

Vista Manager EX v3.8.x

User Guide

Introduction

Vista Manager EX™ is a graphical network monitoring and management tool for Allied Telesis Autonomous Management Framework™ (AMF) networks. Vista Manager EX automatically creates a complete topology map from an AMF network of switches, firewalls and wireless access points (APs). Vista Manager EX facilitates simple management of many, or all, network devices from a dashboard that gives you a central overview of your network. From the dashboard you can monitor up-to-date network status, and take action to resolve any network problems.

About this Guide

This Guide describes how to use Vista Manager EX, with optional plug-ins. It is intended for computer system administrators and network engineers using Vista Manager EX. You can obtain Vista Manager EX either on a hardware platform:

- **VST-APL [APL]:** An application running on Vista Manager Network Appliance (VST-APL) hardware. This Guide also describes setting up Vista Manager on a VST-APL.

or as one of the following software deployments:

- **VST-VRT [VRT]:** An application in Vista Manager Virtual (VST-VRT) deployed on VirtualBox 6.1. This Guide describes how to set up Vista Manager EX on VST-VRT. For information about using VST-VRT, including deploying it on VirtualBox, see the Vista Manager Virtual (VST-VRT User Guide).
- **Windows software [WIN]:** Software installed directly on a device running Microsoft Windows OS. For installation, see the [Vista Manager EX Windows-based Installation Guide](#).



- **Virtual Appliance [VA]:** A stand-alone Vista Manager virtual appliance deployed on Windows Server 2012 R2 Hyper-V or VMware vSphere Hypervisor (ESXi) 6.0/6.5/6.7. For installation, see the [Vista Manager EX Virtual Appliance Installation Guide](#). Note that this virtual appliance does not support Vista Manager plug-ins. If you need the plug-ins, use VST-VRT as the virtualized deployment of Vista Manager.

Where there are differences in this Guide, they are indicated by **APL**, **VRT**, **WIN** and **VA**.

Related documents

For more information, see:

- The [Vista Manager](#) web page
- **[APL]** The [Vista Manager Network Appliance \(VST-APL\) Technical Documents](#)—for information about how to install and use the VST-APL and the applications supported on it.
- **[VRT]** [Vista Manager Virtual \(VST-VRT\) Technical Documents](#)—for information about how to deploy and use the VST-APL and the applications supported on it.
- **[WINIVA]** The [Vista Manager EX Technical Documents](#)—for information about how to install Vista Manager EX as Windows software or as a virtual appliance on Windows Server 2012 R2 Hyper-V or VMware vSphere Hypervisor (ESXi) 6.0/6.5/6.7. This page also shows how to use Vista Manager EX and its optional features.plug-ins.

Planning an AMF network is beyond the scope of this installation guide. The following documents give more information about AMF:

- [AMF Feature Overview and Configuration Guide](#)
- [AMF Introduction and videos](#)

These documents are available from the links above or on our website at alliedtelesis.com

What Vista Manager EX does

Network operations can be performed directly by navigating from the following tools available from the central dashboard:

- **Dashboard**
Displays your network details and network map including all devices connected to each area. Also shows a 24-hour event history at a glance and a list of color-coded recent events.
- **Asset Management**
Displays a complete list of all devices on the network and allows you to search for specific devices. This list can be filtered by categories or exported. To manage devices, you can create groups, assign icons or view licenses.
- **Network Map**
Displays a graphical topology map of your AMF network. From here you can view pop up details of an area that displays the number of AMF devices, guest devices, device name and IP address. Actions such as backup master, SSH to master, and backup device can be carried out directly from the network map.
- **Event Log**
Displays a list of events that are color-coded red for critical, orange for abnormal and green for normal. Events can be filtered by status.
- **Service Monitoring**
Allows an administrator to learn the status of services running on devices on the network. Configure a monitoring task to run periodically, or to monitor services on demand.
- **Allied Intent-based Orchestrator**
Provides network optimization, automation, management, and visualization. Also offers automation of branch security and WAN bandwidth management.
- **SD-WAN**
Enables you to set acceptable performance metrics for any application, and load-balance traffic to meet requirements. By monitoring VPN link quality, time-sensitive or critical traffic is automatically switched over to the optimal link as required.
- **User Management**
Administrator access allows you to add, change or delete Vista Manager EX users.
- **System Management**
Displays various system details such as the current version, serial number, and license information. It also allows you to manage the system configuration, such as SMTP settings.

Vista Manager plug-ins

Optional Vista Manager EX plug-ins are available on:

- Vista Manager Network Appliance (VST-APL). **[APL]**
- Vista Manager Virtual (VST-VRT). **[VRT]**
- Windows-based installations **[WIN]**

Plug-ins are not available on a standalone Vista Manager virtual appliance. **[VA]**

Vista Manager AWC (Wireless Controller) plug-in

Allied Telesis Autonomous Wave Control (AWC) is an advanced network technology that utilizes game theory to deliver significant improvements in wireless network connectivity and performance. AWC can automatically minimize coverage gaps and reduce Access Point (AP) interference and respond to network configuration changes and bandwidth demands from user devices.

AWC is closely integrated with Allied Telesis Autonomous Management Framework (AMF) and is managed by Allied Telesis Vista Manager EX. AWC is available as an optional plug-in to Vista Manager.

For documentation on how to use the AWC plug-in, see the [AWC Plug-in User Guide](#) on the [Vista Manager User Guide web page](#).

Vista Manager SNMP plug-in

The Vista Manager SNMP plug-in can acquire detailed information and statistics from a broad range of networking devices. Different views enable users to manage devices the way they prefer. It supports management of up to 2000 devices, and in large networks it automatically searches for SNMP agents and displays each device found in tree form, for an easy view of the overall network topology. The SNMP plug-in is a powerful addition to Vista Manager EX, adding management flexibility by supporting non-AMF devices.

The SNMP plug-in also offers a MIB compiler, and generates a chart based on MIB values. It offers support for iMG devices and basic SNMP management, like alive monitoring and access to the iMG GUI. You can also backup and restore your settings.

The SNMP plug-in is closely managed by Allied Telesis Vista Manager EX and is available as an optional plug-in to Vista Manager.

For documentation on how to use the SNMP plug-in, see the [SNMP Plug-in User Guide](#) on the [Vista Manager User Guide web page](#).

Vista Manager Trap Receiver plug-in

The Vista Manager Trap Receiver plug-in allows you to see a wide range of third-party devices and traps received for them.

Contents

Introduction	1
About this Guide.....	1
What Vista Manager EX does.....	3
Vista Manager plug-ins.....	4
Preparing your AMF Network for Vista Manager EX.....	4
AMF software version compatibility with Vista Manager EX v3.8.x	4
Server requirement	4
Enable the HTTP service on your devices.....	4
Allow Vista Manager EX to discover the AMF network	5
Configure the AMF log event host.....	5
Configure certificate for device authentication	5
Connection timeout on masters and controllers	6
Initial Login to Vista Manager EX	7
Log in to Vista Manager EX	7
Registering the plug-ins	11
About Vista Manager EX Licenses	14
Licensed features	14
Managing your licenses.....	15
Using Vista Manager EX.....	17
Logging into Vista Manager EX	17
Displaying an overview of your AMF network: the dashboard.....	18
Navigating around Vista Manager: the left-hand menu.....	19
Displaying sites and devices: the integrated map.....	20
Network links and icons displayed in the network map.....	24
Asset Management	33
Managing sites and devices.....	42
Active Fiber Monitoring (AFM) display	51
Traffic monitoring.....	55
Advanced traffic monitoring with sFlow	56

IP map layer: Tracepath and Walk Path	60
Detecting non-AMF devices: Improved WAN visibility	62
VLAN management	65
Firmware management.....	68
Configuration management.....	71
Using the event log	73
High priority events	75
Creating event filter rules	77
Using the syslog server	78
AMF Security (AMF-Sec) support	85
Service monitoring	87
HTTPS access to Vista Manager EX	90
Managing user accounts.....	93
Managing the Vista Manager EX system.....	95
Changing the AMF system configuration settings	96
Changing the Vista Manager EX controller IP address	97
Backup Vista Manager EX.....	97
Using the Allied Intent-based Orchestrator	99
Introduction	99
Dynamic Connection.....	100
Internet Breakout.....	105
Application Priority	109
Security	114
Using the SD-WAN Feature	118
Introduction	118
Limitations	118
Configuring devices for SD-WAN.....	119
Dashboard.....	123
Topology map.....	126
Linkmon probes.....	130
SD-WAN rules	131
Monitoring	138

DPI statistics	140
Application reconfiguration support.....	140
DPI learning and application sharing	142
Troubleshooting.....	149
Ports used by Vista	149
Clear browser cache	149
Allow Vista Manager EX to discover the AMF network	149
x930 Expansion Module.....	150
Vista Manager and RMON.....	150
Testing Windows server [WIN]	150
Reboot AMF master/controller after configuring certificates	151
Problems adding plug-ins	151
Updating plug-ins.....	152
SNMP plug-in application pool settings [WIN]	152
De-register the AWC plug-in on large wireless networks.....	154
Unexpected Communication Error during installation	155
Syslog generation for AMF guest devices.....	155
Unable to enter Master/Controller IP address after skipping license page [APL]	156
Supported Device List.....	158
AlliedWare Plus devices	158
Allied Telesis Wireless APs	160

Preparing your AMF Network for Vista Manager EX

Vista Manager allows you to monitor and manage your AMF network. Before you can use Vista Manager, you need to configure your AMF network. This chapter does not describe how to set up an AMF network. For step-by-step instructions, see the [AMF Feature Overview and Configuration Guide](#). This section describes how to prepare your existing AMF network for use with Vista Manager EX.

[APLIVRT] On VST-APL and VST-VRT, the AMF Master may be the AMF Cloud application on the same VST-APL that the Vista Manager application is running on, or it may be a remote device.

AMF software version compatibility with Vista Manager EX v3.8.x

- All AMF devices must run version 5.5.0-2.x or later.
- If any of your Controller or Master devices are running 5.5.0-2.x, then all other devices must run 5.5.0-1.1 or later.
- If your AMF Master device is running 5.5.0-0.x, then all other devices must also run 5.5.0-0.x (not 5.5.0-1.x or 5.5.0-2.x).
- If your AMF Master device is running 5.5.0-2.x, then member devices can run 5.5.0-0.x or 5.5.0-1.x.

Server requirement

Vista Manager EX needs to be installed on a server or appliance that has connectivity to your AMF master or controller.

Enable the HTTP service on your devices

To use Vista Manager EX, you must enable the HTTP service on all AMF devices, including all AMF masters and controllers. Some AlliedWare Plus devices are shipped with the HTTP service disabled by default. Ensure that it is enabled on all devices that you want to manage with Vista Manager EX.

To enable the HTTP service, use the commands:

```
awplus# configure terminal
awplus(config)# service http
```


You can use an AMF working set command to configure this option on all your devices:

```
awplus# atmf working-set group all
AMF[10]# configure terminal
AMF[10](config)# service http
```

Allow Vista Manager EX to discover the AMF network

Run the following commands on your AMF controller (if you have one in your network) and all AMF masters to allow Vista Manager EX to discovery your AMF network:

```
awplus# configure terminal
awplus(config)# atmf topology-gui enable
```

Configure the AMF log event host

If the AMF controller or AMF master you intend to register with Vista Manager EX is configured to send event notifications to Vista Manager EX, then Vista Manager EX will display them on its dashboard and event log page.

This command need only be run on the AMF controller/master registered with Vista Manager EX:

```
awplus# configure terminal
awplus(config)# log event-host <vista-manager-ip-addr> atmf-topology-event
```

Note: The IP address is the address of the server that Vista Manager EX is running on.

where *<vista-manager-ip-addr>* is the IP address of the Vista Manager EX instance.

Note: The AMF controller/master you intend to register with Vista Manager EX must have layer 3 connectivity to Vista Manager EX server.

Configure certificate for device authentication

Vista Manager is able to be configured to use a certificate to authenticate communication within your AMF network. Once the AMF controller/master has been configured, this process is automatic, and allows the controller/master to authenticate and connect to any device in the network without requiring a username and password.

Note: Using this feature is optional, but highly recommended. If you do not configure this option, you will need to ensure that all devices in the AMF network to be managed by Vista Manager have the same username and password as the AMF controller/master.

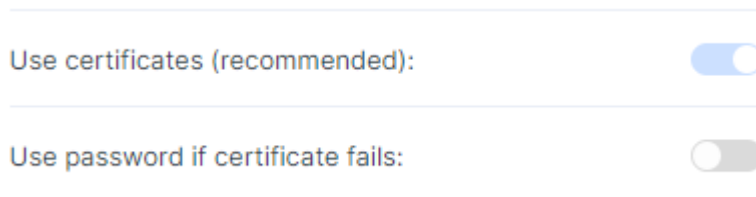
To configure your AMF network to use certificate authentication, enter the following commands on your AMF controller/master:

```
awplus# configure terminal
awplus(config)# crypto pki trustpoint <trustpoint-name>
awplus(ca-trustpoint)# enrollment selfsigned
awplus(ca-trustpoint)# rsakeypair <key-name>
awplus(ca-trustpoint)# exit
awplus(config)# exit
awplus# crypto pki authenticate <trustpoint-name>
awplus# crypto pki enroll <trustpoint-name>
awplus# configure terminal
awplus(config)# atmf trustpoint <trustpoint-name>
```

Note: Save this configuration and reboot your AMF controller/master after running the **atmf trustpoint** command for this change to take affect.

Note: In an AMF network with multiple areas, this process only needs to be carried out on the controller/master. It does not need to be repeated on each individual area's master.

This functionality is disabled by default, but it is recommended that it is enabled. If you need to turn this feature on or off, this can be done from Vista Manager configuration settings:



The **Use password if certificate fails** option can also be enabled. When it is turned **On**, if the certificate authentication fails, it will revert to using the username and password to authenticate. This will only work if all devices have been configured with the same username and password as the controller/master, as mentioned above.

Connection timeout on masters and controllers

We recommend not changing the session timeout on your Vista Manager master or controller using the **line vty exec-timeout** command. If you do decide to change it, it should not be set to **0**, as this may result in sessions that can't be reached and never time out.

Initial Login to Vista Manager EX

This section describes logging in and initial setup for Vista Manager EX.

[APL] Before setting up Vista Manager EX on the VST-APL, you need to activate and start the Vista Manager application on the VST-APL. For information about using the VST-APL, including activating applications, see the [Vista Manager Network Appliance \(VST-APL\) User Guide](#).

[VRT] Before setting up Vista Manager EX on VST-VRT, you need to deploy the VST-VRT. For deployment and configuration information for VST-VRT, see the [Vista Manager Virtual \(VST-APL\) User Guide](#).

[WINIVA] For installation instructions, see the [Vista Manager EX™ Installation Guides](#).

This section describes:

- "Log in to Vista Manager EX" on page 7
- "Registering the plug-ins" on page 11

Note that dialog boxes in this section are from a VST-APL. In most cases, the dialog boxes are the same for all Vista Manager platforms.

Log in to Vista Manager EX

[APLVRT] To connect remotely, use your browser to go to the URL:

```
http://<ip-address>
```

where <ip-address> is the address of the Vista Manager application. This is the IP address you assigned statically to Vista Manager or that you set it to obtain by DHCP when configuring the application. You can find this IP address by hovering over the instance information icon for the Vista Manager application in the VST-APL or VST-VRT GUI.

[WIN] To connect locally, you can use the URL:

```
http://localhost:5000
```

To connect remotely, use the URL:

```
http://<ip-address>:5000
```

where <ip-address> is the address you assigned on the **Registration Server IP Address** dialog.

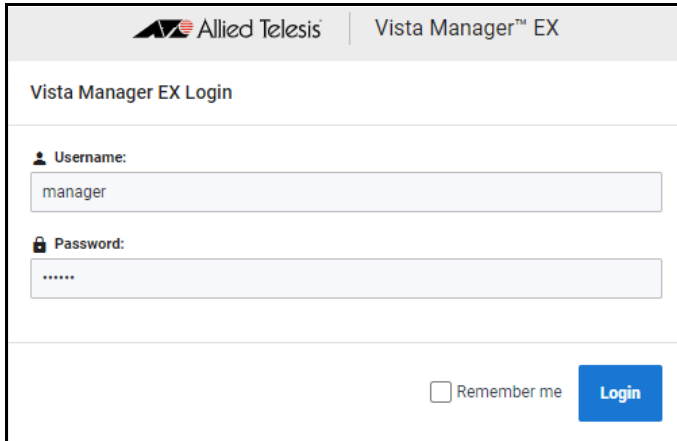
[VA] To connect remotely, use the URL:

```
http://<ip-address>
```

where <ip-address> is the address displayed on the Vista Manager EX appliance console screen after it boots.

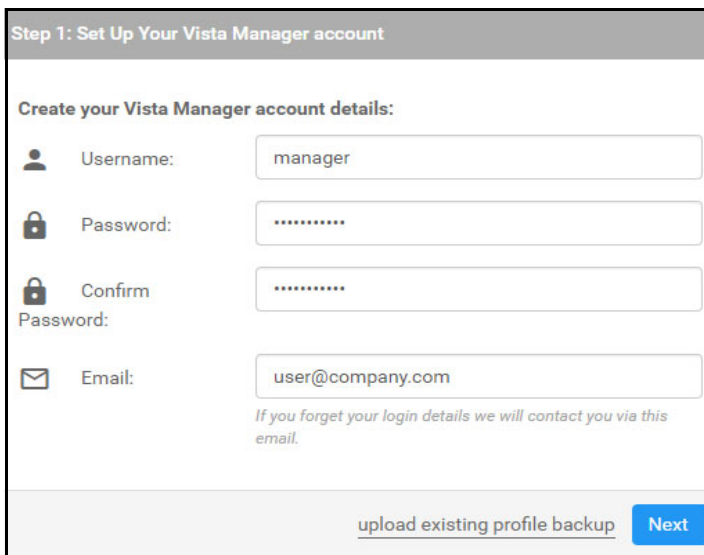
Note: Vista Manager requires JavaScript to be enabled in your web browser.

From the **Vista Manager Login** dialog:



- Enter the **Username** manager
- Enter the **Password** friend
- Click **Login**

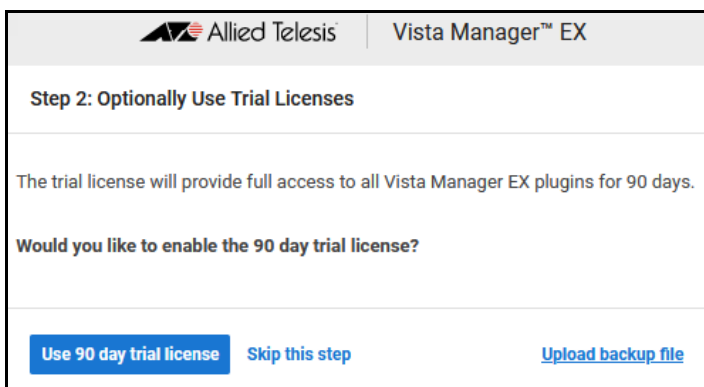
The **Set Up Your Vista Manager account** dialog displays:



- Enter your **Username**
- Enter your **Password**
- Re-enter your Password to **Confirm**
- Enter your **Email**
- Click **Next**.

If you want to use a backup to restore a previous database, click **upload existing profile backup**.

[APL] The **Optionally Use Trial Licenses** dialog displays:



- On the VST-APL, you can click **Skip this step**.
No license is required on the VST-APL for Vista Manager EX or the Trap Receiver plug-in.
- If you select the 90-day trial, you need to install your licenses before the

end of that trial. See [“About Vista Manager EX Licenses” on page 14.](#)

[VRTIWIVIA] The **Upload License File** dialog displays:

Allied Telesis | Vista Manager™ EX

Step 2: Upload License File

Please upload your Vista Manager EX licenses file.

The licenses file you provided should be associated with the following Vista Manager EX serial number.

Serial Number: 610b416b-1d86-4f68-a30c-29cd130dc567

Select License File: No file chosen

If you do not have a license file, please contact Allied Telesis.

[upload backup file](#)

■ Otherwise, install your licenses now by selecting the license file, or select the 90-day trial.

■ If you select the 90-day trial, you need to install your licenses before the end of that trial. See [“About Vista Manager EX Licenses” on page 14.](#)

■ Click **Next**.

Note: If your licenses file is not associated with the Serial Number listed in your dialog or you do not have a license file, then contact your authorized Allied Telesis support center to obtain a license.

Note: If this is the first time you are using Vista Manager EX, you have the option to apply the 90 day trial license for other licensed features, such as the AWC plug-in and the AIO feature, by clicking **Use 90 day trial license**. On the VST-APL, the base Vista Manager EX license will continue to work after 90 days if you choose this option.

The **Set Up Your Network** dialog displays:

Allied Telesis | Vista Manager™ EX

Step 3: Set Up Your Network

Enter AMF Network Master or Controller IPv4 or IPv6 Address or Domain Name:

XXX.XXX.XXX.XXX

Enter AMF Network Master or Controller Username and Password:

Username:

Password:


■ Enter the **IP Address** for the AMF Master or Controller

[APLIVRT] The AMF Master may be the AMF Cloud application on this VST-APL or VST-VRT deployment, or it may be any other AMF Master or Controller.

■ Enter the AMF Controller or Master **Username**

■ Enter the AMF Controller or Master **Password**

The **Set Up Your SMTP settings** dialog displays.


Vista Manager™ EX

Step 4: Set Up Your SMTP settings

Enter the address of SMTP server, which will be used by Vista Manager EX to send notifications to users.

SMTP server IP address:

SMTP Server Port

Enter your SMTP server's username and password:

Username:

Password:

Send mail as:

[do this later](#)
[Proceed](#)

- Enter the **IP Address** of your SMTP server

You may also enter:

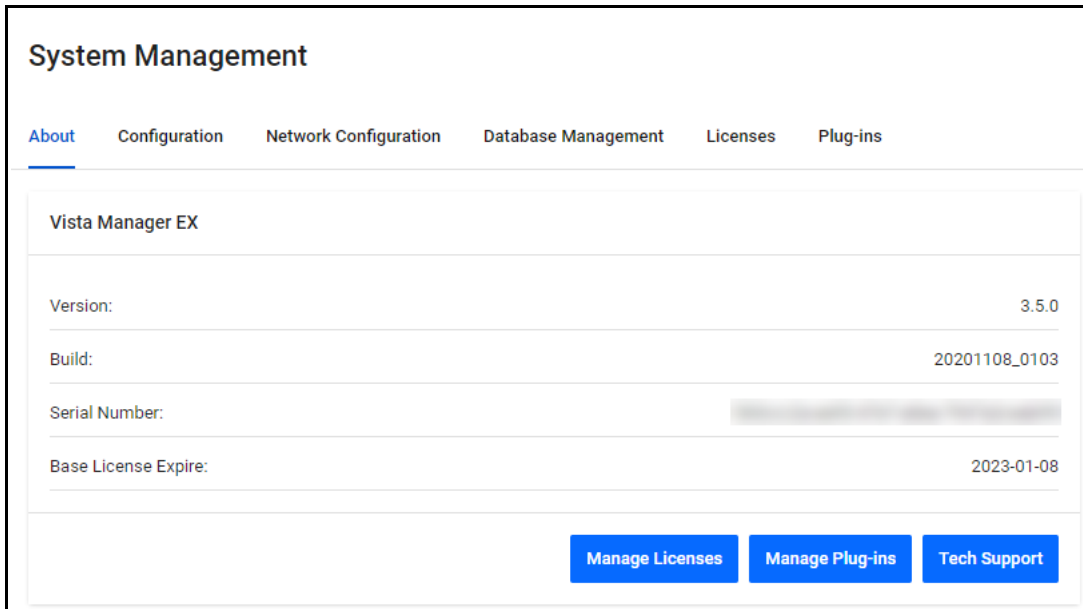
- the **SMTP Server Port**
- the SMTP Server **Username**
- the SMTP Server **Password**
- the **Send mail as** email address.

You will receive a message saying that the set up is successful.

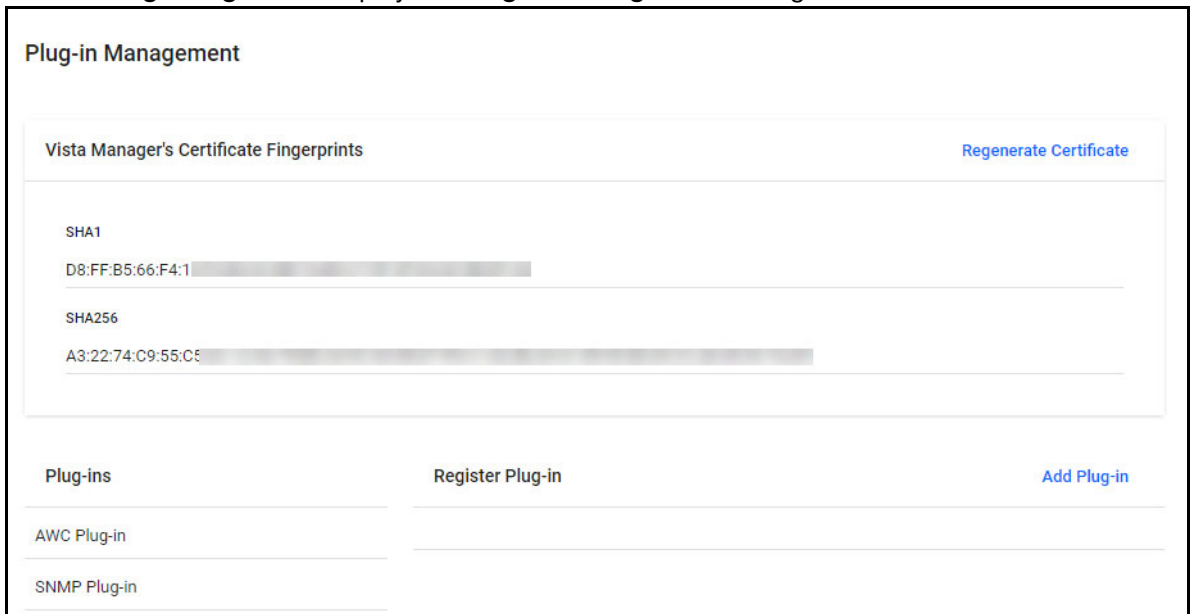
Registering the plug-ins

[APLIVRTWIN] The AWC and SNMP (full) plug-ins require separate subscription licenses from Vista Manager. See [“Log in to Vista Manager EX” on page 7](#) and [“About Vista Manager EX Licenses” on page 14](#) for details.

After you have successfully logged in to Vista Manager EX, to set up the plug-ins, select **System Management** from the **Vista Manager EX** menu:



Click **Manage Plug-ins** to display the **Plug-in Management** dialog:



**AWC
plug-in**

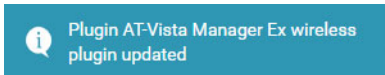
1. Click **Add Plug-in** and enter the following details for the AWC plug-in:

Server URL: https://<ip-address>:5443/wireless_plugin

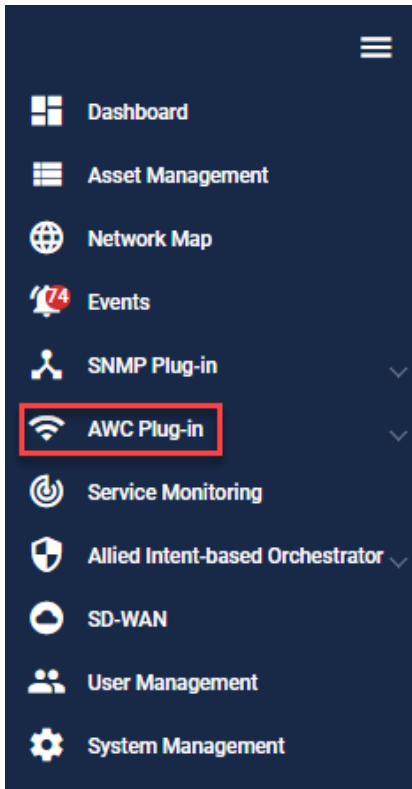
where <ip-address> is the IP address of the Wireless Controller (AWC) plug-in application.

2. Click **Verify Connection**
3. Click **Save**.

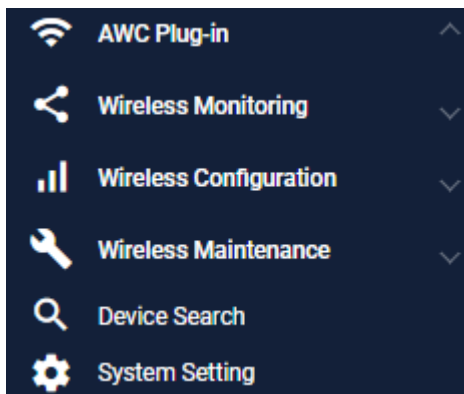
The following information message is displayed showing that the plug-in has been updated:



You can now access the **AWC** plug-in from the **Vista Manager EX** menu as follows:



There is now a **Wireless** icon on the Vista Manager EX menu. When you click on this icon it will display the AWC menu items.



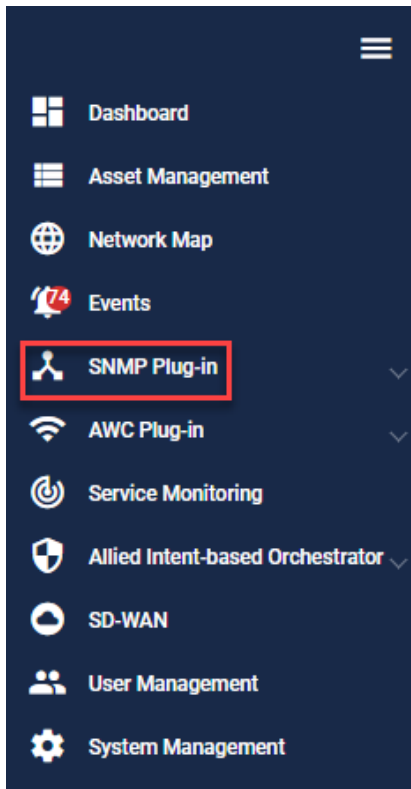
**SNMP
plug-in**

1. Click **Add Plug-in** and enter the following details for the SNMP (full) or Trap Receiver plug-in:
Server URL: `https://<ip-address>:6443/NetManager`
where <ip-address> is the IP address of the SNMP or Trap Receiver plug-in application.
2. Click **Verify Connection**
3. Click **Save**.

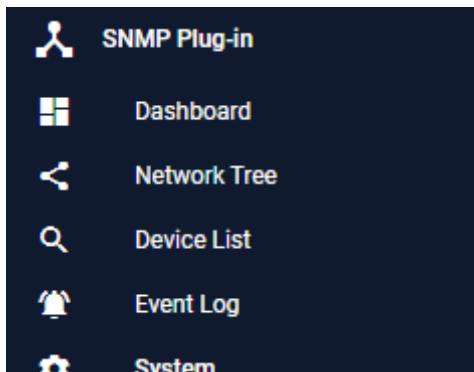
The following information message is displayed showing that the plug-in has been updated:



You can now access the **SNMP** plug-in from the **Vista Manager EX** menu as follows:



There is now a **SNMP** icon on the Vista Manager EX menu. When you click on this icon it will display the SNMP menu items.



