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# General description

## *Introduction*

This document describes the integration between Milestone XProtect and Transition Networks Switches. This plugin was developed on the Milestone MIP SDK 2020R1.

The integration supports the following features:

- Milestone will listen for Transition Networks syslog events such as Authentication, Failed-Authentication, Boot, Configuration, Failed-Configuration, Link-Status, Network, and POE events
- Milestone rules may be configured to act on the syslog events form the switches
- Alarms may be defined off of the syslog events
- Control of the network switches through a Milestone Smart Client Workspace Tab
- Hot buttons to take the user to POE Status, POE Reboot, Auto Power Rest, Topology View, Cable Diagnostics, and Detailed Port Statistics

## *Solution overview*

The plugin will be installed in two locations: on the Milestone Event Server and any computer that needs the hot button links for switch control within the Milestone Smart Client. Both machines use the same installer, but the installer is only required once if the machine is running the event server and smart client features.

Milestone Event Server:

The plugin is installed on the computer running the Milestone Event Server so that the Event Server can listen for syslog events from the Transition Networks Switches. The plugin brings in Syslog events from the switches that can be used as events within the Milestone system. The events may be used to define alarms or create rules to do actions such as logging, alerts, email notifications, or any other action available within Milestone.

All XProtect Smart Clients in the system are capable of seeing alarms without installing the plugin on their computer.

Computers that require hot button links for switch control:

Any computer that needs to control the switches through the hot buttons must be on the same network as the network switches. For security purposes, if a network is segmented then the plugin does not allow users to bypass the network segmentation to access and control the network switches. In some cases, the network control may require that a user remote into the Milestone Server to manage the network switches from the XProtect Smart Client.

Those computers that need to control the network switches through the Milestone Smart Client must have the plugin installed.

## *Plugin prerequisites*

1. The system must be running *x versions of Milestone* and meet all of the Milestone perquisites.
2. Microsoft Visual C++ 2015 64 bit is required to run the client-side part of the plugin.
   https://www.microsoft.com/en-us/download/details.aspx?id=48145

# Install and Uninstall

## *Installation on the Milestone Event Server Computer*

1. If the Milestone Smart Client will be used for Transition Networks Switch control, then the Visual C++ 2015 prerequisite is required.
   https://www.microsoft.com/en-us/download/details.aspx?id=48145
2. Launch the TransitionNetworksInstaller.msi
3. Click Next
4. The Installation folder should be left as default as Milestone typically looks for the plugin in this location. Click Next.
5. Click Next to begin the Install.
6. Click Close to Exit.
7. The Milestone Event Server Service must be restarted to load the plugin. Right click on the tray icon and select "Restart Event Server Service"
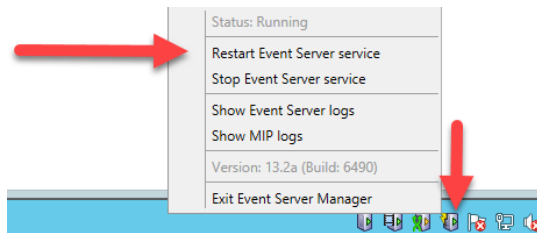


## *Installation on the Milestone Smart Client Computers*

1. Visual C++ 2015 64 bit prerequisite is required.
   https://www.microsoft.com/en-us/download/details.aspx?id=48145
2. Launch the TransitionNetworksInstaller.msi
3. Click Next
4. The Installation folder should be left as default as Milestone typically looks for the plugin in this location. Click Next.
5. Click Next to begin the Install.
6. Click Close to Exit.

## *Uninstall on the Milestone Event Server Computer*

1. Stop the Milestone Event Server Service by right clicking on the icon in the tray and selecting "Stop Event Server Service"
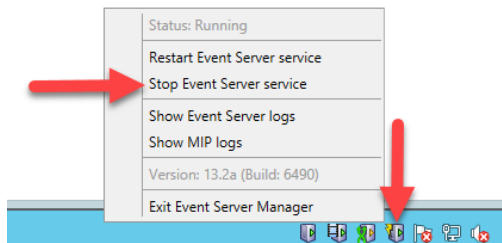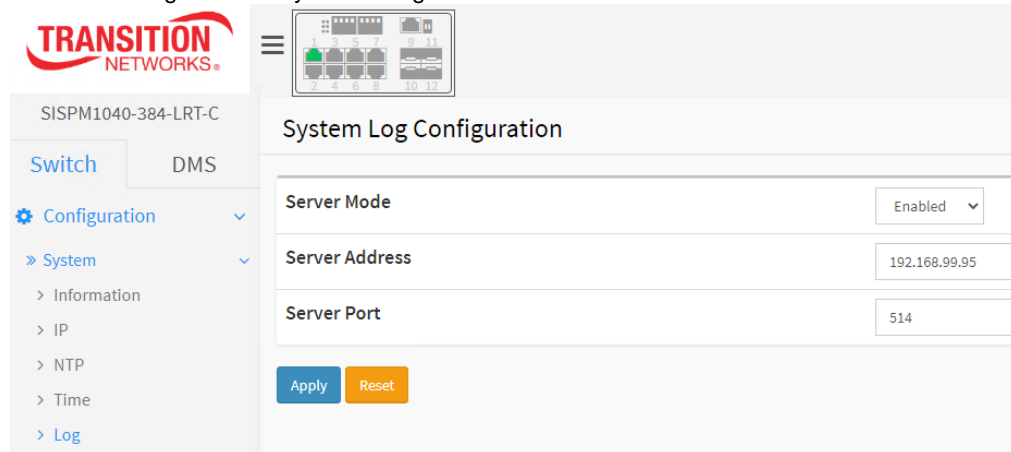


2. Close all open Milestone Smart Client or Milestone Management Client windows

3. If any users on this computer are logged into Windows and have left open the Milestone Smart Client or the Milestone Management Client, then the computer will require a reboot. This applies only to users that are running these applications on this computer.
4. Open "Apps and Features" or "Programs and Features" depending on the version of your Operating System.
5. Select "TransitionNetworksInstaller" and click "Uninstall"
6. A dialog box may pop up and ask you to confirm uninstall. Click OK.
7. If a reboot is required then you will be prompted to reboot the computer. The Event Server Service will automatically be started after reboot.
8. If a reboot was not required, then the Event Server Service must be started. Start the Milestone Event Server Service by right clicking on the icon in the tray and selecting "Start Event Server Service"
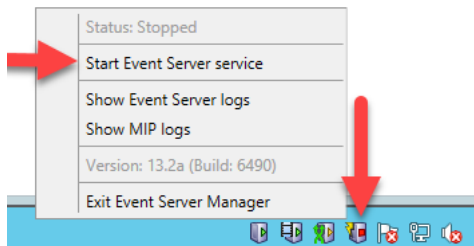


## *Uninstall on the Milestone Smart Client Computers*

1. Close all open Milestone Smart Client or Milestone Management Client windows
2. If any users on this computer are logged into Windows and have left open the Milestone Smart Client or the Milestone Management Client, then the computer will require a reboot. This applies only to users that are running these applications on this computer.
3. Open "Apps and Features" or "Programs and Features" depending on the version of your Operating System.
4. Select "TransitionNetworksInstaller" and click "Uninstall"
5. A dialog box may pop up and ask you to confirm uninstall. Click OK.
6. If a reboot is required then you will be prompted to reboot the computer.

