none"> ► Updated for version 7.2.1.12.
20231019	<p>Appendix A</p> <ul style="list-style-type: none"> ► Added the following QuickSet Bay Control Screens for version 7.2.0.0: <ul style="list-style-type: none"> ➢ SEL-411L screens 177 and 178 ➢ SEL-421 screens 178 and 179 ► Corrected screen names for SEL-487E screens TRI42-I43 in list of QuickSet Bay Control Screens added in version 7.2.0.0. ► Corrected a reference to HALARM in SEL-2440 QuickSet Settings Driver for version 7.1.2.2. ► Corrected SEL-710 QuickSet Settings Driver release note for version 6.8.1.0 regarding an error message resulting from either SNTPPSIP or SNTPBSIP being set to the same IP address as IPADDR.
20230925	<p>Appendix A</p> <ul style="list-style-type: none"> ► Added additional QuickSet Bay Control Screens and ACCELERATOR Database Device Manager Support to Summary of Revisions for version 7.2.0.0.
20230828	<p>Section 1</p> <ul style="list-style-type: none"> ► Added <i>Default Installed Programs</i>. <p>Section 4</p> <ul style="list-style-type: none"> ► Updated <i>Figure 4.2: Default Password Warning Dialog Window</i>. <p>Appendix A</p> <ul style="list-style-type: none"> ► Updated for version 7.2.0.0.
20230720	<p>Appendix A</p> <ul style="list-style-type: none"> ► Added additional QuickSet Bay Control Screens to Summary of Revisions for version 7.1.4.0.
20230615	<p>Appendix A</p> <ul style="list-style-type: none"> ► Updated for version 7.1.4.0.
20230524	<p>Appendix A</p> <ul style="list-style-type: none"> ► Updated for version 7.1.3.0. ► Updated Summary of Revisions for version 7.1.2.2. <p>Appendix B</p> <ul style="list-style-type: none"> ► Updated <i>Table B.1: Supported Devices and Languages</i>.
20230324	<p>Appendix A</p> <ul style="list-style-type: none"> ► Added the <i>QuickSet Device Manager Plugin v7.1.2.0</i> entry to the version 7.1.2.2 Summary of Revisions. ► Updated Summary of Revisions for version 7.0.0.7.
20230206	<p>Appendix A</p> <ul style="list-style-type: none"> ► Updated for version 7.1.2.2. <p>Appendix B</p> <ul style="list-style-type: none"> ► Updated <i>Table B.1: Supported Devices and Languages</i>.
20221215	<p>Appendix A</p> <ul style="list-style-type: none"> ► Updated for version 7.1.1.1. <p>Appendix B</p> <ul style="list-style-type: none"> ► Updated <i>Table B.1: Supported Devices and Languages</i>.

Date Code	Summary of Revisions
20221122	<p>Section 2</p> <ul style="list-style-type: none">► Updated <i>Configuring Device Settings</i> and added <i>Figure 2.12: Network Save Options</i>. <p>Section 5</p> <ul style="list-style-type: none">► Updated <i>ACSELERATOR Database</i>. <p>Appendix A</p> <ul style="list-style-type: none">► Updated for version 7.1.0.2.► Updated Summary of Revisions for version 7.0.0.7. <p>Appendix B</p> <ul style="list-style-type: none">► Updated <i>Table B.1: Supported Devices and Languages</i>. <p>Appendix E</p> <ul style="list-style-type: none">► Updated <i>Database Accounts</i>.
20220628	<p>Section 2</p> <ul style="list-style-type: none">► Updated <i>Configuring Device Settings</i>. <p>Section 4</p> <ul style="list-style-type: none">► Updated <i>Getting Started</i>. <p>Appendix A</p> <ul style="list-style-type: none">► Updated for version 7.0.0.7.► Updated Summary of Revisions for version 6.12.0.2.
20220311	<p>Section 2</p> <ul style="list-style-type: none">► Updated <i>Get Started</i>.► Added <i>Figure 2.11: Save Window Warning Symbol</i>. <p>Section 4</p> <ul style="list-style-type: none">► Updated <i>Available Commands</i> in <i>Create and Manage Custom Scripts</i>.► Updated <i>Available Variables</i> in <i>Create and Manage Custom Scripts</i>. <p>Section 5</p> <ul style="list-style-type: none">► Updated <i>Figure 5.51: Expression Builder</i>. <p>Appendix A</p> <ul style="list-style-type: none">► Updated for version 6.12.0.2.► Updated Summary of Revisions for version 6.11.1.3. <p>Appendix B</p> <ul style="list-style-type: none">► Updated <i>Table B.1: Supported Devices and Languages</i>.
20220214	<p>Section 4</p> <ul style="list-style-type: none">► Added <i>User Report</i>. <p>Section 6</p> <ul style="list-style-type: none">► Updated <i>Figure 6.18: Use the Edit Properties Window to Modify Template Settings Options</i>.► Updated <i>Figure 6.19: Use the Range Setting to Specify Valid Settings for the Selected Template Setting</i>. <p>Appendix A</p> <ul style="list-style-type: none">► Updated Summary of Revisions for version 6.11.1.3.
20220204	<p>Appendix A</p> <ul style="list-style-type: none">► Updated for version 6.11.1.3.► Updated Summary of Revisions for version 6.11.0.0. <p>Appendix B</p> <ul style="list-style-type: none">► Updated Z-Number column for SEL-487E-3, SEL-487E-4, and SEL-751.
20211217	<p>Section 1</p> <ul style="list-style-type: none">► Updated <i>Table 1.1: Minimum Requirements</i>. <p>Section 2</p> <ul style="list-style-type: none">► Updated <i>Figure 2.1: Setting Up the Communication Parameters</i>.► Added <i>Backup RDB Settings</i> and <i>Restore Backup RDB Settings</i> to <i>Using Existing Settings</i>.

Date Code	Summary of Revisions
	<p>Section 4 ► Added <i>Note</i> on page 4.2 under <i>Getting Started</i>.</p> <p>Section 7 ► Added <i>Note</i> on page 7.39 under <i>View Motor Start Reports in QuickSet</i>.</p> <p>Appendix A ► Updated for versions 6.10.14.1 and 6.11.0.0.</p> <p>Appendix D ► Updated <i>Technical Support</i>.</p>
20211014	<p>Appendix A ► Updated for version 6.10.13.0.</p>
20210722	<p>Section 2 ► Updated <i>Figure 2.23: Device Settings Tab in Device Manager</i>. ► Updated <i>Figure 2.26: Associated Device Settings</i>.</p> <p>Section 4 ► Updated <i>Figure 4.25: Comparing Devices</i>. ► Updated <i>Figure 4.30: Workflow</i>. ► Updated <i>Settings Version History</i>. ► Updated <i>Figure 4.32: Version History</i>.</p> <p>Section 5 ► Added <i>Basic Importer</i> and <i>SEL Settings Database Importer</i>. ► Added Job Done Example <i>Adding Settings to an Existing Device</i>.</p> <p>Appendix A ► Updated <i>Figure A.1: About QuickSet Window</i>. ► Updated for version number 6.10.12.0.</p>
20210615	<p>Appendix A ► Updated for version numbers 6.10.7.0 and 6.10.8.0.</p>
20210226	<p>Appendix A ► Updated for version numbers 6.10.5.3, 6.10.6.0, and 6.10.7.0. ► Updated summary of revisions for version number 6.10.4.1 in <i>Table A.1: Software Version History</i>.</p>
20201118	<p>Appendix A ► Updated for version numbers 6.10.2.1, 6.10.3.0, and 6.10.4.1.</p>
20200918	<p>Section 1 ► Updated <i>Table 1.1: Minimum Requirements</i></p> <p>Section 2 ► Added note about using the Device Management for Workgroups feature in cases of multiple users needing access to settings and about avoiding settings corruptions and save conflicts by using the RDB file on a local network.</p> <p>Appendix A ► Updated for version number 6.10.1.2. ► Updated summary of revisions for version number 6.10.0.4 in <i>Table A.1: Software Version History</i>.</p>
20200814	<p>Appendix A ► Updated for version number 6.10.0.4. ► Updated summary of revisions for version number 6.9.1.0 in <i>Table A.1: Software Version History</i>.</p>
20200701	<p>Appendix A ► Updated for version number 6.9.1.0. ► Updated summary of revisions for version number 6.9.0.2 in <i>Table A.1: Software Version History</i>.</p>