About Vista Manager EX Licenses

Licensed features

[APL] Vista Manager EX base license is enabled by default on the VST-APL. Licenses for optional features and plug-ins are applied during the Vista Manager EX software installation procedure. Download the license file from the [Allied Telesis download center](#). Subscription licenses are tied to the Vista Manager database and are maintained across backups and restores.

You can install multiple plug-in licenses (for the same feature) each with their own license period. This allows you to manage a total number of devices equal to the sum of the devices of the active licenses. For example, if you have two SNMP plug-in licenses installed, each for 10 devices, you will be able to manage a total of 20 devices through the SNMP plug-in.

After clearing the Vista Manager database:

- Trial licenses are retained.
- Non-trial licenses are lost. (Licenses are tied to a serial number; initialization loses the old serial number and generates a new one.)

If you import a backup, the serial number and any licenses are tied to the backup.

[VRTIWIN] Vista Manager EX licensing is subscription based. Download the license file from the [Allied Telesis download center](#). The base license file is applied during the Vista Manager software installation procedure. Subscription licenses are tied to the Vista Manager database and are maintained across backups and restores. If, however, you reinitialize the database you will need to get a new license file.

The base license and optional plug-in licenses have separate license periods. If the base license expires, the optional features will not be available, even if they are still licensed.

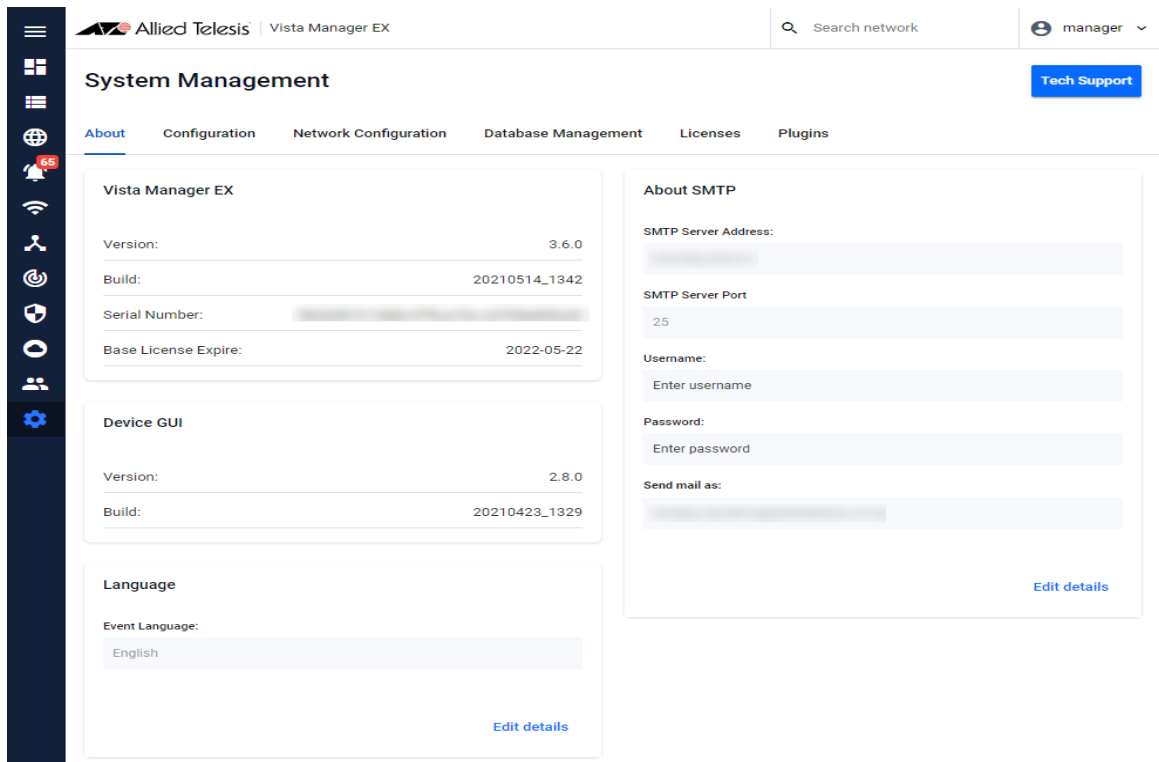
You can install multiple plug-in licenses (for the same feature) each with their own license period. This allows you to manage a total number of devices equal to the sum of the devices of the active licenses. For example, if you have two SNMP plug-in licenses installed, each for 10 devices, you will be able to manage a total of 20 devices through the SNMP plug-in.

[VA] Vista Manager EX licensing is subscription based. Download the license file from the [Allied Telesis download center](#). The base license file is applied during the Vista Manager software installation procedure. Subscription licenses are tied to the Vista Manager database and are maintained across backups and restores. If, however, you reinitialize the database you will need to get a new license file.

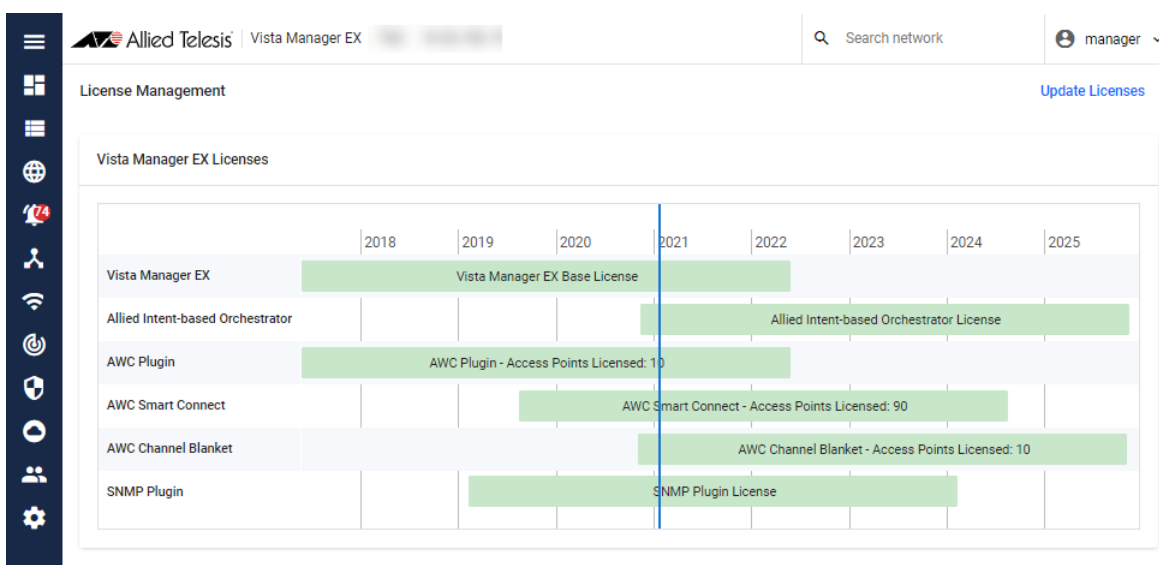
Managing your licenses

The initial login procedure includes installation of licenses or the option to select the 90-day trial license. For instructions, see "Log in to Vista Manager EX" on page 7.

To add a new license to Vista Manager EX, or view existing licenses, select **System Management**.



To display your current licenses, click the **Manage Licenses** button. To add a new license click the **Update Licenses** button and select the required license file to upload.



[APL] On the VST-APL, the Vista Manager EX base license is enabled by default. It is not shown in the graph. A note on the page indicates this.

For more information on licensing options and plug-ins see the [Vista Manager EX Datasheet](#).

90-day trial license

As long as you are using Vista Manager EX for the first time, you can use a 90 day trial license. A trial license is only available on new installations. It is not available on systems that have been previously licensed, or systems restored from backups that have been previously licensed.

[APL] On the VST-APL, the base Vista Manager EX license is enabled by default, and does not give access to additional features including plug-ins. If you choose the 90-day trial license during login, this gives full access to additional features available for Vista Manager EX, including the Allied Intent-based Orchestrator (AIO), and the plug-ins. There is no grace period after the license expires, but you will receive expiry notifications at 28, 21, 14, 7, and 1 day/s before expiry. You can add a purchased license on the license management page at any time before the trial has finished.

[VRTIWIN] The 90-day trial license gives full access to Vista Manager EX, the Allied Intent-based Orchestrator, and the plug-ins. There is no grace period after the license expires, but you will receive expiry notifications at 28, 21, 14, 7, and 1 day/s before expiry. You can add a purchased license on the license management page at any time before the trial has finished.

[VA] The 90-day trial license gives full access to Vista Manager EX and the Allied Intent-based Orchestrator. There is no grace period after the license expires, but you will receive expiry notifications at 28, 21, 14, 7, and 1 day/s before expiry. You can add a purchased license on the license management page at any time before the trial has finished.

Using Vista Manager EX

Logging into Vista Manager EX

[APLVRT] To connect remotely, use your browser to go to the URL:

```
http://<ip-address>
```

where <ip-address> is the address of the Vista Manager application. This is the IP address you assigned statically to the Vista Manager application or that you set it to obtain by DHCP when configuring the application. You can find this IP address by hovering over the instance information icon for the Vista Manager application in the VST-APL or VST-VRT GUI.

[WIN] To connect locally, you can use the URL:

```
http://localhost:5000
```

To connect remotely, use the URL:

```
http://<ip-address>:5000
```

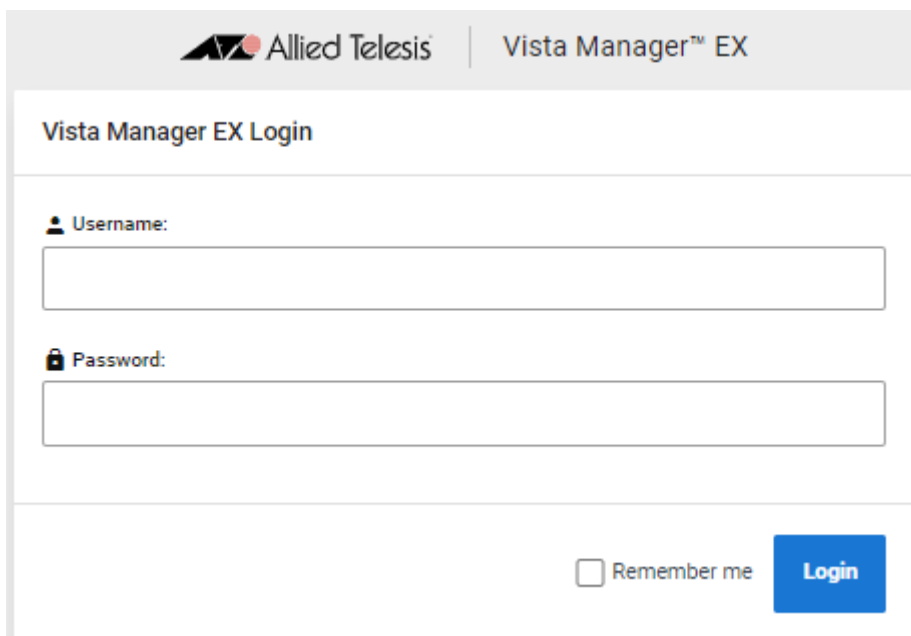
where <ip-address> is the address you picked on the **Registration Server IP Address** dialog.

[VA] To connect remotely, use the URL:

```
http://<ip-address>
```

where <ip-address> is the address displayed on the Vista Manager EX appliance console screen after it boots.

The **Vista Manager Login** dialog displays:



The screenshot shows the Vista Manager EX Login dialog. At the top, there is the Allied Telesis logo and the text 'Vista Manager™ EX'. Below this is the title 'Vista Manager EX Login'. The dialog contains two input fields: 'Username:' with a person icon and 'Password:' with a lock icon. At the bottom right, there is a checkbox labeled 'Remember me' and a blue 'Login' button.

- Enter your **Username**.
- Enter your **Password**.
- Click **Login**.

Change password

1. Click on **User Management** from the menu and select your user name
2. Click the **Edit** button
3. Click the **Change Password** button
4. Enter your new password and then re-enter your new password to confirm
5. Click the **Save button**

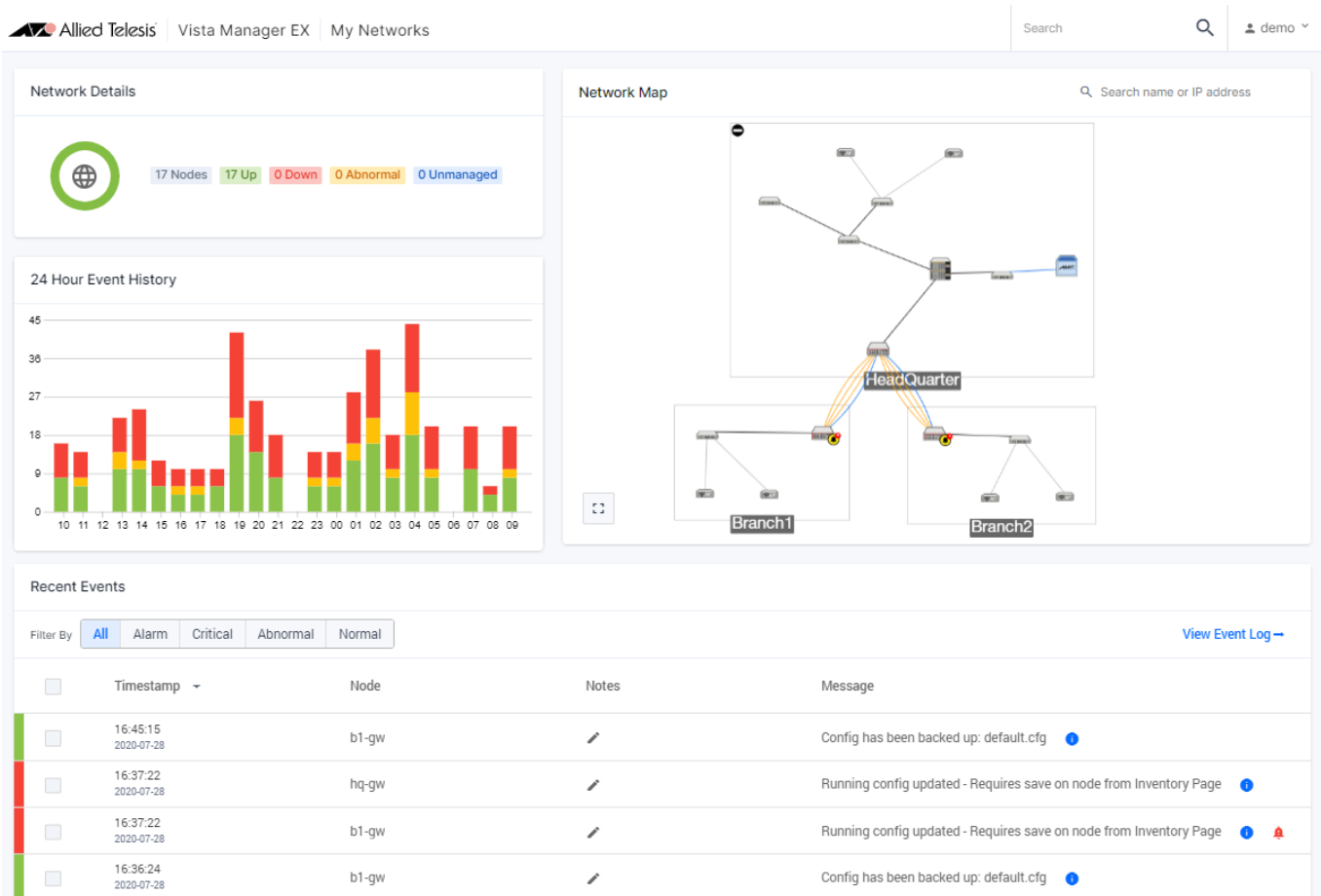
Logout

On any Vista Manager screen, click on your username in the top right-hand corner and select **Logout**.

After logging out the login window will appear.

Displaying an overview of your AMF network: the dashboard

The **Dashboard** is the default screen displayed after you have logged in to Vista Manager EX:



The dashboard displays the following information about your network:

Field	Description
Network Details	Shows the number of devices and status (up, down, abnormal or unmanaged).
24 Hour Event History	Shows a graph of the last 24 hours of log events history.
Recent Events	Displays time, device and any notes or messages relating to each event.
Network Map	Displays the network topology in graphical form.
Critical Message Bar	The last critical log message is highlighted in a message bar, if critical problems exist.

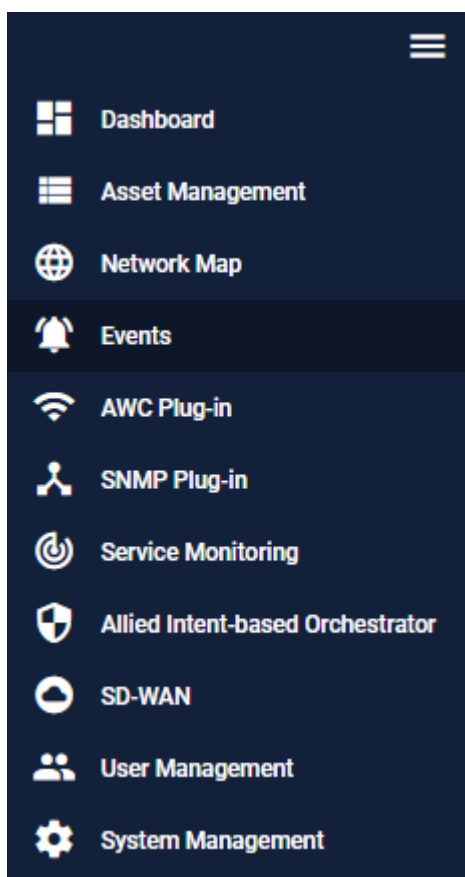
Navigating around Vista Manager: the left-hand menu



On the left-hand side of every Vista Manager Screen is an expandable **Menu**. The menu enables you to navigate to and from the Dashboard, Asset Management, Network Map, Events, Service Monitoring, Allied Intent-based Orchestrator, SD-WAN, User Management, and System Management. Any optional plug-ins will also appear in the menu.

You can expand or collapse the menu. The expanded menu displays the name of each menu option.

For easy navigation from any window in Vista Manager EX you can access the show/hide **Menu** as follows:



Displaying sites and devices: the integrated map

The dashboard includes an integrated map showing all devices known to Vista Manager on the network. This makes it easier for users to see and visualize what is happening on their network.



Access the integrated map in its own screen by using the Network Map option in the left-hand menu. From the Network Map you can display details about sites in the network hierarchy and identify the devices in each site.

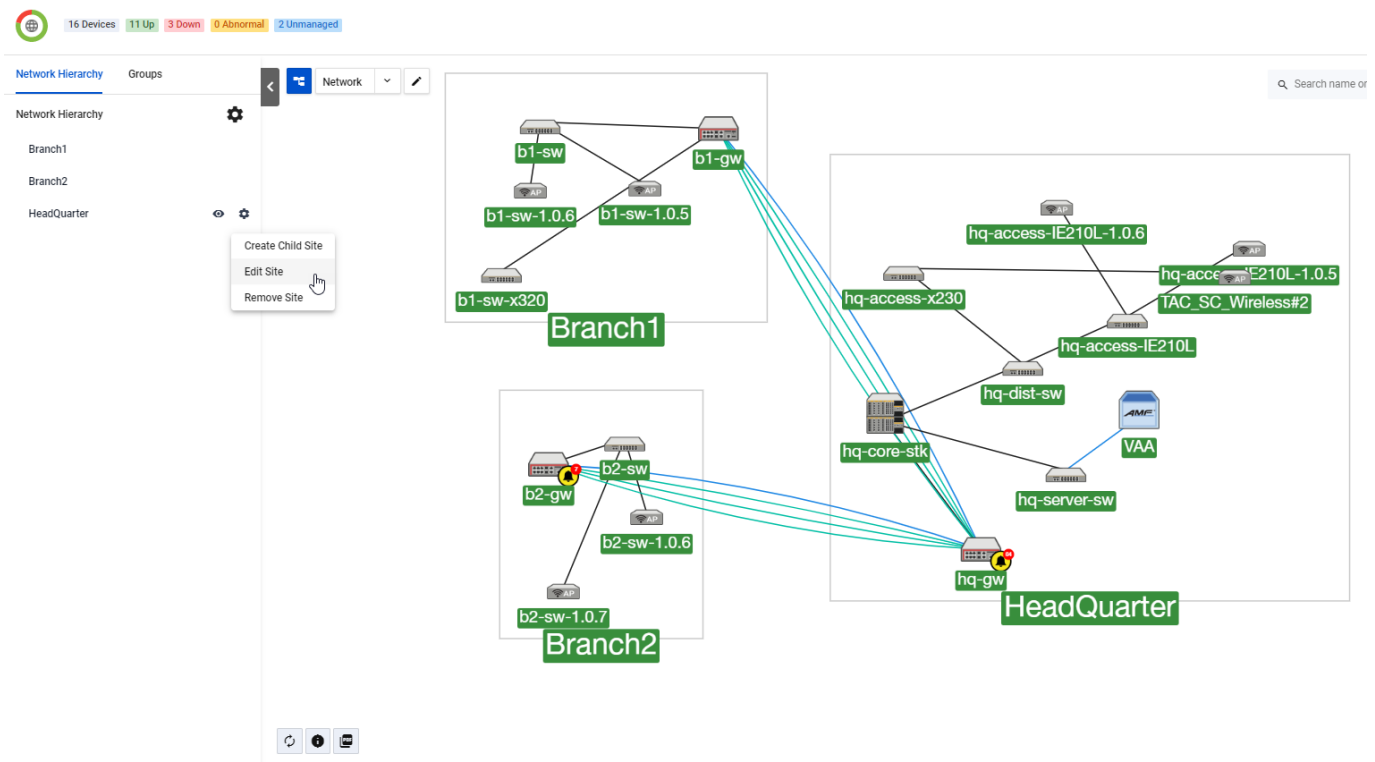


Click the **Network Hierarchy** icon at the top left of the map screen to display the list of sites. This can be a:

- Location - buildings and devices can be assigned to a location.
- Building - floors and devices can be assigned to a building.
- Floor - devices can be assigned to a floor.

Devices can be assigned to any one of these sites.

From the site side panel, you can also perform functions like **Create**, **Remove**, **Edit**, and **Hide** for each site, as well as create child sites.



Clicking on a selected device or double clicking on a device will show all the device information as follows:

b2-gw

Router Members Rules

Basic Information

Status Normal

IP Addresses

MAC Address

Type Router

Model AR2050V

Serial

Version 5.5.0-0.1

Vendors Allied Telesis R&D Center K.K.

AMF Information

Area AREA2

Role Member

Last Backup Jan 6, 2021

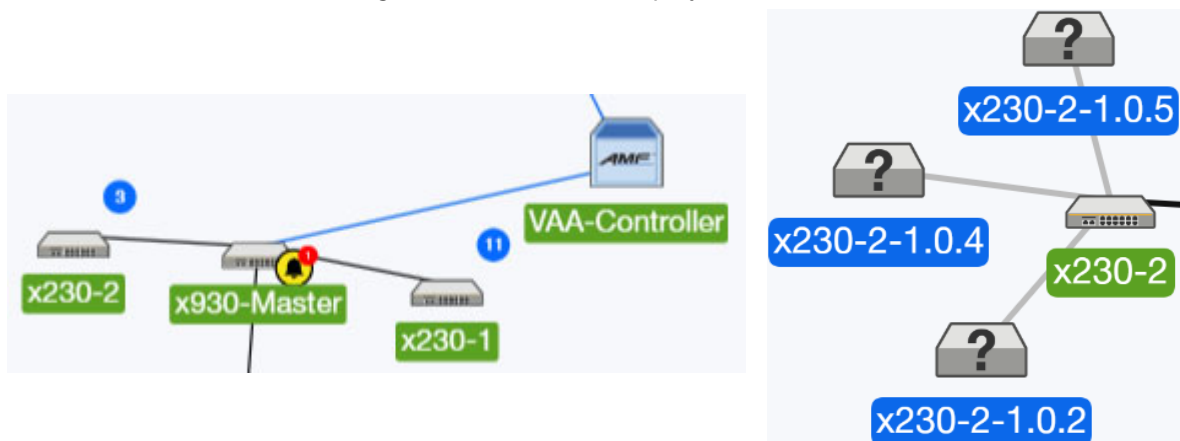
Network Events

Running config updated - Requires save on devic...

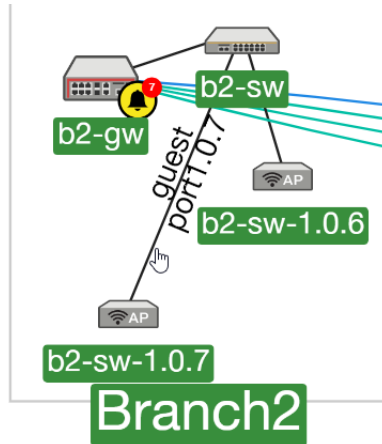
Link Status Event (6)

From this view you can check the status of a device at a glance. Status is indicated by the device title background color. Down is red, abnormal is orange and normal is green.

Blue indicates an unmanaged device, which also carries a numbered blue circle tag until further zoomed into, at which time the guest device will be displayed.



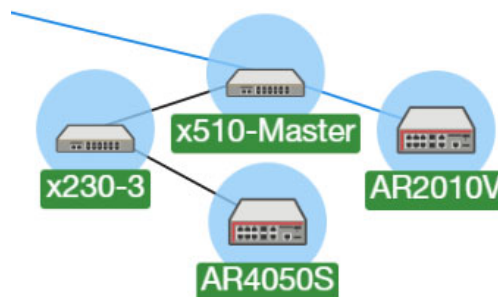
Managed guest devices attached to a device are indicated by grey links. Hovering over a grey link displays the port number.



You can click on the device icons and drag them into different positions on the map.

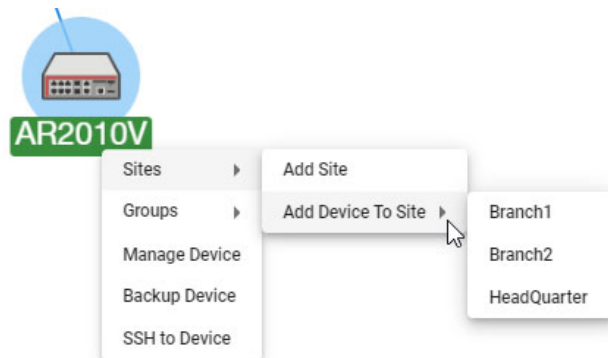
To select a device or devices, hold **Ctrl** and select each device you want selected. Alternatively, hold **Ctrl**, then click on the area and drag over the devices you want selected.

Selected devices are highlighted in blue as follows:



To remove or create a new site for all selected devices, right-click on them for such options.

To add a device to a site, right-click on a selected device and select **Add Device To Site**:



For more information on backing up a device, see **“Backup a device” on page 42**.

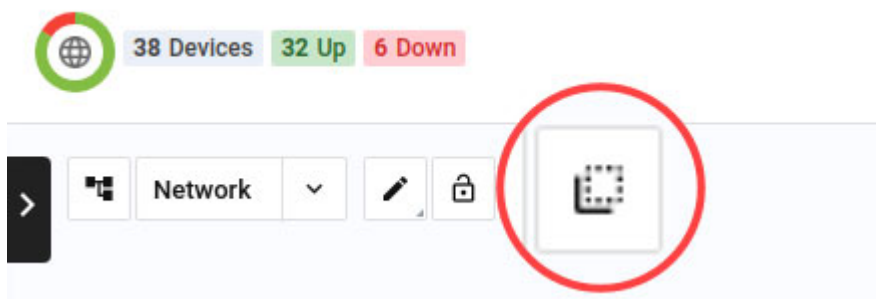
For more information on SSH to Master, see **“SSH/Shell to a device” on page 43**.

Multi-select mode

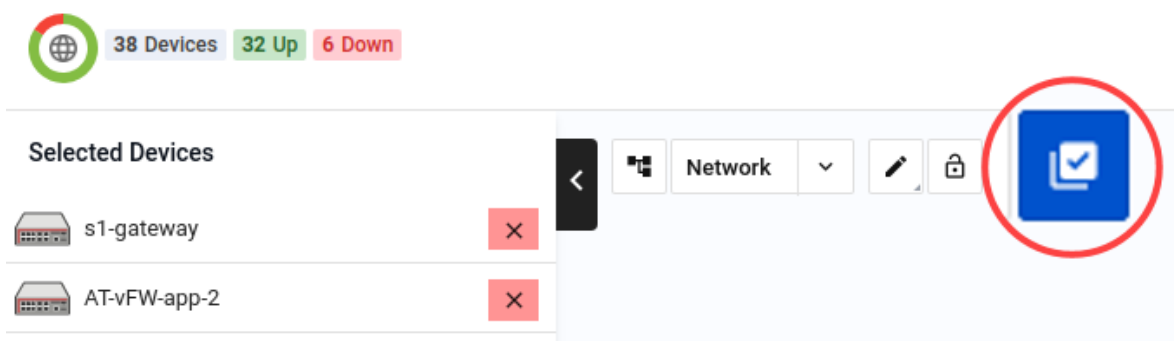


Enable this button to select multiple devices without holding the **control** or **shift** keys.

Note: The multi-select button will be available on all map modes, except **tracepath** and **tunnel creation**.



With the multi-select button enabled, the side panel appears showing a list of selected devices when more than one device is selected. Click on 'x' to remove a device from the list. Click a selected device on the map to deselect it. Click anywhere on the map to remove all selected devices from the list. When only one device is left selected, the side panel then shows details of that device.



