Part No. 060893-00 Rev. A
August 2023

Alcatel-Lucent OmniSwitch Milestone Plugin (ALOM V2.0) User Guide

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About This Guide

This document covers the installation and management of the Alcatel-Lucent OmniSwitch Milestone Plugin (ALOM V2.0).

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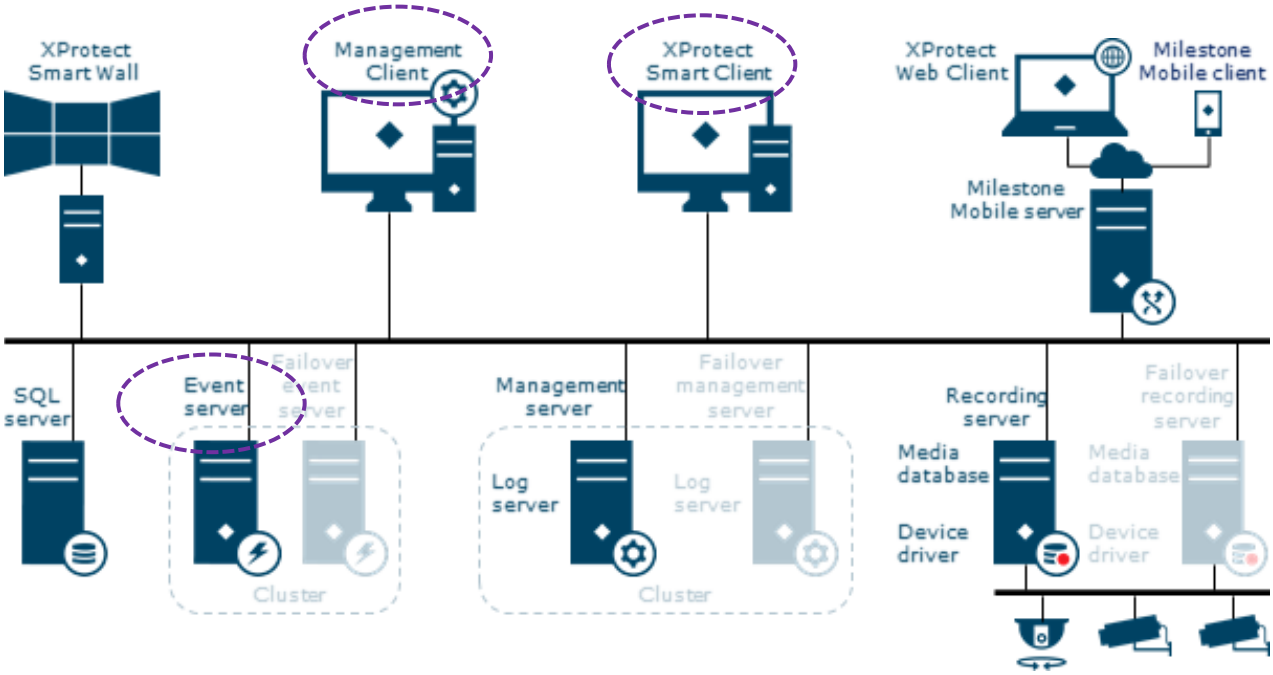
1. Introduction

The Alcatel-Lucent OmniSwitch Milestone Plugin (ALOM) is an add-on to the Milestone Video Management System (VMS) that provides limited control to common port and switch management functions for supported OmniSwitch models. The Milestone VMS is a widely used system for managing video surveillance cameras and recordings. Surveillance cameras are often connected to PoE switches to simplify cabling and maintenance. By integrating OmniSwitch management functions into the Milestone VMS itself, users can perform tasks such as rebooting cameras and managing port power allocations without having to connect to a separate user interface.

The Milestone VMS system consists of several components that handle specific tasks. Components can all be installed on a single server or on separate, dedicated servers for scalability and load distribution.



Overall Milestone VMS Architecture

ALOM plugins are available for the following components of the overall Milestone VMS architecture.

Client Components

- XProtect Management Client
- XProtect Smart Client

Server Components

- Event Server

XProtect Management Client - Provides the administration interface for all parts of the VMS system and is designed to run remotely from an administrator's computer. Operations such as addition, deletion and configuration of video cameras and video storage devices are performed from the Management Client.

XProtect Smart Client - The most used client in the VMS system and is designed to run remotely on the operators' computer for day-to-day use in order to manage or monitor the video surveillance cameras. The Smart Client provides instant control of the cameras and connected security devices and enables quick access to live and

recorded video and metadata. An adaptable user interface is optimized for individual operator's tasks and adjusted according to specific skills and authority levels.

Event Server - Handles tasks related to events alarms and consolidates system events in a single place with an interface for partners and third-party integrations via the Milestone Integration Platform (MIP). It also offers third-party access for sending events to the system via either the Generic events or Analytics events interface. Since it allows third-party developed plugins to be installed and utilize access to system events, this component is an appropriate place to host the ALOM Server plugin to handle background tasks like adding a switch to the Milestone database, receiving SNMP trap events from the switch, periodic scans of the switches to refresh database information, etc.

2. System Requirements

Hardware Requirements

Below is a list of supported OmniSwitch PoE models that are supported with the ALOM plugin.