Date Code	Summary of Revisions
20200601	<p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated for version numbers 6.8.2.2 and 6.9.0.2. ▶ Updated summary of revisions for version number 6.8.2.0 in <i>Table A.1: Software Version History</i>. <p>Appendix B</p> <ul style="list-style-type: none"> ▶ Updated <i>Table B.1: Supported Devices and Languages</i>.
20190930	<p>Section 1</p> <ul style="list-style-type: none"> ▶ Added note about the implications of write-caching to the ACCELERATOR Database. <p>Section 4</p> <ul style="list-style-type: none"> ▶ Added note about the implications of write-caching to the ACCELERATOR Database. <p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated for version number 6.8.2.0. ▶ Updated summary of revisions for version number 6.8.1.0 in <i>Table A.1: Software Version History</i>. <p>Appendix B</p> <ul style="list-style-type: none"> ▶ Updated <i>Table B.1: Supported Devices and Languages</i>. <p>Appendix D</p> <ul style="list-style-type: none"> ▶ Updated <i>Overview</i>.
20190308	<p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated summary of revisions for version number 6.8.1.0 in <i>Table A.1: Software Version History</i>.
20190304	<p>Section 4</p> <ul style="list-style-type: none"> ▶ Added <i>Connect With QuickSet Parameters</i> under Managing Nodes. ▶ Updated <i>Workspace</i>. <p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated for version numbers 6.8.1.0.
20190122	<p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated for version number 6.8.0.0. ▶ Updated drivers for version number 6.7.7.2. <p>Appendix B</p> <ul style="list-style-type: none"> ▶ Updated <i>Table B.1: Supported Devices and Languages</i>. <p>Appendix D</p> <ul style="list-style-type: none"> ▶ Updated entire appendix.
20181220	<p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated for version numbers 6.7.4.2, 6.7.5.3, 6.7.6.1, and 6.7.7.2.
20180810	<p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated for version number 6.7.3.1.
20180720	<p>Appendix B</p> <ul style="list-style-type: none"> ▶ Updated <i>Table B.1: Supported Devices and Languages</i>.
20180702	<p>Section 1</p> <ul style="list-style-type: none"> ▶ Updated <i>Table 1.1: Minimum Requirements</i>. <p>Section 2</p> <ul style="list-style-type: none"> ▶ Updated <i>Figure 2.16: Select the Device Type to be Added</i>. <p>Section 4</p> <ul style="list-style-type: none"> ▶ Updated text to <i>Workspace</i> and <i>Create and Manage Custom Scripts</i>. ▶ Added <i>Figure 4.8: Script Editor Helper Window</i>. <p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated for version number 6.7.2.2.
20180529	<p>Appendix A</p> <ul style="list-style-type: none"> ▶ Updated for version number 6.7.1.0.

Date Code	Summary of Revisions
20180221	<p>Section 7</p> <ul style="list-style-type: none"> ► Added <i>Event Playback</i> in <i>Analyze Events</i>.
20171222	<p>Section 1</p> <ul style="list-style-type: none"> ► Updated <i>Table 1.1: Minimum Requirements</i>. <p>Section 4</p> <ul style="list-style-type: none"> ► Added <i>Applications Tab</i> in <i>Workspace</i>. ► Updated <i>Manage User Accounts</i>. ► Added <i>Add ACSELERATOR RTAC as an Application</i> in <i>Job Done Examples</i>.
20170912	<p>Section 1</p> <ul style="list-style-type: none"> ► Added note to <i>Overview</i>. <p>Section 5</p> <ul style="list-style-type: none"> ► Updated <i>Figure 5.53: Settings Tab</i>. ► Updated <i>Edit and Save Settings</i>. ► Updated <i>Figure 5.55: Pending Settings</i>. ► Updated <i>Figure 5.56: Device Tasks</i>. ► Updated <i>Read and Send Settings</i>. ► Updated <i>Figure 5.57: Workspace Settings</i>. ► Updated <i>Figure 5.58: Merge Read Settings</i>. <p>Appendix B</p> <ul style="list-style-type: none"> ► Updated <i>Table B.1: Supported Devices and Languages</i>.
20170531	<p>General</p> <ul style="list-style-type: none"> ► Added <i>Appendix E: Cybersecurity Information</i>. <p>Section 1</p> <ul style="list-style-type: none"> ► Updated <i>Table 1.1: Minimum Requirements</i>. <p>Section 4</p> <ul style="list-style-type: none"> ► Added note to <i>Overview</i>. ► Updated <i>Create and Manage Custom Scripts</i>. <p>Section 5</p> <ul style="list-style-type: none"> ► Updated <i>Figure 5.10: Settings Read Options</i>. <p>Section 7</p> <ul style="list-style-type: none"> ► Updated <i>Overview</i>. ► Removed <i>Figure 7.1: Select Event Viewer</i>.
20170314	<p>Section 5</p> <ul style="list-style-type: none"> ► Updated <i>Print Settings</i>. <p>Section 7</p> <ul style="list-style-type: none"> ► Updated <i>Overview</i>. <p>Appendix A</p> <ul style="list-style-type: none"> ► Updated <i>Table A.1: Software Version Table</i>. <p>Appendix B</p> <ul style="list-style-type: none"> ► Updated <i>Table B.1: Supported Devices and Languages</i>.
20170215	<p>Section 5</p> <ul style="list-style-type: none"> ► Updated <i>Print Settings</i>. <p>Section 7</p> <ul style="list-style-type: none"> ► Updated <i>Analyze Events</i>.
20161014	<p>Section 4</p> <ul style="list-style-type: none"> ► Updated <i>Overview</i>. <p>Appendix D</p> <ul style="list-style-type: none"> ► Updated <i>Table D.1: License File Save Locations</i>.

Date Code	Summary of Revisions
20160902	<p>Section 5</p> <ul style="list-style-type: none"> ▶ Updated <i>Figure 5.11: Selection of Settings Groups or Classes to Read.</i> ▶ Updated <i>Figure 5.66: Backup ACCELERATOR Database.</i> ▶ Added <i>Sharing Device Manager Database to Database Management.</i> <p>Section 6</p> <ul style="list-style-type: none"> ▶ Updated <i>Figure 6.44: Settings Group/Class Select Options Menu.</i> ▶ Updated <i>Figure 6.46: Use Read Designer Template from Device to Determine if the Design Template Configuration Is Read.</i> ▶ Updated <i>Figure 6.52: Select the Groups You Want to Send to the Connected Device.</i> ▶ Update <i>Figure 6.66: Restrict the Settings That Will be Sent to the Relay.</i>
20160707	<p>Section 4</p> <ul style="list-style-type: none"> ▶ Updated <i>Figure 4.23: Workflow View.</i> ▶ Added View menu description in <i>Workspace Menu Items.</i> <p>Section 9</p> <ul style="list-style-type: none"> ▶ Updated data import steps in <i>Overview.</i> ▶ Added <i>Figure 9.3: Import Source Files</i> and <i>Figure 9.7: Choose a Version State.</i> <p>Appendix B</p> <ul style="list-style-type: none"> ▶ Updated <i>Table B.1: Supported Device and Languages.</i>
20160412	<p>Section 4</p> <ul style="list-style-type: none"> ▶ Updated <i>Figure 4.18: Single Node Selected.</i> ▶ Added <i>Compare to Device Settings.</i> ▶ Added <i>Settings Versions.</i> <p>Appendix B</p> <ul style="list-style-type: none"> ▶ Added a note on drivers that use the Legacy Grid Editor.
20151029	<p>Section 2</p> <ul style="list-style-type: none"> ▶ Updated <i>Figure 2.17: SEL-751 Device Tab Workspace.</i> ▶ Added SSH Authentication Timeout to <i>General Devices.</i> <p>Section 4</p> <ul style="list-style-type: none"> ▶ Updated <i>Figure 4.4: Initial Device Manager After Successfully Connecting to the ACCELERATOR Database.</i> ▶ Removed <i>Custom Explorer.</i> ▶ Updated <i>Figure 4.12: The Workspace Shows Correct Connection Parameters for This Example and a Green Dot Indicating Successful Connection.</i> ▶ Updated <i>Figure 4.13: The Workspace Shows the Correct Connection Parameters for the SEL-351A Child Device (Note That Specifying the Connection Type is Not Required).</i> <p>Section 5</p> <ul style="list-style-type: none"> ▶ Updated <i>Figure 5.56: Device Tasks.</i> <p>Appendix B</p> <ul style="list-style-type: none"> ▶ Updated <i>Table B.1: Supported Device and Languages</i> for the SEL-751.
20150715	<p>Section 1</p> <ul style="list-style-type: none"> ▶ Added Required Third-Party Software to <i>Table 1.1: Minimum Requirements.</i> <p>Section 4</p> <ul style="list-style-type: none"> ▶ Added information on passwords to <i>Template Palette.</i> ▶ Updated <i>Workspace</i> to include more information on device passwords. <p>Section 6</p> <ul style="list-style-type: none"> ▶ Changed "Design Template Interface" and "Template Setting Interface" to "Design Template View" and "Template Setting View."
20150327	<p>Section 4</p> <ul style="list-style-type: none"> ▶ Added <i>Compare Using Device Manager.</i> <p>Section 5</p> <ul style="list-style-type: none"> ▶ Updated <i>Database Management</i> and added explanation of options in the Database Manager.

Date Code	Summary of Revisions
20140930	Section 1 ► Updated <i>Table 1.1: Minimum Requirements</i> to remove Windows XP, include Windows 8, and include a note about the display settings. Appendix D ► Added SYNCHROWAVE Event license location to <i>Table D.1: License File Save Locations</i> .
20140708	Section 3 ► Expanded <i>Table 3.1: Possible Solutions to QuickSet Communications Problems</i> to address Bluetooth communications using hardware flow control and jumbled characters in the QuickSet Terminal when using an SEL-2810. Section 4 ► Added <i>Creating a Device Report</i> . Section 5 ► Added export selection descriptions for the new Export dialog in <i>Export Settings to Text Files</i> . Section 7 ► Added <i>SYNCHROWAVE Event</i> .
20140307	Section 4 ► Updated the script examples in <i>Create and Manage Custom Scripts</i> . Section 5 ► Added <i>Evaluate Settings Differences</i> and <i>Printing a Settings Comparison Report</i> .
20140130	► Initial version.

A P P E N D I X B

Supported Devices and Languages

Table B.1 lists the devices supported by ACSELERATOR QuickSet® SEL-5030 Software and the earliest Z-number and firmware version associated with each device type. QuickSet device drivers and the main software shell support English by default; the main shell also supports Spanish, French, and Chinese Simplified. Supported languages for device drivers are also listed in *Table B.1*. Note that if the QuickSet shell is in a supported language, but no device driver exists for that same language, then the device settings will appear in the default language (English). Refer to <https://selinc.com/products/5030/> for the most up-to-date information on supported devices.

