

# IED Asset Management Software



Simplify processes while increasing your efficiency

- Reduce misoperations and costly errors due to improper configuration or settings.
- Increase commissioning efficiency with customized intelligent electronic device (IED) archiving that supports workgroup collaboration to define, review, and commission device settings.
- Minimize complexity by controlling, maintaining, and verifying centrally located file versions.
- Simplify the collection and analysis of device reports through integration with other SEL software components.





## Intuitive, Organized, and Versatile Asset Management Solutions

### The Challenge

A 2015 NERC State of Reliability report found that 65 percent of misoperations are due to settings, logic, and design errors or other related relay failures and malfunctions. It's getting more and more difficult to keep track of each device and its settings, data, and historical versions because they're constantly evolving. Furthermore, engineering processes for IED testing and commissioning can be time-consuming and prone to complexities, which negatively impacts project labor costs and deadlines.

That's why we designed a suite of relay asset management solutions.

### The Solution

With our asset management solutions, you have the power to ensure correct settings, analyze system behaviors, and understand your power system better than ever. Our tools and technologies make it easy to collaborate, manage, and create the ideal workspace. With simple yet effective processes and intuitive organization techniques, you can document and keep track of all your device information, project deadlines, and system reliability.



DESIGN | COMMISSION | OPERATE

## SEL Software Solutions Overview

Employ acSELERATOR QuickSet® SEL-5030 Software's Device Manager in conjunction with other SEL software products to reduce time and effort on projects, device maintenance, and commissioning; prevent downtime due to undetected settings errors; and gain a better understanding of electric grid behaviors. Whether you are in the design, commissioning, or operation stage of your project, SEL can help you achieve your goals with useful tools for:

### Asset Management

- Device configuration
- Device settings comparison reports
- Communications settings
- Template creation
- Setting documents archive

### Work Group Collaboration

- Formal managed setting workflows
- Version management
- Multiple-user database access
- Work group user management
- Setting changes verification