Backwards navigation

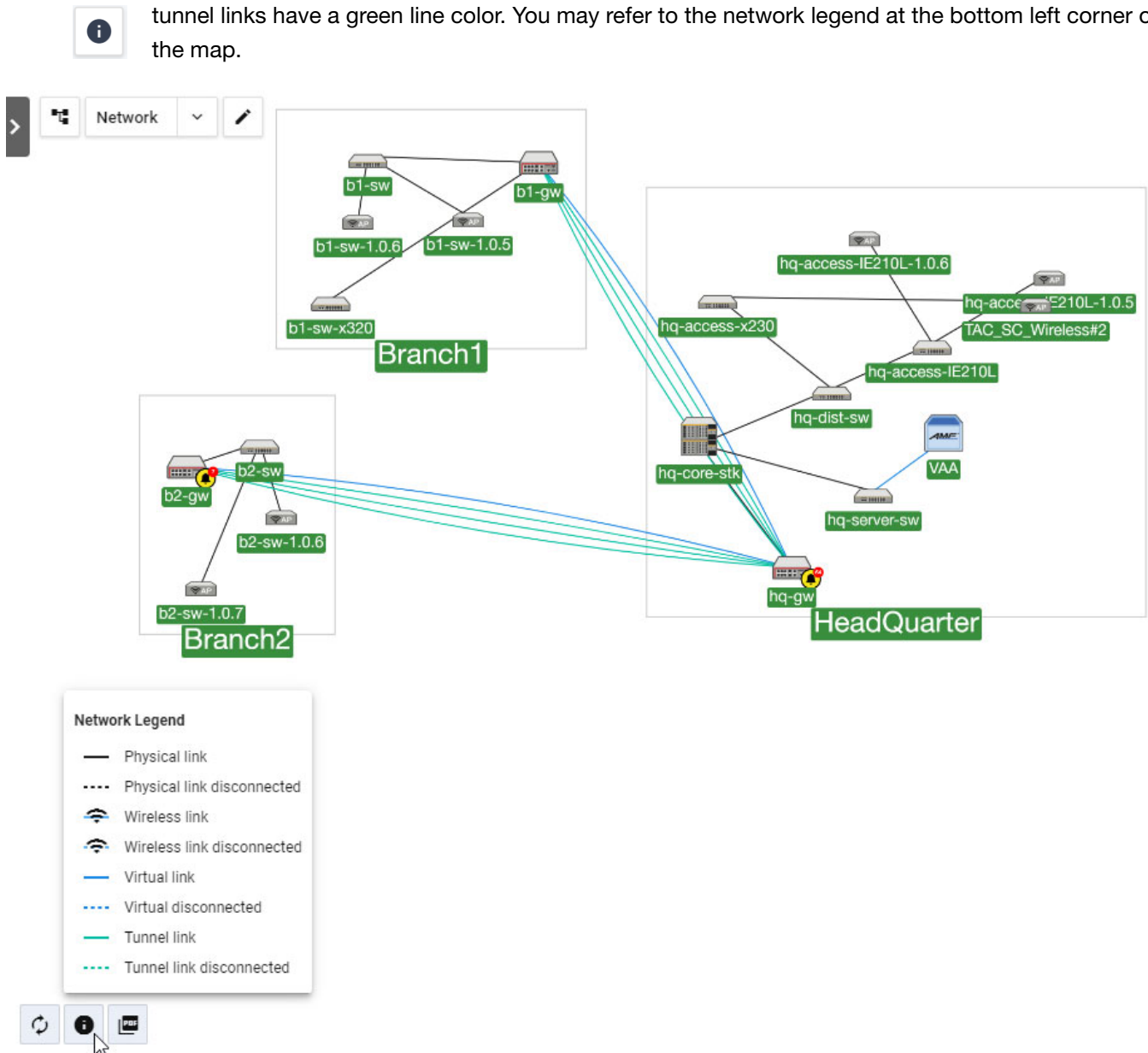


Backwards navigation is supported on specific pages. This button lets you move efficiently between pages during a single task flow on multiple devices, like updating release files or deploying policies.

For example, you navigate to the Device Info tab from Asset Management, and then browse through several different tabs from there. Clicking on the browser back button only returns you to the previous tab, but the backwards button takes you straight back to Asset Management.

Network links and icons displayed in the network map

Physical (directly connected), virtual, guest, and tunnel links are displayed differently. Physical links have a black line color, virtual links have a blue line color, guest links have a grey line color, and tunnel links have a green line color. You may refer to the network legend at the bottom left corner of the map.



Importing a building or floor map to sit behind the network diagram

You can import an image as a background on a map screen. This enables you to add a building or floor map and show the physical location of devices.

From the **Network Map** click on the camera icon in the bottom left-hand corner. Click **Select** to browse for your floor plan and select the file. Click **Open** and then select the image. You can change the opacity of the image by adjusting the slider below the image. Click the **Save** button to upload the image to your Network Map.

The image will appear as the background of your network. You can then move the areas, devices or guest devices so they are located in the correct areas in the diagram as follows:



To delete an image, click on the camera icon and select **Delete**. Check that you are sure you want to delete the Network Map background image, and if you are sure, click the **Delete** button.

Refreshing the map when your AMF network changes

New devices will appear automatically via polling, or you can click the Refresh icon on a map screen for an immediate result.



1. Click the **Refresh** icon at the bottom left of the map screen to trigger polling.
2. After polling is complete, the Web browser will update the status of the equipment and new devices will appear.

Exporting a PDF of the network map



You can export a network map in PDF format.

In the bottom left corner, click on the **Export PDF** button.



Zoom functionality on integrated maps

This functionality also supports touch input. You will be able to zoom in and out by clicking the (+/-) buttons or dragging the zoom slider. The reset zoom button lets you zoom out to fit the entire network within the map window.

Integrated map layouts

The integrated map supports two layout functionalities.



- **Auto generate layout** - This button lets you automatically generate a topology layout which creates a new layout for your map. Take note that this process cannot be reversed. It is disabled when locked layout is active.



- **Lock layout** - This button provides the lock/unlock ability to move devices around. The status will be saved even after you log out and back in again. You can use this layout to:
 - change the position of devices (when unlocked)
 - pan the map view around devices (not sites or groups)

Regardless of the lock status:

- zooming or looking around the map are not affected
- expanding or collapsing sites and stacks will function normally
- moving devices on the dashboard network map will now always be locked

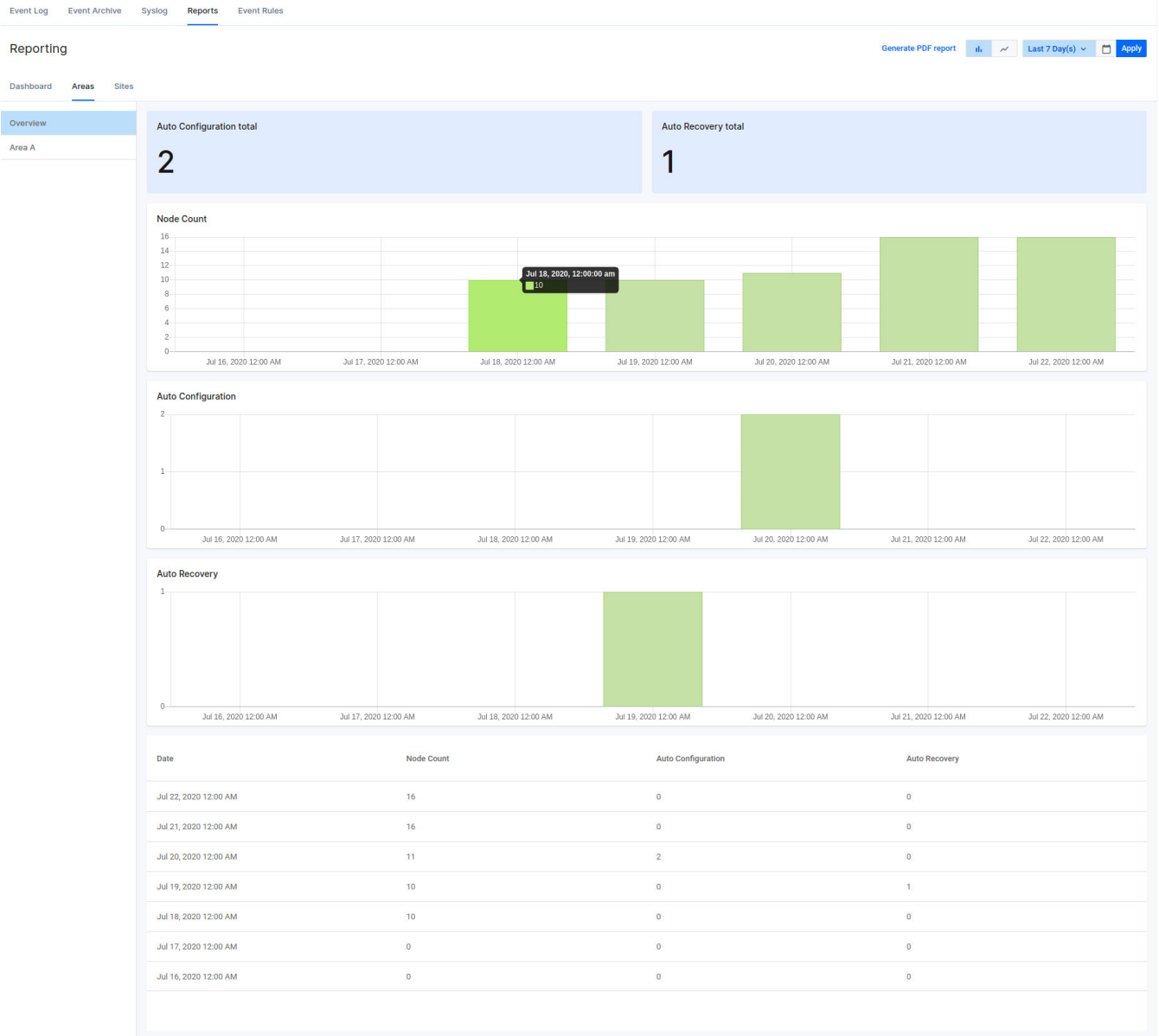
Note: As this is a per-user feature, in the event that an account is shared among multiple users, one user's change will affect all users.

Integrated map reporting support

You can generate reports that provide detailed statistics of actions performed by the AMF networks. Specify a time range between 7 days to 6 years. For users, you can see how the size of your network has changed over time. For administrators, you will be able to justify why and when you have to renew your AMF subscription license.

Data for reports is compiled daily at midnight UTC time. Reports are presented in easy-to-understand charts and tables available in PDF format.

To use this feature, navigate to the **Events** page from the left-hand menu, then select the **Reports** tab.



Topology map layout management

Topology map layout management gives you the ability to design map layouts so that you can predefine the default layouts for different users. You can design different network map layouts, and switch the network map layouts easily. You can also set a designed network map layout as the default map layout for everyone, or for a specific user. This means each user will see a well-organized network map when they log in for the first time.

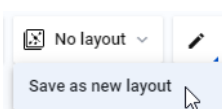
You can design integrated map layouts in all the map modes. The Topology Map layout contains the following:

- Node positions
- Background image
- Expand/collapse status of sites and stacking devices
- Zoom and panning position
- Manually added static/discovered devices

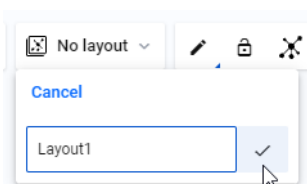
Creating a new layout

To create a new layout:

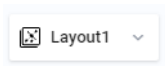
1. Click on the layout drop-down. If this is your first layout, the name will be **No layout**. Otherwise, it will be the name of the currently selected layout.



2. Enter a name for your new layout, and click on the check mark to save the layout.



3. The new layout will become the selected layout.



You can create a new layout based on an existing layout by saving the current layout with a new name. Different users can have different map layouts with the same name.

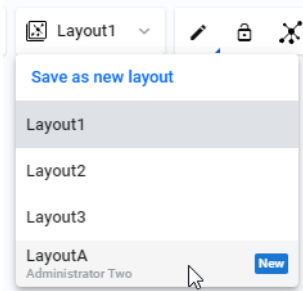
If you save your current layout with the name of an existing layout, it will overwrite it. You can only overwrite map layouts you create.

Selecting a layout

The integrated map has a drop-down list to show the current layout, and all available layouts. All the layouts created by the current user will be visible in the drop-down list. Additionally, if the current user is an administrator user, the layouts created by other administrators will also be visible in the drop-down list. If a network layout has been set as the default layout for this user or everyone, the default layout is also visible in the drop-down list. For map layouts created by other users, the author's name is displayed as part of the map name to help identify it.

To select a layout:

1. Click on the layout drop-down.
2. Select a layout from the displayed list.

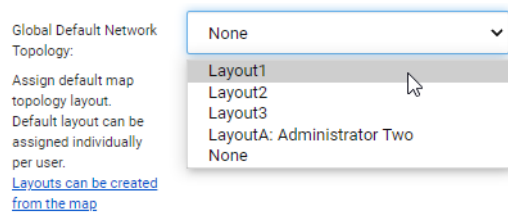


Setting the default layout

Administrators can select a map layout and set it as the global default map layout for all users.

To set the global default layout:

1. Select **User Management** from the menu.
2. Select your user, and click on the **Edit** button.
3. In the **Global Default Network Topology** section, click on the drop-down, and select the layout to be the default.

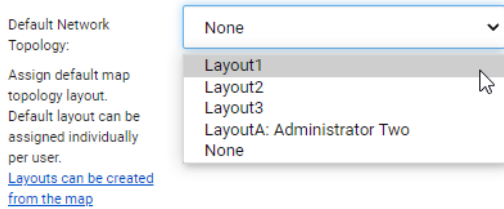


4. Click on the **Save** button.

Administrators can also select a map layout and set it as the default map layout for a specific user.

To set the default layout for a specific user:

1. Select **User Management** from the menu.
2. Select the user whose default you want to set, and click on the **Edit** button.
3. In the **Global Default Network Topology** section, click on the drop-down, and select the layout to be the default.



4. Click on the **Save** button.

When a user logs in for the first time, the default map layout will be used. The default map layout will also be included in the map layout drop-down list.

Deleting a saved layout

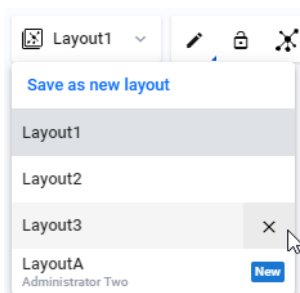
Administrators can delete any map layout. Users can only delete map layouts that they created.

If an administrator deletes a map layout that is being used as the default map layout by some Vista users, those users' default map layout will change to the global default map layout. If an administrator deletes the global default map layout, there will be no default map layout.

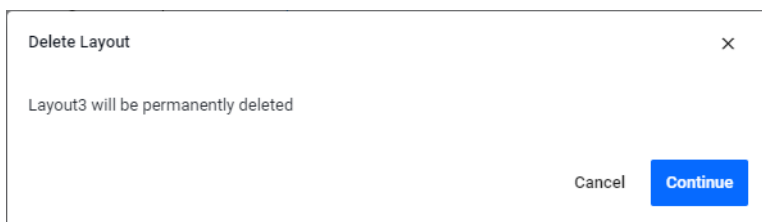
If the currently selected layout is deleted, including the default layout, the selected layout will be changed to be **No layout**, while the map will remain unchanged.

To delete a layout:

1. Click on the layout drop-down.
2. Select the layout you want to delete, and click on the X icon.



3. On the confirmation dialog, click **Continue** to delete the layout.

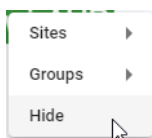


Hiding devices in the layout

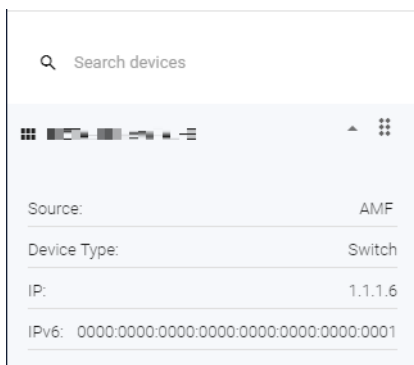
You can change which devices are visible on the network map. For example, you may only be interested in seeing servers on the network map, and can therefore hide the other devices.

To change the visibility of a device:

1. Click on **Edit** in the drop-down on the network map screen.
2. Right click on the device you want to hide.
3. Click on **Hide**.



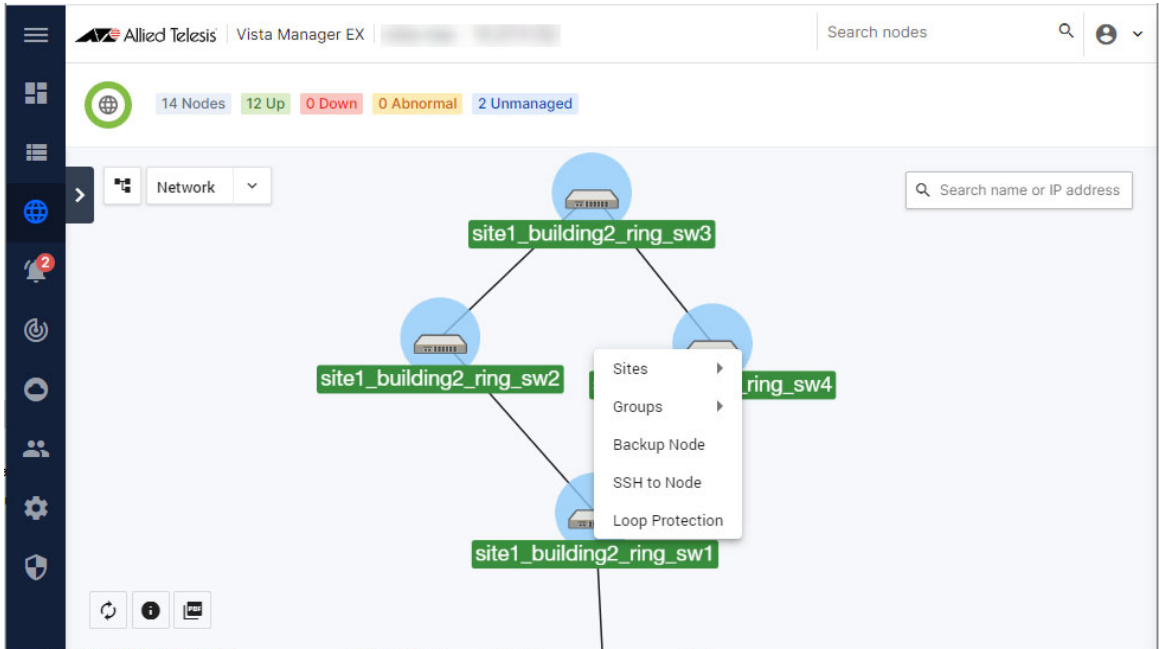
The hidden device will be added to the **Devices** list. Click the down arrow to see the details of a device in the list.



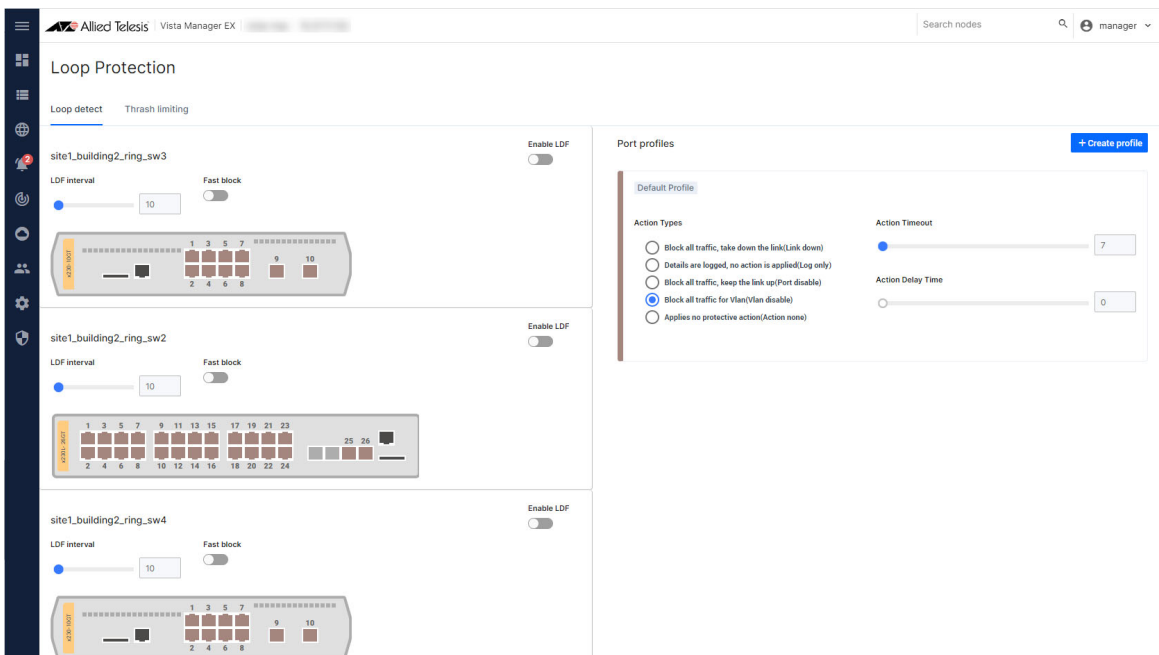
Hidden devices are specific to the layout. Users can hide devices on a per-layout basis, and they will be hidden for any user using that layout.

Loop Protection

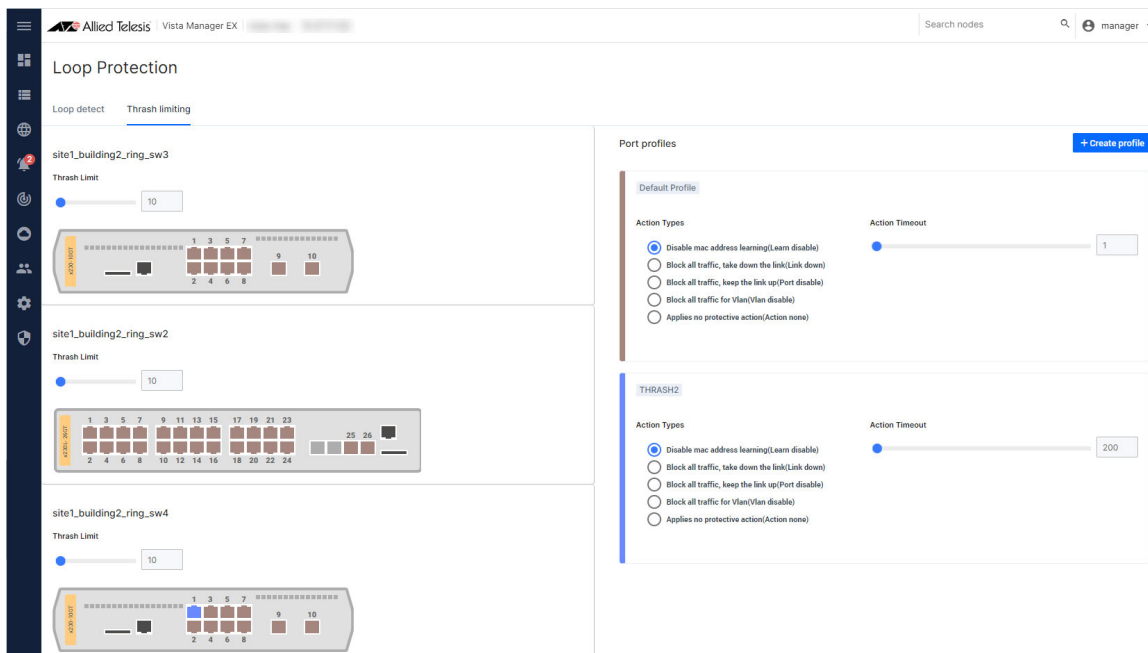
The loop protection feature helps you manage the loop protection settings of the AlliedWare Plus devices in the Vista Manager GUI. You can use Vista Manager to manage the loop detection and thrash limiting of your network. This feature is supported when devices are running firmware version AlliedWare Plus v5.5.0-0.1 or later.



Loop protection is managed from the integrated map. You can select one or multiple (up to 10) devices from the integrated map for loop protection configuration. Once you have selected the devices that you want to configure, right click on one of them and select Loop Protection from the pop-up menu.



On the Loop detect tab, you can configure loop detection for the selected devices. The Enable LDF button lets you enable or disable loop-detect frames (LDF) for each device. The LDF interval slider lets you set the loop-detect frame interval. And the Fast block button lets you enable or disable fast block.



On the Thrash limiting tab, you can configure thrash limiting for the selected devices. The Thrash Limit slider lets you set the thrash limit.

The Port profile panel lets you create and edit port profiles. By default, the settings of the Default Profile apply to all ports on the device. To create a new profile, click on the +Create profile button.

For loop detection port profiles, you can choose the action type, the action timeout, and the action delay time for the profile. For thrash limiting port profiles, you can choose the action type and action timeout. You can then assign the profile to device ports. You can select multiple ports across one or multiple devices, and apply the profile to all of them at the same time. Click on Save profile to save the changes.

Asset Management

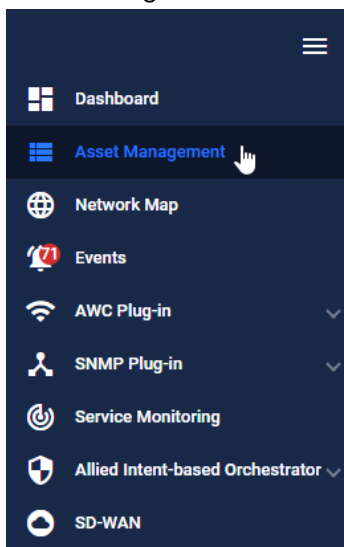
You can use the Asset Management screen to manage the assets in your network. It is made up of several components.

- Device discovery - devices on the network are discovered via AMF and plug-ins.
- Device classification - during discovery, a best effort is made to categorize what type of device has been discovered. However, this may be incorrect, so it allows you to specify what type of device has actually been discovered.
- Device management - once discovery is complete, the asset information should be available to you.

You can use Asset Management to:

- get a complete list of all assets on your network.
- display the assets on the integrated map, and select the most relevant icon for each device.
- view the license information for all Allied Ware Plus devices.
- be notified when a license is about to expire or has recently expired.
- create a group defined by either IP/MAC address range or Vendor, and assign an icon to this group.
- filter the list of assets, and print/export this list.

Asset Management can be accessed from the sidebar menu.





























The Asset Management screen shows you the details of the items in your network. It also allows you to search for particular devices.

Asset Management

[Update Device GUI](#)

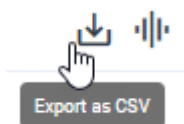
Devices (19) Groups (0) Provision (2) Firmware

Filter data All Groups Search by keyword  

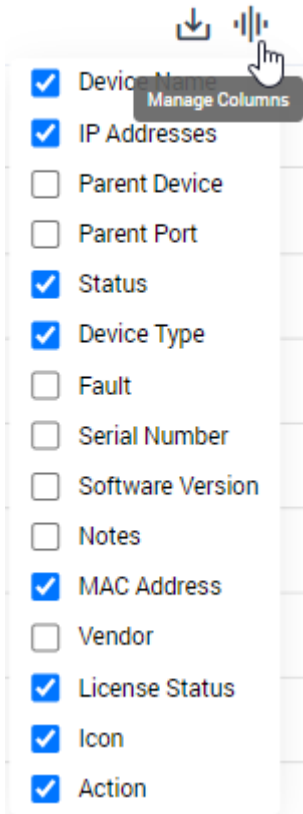
Device Name	IP Addresses	Status	Device Type	MAC Address	License Status	Icon	Action
VAA 	10.32.192.11	Normal	AT-VAA	000c.2918.f02a	Active		
TAC_SC_Wireless#2 	172.16.100.100	Normal	AT-TQ5403	001a.ebcb.25e0			
hq-server-sw	10.10.10.2	Normal	AT-x930-28GPX	eccd.6dd1.659e	Active		
hq-gw	1.1.1.1	Normal	AR4050S	0000.cd38.138e	Active		
hq-dist-sw	10.11.11.2	Normal	AT-x930-28GTX	eccd.6ddf.6d5b	Active		
hq-core-stk	10.10.10.1	Normal	AT-SBx908 GEN2	0000.cd37.0d22	Active		
hq-access-x230	169.254.42.42	Normal	x230-18GP	0000.f427.d524	Active		
hq-access-IE210L-1.0.6 	172.16.200.101	Normal	AT-TQ5403	001a.ebdd.bc00			
hq-access-IE210L-1.0.5 	172.16.200.100	Normal	AT-TQ5403	001a.ebcb.27a0			
hq-access-IE210L	10.38.2.2	Normal	IE210L-10GP	001a.eb98.1d0b	Active		

1 to 10 of 19 < < Page 1 of 2 > >

The list of assets can be downloaded as a CSV file by clicking on the Export as CSV button at the top right corner.



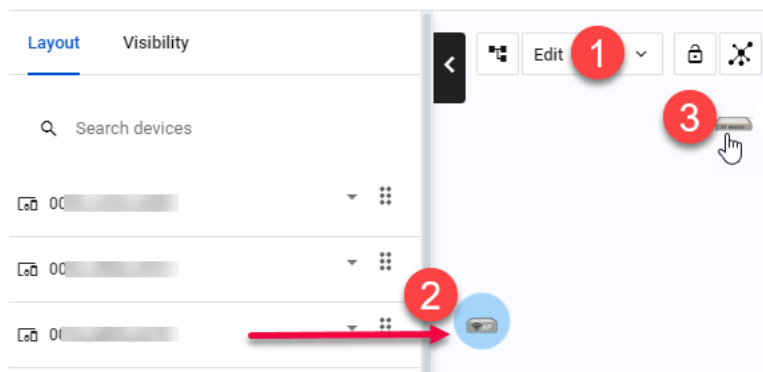
The columns that are shown can be changed by clicking on the Manage Columns button.



You can discover devices from the Asset Management screen. By clicking on Discover Devices, Vista Manager will use ARP to discover any new devices, and return a list to you. A message will appear indicating the number of new devices found.



Discover device will only discover IPv4 neighbors. Any detected devices will not automatically appear on the map, but will require you to add them manually once they have been discovered. The detected devices will not provide link information, but you can manually add the devices or links between devices. (1) On Edit mode on the map, (2) select and drag a device from the side panel to the map. (3) Click on a second device, and a link will automatically be drawn between the devices.



To remove a link, right-click on the link and click Remove.



Detected devices that fall into a user defined inventory group will inherit the assigned custom icon.

You can add a new device by clicking on the + Add Device button.

You will be prompted to name the device, as well as specify the MAC address and IP address. You can also select an icon to represent the device.

Create Device

Name

MAC Address

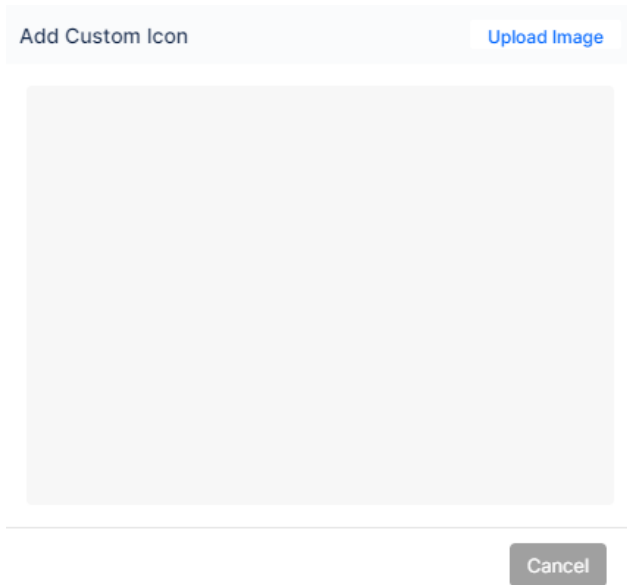
IP Address

Select Custom Icons

+

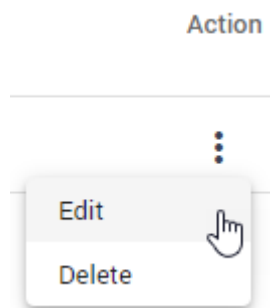
Cancel **Save**

If you click on the Plus button, you can choose to upload a custom icon for the device. The custom icon dialog supports SVG, JPG, and PNG image files. Only administrators have the permission to upload and change custom icons.



Note: AMF device cannot have their default icon changed.

You can also edit existing devices, change their properties, and assign them a different icon. Devices can also be deleted from Asset Management. To edit or delete a device, click on the appropriate menu item in the Action column.