OmniSwitch 6360	OmniSwitch 6465	OmniSwitch 6560	OmniSwitch 6860E/N	OmniSwitch 6865
OS6360-P10	OS6465-P6	OS6560-P24X4	OS6860E-P24	OS6865-P16X
OS6360-P10A	OS6465-P12	OS6560-P24Z8	OS6860E-P24Z8	
OS6360-P24	OS6465-P12 (ENH-240)	OS6560-P24Z24	OS6860E-P48	
OS6360-P24X	OS6465-P28	OS6560-P48X4	OS6860N-P24Z	
OS6360-PH24	OS6465T-P12	OS6560-P48Z16	OS6860N-P24M	
OS6360-P48			OS6860N-P48Z	
OS6360-P48X			OS6860N-P48M	
OS6360-PH48				

OmniSwitch AOS Software Requirements

The minimum software required to be installed on the OmniSwitch is AOS Release 8.8R1.

Milestone Software Support

The ALOM plugin is compatible with the following XProtect Corporate, Professional+, and Essential+ releases.

- All releases between XProtect 2022 R1 and XProtect 2023 R1

3. Prerequisites

Prerequisites

- Only PoE OmniSwitches should be added to the ALOM plugin.
- Add only OmniSwitches that have video cameras connected.
- Mark all ports that are connected to other OmniSwitches and all other inter-switch connections as Uplink ports.
- The ability to reboot an OmniSwitch was removed in v2.0.
- TDR functionality was added in v2.0.

Known Issues and Limitations

CRVMS-39 - If many cameras are connected before the ALOM Plugin is installed, OmniSwitches discovered, and uplink ports marked, the existing cameras in Milestone may not be displayed in the port table of the connected OmniSwitch. Any new camera added after the ALOM Plugin is installed will properly show the OmniSwitch port where it is connected.

Workaround:
Ping the camera from the command line and then Scan/Refresh the switch information to get the latest data. Then perform the following to refresh the camera and switch port information:

1. Stop the Milestone Management Client.
2. Stop and restart the Event Server.
3. Restart the Milestone Management Client.

If still unsuccessful the camera can be removed and added again.

4. ALOM Plugin Installation

The installation program allows the user to choose which of the plugins are to be installed. Depending on the desired configuration either one or all three of the following plugins can be installed:

- Smart Client Plugin
- Management Client Plugin
- Event Server Plugin

Selectable options for all plugins will be presented to the user and only the selected components will be installed.

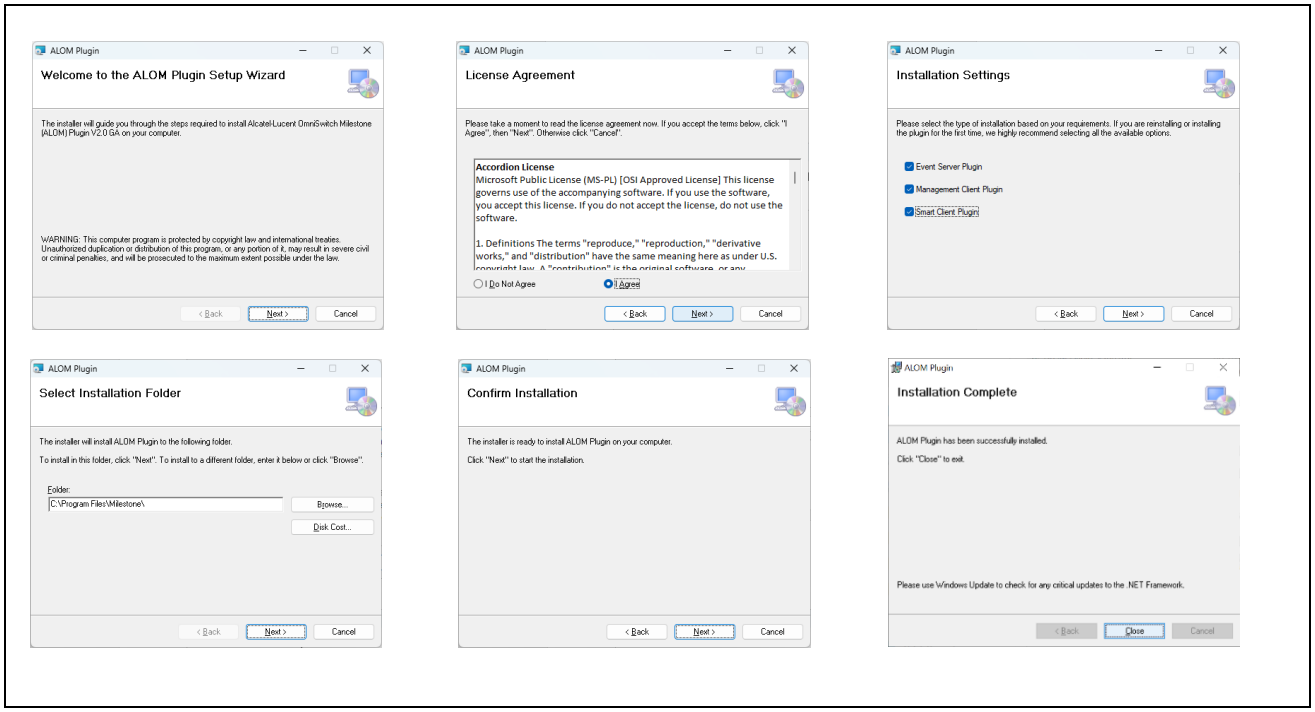
Download the Installer

The ALOM plugin can be downloaded from the following locations:

- www.al-enterprise.com/en/products/network-management-security/omniswitch-milestone-plugin
- myportal.al-enterprise.com (account and login required)
- www.milestonesys.com/marketplace/alcatel-lucent-enterprise

Install the Plugin

Uninstall any previous versions of the plugin. After downloading and running the installer follow the prompts to accept the end-user license agreement, choose the plugin(s) to be installed, confirm and complete the installation.