NOTE

Drivers that use the Legacy Grid Editor may not correspond directly to the ranges specified by your device. Please verify setting values prior to sending to a device.

NOTE

Legacy Grid Editor devices do not support event collection using QuickSet.

Table B.1 Supported Devices and Languages

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
SEL-150	SEL-150	000		X		
SEL-221	SEL-221-16	000		X		
	SEL-221B	000		X		
	SEL-221B-1	000		X		
	SEL-221C	000		X		
	SEL-221C-1	000		X		
	SEL-221D	000		X		
	SEL-221D-6	000		X		
	SEL-221D-7	000		X		
	SEL-221F	000		X		
	SEL-221F-1	000		X		
	SEL-221F-2	000		X		
	SEL-221F-3	000		X		
	SEL-221F-4	000		X		
	SEL-221F-8	000		X		
	SEL-221G	000		X		
	SEL-221G-3	000		X		

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
	SEL-221G-4	000		X		
	SEL-221G-5	000		X		
	SEL-221G-6	000		X		
	SEL-221G-7	000		X		
	SEL-221G-8	000		X		
	SEL-221G-9	000		X		
	SEL-221G-11	000		X		
	SEL-221H	000		X		
	SEL-221S	000		X		
<hr/>						
SEL-251	SEL-251	000		X		
	SEL-251-1	000		X		
	SEL-251-2	000		X		
	SEL-251-3	000		X		
	SEL-251C	000		X		
	SEL-251C-1	000		X		
	SEL-251C-2	000		X		
	SEL-251C-3	000		X		
	SEL-251CD	000		X		
	SEL-251CD-1	000		X		
	SEL-251CD-3	000		X		
	SEL-251D	000		X		
	SEL-251D-1	000		X		
	SEL-251D-3	000		X		
<hr/>						
SEL-267	SEL-267	000		X		
	SEL-267-2	000		X		
	SEL-267-4	000		X		
	SEL-267-5	000		X		
	SEL-267D	000		X		
	SEL-267D-3	000		X		
<hr/>						
SEL-279	SEL-279	000		X		
	SEL-279H	000		X		
	SEL-279H-1	000		X		

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
	SEL-279H-2	000		X		
	SEL-279H-3	000		X		
<hr/>						
SEL-287	SEL-287V	000		X		
	SEL-287V-1	000		X		
	SEL-287V-2	000		X		
<hr/>						
SEL-300	SEL-300G	000–005		X		
		200, 300–303	X			
<hr/>						
SEL-311	SEL-311A	001		X		
		002–005	X			
	SEL-311B	001		X		
		002–005	X			
	SEL-311C	001–002		X		
		003–006	X			
	SEL-311C-1	100–104	X			101–104
	SEL-311C-2	100–104	X			101–104
	SEL-311C-3	101–104	X			101–104
	SEL-311L	001–011	X			
	SEL-311L-1	005–011, 101–106	X			
	SEL-311L-6	002–011	X			
	SEL-311L-7	005–011, 101–106	X			
<hr/>						
SEL-321	SEL-321	000–002		X		
	SEL-321-1	000–002		X		
	SEL-321-2	000–002		X		
	SEL-321-3	000–002		X		
	SEL-321-4	000–002		X		
	SEL-321-5	000–002		X		
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SEL-351	SEL-351	000–003		X		
	SEL-351-1	000–003		X		
	SEL-351-2	000–003		X		

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
	SEL-351-3	000-003		X		
	SEL-351-4	000-003		X		
	SEL-351-5	003-010, 100-107	X			104-107
	SEL-351-6	001		X		
		003-010, 100-107	X			104-107
	SEL-351-7	003-010, 100-107	X			104-107
	SEL-351A	003, 005– 011, 100-107	X			104-107
	SEL-351A-1	001-003, 100-107	X			104-107
	SEL-351D	000-003		X		
	SEL-351D-1	000-003		X		
	SEL-351J	000-001		X		
	SEL-351J-1	000-001		X		
	SEL-351P	000-001		X		
	SEL-351P-2	003-005		X		
	SEL-351P-3	100		X		
	SEL-351R	000-003		X		
	SEL-351R-1	000-003		X		
	SEL-351R-2	003		X		
		004-008	X			
	SEL-351R-3	001, 002	X			
	SEL-351R-4	001-002	X			
	SEL-351RS	001-003	X			
	SEL-351S-5	001		X		
		002, 003, 005-010, 100-107	X			104-107
	SEL-351S-6	001		X		
		002-003, 005-010, 100-107	X			104-107
	SEL-351S-7	001		X		
		002-003, 005-010, 100-107	X			104-107

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
SEL-352	SEL-352	000		X		
	SEL-352-1	000–001		X		
	SEL-352-2	101		X		
		102–103	X			
	SEL-352-3	001	X			
SEL-387	SEL-387	000, 003–004		X		
	SEL-387-0	000, 003–004		X		
	SEL-387-5	002, 102		X		
		003	X	X		
		004	X			
	SEL-387-6	003–004, 103	X			
	SEL-387A	003	X	X		
		004	X			
	SEL-387E	001–002		X		
		003, 101–102	X			
	SEL-387L	001–002	X			
SEL-400G	SEL-400G-0	001–007	X			001–007
	SEL-400G-1	001–007	X			001–007
SEL-401	SEL-401	100–101, 103–104	X			100–101, 103–104
SEL-411L	SEL-411L	001–021	X		Spanish, French	003–021
	SEL-411L-1	001–021	X		Spanish, French	001–021
	SEL-411L-A	018–021	X		Spanish, French	018–021
	SEL-411L-B	021	X		Spanish, French	021
SEL-421	SEL-421	001–007	X			
	SEL-421-1	001–007	X			
	SEL-421-2	007–008, 010–012, 015, 100	X			

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
	SEL-421-3	007–008, 010–012, 015, 100	X			
	SEL-421-4	013–014, 016–033	X		French	016–033
	SEL-421-5	013–014, 016–033	X		French	016–033
	SEL-421-7	100–104	X			100–104
<hr/>						
SEL-451	SEL-451-1	001–004	X			
	SEL-451-2	004–006, 008–011, 014, 100	X			
	SEL-451-4	005–006, 008–011, 014, 100	X			
	SEL-451-5	012–013, 015, 017–032	X		French	015, 017–032
	SEL-451-A	032	X		French	032
	SEL-451-6	100	X			100
<hr/>						
SEL-487	SEL-487B	001–006, 008	X			
	SEL-487B-1	007, 009–018	X		Spanish, French	007, 009–018
	SEL-487B-2	100	X			100
	SEL-487E	001–006	X			
	SEL-487E-2	003–006	X			
	SEL-487E-3	100–116	X		Spanish, French	100–116
	SEL-487E-4	100–116	X		Spanish, French	100–116
	SEL-487E-5	200	X			200
	SEL-487V	001–006	X			003–006
	SEL-487V-1	001–006	X			003–006
<hr/>						
SEL-T400L	SEL-T400L	001–005	X			
<hr/>						
SEL-T401L	SEL-T401L	001–004	X			
<hr/>						
SEL-501	SEL-501	000		X		
		001				
	SEL-501-1	000		X		

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
	SEL-501-2	000		X		
		001				
SEL-547	SEL-547	001		X		
SEL-551	SEL-551	000		X		
		001	X	X		
		002–003	X			
	SEL-551C	001	X			
SEL-587	SEL-587	000		X		
		001–002	X			
	SEL-587-1	000		X		
		001–002	X			
	SEL-587Z	001	X			
SEL-651	SEL-651R	003–007	X			
	SEL-651R-1	001–006	X			001–006
	SEL-651R-2	001–013, 100–102	X			001–013, 100–102
	SEL-651RA	001–006	X			001–006
SEL-700	SEL-700G	001–009	X			
SEL-700BT	SEL-700BT	001–003	X		Spanish	
SEL-701	SEL-701	000–001		X		
		002	X	X		
		003–004	X			
	SEL-701-1	100	X			
SEL-710	SEL-710	001–008	X			008
	SEL-710-5	001–006	X		Spanish	
SEL-731	SEL-731	001	X			

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
SEL-734	SEL-734	001–015, 100–107	X			105–107
	SEL-734P	009–015, 100–107	X			105–107
SEL-735	SEL-735	001–011	X			
		100–104	X			
SEL-749	SEL-749M	001–002				
		003–004	X			
SEL-751	SEL-751	001–010, 100–102	X		Spanish	
	SEL-751A	001–013	X		Spanish, French	
SEL-787	SEL-787	001–004	X			
	SEL-787-4	001–006	X		Spanish	
	SEL-787L	001–002	X			
	SEL-787Z	001	X			
SEL-849	SEL-849	001–007	X			
SEL-2100	SEL-2100	002–003	X			
SEL-2411	SEL-2411	001–012, 100–102	X			005–012, 100–102
	SEL-2411P	001–003	X			001–003
SEL-2414	SEL-2414	003–013, 100	X			007–013, 100
SEL-2431	SEL-2431	001–013	X			
SEL-2440	SEL-2440	001–009	X			004–009
SEL-2488	SEL-2488	001–010				
SEL-2523	SEL-2523	001–004	X			

Device Family	Device Model	Z-Number	HMI Available	Legacy Grid Editor	Supported Languages	Design Template and GLE Storage
SEL-2533	SEL-2533	001-002	X			
SEL-2664	SEL-2664S	001-003	X			
SEL-2730M	SEL-2730M	001-010				
SEL-3031	SEL-3031	001-003	X			
SEL-TWFL	SEL-TWFL	001	X			
Misc	SEL-2PG10	000		X		

Note: See Appendix A: Software and Manual Versions to find the corresponding firmware to Z-number.

