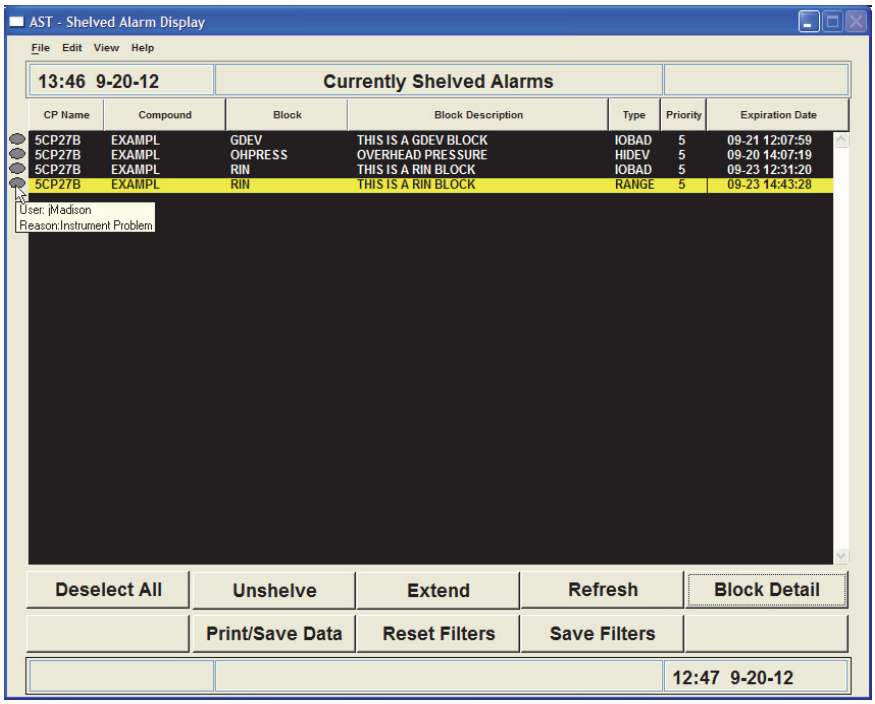
Foxboro Evo™ Process Automation System

Product Specifications

Foxboro by Schneider Electric

PSS 31S-2ALMSHLV

Alarm Shelving Tool Software



Alarm Shelving Tool software permits the shelving (inhibiting) of Foxboro Evo™ alarms for a fixed period of time or as long as defined process events are active.

OVERVIEW

The Alarm Shelving Tool (AST) product permits the operator to select an alarm from the alarming applications (Foxboro Evo Current Alarm Display (CAD) or the Foxboro Evo 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.

PRODUCT FEATURES

The Alarm Shelving Tool product 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 Alarm Shelving Tool product consists of configuration tools, displays, Alarm Shelves, and Device Alarm Shelves, which facilitate real time alarm shelving.

AST Configurator

The AST Configurator configures and deploys the AST domain, as shown in Figure 1.

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.

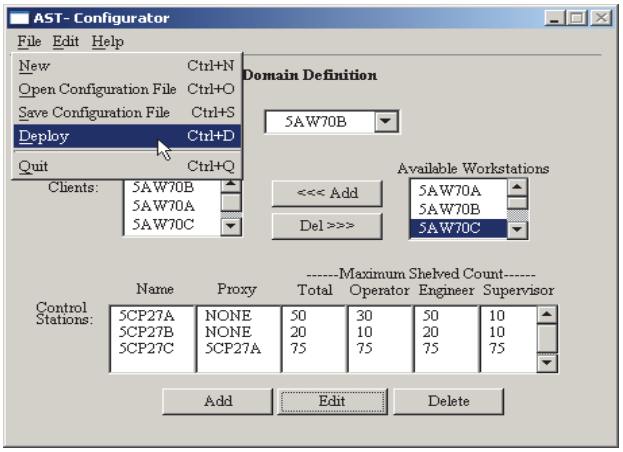


Figure 1. AST Configurator

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

Role Definitions

The AST Roles (Operator, Engineer, and Supervisor) are defined in the Role Definition window. 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.

EEMUA Standards

Each AST Role definition includes:

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

Shelving Rule Definitions

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

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

Options

Customization of the AST software includes:

- 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.

Alarm Shelf

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. The Alarm Shelf 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 Window

Alarms are shelved from the Current Alarm Display (CAD) using the Single Alarm Shelving window, as shown in Figure 2.

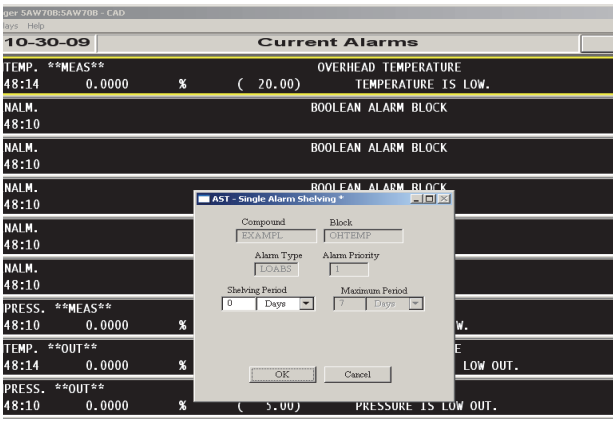


Figure 2. Single Shelving Alarm Window - CAD

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.

