



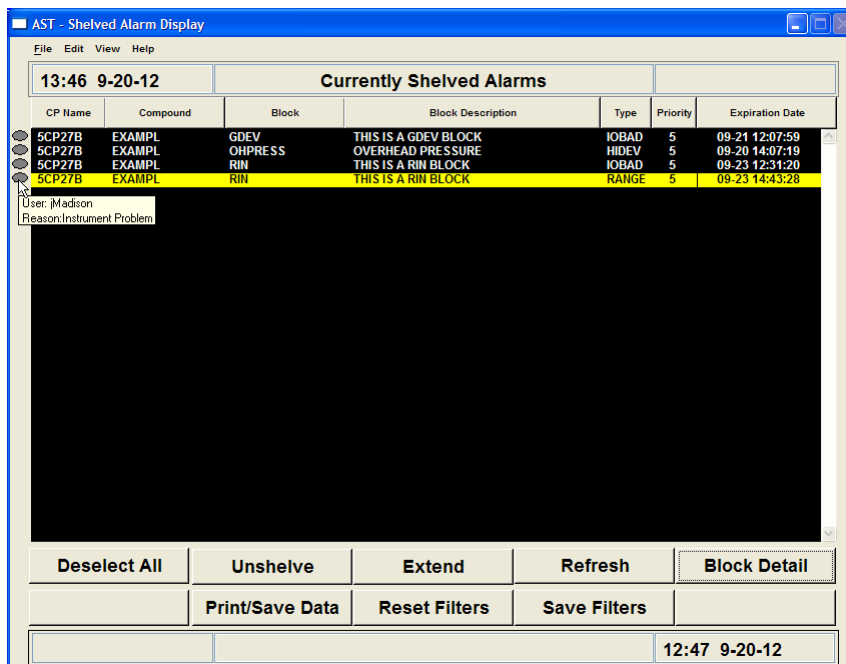
Foxboro™ DCS

Alarm Shelving Tool Software

PSS 41S-2ALMSHLV

Product Specification

November 2022



Legal Information

The Schneider Electric brand and any trademarks of Schneider Electric SE and its subsidiaries referred to in this guide are the property of Schneider Electric SE or its subsidiaries. All other brands may be trademarks of their respective owners.

This guide and its content are protected under applicable copyright laws and furnished for informational use only. No part of this guide may be reproduced or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), for any purpose, without the prior written permission of Schneider Electric.

Schneider Electric does not grant any right or license for commercial use of the guide or its content, except for a non-exclusive and personal license to consult it on an "as is" basis. Schneider Electric products and equipment should be installed, operated, serviced, and maintained only by qualified personnel.

As standards, specifications, and designs change from time to time, information contained in this guide may be subject to change without notice.

To the extent permitted by applicable law, no responsibility or liability is assumed by Schneider Electric and its subsidiaries for any errors or omissions in the informational content of this material or consequences arising out of or resulting from the use of the information contained herein.

Overview

The Alarm Shelving Tool (AST) allows you to select an alarm from the alarming applications (Foxboro™ DCS Current Alarm Display (CAD) or EcoStruxure™ Foxboro™ DCS Control HMI's Alarm Panel) and request that it be shelved (inhibited) for a fixed period of time, after which, normal operation is restored.

Additionally, AST permits state-based shelving of alarms for a logical device.