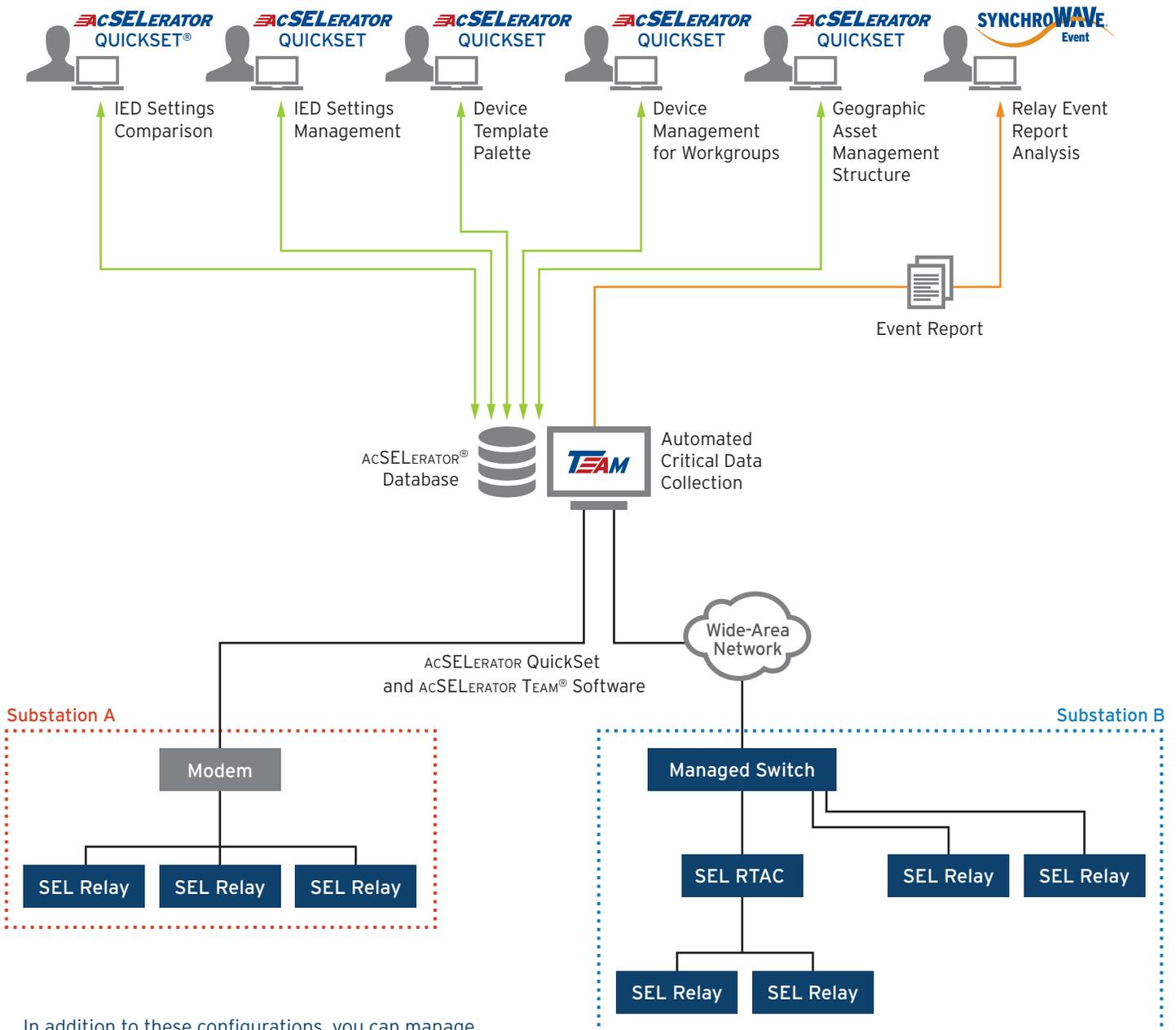
### Power System Analysis

- Automated fault event data collection
- Fault event data archive
- Detailed fault event analysis
- Transmission fault location

# Solution Architecture

Maintaining and coordinating IED information can be a significant challenge. In a bulk electric system, the variety of IEDs and data types in use requires organization and collaboration to ensure appropriate commissioning for each device.

SEL IED asset management solutions stem from a tool at the core of ACSELERATOR QuickSet—the Device Manager. IED asset management software applications streamline your work in order to help you organize, visualize, and understand all of the components that protect the electric grid. By greatly simplifying everyday tasks, SEL device management solutions assist in efficiently creating and maintaining IED systems.



In addition to these configurations, you can manage many other highly customizable system architectures.

# Solution Features

Device Manager and other SEL software applications synergistically work to facilitate IED commissioning, device management, and day-to-day operations. If you have QuickSet installed on your computer, you may already have this feature. If not, easily download the software and enable it via SEL Compass®.

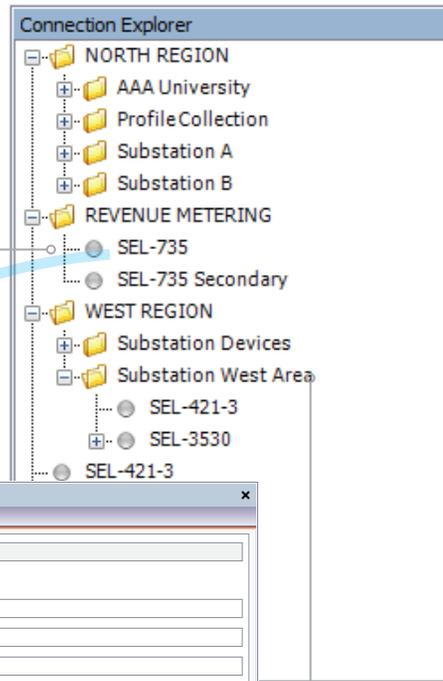
## Asset Management Folder Structure With Connection Explorer

Device management and commissioning of IEDs may require an extensive amount of relational data, which includes elements like connection parameters, device settings, and general device information. Organizing and storing this content in a convenient tool can significantly save time.