Asset Management also allows you to create groups to organize your inventory. To create a group, click on the Groups tab, and then click on the Add Group button.



You will be prompted to name the group. You can also specify which devices will be added to the group. You can specify a MAC address range, an IP address range, a vendor, or a combination of these. You can also select an icon to represent the group.

Add Group

Name

IP Range Start:

IP Range End:

Vendor

Add MAC Address

Device Family

Device Search

Static Devices

Select Custom Icons

Once the group has been created, you can use it to view the details of the members of that group, as well as export that information to CSV. New devices that are discovered and meet the group's criteria will automatically be added to the group.

Asset Management

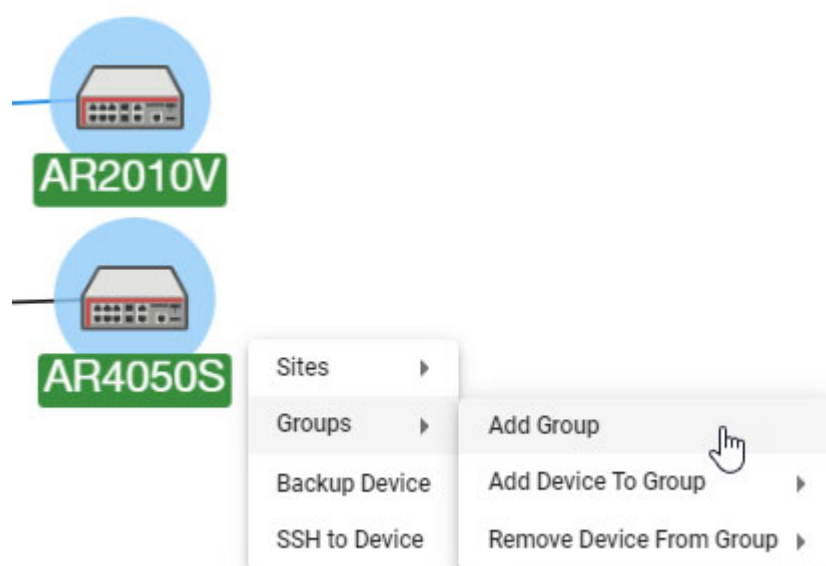
Devices (19) **Groups (2)** Provision (0) Firmware

Group Name	Devices Total	MAC Addresses	IP Range	Vendor	Device Family	Static Devices	Dynamic Devices	Custom Icon	Action
Group1	2 Devices					2 Devices	0 Devices		
Group2	2 Devices				Router	0 Devices	2 Devices		

As an admin user, you may choose to manually assign devices to a group when creating or editing a group in the Groups tab.

1. Navigate to the Asset Management page.
2. Click on the Groups tab, then click on **Add Group**.
3. The Add Group form will appear on the right hand side of the screen.
4. Click on the Device Search input box.
5. Type the first three characters of a device name into the input box.
6. A list of devices with matching names will be displayed below.
7. Either click **Add all** to add all matching devices or click on a specific device to assign it to the group.
8. Manually assigned devices will be visible below the input box.

Alternatively, you can also create a group from selected devices on the Network Map page. From the map itself, you may add/remove manually assigned devices to/from a group.



Automatic allocation of static icons via MAC address list

Multiple MAC addresses can be added to a group, providing you the ability to create a group by uploading a file containing a list of MAC addresses. Vista Manager EX then extracts the MAC addresses from the uploaded file and registers them with the group.

You may select a custom icon for the group. Devices that match the MAC addresses of the group will automatically use the customized icon as their device icon.

Take note of the following file specifications:

- Supported file formats are **.txt** and **.csv**.
- Commas, spaces, and new lines can be used to separate the MAC addresses.
- Supported MAC address formats are:
 - 000000000000
 - 0000.0000.0000
 - 0000:0000:0000
 - 0000-0000-0000
 - 00:00:00:00:00:00
 - 00-00-00-00-00-00
 - wildcard with asterisk (*)
- Any unrecognisable MAC address formats will be ignored, no errors will show to indicate this.
- While there is no limitation to the file size, the recommended number of MAC addresses should not exceed 10,000.

Managing sites and devices

Vista Manager enables you to easily back up devices, restore the network from back up, reboot devices, and manage devices by using SSH to access their command line.

Backup a device

Select the device that you want to back up:

x610-link-sw

[Reboot Device](#) [Backup Device](#) [SSH to Device](#)

Basic Information

Status	Normal
IP Addresses	
MAC Address	
Type	Switch
Model	x610-48Ts-POE+
Serial	---
Vendors	Allied Telesis Inc.

AMF Information

Area	area1
Role	Member
Last Backup	Dec 21, 2020

Click on the **Backup Device** button.

An information message is displayed showing that the backup has occurred:



SSH/Shell to a device

From Vista Manager EX you can open a Secure Shell connection to a device. From this session you can connect to the device and issue CLI commands as if you were directly logged into the device itself.

Select the device that you want to connect to:

x610-link-sw

[Reboot Device](#) [Backup Device](#) [SSH to Device](#)

Basic Information

Status	Normal
IP Addresses	
MAC Address	
Type	Switch
Model	x610-48Ts-POE+
Serial	---
Vendors	Allied Telesis Inc.

AMF Information

Area	area1
Role	Member
Last Backup	Dec 21, 2020

Click the **SSH to Device** button to start a CLI session.

The following window is displayed:

```
AlliedWare Plus (TM) 5.4.6 12/12/16 11:38:39
=====
master:
=====
Working set join
master#
```

From this session you can carry out any CLI commands as if you were directly logged on to the device.

Reboot a device

Select the device that you want to reboot (in this case from the Network Map pop up window):

x610-link-sw

Reboot Device Backup Device SSH to Device

Basic Information

Status	Normal
IP Addresses	
MAC Address	
Type	Switch
Model	x610-48Ts-POE+
Serial	---
Vendors	Allied Telesis Inc.

AMF Information

Area	area1
Role	Member
Last Backup	Jan 8, 2021

Click the **Reboot Device** button.

Reboot Devices

Are you sure you want to reboot this device?

Cancel Reboot

Check that you have the correct device selected and click the **Reboot** button if you are sure that you want to reboot the device.

An information message is displayed showing that the selected device has rebooted:

07-x908 rebooted

If the reboot fails, you will see an error message as follows:

Error
06-ar2050 reboot failed

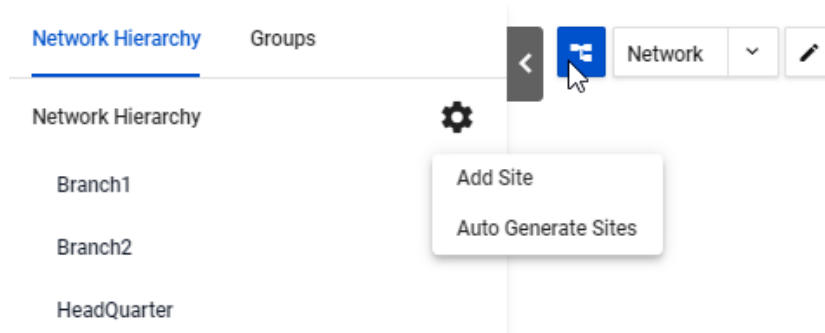
Intelligent device grouping

By selecting a Network Hierarchy preference, you can organize your network easily. When a new device is added into the network, it can be automatically assigned to a site based on its hostname. Intelligent device grouping comes with a range of functionalities:

- initiate a request to automatically generate the Network Hierarchy sites at any time
- select the strategy of the automatic generation, based on the hostname of the devices
- preview auto-generated sites showing up to 5 auto-assigned devices before finalizing changes
- rename or remove auto-generated sites during the preview
- reorganize existing sites after finalizing auto-generated sites

Note: Removing a site only stops the automatic assignment, it does not remove the site from Vista Manager EX.

To use this feature, navigate to the **Network Map** page. Click on the **Network Hierarchy** icon at the top left of the map screen to display the side panel list of sites. Click on the cogwheel and select **Auto Generate Sites**.



From the drop-down, select a separator format for the hostname to match on, such as a dash, underscore, or full stop. Click **Next** to preview sites.

Auto Generate Sites

Sites are auto generated by hostname. For best results use a shared naming convention across all devices.

Site permissions are not assigned during auto generation

Re-organize existing sites and devices
This will cause devices already assigned sites to be re-organized.

Depth separator format

- Dash: Location-Building-Floor-Host
- Underscore: Location_Building_Floor_Host
- Full stop: Location.Building.Floor.Host

Cancel **Next**

In the preview, you may rename or remove sites. Click **Apply** to finalize changes.

Preview Sites

- ▶ VAA
- ▶ x230
- ▶ x510
- ▶ x930
- ▼ x610
 - ▶ link
- ▼ TQ5403
 - ▶ SC

Back **Apply**

All devices will be automatically grouped into an appropriate Network Hierarchy group. You can manually collapse other devices on the integrated map, which allows you to focus only on the high-level networks.

Take note of the following limitations:

- The automatic generation of sites supports up to 3 levels of network.
- The automatic generation of sites overwrites existing Network Hierarchy sites if they have the same name.
- When the sites are overwritten, the devices belonging to the original site will be unconditionally moved to the new auto-generated site.
- If the overwritten site is also an auto-generated one, it loses its auto-assignment functionality and gets overwritten by the new, auto-generated one.
- If a site has a duplicate name with an existing one in the preview stage, a confirmation dialog pops up, indicating the site will be overwritten.
- New devices will not be positioned near others in a site when they join a network and match the automatic assignment criteria.
- Renaming or removing auto-generated sites stops the automatic assignment.

Enhanced information display for stacked devices

By viewing detailed information of stacked devices in your network, you can monitor their current state easily. This lets you carry out further configuration when required.

The screenshot displays the Allied Telesis Vista Manager EX interface. On the left, a sidebar contains navigation icons. The main content area shows the 'my510Stack' configuration page. At the top, it indicates '23 Devices' with '20 Up' and '3 Unmanaged'. Below this, there are buttons for 'Reboot', 'Backup', and 'SSH'. A 'Device' tab is selected, and a 'Stack' tab is highlighted with a red circle '4'. The 'Stack Information' section lists various settings: Stack Master ID (1), Stack MAC Address, Virtual MAC (Enabled), Disabled Master Monitoring (Enabled), Resiliency Link (vlan1000), Management Subnet, and Management VLAN (4085). A red circle '5' is placed over the 'Stack Members (4)' section, which includes a 'View Detail' link. Below this is a table of stack members:

ID	Device Type	Status
1	SM x510L-52GP	Ready
2	x510-52GPX	Ready
3	x510L-28GT	Ready

On the right, a network map shows a vertical stack of four devices labeled 1, 2, 3, and 4. A red circle '1' is over the 'Network' dropdown menu. A red circle '2' is over a '+' icon on device 1. A red circle '3' is over the stack itself. A red circle '4' is over a warning icon on device 1. A red circle '5' is over the 'View Detail' link in the table.

1. Navigate to the **network layer** of the integrated map.
2. Hover over a stack to see the '+' symbol. Click on '+' to expand it. This lets you view all stack members and associated stacking links. If a stack is fully-formed, you will also see an outer link completing the stacking loop.



3. Click on the stack in the map (blue highlighted area) to see its information.

4. The side panel pops out. The Stack tab will display some basic stack-wide information such as:
 - a list of stack members
 - current status of each stack member
 - which stack member is the master
5. Click **View Detail** to see detailed information about the stack. This opens up the device details page showing:
 - **Stack Information:** Stack Master ID, stack MAC Address, virtual MAC, disabled master monitoring, resiliency link, management subnet, management VLAN
 - **Stack Members:** Stack ID, status, role, priority, MAC address, product type, revision, serial number, resiliency links, state, stack ports

The screenshot shows the 'my510Stack' management interface. At the top, there are navigation tabs: 'Device Info', 'Stack' (selected), 'Notes', 'Guest Devices', 'Configs', 'Licenses', and 'File System'. On the right, there are buttons for 'SSH to Device', 'Backup Device', and 'Reboot Device'.

The main content area is divided into three columns:

- Stack Information:** A table listing various stack-wide parameters:

Stack Master ID	2
Stack MAC Address	[Redacted]
Virtual MAC	Enabled
Disabled Master Monitoring	Enabled
Resiliency Link	vlan1000
Management Subnet	[Redacted]
Management VLAN	4085
- Stack Members:** A list of stack members:

1	Backup Member
2 SM	Active Master
3	Backup Member
4	Backup Member
- Device Details (Member 1):** A detailed view of the selected member:

Status	Ready
Role	Backup Member
Priority	1
MAC Address	[Redacted]
Model	x510L-52GP
Board Revision	B-0
Serial Number	[Redacted]
Resiliency Link Up	Yes
Resiliency Link State	Successfully receiving health checks from the Active Master.
Stack Ports	
port1.0.51	
Neighbor ID	2
Port State	The neighboring device has joined the stack.

When a stack is expanded:

- All stack members and associated stacking links will be displayed.
- Click on each link to see which device type and interface is on each end of the link.
- The stack master has an 'SM' badge indicating that it is the stack master.
- When a stack master leaves the stack, the stack master badge will update to show next to the new stack master.
- Each stack member will have an icon showing its stack member ID.
- If a stack member goes down, its position will move to the bottom of the stack to indicate its current down status.
- An event bell icon indicating any network events will still be displayed on the stack master.
- The stack remains expanded when you leave and navigate back to the map later.

There are some limitations to this feature:

- If a stack member goes down, the hostname/member ID will stay green and not change to red.
- Individual stack members cannot be moved.

This feature requires AlliedWare Plus version 5.4.7-2.1 or later.

AMF device licenses

You can add and examine licenses on an AMF device from the **Licenses** tab.



The **Enter Licenses** button allows you to add a license by copy-and-pasting the license enable command. The **Upload License** button allows you to select either a system license certificate (.csv) file or a flexera license capability response (.bin) file.

Click on a license bar to display a pop-up with additional information about that license.

Disable license expiry notifications

By default, all license expiry notifications are set to enabled. As an administrator, you will have the option to disable them.



Click on a license bar that you wish to disable notifications for. A side panel will appear.

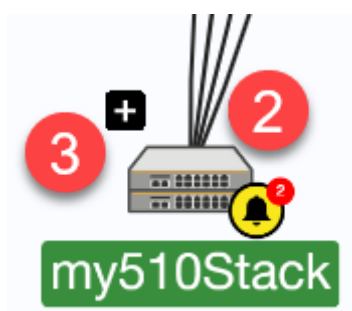
Turn off the **Expiry Notifications** settings. A success message will pop up at the bottom of the side panel. A crossed-out bell now appears on the license bar.

Note: This feature applies to non-permanent licenses only.

Active Fiber Monitoring (AFM) display

With enhanced information display possible for stacked devices, support has been added to display Active Fiber Monitoring (AFM). You will be able to see links between members and fiber tamper alarms (red bell icons) when a link has been tampered with. As an administrator, you can use this information to check on the physical links, dismiss the fiber tamper alarms and/or change AFM settings on specific links.

1. Navigate to the **network layer** of the integrated map.
2. Identify a stack with an event bell icon. This means there has been an event on the stack, for example, tampered links.



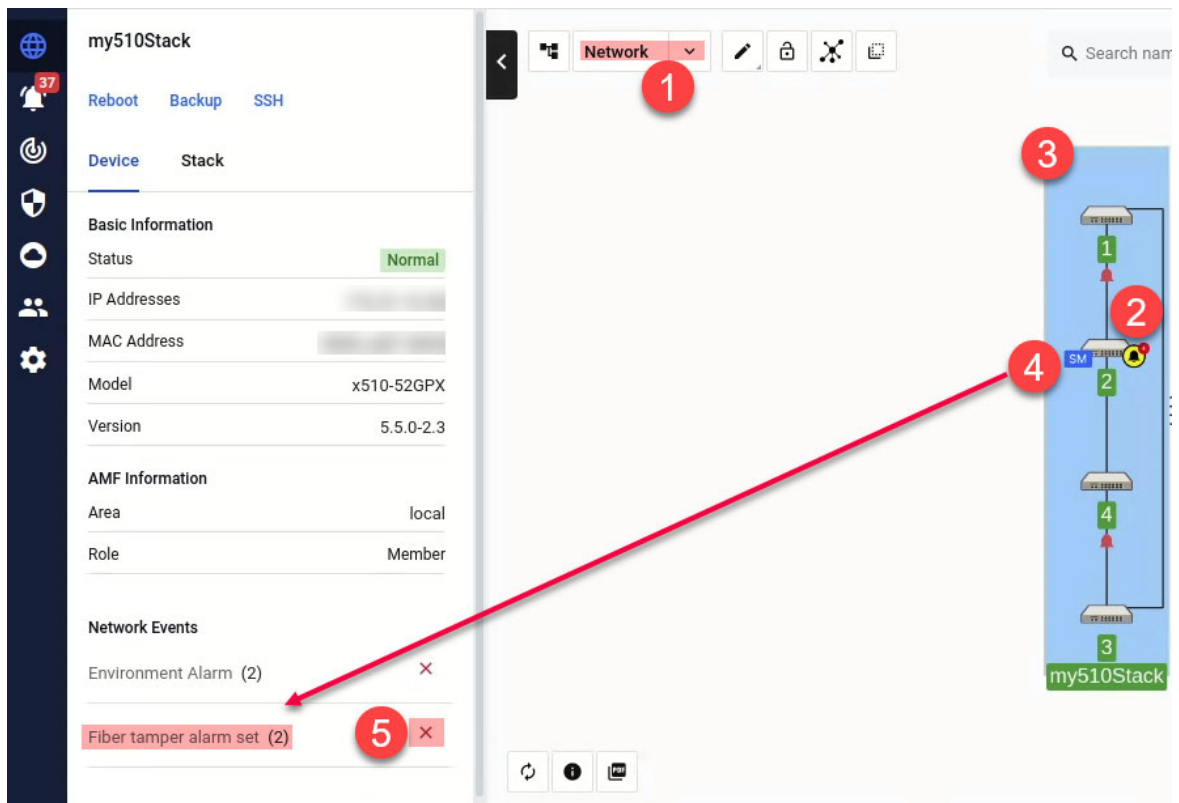
3. Hover over a stack to see the '+' symbol. Click on '+' to expand it. You will see the stack master showing the event bell icon, and fiber tamper alarms on stacking links (red bell icons) that have

been tampered with.



4. Click on the stack (blue highlighted area) to enable the side panel. Fiber tamper alarms are shown at the bottom of the side panel, under Network Events.

Note: Fiber tamper alarms will remain until you have dismissed them. This then removes the red bell icon and reduces the event bell count on the device stack.



5. You can dismiss a fiber tamper alarm in 3 ways:

- Click on the stack, like in Step 4. Dismiss the **Fiber tamper alarm set** event under **Network Events** on the side panel.
- Click on the red bell icon. Dismiss the **Fiber tamper alarm set** event under **Network Events** on the side panel.
- Dismiss either the stack event or stack member event in the **Event Log**.

6. To change settings for AFM:

- a. With the stack still expanded, click on a link inside the stack that you wish to disable AFM for. This highlights the link.
- b. On the side panel, click on the AFM settings icon to disable AFM.
- c. Disable AFM.

1 ↔ 2

Active Fiber Monitoring
Enabled

1
Device Type
Interface Stackportneighbor2

2
Device Type
Interface Stackportneighbor1

← Active Fiber Monitoring

Once enabled these settings will override any existing device settings. Vista will not display the current settings from the device.

Debug Disabled

Sensitivity medium

Note: Only links inside a Virtual Chassis Stack are supported for viewing and editing AFM settings in Vista Manager EX.

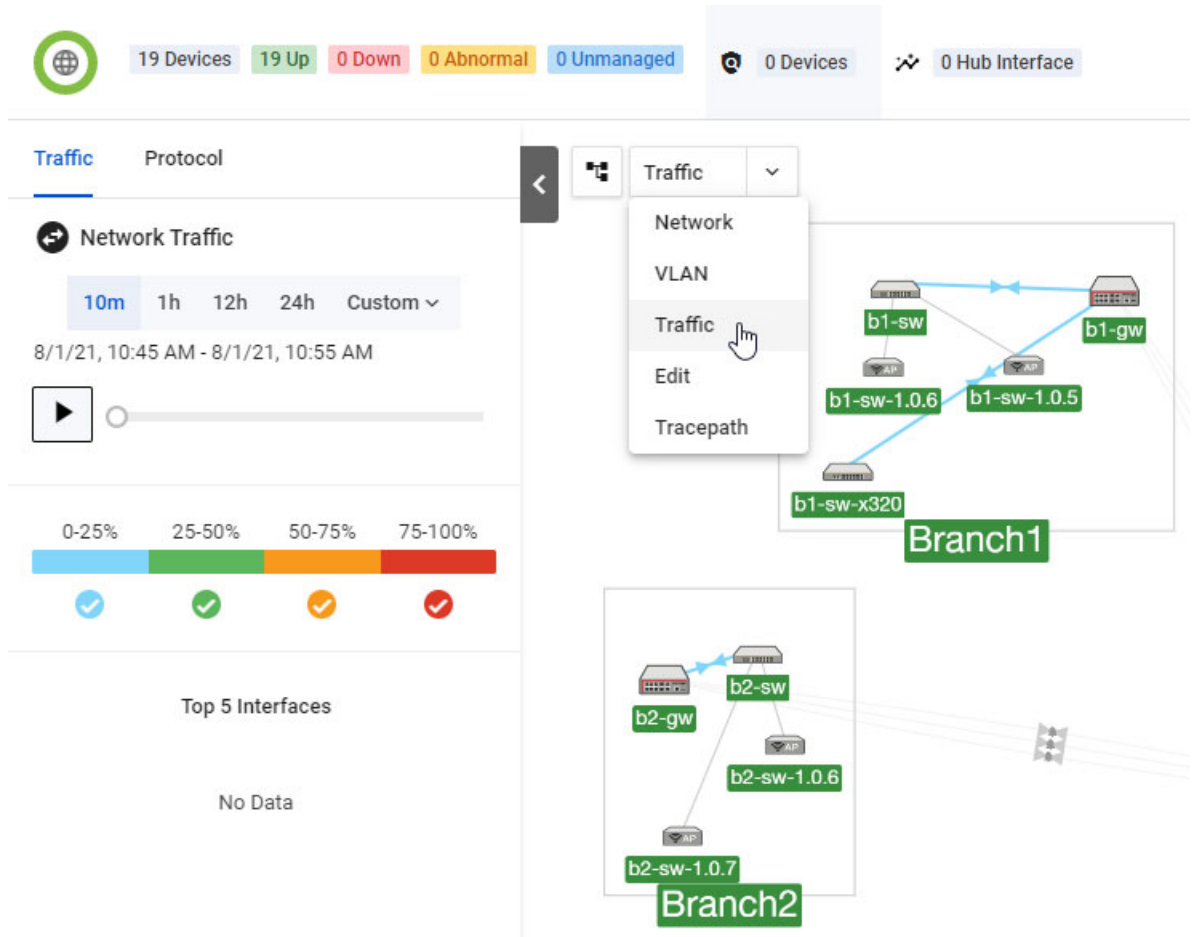
Note: If AFM has already been enabled from the CLI, the AFM settings icon will not be visible on the side panel of Vista Manager EX.

This feature requires AlliedWare Plus version 5.5.0-0.3 or later.

Detecting tampered link events requires AlliedWare Plus version 5.4.8-1 or later.

Traffic monitoring

Vista Manager's color-coded traffic monitoring map provides a visual status of network utilization, across all links in both directions. It is constantly updated to keep the latest traffic pattern information readily available.



Colors and line thickness highlight link utilization and available bandwidth, allowing for instant performance monitoring. It also allows you to change which information is displayed, so that you can focus on your network priorities.

It also enables you to improve your network planning by analyzing data traffic from any chosen time over the last week. In addition, you can monitor any link by clicking to show bi-directional traffic on all aggregated ports over the last 24 hours.

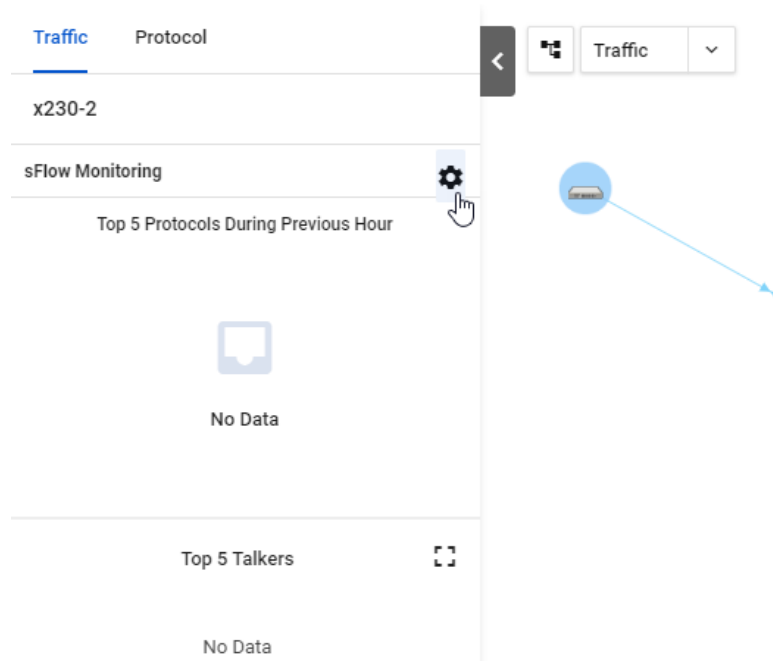
For additional information and to see how to use the traffic monitoring functionality, refer to the Traffic Monitoring video on the [Allied Telesis website](#).

Advanced traffic monitoring with sFlow

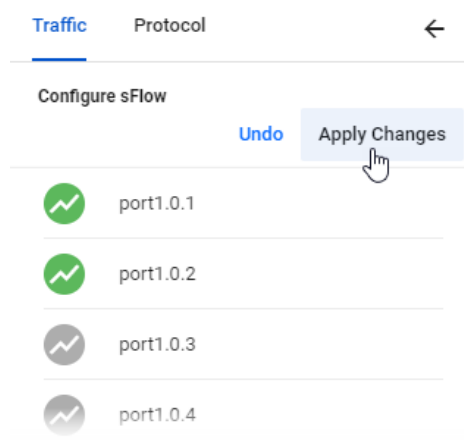
Vista Manager allows you to monitor traffic in your network using sFlow (sampled flow). After configuring sFlow on your network devices, you can use advanced traffic monitoring to view information about network traffic, protocols, and applications.

Advanced traffic monitoring can be accessed from the network map menu. Click on the dropdown, then select Traffic. This opens the Traffic sidebar. Advanced Traffic Monitoring will appear at the bottom of the sidebar. When you first open it, there will be no data, since you will not have configured any devices for sFlow.

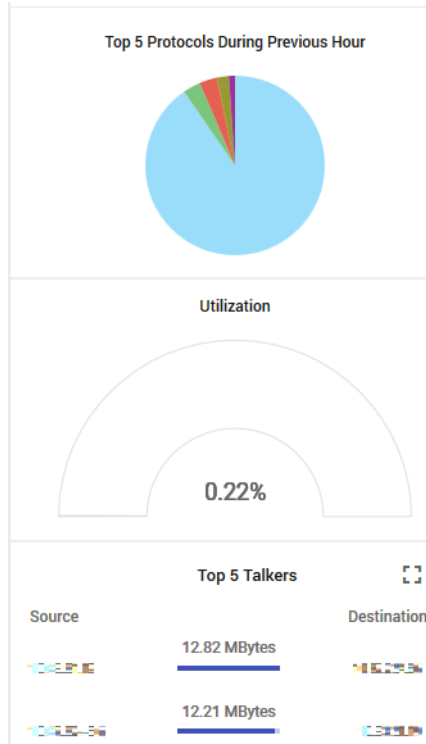
Select a device from your network map, and click on the cogwheel to configure it.



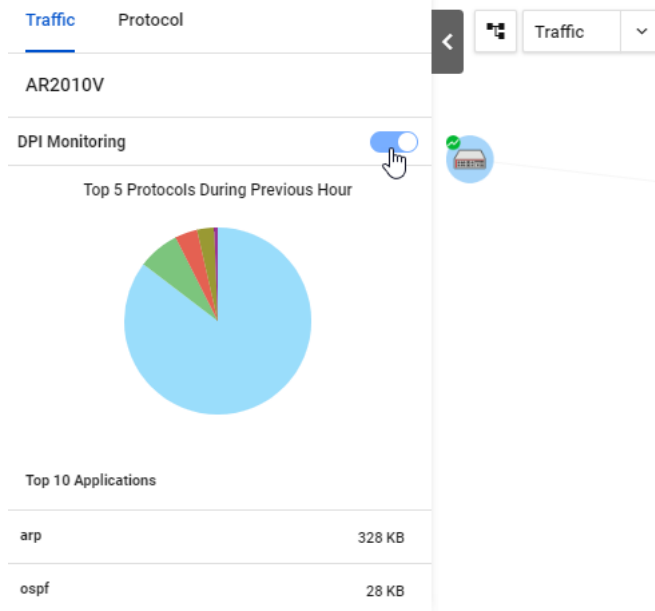
The side panel will show a list of the ports on the device. Click on a port to enable (green) or disable (grey) sFlow on the port. Click Apply Changes to save.



The side panel will then show monitoring output from the selected switch, including the protocols, utilizations, and talkers.

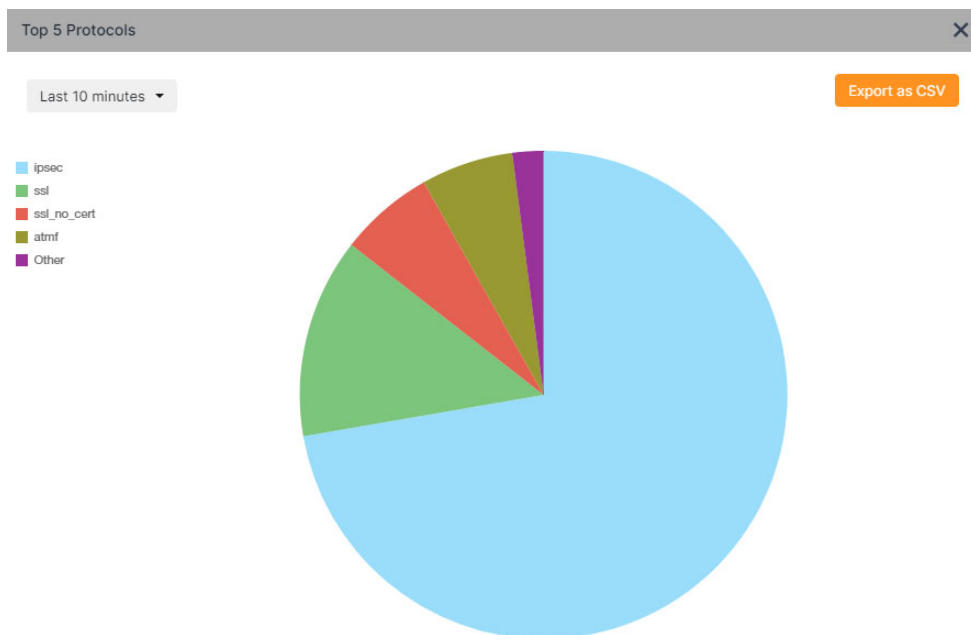


Routers do not support sFlow. However, by enabling DPI on a router, some traffic monitoring can be carried out. Click DPI Monitoring to enable it.