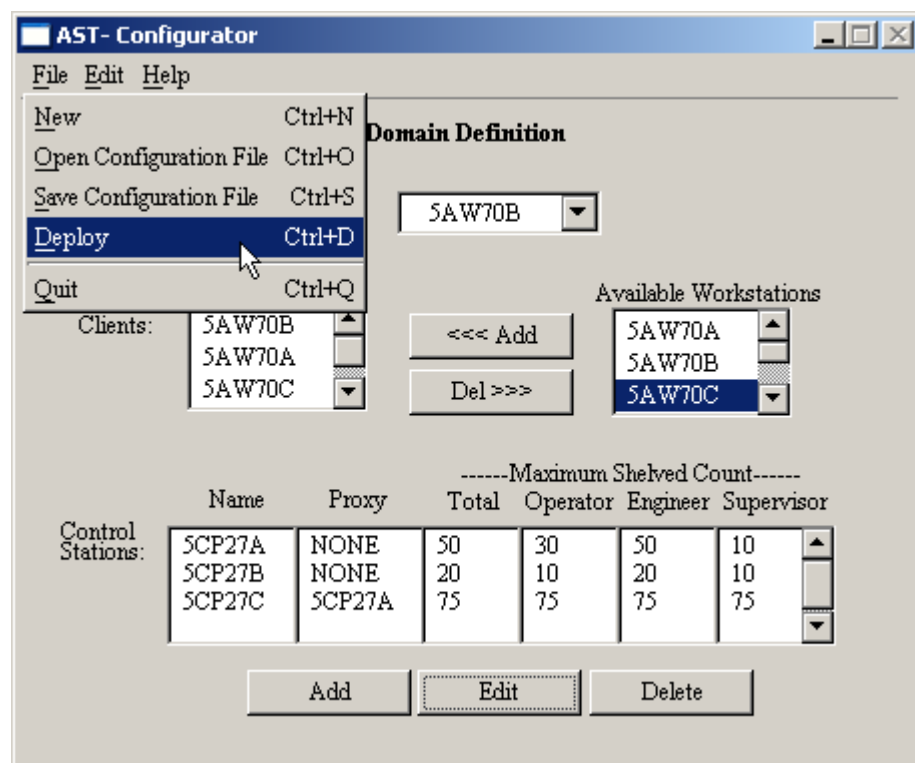
Features

The Alarm Shelving Tool is based on a client/server architecture and supports the concept of an AST domain. An AST domain associates control stations and workstations with a single instance of the AST Configurator.

The tool consists of configuration tools, displays, alarm shelves, and device alarm shelves that facilitate real time alarm shelving.

AST Configurator

The AST Configurator configures and deploys the AST domain.



The AST domain definition identifies control stations for which alarms can be shelved, and provide rules for alarm shelving based on AST roles.

AST clients included in the AST domain receive shelf information and customized feature information at deployment time.

Alarm shelves are configured to exist on either a physical or proxy control station. Alarm shelf size and shelving allocation by AST role is designated.

Shelving rules and AST roles evaluation determine if a shelving request is honored.

AST Roles

The AST roles (Operator, Engineer, and Supervisor) are defined in the Role Definition display. Each AST role definition includes:

- Associated FoxView access level assignments.
- Maximum shelving period for an alarm.
- Default shelving period for an alarm.
- Highest priority alarm that can be shelved.

Each AST Role definition includes:

- Associated FoxView access level assignments.
- Fixed shelving period per alarm priority (1-5).

Shelving Rules

AST Inclusion Rules determine if an alarm can be shelved based on a combination of the control processor (CP) Name, compound:block, and alarm type.

AST Exclusion Rules determine if an alarm cannot be shelved based on a combination of CP Name, compound:block, and alarm type.

Options

You can customize the AST software with these options:

- Custom Script: Launch a custom script from the Single Alarm Shelving and Block Alarm Shelving displays.
- Historized Alarms: Create predefined User IDs and Reason lists to standardize entry of User ID and Reason information during alarm shelving and unshelving.
- Shelved Alarm GUI: Regulate buttons and timestamp formats on the Currently Shelved Alarm Display.