The Connection Explorer enhances productivity by organizing all of your relevant device information in a central location—the ACSELERATOR® Database. View devices arranged in a standard file explorer style. Configuration settings, event data, communications parameters, documents, security profiles, and application information are compiled together so that you can quickly access the data you need.

## Device Parameters

Double-click on any device in the Connection Explorer to view its unique parameters and to quickly get to the information you need.



Device: /735 COMPARE MERGE/SEL-735\*

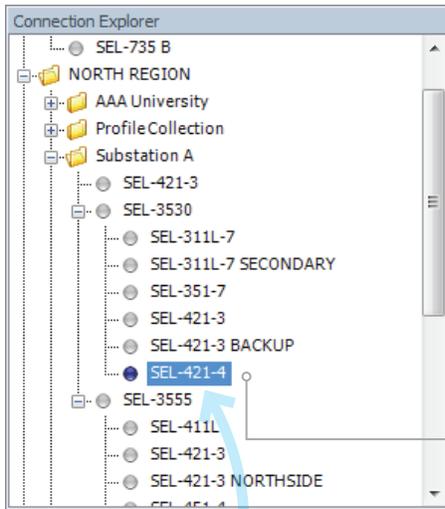
Welcome - Getting Started | SEL-735\*

Device*	Device Type	SEL-735
Connection	In Service	<input checked="" type="checkbox"/>
Custom Attributes	Device Name	SEL-735 Device Under Test
Documents	Serial Number	
Settings*	Global Device ID	a4ee5b4e939c4033807bcb2f8e50b6d8
TEAM*	Firmware Version	X156
	Part Number	0735AX10544EFXA1XX2620000
	FID String	SEL-735-X156-VO-2008005-D20150304
	WhoAreYou Response	
	Generate Password Script	735_DEFAULT_GENERATE_PASSWORD
Device Passwords		
Access Level	Password	Set Password Script
ACC	*****	735_ACC_DEFAULT_SET_PASSWORD
EAC	*****	735_EAC_DEFAULT_SET_PASSWORD
2AC	****	735_2AC_DEFAULT_SET_PASSWORD
CAL	*****	735_CAL_DEFAULT_SET_PASSWORD
Description		
<div style="border: 1px solid gray; height: 40px;"></div>		

Buttons: Edit, Cancel, Apply

## Device Connections

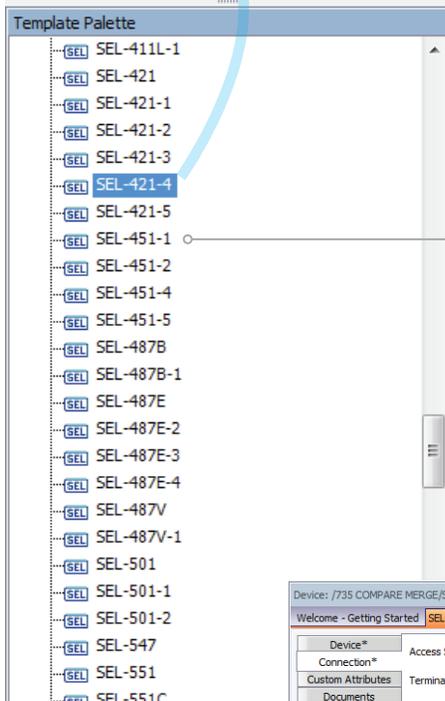
Arrange your devices in a way that is consistent with your physical connection configuration by creating a file structure that works just right for you.



### Device Template Palette

During commissioning, a typical scenario involves data entry for multiple devices of the same type. Entering the same information for each device can be time-consuming, tedious, and prone to errors.

With the Template Palette, quickly and confidently deploy new and existing devices with a consistent setup and create custom templates to match your organization's standards. This simplifies new installations, decreases configuration time, and helps avoid data entry errors.



### Extensive Template List

Select existing templates for the devices that you need by clicking and dragging from the template palette to the Connection Explorer.

