

SEL Device Management and Automation (DMA)

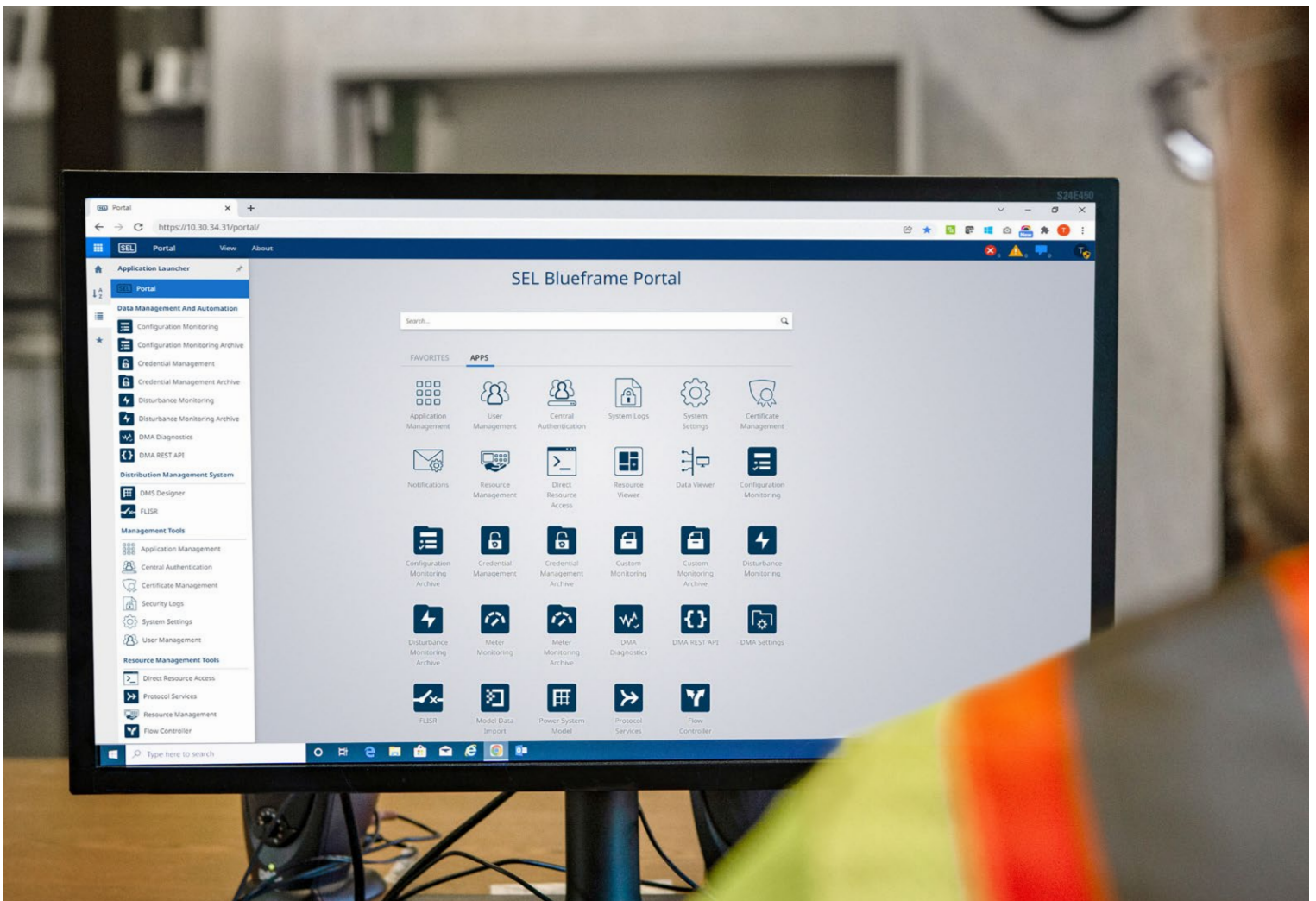
Blueframe® Application Suite



Automate data collection and streamline fleet management

- Automatically collect oscillography, Sequence of Events (SOE), device settings, property information, and other device files and reports.
- Identify device changes and simplify auditing tasks with custom data summary reports.
- Streamline device management and compliance efforts with automated password rotation.