# Setup and Configuration

## *Turn on Syslog Server in the Transition Networks Switch*

1. Navigate to the section of the switch to enable Syslog.  The location may be different depending on your model of switch.
   a. Switch > Configuration > System > Log

   

   b. Switch > Event Notification > Syslog > Syslog Configuration

   

2. Set the mode to "Enabled" or "on" depending on your switch model.
3. Enter the Server's IP address
4. If Server Port is an option, then choose 514
5. Click apply and save

## *Adding the switches to Milestone*

6.  Open the Milestone Management Client
7.  On the Site Navigation tree on the left, select "Switches" under TransitionNetworks in the MIP Plug-ins section
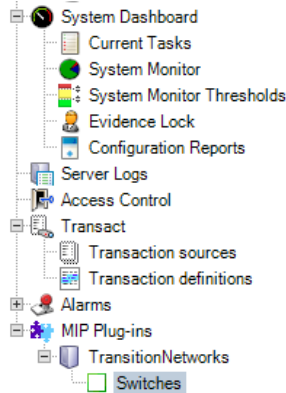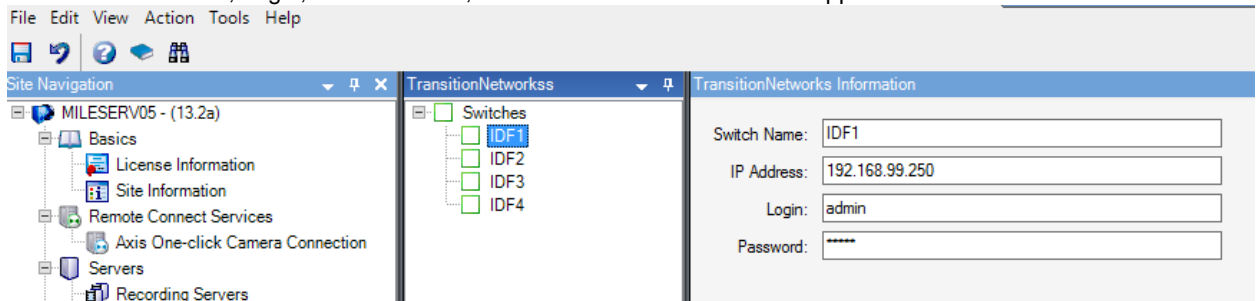


8.  Right Click on Switches in the middle column and select "Add New …"
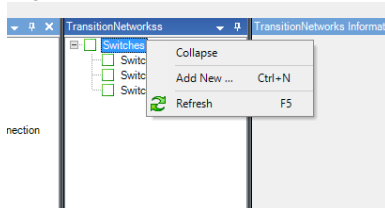


9.  Enter the name for the network switch.  This will be what is shown in the Milestone system when referencing the network switch.
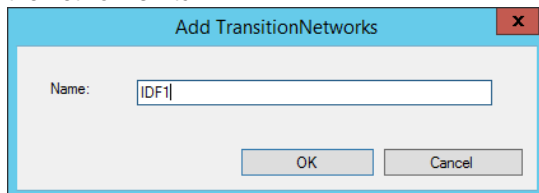


10. Enter the IP Address, Login, and Password, then click the Save Icon on the upper left



11. Once all of the Transition Networks Switches are added, the Event Server must be rebooted to load the changes and listen for events from the added network switches.

# *Create Alarms*

Alarms can be defined based on desired events coming from the Transition Networks Switches.  See Milestone's video tutorials for additional information on Milestone alarms.
https://www.youtube.com/playlist?list=PL6KbBiYxpwh17tQf6u57Hk_bjOfMDLUsa

1. Navigate to the Alarm Definitions section of the site Navigation in the Milestone XProtect Management Client.
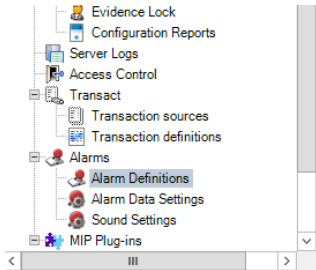


2. Right click and select "Add New …"
3. Name the Alarm based on the Syslog Event that the alarm is alerting on.  This example will show how to create an alarm for a POE event.
4. Select the dropdown under Triggering event and choose "Transition Networks Events"
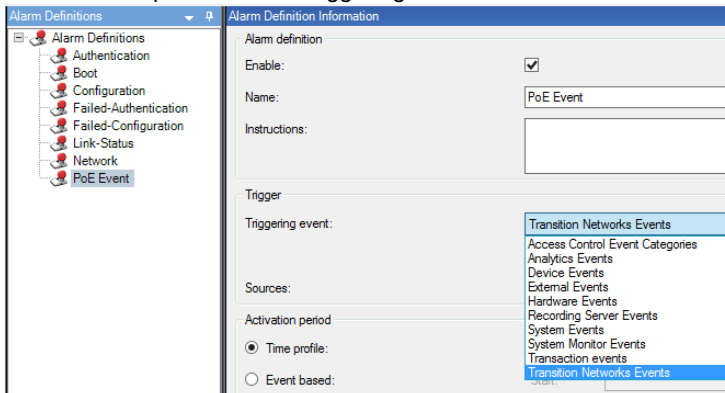


5. In the next dropdown, choose POE.  Note: An alarm must be defined for each type of event that should produce an alarm.
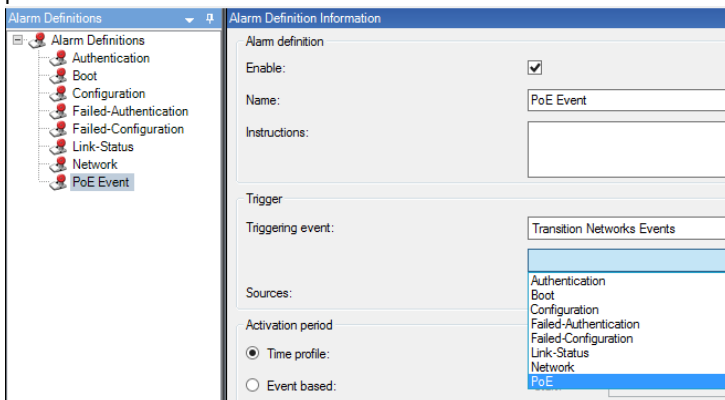
6. Choose the Source of the alarm by clicking the "Select" button.  On the Servers tab, select each network switch that this alarm should be raised or Add the "All Switches" folder to alarm on every switch.
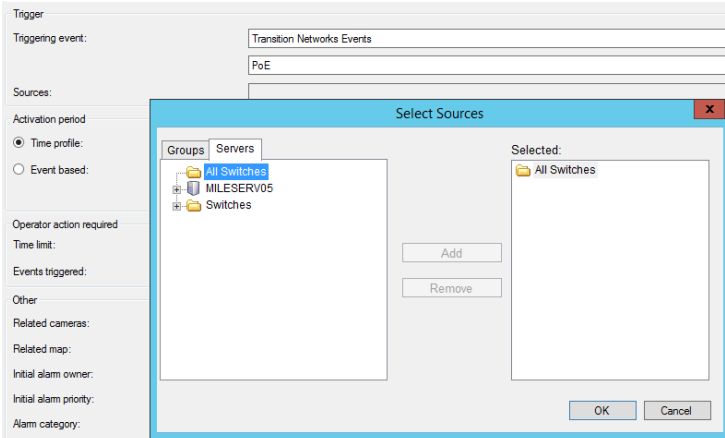