### Custom Templates

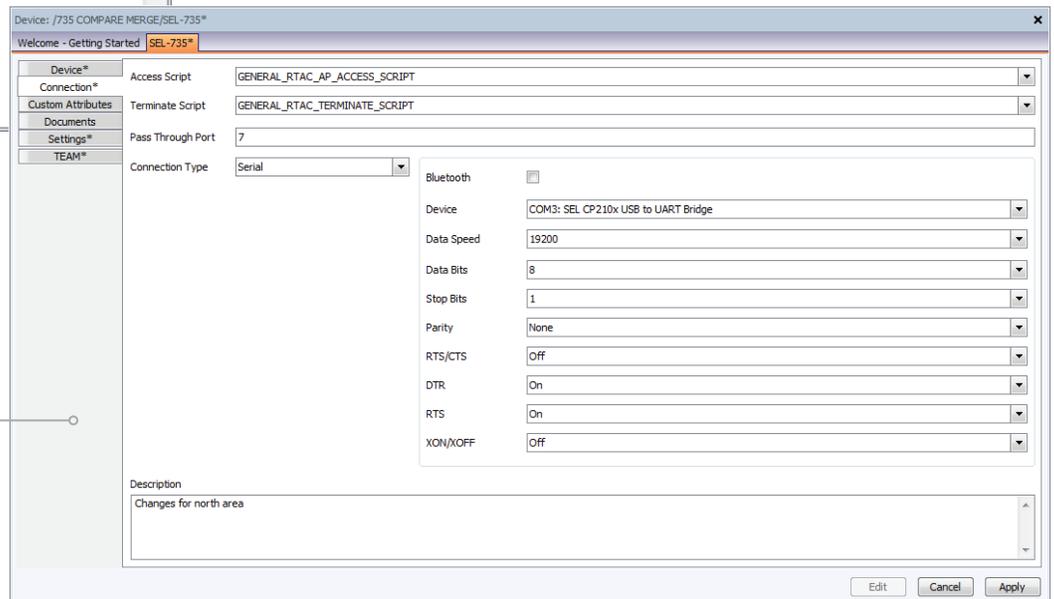
Create your own templates to minimize your work when you need to use the same device type multiple times.

### QuickSet Designer Templates

In addition to the Template Palette, QuickSet has a paid feature that assists you with the creation of customized RDB templates, which can be distributed to technicians and service personnel. Designing relay setting templates means certain settings can be hidden, making it easy for a person applying changes to only focus on the correct, relevant settings. Design templates with the QuickSet Designer tool in acSELERATOR QuickSet.

### Increase Productivity

By taking advantage of the templates, you will only have to adjust the settings that you need—saving you time and effort.





## IED Settings Management

Over the life of a device, you may need to alter the settings. QuickSet's Device Manager assists you with archiving different versions of your settings files for future use. You can save settings as versions with states like "As found," "As left," or any custom name for easy reference.

The screenshot shows the 'Manage Setting Versions' section of the QuickSet software. The 'Workspace' table contains the following data:

Created	Created By	Saved	Saved By	SVN	Comment
<input checked="" type="checkbox"/>	10/18/2016 8:49:39 AM	admin	10/18/2016 8:49:39 AM	admin	100

The 'Version History' table contains the following data:

State	Version	Saved	Saved By	SVN	Comment
<input checked="" type="checkbox"/> As Left	0.3	10/18/2016 8:49:08 AM	admin	100	Minor settings changed
<input type="checkbox"/> In Review	0.2	10/18/2016 8:46:27 AM	admin	100	Second version created
<input type="checkbox"/> Draft	0.1	10/18/2016 8:44:24 AM	admin	100	First version created

The 'Create Version' dialog box is open, showing the following options:

- Version Number:  0.4,  1.0,  Custom Version
- State:  Draft,  In Review,  Rework,  Issued,  As Left
- Comment: Maintenance project finished on 12/7/2016