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A P P E N D I X C

ACCELERATOR QuickSet Tools

ACCELERATOR Database: Enable other ACCELERATOR functionality. ACCELERATOR Database must be installed for operation of Legacy Driver and Device Manager.

ACCELERATOR Database Device Manager Support: Store Device Manager configuration data within the ACCELERATOR Database. Use in tandem with QuickSet Device Manager Plugin. For information on Device Manager, see *Section 4: Asset Management Using Device Manager*.

ACCELERATOR Database Legacy Driver Support: Store legacy drivers within the ACCELERATOR Database. Use in tandem with SEL legacy 100 series, 200 series, 300 series, 500 series, and 701 QuickSet Settings Drivers. For information on legacy drivers, see *Legacy Grid Editor on page 99*.

ACCELERATOR Database ODBC Driver: Establish a connection between legacy drivers and the ACCELERATOR Database. Installation of this driver is required for Legacy Driver functionality.

ACCELERATOR QuickSet SEL-5030 Language Files: Provide language translation support for the QuickSet shell.

QuickSet Bay Control Editor Plugin: Graphically edit bay control screens for compatible relays. This plugin will be installed automatically when any drivers for compatible differential protection relays are installed. Use in tandem with QuickSet bay control screens.

QuickSet Bay Control Screens: Access predefined bay configurations for compatible relays. This plugin will be installed automatically when any drivers for compatible differential protection relays are installed. Use in tandem with QuickSet Bay Control Editor Plugin.

QuickSet Device Manager Plugin: Enable QuickSet to host the Device Manager interface. Use in tandem with ACCELERATOR Database Device Manager Support. For information on Device Manager, see *Section 4: Asset Management Using Device Manager*.

QuickSet GLE Plugin: View and edit SELOGIC control equations graphically in compatible device drivers. This plugin will be automatically installed when any drivers for compatible devices are installed. For information on the Graphical Logic Editor, see *Graphical Logic Editor on page 102*.

QuickSet TEAM Plugin: View ACCELERATOR TEAM-related information within QuickSet Device Manager. With this plugin, you can configure the ACCELERATOR TEAM software. For information on ACCELERATOR TEAM and Device Manager, see *Section 4: Asset Management Using Device Manager*.

SEL Commissioning Assistant: Configure transformer protection for the SEL-487E or SEL-787 differential protection relays. For information on SEL Commissioning Assistant, see *Streamline Field Testing With Commissioning Assistant on page 207*.

SEL Motor Start Report Plugin: View motor start reports for compatible motor protection relays. This plugin will be automatically installed when any drivers for compatible motor protection relays are installed. For information on the Motor Start Report tool, see *Monitor Motor Performance With the Motor Start Report in QuickSet* on page 224.

SEL QuickSet Chart Viewer Plugin: Plot metering data, such as LDP and SSI data, in the embedded Chart Viewer. This plugin will be automatically installed when any drivers for compatible devices are installed. For information on the Chart Viewer, see *Accelerate Report Analysis With Chart Viewer in QuickSet* on page 229.

SEL-2730M QuickSet Plugin: Provide the ability to set SEL-2730M settings in the Device Manager of QuickSet.

SEL-xxx(x) QuickSet Settings Driver Language File: View setting-specific translations for individual device drivers.

SEL Legacy 1xx, 2xx, 3xx, 5xx, and 701 ACSELERATOR QuickSet Settings Drivers: Enable QuickSet to host the legacy driver interface. Use in tandem with ACSELERATOR Database Device Manager Support. For information on legacy drivers, see *Legacy Grid Editor* on page 99.

A P P E N D I X D

Licensing Your Software

Overview

To purchase an ACCELERATOR QuickSet® SEL-5030 Software license file, contact your local SEL sales representative. Once you have purchased a license, perform the following steps as necessary for software licensing:

- ▶ *Internet Activate on page 339*
- ▶ *Internet Deactivate on page 340*
- ▶ *Manual Activate on page 341*
- ▶ *Manual Deactivate on page 345*

License expiration refers to update support. Once you have licensed QuickSet, you may use that licensed version in perpetuity. Only if you update QuickSet to a newer version released after the expiration date does the license become invalid. Single-seat licenses are valid for any QuickSet updates as long as one year from the date of activation. Corporate licenses are valid for any QuickSet updates as long as three years from the date of the first activated license seat.

Internet Activate

Step 1. Open QuickSet and click **Help > About > License Info**.

Step 2. From the License Information form, click **Internet Activate**.

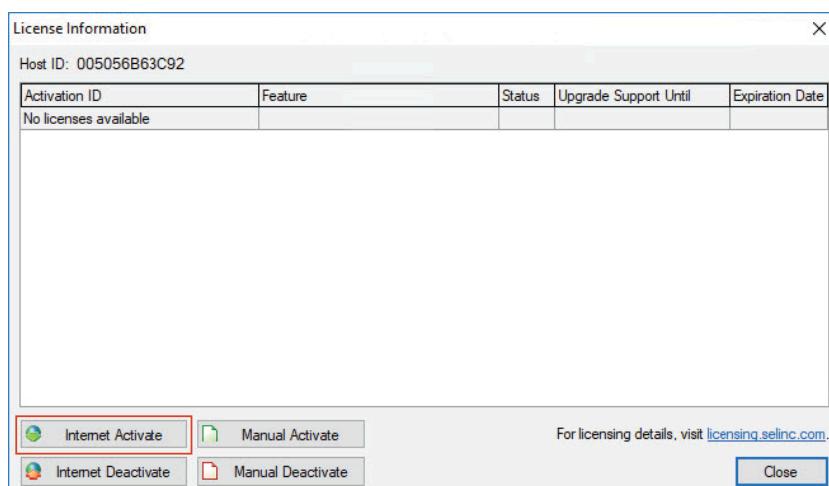


Figure D.1 Internet Activate

Step 3. At the Enter Activation ID window, enter the Activation ID you received when you purchased your license.

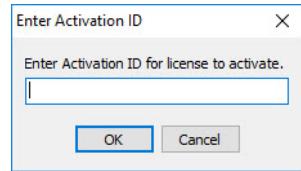


Figure D.2 Enter Activation ID

Step 4. Click **OK**. When you successfully activate your license, the License Information window displays your active license information.

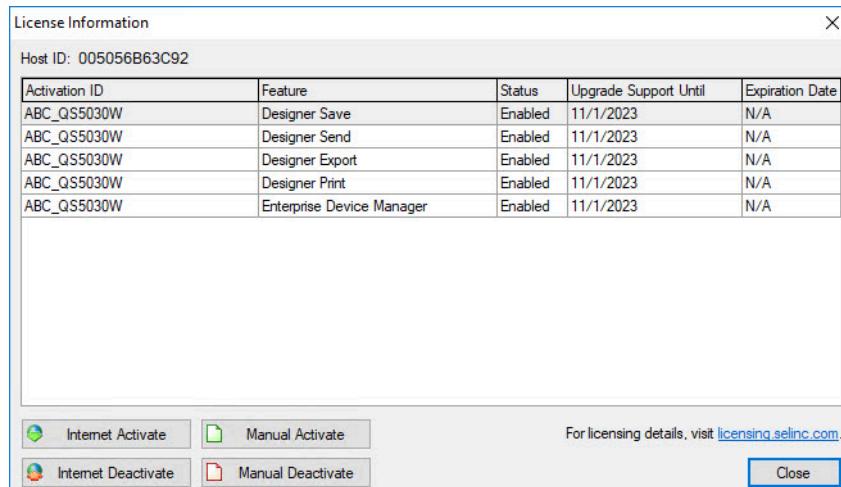


Figure D.3 Available Licenses

Internet Deactivate

Step 1. Open QuickSet and click **Help > About > License Info**.

Step 2. From the License Information window, click **Internet Deactivate**.

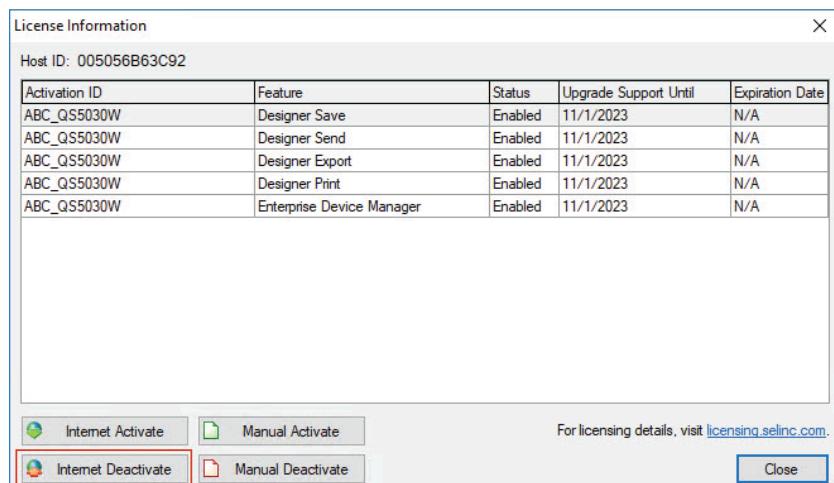


Figure D.4 Internet Deactivate

Step 3. Verify that the value populated in the Enter Activation ID window is the Activation ID that you intend to deactivate.