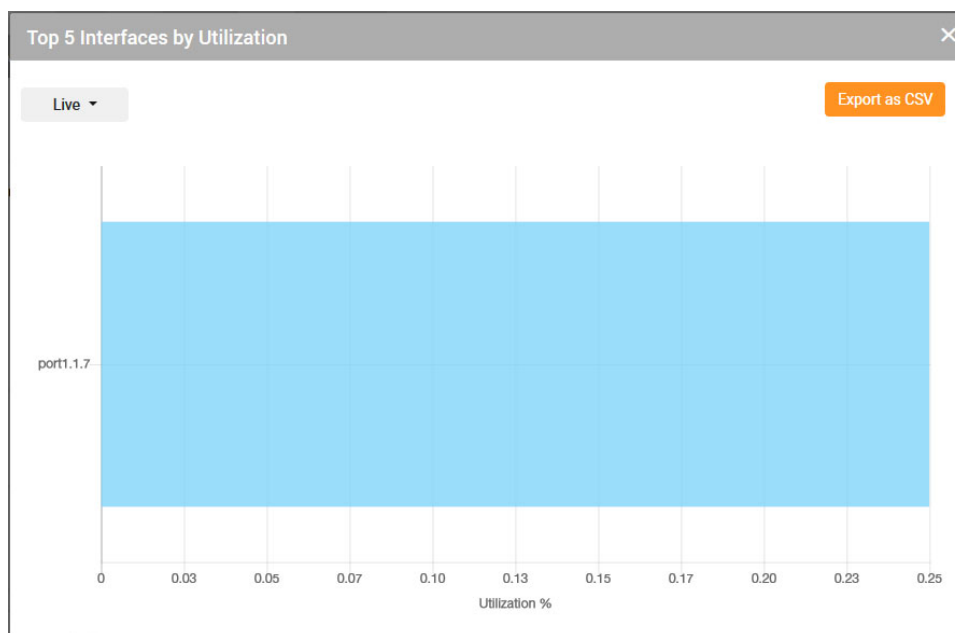


The side panel will show the protocols being used by the router. You can click on the items in the side panel to open the associated widget.

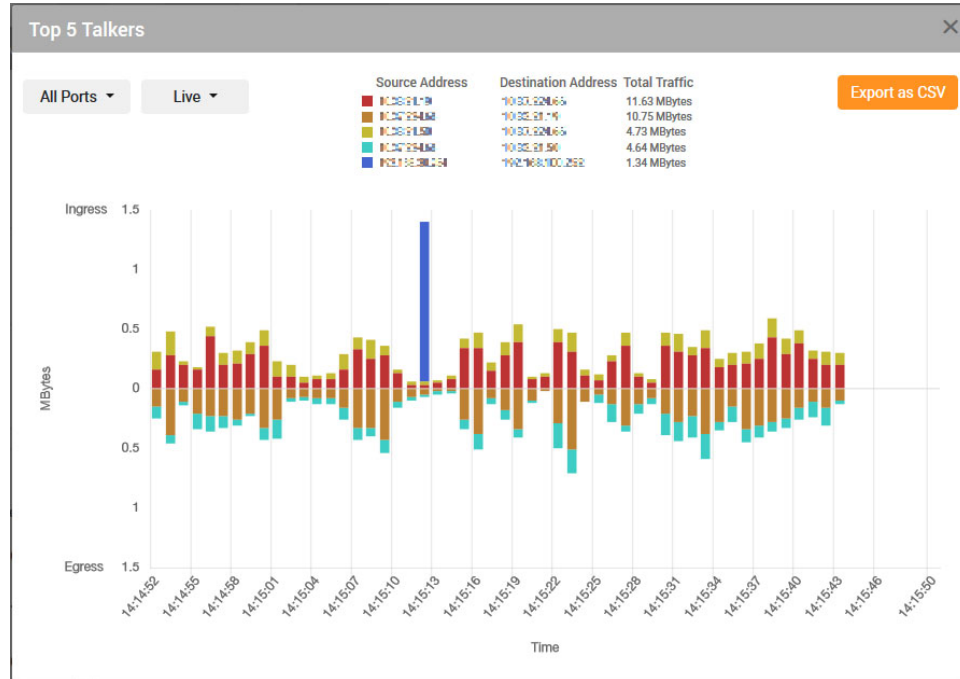
Top 5 Protocols:



Top 5 Interfaces by Utilization:



Top 5 Talkers:



Information from the widgets can also be exported to a CSV file. To do so, click on the Export as CSV button in the top right corner.

Note: Configuring devices for sFlow using Vista Manager requires the device to be running Alliedware Plus version 5.4.8-2 or later. Devices running older releases are still compatible with this feature; however, the sFlow configuration will have to be done manually through the CLI.

Sample sFlow CLI configuration:

```
sflow agent ip 172.31.1.245
sflow collector ip 192.168.1.1
sflow enable
!
interface port1.1.1
sflow sampling-rate 8192
sflow polling-interval 60
```

Vista Manager uses the sFlow agent IP address to match the data received with the correct AMF device. The agent IP address must be the same as the AMF Management IP address. The IP address can be found using the **show atmf detail** command.

AlliedWare Plus configuration can support multiple collectors. However, only the first collector will allow Vista Manager sFlow to connect to the device correctly. If there are multiple collectors, please ensure that the first collector is the IP address of Vista Manager. For example, the following sFlow configuration is correct if Vista Manager is using the IP of 10.33.25.48:

```
sflow agent ip 172.31.1.102
sflow collector id 1 ip 10.33.25.48
sflow collector id 2 ip 10.36.150.103
sflow collector id 3 ip 10.33.25.92
sflow enable
```

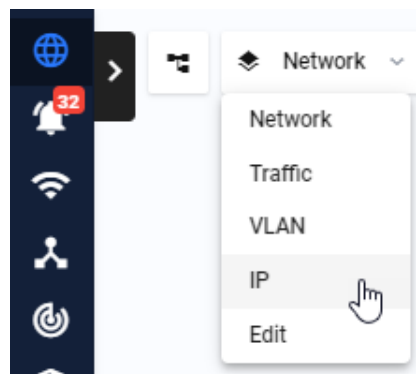
IP map layer: Tracepath and Walk Path

From the IP map layer, you can access both the tracepath and walk path features.

Tracepath allows you to determine where traffic is flowing. You can click on two devices in the Vista Manager network map, the source and destination. Vista Manager will display the path between them and show RTT (round trip time) information.

Walk path lets you determine if there are any configured routing paths from one device to a destination IP within the network known to Vista Manager. This is usually performed for installation or diagnostic purposes.

To first access the IP map layer, open the network map in Vista Manager. Click on the dropdown and select **IP**.



To use tracepath or walkpath, navigate to the relevant tabs on the side panel.

You can manually enter the source and destination from the list on the left, or click on the devices on the map to select them.

IP

Tracepath Walk Path

hq-core-stk

hq-server-sw

1 hq-core-stk

8.18ms hq-server-sw

The diagram shows a vertical connection between two nodes: 'hq-core-stk' at the top and 'hq-server-sw' at the bottom. A green line connects them, with a blue box indicating a latency of '#1 8.18ms'.

IP

Tracepath **Walk Path**

Source *
hq-server-sw

Destination *
hq-gw | 1.1.1.1

1 hq-server-sw

Via 0.0.0.0/0 hq-core-stk
10.10.10.1

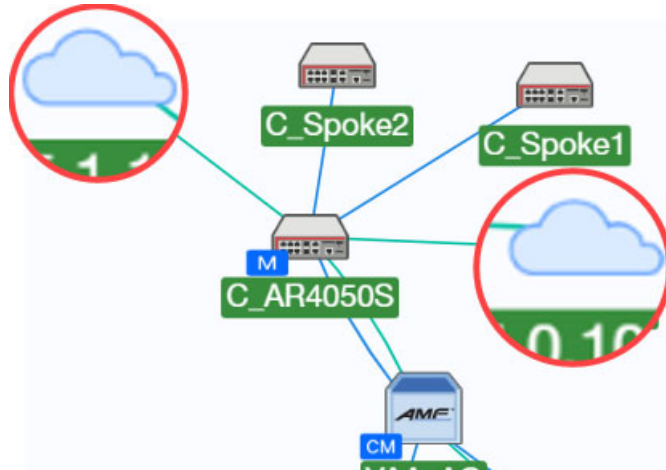
Via 0.0.0.0/0 hq-gw
10.50.50.1

Details

The diagram shows a vertical path of three nodes: 'hq-core-stk' at the top, 'hq-server-sw' in the middle, and 'hq-gw' at the bottom. A green line connects them. A blue box between hq-core-stk and hq-server-sw indicates '#1 Via 0.0.0.0/0'. Another blue box between hq-server-sw and hq-gw indicates 'Via 0.0.0.0/0'. The interface also shows source and destination fields and a list of hops with their respective IP addresses.

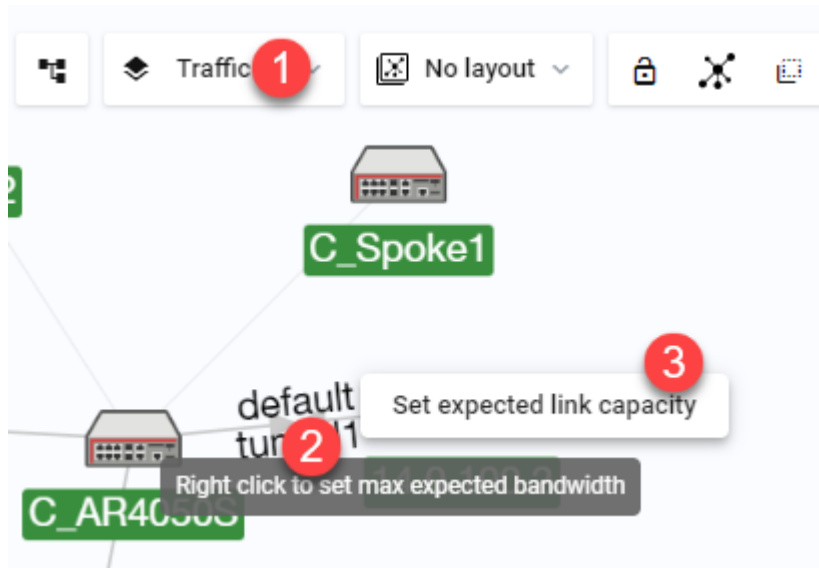
Detecting non-AMF devices: Improved WAN visibility

The integrated map can detect non-AMF devices that have an AlliedWare Plus device connected to them by a tunnel. The non-AMF device is represented as a cloud icon. The hostname is the IP address of the tunnel destination.



After manually adding non-AMF devices, you can also monitor its link utilization and see related information.

1. Navigate to the **Traffic map** mode.
2. Right-click on a tunnel link you want to monitor.
3. Set the expected link capacity.
4. Enter the maximum bandwidth in Mbits/sec.
5. Click on the **Save** button.
6. Click on the tunnel link to view its link utilization information.
7. The side panel pops out showing the link utilization and its related information.



Set expected link capacity

default ↔ tunnel1

i The Mbits/sec value entered will affect the visual appearance of a link in the map
Link width represents bandwidth capacity

Expected Capacity (Mbits/sec)

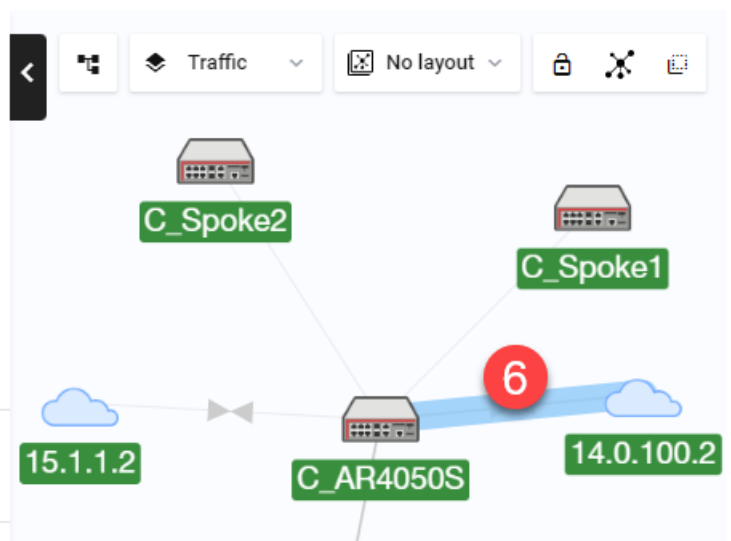
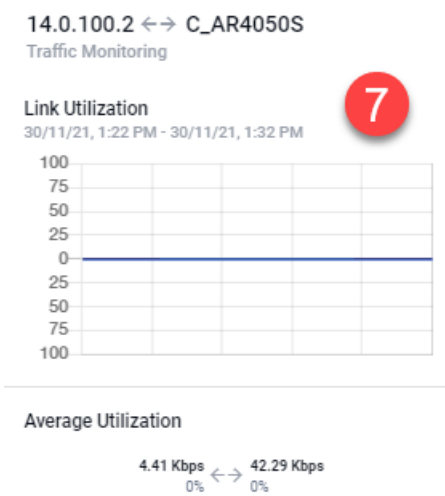
14.0.100.2 → C_AR4050S

C_AR4050S → 14.0.100.2

1000

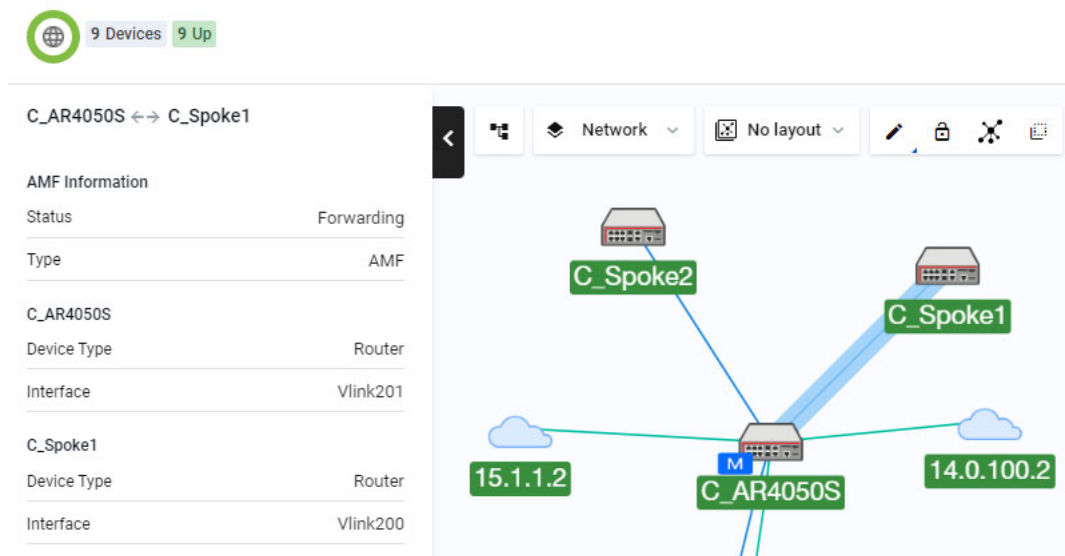
1000

Cancel **Save**

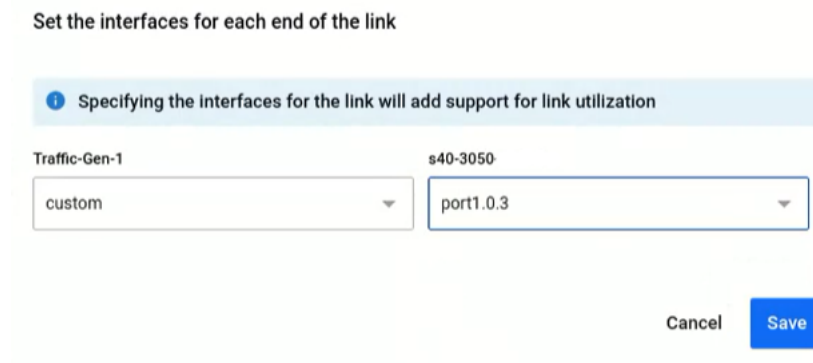


There are multiple functionalities to this feature:

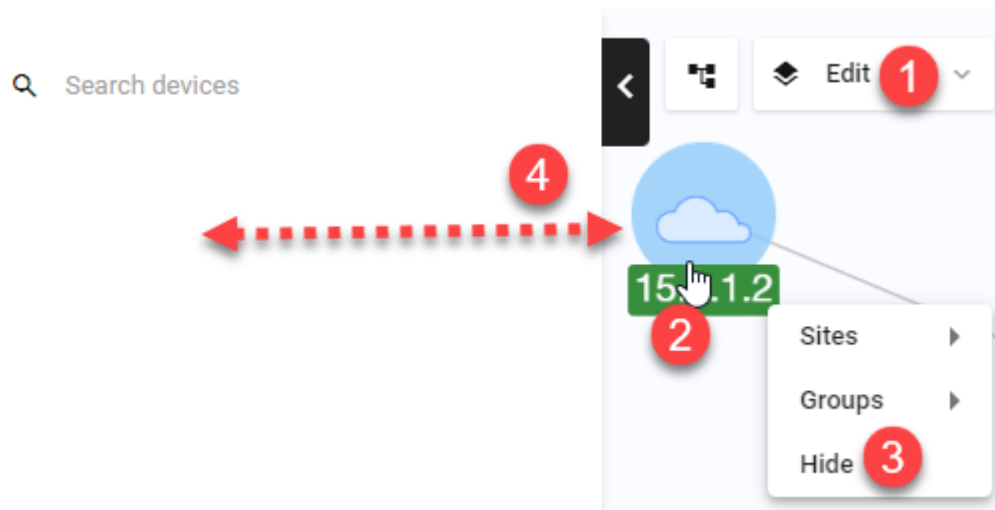
- automatically detect supported tunnels between an AlliedWare Plus device and a remote device that is not part of the network
- automatically create custom devices represented by cloud icons on the remote end of the tunnel and add them to the map
- automatically update map if there are any changes to an existing tunnel or when a new tunnel is configured
- detect IPv4 PPPoE configuration and display these links and devices on the map similar to the tunnels
- display read-only information about the tunnel on the map side panel



- configure interfaces and bandwidth on a custom link so that the link utilization data is available



- display link utilization statistics for tunnels on the traffic map
- hide/display non-AMF (remote) devices and their associated WAN tunnels via the Edit layer of the map



- enhance custom links to allow you to specify the associated interfaces of the link

There are some limitations to take note of:

- This feature is unable to detect the up/down status of a remote device.
- If two WAN tunnels are connecting to the same device, two cloud icons will show instead of one. Vista Manager is unable to discover if two IPs are on the same device.
- Removing or configuring interfaces on automatically discovered tunnels are not possible. You can only hide a remote device and its associated links.
- Link utilization data of a port connected to a server is not supported unless the connection is via a tunnel. Manually adding a remote device and a custom link, and specifying the associated interface will display its link utilization data.

VLAN management

The color-coded Vista Manager VLAN Map lets you manage VLANs across multiple devices, including support for aggregators and stacking. Using the VLAN configuration tool, you can:

- create new VLANs
- destroy existing VLANs
- configure VLAN Names, VLAN Types, and VLAN IDs
- add ports to VLANs
- delete ports from VLANs
- set VLAN ports as tagged or untagged
- save the configuration

The interface displays a list of VLANs on the left and a network diagram on the right. The VLAN list includes:

VLAN ID	VLAN Name
VLAN 10	VLAN0010
VLAN 11	VLAN0011
VLAN 12	VLAN0012
VLAN 20	VLAN0020
VLAN 100	VLAN0100
VLAN 101	VLAN0101
VLAN 102	VLAN0102

The network diagram shows a central 'HeadQuarter' connected to two branches, 'Branch 1' and 'Branch 2'. A context menu is open over the diagram, showing options: Network, VLAN (highlighted), Traffic, Edit, and Tracepath.

The VLAN map shows all your VLANs at a glance, across the whole network. You can narrow the focus to individual VLANs to show application deployment.

Creating new VLANs across multiple switches can be done quickly using the simple point-and-click interface. You can also edit any VLAN, at any time, to support new users and changes in business requirements.

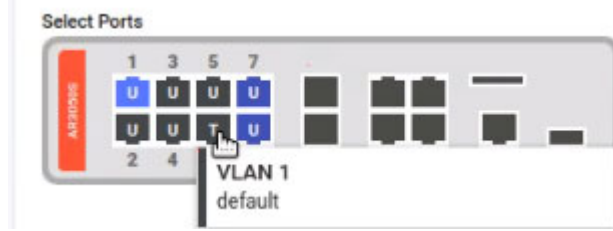
Note that from version 3.5.0 onwards, EPSR ports are disabled on the VLAN editing page. You can easily identify EPSR ports when editing VLANs, and avoid misconfigurations.

To see how to use the VLAN management functionality, refer to the VLAN Management video on the [Allied Telesis website](#).

VLAN 1 port reconfiguration

If a port is assigned to VLAN 1 in Access mode, a different VLAN can be reassigned without first having to remove VLAN 1. The VLAN 1 states of ports are no longer hidden. They are treated the same as all other VLANs. Every port will have a 'U' (Access) or a 'T' (Trunk) displayed. When VLAN 1

is selected, ports with VLAN 1 assigned can only be changed between Access and Trunk modes. There is no 'blank' state.

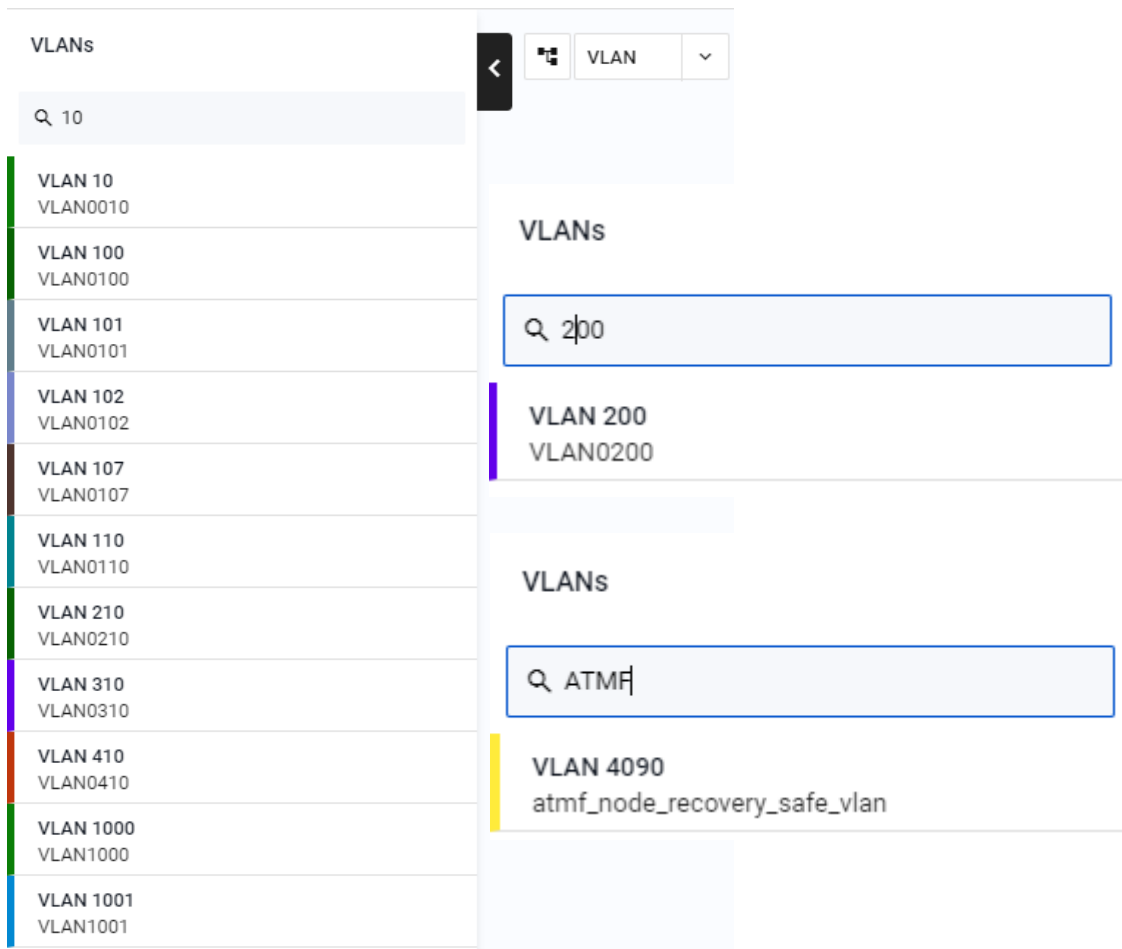


VLAN search

The search box supports almost instant filtering by **VLAN ID** and **VLAN name**.

When searching by **VLAN ID**, the filter performs an exact match to narrow down search results and ensure higher accuracy. When searching for **VLAN names**, the filter is not case-sensitive and performs partial matching only.

For example, a user tries to search for 'VLAN 10' in a network that also has VLAN 50 named Building 100. Typing '10' will return results of 'VLAN 10' being top of the list, because it is a direct match on the VLAN ID. Other VLANs containing 10 in their names will appear after, such as VLAN 100, 101, 102, etc..



VLAN ID	VLAN Name
VLAN 10	VLAN0010
VLAN 100	VLAN0100
VLAN 101	VLAN0101
VLAN 102	VLAN0102
VLAN 107	VLAN0107
VLAN 110	VLAN0110
VLAN 210	VLAN0210
VLAN 310	VLAN0310
VLAN 410	VLAN0410
VLAN 1000	VLAN1000
VLAN 1001	VLAN1001

Search results for '10':

- VLAN 200 (VLAN0200)

Search results for 'ATMF':

- VLAN 4090 (atmf_node_recovery_safe_vlan)

Firmware management

This feature provides you with the ability to update firmware across a device or family of devices on a network (AMF area), and then schedule a time when the devices will reboot to install the firmware release.

Asset Management

Devices (19) Groups (2) Provision (0) **Firmware**

Networks

area2

Reboot Updated Devices

Update Firmware

area1

area2

area3

Device Family	Using Release(s)	Firmware Status	Action
IE200 (1)	IE200-5.5.0-2.3.rel		Reboot Update
IE300 (1)	IE300-5.5.0-2.3.rel		Reboot Update
IX5 (1)	IX5-5.5.0-2.3.rel		Reboot Update
x230 (2)	x230-5.5.0-0.3.r ▾		Reboot Update
x930 (1)	x930-5.5.0-2.3.rel		Reboot Update

1. From the left-hand menu, click Asset Management and click on the **Firmware** tab.
2. To the right, you will see buttons to 'Update' a family of devices, or an **Update Firmware** button to update all families in an AMF area. Click any of the blue **Update** action buttons.
3. The side panel opens, showing 4 steps. For this process, you will need a firmware release file for that family.

Note: This file is not the same release as the current file running on the devices.

Update Firmware

1 Select 2 Upload 3 Verify 4 Distribute

Select release files

Select release files from local storage Accepted file extension .rel [Add File\(s\)](#)

Select release from URL [Add File\(s\)](#)

Select release(s) from VAA [Add File\(s\)](#)

Select distribution point source drive

Flash Available space 3632.49 MB

Device Family	Target Release	Source	Release size
AR2010V	No release supplied	-	-
AR4050S	No release supplied	-	-
IE210	No release supplied	-	-
IE300	No release supplied	-	-
IE340	No release supplied	-	-

Step 1. Select release files for the Area Master. Permitted file types are .zip and .rel files. The source options are:

- from local storage
- from a URL
- existing file on the AMF Master (firmware distribution)

Note: Users also have the option to copy the file to a USB drive if their Flash drive is full on the firmware distribution point.

Note: If updating multiple families, target release files will appear in each row at the bottom.

Click the Add file(s) button and select the release file you wish to add. Then click Next.

Step 2. The progress bar advances as the file uploads. Click Next once it completes.

Step 3. The status shows as "Verifying...", and then either success or that a number of devices failed. If any failed, click More info to see exactly which devices failed and why. Assuming that some succeeded, click Update device.

Step 4. The status shows as "Distributing to...". Click Done once distribution finishes.

4. AlliedWare Plus software versions require a release license for SBx908 GEN2 and SBx8100 switches. If you are using either of these switches, make sure that each switch has a suitable license certificate. For details, see the "**Licensing this Version...**" sections of the relevant AlliedWare Plus release note.
5. Click **Reboot Updated Devices**, then select the date and time for the reboot. After the reboot, those devices will be running the release file provided.

Note: If you use firmware distribution to copy a firmware file to devices, and that file already exists on a device, then firmware distribution will overwrite the existing file. This makes it possible to use firmware distribution to repair a corrupted firmware file on a device.

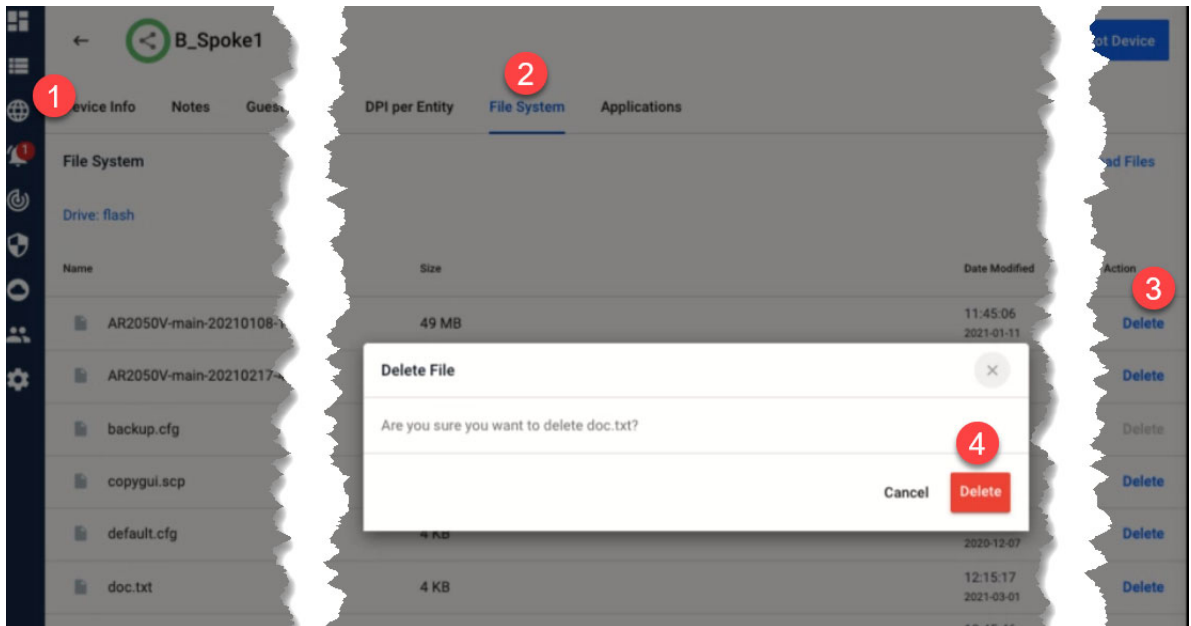
Zip folder support

The zip folder feature allows you to run firmware distribution with a URL that points to a zip file. Vista Manager EX first extracts the zip file onto a temporary directory. The release file will then be distributed to the device family if there is a match. Otherwise, you will be notified of any invalid extract files. Non-release files in the zipped folder will be ignored.