Plugin Installation Steps

5. Management Client

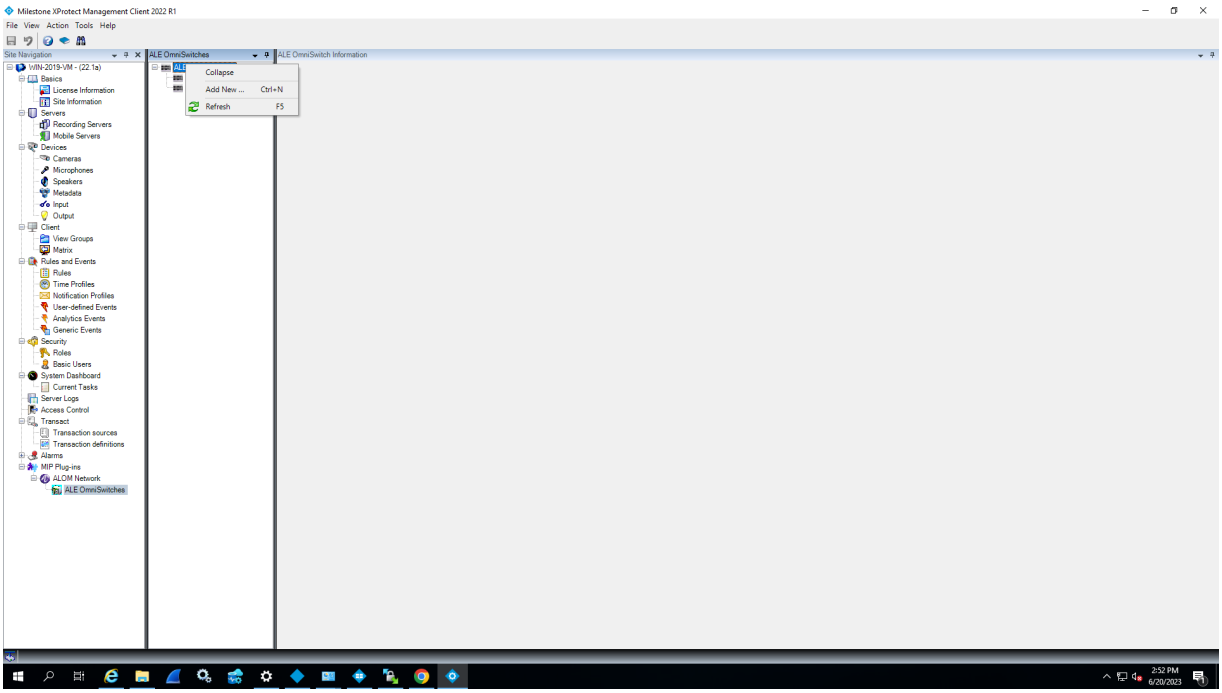
The XProtect Management Client ALOM Plugin will allow users to add, delete, modify, and view OmniSwitches connected to video cameras managed by the Milestone XProtect VMS system, as well as provide the ability to perform certain control actions.

The Management Client ALOM plugin supports the following capabilities:

- Add an OmniSwitch to the Management client
- Delete an OmniSwitch from the Management client
- Retrieve switch and port related information from the OmniSwitch
- Control OmniSwitch operations
    - System – modify system information, refresh
    - Port – reset, power reset, LPS lock-unlock, PoE priority

Add a New OmniSwitch

To add an OmniSwitch, expand the **ALOM Network** node under MIP Plugins in the Site Navigation pane, right click the **ALE OmniSwitches** network node, and select **Add New...** from the menu options.



Adding an OmniSwitch

Enter the following information and save the configuration:

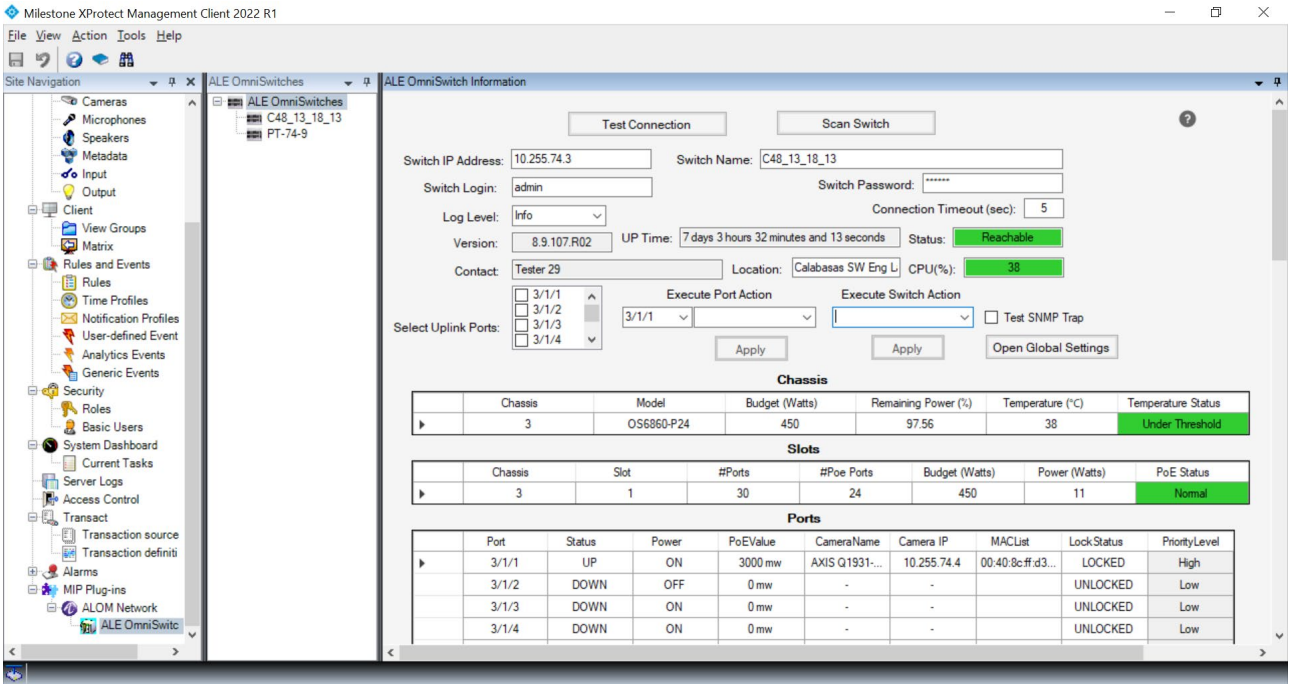
- **Switch IP Address** - IP Address of the switch
- **Switch Name** - Name of the switch
- **User Name** - User Name to use for connection to the switch
- **User Password** - Password to use for connection to the switch
- **Log Level** - Milestone Log Level
- **Connection Timeout** - Timeout in seconds

Test Connection

Once the OmniSwitch has been configured and saved use the **Test Connection** button to check the connectivity with the OmniSwitch to ensure the Management Client can access the OmniSwitch.

Display OmniSwitch Information

Once the new OmniSwitch is saved, the system will automatically connect and retrieve the relevant information to populate the additional fields displayed in the ALE OmniSwitch Information area. A progress bar will be displayed during this operation. Once the operation is finished, a popup will be displayed showing the result status. After the information from the switch has been polled, it will be populated in the dialog. If the connection failed a reason will be displayed (e.g., timeout due to bad IP address, or connection refused due to invalid credentials).



Display OmniSwitch Information

- **Version** - OmniSwitch AOS version
- **UP Time** - Time the switch has been up since the last reboot
- **Location** - Switch location, as defined in the switch configuration
- **Contact** - Contact information as defined in the switch configuration
- **Status** - Shows if the switch is reachable or unreachable by the Event Server
- **CPU (%)** – The current switch CPU usage

The **Chassis** table displays the chassis information polled from the switch:

- **Chassis** - Chassis number
- **Model** - Shows the chassis model, which includes the model name and number of ports
- **Budget (Watts)** - Total power available for devices connected to the chassis over PoE
- **Remaining Power (%)** - Remaining percentage of power available for the PoE ports
- **Temperature (°C)**- Chassis temperature in degrees Celsius
- **Temperature Status** - Status relative to the threshold defined in the switch configuration

The **Slots** table displays information about the slots in the switch chassis:

- **Chassis** - Chassis number
- **Slot** - Slot number
- **#Ports** - Total number of ports in this slot
- **#PoE Ports** - Number of PoE ports in this slot

- **Budget (Watts)** - Total power available for devices connected to the chassis over PoE
- **Power (Watts)** - Total power being used by devices connected to the slot over PoE
- **PoE Status** – The status of PoE on the slot

The **Ports** table displays information about the ports from all chassis:

- **Port** - Port number in the format chassis/slot/port
- **Status** - Port status - Up (port has ethernet traffic) or Down (port has no traffic)
- **Power** - Shows if PoE is enabled or not on that port
- **PoE Value** - Power consumption by the device connected to the port
- **Camera Name** - Shows the camera name connected to that port, if any
- **Camera IP** - IP address of the camera connected to that port, if any
- **MAC List** - List of MAC addresses detected on that port
- **Lock Status** - Shows if LPS has been activated on that port
- **Priority Level -** The PoE priority level of the port

PoE Port Priority

The OmniSwitch allows the administrator to specify PoE priority levels on a port-by-port basis. Priority levels include low, high, and critical. If the amount of PoE required exceeds the amount of PoE power available power will be provided to the ports based on their priority in the order of critical, high and low.

Learned Port Security (LPS)

Learned Port Security (LPS) is a feature that secures a port to a device. Once enabled the switch takes about 30 seconds to learn the MAC address(es) on the port and then locks down the port. Once the MAC address is bound to the port, the switch will reject any other device or camera with a different MAC address connected to that port.

Note: There may be multiple MAC address that are bound to a port. If a camera also has a microphone, then they both may have MAC addresses. By default, the maximum number of MAC addresses on an LPS port is one, if more than one MAC address is needed then the default LPS setting must be changed on the OmniSwitch.