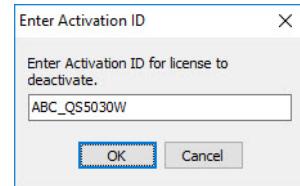


Figure D.5 Verify Activation ID

Step 4. Click **OK**. When you successfully deactivate your license, the License Information window no longer displays your active license for the deactivated Activation ID.

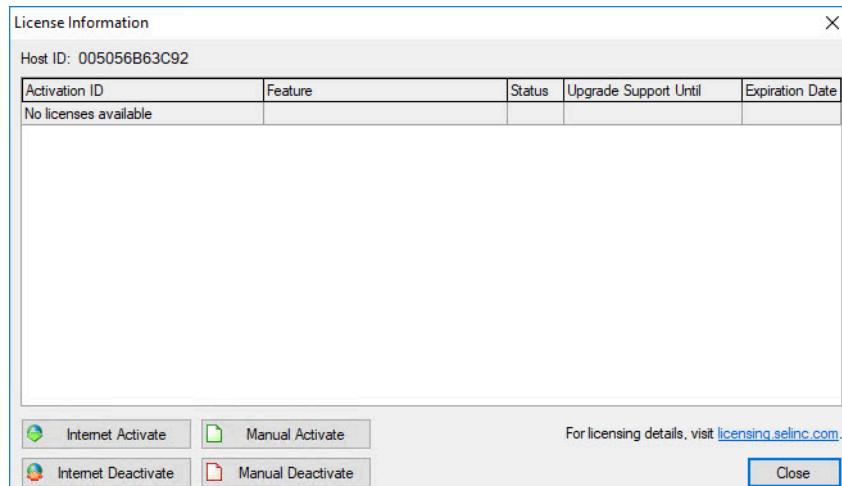


Figure D.6 No Licenses Available

Step 5. Click **Close**.

Manual Activate

Step 1. Open QuickSet, click **Help > About > License Info**.

Step 2. From the License Information window, click **Manual Activate**.

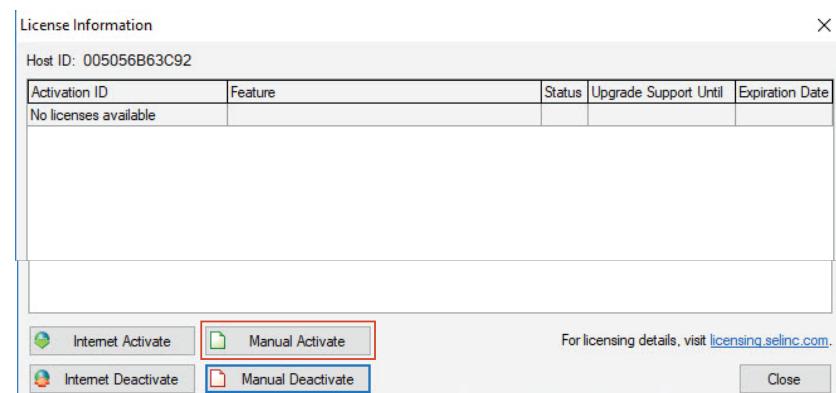


Figure D.7 Manual Activate

Step 3. From the Manual Activate window, click **Generate Capability Request File**.

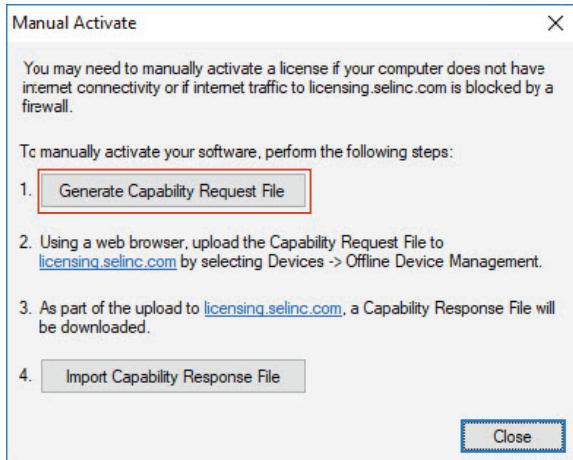


Figure D.8 Generate Capability Request File for Manual Activation

- Step 4. Save the Capability Request File to a thumb drive or a network drive that can be accessed by a separate computer that has Internet access, or email the Capability Request File to SEL.
- Step 5. At the Enter Activation ID prompt, enter the Activation ID you received when you purchased your license and click **OK**.
- Step 6. Click **OK** on the confirmation message that indicates the file was successfully created.
- Step 7. From a computer that has Internet access, go to <https://licensing.selinc.com/> and log in with the Activation ID you are activating.

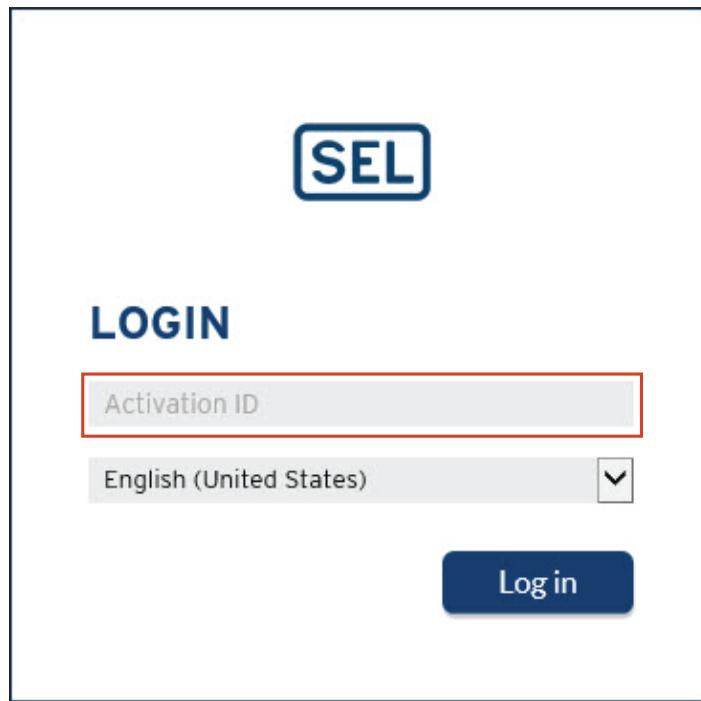


Figure D.9 Log In With Activation ID

- Step 8. From the License Delivery Portal page, click the **Devices** tab and click **Offline Device Management**.

Step 9. From the **Offline Device Management** page, click **Browse** and select the Capability Request File generated in *Step 3*. Click **Upload**.

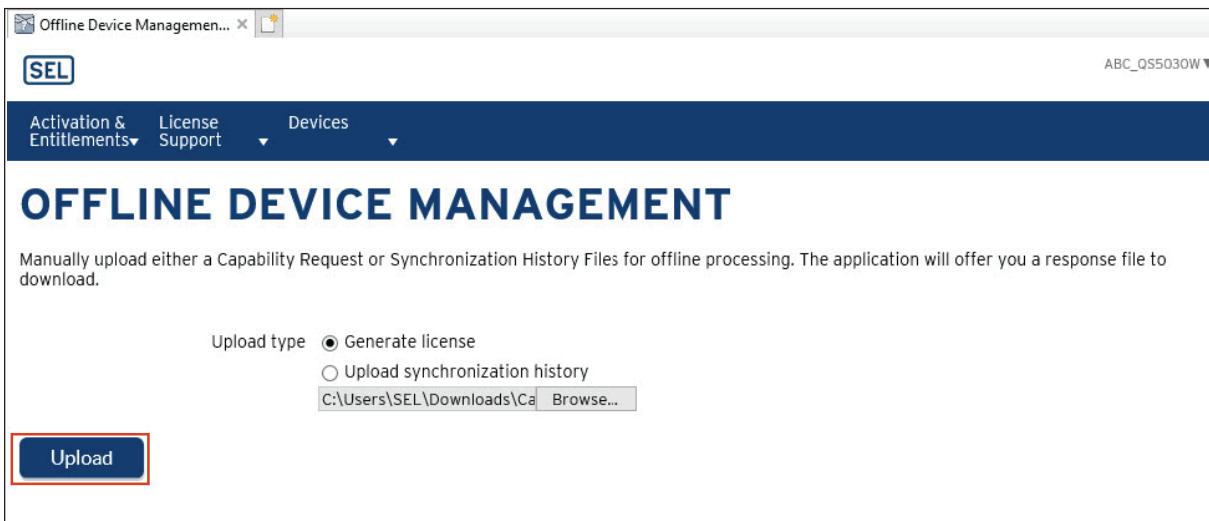


Figure D.10 Upload Capability Request

Step 10. Click the link highlighted in *Figure D.11* to download the Capability Response file.