This feature is supported for firmware version AlliedWare Plus v5.4.9-1 or later.

Searching and deleting files from the file system

Users with write permissions will be able to delete supported files from the file system of a device. The ability to search for files has also been added. This makes it easier to find which files to delete. To delete a file:



1. Select a device from your network map. Double-click on it.
2. On the device details page, navigate to the **File System** tab.
3. You will see an **Action** column with delete buttons on the right. Click **Delete** for the file(s) that you wish to delete.
4. A confirmation message appears. Click **Delete** to proceed. A success notification then appears on the bottom right.

Note: File(s) selected for deletion on a stacked device will be deleted from all stack members.

You may use this feature to free up space on a device before upgrading its firmware.

There are some limitations to take note of:

- Protected files cannot be deleted:
 - boot firmware release files
 - backup boot firmware release files
 - boot configuration files
 - backup boot configuration files
- Directories cannot be deleted.
- Wildcard characters (*) are not supported in the file search.

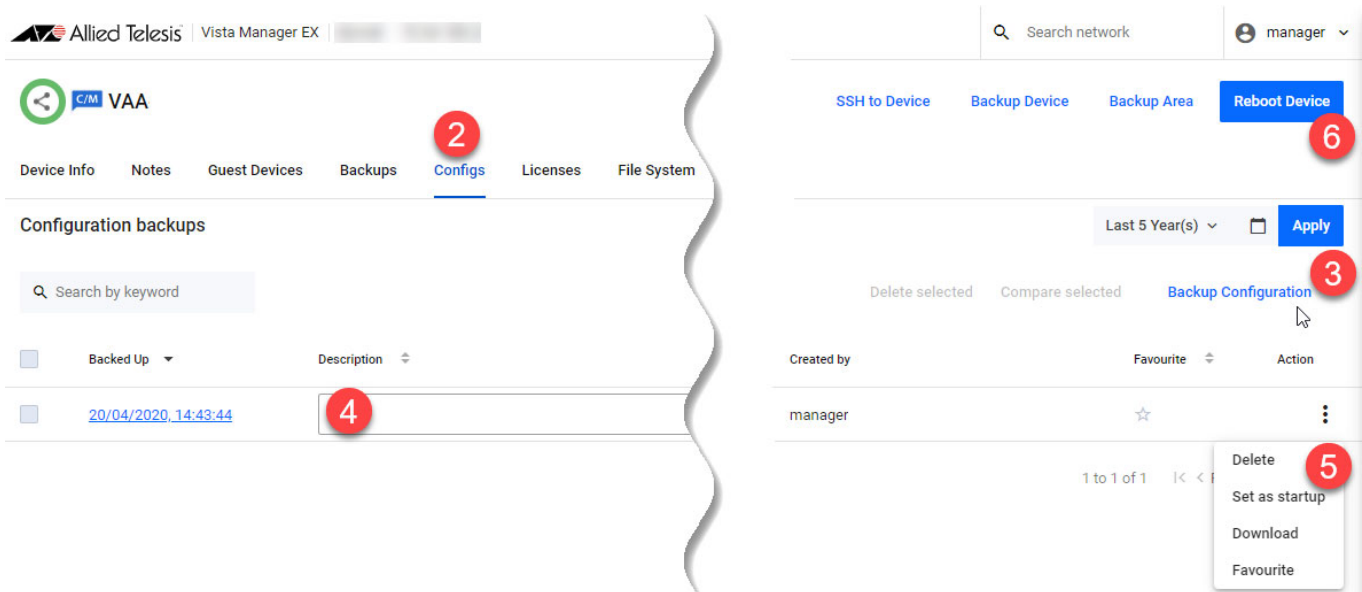
This feature requires firmware version AlliedWare Plus v5.4.9-0.1 or later.

Configuration management

This feature provides you with the ability to manage startup configuration files, including backing up, restoring and comparing configuration files. With the configuration management tool, you can:

- save a configuration file
- view details of a backup configuration
- compare two backup configuration files
- apply a saved configuration to a device
- delete a configuration backup
- set unlimited favourite configuration files

Note: Favourite config files cannot be accidentally deleted, unless unfavourited first.



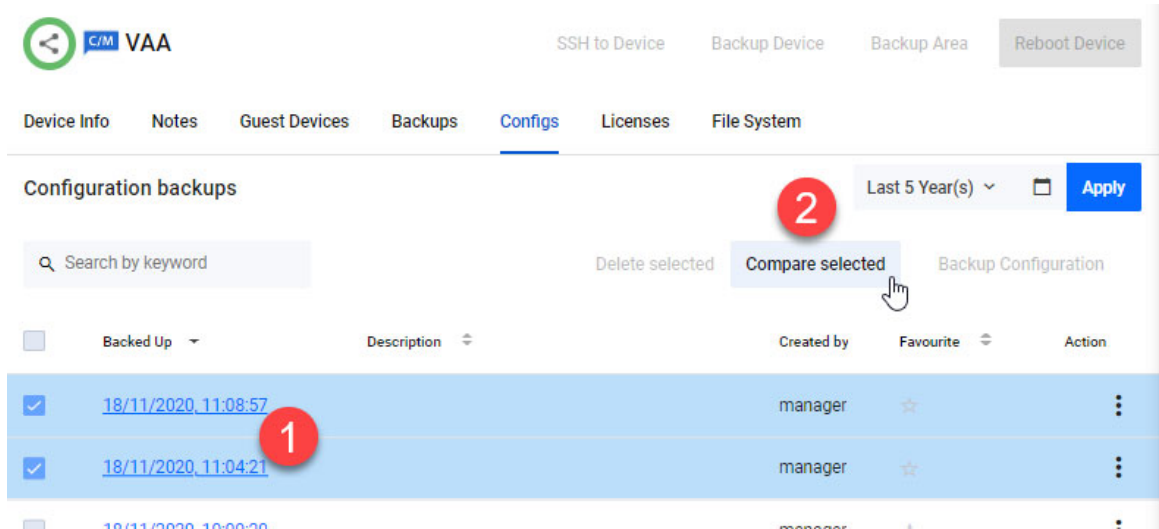
1. From the left-hand menu, click Asset Management and select the device you wish to work with, for example, VAA.
2. Click on the Configs tab.
3. Click on the **Backup Configuration** button. A notification on successful backup will appear.
4. Type a brief description in the Description textbox. Click outside the textbox to save.
5. Click on the Action drop-down for a config backup that you wish to set as startup, and select **Set as startup**.
6. A reboot would be required to load the new config. A bell icon will appear on the Reboot Device indicating further action is required. Click the **Reboot Device** button immediately, or schedule a time for it.

Note: Restoring a config overwrites the contents of the current startup-config only. The original filename and location of the backup config will not be used during the restore.

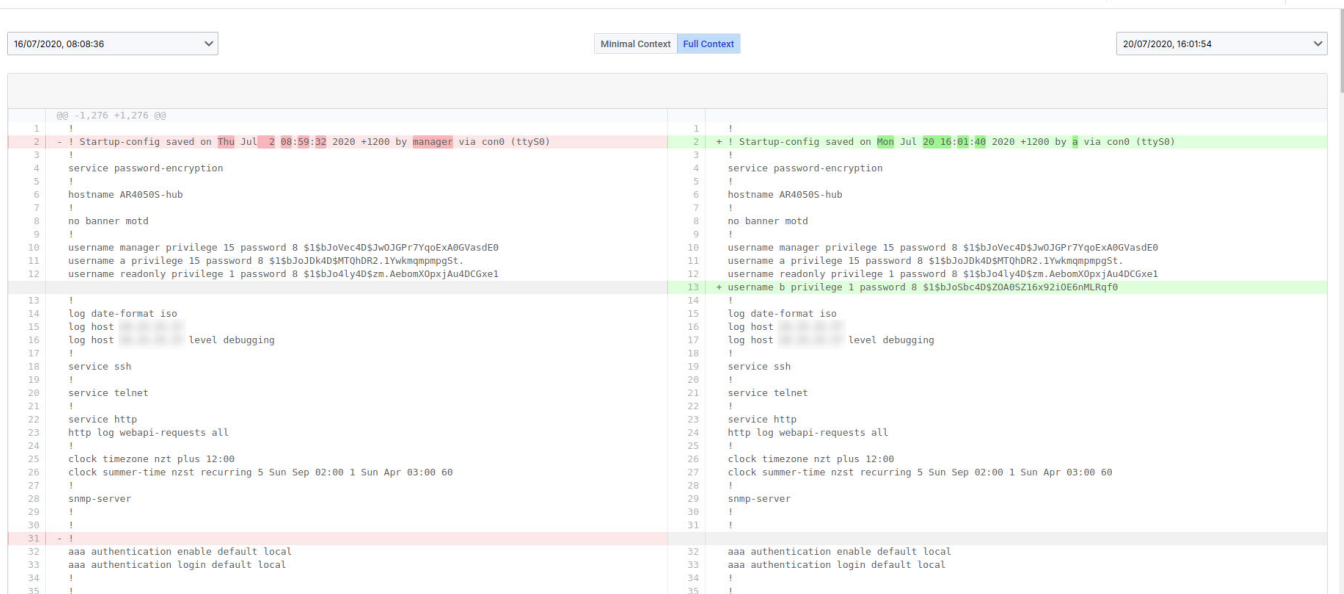
Note: When a device config is saved using the CLI, Vista Manager detects this and automatically runs a backup without requiring any user action.

Comparing configuration files

1. Click on the check box on the left-hand side of each configuration file you wish to compare. Select up to two files.
2. Click on the **Compare selected** button.

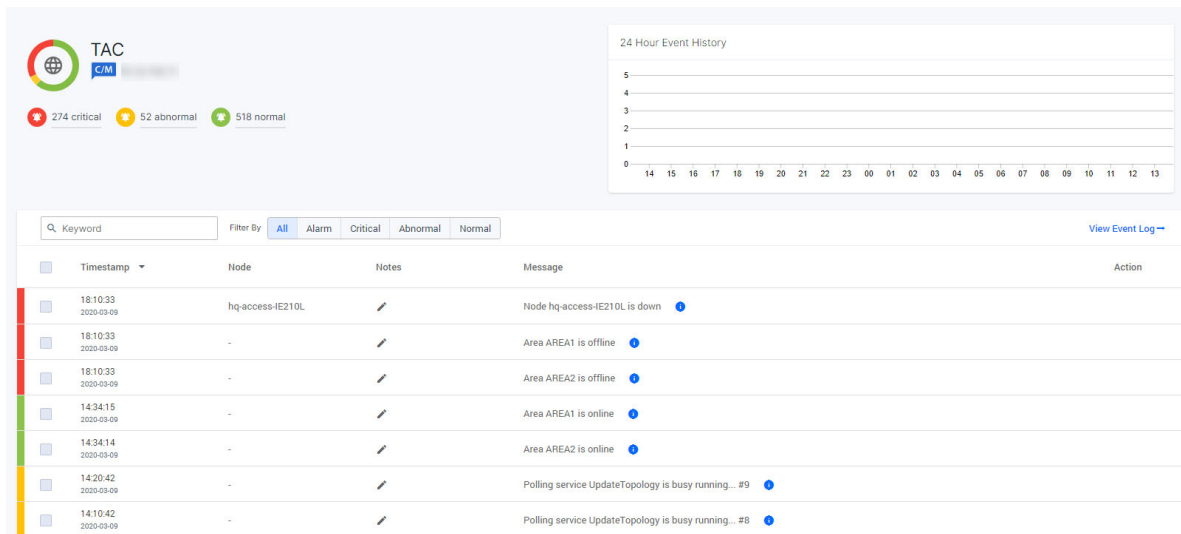


When comparing two configuration files, the tool displays differences in full, or just five lines of either side, highlighting differences in bold and in color. Toggle between settings using the **Minimal** and **Full** buttons. This enhancement provides better context to the overall configuration and helps you make a more informed decision about the changes being written to your device.



Using the event log

From the left-hand menu select **Events** to display all events in the log, as follows:



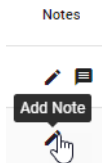
The event log shows currently uncleared events. Critical events have a red background, abnormal events are yellow, and normal events are green.

You can enter notes on any event, clear events, and filter on different fields in the event display.

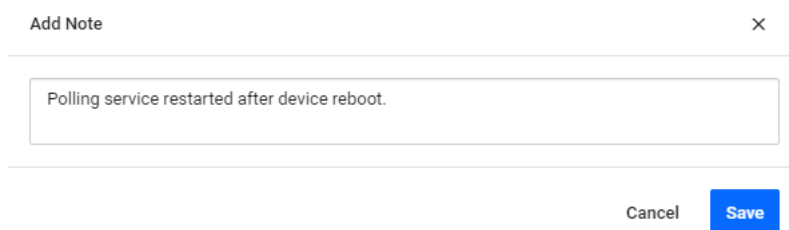
You can search the event log based on details of the event such as the time period in which it occurred. A graph at the top of the screen shows how many events have been received over certain time periods.

Adding descriptions or notes to events

Click on the **Note** icon to add a note:



The following dialog box displays and enables you to add or edit the note.



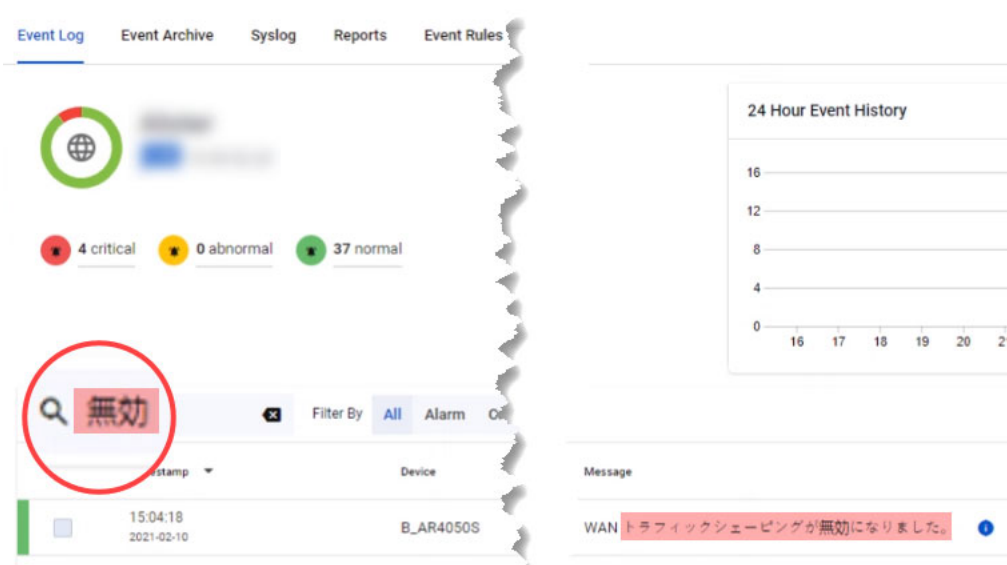
Click on the **Save** button to save the note to the event.

Archiving event notifications

If you want to archive old or cleared events, click on the check box on the left-hand side of each event to select the events to be archived. This activates the **Archive selected events** button. You can select all listed events by clicking the check box at the top of the list. You can view archived events by clicking on the **Event Archive** tab.

Japanese event language support

By upgrading to Vista Manager EX version 3.7.0 and later, you will be able to search for events in Japanese. A large number of English-only events now have Japanese translations, where they did not previously.



Most event messages now have a translation key. Event rules have been improved to store both the **translation key** and **translated value**. The translated value of an event rule is used to match translation keys of event messages. Because of this, the match becomes highly specific as each event rule applies to only one event message.

Note: We recommend using the **title field** instead of the message field when creating event rules so that broader search results can be achieved.

Administrators will have the ability to change the event language from the System Management page. Changing the event language initiates the background process of translating past events.

Once past events have been translated, event rule messages will then be translated to the new language. An event log is created when the translation completes.

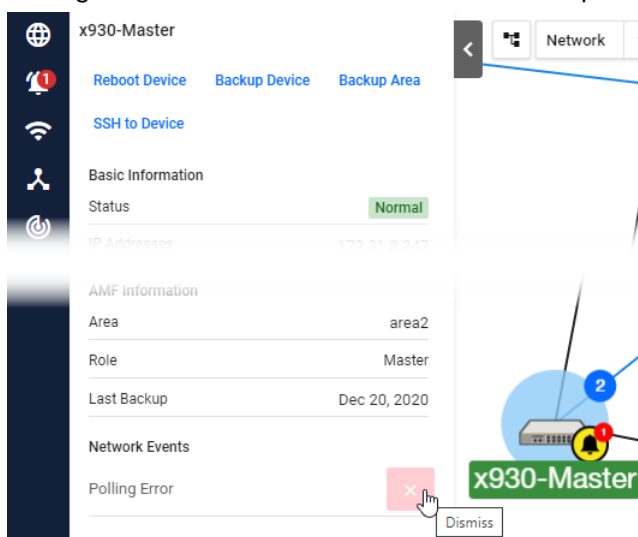


Note: This language support functionality is only applicable to the Event Log, SD-WAN table of events, and Event Rules. Plug-in events will not be translated.

This feature has been designed to support more languages in the future.

High priority events

Critical events are displayed as a red number on the alert icon of the device they occur on. Click on the device to display a pop-up with device information and a list of critical events. Dismiss events by clicking on the red-cross next to the event description.



Events can also be dismissed by viewing the event's details on the Event Log page. Dismissing an event changes the log entry background color from red to white and decreases the alarm icon's event count in the side bar.

The screenshot shows the 'Event Log' page for a device named 'docnet'. At the top, there are navigation tabs for 'Event Log', 'Event Archive', 'Syslog', 'Reports', and 'Event Rules'. A search bar and a user profile 'manager' are also visible. Below the navigation, there's a summary section showing '1 critical', '195 abnormal', and '0 normal' events. A '24 Hour Event History' bar chart shows a significant spike at 00:00. Below the chart, there are filters for 'Critical', 'Abnormal', and 'Normal'. A table of events is displayed with columns for 'Timestamp', 'Device', 'Notes', 'Message', and 'Action'. One event is highlighted in red, with a 'Dismiss' button and a dropdown menu visible.

SES block actions

Secure Enterprise Software Defined Networking™ (SES) blocking actions, configured using AMF application proxy, are displayed as high priority events. SES blocking actions configured using OpenFlow are not yet supported.

The following SES blocks will be shown on the Area Map and in the Event Log:

- SES Drop
- SES Quarantine
- SES Link Down

In addition, the following SES action will appear in the Event Log only:

- SES IP Filter

See the [SES Controller and Autonomous Management Framework \(AMF\) Application Proxy Installation and User Guide](#) for more information on configuring SES and the AMF application proxy.

SNMP traps

If they are configured, the following SNMP traps will appear as high priority events:

- SNMP loop detection traps
- SNMP active fiber monitoring traps

Both these events require the SNMP plug-in.

Creating event filter rules

Applicable to all Vista Manager installations - For Admin users

From Vista Manager EX version 3.5.0, you can create event rules to notify you whenever certain events occur, such as a port goes up/down, configuration on a device is changed or a fan or power supply failure occurs.

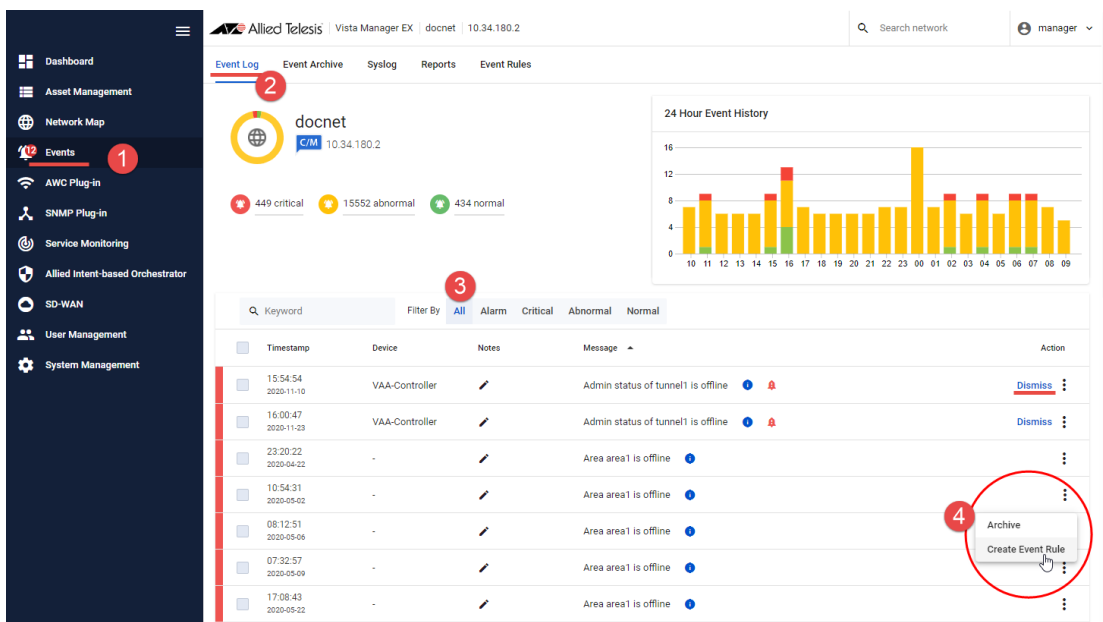
Previously, you had to be actively looking at Vista Manager to notice these things. Now you can simply check your emails.

You can also place an alarm on an event rule to identify it as a critical event. Critical events have a dismissible red alarm icon showing next to them in the **Event Log** window. You can decide if the alarmed event requires immediate action or dismiss it as a normal alert.

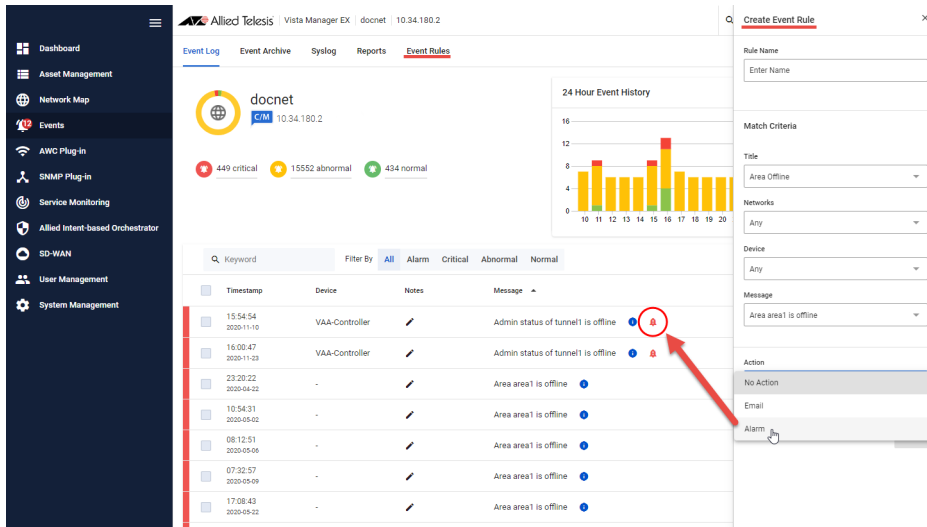
Creating Event Rules

To create an event rule:

1. From the left-hand menu, select **Events**
2. From the **Event Log** tab, select an existing event.
3. In the **Action** column, click on the three vertical dots for more options.
4. Select **Create Event Rule**.



5. The Create Event Rule side-panel opens. The criteria will be pre-filled based on the event that has been selected.



6. Configure as required:

- select **any** to match on anything.
- select an **Action**: Email, Alarm, or No Action.

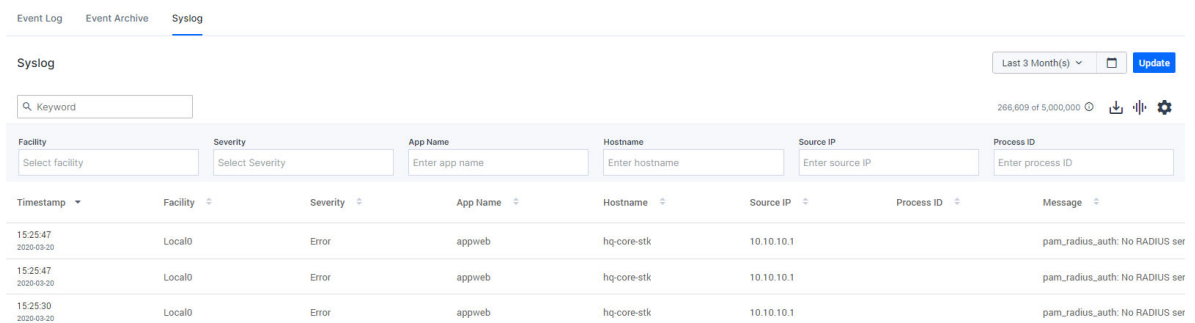
7. Click **Save**.

Note: An SMTP server is required for email notifications to be sent. You can configure users' email addresses in the **User Management** window.

Tip: Use the **Event Rules** tab to view, edit, or delete existing rules.

Using the syslog server

From the left-hand menu click **Events** then select the **Syslog** tab, as follows:



The syslog server shows messages from the network or for a specific device on the network.

Depending on your level of access, Administrator access allows you to configure how long to store

syslog messages. The default configuration is 365 days. Messages older than the default or configured length of time are automatically deleted. The syslog storage is limited to 5 million entries.

Note: For the syslog server to display accurate timestamps and valid messages, it is highly recommended for the device to be running Alliedware Plus version 5.4.8 or later and have the **log date-format iso** command configured by the administrator.

Permissions for syslog

- Only an admin user can view all syslog messages received from an IP address that Vista Manager has not discovered in the network.
- Any device can send syslog messages. If the source IP address does not correspond with a Vista device, only an admin user can view the message.
- A user can only view and search for syslog messages on the network or for a specific device they have read/write access to.
- A user cannot edit or delete syslog messages.

Syslog message filtering

The screenshot shows the Syslog filtering interface. At the top, there are navigation tabs: Event Log, Event Archive, Syslog (selected), Reports, and Rules. Below the tabs, the Syslog section is titled. There are three main search fields: Facility (with a dropdown arrow), Severity (with a dropdown arrow), and Message (with a search icon and a red background). The Message field contains the text "Search exact message". Below the Message field, there is a note: "Case sensitive. Supports wildcard query operators * and ?. Special characters(?,*,/) can be included in search by prefixing with \." To the right of the Message field, there is a dropdown menu for "Month(s)" and an information icon.

Filter syslog events by whole or partial message content, by using multiple wildcards. Details of supported wildcard query operators and special characters are as follows:

- A question mark (?) is used for a single character.
- An asterisk (*) is used for multiple characters.

The screenshot shows the Syslog filtering interface with search results. The search field contains "peer*" and is circled in red. Below the search field, there is a table of results. The table has columns for Timestamp, Facility, Severity, and App Name. The results show four entries, all with the message "peer authentication failed".

Timestamp	Facility	Severity	App Name	Message
16:25:13 2021-07-06	User Level	Notice	IPSec	peer authentication failed
16:25:06 2021-07-06	User Level	Notice	alist	peer authentication failed
16:25:00 2021-07-06	User Level	Notice	IPSec	peer authentication failed
16:24:10 2021-07-06	User Level	Notice	IPSec	peer authentication failed

- A backslash (\) is used to escape any special characters (?, *, /) after it.
- When a backslash is expected to be part of the message to be matched on, escape it with an additional (preceding) backslash.
- When an asterisk is expected to be part of the message to be matched on, escape it with a preceding backslash.

The screenshot shows the Syslog search interface. The search term 'Port*eth?' is entered in the search box and is circled in red. The results table shows three entries:

Timestamp	Facility	Severity	App Name	Message
16:07:39 2021-07-06	User Level	Notice	NSM	Port down notification received for eth2
16:07:24 2021-07-06	User Level	Notice	NSM	Port up notification received for eth1
16:07:16 2021-07-06	User Level	Notice	NSM	Port down notification received for eth1

The screenshot shows the Syslog search interface. The search term 'question\?mark' is entered in the search box and is circled in red. The results table shows one entry:

Timestamp	Facility	Severity	App Name	Message
16:08:44 2021-07-06	User Level	Notice	root	question?mark

Syslog rules

Syslog rules work similarly as the existing event rules. Any received syslog that matches a rule will trigger the action associated with the rule. Create a syslog rule based on the syslog message filter from the syslog tab page. When creating a single rule, configure up to two of the following actions:

- email notification
- dismissible alarm
- no action

The screenshot shows the Syslog configuration interface with three numbered steps:

- 1**: The Message filter field contains the text "peer*".
- 2**: The Hostname field contains the text "tb130".
- 3**: The "Create Rule" button is highlighted.

The interface also shows a table of syslog events and a table of process IDs.

Timestamp	Facility	Severity	Source IP	Message
16:25:06 2021-07-06	User Level	Notif	10.36.200.130	peer authentication failed
11:00:22 2021-06-16	User Level	N	10.36.200.130	peer authentication failed

Process ID
Enter process ID

1. Use the syslog message filtering to search for messages of your choice.
2. Next, select a hostname.
3. Click **Create Rule**. This opens up a side panel.
4. Enter a rule name.
5. Configure a first action for **email notification**.
6. Select a recipient group.
7. Select a trigger interval time.
8. Configure a second action for **dismissible alarm**.
9. Click **Save**.

Create Rule

Rule Name *

peer TB130

4

Match Criteria *

1 Use filters and message to generate match criteria. Keyword search is excluded.

Message

peer*

Hostname

tb130

Action 1

Email Notification

5

Recipient group

All (6 users)

6

Trigger Interval

10 mins

7

Action 2

Dismissible Alarm

8

9

Cancel

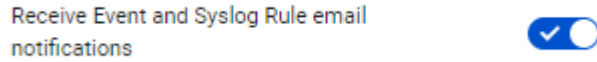
Save

To view a list of syslog rules, navigate to the Rules tab page. Here, you can also disable a rule, update its settings, or delete it.