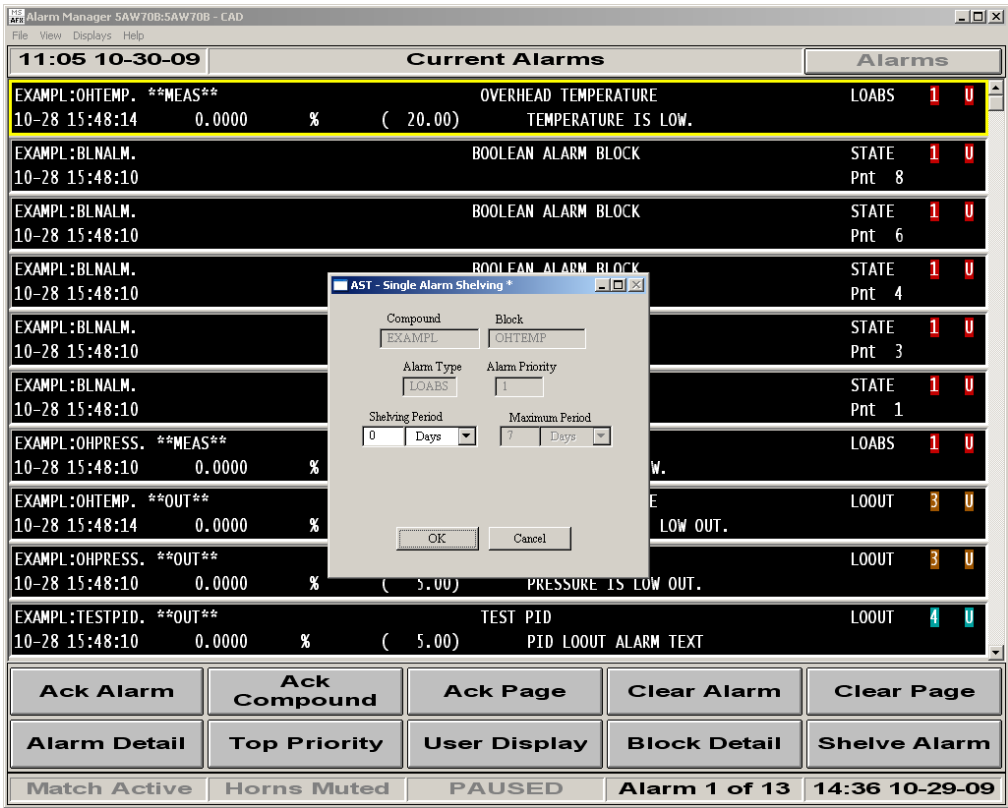
Device Alarm Shelves

The Alarm Shelf is a collection of control blocks that stores alarm shelving information. The Alarm Shelf can exist on each control station or a proxy control station can be designated. It consists of:

- 1 compound, 1 sequence block, and 2 CALC blocks
- $X * 7$ data blocks (6 STRING and 1 REAL) where X is the number of alarms that the customer wants to shelve in the target control station

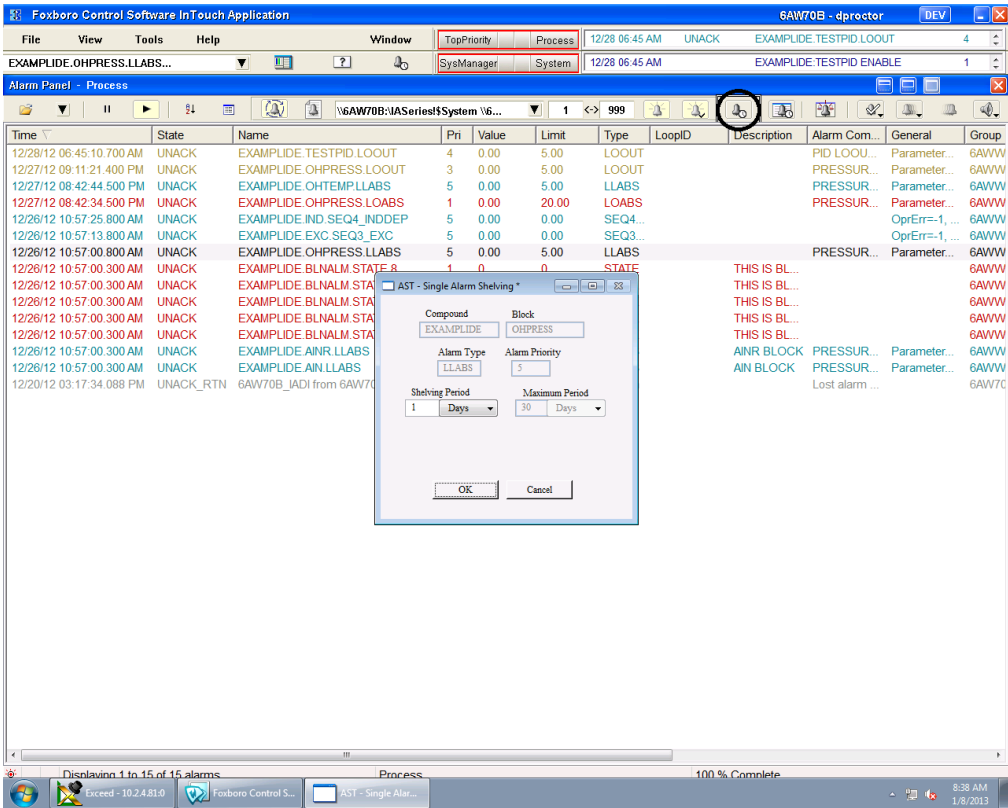
Single Alarm Shelving

Alarms are shelved from the Current Alarm Display (CAD) using Single Alarm Shelving.