Overview

SEL DMA applications automatically collect, store, and manage device-specific information—oscillography, SOE, device settings, property information, and other device files and reports—to simplify day-to-day fleet management and compliance efforts. Streamline device audits through custom summary reports. Deploy DMA applications across substation or regional installations or centralize them at a corporate installation, according to the number of devices and system performance requirements.

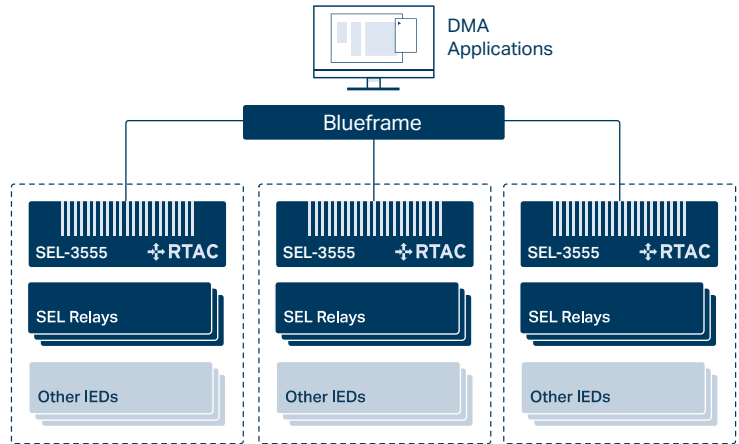
The DMA application suite currently includes multiple orderable packages: the Disturbance Monitoring package, the Configuration Monitoring package, the Credential Management package, the Meter Monitoring package, and the Custom Monitoring package.

DMA software runs as secure, modular applications on SEL Blueframe, a specialized software platform for operational technology (OT) systems. Blueframe can be deployed on SEL rugged computing platforms (SEL-3350, SEL-3355, and SEL-3360) or virtualized on other server-grade hardware through a contract agreement. For more information about virtual deployments, contact your local support.

Deployment Options

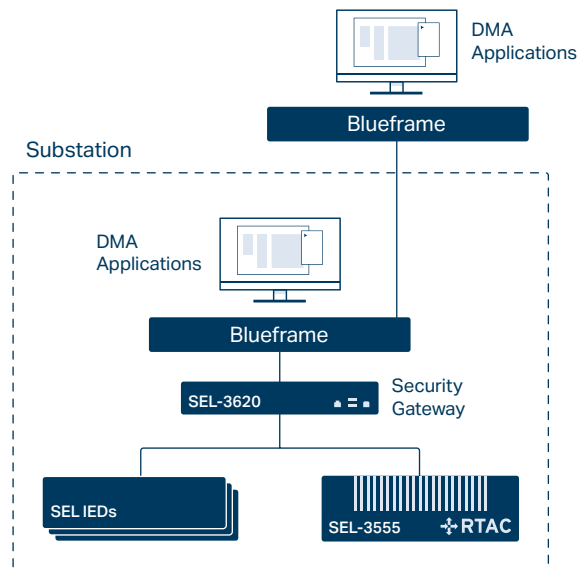
Centralized DMA

DMA is well suited to a centralized deployment and is designed to scale, making it easy to configure automated data collection from one to thousands of resources in a system. Systems that utilize SEL Real-Time Automation Controllers (RTACs) further simplify centralized deployments through aggregated data collection and improved notification efficiency between substations and the central DMA instance. DMA is designed to run on the secure Blueframe operating system, which can be deployed on SEL rugged computing platforms or virtualized on other server-grade hardware.



Regional DMA

DMA was designed to be distributable, enabling users to securely aggregate data from several resources to a local Blueframe instance and then push data from the distributed system to a central Blueframe node. This deployment is advantageous when communications between remote locations and the centralized user access point are intermittent or when SEL RTACs are not in use.



Application Packages

Disturbance Monitoring Package



Disturbance Monitoring

Define data collection plans for end-point devices. Automatically collect event oscillography and SOE data for supported resources in a common location. This facilitates streamlined initiation of fault restoration.

Listen for notifications

DMA can listen for notifications from supported resources that new data are available for collection, expediting fault retrieval.