7. Add any additional alarm settings required, then click the save icon in the upper left corner.
8. These alarms will now appear in the Smart Client's Alarm Manager



# *Create Rules*

Rules can be defined based on desired events coming from the Transition Networks Switches.  See Milestone's video tutorials for additional information on Milestone rules.
https://www.youtube.com/playlist?list=PL6KbBiYxpwh30ickMGicvvJqDKzn3B-GI

To create a rule on an event coming from a Transition Networks Switch, select the desired Transition Networks Event.
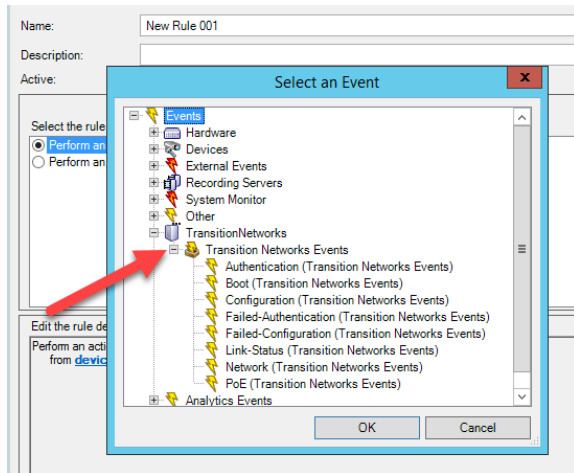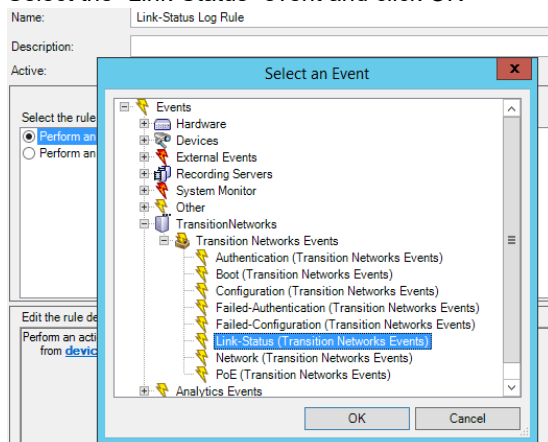


The rule can be configured to do anything possible in rule definitions within the Milestone system.  The following is an example to create a rule to log the Link-Status event in the rule log.

1. Under Rules and Events, click "Rules"
2. Right click on the center pane and select "Add Rule…"
3. Name the rule and then click on "event"
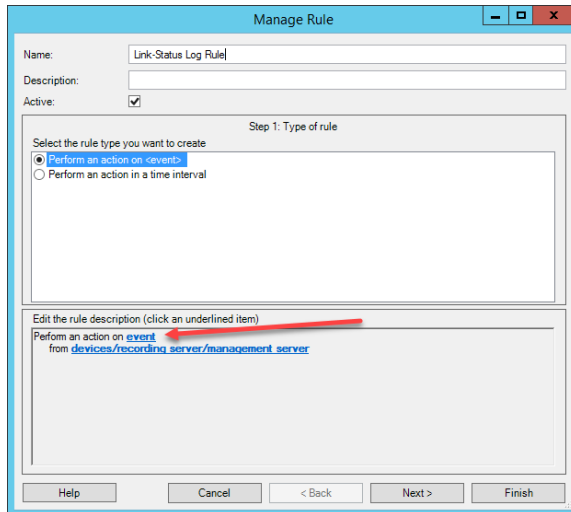


4. Select the "Link-Status" event and click OK

5. Click on the "devices/recording server/management server" link at the bottom



6. Click on "All Switches" and then Add and OK



7. Click Next
8. The conditions page is where you could set a timeframe for the rule.  In this case, leave it blank and select next for an always active rule.



9. In the "Step 3: Actions" page, you can choose what you want the XProtect System to do on this event.  This example is "Make new <log entry>", but you could also do Send notification to <profile> for an email alert or
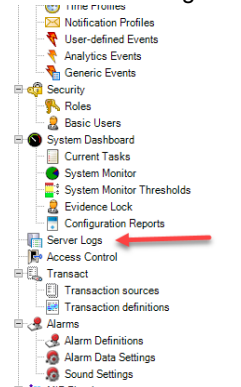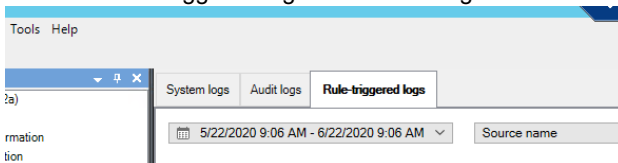
any other action allowed in the XProtect System.
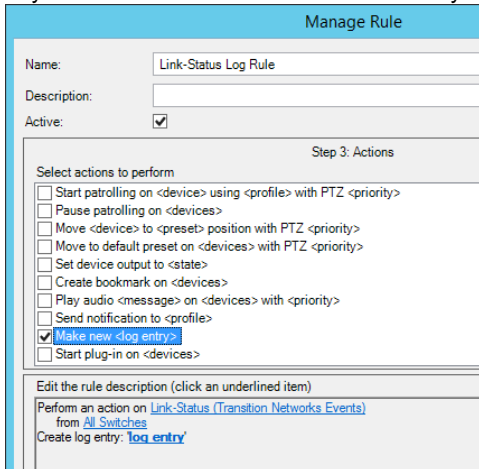