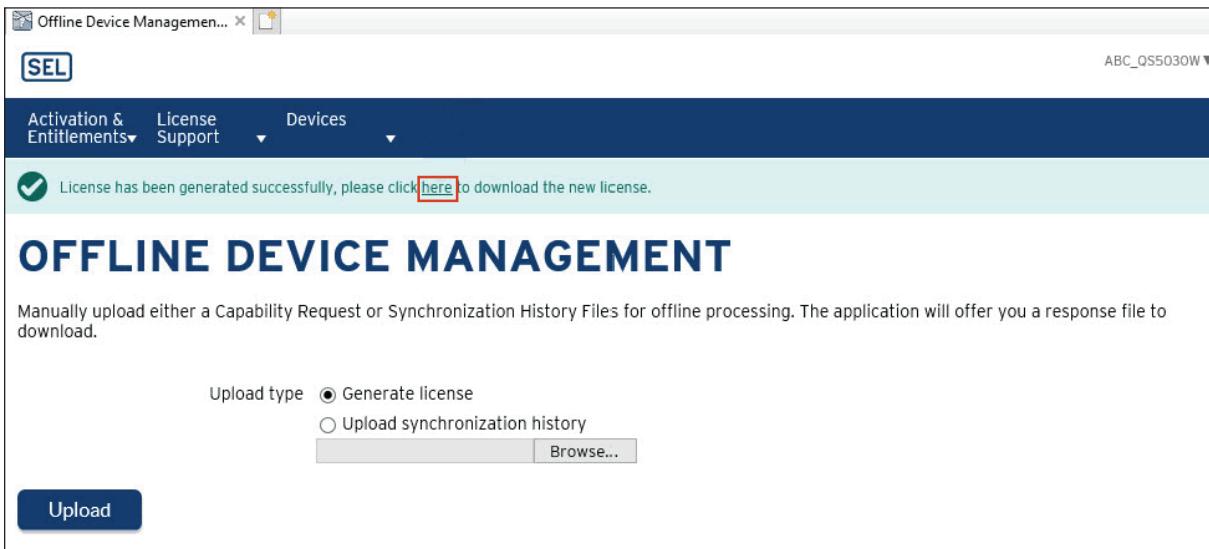


Figure D.11 Link to Download Capability Response File

Step 11. Click **Save**.



Figure D.12 Save the Request File

Step 12. With the Capability Response File saved in *Step 11*, return to the computer where the QuickSet license is being activated.

Step 13. From the Manual Activate form, click **Import Capability Response File**.

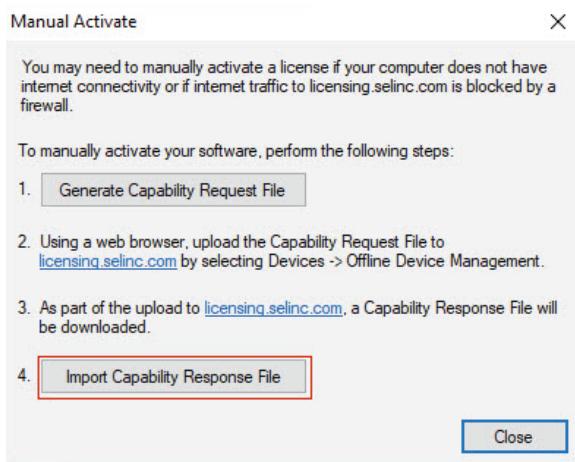


Figure D.13 Import Capability Response File

Step 14. Navigate to the location of the Capability Response File created in *Step 11* and click **Open**.

Step 15. Click **OK** on the confirmation message that indicates the file was successfully imported.

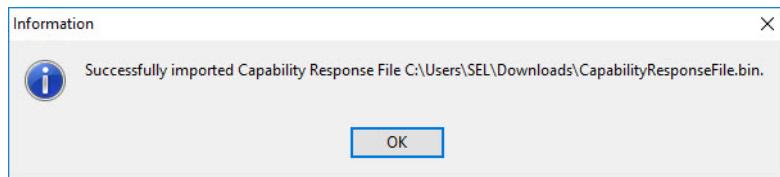


Figure D.14 Confirmation Message

Step 16. Click **Close** on the Manual Activate form. The License Information screen now displays the activated license for QuickSet.

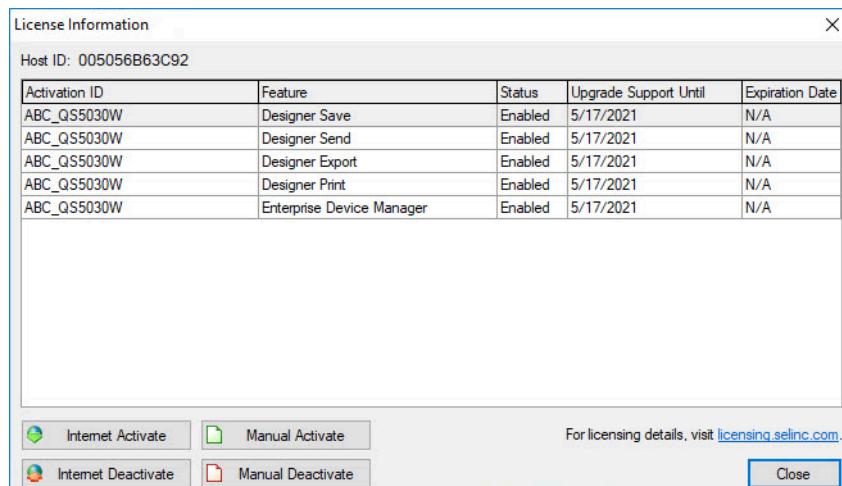


Figure D.15 Activated License

Step 17. Click **Close**.

Manual Deactivate

Step 1. Open QuickSet, click **Help > About > License Info**.

Step 2. From the License Information form, click **Manual Deactivate**.

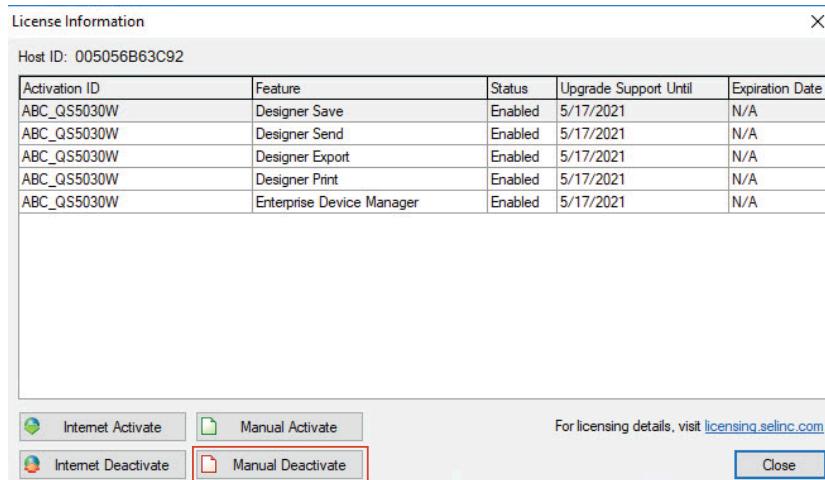


Figure D.16 Manual Deactivate

Step 3. From the Manual Deactivate screen, click **Generate Capability Request File**.

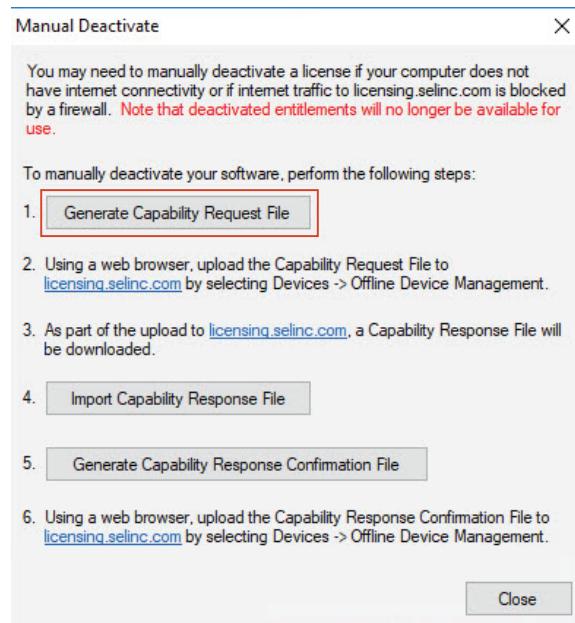


Figure D.17 Generate Capability Request File for Manual Deactivation

Step 4. Save the Capability Request File to a thumb drive or a network drive that can be accessed by a separate computer that has Internet access, or email the Capability Request File to SEL.

Step 5. Verify that the value populated in the Enter Activation ID window is the Activation ID that you intend to deactivate. Click **OK**.

Step 6. Click **OK** on the confirmation message that indicates the file was successfully created.

- Step 7. From a computer that has Internet access, go to <https://licensing.selinc.com/> and sign in with the Activation ID you are deactivating.
- Step 8. From the License Delivery Portal page, click the **Devices** tab and click **Offline Device Management**.
- Step 9. From the Upload Capability Request page, click **Browse** and select the Capability Request File generated in *Step 3*. Click **Upload**.
- Step 10. Click the link highlighted in *Figure D.18* to download the Capability Response file.

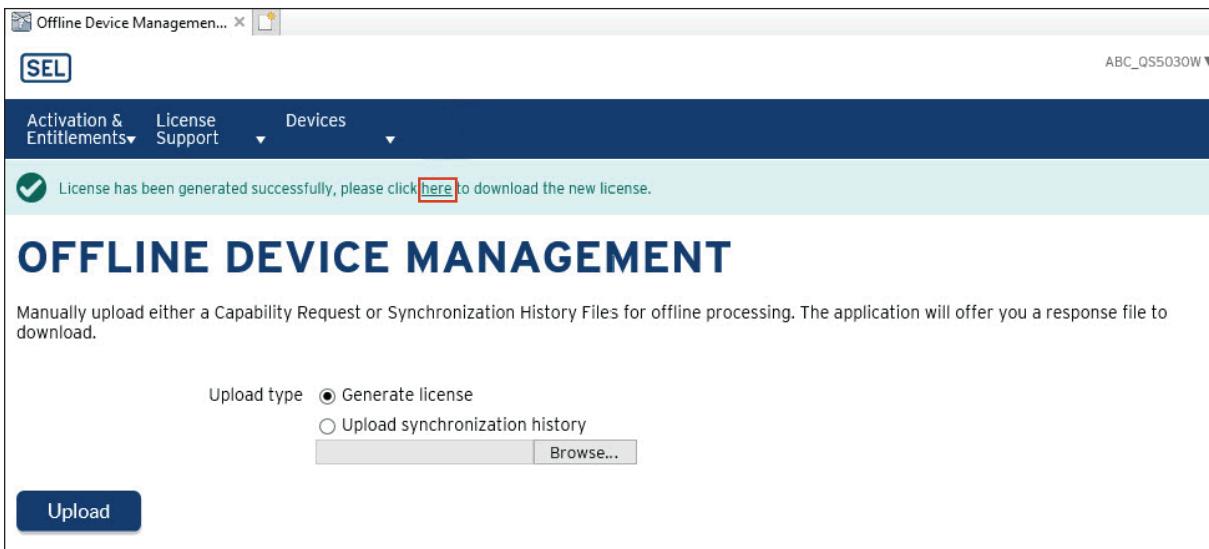


Figure D.18 Link to Download Capability Response File

Step 11. Click **Save** on the message similar to *Figure D.19*.