The Single Alarm Shelving window, shown in Figure 3, facilitates the shelving of an alarm selected from the Control HMI.

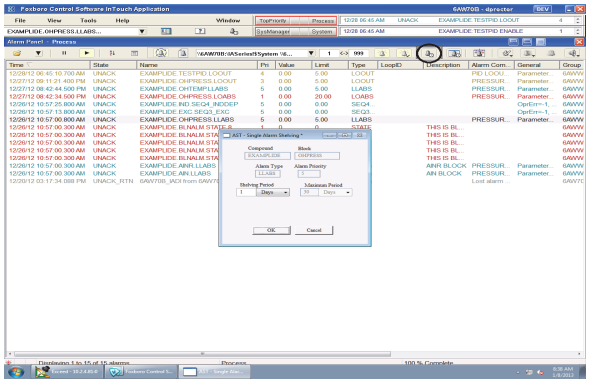


Figure 3. Single Shelving Alarm Window - Foxboro Evo Control HMI

The Single Alarm Shelving window 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 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, as shown in Figure 4.

The User ID/Reason is logged as part of a standard Foxboro Evo 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 as shown on page 1.

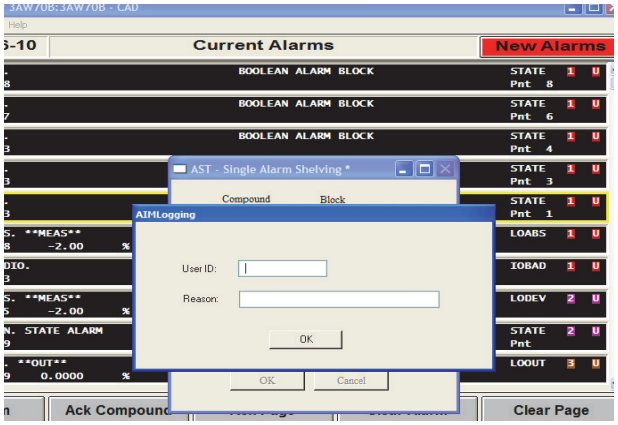


Figure 4. AIM Logging Pop-up Box*

Block Alarm Shelving

Shelving or unshelving of current or anticipated alarms can be initiated from Foxboro Evo process graphics. The default Block Shelving display is shown in Figure 5.

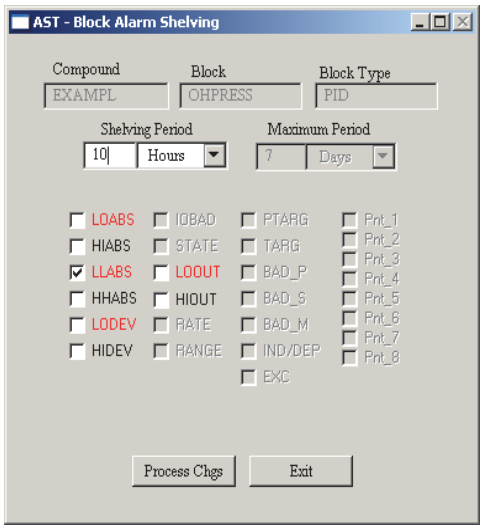


Figure 5. Block Alarm Shelving

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

Tag Search Shelving

The Tag Search Shelving feature, shown in Figure 6, allows the ability to search compound:blocks on the control network for potential shelving/unshelving targets, without regard to control station host.

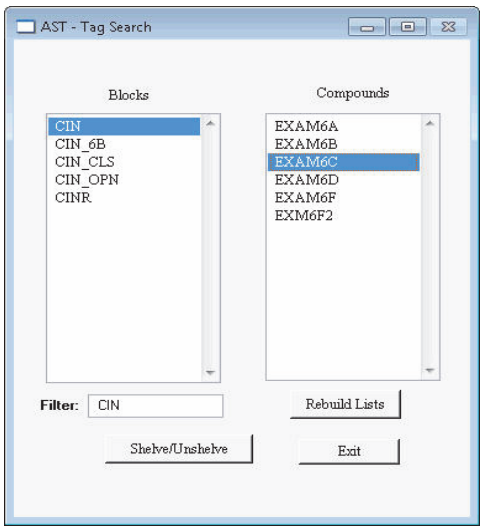


Figure 6. Tag Search Shelving

Currently Shelved Alarm Display

The Currently Shelved Alarm display, shown on page 1, shows all alarms residing in the Alarm Shelves, and their anticipated unshelve date. It can be invoked from the CAD or from the Control HMI. Once the shelving period for an alarm expires, the alarm is automatically unshelved.