### Manage Setting Versions

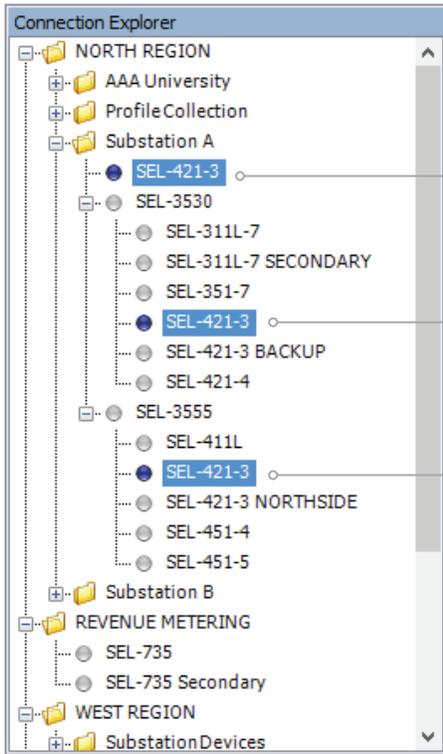
Use the tool to import settings from a relay database file (RDB), read settings directly from the relay, edit existing settings, or create new settings. Then, save them as a new version.

### Settings Versions Comparison

Compare multiple versions of archived settings to see exactly where differences exist and track changes from version to version.

### Archive Settings Versions

Save a recorded version of any particular settings with attributes such as the version number, state, and comments related to the context for that version.



## IED Settings Comparison

One of the leading causes of protective relay misoperation is improper configuration or setting errors. Device Manager helps identify setting errors with the Comparison Report. You can reconcile, compare, and change settings side by side for multiple devices.

Traditionally, comparing settings with new, old, or modified values during commissioning required significant effort. With the Comparison Report, this process is streamlined to quickly identify which values are different. You can then take appropriate corrective action directly from the report using its intuitive interface.

If you use the Comparison Report in conjunction with an SEL Real-Time Automation Controller (RTAC), the RTAC can automatically notify you when an IED's settings change. The report will show you exactly which settings have changed.

## Compare Settings

Select multiple devices from the Connection Explorer to easily compare and change their settings side by side.

Name	SEL-421-3	SEL-421-3	SEL-421-3
▶ RSTDNPE	TRGTR	TRGTR	TRGTR
▶ EAFSRC	NA	NA	NA
▶ VF01	VCY	VCY	ZERO
▶ VF02	VAZ	VBY	VBY
▶ VF03	VCZ	VCZ	VCY
▶ STALLTE	NA	NA	NA
▶ LOADTE	NA	NA	NA
▶ ESS	3	Y	2
▶ LINEI	COMB	COMB	IW
▶ ALINEI	NA	NA	IX
▶ ALTI	NA	NA	NA
▶ BK1I	IW	IW	IX
▶ BK2I	IX	IX	NA
▶ IPOL	NA	NA	NA
▶ ALINEV	NA	NA	VZ
▶ ALTV	NA	NA	NA
▶ MFRMT	C37.118	C37.118	FM
▶ MRATE	2	60	2
▶ PMAPP	F	N	F

	MFRMT
▶ SEL-421-3	1 C37.118
▶ SEL-421-3	1 C37.118
▶ SEL-421-3	2 FM



### Multiple-User Work Group Collaboration

Multiple-user projects often require the exchange of tasks and information. Many end users have an engineering process that requires multiple people to edit, review, approve, or otherwise interact with settings. Passing around files via email, or even using a common network folder structure, is difficult to administer and provides no traceability.

Device Manager simplifies multiple-user management by allowing remote access to the ACSELERATOR Database. It also facilitates collaboration for ongoing projects by letting you define new devices and settings, review changes made by other team members, and commission processes. This functionality enables you to securely access the ACSELERATOR Database by integrating with your Lightweight Directory Access Protocol (LDAP) server or by using the built-in secure user access control.