10. Click on "log entry" link at the bottom and choose how to display the log entry. Click on "Event name", "Triggering time", "Rule name", and then "Recording server name" all with spaces in between.
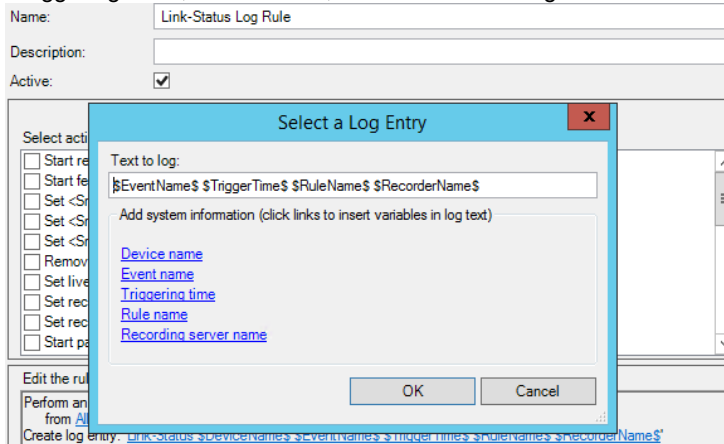


11. Click finish to end the rule setup
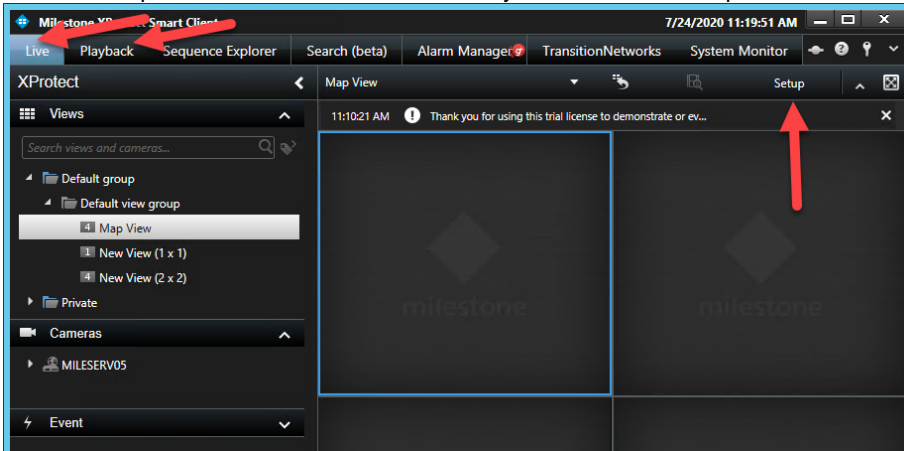12. Go to "Server Logs"



13. Click on "Rule-triggered logs" to see rule log events
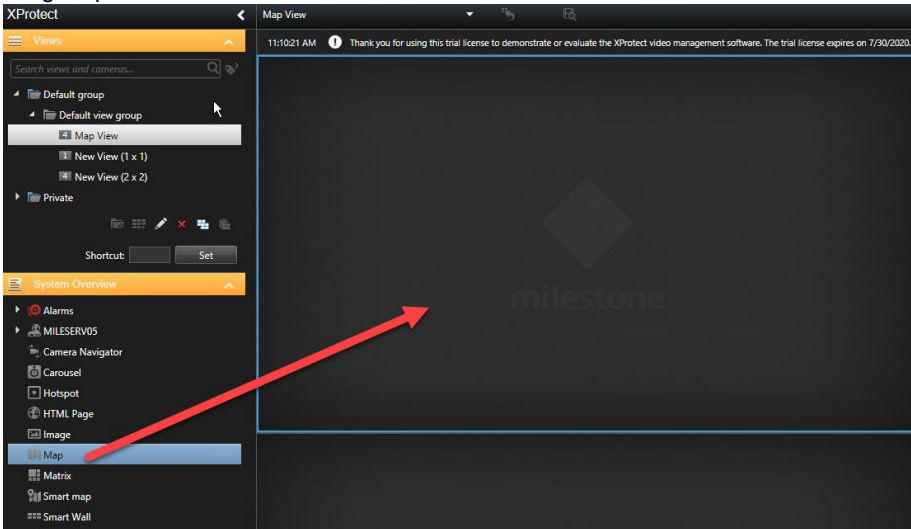
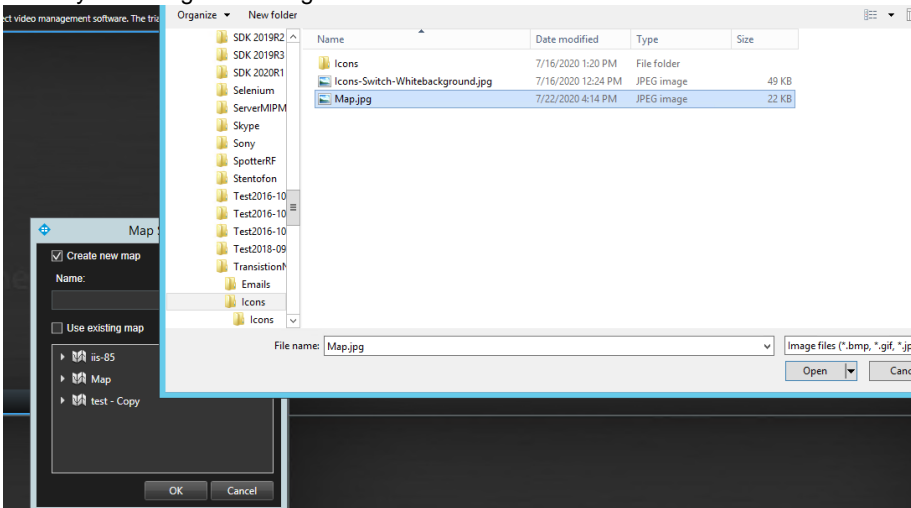# *Adding Transition Networks Switches to Maps*

1. Click on setup in the Smart Client in Live or Playback to create a map.



2. Drag Map over to a view



3. Select your background image



4. Use your mouse scroll button to set the zoom level so the portion of the map that is desired is visible (you can right click and choose zoom in/out via the right click context menu)

5. Click on the plugin icon in the Tools menu to get access to the Transition Networks Switches.
6. Drag the switch onto the map and adjust the size and position of the image and text.
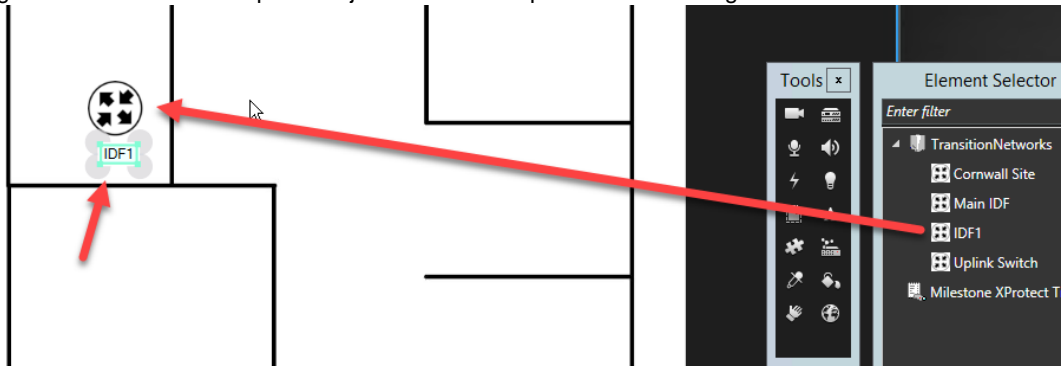