Event Log	Event	ports	Rules				
Rules ⓘ							
Rule Name	Rule Type	Criteria	Actions	Status	Action		
ATS BW Changed	Event Log	Title: Auto Traffic Shaping maximum	Alarm	<input checked="" type="checkbox"/> Enabled	⋮		
ATS Disabled	Event Log	Title: The Auto Traffic Shaping enable	Email	<input checked="" type="checkbox"/> Enabled	⋮		
ATS Shaping Disa	Event Log	Title: The Auto Traffic Shaping enable	No Action	<input checked="" type="checkbox"/> Enabled	⋮		
peer TB130	Syslog	Hostname: tb130 Message: peer*	Email Alarm	<input checked="" type="checkbox"/> Enabled	⋮	Edit	Delete

Syslog rule - email notification

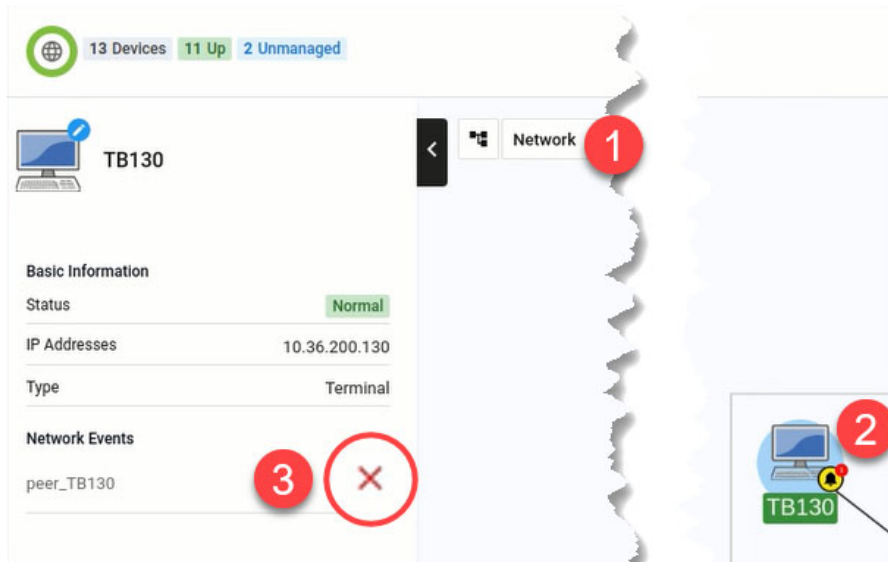
On the **user management** page, a new toggle button enabled by default will be present for all users. This setting determines whether a user will receive an email when a syslog matches a syslog rule configured with email notification.



As a non-admin user, you can change this setting only for yourself. Admin users can enable/disable email notification for all users.

Syslog rule - dismissible alarm

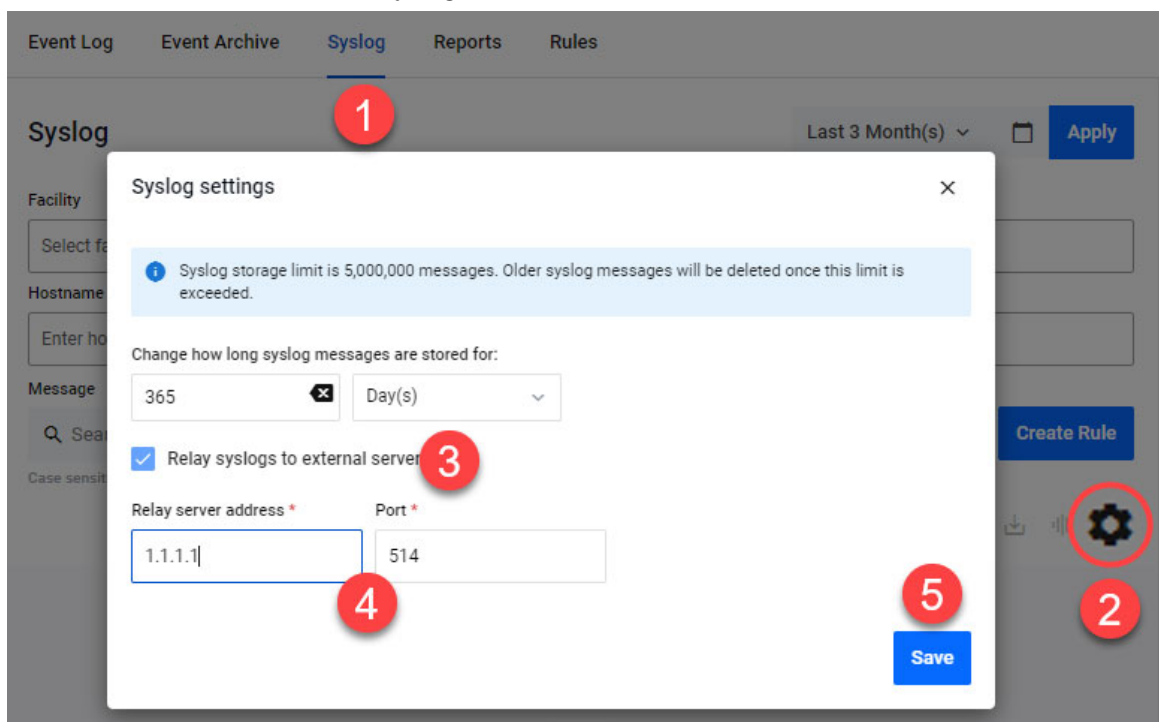
A bell icon will appear on the network map for a device that sends a syslog matching a rule. Click on the bell icon to open up the side panel displaying its syslog details. Here, you may also choose to dismiss the alarm.



Syslog forwarding

As an admin user, you will have the option to configure syslog forwarding to an external server. This functionality forwards all received syslog messages to a specified syslog server, regardless of any rules configured. Only one external syslog server is supported.

Note: The source address of a syslog cannot be retained to its external server.



1. From the Events menu, navigate to the **Syslog** tab page.
2. Click on the Syslog settings gear icon.
3. Check the **Relay syslogs to external server** option.
4. Enter the relay server address and port number.
5. Click **Save**.

AMF Security (AMF-Sec) support

The existing alarm notification supports both AlliedWare Plus devices and wireless devices by leveraging on syslog messages from the AMF-Sec server. Vista Manager EX shows alarms on the integrated map for both blacklist and whitelist security events on AlliedWare Plus devices.

Configure all your AMF-Sec servers to send syslog messages to Vista Manager EX. All syslog messages from the AMF-Sec servers will then appear on the **Event > Syslog** page.

Note: In order to process syslog messages from the AMF-Sec server, Vista Manager EX will have some built-in event rules not visible to users. Because of this, if a user creates a rule with the same name in the event log or syslog table, an error message will display: **“Duplicate rule name used. Note may be a duplicate of a hidden system rule name.”**

Alarms on the integrated map

Vista Manager EX will convert only specific actions that match AMF-Sec syslog messages into alarms (high severity event logs) and display them on the map. These specific actions are:

- Blacklist
 - Security Block
 - LinkDown
 - Quarantine VLAN
 - Security Logging (no-action, reporting only)
- Whitelist
 - Auth Failed (deny)

Any other syslog messages from the AMF-Sec server not mentioned above will not be converted. This means the user will not be able to see successful notification events in the Vista Manager event log table, but those events are present in the Syslog tab page.

The alarms will be associated with devices based on IP addresses and hostnames from the AMF-Sec syslog message. If one AMF-Sec syslog message can be associated with multiple devices, all devices will have their own alarm. If an alarm cannot be associated with any device on the map, it will not be visible on the map.

Note: Unmanaged devices are not always visible on the map, such as TQ devices without the AWC plug-in. In this case, alarms will still be associated to the TQ device, but can only be viewed by zooming into the map. Alternatively, add the AWC plug-in to manage the TQ which then makes it visible by default.

The alarms will keep showing on the map until either

- a user dismisses them proactively, or
- a recovery AMF-Sec syslog message dismisses them automatically.

Users with read/write permissions to the associated device can dismiss the alarms in 2 ways:

- **from the event log table, or**
- **from the side panel of the map.**

Alarm recovery

When a user performs an action in the AMF-Sec server, the AMF-Sec server will send syslog messages to Vista Manager EX to indicate a status change on the alarm.

Vista Manager EX automatically dismisses an alarm and removes it from the map, if they are event recovery types such as:

- DISCONNECT
- ACCEPT

A “recovered” event log will then be generated with detailed information.

Feature limitations

There are some feature limitations to take note of:

- As syslog messages are based on UDP protocol, this functionality can be unreliable at times, meaning messages could sometimes go missing.
- In the event that the Vista Manager EX syslog server goes down, syslog messages lost during the downtime will not be recoverable.
- If the AMF-Sec server changes its syslog format, this feature will fail to work as there is no way to detect such failures.
- AMF-Sec alarms that depend on the DISCONNECT action will not be removed when the parent device reboots or leaves the network. This is because the AMF-Sec server does not send a corresponding disconnect message with a device reboot, therefore causing the alarms to remain on the map.
- AMF-Sec will not send syslog messages for the IP-FILTER action. If sourced from a non-AMF device, Vista Manager EX will not be able to detect this action.
- Some changes have been applied to the event messages from the original blacklist feature. Therefore for any event filtering relying on event messages, the existing event filter may appear broken after upgrading to version 3.7.0.

Service monitoring

Service monitoring allows a network administrator to learn the status of services running on devices within Vista Manager EX. You can configure a monitoring task to run periodically, or to monitor services on demand.

Service Monitoring will display the status of the services. It helps you track the status of services of critical importance, and be updated as soon as they go down. Knowing the status of services may also help when performing diagnostic tasks.

To configure service monitoring:

- Open Service Monitoring in Vista Manager.
- Click on Create Monitor.
- Enter the following details:

New Service Monitoring Configuration

Monitor Name: SSH IP Address: 10.32.192.11

Enabled: On

Service Port: 65535 Interval (mins): 120 Protocol: tcp

Cancel Save

- Monitor Name - a name to identify the monitor
- IP Address - the IP address of the device you want to monitor
- Service Port - the port that the service is running on
- Interval - how often to monitor the service
- Protocol - the protocol of the service, either TCP or UDP
- Click Save.

The monitor has now been created. Click on **Monitor Now** to begin monitoring the service.

SSH
10.32.192.11

1 Services

1 normal


Details Monitor Now

The service statuses may be one of the following:


- Pending: The service has not been monitored yet.
- Running: The service has responded to the latest monitoring probe.
- Filtered: Unable to determine the status of the service, because it is blocked by a network obstacle such as a firewall.
- Indeterminate: Unable to determine the status of the service. It may be blocked by a network obstacle, up, or down.
- Closed: No application is listening on the specified port.
- Unresponsive: A service exists on the port, but is not responding to probes.
- Unreachable: Unable to monitor the service, because the target IP address is unreachable.
- Error: Unable to monitor this service, because an error occurred while attempting to do so.

View Service Monitoring Configuration X

Monitor Name: IP Address:

Host Status:
 up

Enabled: On Off

Status	Service Port	Interval (mins)	Protocol	Last success	Last failure
 running	<input type="text" value="22"/>	<input type="text" value="5"/>	<input type="text" value="tcp"/>	<input type="text" value="1/11/21, 10:44 AM"/>	<input type="text" value="11/26/20, 2:59 PM"/>


[Delete](#) [Edit](#)

The status categories and the statuses that fall into each category are as follows:

- Category Pending - Pending status
- Category Normal - Running status
- Category Unknown - Filtered and Indeterminate statuses
- Category Critical - Closed, Unresponsive, Unreachable, and Error statuses

hub


1 Services

 1 critical

[Details](#) [Monitor Now](#)

ip camera

1 Services

 1 running

[Details](#) [Monitor Now](#)

HTTPS access to Vista Manager EX

All traffic between Vista Manager EX and users is able to be secured with HTTPS. This option can be turned on in your Vista Manager EX configuration settings. Enabling HTTPS requires a signed certificate.

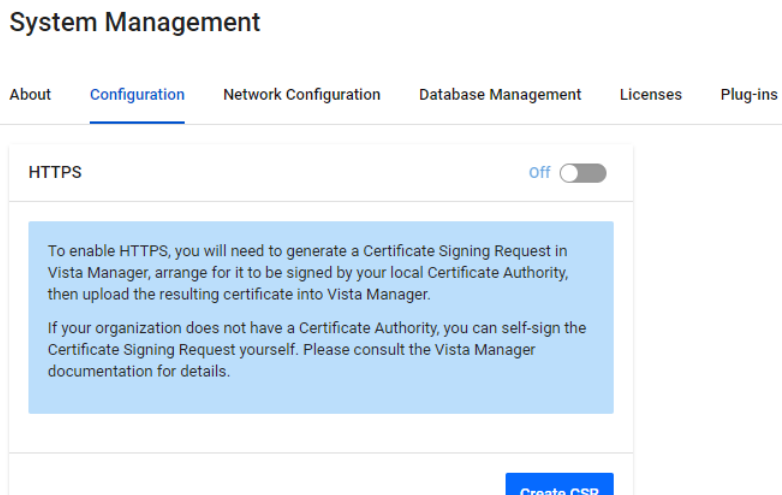
Vista Manager EX can generate a Certificate Signing Request (CSR) which you can then submit to a Certificate Authority (CA). The CA will then give you a signed certificate which you can import back into Vista Manager EX. Note that both the application's and CA's private key are never transmitted; this is essential to maintaining proper security.

Alternatively, you can use OpenSSL to self-sign the CSR. For more information, visit <https://www.openssl.org/>.

Note: Only certificates generated from Vista Manager's CSR can be uploaded into Vista Manager.

To enable HTTPS:

- In Vista Manager, open the System Management menu item and click on the Configuration tab.
- Click on Create CSR.



- Make sure the primary domain name and email are correct. You can also add other domain names if required.

HTTPS Off

Common Name: The primary domain name of Vista Manager

Country:

State / Province / Region:

City / Town / Locality:

Organization:

Organizational Unit:

Email:

Subject Alternative Names: Other domain names that Vista Manager is accessible from

+

Cancel Generate CSR

- Once the CSR has been generated, save it somewhere safe. Send this CSR to your CA to be signed.

- Once the CA has returned to you with a certificate, click the Next button. Then upload the certificate to Vista Manager. You can also optionally upload a certificate chain.

The screenshot shows a web interface for configuring HTTPS. At the top right, there is a toggle switch labeled 'HTTPS' which is currently set to 'off'. Below this, a message states: 'To enable HTTPS, please upload a certificate and optionally a certificate chain. This certificate must correspond to the previously generated Certificate Signing Request.' There are two file upload sections. The first is for the 'Certificate', with the text 'Accepted extensions .crt, .pem' and a file input field containing 'vista (1).csr' and a 'Select file' button. The second is for the 'Certificate Chain', with the text 'Accepted extensions .crt, .pem' and a file input field containing 'No file selected' and a 'Select file' button. At the bottom of the form, there are two buttons: 'Discard CSR' in red and 'Verify and Enable' in blue.

- Click on Verify and Enable. Once your certificate has been verified, HTTPS will be enabled.

Once you have configured HTTPS for Vista Manager, you access it using the default SSL port. To connect via HTTPS, use either of the following URLs:


- `https://<ip address>`
- `https://<ip address>:443`

Managing user accounts

There are two types of user account, **Admin** and **User**.

Admin accounts have read/write access across all AMF areas.

User Management + Create New

Users	New User								
 manager (manager)	<p>Username: <input type="text"/></p> <p>Full Name: <input type="text"/></p> <p>Email: <input type="text"/></p> <p>Password: <input type="password"/></p> <p>Confirm Password: <input type="password"/></p> <p>Account Type: <input type="text" value="Admin"/></p> <p>Refresh Rates:</p> <table><tr><td>AP Status</td><td><input type="text" value="60"/></td></tr><tr><td>Floor MAP (Wireless Status)</td><td><input type="text" value="60"/></td></tr><tr><td>Floor MAP (Associated Client)</td><td><input type="text" value="5"/></td></tr><tr><td>Floor MAP (Smart Connect)</td><td><input type="text" value="5"/></td></tr></table> <p>Country Code: <input type="text" value="None"/></p> <p>Language: <input type="text" value="Auto Detect"/></p> <p>Timeout (in mins): <input type="text" value="5 minutes"/></p>	AP Status	<input type="text" value="60"/>	Floor MAP (Wireless Status)	<input type="text" value="60"/>	Floor MAP (Associated Client)	<input type="text" value="5"/>	Floor MAP (Smart Connect)	<input type="text" value="5"/>
AP Status	<input type="text" value="60"/>								
Floor MAP (Wireless Status)	<input type="text" value="60"/>								
Floor MAP (Associated Client)	<input type="text" value="5"/>								
Floor MAP (Smart Connect)	<input type="text" value="5"/>								

User accounts are configured to have **Read Only** or **Read/Write** access on the specified AMF area(s).

User Management

[+ Create New](#)

The screenshot displays the 'User Management' interface. On the left, a 'Users' list shows two entries: 'manager (manager)' and 'Read Only Access (readonly)'. On the right, the 'New User' form is visible, containing the following fields and options:

- Username:
- Full Name:
- Email:
- Password:
- Confirm Password:
- Account Type:
- Permissions:
- SSH Permissions: Allowing SSH access for a user will provide SSH access outside of the control of Vista Manager permissions.
- Network Permissions (all set to 'No Permission'):
 - AREA0:
 - AREA1:
 - AREA2:
 - Area1:
 - Area2:
 - Default Group:
 - HQ_vlan100:

Create an account

1. Log in with an Administrator account type
2. Select **User Management** from the menu
3. Click the **Create New** button in the upper right hand corner of the screen
4. In the **New User** dialog box enter the relevant user details.
5. Click the **Save** button

Edit an existing account

1. Log in with an Administrator account type
2. Select **User Management** from the menu
3. Select the account you want to edit from the account list
4. Click the **Edit** button
5. From the Edit User dialog box make the changes
6. Click the **Save** button

Set the time-out for an account

1. Log in with an Administrator account type
2. Select **User Management** from the menu
3. Select the account you want to edit from the account list
4. Click the **Edit** button
5. From the Timeout dialog box, select how long until a user is automatically logged out, or select Never to disable automatic logout for that user
6. Click the **Save** button

Delete an existing account

1. Log in with an Administrator account type
2. Select **User Management** from the menu
3. Select the account you want to delete from the account list
4. Click the **Delete** button
5. From the Delete User dialog box click the **Delete** button again

Note: The default Admin (Manager) account cannot be deleted.

Managing the Vista Manager EX system

The Vista Manager EX system itself can be managed:

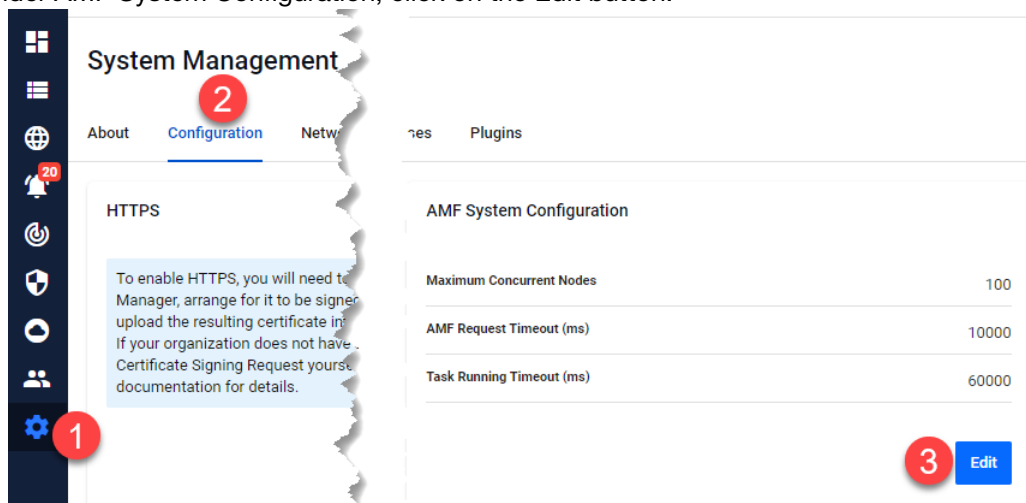
- Licenses and Plug-ins can be displayed and updated
- The Username and Password can be changed for a network
- The Vista Manager EX database can be backed up, restored from backup, or reset to the factory default
- The SMTP Server Username, Password and email address can be changed

Vista Manager EX	About SMTP
Version: 3.5.0	SMTP Server Address: Hostname or ip address
Build: 20201108_0103	SMTP Server Port 25
Serial Number: [REDACTED]	Username: Enter username
Base License Expire: 2023-01-08	Password: Enter password
Manage Licenses Manage Plug-ins Tech Support	Send mail as: yourname@email.com
	Edit details

Changing the AMF system configuration settings

You may need to change the AMF system configuration settings in Vista Manager EX. This was previously done by a support engineer onsite to resolve various network errors that involved changing variables in the configuration file. An event log will be generated after you have applied the new values. To change these settings:

1. Navigate to System Management.
2. Select the Configuration tab.
3. Under AMF System Configuration, click on the Edit button.

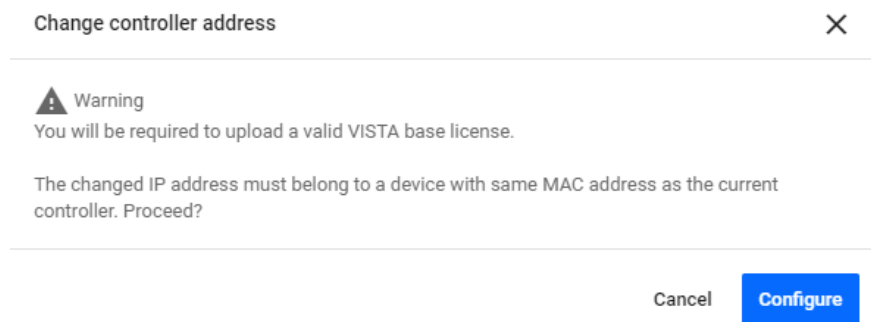


Note: No restarting is required.

Changing the Vista Manager EX controller IP address

You may need to change the IP address of the Vista Manager EX controller in Vista Manager EX. For example, if the IP address of the controller has changed, this also needs to be changed in Vista Manager EX. To change the IP address:

1. Click on System Management, and select the Network Configuration tab.
2. Under AMF Network Configuration, click on the Edit button.
3. Click on the Change controller address button. Once you have confirmed that the changed IP address belongs to a device with the same MAC address as the current controller, click on the Configure button.



4. The **Upload Licence File** dialog will then be displayed. Select your license file, and click Next.
5. The **Set Up Your Network** dialog will then be displayed. You can change the IP address to the new address. Click Next.

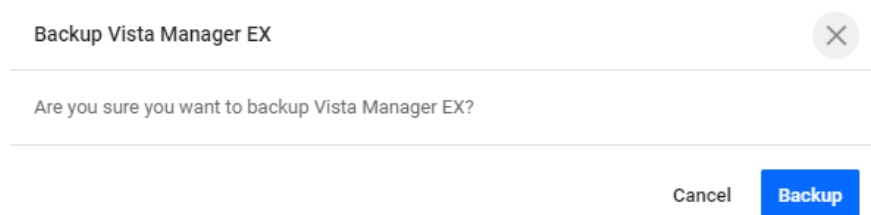
Note: The changed IP address must belong to a device with the same MAC address as the current controller.

6. The **Set Up Your SMTP settings** dialog will then be displayed. Click Proceed.

Note: This does not provide a method to change your controller to a new network. That requires a reinitialization of Vista Manager EX.

Backup Vista Manager EX

1. Click on System Management, and select the Database Management tab.
2. Click on the Backup button in the Backup Pane.
3. Click Backup again to confirm you wish to make a backup.



4. This automatically downloads a **tar** file backup to your default download location.
5. Keep this **tar** file in a safe location.

Note: Restoring Vista Manager backups from a newer version into an older version is not supported. It is not possible, for example, to restore a backup made in Vista Manager 3.2.0 into a Vista Manager 3.1.0 installation.

Using the Allied Intent-based Orchestrator

Introduction

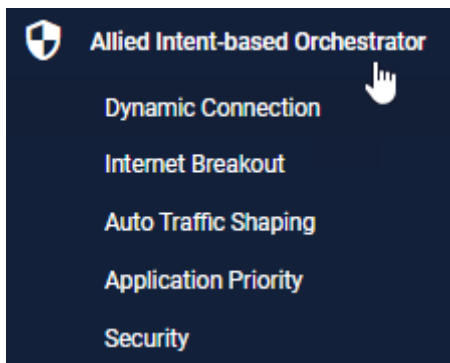
The Allied Intent-based Orchestrator (AIO) provides network optimization, automation, management, and visualization. The uniquely designed intent-based configuration, reporting and map facilities of Vista Manager EX make these powerful tools simple to configure, initiate, and manage. AIO offers automation of branch security and WAN bandwidth management.

For this feature to become fully available to you and for all menu items to be activated, install the feature license. This license is not part of the base Vista Manager EX license. It is included in the 90-day trial license. If you want to continue using AIO after the 90-day trial license expires, you need to install a feature license for it. Contact your authorized Allied Telesis salesperson.

The AIO feature is made up of several components.

- Dynamic Connection
- Internet Breakout
- Auto Traffic Shaping
- Application Priority
- Security

Access the Allied Intent-based Orchestrator from the left-hand menu.



Dynamic Connection

This feature lets you use the simplicity of drag-and-drop on the network map, to create new VPN tunnels between the AR-Series devices (firewalls or routers) at different locations across your WAN.

- Point-to-point tunnels require a source device and destination device.
- Point-to-multipoint tunnels require a source device and multiple destination devices.

Note: The AR1050V does not support Dynamic Connection.

For this feature to be fully functional, apart from installing the AIO license, you must also have either administrator access or write permission on a device.

To create a tunnel, both devices must be part of the AMF network, support GRE tunnels and be running firmware version AlliedWare Plus 5.5.0-2.x or later.

You cannot create multiple tunnels with the same source and destination interface pair (e.g. eth1). Split up the interface if you wish to create more than one tunnel, for example, split eth ports into sub-interfaces. You may create another tunnel with the same source interface as long as the destinations are on different devices.

All tunnels are encrypted with IPSec to secure your WAN traffic. Each tunnel will have a different crypto key with a unique name.

Option 1: Create a Point-to-Point Tunnel

Create Point to Point Tunnel

Tunnel protection type is IPSec

Tunnel Mode
GRE

AR4050S
Tunnel Interface *
eth1 ()

Tunnel IP Address * Subnet
172.28.0.1 / 30

Tunnel Description
AKL-source

Tunnel Routing
No Routing

AR2010V
Tunnel Interface *
eth2 ()

Tunnel IP Address * Subnet
172.28.0.2 / 30

Tunnel Description
NSN-destination

Tunnel Routing
No Routing

Check connectivity

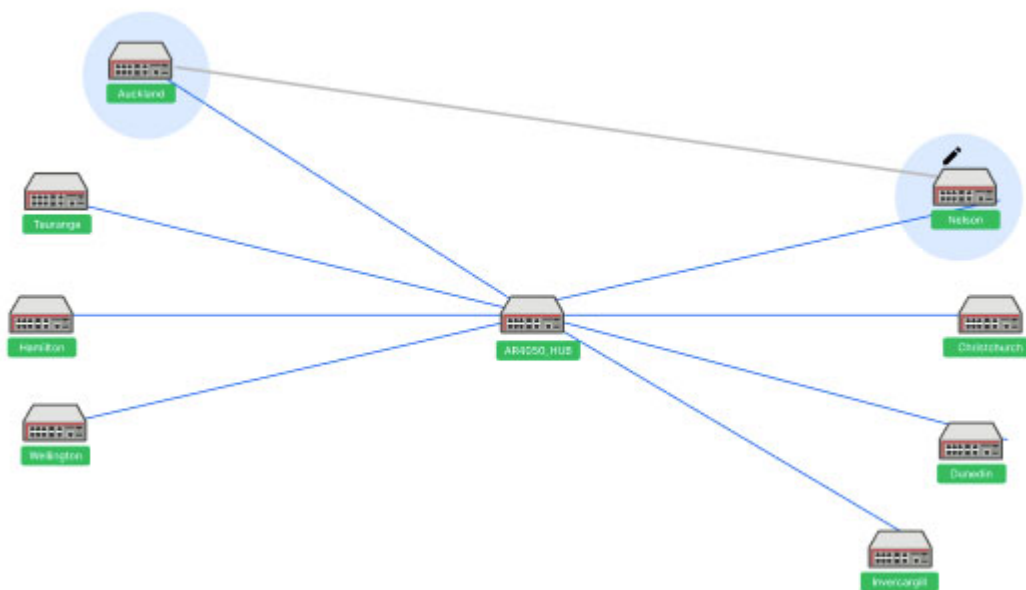
Cancel Create

1. Use the pencil icon to draw a line between devices (firewalls/routers) at the two locations you wish to connect with a new VPN tunnel.
 2. Next, set up tunnel options. Select tunnel mode.
 3. Select an interface for the tunnel to be on.
 4. Vista Manager EX generates the tunnel interface IP addresses. The subnet prefix is /30.
- Note:** If you choose your own IP address, it must be in the same subnet and must not be used on another interface on those devices.
5. Enter a description name for the tunnel.
 6. Configure tunnel routing.

Note: The options here are default or static. You may enter IP addresses for each end of the tunnel by selecting static routing.

7. Repeat steps 3-6 to set up tunnel options for the destination device.
8. Click **Check connectivity**. There should be a ping from source interface to destination interface if there is a connection.
9. Click **Create** when complete.

Option 2: Create a Point-to-Multipoint Tunnel



1. Click on the pencil icon and select point-to-multipoint tunnel.
2. Use the pencil icon to first select a tunnel hub. This is usually a head office router.
3. Next, select spokes one by one. These should be your branch offices.
4. Perform Option 1 steps 2-6 to set up tunnel options.

Note: In version 3.5.0, adding a static route to the hub of a multipoint tunnel is not supported.

5. Repeat for all your spokes (branch offices).
6. Click **Check connectivity**.
7. Click **Create** when complete.

Note: For multipoint tunnels, a hub of multipoint tunnel cannot share the same interface (with the same IP address) as a GRE point-to-point tunnel.

Note: Connectivity is not needed for the new tunnel configuration to be created, although the tunnel will not be fully formed until there is a connection.

Distributed tunnel routing

When a tunnel is created, you will have the option to distribute routes to further devices to create a return routing path. You will see a list of subnets to choose from, with these subnets being accessible from the device. However, not all networks and devices at the tunnel destination are used to form new primary routes. The list of destinations are pre-filtered.

These types of networks and hosts are allowed:

- connected by static routes
- directly connected to the end router (direct routes)
- routed through a dynamic routing protocol

Example: When a tunnel is created from (A) to (B), (A) will distribute networks and hosts (X) to (B). However, that does not necessarily mean (X) can reach (B), so networks on (B) are allowed to be distributed to add as routes on (X).

If a tunnel is deleted, all static routes associated with the nexthops of that tunnel will also be deleted. However, manual routes can still be added from the pull-down menus.

Administrative distances are added to static routes; static routes with the same default administrative distance (zero) to the same destination is not supported. When a route is shared, Vista Manager adds a 1 to its distance. Therefore, a direct connection route with a default distance of 0 will have a distance of 1 when added to a destination device's route table.