Successful filtering of the shelving request through inclusion/exclusion rules associated with the AST Role determine if shelving occurs. When shelving occurs, the alarm's corresponding Alarm Shelf stores information related to the shelving request.

Single Alarm Shelving facilitates the shelving of an alarm selected from the Control HMI.

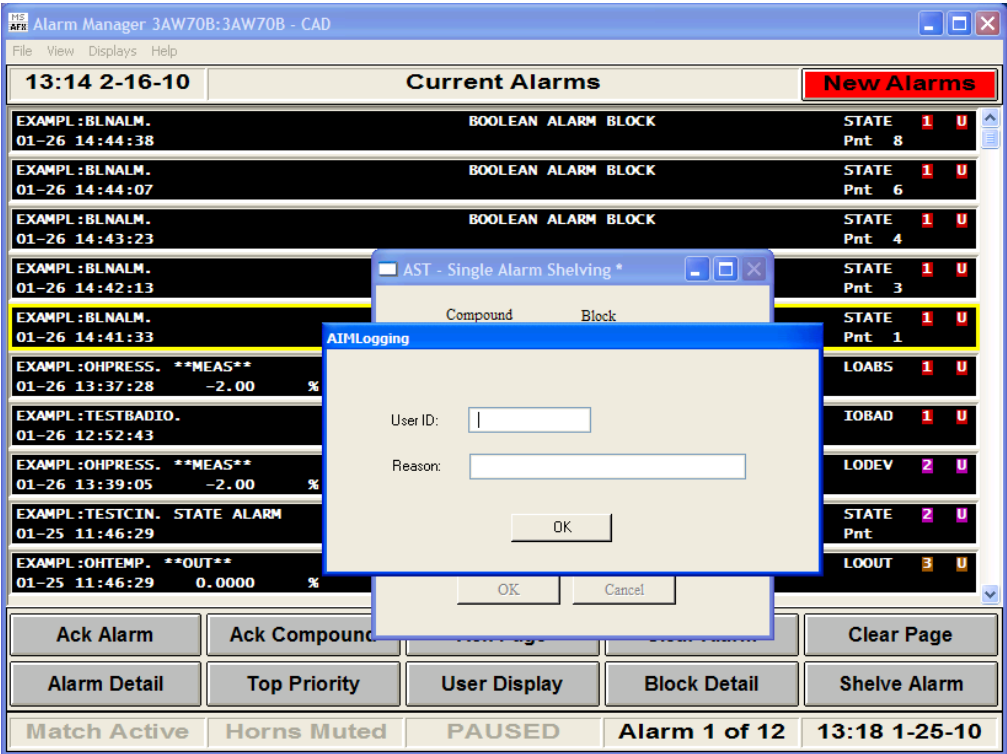


Single Alarm Shelving can be configured to invoke a custom script rather than shelve alarms directly.

AIM*Historian Logging

The Alarm Shelving Tool product includes an optional feature to request and record User ID and Reason when an alarm is shelved or unshelved to the message EcoStruxure™ Foxboro™ Historian.

When Historian logging is enabled, the **AIMLogging** dialog box appears during Single Alarm Shelving, Block Alarm Shelving, and when extending or unshelving an alarm from the Currently Shelved Alarm Display.



The User ID/Reason is logged as part of a standard Operator Action Journal (OAJ) message that can be handled by both the AIM*Historian and InTouch Alarm Logger. Additionally, it is possible to display the User ID/Reason for the currently shelved alarms by hovering over the gray buttons to the left of the Currently Shelved Alarms display.