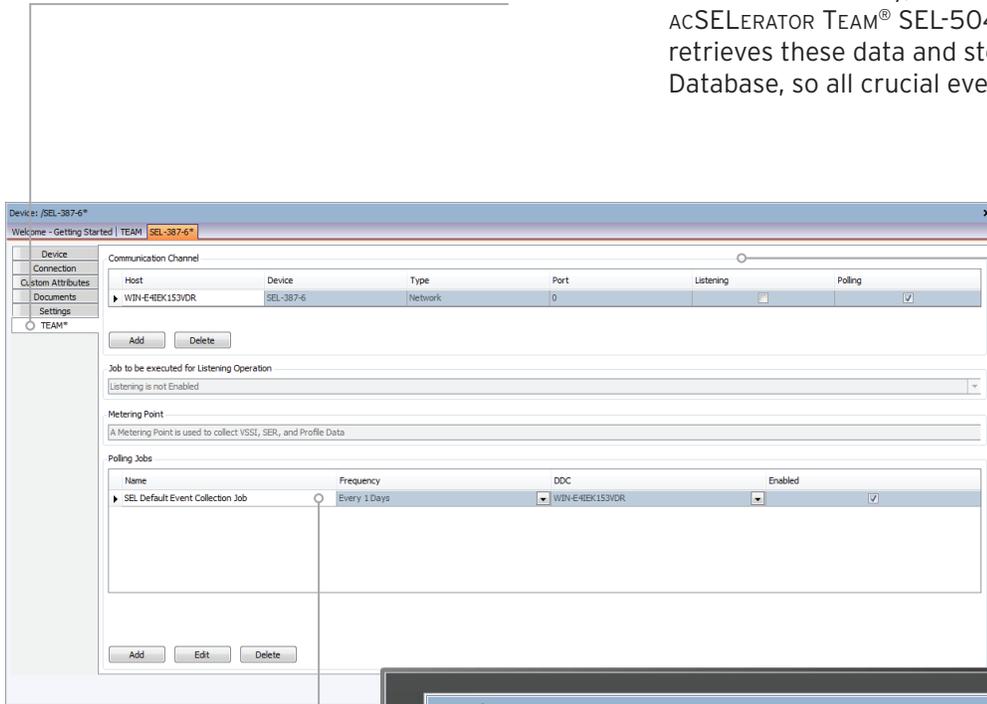


### Multiple Users

Access the ACSELERATOR Database from any authorized computer on your network to make changes and get the information you need.

## Automate Event Collection

Use the TEAM tab to configure data collection from supported devices and to automate the collection and storage of event data.



## Report Collection

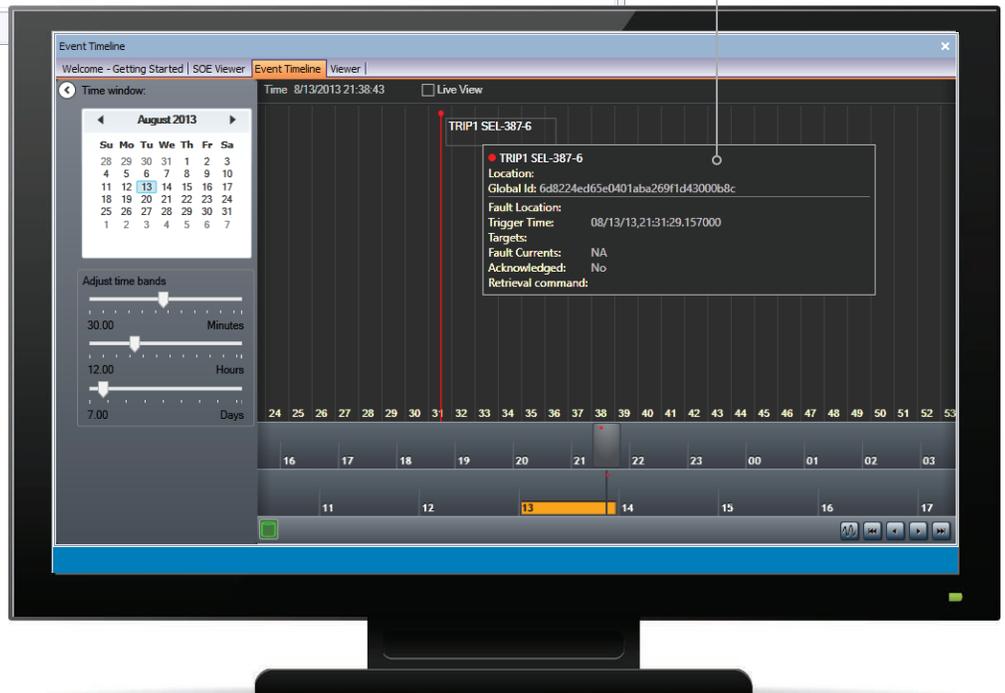
Event data are a critical component for determining whether an IED is performing properly and for evaluating the root cause of a fault. When a fault occurs, SEL devices store all related event data in the internal memory. After a certain period of time, these data are overwritten with more recent data (devices are memory-limited). This important information is lost unless it is retrieved from the device manually, which is time-consuming and tedious. ACSELERATOR TEAM® SEL-5045 Software automatically retrieves these data and stores them in the ACSELERATOR Database, so all crucial event data are captured.