The alarm information found on this display can be filtered by selecting any of the data column headers (CP Name, Compound, Block, Alarm Type, Alarm Priority, and Expiration Date). It is also possible to:

- 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,
- or 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 as shown in Figure 7.

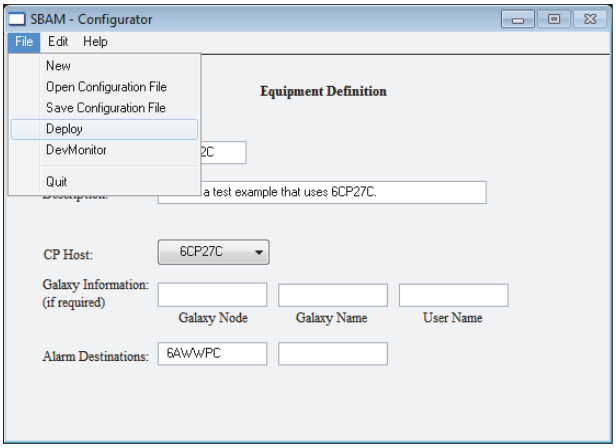


Figure 7. SBAM Configurator

Equipment Definition Window

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

Device Alarm Shelves can be created in any control station.

State Definition Windows

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 Window

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, shown in Figure 8, 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.

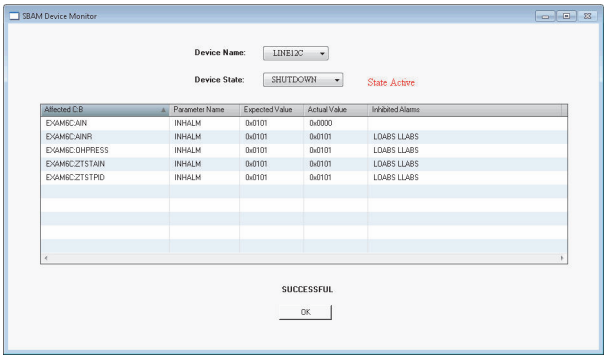


Figure 8. DevMonitor Display

Summary Statistics Display

The Summary Statistics Display, shown in Figure 9, 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.

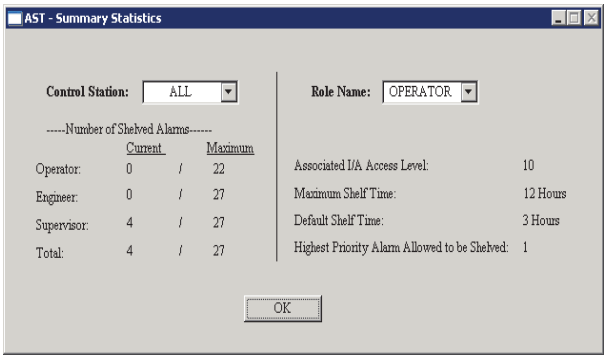


Figure 9. Summary Statistics Display

Command Line Shelving/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

The AST software has the following requirements.

- A control station that supports the block types required for the Alarm Shelf and that has enough space to hold the Alarm Shelf.
- The following Control Core Services software versions are supported.
  - v9.0 - v9.3 Standard
  - v9.0 - v9.3 Security Enhanced with default domain group policies. (When using security enhancements be aware that changing the Foxboro® provided default domain group policies or improperly using a firewall can adversely affect the proper operation of the Alarm Shelving Tool.)
- The following I/A Series® software versions are supported.
  - v8.5 -v8.8 Standard
  - v8.5 - v8.8 Security Enhanced with default domain group policies. (When using security enhancements be aware that changing the Foxboro® provided default domain group policies or improperly using a firewall can adversely affect the proper operation of the Alarm Shelving Tool.)
- Foxboro Control Software (FCS) v4.0.2 or Foxboro Evo Control Software v5.0 or later is needed to support Control HMI alarm shelving.

LIMITATIONS

The AST software has the following limitations.

- AST does not support Foxboro Evo bridge nodes.
- AST Domain are comprised of Foxboro Evo 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 (AST) is sold based on the number of control stations. A control station is a station that runs control blocks. For existing systems and/or plants, simply count the number of lines in the /etc/cplns file on each CSA host.

- Q0303AB - AST Config. 1, 5 CSs
- Q0303AC - AST Config. 2, 15 CSs
- Q0303AD - AST Config. 3, 25 CSs
- Q0303AL - AST Config. 4, 50 CSs
- Q0303AM - AST Config. 5, 100 CSs
- Q0303AN - AST Config. 6, 150 CSs
- Q0303AP - AST Config. 7, 200 CSs
- Q0303BA - Upgrade AST Config. 1, 5 CSs
- Q0303BB - Upgrade AST Config. 2, 15 CSs
- Q0303BC - Upgrade AST Config. 3, 25 CSs
- Q0303BD - Upgrade AST Config. 4, 50 CSs
- Q0303BE - Upgrade AST Config. 5, 100 CSs
- Q0303BF - Upgrade AST Config. 6, 150 CSs
- Q0303BG - Upgrade AST Config. 7, 200 CSs

Foxboro®

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