Additional Settings and Actions

Select Uplink Ports - Check the ports that are configured as uplink ports. These ports will be ignored by the camera auto-discover process. This is important to avoid detection of the same MAC address on multiple switches, which may cause the camera to be located on the wrong port. Additionally, VFL and inter-switch ports should be marked as uplink ports. Uplink ports cannot be reset, this helps to avoid accidental network disruptions.

Connection Timeout: Use this field to configure how long the scanning process will wait for a connection to this switch. The default value is 5 seconds, but it may be increased if the connection is slow.

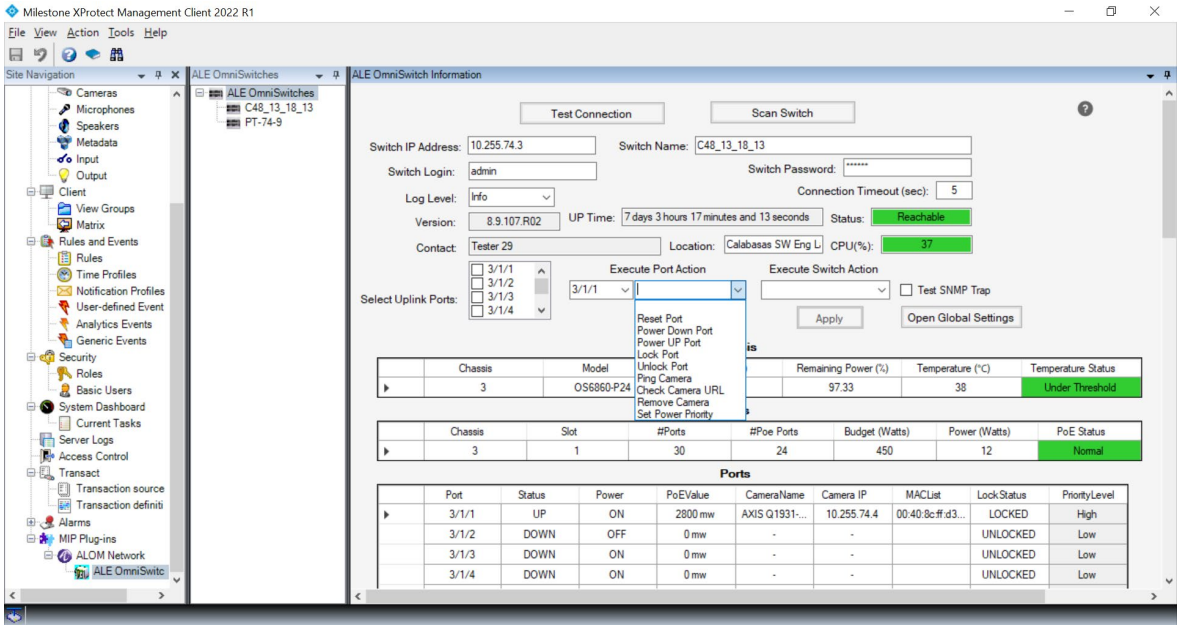
Log Level – This value may be changed if required for troubleshooting purposes. Trace is the most verbose log type and will cause the most information to be written to the log files. This parameter only affects the logs relative to the switch in Milestone Xprotect.

Scan Switch - Can be used to refresh the information for a particular switch. To refresh the information for all the OmniSwitches, right click in the ALE OmniSwitches pane and select the Refresh option. Switch information is also updated by an Event Server poller periodically.

Test SNMP Trap – A popup notification will be displayed each time a trap is received. This option should be unselected after testing is complete to reduce the number of popups received.

Execute Port Action

The **Execute Port Action** list supports port-level control actions on specified OmniSwitch ports.