Schedule oscillography and SOE collection

Configure DMA to communicate automatically with Blueframe resources to collect new event data.

Collection

Listening

Publishing

Collection

New Plan

Delete

Name	Schedule	Report Type	Resources
North Bitterroot_Events	Every day at 2:00 AM	Oscillography	3
North Bitterroot_SOE	Every day at 12:00 AM	Oscillography	5
South Bitterroot_Events_SOE	Every day at 12:00 AM	Oscillography & SOE	1

North Bitterroot_SOE

Save

Cancel

Name

North Bitterroot_SOE

Schedule

Every day at 12:00 AM

Report Type

Oscillography

Resources

Search...

Select Resources

Delete

Resource	Connection
3620_SEL-421-7	3620CV_SSH
SEL-3530_CV_62	RTAC_CV_62_DB
3620_SEL-787	3620CV_SSH
3620_SEL-700G	3620CV_SSH
3620_SEL-411L	3620CV_SSH

Publish and centralize data

Publish collected data from one Blueframe instance to another or from Blueframe instances to an HTTPS server. This supports aggregating data from dispersed Blueframe instances to a central Blueframe instance or other receiving server. Additionally, configure automated email notifications when new data are collected.



Generate reports

[Download records](#)

Disturbance Monitoring Archive
[View](#) [About](#)

DISTURBANCE MONITORING REPORT: 4/8/2022, 2:08:45 PM

[Export Report](#)
[New Report](#)
[Edit Report](#)

[Refresh Report](#)

Resource ▼	Timestamp ▼	Event ▼	Message ▼	Type ▼
Z2_SEL-451-2 (4)	11/19/2021, 12:44:17.651 AM	Relay	Enabled	SOE
Z2_SEL-451-2 (4)	11/19/2021, 12:44:17.651 AM	Power-up	Group 1	SOE
Z2_SEL-451-2 (4)	7/23/2021, 3:56:20.231 PM	Settings changed	Class R CC	SOE
Z2_SEL-451-2 (4)	7/23/2021, 3:56:17.823 PM	Reclose Shot 0	Asserted	SOE
Z2_SEL-451-2 (4)	7/23/2021, 3:56:17.821 PM	Settings changed	Class L CC	SOE
Z2_SEL-451-2 (4)	7/23/2021, 3:56:17.821 PM	Relay	Enabled	SOE
Z2_SEL-451-2 (4)	7/23/2021, 3:56:17.764 PM	Relay	Disabled	SOE
Z2_SEL-451-2 (4)	7/23/2021, 3:55:40.650 PM	Relay	Enabled	SOE
Z2_SEL-451-2 (4)	7/23/2021, 3:55:40.650 PM	Power-up	Group 1	SOE
Z2_SEL-451-2 (4)	7/7/2021, 5:09:18.397 PM	Settings changed	Class R CC	SOE
Z2_SEL-451-2 (4)	7/7/2021, 5:09:15.851 PM	Reclose Shot 0	Asserted	SOE
Z2_SEL-451-2 (4)	7/7/2021, 5:09:15.849 PM	Settings changed	Class L CC	SOE
Z2_SEL-451-2 (4)	7/7/2021, 5:09:15.849 PM	Relay	Enabled	SOE
Z2_SEL-451-2 (4)	7/7/2021, 5:09:15.793 PM	Relay	Disabled	SOE
Z2_SEL-451-2 (4)	7/7/2021, 5:08:46.650 PM	Relay	Enabled	SOE
Z2_SEL-451-2 (4)	7/7/2021, 5:08:46.650 PM	Power-up	Group 1	SOE
Z2_SEL-451-2 (4)	4/8/2022, 2:08:24.374 PM	TRIG		Oscillography
Z2_SEL-451-2 (4)	4/8/2022, 2:07:21.624 PM	TRIG		Oscillography
Z2_SEL-451-2 (4)	4/8/2022, 2:06:29.503 PM	TRIG		Oscillography
Z2_SEL-451-2 (4)	4/8/2022, 2:05:26.439 PM	TRIG		Oscillography
Z2_SEL-451-2 (4)	4/8/2022, 2:04:21.191 PM	TRIG		Oscillography
Z2_SEL-451-2 (4)	4/8/2022, 2:04:16.082 PM	TRIG		Oscillography
Z2_SEL-451-2 (4)	4/8/2022, 2:04:15.018 PM	TRIG		Oscillography
Z2_SEL-451-2 (4)	4/8/2022, 2:03:14.147 PM	TRIG		Oscillography
Z2_SEL-451-2 (4)	4/8/2022, 2:01:13.030 PM	TRIG		Oscillography