## View Collected Events

Use the convenient Device Manager tools to view all of your collected events and their information in a timeline format.

## Collect Device Data

TEAM collects event reports, Sequence of Events data, load profile data, and voltage sag, swell, and interruption data automatically. You can also use it for automatic password regeneration, security log collection, and transmission fault location.



Viewer

Welcome - Getting Started **Viewer**

Event Summary System Incidents Event Data Detail Functions Preferences

Hide Acknowledged Events Configuration Refresh Grid

Enter text to search... Find Clear

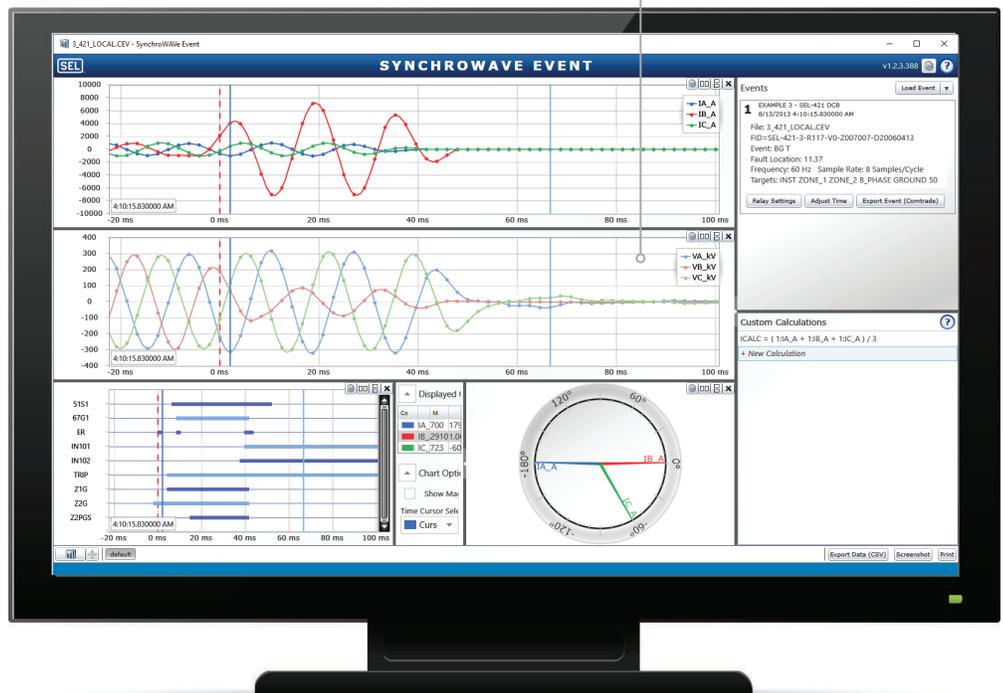
Acknowledge	Device Name	Location	Event Timestamp	Retrieval Timestamp	RID	TID	Retrieval Command Us
<input type="checkbox"/>	SEL-421-3	Substation A	1/2/2017 14:46:13.771900	8/23/2016 13:46:31.746000			CEV 10403
<input type="checkbox"/>	SEL-421-3	SEL-3530	1/2/2017 14:46:13.771900	8/23/2016 14:21:53.604000			CAR READ 7 21
<input type="checkbox"/>	SEL-421-3	SEL-3530	1/2/2017 14:46:10.434400	8/23/2016 14:21:53.604000			CAR READ 7 20
<input type="checkbox"/>	SEL-421-3	Substation A	1/2/2017 14:46:10.434400	8/23/2016 13:46:41.582000			CEV 10402
<input type="checkbox"/>	SEL-421-3	SEL-3530	1/2/2017 14:46:05.199400	8/23/2016 14:21:53.604000			CAR READ 7 19
<input type="checkbox"/>	SEL-421-3	Substation A	1/2/2017 14:46:05.199400	8/23/2016 13:46:51.809000			CEV 10401
<input type="checkbox"/>	SEL-421-3	Substation A	1/2/2017 14:46:00.689400	8/23/2016 13:47:01.965000			CEV 10400
<input type="checkbox"/>	SEL-421-3	SEL-3530	1/2/2017 14:46:00.689400	8/23/2016 14:21:53.604000			CAR READ 7 18
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:25:59.261100	11/10/2016 15:26:43.025000			CEV 10461
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:25:49.681100	11/10/2016 15:25:18.500000			CEV 10460
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:10:25.181300	11/10/2016 15:08:41.401000			CEV 10459
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:09:01.478800	11/10/2016 15:08:43.522000			CEV 10458
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:58.021300	11/10/2016 15:08:45.596000			CEV 10457