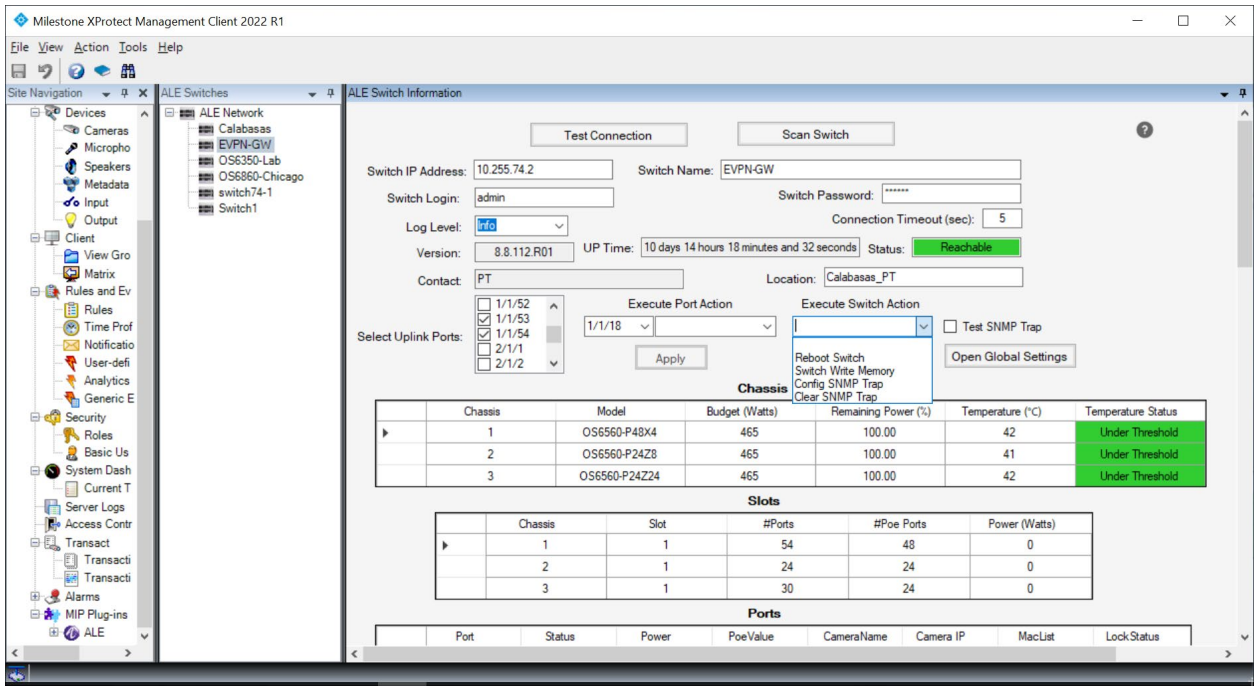
Execute Port Action

The following actions can be performed by selecting the port action and clicking on the Apply button:

- **Reset Port** - Disables PoE and re-enables it on the selected port, causing a hard reset on the device connected to that port. Ports with 3 more learned MAC addresses cannot be reset.
- **Power Down Port** - Disables PoE on the selected PoE port. The power will stay off until a power up command is executed.
- **Power Up Port** - Enables PoE on the selected port, turning on power to the device connected to the selected PoE port.
- **Lock Port** – Enables LPS on the selected port.
- **Unlock Port** - Disables LPS on the selected port.
- **Ping Camera** - The server will send 5 ICMP packets to the camera to check connectivity and display the results in a popup box along with the measured roundtrip delay.
- **Check Camera URL** - As an additional troubleshooting resource, this action will send an HTTP request to the camera URL and check if it sends a response to the request back to the server.
- **Remove Camera** – Removes the camera from the port.
- **Set Power Priority** – Configures the PoE priority level of the port.
- **TDR Cable Test** - Time-domain reflectometry (TDR) is used to determine the characteristics of electrical lines by observing reflected pulses.
    - Only the OS6860E and OS6865 support TDR.
    - Best results are achieved when both the switch and the camera support TDR functionality.

Execute Switch Action

The **Execute Switch Action** control provides support for system-level control actions on selected OmniSwitches.



Execute Switch Action

The following actions can be performed by selecting the switch action and clicking on the **Apply** button.

- **Switch Write Memory**: Modifications done on the switch configuration, such as enable/disable PoE and lock/unlock a port, will be saved and synchronized to the switch flash memory with this action, making the changes permanent.
- **Config SNMP Trap**: This action will push the SNMP configuration, defined in the Global Settings, to the switch. This is useful if the Auto Config SNMP trap is disabled, it can manually be configured with this action.
- **Clear SNMP Trap**: Removes the SNMP settings, defined in the Global Settings, from the switch configuration. The server will no longer be able to receive SNMP traps from this switch. Note that, if the Auto Config SNMP trap is enabled in Global Settings, the server will reconfigure the SNMP on the switch on the next auto scan.

Deleting an OmniSwitch

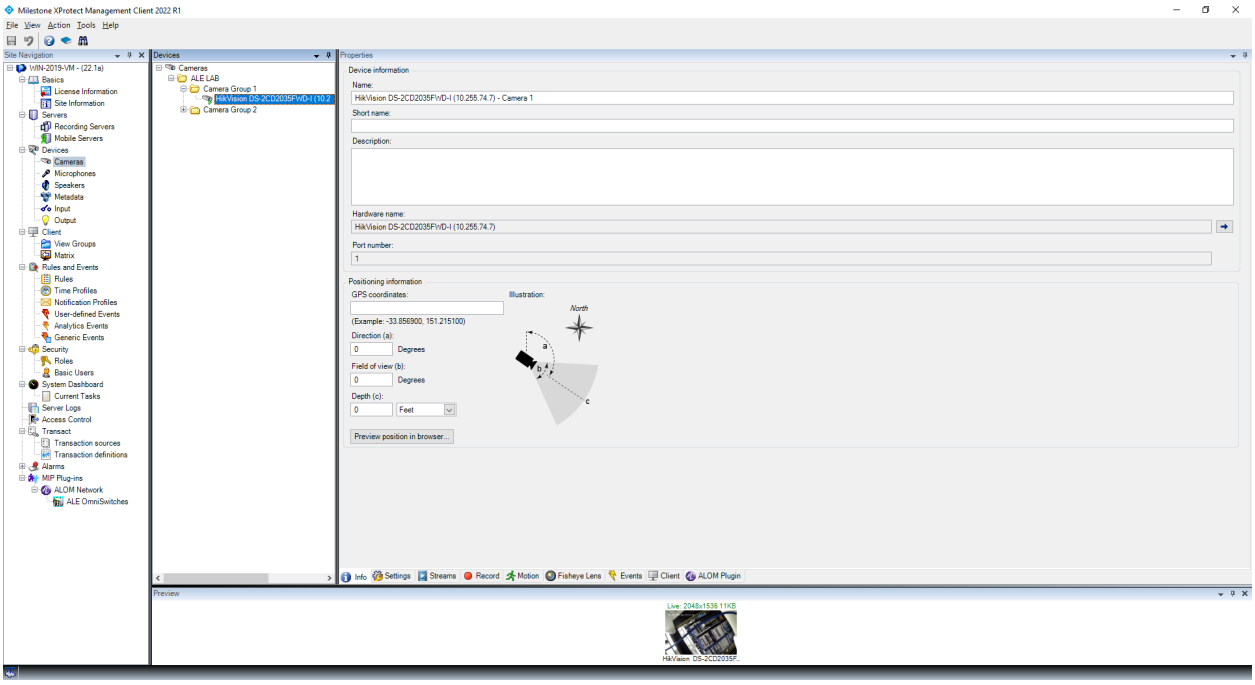
To remove an OmniSwitch from the configuration, right click the switch name in the ALE OmniSwitches Network pane and select **Delete** from the menu options.