Details

Resource: Z2_SEL-451-2 (4)
 Timestamp: 4/8/2022, 2:08:24.374 PM
 Event: TRIG
 Type: Oscillography
 Recordings: 4

View Event:

Compressed - FILTERED

Resource ID: 00000000-0004-4000-8000-000000001043

[Download Event](#)

SYNCHROWAVE® Event Express

View oscillography records with the included event viewing tool.

Configuration Monitoring Package



Configuration Monitoring

Automate checks of active device settings, firmware versions, and device IDs. Securely move collected settings to a settings management repository for a settings version comparison analysis.

Publish and centralize data

Publish collected data from one Blueframe instance to another or from Blueframe instances to an HTTPS server. This supports aggregating data from dispersed Blueframe instances to a central Blueframe instance or other receiving server. Additionally, configure automated email notifications when new data are collected.

Schedule settings and property collection

Configure DMA to communicate automatically with Blueframe resources to collect new configuration data and identify when changes have occurred on monitored devices.

Collection

Publishing

Collection

New Plan

Delete

Name	Schedule	Report Type	Resources
3620_ChildConfig	Every day at 12:00 AM	Properties & Settings	4
3620_Config	Every day at 12:00 AM	Settings	1
RTAC_Properties	Every day at 12:00 AM	Properties	1
RTAC_Settings	Every day at 12:00 AM	Settings	1

3620_ChildConfig

Save

Cancel

Name

3620_ChildConfig

Schedule

Every day at 12:00 AM

Report Type

Properties & Settings

Resources

Search...

Select Resources

Delete

Resource	Connection
3620_SEL-421-7	3620CV_SSH
3620_SEL-787	3620CV_SSH
3620_SEL-700G	3620CV_SSH
3620_SEL-411L	3620CV_SSH

Configuration Monitoring Archive

View collected settings versions, firmware, and device ID variances. Identify devices that may not match company records for active configuration and require corrective action.

Download configuration

DMA gathers a full set of resource configurations, which enables full use in the respective resources' configuration software. For example, SEL RTAC settings are collected as a project file that can be opened in ACSELERATOR® RTAC SEL-5033 Software.

Configuration Monitoring Archive

View
About

CONFIGURATION MONITORING REPORT: 4/8/2022, 2:44:45 PM

New Report
Edit Report

Search:

Export Filtered Report

Refresh Report

Resource	Status	Discovered Change	Last Examined	Type	
Z2_SEL-421-3	CHANGED	4/4/2022, 3:28:00.000 PM	4/8/2022, 2:43:16.000 PM	Properties	
Z2_SEL-421-3	CHANGED	4/8/2022, 2:38:20.000 PM	4/8/2022, 2:43:10.000 PM	Settings	
Z2_SEL-421-3	CHANGED	4/4/2022, 3:23:01.000 PM	4/8/2022, 2:43:10.000 PM	Settings	
Z2_SEL-421-3 (2)	CHANGED	4/4/2022, 3:35:18.000 PM	4/8/2022, 2:41:23.000 PM	Properties	
Z2_SEL-421-3 (2)	CHANGED	4/8/2022, 2:40:47.000 PM	4/8/2022, 2:40:47.000 PM	Settings	
Z2_SEL-421-3 (2)	CHANGED	4/4/2022, 3:25:22.000 PM	4/8/2022, 2:40:47.000 PM	Settings	
Z2_SEL-421-3 (3)	CHANGED	4/4/2022, 3:30:10.000 PM	4/8/2022, 2:41:50.000 PM	Properties	
Z2_SEL-421-3 (3)	CHANGED	4/4/2022, 3:25:27.000 PM	4/8/2022, 2:41:02.000 PM	Settings	
Z2_SEL-421-4	CHANGED	4/4/2022, 3:25:10.000 PM	4/8/2022, 2:40:10.000 PM	Properties	
Z2_SEL-421-4	CHANGED	4/4/2022, 3:21:43.000 PM	4/8/2022, 2:41:47.000 PM	Settings	

Details

Download Configuration

Resource: Z2_SEL-421-3
Status: Changed
Discovered: 2022-04-04T15:23:01
ArtifactID: 648518898882871298
Type: Settings

Resource ID: 00000000-0004-4000-8000-000000001044

Identify changes to settings and properties

Build a report to help identify when resource configuration has changed. Detected changes can then be evaluated to understand if they were intentional or not.