7. Click Setup to Exit Map Configuration
8. The map and any nearby cameras can be associated with alarms to see events in the alarm manager. This is done in the Alarm Definitions section of the Management Client.
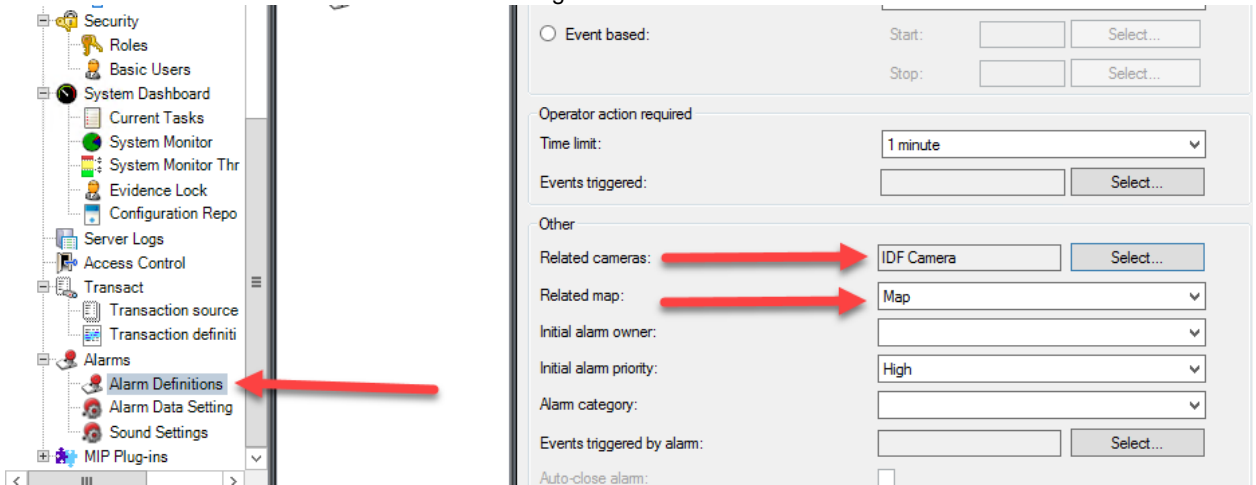
9. In the Smart Client, the Alarm Manager will display the alarm with the map and associated camera. The red circle around the switch icon means that there is an alarm for that switch.
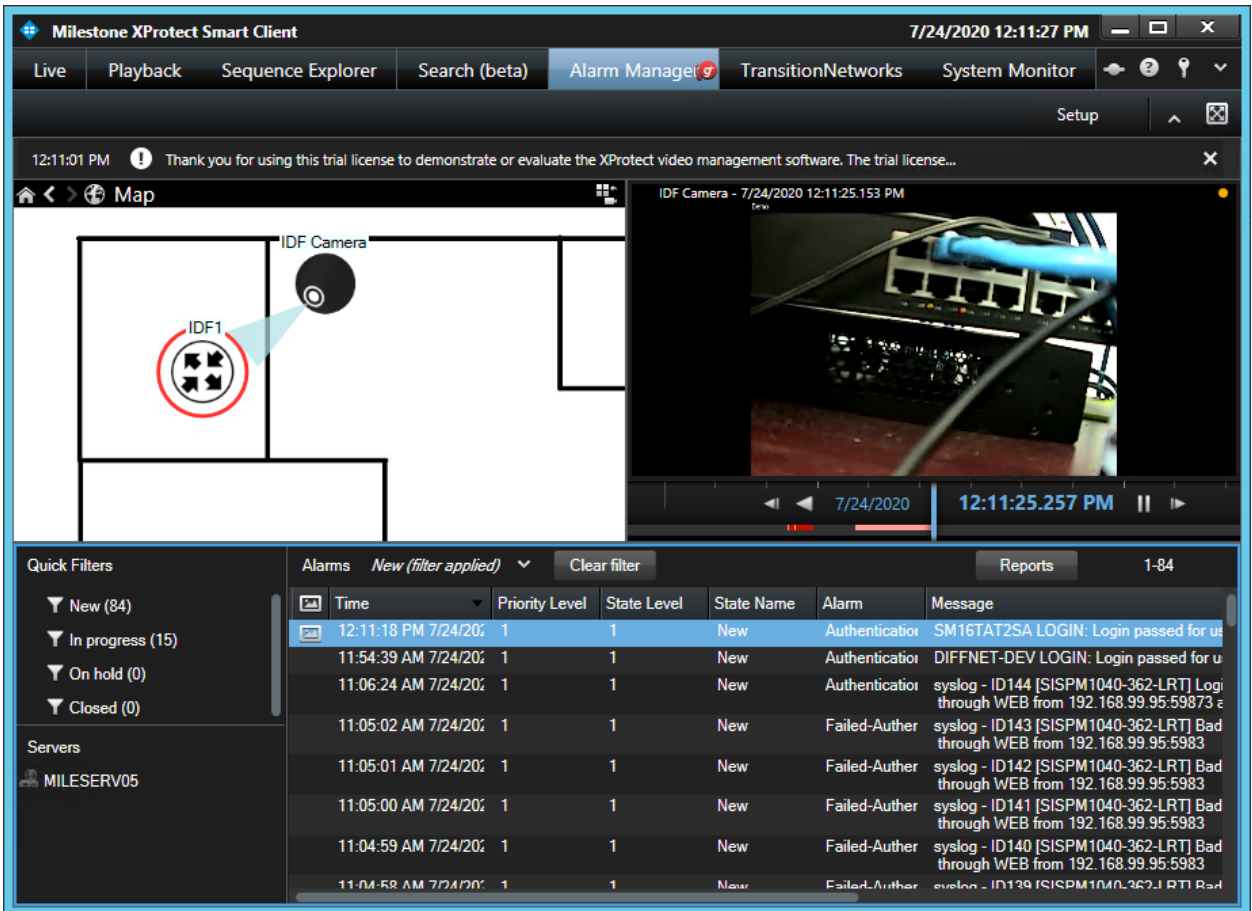