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:51.813800	11/10/2016 15:08:47.647000			CEV 10456
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:44.058800	11/10/2016 15:06:41.414000			CEV 10455
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:40.041300	11/10/2016 15:06:43.606000			CEV 10454
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:37.901300	11/10/2016 15:06:48.979000			CEV 10453
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:36.316300	11/10/2016 15:06:51.768000			CEV 10452
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:33.798800	11/10/2016 15:06:53.810000			CEV 10451
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:32.298800	11/10/2016 15:06:57.148000			CEV 10450
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:30.641300	11/10/2016 15:06:59.222000			CEV 10449
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:29.078800	11/10/2016 15:07:03.029000			CEV 10448
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:27.676300	11/10/2016 15:07:09.367000			CEV 10447
<input type="checkbox"/>	SEL-421-3	Substation B	11/10/2016 15:08:24.746300	11/10/2016 15:07:14.950000			CEV 10446

### Open Events

Click on any event in the Event Viewer to automatically open its graphical characteristics using SYNCHROWAVE Event.

### SYNCHROWAVE® Post-Event Analysis

Using SYNCHROWAVE Event Software, you can view event reports (collected either automatically by TEAM or manually) directly from the Device Manager. This helps verify relay performance and identify improvements while also getting a better understanding of the power grid.



# Specifications

## SEL Solution Components

**Included Components** ACSELERATOR QuickSet SEL-5030 Software  
ACSELERATOR Device Manager  
Note: Device Manager is included with the full installation of QuickSet.

**Paid Components** ACSELERATOR Device Management for Workgroups  
ACSELERATOR TEAM SEL-5045 Software  
SEL-5601-2 SYNCHROWAVE Event Software

**SEL** SCHWEITZER ENGINEERING LABORATORIES

Making Electric Power Safer, More Reliable, and More Economical  
Tel: +1.509.332.1890 | Email: [info@selinc.com](mailto:info@selinc.com) | Web: [www.selinc.com](http://www.selinc.com)

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PF00556 • 20170918