Credential Management Package



Credential Management

Automatically rotate IED passwords on custom-defined schedules, either directly or through SEL security gateways. Ensure device access security with more control over when passwords are rotated with random and complex passwords.

Schedule password rotation

Configure DMA to communicate automatically with Blueframe resources to rotate passwords to a randomly assigned password.

Select method of password rotation

Configure plans to either rotate passwords directly or initiate password rotation and collect proxy reports through SEL security gateways.

Credential Management

View

About

Credential Plans

New Plan

Delete

Credential Plan	Type	Schedule	Resources	Exceptions
3XX Rotation	SEL Devices - Direct Password Rotation	Every day at 11:00 AM	1	2
Recloser Rotation	SEL Devices - Direct Password Rotation	Every 9 months on the 17th at 12:00 AM	50	0

3XX Rotation

Name

3XX Rotation

Type

SEL Devices - Direct Password Rotation

362x - Collect Proxy Reports

362x - Managed Password Rotation

SEL Devices - Direct Password Rotation

Every day at 11:00 AM

Password Type

Random - Per Resource

Resources

Manage Exceptions

Select Resources

Resource	Connection	Exceptions
SEL-300G	Pass Through	level1, level2

Save

Cancel



Credential Management Archive

View Credential Management reports to verify that scheduled resource passwords have been changed to support audit compliance efforts. Additionally, access resource credentials securely to aid emergency restoration efforts.

Restrict access to view passwords

Define which roles can view active passwords and which roles can audit when passwords were changed.

Generate password reports

Generate a report with active resource passwords to support emergency restoration efforts.

Credential Management Archive

ViewPermissionsAbout

Password Audit Report: 12-1-2022, 1:08:04 PM

Resources: 50Time Period: 11-30-2022, 1:07:55 PM - 12-1-2022, 1:07:55 PM

New Report

Edit Report

Search...

Export Filtered Report

Refresh Report

Resource	Plan	Last Changed	Status	Exceptions
North_651R_1	651R Rotation	12-1-2022, 11:22:36 AM	Changed	level1, level2
North_651R_2	651R Rotation	12-1-2022, 11:22:37 AM	Changed	--
North_651R_3	651R Rotation	12-1-2022, 11:22:37 AM	Changed	--
North_651R_4	651R Rotation	12-1-2022, 11:22:37 AM	Changed	--
North_651R_5	651R Rotation	12-1-2022, 11:22:37 AM	Changed	--
North_651R_6	651R Rotation	12-1-2022, 11:22:37 AM	Changed	--
North_651R_7	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_8	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_9	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_10	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_11	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_12	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_13	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_14	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_15	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_16	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_17	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--
North_651R_18	651R Rotation	12-1-2022, 11:22:38 AM	Changed	--

North_651R_1

Execution Details

Plan: 651R Rotation

Last Changed: 12-1-2022, 11:22:36 AM

Status: Changed

Exceptions: level1, level2

Open in Resource Management

Resource ID: 47b6c4b2-9b86-4b38-a2d4-405ac9043016

Meter Monitoring Package



Meter Monitoring

Streamline voltage sag, swell, and interruption (VSSI) and load data profile (LDP) data collection and centralize data storage with the DMA Meter Monitoring application.

Publish and centralize data

Publish collected data to a central Blueframe instance or to an HTTPS server. Additionally, configure automated email notification when new data are collected.

Schedule LDP and VSSI collection

Configure DMA to communicate automatically with Blueframe metering resources to collect new LDP and VSSI data.