10. Right click on the switch and select Acknowledge Alarms to clear the alarms associated with this switch. The alarms with that device will change state to "In Progress" and no longer appear in the "New" alarm filter.
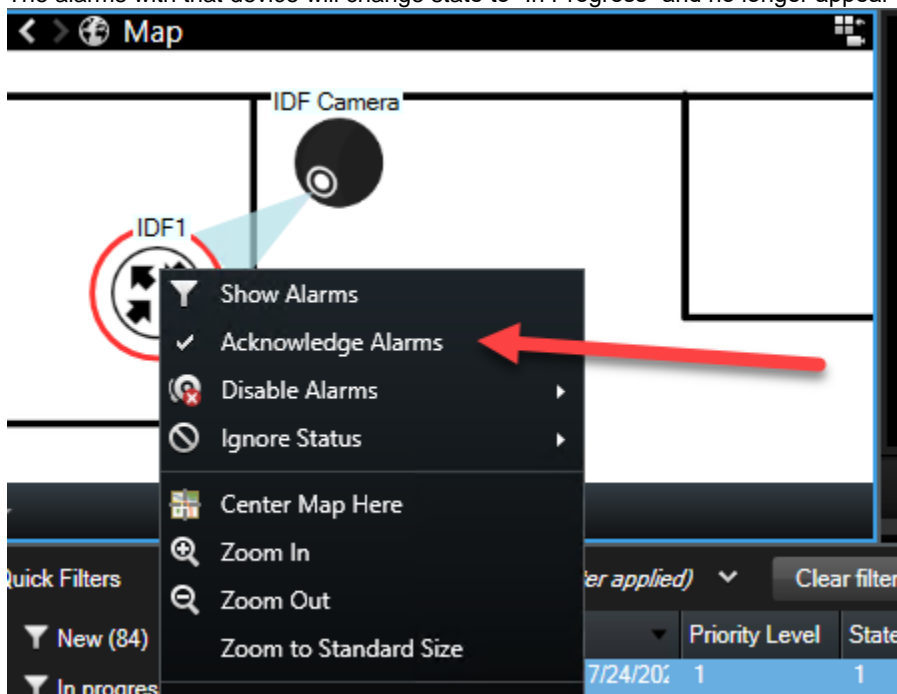
11. The Switch's Topology view in DMS Graphical Monitoring could be used as a map background for placing the switches on a map.
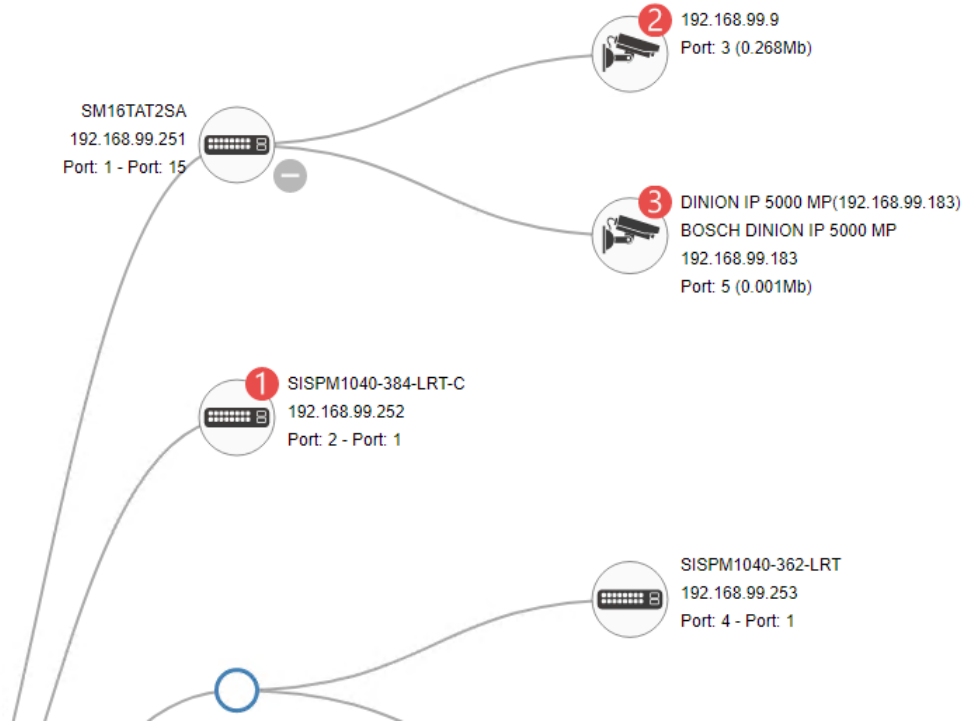
# Smart Client Hot Buttons

The plugin for the XProtect Smart Client creates a Workspace tab that give the user the ability to control the network switches through their web interface via Hot Buttons.  The computer that runs the smart client must be on the same network as the switches with the ability to talk to the desired switch.  The user may need to log into the recording server so access the switches.

When the plugin is installed on the computer running the Smart Client, you should see the Transition Networks Tab.
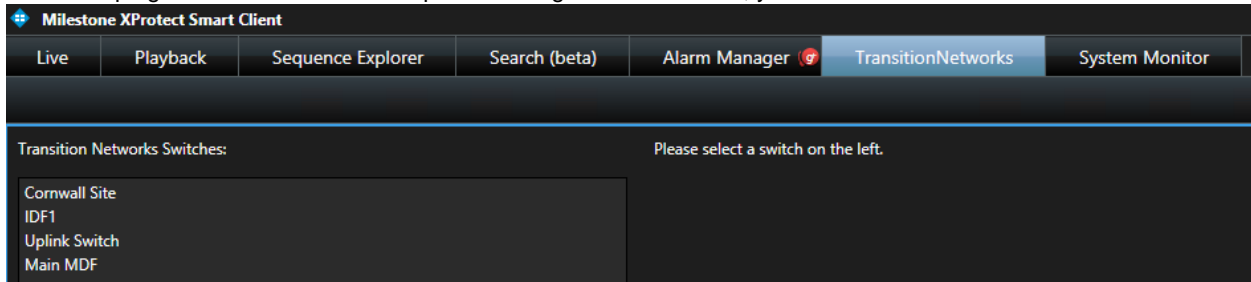