6. Smart Client ALE Plugin

The Smart Client allows users to monitor the feed from various cameras. All functions of the Smart Client are also available to the Management Client. In the Tree select **Cameras** and select the camera in the Devices pane under the Cameras root object. Details about the camera will be displayed.

There is an ALOM Plugin icon at the bottom of the Device Information pane. Clicking on this icon will take the user to the plugin at the switch and port where this camera is attached.

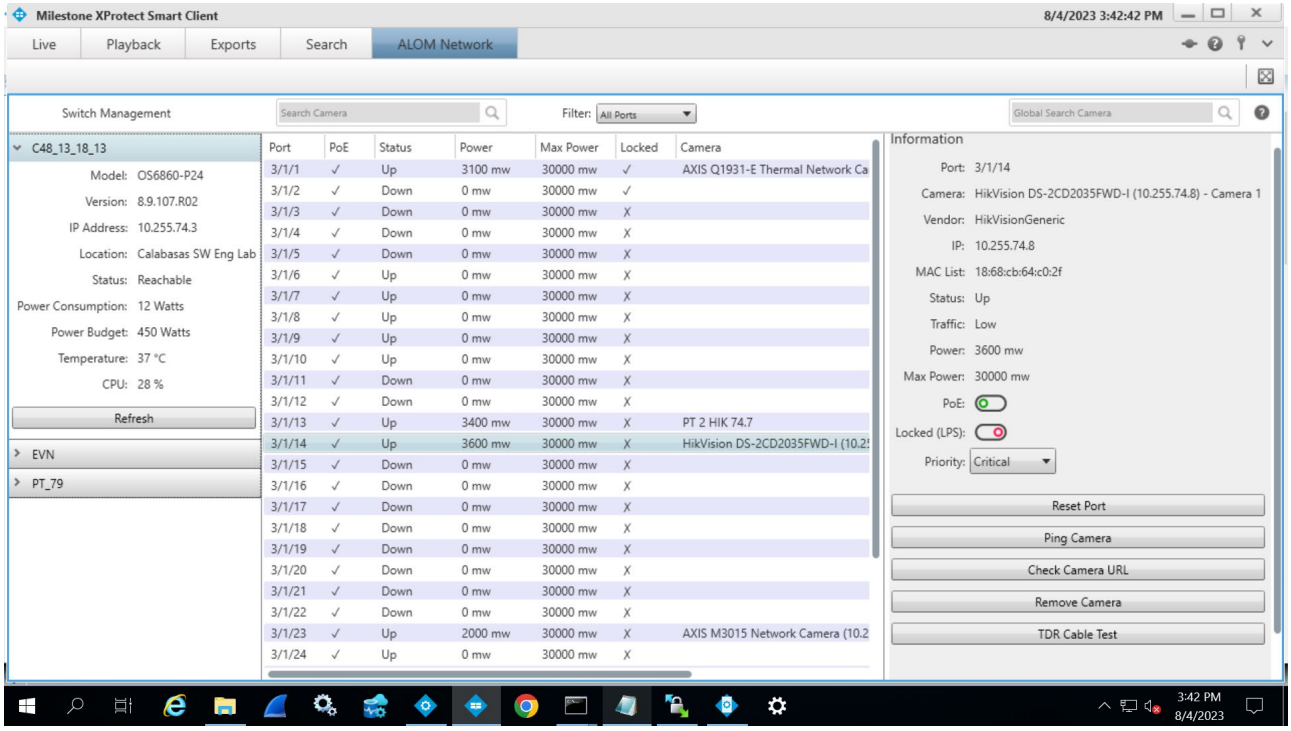
Note: This operation assumes the OmniSwitch for the camera has already been added to the ALE OmniSwitches network in the tree and uplinks defined.



ALOM Plugin Icon from Camera

OmniSwitch Port Device Information

Selecting a port in the Port Table of the Smart Client will display information on the device connected to the selected port.