SEL Meter Monitoring View About

Collection Publishing

Collection

New Plan

Delete

Collection	Type	Schedule	Resources
LDP	LDP	Every 5 minutes	1
VSSI	VSSI	Every 5 minutes	1

LDP

Name

LDP

Type

Load Data Profile (LDP)

Enable Plan

On Save

Schedule

Every 5 minutes

Resources

Resource

SEL-735

Connection

Telnet2

Save

Cancel



Meter Monitoring Archive

Verify up-to-date collection of LDP and VSSI data. Review VSSI records, and download segments of LDP data.

Generate reports

Configure reports to display VSSI records or to verify up-to-date collection of LDP and VSSI data.

Assess and download data

Quickly assess VSSI records or download segments of LDP data.

SEL

Meter Monitoring Archive

View

About

VSSI Event Summary: 1-31-2024, 9:48:28 AM

Resources: 4 Time Period: 1-31-2023, 9:48:02 AM - 1-31-2024, 9:48:02 AM

Search...

Export Filtered Report

Refresh Report

...

New Report

Edit Report

Resource	Recorded On	Type	Region
SEL-735	1-9-2024, 5:26:19 PM	SAG	SAFE_FUNCTION
SEL-735	1-3-2024, 12:05:01 PM	SAG	NO_DAMAGE
SEL-735	12-19-2023, 11:31:32 PM	SAG	NO_DAMAGE
SEL-735	12-13-2023, 10:31:49 AM	SAG	SAFE_FUNCTION
SEL-735	12-6-2023, 11:50:03 AM	SAG	SAFE_FUNCTION
SEL-735	11-16-2023, 12:09:41 PM	SAG	SAFE_FUNCTION
SEL-735	9-22-2023, 5:39:54 AM	SAG	SAFE_FUNCTION
SEL-735	9-6-2023, 12:41:28 PM	SAG	SAFE_FUNCTION
SEL-735	8-4-2023, 12:25:57 AM	SAG	SAFE_FUNCTION
SEL-735	7-29-2023, 8:43:11 PM	SAG	NO_DAMAGE
SEL-735	7-17-2023, 4:43:18 PM	INTERRUPT	NO_DAMAGE
SEL-735	7-17-2023, 4:43:18 PM	SAG	NO_DAMAGE
SEL-735	7-17-2023, 4:43:18 PM	INTERRUPT	NO_DAMAGE
SEL-735	7-17-2023, 4:43:18 PM	SAG	NO_DAMAGE
SEL-735	7-17-2023, 4:43:17 PM	INTERRUPT	NO_DAMAGE
SEL-735	7-17-2023, 4:43:17 PM	SAG	NO_DAMAGE
SEL-735	7-17-2023, 4:43:16 PM	INTERRUPT	NO_DAMAGE
SEL-735	7-17-2023, 4:43:16 PM	SAG	NO_DAMAGE
SEL-735	7-17-2023, 4:38:51 PM	SWELL	PROHIBITED

SEL-735

Execution Details

Recorded On: 1-9-2024, 5:26:19 PM

Type: SAG

Region: SAFE_FUNCTION

Duration: 0.022 seconds

Voltages

Channel	Base	Min	Max
A	120	85.4	120
B	0	85.4	0
C	0	85.4	0

Resource ID: 2b919f68-db3a-4cd0-8132-a5d34f5ae9db

Custom Monitoring Package



Custom Monitoring

Schedule automated collection of files or command results from supported devices. Specify which files or relay reports to collect from devices and store in an aggregated location.

Publish and centralize data

Publish collected data from one Blueframe instance to another or from Blueframe instances to an HTTPS server. This supports aggregating data from dispersed Blueframe instances to a central Blueframe instance or other receiving server. Additionally, configure automated email notifications when new data are collected.

Collect command results

Run device-supported commands to save results to a file.

Specify files for collection

Use regular expressions to specify files for collection.

Collect device files

Collect files from a device's file system.

Label collected data

Tag collected data with a label to enable streamlined filtering of data in the archive.



Custom Monitoring Archive

Access your files, tagged with user-defined labels, for use by analysis or visualization tools.

Filter collected files

Select resources of interest to filter down collected files.

Search for data in archive

Search archive results to narrow down viewable data.