Block Alarm Shelving

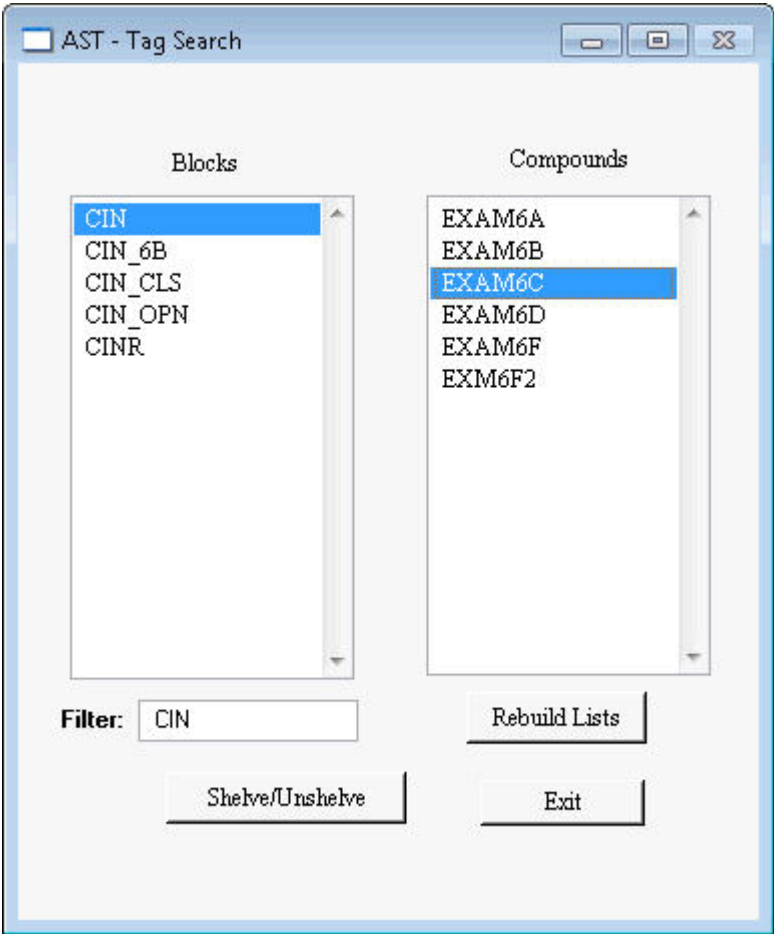
Shelving or unshelving of current or anticipated alarms can be initiated from Foxboro DCS process graphics.

The screenshot shows a window titled "AST - Block Alarm Shelving". It contains several input fields and a list of checkboxes. At the top, there are three text boxes: "Compound" with the value "EXAMPL", "Block" with the value "OHPRESS", and "Block Type" with the value "PID". Below these are two groups of period settings. The first group, "Shelving Period", has a text box with "10" and a dropdown menu set to "Hours". The second group, "Maximum Period", has a text box with "7" and a dropdown menu set to "Days". Below these are four columns of checkboxes. The first column contains: ☐ LOABS, ☐ HIABS, ☒ LLABS, ☐ HHABS, ☐ LODEV, and ☐ HIDEV. The second column contains: ☐ IQBAD, ☐ STATE, ☐ LOOUT, ☐ HIOUT, ☐ RATE, and ☐ RANGE. The third column contains: ☐ PTARG, ☐ TARG, ☐ BAD_P, ☐ BAD_S, ☐ BAD_M, ☐ IND/DEP, and ☐ EXC. The fourth column contains: ☐ Pnt_1, ☐ Pnt_2, ☐ Pnt_3, ☐ Pnt_4, ☐ Pnt_5, ☐ Pnt_6, ☐ Pnt_7, and ☐ Pnt_8. At the bottom of the window are two buttons: "Process Chgs" and "Exit".

The Block Alarm Shelving display can be configured to invoke a custom script rather than shelve and unshelve alarms.

Tag Search Shelving

The Tag Search Shelving feature allows the ability to search compound:blocks on the control network for potential shelving/unshelving targets, without regard to control station host.