Click on a switch to see the hot buttons.  You'll see the switch name and IP address in the upper left corner.
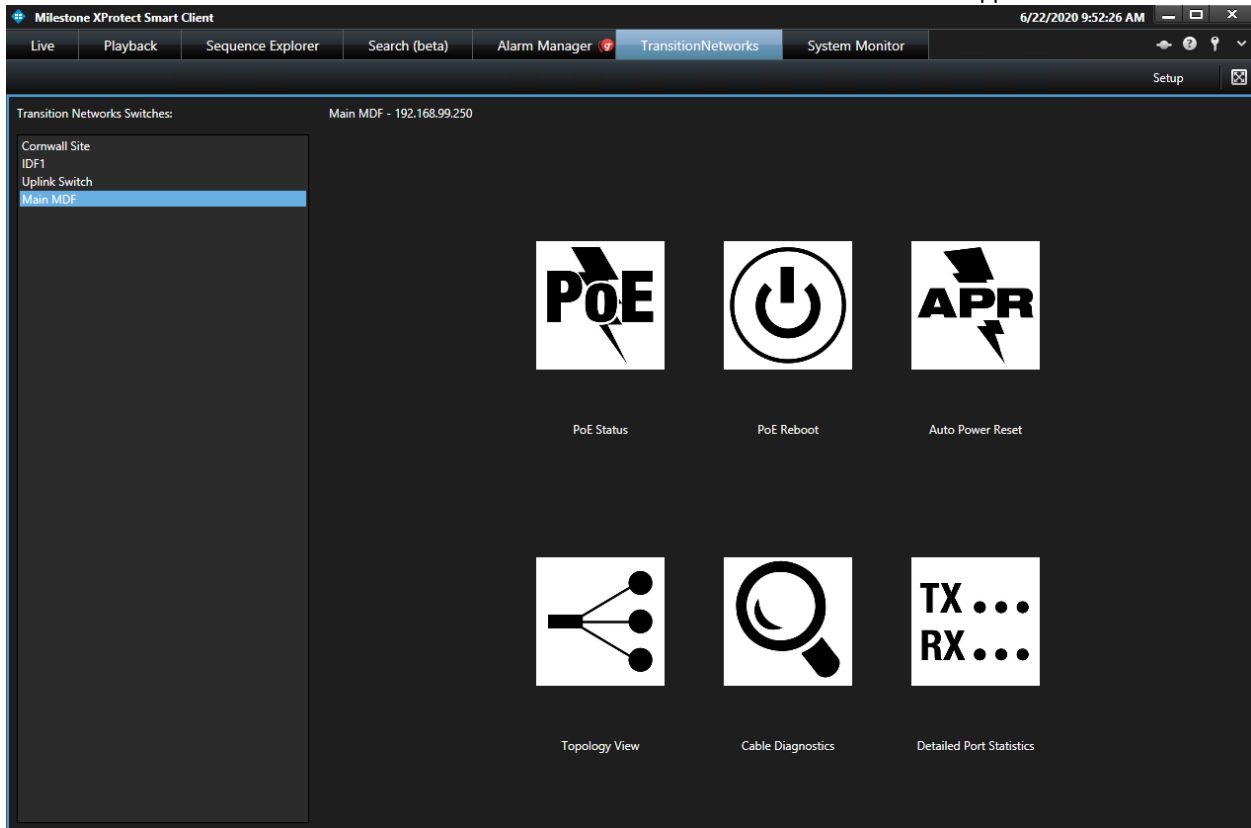
Click on the "Quick Links" button to get back to the page with the hot buttons.
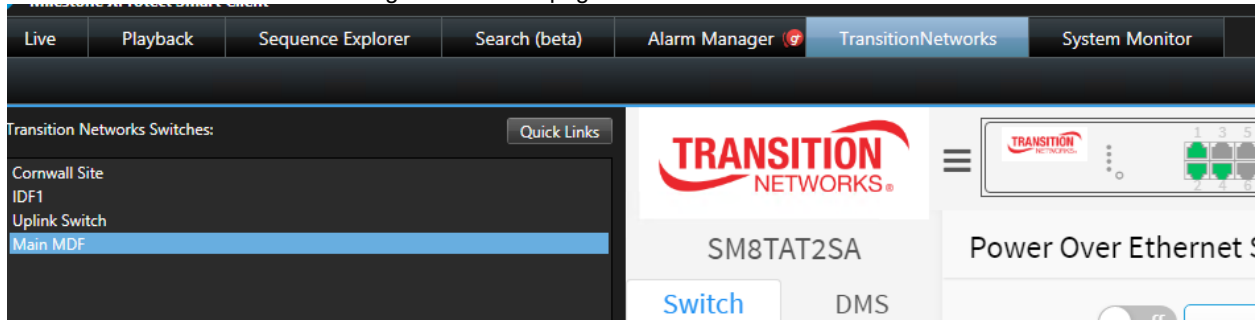


The hot buttons available are:

**PoE Status** – This link opens up the Power Over Ethernet Status page on the network switch's web interface.



**PoE Reboot** – Displays the ports that have PoE power enabled. Select a number of ports and then click "Reboot Selected" to reboot those PoE devices on the ports.

**Auto Power Reset** – Opens the PoE Auto Power Reset Configuration page on the switch.



| Search (beta) | Alarm Manager | TransitionNetworks | System Monitor |

**TRANSITION** NETWORKS®

SM8TAT2SA

| Switch | DMS |

▶ System
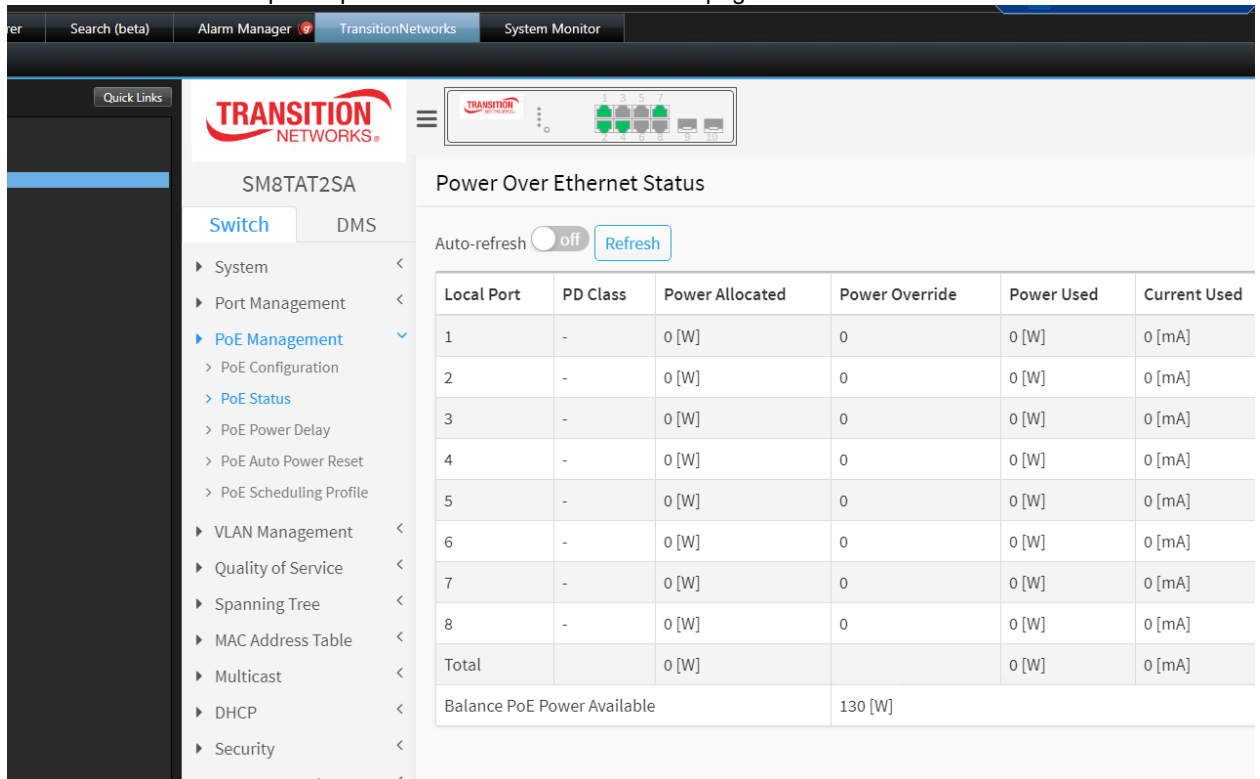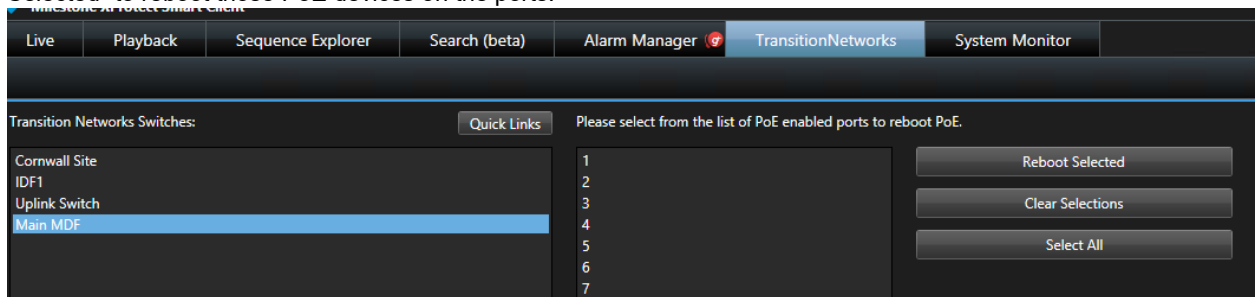▶ Port Management
▶ PoE Management
  › PoE Configuration
  › PoE Status
  › PoE Power Delay
  › PoE Auto Power Reset
  › PoE Scheduling Profile
▶ VLAN Management
▶ Quality of Service
▶ Spanning Tree
▶ MAC Address Table
▶ Multicast
▶ DHCP
▶ Security
▶ Access Control