The screenshot displays the 'Custom Monitoring Archive' application. On the left, a sidebar titled 'Resources' contains a list of resource categories: 'All Resources', '.dma-credential-managemen', 'Blueframe Servers', 'Substation Adams', 'Substation Latah', and 'Substation Whitman'. The main area, titled 'All Resources', contains a table with columns: 'Collected On', 'File', 'Resource', and 'Labels'. The table lists various collected files with their timestamps, file names, resource identifiers, and labels. A 'Download' tooltip is visible over the row for '10/19/2022, 1:35:12 PM' with file 'BRE'. At the top right, there is a search bar labeled 'Search...'. The application has a dark blue header bar with the 'SEL' logo and navigation links 'View' and 'About'.

Collected On	File	Resource	Labels
10/19/2022, 1:35:06 PM	STA	SEL-T401L	STATUS Command
10/19/2022, 1:35:08 PM	STA	SEL-735	STATUS Command
10/19/2022, 1:35:08 PM	STA	SEL-421-1	STATUS Command
10/19/2022, 1:35:09 PM	STA	SEL-751 (1)	STATUS Command
10/19/2022, 1:35:12 PM	BRE	SEL-421-1	BREAKER Command
10/19/2022, 1:40:04 PM	STA	SEL-735	STATUS Command
10/19/2022, 1:40:05 PM	STA	SEL-751 (1)	STATUS Command
10/19/2022, 1:40:07 PM	STA	SEL-T401L	STATUS Command
10/19/2022, 1:40:07 PM	STA	SEL-421-1	STATUS Command
10/19/2022, 1:45:04 PM	STA	SEL-735	STATUS Command
10/19/2022, 1:45:04 PM	STA	SEL-751 (1)	STATUS Command
10/19/2022, 1:45:05 PM	STA	SEL-T401L	STATUS Command
10/19/2022, 1:45:08 PM	STA	SEL-421-1	STATUS Command
10/19/2022, 1:50:04 PM	STA	SEL-735	STATUS Command
10/19/2022, 1:50:05 PM	STA	SEL-751 (1)	STATUS Command
10/19/2022, 1:50:06 PM	STA	SEL-T401L	STATUS Command
10/19/2022, 1:50:08 PM	STA	SEL-421-1	STATUS Command
10/19/2022, 1:55:04 PM	STA	SEL-735	STATUS Command
10/19/2022, 1:55:04 PM	STA	SEL-751 (1)	STATUS Command
10/19/2022, 1:55:05 PM	STA	SEL-T401L	STATUS Command
10/19/2022, 1:55:06 PM	STA	SEL-421-1	STATUS Command
10/19/2022, 2:00:04 PM	STA	SEL-735	STATUS Command
10/19/2022, 2:00:05 PM	STA	SEL-751 (1)	STATUS Command

Download collected files

DMA Tools



DMA REST API

Gain secure, authenticated programmatic access to a RESTful API (application programming interface) for integration with third-party business tools.



DMA Diagnostics

Troubleshoot resource communications and data collection processes initiated by the services that support DMA data collection.



DMA Settings

Manage global DMA settings related to hard drive storage, data retention policies, and resetting DMA-related data to a clean state.

Monitor the automation system as plans are being executed to ensure it is running as expected.

Quickly identify the cause of automation failures to return system to a successful state.

DMA Diagnostics

Overview

Plan Executions

Live

Historical

Listening

Service Logs

Z2_SEL-3515-6

Z2_SEL-3515-6 (2)

Z2_SEL-352-2

Z2_SEL-387-6

Z2_SEL-421-3

Z2_SEL-421-3 (2)

Z2_SEL-421-3 (3)

Z2_SEL-421-4

Z2_SEL-421-4 (2)

Z2_SEL-451-2

Z2_SEL-451-2 (2)

Z2_SEL-451-2 (3)

Z2_SEL-451-2 (4)

Z2_SEL-451-4

Z2_SEL-451-4 (2)

Z2_SEL-451-5

Z2_SEL-487B

Z2_SEL-487B-1

Z2_SEL-387-6

Search Z2_SEL-387-6...