Currently Shelved Alarms

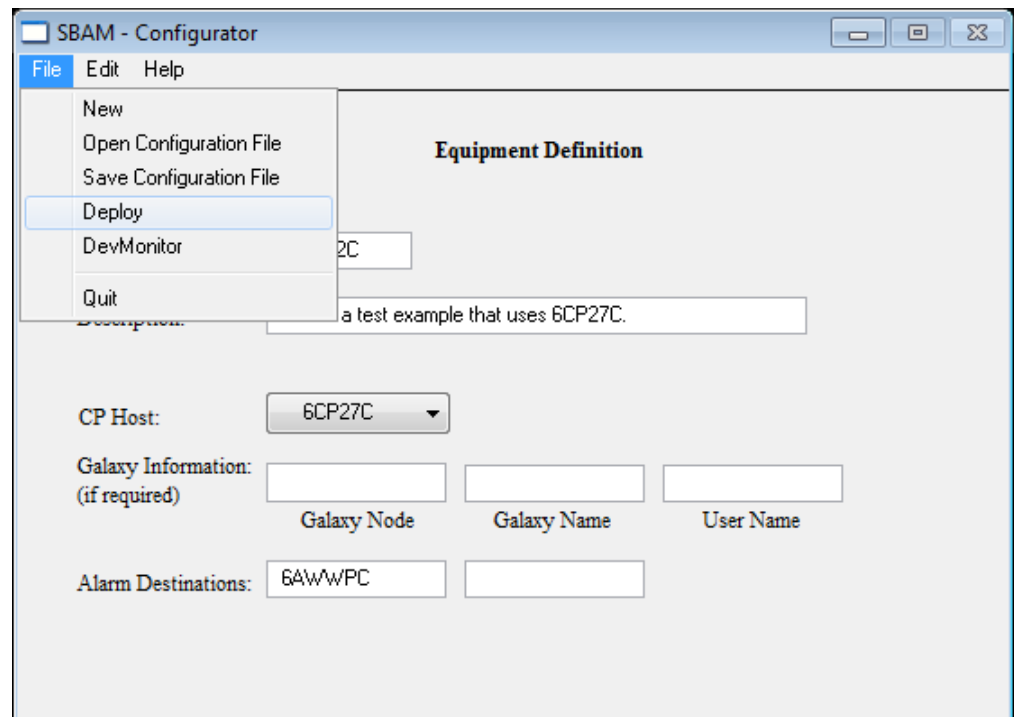
The Currently Shelved Alarm display shows all alarms in the Alarm Shelves and their anticipated unshelve date. It can be invoked from the CAD or from the Control HMI. After the shelving period for an alarm expires, the alarm is automatically unshelved.

You can filter the alarm information by selecting any of the data column headers (CP Name, Compound, Block, Alarm Type, Alarm Priority, and Expiration Date). You can also:

- Manually unshelve an alarm
- Extend the shelving period for a shelved alarm
- View the Detail Display for a selected alarm
- Print the alarm shelving information displayed
- Save the information to a file

SBAM Configurator

The AST Engineer Role can use the **SBAM Configurator** to configure and deploy a state-based Device Alarm Shelf.



Equipment Definition

The **SBAM Configurator Equipment Definition** window allows the logical device to be named and control station that will hold the Device Alarm Shelf to be identified.

Device Alarm Shelves can be created in any control station.

State Definition

The **SBAM Configurator State Definition** window and **Criteria Definition** window permit the device states/events to be named and the triggers and re-enable criteria for each to be defined.

Sequence logic syntax is required when defining these criteria.

Affected Parameter Definition

The **SBAM Configurator Affected Parameter Definition** window allows the specification of the compound:block alarms affected by the device state/event trigger, as well as the alarm shelving actions required. The input is loaded from an exported spreadsheet. When a device state trigger criteria evaluates to true, the Affect Parameter Definition shelving actions are performed.

When a device state re-enable criteria evaluates to true, the Affect Parameter Definition shelving actions are reversed.

Device Alarm Shelf

The Device Alarm Shelf is a collection of control blocks that stores device alarm shelving information. Each state-based device has its own Device Alarm Shelf.

The Device Alarm Shelf consists of:

- 1 compound, 1 IND block, and 2 CALC blocks
- $X * 5$ blocks (STRING, BOOL, LONG, TIM, and CIN) where X is the number of device states
- $Y * 4$ blocks (3 STRING and 1 LONG) where Y is the number of affected variables for device states (1- X)

DevMonitor Display

The DevMonitor display provides a static view of any existing Device Alarm Shelf on the control network. It provides the status of each defined state/event for the Device Alarm Shelf and the current values of the affected compound:block alarms.