## PoE Auto Power Reset Configuration

| Ping Check | off |

### PoE Port Configuration

| Port | Ping IP Address | Startup Time | Interval Time(sec) | Retry Time | Fa |
|------|-----------------|--------------|--------------------|-----------|----|
| 1 | 0.0.0.0 | 60 | 30 | 3 | er to |
| 2 | 0.0.0.0 | 60 | 30 | 3 | er to |
| 3 | 0.0.0.0 | 60 | 30 | 3 | er to |
| 4 | 0.0.0.0 | 60 | 30 | 3 | er to |
| 5 | 0.0.0.0 | 60 | 30 | 3 | er to |
| 6 | 0.0.0.0 | 60 | 30 | 3 | er to |

**Topology View** – Opens the Topology View page on the switch's browser interface.  This allows you to see a graphical layout of your network.

**Cable Diagnostics** – Opens the cable diagnostics status page that allows you to run cable tests on each network cable.



Detailed Port Statistics – Opens the Port Statistics Overview page.  This is useful to determine if any packet errors are occurring.

# Syslog Messages

The Syslog message events that the plugin is listening for are in the table below:

| Group Name | Description | Event Name |
|---|---|---|
| | | |
| Login | Login passed for user username through TELNET from ip_address and authenticated by [no \| local \| radius \| tacacs \| redirect] method | Authentication |
| Login | Login passed for user [username] through [CONSOLE] and authenticated by [no \| local \| radius \| tacacs \| redirect] method | Authentication |
| Login | Login passed for user [username] through [SSH] from [ip_address] and authenticated by [ no \| local \| radius \| tacacs \| redirect] method | Authentication |
| Logout | User [username] logout through [TELNET] from [ip_address] | Authentication |
| Logout | User [username] logout through [SSH] from [ip_address] | Authentication |
| Logout | User [username] logout through [WEB] from [ip_address] | Authentication |
| Password-Change | Password of user [ username] was changed | Authentication |
| Mgmt-IP-Change | Management IP address was changed\nby user [username] from [address:port  (address represent ipv4 or ipv6)] | Authentication |
| | | |
| ACCESS-MGMT | Access management filter reject [SSH \| TELNET \| HTTP \| SNMP \| HTTPS] access from IP address [ipv4 or ipv6] | Failed-Authentication |
| Auth-Failed | Bad password attempt for user [username] through [TELNET\|SSH\|SNMP] from [ip_address] and authenticated by [no \| local \| radius \| tacacs \| redirect] method" | Failed-Authentication |
| NAS | RADIUS-assigned VLAN: Invalid character found in decimal ASCII string | Failed-Authentication |
| NAS | NAS (Port [ uport ]): RADIUS timeout while authenticating user | Failed-Authentication |
| Port-Security | Port Security Limit Control (Port [1~port_num], MAC=[mac_address]): Limit exceeded. | Failed-Authentication |
| | | |
| Cold-Start | Switch just made a cold boot | Boot |
| Warm-Start | Switch just made a warm boot | Boot |
| | | |
| Config-Info | User [username] saved running config as startup config | Configuration |
| Config-Info | User [username] restored default configuration | Configuration |
| Config-Info | User [username] restored backup configuration | Configuration |
| Import-Export | User [username] succeed to download configuration | Configuration |
| Import-Export | User [username] succeed to download configuration | Configuration |
| Import-Export | User [username] succeed to upload configuration | Configuration |
| | | |
| Import-Export | User [username] failed to download configuration | Failed-Configuration |
| Firmware-Upgrade | Firmware Upgrade Failed | Failed-Configuration |
| | | |
| Link-Status | Link [up \| down] on port [1 ~ port_num] | Link-Status |
| | | |
| Loop-Protect | Interface GigabitEthernet 1/<PORT NUM> is shutting down because of loop detected. | Network |
| Loop-Protect | A loop is detected on Interface GigabitEthernet 1/<PORT NUM>. | Network |
| LACP | LACP was enabled on port [1 ~ port_num] with key [conf.port_key] | Network |

| Module-Change | SFP module inserted on port [1~port_num ] | Network |
|---|---|---|
| Module-Change | SFP module removed on port [1~port_num ] | Network |
| | | |
| Over-Max-PoE-Power-Limitation | Port [1~port_num] over max PoE power limitation | PoE |
| PoE-Auto-Check | PoE Auto Checking Reboot PD Failure, Port [1~port_num] IP: [ipv4 or ipv6] | PoE |
| PoE-PD-Off | Port [ 1~port_num ] PoE PD off | PoE |
| PoE-PD-On | Port [ 1~port_num  ] PoE PD on | PoE |
| PoE-PD-Over-Current | Port [ 1~port_num ] PoE PD over current | PoE |