Figure D.19 Save Capability Request File

- Step 12. With the Capability Response File saved in *Step 11*, return to the computer where the QuickSet license is being deactivated.
- Step 13. From the Manual Deactivate form, click **Import Capability Response File**.

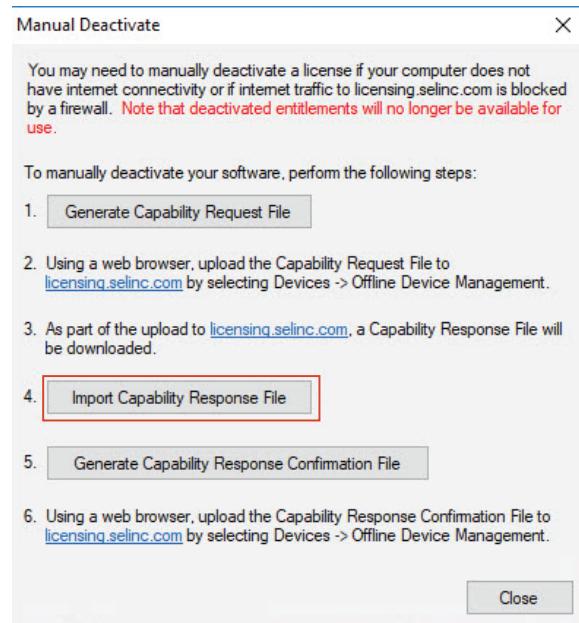


Figure D.20 Import Capability Response File

- Step 14. Browse to the location of the Capability Response File created in *Step 11* and click **Open**.
- Step 15. Click **OK** on the confirmation message that indicates the file was successfully imported.
- Step 16. From the Manual Deactivate screen, click **Generate Capability Response Confirmation File**.

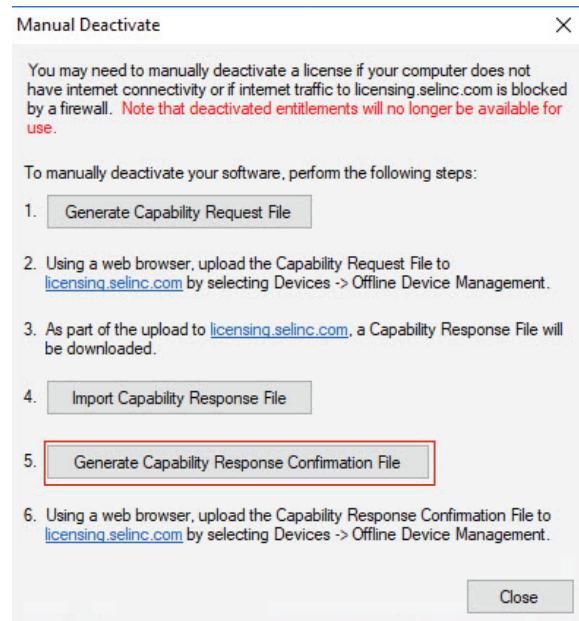


Figure D.21 Generate Capability Response Confirmation File

- Step 17. Provide a name and location for the Capability Response Confirmation File and click **Save**.
- Step 18. Click **OK** on the confirmation message that indicates the file was successfully created. Do not close the Manual Deactivate form.

- Step 19. From a computer that has Internet access, go to <https://licensing.selinc.com/> and log in with the Activation ID you are deactivating.
- Step 20. From the License Delivery Portal page, click the **Devices** tab and click **Offline Device Management**.
- Step 21. From the Upload Capability Request page, click **Browse**, click the **Capability Response Confirmation File** generated in *Step 17*, and click **Upload**. After you upload the confirmation file, the FlexNet software generates another response file. This additional response file is not required and does not need to be downloaded.
- Step 22. Click **Close** on the Manual Deactivate form. The Activation ID that was deactivated no longer shows in the License Information screen.

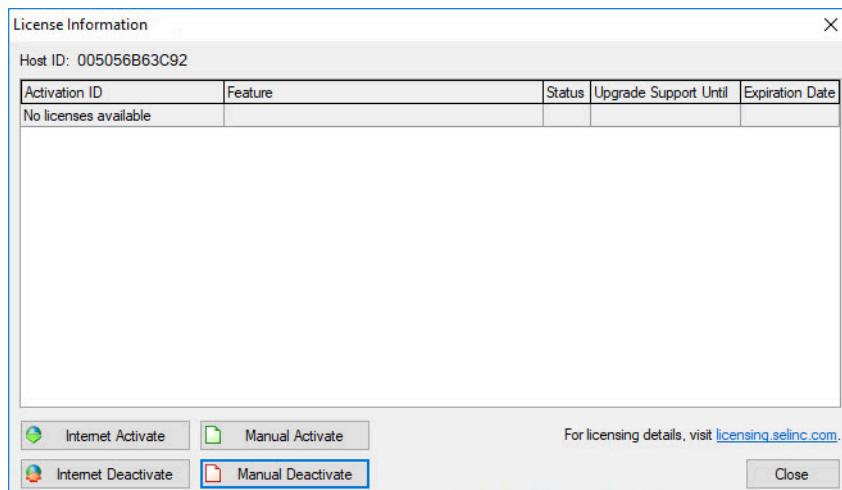


Figure D.22 Deactivated Activation ID

Step 23. Click **Close**.

Technical Support

We appreciate your interest in SEL products and services. If you have questions or comments, please contact us at:

Schweitzer Engineering Laboratories, Inc.
2350 NE Hopkins Court
Pullman, WA 99163-5603 U.S.A.
Tel: +1.509.338.3838
Fax: +1.509.332.7990
Internet: selinc.com/support
Email: info@selinc.com

A P P E N D I X E

Cybersecurity Features

ACCELERATOR QuickSet® SEL-5030 Software, Device Manager, and the ACCELERATOR Database have a number of security features to assist users with meeting their cybersecurity design requirements for data collection and storage systems.

Ports and Services

ACCELERATOR Database uses Port 5434 by default for storage of device settings and information. *Table E.1* provides a description of the default port and its use.

Table E.1 Port Number

IP Port Default	Network Protocol	Default Port State	Purpose
5434	PostgreSQL	Enabled	Encrypted Postgres connection for normal operation between Device Manager and ACCELERATOR Database

Access Controls

ACCELERATOR Database runs as a service independent of a user being logged into the machine. When the PostgreSQL database is installed, the stored data are encrypted using a unique machine scope key provided by the installing user.

Device Manager interacts with the ACCELERATOR Database through use of a default account named **Admin**. You can add accounts to Device Manager and synchronize the login with LDAP or local application accounts you have created through the User Manager of Device Manager.

You can revoke and authorize changes through Device Manager or manage them through your organization's directory service (e.g., Active Directory).

Database Accounts

Table E.2 describes the default account Device Manager uses.

Table E.2 Default Device Manager Account

Account	Service	Purpose
Admin	ACCELERATOR Database	Normal operation of the Device Manager connection to the ACCELERATOR Database

QuickSet installs with a PostgreSQL database for storing device settings and other device information. *Table E.3* lists the default user accounts for the database. These are not system-level accounts, but only accounts by which QuickSet gains access to the database.

Table E.3 PostgreSQL User Accounts

User Account	Password
dm_engineer	Generated randomly at install time
dm_technician	Generated randomly at install time
quickset	Generated randomly at install time
sel_pgsql	Generated randomly at install time
sel_views_pgsql	Generated randomly at install time
team_diagnostics	Generated randomly at install time
team_sync	Generated randomly at install time
team_tf1	Generated randomly at install time
sel_winchester	Generated randomly at install time

See *Manage Passwords on page 54*, *Centralize User Accounts With LDAP on page 59*, and *Manage User Accounts on page 60* for more information about account management.

Passwords

There is no default password for the Device Manager interface login to the ACCELERATOR Database.

Device Manager supports strong passwords for the login account. Define your password in accordance with your organization's IT policy.

The Active Directory or local user account settings manage the number of possible incorrect password entries.

See Alerts and Logging for details on logging authentication-related events.

See *Manage Passwords on page 54*, *Centralize User Accounts With LDAP on page 59*, and *Manage User Accounts on page 60* for more information about password management.

Alerts and Logging

Debug Logging

ASCII Debug Logs

When enabled through the QuickSet Options menu, the ASCII communications logs capture the traffic between QuickSet and connected devices and store the logs in a folder you define. You can view these log files with any text editor program. The amount of free space on the hard drive restricts the size of the ASCII terminal log file.