Refresh Data

Plan Name	App Name	Plan Type	Result	Started	Completed	Duration
IED Events and SOE	Disturbance Monitoring	CollectOscillography	Error: Connection	2022-04-09T23:30:05.123816 America/Los_Angeles	2022-04-09T23:30:05.567462 America/Los_Angeles	0.443 seconds
IED Events and SOE	Disturbance Monitoring	CollectSOE	Error: Connection	2022-04-09T23:30:05.123816 America/Los_Angeles	2022-04-09T23:30:05.567462 America/Los_Angeles	0.443 seconds
IED Settings and Properties	Configuration Monitoring	CollectProperties	Error: Connection	2022-04-09T23:30:05.123816 America/Los_Angeles	2022-04-09T23:30:05.567462 America/Los_Angeles	0.443 seconds
IED Settings and Properties	Configuration Monitoring	ReadConfiguration	Error: Connection	2022-04-09T23:30:05.123816 America/Los_Angeles	2022-04-09T23:30:05.567462 America/Los_Angeles	0.443 seconds
IED Events and SOE	Disturbance Monitoring	CollectOscillography	Error: Connection	2022-04-09T23:25:05.171124 America/Los_Angeles	2022-04-09T23:25:05.567016 America/Los_Angeles	0.395 seconds
IED Events and SOE	Disturbance Monitoring	CollectSOE	Success	2022-04-09T23:25:05.171124 America/Los_Angeles	2022-04-09T23:25:05.567016 America/Los_Angeles	0.395 seconds
IED Settings and Properties	Configuration Monitoring	CollectProperties	Success	2022-04-09T23:25:05.171124 America/Los_Angeles	2022-04-09T23:25:05.567016 America/Los_Angeles	0.395 seconds
IED Settings and Properties	Configuration Monitoring	ReadConfiguration	Success	2022-04-09T23:25:05.171124 America/Los_Angeles	2022-04-09T23:25:05.567016 America/Los_Angeles	0.395 seconds

View detailed communication and troubleshooting logs.

SEL Blueframe Application Platform

Platform

DMA applications run on the SEL Blueframe application platform. Blueframe is a secure, modular system for installing SEL applications and for managing and exchanging data between supported applications. Blueframe is designed to minimize the attack surface and includes several security measures, like allowlisting, to prevent unauthorized access and attacks. It provides a scalable and customizable solution to accommodate your specific needs.

Hardware

Blueframe runs on powerful and reliable SEL computing platforms that ensure system availability in the most demanding applications and environments. Select the right hardware for your application by choosing from models that offer a variety of processing power options, drives, memory modules, expansion capabilities, and form factors. Blueframe and its specialized applications come embedded in your chosen computing platform.

Blueframe can also be deployed virtually on other server-grade hardware through a contract agreement. For more information about virtual deployments and minimum hardware requirements, contact your local support.

	SEL-3350	SEL-3355	SEL-3360S	SEL-3360E
Processor	Intel Atom x5-E3940 quad-core, 1.6 GHz	Intel Xeon quad-core, 2.0 or 2.8 GHz	Intel Xeon quad-core, 2.0 or 2.8 GHz	Intel Xeon quad-core, 2.0 or 2.8 GHz
Memory	8 GB DDR3L RAM with error-correcting code (ECC)	Up to 64 GB DDR4 RAM with ECC	Up to 64 GB DDR4 RAM with ECC	Up to 64 GB DDR4 RAM with ECC
Storage ¹	Up to 2 SSDs, 2 TB each, 2.5" SATA III (6.0 GB/s)	Up to 4 SSDs, 2 TB each, 2.5" SATA II (3.0 GB/s)	Up to 2 SSDs, 2 TB each, 2.5" SATA II (3.0 GB/s)	Up to 2 SSDs, 2 TB each, 2.5" SATA II (3.0 GB/s)
Chassis	19" rack-mount or panel-mount, 1U	19" rack-mount or panel-mount, 3U	Conductive panel-mount or standard wall-mount cooling	Conductive panel-mount or standard wall-mount cooling

¹Blueframe only supports a single drive at this time.

Specifications

General	
Data Collection Capabilities	Automated polling or listening
Data Publishing Capabilities	Blueframe to Blueframe, Blueframe to HTTPS server, Blueframe to FTP server, and email notifications
Supported Protocols	SEL ASCII, SEL FTP, HTTPS, PostgreSQL, Secure Shell (SSH), MMS, Telnet, and TCP
Operating System	SEL Blueframe
Deployment Options	Embedded on SEL computing platforms or virtualized on other server-grade hardware