The screenshot shows the 'SBAM Device Monitor' window. At the top, there are two dropdown menus: 'Device Name' set to 'LINE12C' and 'Device State' set to 'SHUTDOWN'. To the right of the 'Device State' dropdown, the text 'State Active' is displayed in red. Below these controls is a table with the following data:

Affected C.B	Parameter Name	Expected Value	Actual Value	Inhibited Alarms
EXAM6C:AIN	INHARM	0x0101	0x0000	
EXAM6C:AINR	INHARM	0x0101	0x0101	LOABS LLABS
EXAM6C:OHPRESS	INHARM	0x0101	0x0101	LOABS LLABS
EXAM6C:ZTSTAIN	INHARM	0x0101	0x0101	LOABS LLABS
EXAM6C:ZTSTPID	INHARM	0x0101	0x0101	LOABS LLABS

At the bottom of the window, the word 'SUCCESSFUL' is displayed, followed by an 'OK' button.

Summary Statistics

The Summary Statistics display provides a view of the number of currently shelved alarms for each Alarm Shelf and the maximum number of alarms configured for each AST Role. It is available from any AST Client workstation.

	<u>Current</u>	<u>Maximum</u>
Operator:	0	22
Engineer:	0	27
Supervisor:	4	27
Total:	4	27

Associated I/A Access Level: 10
Maximum Shelf Time: 12 Hours
Default Shelf Time: 3 Hours
Highest Priority Alarm Allowed to be Shelved: 1

Command Line Shelving and Unshelving

AST provides the ability to shelve current or anticipated alarms from an AST client workstation by running a command line shelving script.

It is also possible to unshelve current shelved alarms from an AST client workstation by running a command line unshelving script.

Requirements

- A control station that supports the block types required for the Alarm Shelf and that has enough space to hold the Alarm Shelf.
- These EcoStruxure™ Foxboro™ DCS Control Core Services software versions are supported:
 - v9.0 and later Local Edition
 - v9.0 and later Enterprise Edition with default domain group policies.
- These I/A Series software versions are supported:
 - v8.5 -v8.8 Standard
 - v8.5 - v8.8 Security Enhanced with default domain group policies.
- Foxboro Control Software (FCS) v4.0.2 or Foxboro Evo Control Software v5.0 or later is needed to support Control HMI alarm shelving.

NOTE: When using Security Enhanced or Enterprise Edition software, changing the default domain group policies or improperly using or configuring a firewall, including the authorized McAfee® ePolicy Orchestrator (ePO) firewall, can adversely affect the operation of the Foxboro DCS and FoxBridge applications. Only qualified personnel should modify Active Directory Group Policies and configure firewalls.

Limitations

- AST does not support Foxboro™ DCS bridge nodes
- AST Domain are comprised of Foxboro DCS workstations and servers with the same level of security
- State-based alarming is not supported for IACC-hosted control stations

Ordering Information

The Alarm Shelving Tool is sold based on the number of control stations. A control station is a station that runs control blocks. For existing systems and plants, count the number of lines in the `/etc/cplns` file on each CSA host.

Product	Number of Control Stations	Part Number
AST Config. 1	5	Q0303AB
AST Config. 2	15	Q0303AC
AST Config. 3	25	Q0303AD
AST Config. 4	50	Q0303AL
AST Config. 5	100	Q0303AM
AST Config. 6	150	Q0303AN
AST Config. 7	200	Q0303AP
Upgrade AST Config. 1	5	Q0303BA
Upgrade AST Config. 2	15	Q0303BB
Upgrade AST Config. 3	25	Q0303BC
Upgrade AST Config. 4	50	Q0303BD
Upgrade AST Config. 5	100	Q0303BE
Upgrade AST Config. 6	150	Q0303BF
Upgrade AST Config. 7	200	Q0303BG

Schneider Electric Systems USA, Inc.
70 Mechanic Street
Foxboro, Massachusetts 02035–2037
United States of America

Global Customer Support: <https://pasupport.schneider-electric.com>

As standards, specifications, and design change from time to time,
please ask for confirmation of the information given in this publication.

© 2014–2022 Schneider Electric. All rights reserved.

PSS 41S-2ALMSHLV, Rev A