See *Using the Logging Features for the QuickSet Terminal on page 37* for more information on ASCII logging.

Shell Debug Logs

QuickSet generates a log in the following locations:

C:\ProgramData\SEL\AcSELErator\QuickSet>MainDatabaselogfile.log

C:\Users\%CURRENTUSER%\AppData\Roaming\SEL\AcSELErator\AcSELErator.log

These logs contain operational information for the ACSELERATOR Database and Device Manager. You can view these log files with any text editor program. The *AcSELErator.log* file has a rolling limit of 1 MB, whereas the amount of free space on the hard drive limits the size of the *MainDatabaselogfile.log* file.

Backup and Restore

Backing Up the AcSELERATOR Database Configuration

The Device Manager configuration and collected data are stored in the ACSELERATOR Database. Device connection passwords are included in the exported database and are encrypted. Store and secure the backups according to the policy for your organization. Perform the following steps when backing up a Device Manager system.

- Step 1. In QuickSet, select **File > Database Manager**.
- Step 2. Click the **AcSELErator Database** tab.
- Step 3. Under the **Backup** section, select a location to which you want to save the backup file and click **Backup Database**.

Restoring the Device Manager Configuration

Perform the following steps to restore a previous backup of a Device Manager system database. Note that completion of these steps overwrites all data in the ACSELERATOR Database on the present machine. When you restore from a backup, present versions of QuickSet, Device Manager, and the ACSELERATOR Database services must match the versions in use when the backup was created.

- Step 1. In QuickSet, select **File > Database Manager**.
- Step 2. Click the **AcSELErator Database** tab.
- Step 3. Under the **Restore** section, select the previously created backup file and click **Restore Database**.

Revision Management

Appendix A: Software and Manual Versions contains a description of each software update.

See *The SEL Process for Disclosing Security Vulnerabilities* at https://selinc.com/security_vulnerabilities/ for details on vulnerability disclosure.

Product Version Information

QuickSet, Device Manager, and ACCELERATOR Database software version numbers can be found by opening QuickSet and clicking **Help** and then **About**. The version numbers display in the **About** window.

Update Verification

QuickSet, Device Manager, and ACCELERATOR Database software installers are signed by SEL. For instructions on how to verify the signature, see <https://selinc.com/company/verifying-software-downloads/>.

Contact SEL

For further questions or concerns about product security, please contact SEL at security@selinc.com or +1.509.332.1890.

Glossary

Access Level	A relay command level with a specified set of relay information and commands. Except for Access Level 0, you must have the correct password to enter an access level.
Access Level 0	The least secure and most limited access level. No password protects this level. From this level, you must enter a password to go to a higher level.
Access Level 1	A relay command level you use to monitor (view) relay information. The default access level for the relay front panel.
Access Level 2	The most secure access level where you have total relay functionality and control of all settings types.
Access Level A	A relay command level you use to access all Access Level 1 and Access Level B (Breaker) functions plus Automation, Alias, Global, Front Panel, Report, Port, and DNP settings.
Access Level B	A relay command level you use for Access Level 1 functions plus circuit breaker control and data.
Access Level O	A relay command level you use to access all Access Level 1 and Access Level B (Breaker) functions plus Output, Alias, Global, Front Panel, Report, Port, and DNP settings.
Access Level P	A relay command level you use to access all Access Level 1 and Access Level B (Breaker) functions plus Protection, SELOGIC, Alias, Global, Group, Breaker Monitor, Front Panel, Report, Port, and DNP settings.
ACSELERATOR Database	ACSELERATOR Database is an SQL database that QuickSet uses to store all device configurations.
ASCII	Abbreviation for American Standard Code for Information Interchange. Defines a standard way to communicate text characters between two electronic devices. SEL relays use ASCII text characters to communicate using the relay front-panel and rear-panel EIA-232 serial ports.
ASCII Terminal	A terminal without built-in logic or local processing capability that can only send and receive information.
Child Device	A device that is dependent on a parent device to pass on communication. An example of a child device is an IED connected to a serial port server.
DCE	Data Communications Equipment.
Design Template	A customized setting scheme with device settings grouped, named, and displayed according to the needs for a particular application. Design Templates can only be created with QuickSet Designer.
Design Template Editor	An editor for Design Template configuration. In this view, Design Template equations, Design Template Variables, and the Design Template View are configured. This view can only be used if QuickSet is licensed for QuickSet Designer.
Design Template Equation	An expression available to assist in Design Template creation. Use Design Template Equations to assign device settings to a constant or to an expression containing Design Template Variables and/or other device settings.

Design Template Manager	A pane in both the Design Template Editor and the Design Template Preview. The ability to add, rename, delete, or move tab groups or Design Template Variables, however, is limited to the Design Template Editor. Use the Design Template Manager to add, rename, or delete item nodes and tab groups.
Design Template Preview	A view for Design Template settings files. In this view, only what has been added to the Design Template View will be viewable. This view does not require a QuickSet Designer license.
Design Template Storage	A capability contained in certain devices (see <i>Appendix B: Supported Devices and Languages</i>) that allows them to store a Design Template configuration.
Design Template Variable	An application variable available to assist in Design Template creation. If a Design Template Variable is only assigned to the right side of a Design Template equation, then that variable must be made available for editing in the Design Template View.
Design Template Variable Selection List	A pane in the Design Template Editor. The Design Template Variable Selection List holds all Design Template Variables that are being used by the Design Template and which have not been assigned to Template Settings.
DMX	Device Manager Export.
DTE	Data Terminal Equipment (computers, terminals, printers, relays, etc.).
DTR	Data Terminal Ready signal.
EIA-232	Electrical definition for point-to-point serial data communications interfaces, based on the standard EIA-232. Formerly known as RS-232.
EIA-485	Electrical standard for multidrop serial data communications interfaces, based on the standard EIA/TIA-485. Formerly known as RS-485.
Equation Group	An organizational grouping of equations that are defined in the Equation Manager.
Equation Manager	A pane in the Design Template Editor. Use the Equation Manager to add, rename, or delete equation groups within a Design Template.
Equation Window	A pane in the Design Template Editor. Use the Equation window to add, delete, modify, and display Design Template Equations.
Error/Warning Window	A pane in the Design Template Editor. If the Error Messages and Warning Messages options in the Design Template Options menu are set to show the error or warning messages in the current mode, and such an error or warning exists, the Error/Warning window will appear and display the appropriate errors.
Ethernet	A network physical and data link layer defined by IEEE 802.2 and IEEE 802.3.
Event Report	A text-based collection of data stored by the relay in response to a triggering condition, such as a fault or command. The data show relay measurements before and after the trigger, in addition to the states of protection elements, relay inputs, and relay outputs each processing interval. After an electrical system fault, use event reports to analyze relay and system performance.
Fast Meter	SEL binary serial port command used to collect metering data with SEL relays.
Fast Operate	SEL binary serial port command used to perform control with SEL relays.

FID	Relay firmware identification string. Lists the relay model, firmware version and date code, and other information that uniquely identifies the firmware installed in a particular relay.
Firmware	The nonvolatile program stored in the relay that defines relay operation.
FTP	File Transfer Protocol.
Groups to Send	The device groups that will be sent to the device in the Design Template Editor or Design Template Preview views.
IP Address	An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 1.160.10.240 could be an IP address.
Item Node	Similar in function to folders, item nodes provide a means to organize a collection of tab groups. Item nodes are contained in the Design Template Manager.
Legacy Drivers	Relay drivers that QuickSet uses for legacy devices. Legacy drivers do not validate rules within QuickSet.
Legacy Mode	Refers to a method of tunneling through an SEL Real-Time Automation Controller (RTAC) that requires a PORT command to initiate the connection to a child device.
Modem	A device that allows for connections and data transfers among different IEDs through the use of telephone lines.
Parent Device	A device that acts as a communication intermediary to a child device.
Parity Check	A check made on data to ensure that the data transmitted accurately.
Port Number	An endpoint to a logical connection.
RDB	Relay Database (RDB) is a format that QuickSet uses to store device configuration files that can be sent to SEL devices. Interchangeably used with Settings Database.
RTS/CTS	Hardware flow control options. RTS stands for Request to Send and CTS means Clear to Send.
SEAP	SEL Encryption and Authentication Protocol (SEAP).
Serial	Communication that consists of a serial port, such as a USB, that sends and receives bytes of information one bit at a time using either the EIA-232 or EIA-485 standard.
Settings Database	Settings Database is the same as an RDB. Settings files created through use of the QuickSet Settings Editor are stored in a Settings Database with .rdb file extension.
Settings Editor	Contains editable device settings specific to device functionality.
Settings Version Number (SVN/Z-Number)	That portion of the relay RID string that identifies the proper ACCELERATOR QuickSet SEL-5030 Software relay driver version during creation or editing of relay settings files.

Smart Drivers	Relay drivers that QuickSet uses for newer devices. Smart drivers validate rules and give the user immediate feedback on invalid settings.
SQL	Structured Query Language is a special-purpose programming language designed for managing data held in a relational database management system.
SSH	Secure Shell Protocol.
Tab Group	Tab groups are a means by which Design Template Variables are organized. A tab group must be put under an item node. Tab groups are contained in the Design Template Manager.
TCP	Transfer Control Protocol.
Telnet	An Internet protocol for exchanging terminal data that connects a computer to a network server and allows control of that server and communication with other servers on the network.
Template Setting View	A pane in both the Design Template Editor and the Design Template Preview. The ability to modify the interface, however, is limited to the Design Template Editor. The Template Setting View area is the primary means of applying values to device settings through use of Design Template Equations and application settings.
Ymodem	The batch transfer of test files.



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