Smart Client

The left pane contains information about the OmniSwitch. The Port Table from the switch is displayed in the middle pane. When a port is selected the camera information is displayed in the right pane:

Switch Management Pane

- **Model** – The model of the OmniSwitch
- **Version** - The AOS version of code running on the OmniSwitch
- **IP Address** – The IP address of the OmniSwitch
- **Location** – The location of the OmniSwitch
- **Status** – The reachability of the OmniSwitch
- **Power Consumption** - The amount of PoE power being consumed
- **Power Budget** – The available PoE power budget
- **Temperature** – The temperature of the OmniSwitch
- **CPU (%)** – The current switch CPU usage
- **Refresh** – Clicking this button will refresh the OmniSwitch information

OmniSwitch Port Pane

In the image above, one can see the OmniSwitch port information in ALOM Plugin. The ALE Smart Client plugin provides the following information for each port:

- **Port** – The OmniSwitch port number
- **PoE**– The status of PoE (On/Off)
- **Status** – The status of the port. (Up/Down)
- **Power** – The amount of PoE power usage
- **Max Power** – The maximum amount of PoE power available
- **Locked** – The status of LPS (Locked/Unlocked)

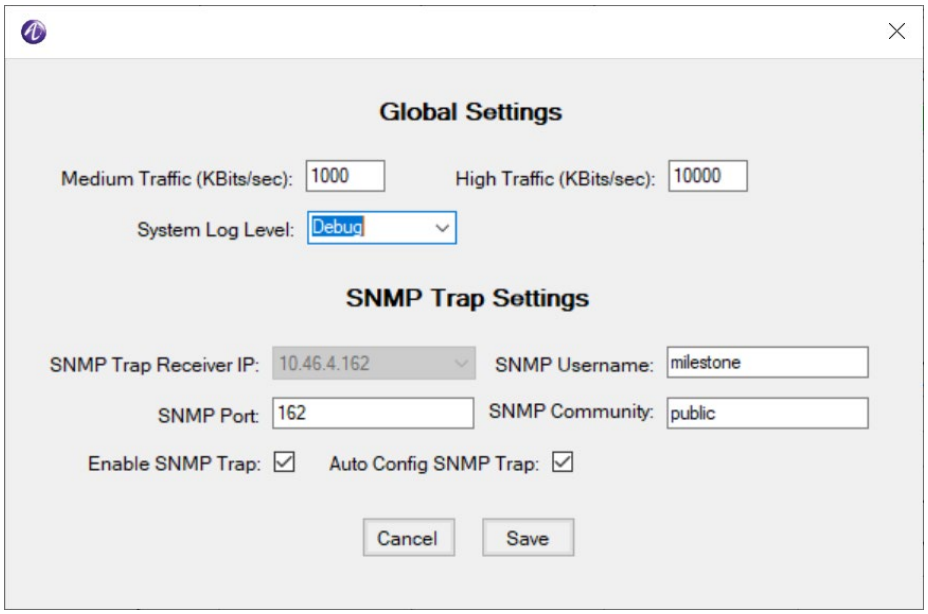
- **Camera** - The name and description of the camera
- **Priority Level -** The PoE priority level of the port

Information Pane

- **Port** - The port number the camera is connected to
- **Camera** - The name and description of the camera
- **Vendor** - The camera vendor
- **IP** - The IP address of the camera
- **MAC List -** The MAC address of the camera
- **Status** - The camera status (Up/Down)
- **Traffic** - The amount of traffic on the camera (Low/Medium/High)
- **Power** - The amount of PoE power usage
- **Max Power** - The maximum amount of PoE power available
- **PoE -** The status of PoE (On/Off)
- **Locked (LPS)** - The status of LPS (Locked/Unlocked)
- **Priority -** The PoE priority level of the port
- **Reset Port** - Resets the camera by toggling PoE
- **Ping Camera** - Check connectivity to the camera using ping
- **Check Camera URL -** This action will send an HTTP request to the camera URL and check if it sends a response to the request back to the server.
- **Remove Camera** – Removes the camera from the port
- **TDR Cable Test** - Time-domain reflectometry (TDR) is used to determine the characteristics of electrical lines by observing reflected pulses.
    - Only the OS6860E and OS6865 support TDR.
    - Best results are achieved when both the switch and the camera support TDR functionality.

7. Global Settings

Click the **Open Global Settings** button to access the system wide parameters page.



Global Settings

Global Settings

- **Medium/High Traffic (Kbits/sec) -** The Medium Traffic and High Traffic thresholds are used to display traffic information when viewing the switch ports information on the Smart Client application. Instead of showing the actual traffic in Kbits/second, it will show Low, Medium or High traffic depending on these thresholds.
- **System Log Level** - Sets the overall log verbosity level. For troubleshooting a specific OmniSwitch, configure the log level under the switch settings to enable Trace mode for that switch only.

SNMP Trap Settings

- **SNMP Trap Receiver IP** - This is a normally read-only field showing the IP of the Event Server running the ALE background plugin which receives SNMP traps from the switches. However, if the server has multiple NIC cards, this field may show a drop-down list with the available IP addresses to receive the traps.
- **SNMP Username** - The username on the switch or external server used to send traps to the SNMP. station(s). The username specified here must match an existing user account name.
- **SNMP Port** - Default SNMP port is 162, change it to a different port number if necessary.
- **SNMP Community -** Defines the community string that is mapped to the user account.
- **Enable SNMP Trap** - Check this box to enable the server to receive SNMP traps from the switches.
- **Auto Config SNMP Trap** - If the box is checked, the server will add the SNMP configuration to the switch when it is created. It will also check, during the periodic scan, if the switch is properly configured, and will re-configure it if needed. If this box is unchecked, SNMP must be manually configured on the switch.

After changing any global settings click the **Save** button to apply the changes.