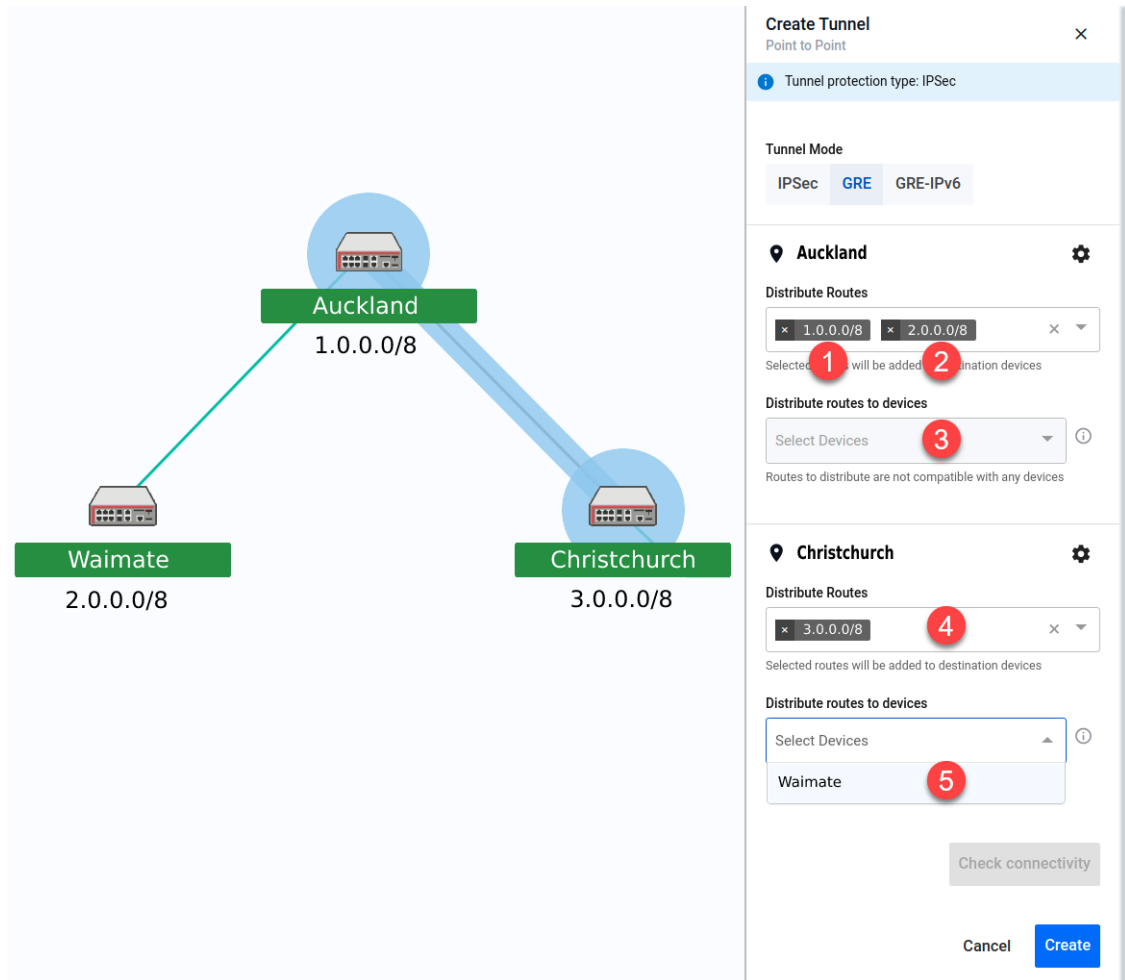
For this feature to be fully supported, AlliedWare Plus version 5.5.1-2.1 or later is required.

Settings for the source end of tunnel (Auckland)

1. The route to **Auckland (1.0.0.0/8)**, is selected in the "Distribute Routes" input. This route is added to the route table of the Christchurch device, allowing traffic to go from Auckland to Christchurch.
2. A tunnel between Auckland and Waimate already exists, so the route to **Waimate (2.0.0.0/8)**, is an option in the "Distribute Routes" input. This route is added to the route table of the Christchurch device, allowing traffic to go from Waimate to Christchurch.
3. Nothing is needed in the "Distribute routes to devices" input because the selected routes are automatically distributed to the destination end of the tunnel (Christchurch).

Settings for the destination end of tunnel (Christchurch)

4. The route to **Christchurch (3.0.0.0/8)**, is selected in the "Distribute Routes" input. This route is added to the route table of the Auckland device, allowing traffic to go from Christchurch to Auckland.
5. Because the route to Waimate is added to the route table of the Christchurch device, there is now an option to distribute a route to Christchurch on the Waimate device. This route is added to Waimate, allowing traffic to go from Christchurch to Waimate.



Note: It is mandatory to choose a route. Vista Manager is unable to prevent loops from being created as all forwarding paths in the network are not known. Some WAN-facing interfaces will not be included in the list of routing destinations, as this could form routing loops caused by networks beyond the immediate control of the user.

Feature limitations

There are some feature limitations to take note of:

- Because this is adding static routing, there may be potential for routing loops. The risk of causing such loops cannot be eliminated.
- Entity subnets will not be filtered out if they overlap or are duplicated with other subnets. It is up to the user to create valid entities.
- Changes made to subnets and entities after the tunnel has been created will not be automatically deleted; routes on the devices will not be updated. Users will have to make these changes on the tunnels and devices if they make changes to subnet and entities.
- IPv6 routes are supported as static routes, but are not supported as distributed subnets. The IP version of static routes must match the IP version of the tunnel IP address.
- mGRE tunnels use GRE-based protocols and are therefore stateless. Static routes on mGRE will not be re-routed automatically if a hub-to-spoke tunnel link goes down.

Internet Breakout

Internet Breakout lets specific applications being used at branch office locations access the Internet directly, rather than going via the head office. This improves the performance of cloud-based applications (e.g. Office 365) and reduces traffic volumes on VPN connections between branch offices and the head office.

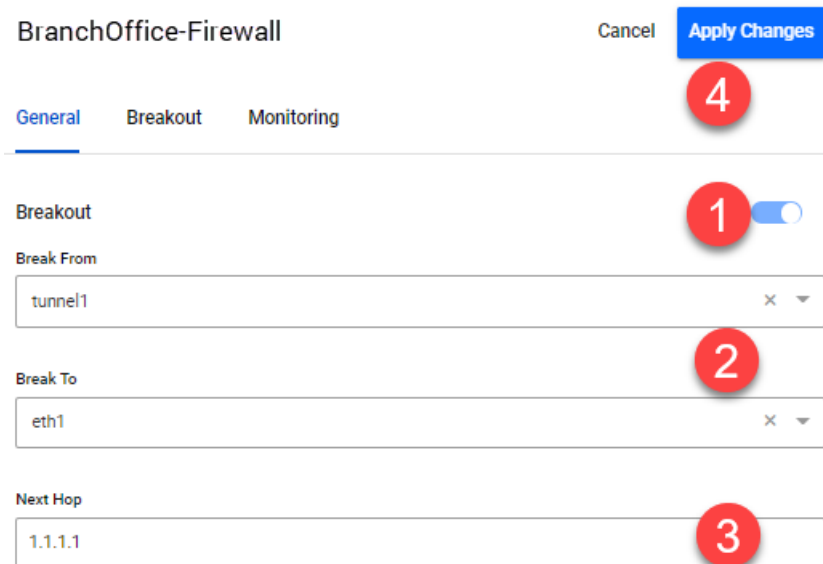
- This feature requires AR-series devices to run AlliedWare Plus 5.5.0-2.1 or later.
- Before configuring, start by identifying the types of applications you may want to allow direct Internet access.
- Enabling this feature reduces router throughput.
- Any traffic that bypasses security processing may reduce security and threat protection at the local branch office. Carefully consider the potential consequences of giving direct Internet access to a type of traffic, and whether additional local or cloud-based security needs to be implemented to protect Internet Breakout traffic and the branch office.
- Internet Breakout needs to classify applications for sending direct to the Internet. It does this most effectively when it can read both incoming and outgoing traffic on the interface that was/is sending those applications to the head office. For IPSec protected tunnels, this requires a feature called tunnel security reprocessing. Vista Manager does not enable tunnel security reprocessing because it reduces router performance. To enable it, enter the following commands on the router's CLI:

```
enable
conf t
 tunnel security-reprocessing
```

Step 1: Enable Internet Breakout and specify the traffic path.

Use the Internet Breakout > General tab

1. Enable Breakout on the AR-series firewall at each desired location.
2. Select the interfaces to break from and break to.
3. Enter the next hop address.
4. Click **Apply Changes**.



BranchOffice-Firewall Cancel Apply Changes

General Breakout Monitoring

Breakout 1

Break From 2
tunnel1 x ▾

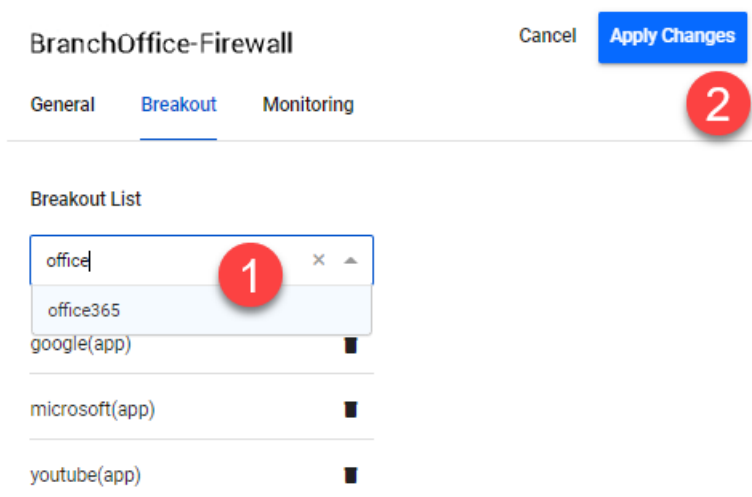
Break To 2
eth1 x ▾

Next Hop 3
1.1.1.1

Step 2: Add applications to break out.

Use the Internet Breakout > Breakout tab

1. Add applications to the Breakout List, for example, Office365, Google, Youtube, etc.
2. Click **Apply Changes**.



BranchOffice-Firewall Cancel Apply Changes

General **Breakout** Monitoring 2

Breakout List

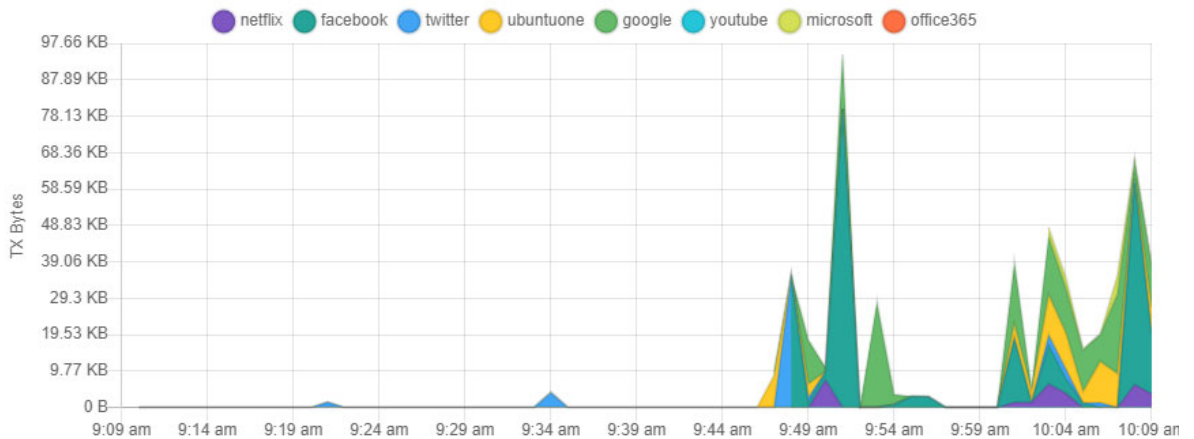
office| 1 x ▾
office365
google(app) ■
microsoft(app) ■
youtube(app) ■

Step 3: Monitor the breakout.

Use the Internet Breakout > Monitoring tab

Two charts are available here:

- The pie chart shows top 5 breakout applications. Clicking applications on the vertical legend adds/removes them to/from the chart.
- The line graph shows breakout traffic over a set period of time. Clicking applications on the horizontal legend or using the dropdown list adds/removes them to/from the graph.



Auto Traffic Shaping

This feature dynamically adjusts the maximum transit capacity of remote locations (spoke tunnels) to not exceed the receive capacity of the central site (hub). This is termed the **maximum Rx bandwidth** of the hub.

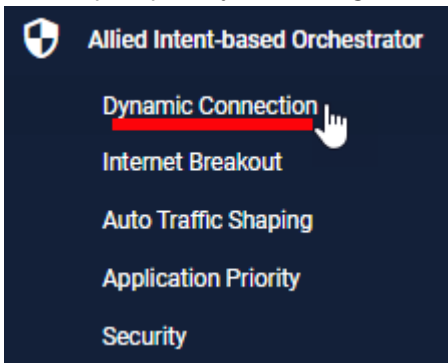
To allocate this bandwidth optimally, we recommend you also deploy Application Priority profiles on each spoke tunnel.

To manage traffic, an algorithm uses current spoke tunnel traffic rates, and any configured application priority settings, across all spoke tunnels to fairly allocate bandwidth. Spoke tunnels have a guaranteed transmit bandwidth. This equals the sum of the CIRs (committed information rate) plus system bandwidth defaulted to 5%.

Prerequisite Step: Configure tunnels between spokes and hubs.

Use the Allied Intent-based Orchestrator > Dynamic Connection feature

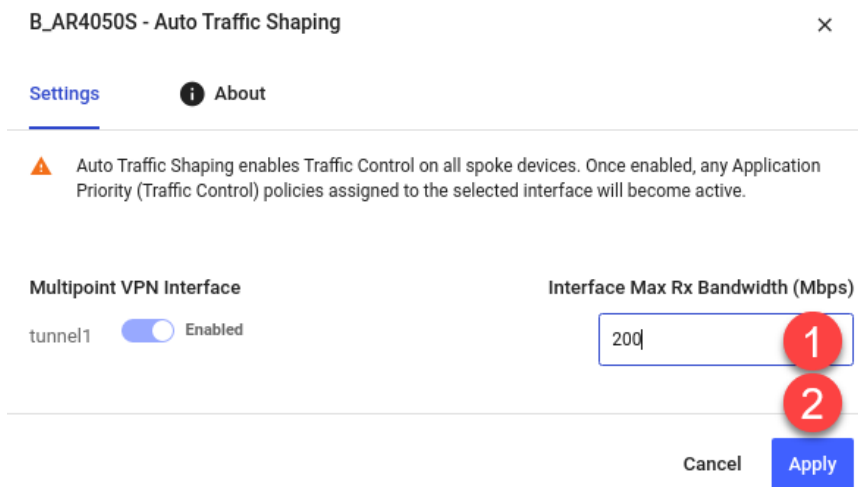
This step requires you to navigate away from Auto Traffic Shaping.



Step 1: Configure the Interface Max Rx Bandwidth value.

Use the Auto Traffic Shaping > Settings tab or button

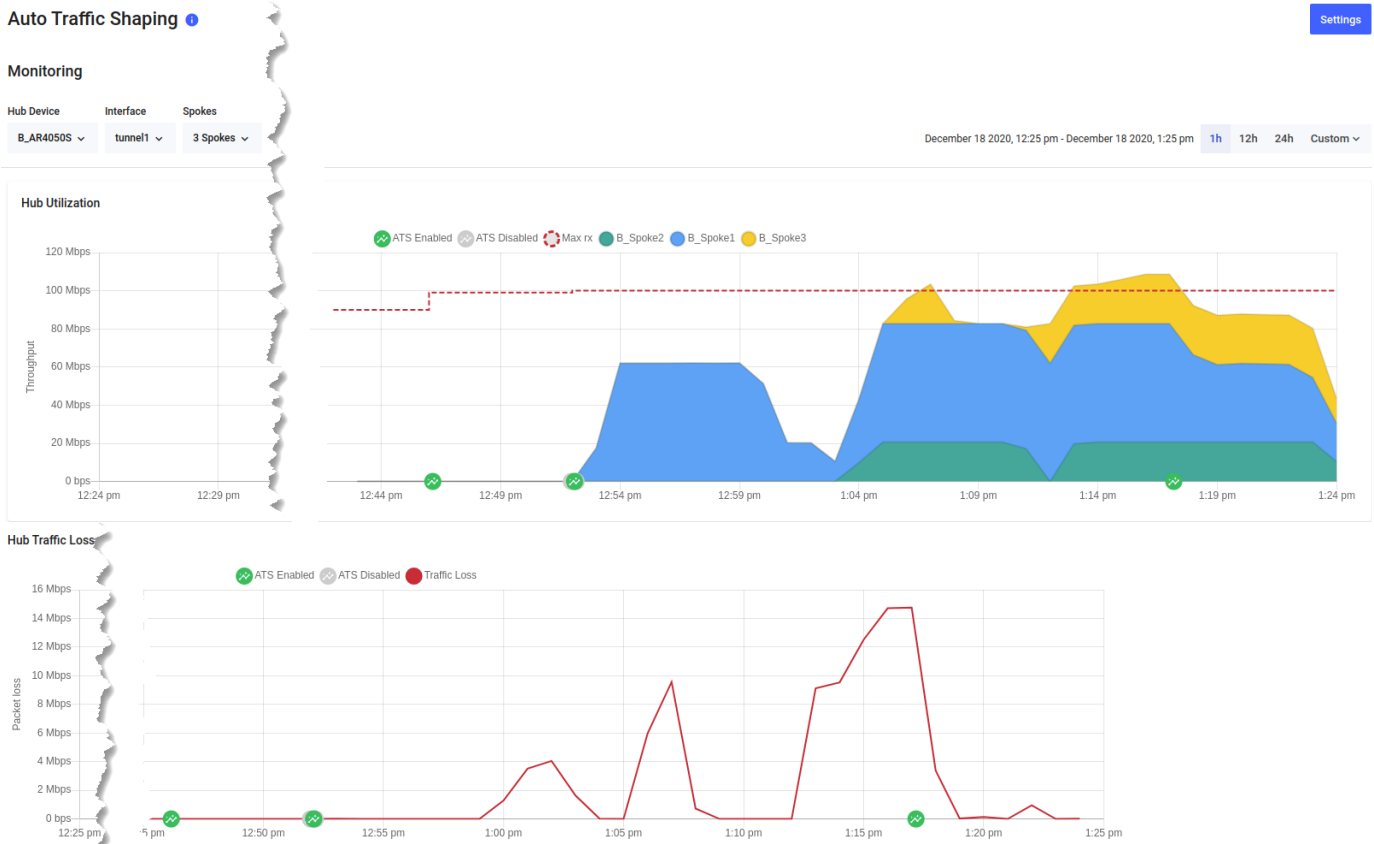
1. Enter the maximum bandwidth a hub can handle. The algorithm calculates and applies optimal traffic shaping based on this number.
2. Click **Apply**.



Step 2: Monitor hub utilization and traffic loss.

Use the Auto Traffic Shaping > Monitoring tab

View charts in the Monitoring page, where you can use filters to specific what traffic is shown.



Application Priority

Application Priority enables you to choose specific applications and prioritize or deprioritize them. This ensures your most important business traffic is prioritized for transmission between locations across your WAN. Vista Manager EX provides 3 priority classes:

1. **Critical Services**
2. **Daily Operations**
3. **Non-Essential**

You can assign different applications to each priority class, save the assignment in a policy, and deploy the policy on the AR-Series device (firewall or router) at each location in your WAN.

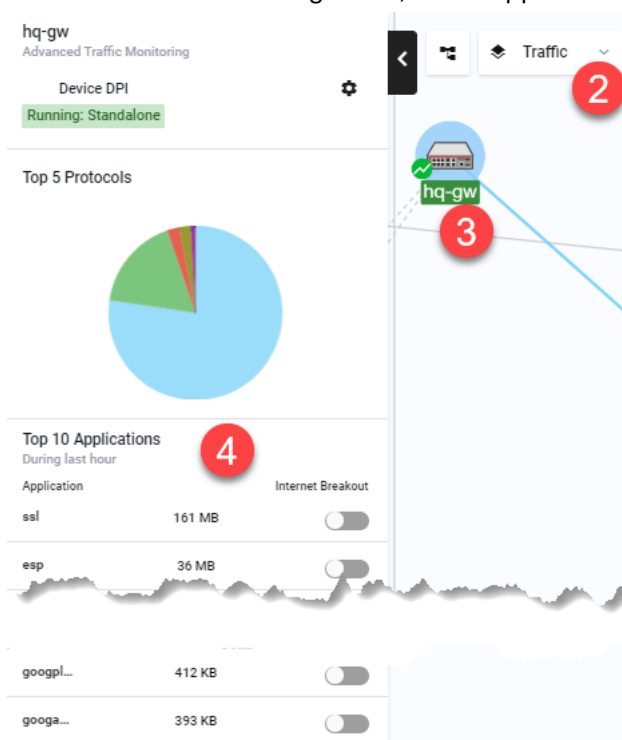
A policy is the overall title for a set of rules and priorities. It also defines the type of algorithm for how it calculates the priority of traffic. Traffic for any unassigned applications set in the rules will fall into the **Default** policy class. The default class is not directly visible when creating a policy, but the traffic matching the default class (either in throughput or packet loss) can be seen in the Monitoring graphs.

This feature lets you view any existing Application Priority policies, and shows throughput and packet loss graphs for devices that have a policy deployed on them. You can also see how much guaranteed bandwidth each class has and how much shared bandwidth remains. When the network is congested, use the slider or advanced option to set bandwidth requirements to ensure smooth application traffic.

Vista Manager EX application usage data lets you better prioritize applications. When creating or deploying policies, you can analyze current traffic present on a device, which helps you assign applications into the most appropriate priority classes for a policy.

Step 1: Check application usage on a device.

1. Navigate to the Network Map.
2. Select **Traffic** mode from the dropdown list.
3. Select the device you want to check. A blue circle appears around it.
4. Examine the traffic usage data, which appears in the left-hand panel.



Step 2: Create an Application Priority policy.

1. To create a policy, you may:
 - Right-click on the device in Traffic mode of the Network Map and select Application Priority > Add Policy, or
 - Navigate to the Application Priority menu item and click **+Add Policy**, or
 - Navigate to the Application Priority menu item, and **clone** an existing policy by clicking the 3 dots for that policy, in the Action column.

All of the above approaches open the Add Policy page.

2. Next, type in a policy name. For example, "**Branch-Office**".
 3. Select an Application Provider. By default, Built-in is selected. If you have bought an Advanced Firewall licence for your AR-Series UTM firewall, select Procera instead, which enables a much larger application list to work with.
 4. On the right-hand panel, choose a Category of applications. For example, **Remote Access**. A list of applications will appear.
 5. Assign appropriate classes to the relevant applications. You can use the Assigned Class filter at any point to see what applications you have assigned to a class. When you assign a class, it appears accordingly on the policy classes on the left.
 6. Here, you may adjust the bandwidth for each class. To do this, either **move the slider** or **enable advanced bandwidth adjustment** to type in the percentage. Percentages will be converted to Mbps values when deployed to device. If the advanced option is used after the slider, any manually-set values are automatically replaced by the slider presets.
- Note:** The reserved percentage of guaranteed bandwidth for system traffic is displayed here. The 5% value is based on the default value that traffic control sets on a device. The actual value may vary depending on what device(s) the user deploys the policy on to. Vista Manager will just show **5% as the system bandwidth**.
7. If you have accessed the page via the Network Map, click **Save and Deploy**. Otherwise, click **Save**.

Policy Name * **2**
Branch-Office
Give your policy a descriptive title E.g. AppCategory_RequiredMbps

Application Provider **3**
Built-in Procera (license required)

Application Priority

Assign applications to give priority over lower classes and default traffic

- 1 Critical Services**
Applications critical to business operations.
Include services whose disruption would result in a high cost. E.g. Database & Backup.
Applications: citrix, rdp, ssh **Clear All**
- 2 Daily Operations**
Applications used in day-to-day business operations.
E.g. File sharing.
Applications: teamviewer, telnet **Clear All**
- 3 Non-Essential**
Applications that are commonly used but not essential to business operations.
E.g. Social media.
Applications: pcanywhere **Clear All**

Guaranteed Bandwidth

Control minimum bandwidth requirements to ensure application traffic when network is congested. Percentages will be converted to Mbps values when deployed to device.

25%

6

System	5 %
Critical Services	4 %
Daily Operations	10 %
Non-Essential	6 %
Shared Bandwidth	75 %

Assign Applications **7**

Category: Remote Access
Assigned class: All

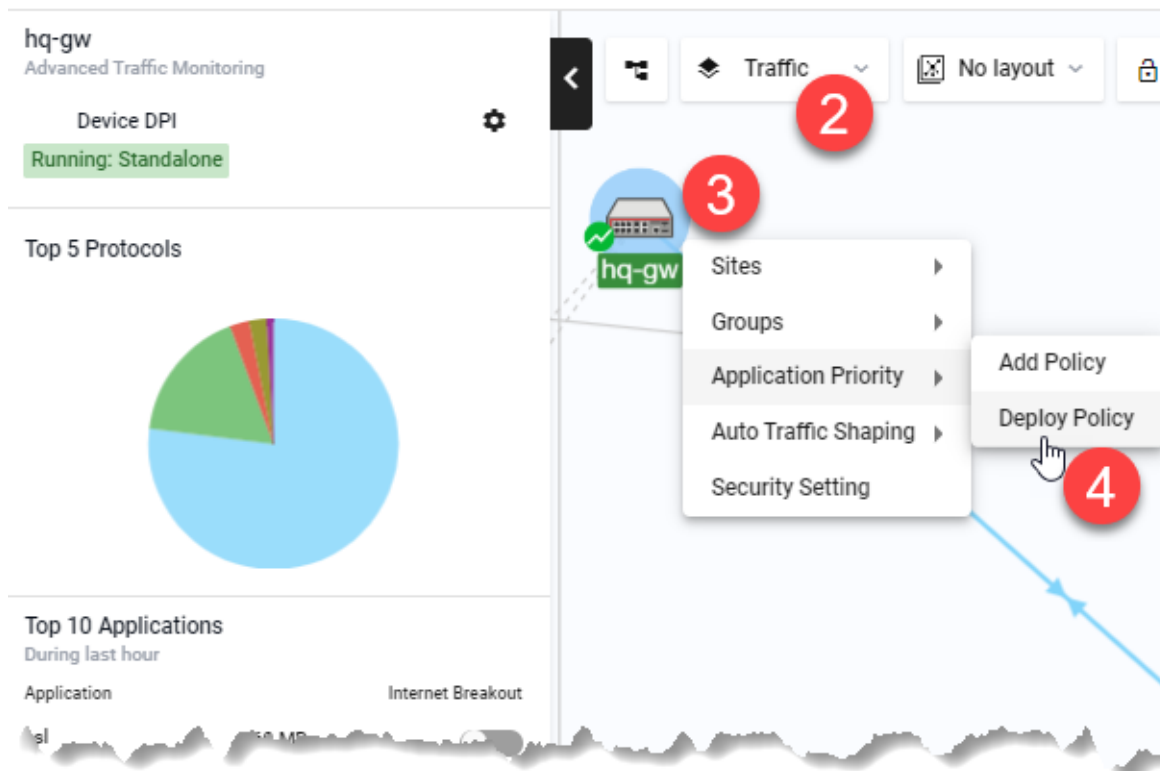
Search applications

Applications 4	Assigned to class 5
citrix	Critical Services
pcanywhere	Non-Essential
rdp	Critical Services
ssh	Critical Services
teamviewer	Daily Operations
telnet	Daily Operations
vnc	Unassigned

1 to 7 of 7 Page 1 of 1

Step 3: Deploy a policy.

1. Navigate to the Network Map.
2. Select **Traffic** mode from the dropdown list.
3. Select the device you want to deploy a policy to. A blue circle appears around it.
4. Right-click on the device, select Application Priority > **Deploy Policy**.



5. Select a policy to deploy.
6. Specify a **Source Entity** to match traffic against.
7. Specify an interface for **Destination Entity**.
8. Define a **maximum bandwidth**. This places a cap on the virtual bandwidth.

9. Click **Deploy Policy** when complete.

← Deploy Policy Cancel **Deploy Policy**

hq-gw
Advanced Traffic Monitoring

Device DPI ⚙️

Running: Standalone

Top 5 Protocols

Top 10 Applications
During last hour

Application	Internet Breakout
ssl	160 MB <input type="checkbox"/>
esp	36 MB <input type="checkbox"/>
icmp	5 MB <input type="checkbox"/>
udp	2 MB <input type="checkbox"/>
eth	1 MB <input type="checkbox"/>
facebo...	967 KB <input type="checkbox"/>
superce...	500 KB <input type="checkbox"/>
tcp	470 KB <input type="checkbox"/>
googpl...	449 KB <input type="checkbox"/>
googa...	393 KB <input type="checkbox"/>

Device
hq-gw

Source Entity 6
VM_Zone.BREAKOUT_TO
Select a source entity to match traffic against

Destination Entity 7
VM_Zone.BREAKOUT_FROM (tunnel1)
Destination entity must specify an interface

Select Policy 5
test-deploy

Destination Max Bandwidth (Mbps) 8
100
Control destination interface Virtual Bandwidth value

test-deploy

- 1 Critical Services**
Applications critical to business operations.
Include services whose disruption would result in a high cost. E.g. Database & Backup.
Applications
- 2 Daily Operations**
Applications used in day-to-day business operations.
E.g. File sharing.
Applications
circuit
- 3 Non-Essential**
Applications that are commonly used but not essential to business operations.
E.g. Social media.
Applications

Security

The security feature lets you configure the web control and IP reputation features on the UTM firewalls at a number of locations simultaneously, for centralized and simplified management.

- **Web control** offers an easy way to monitor and control the types of websites viewed by employees.
- **IP reputation** blocks employee access to websites that are known source of spam, viruses and other malicious activity, to protect your network against security threats.

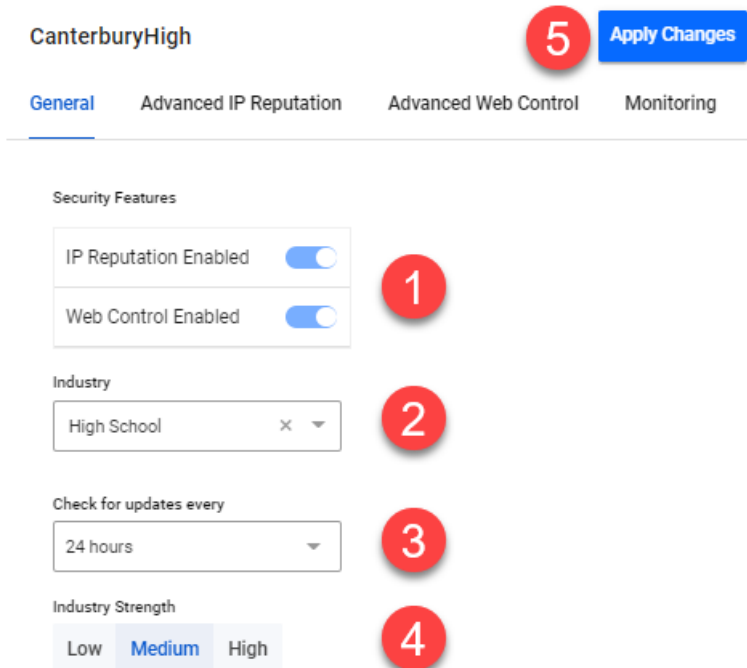
The overall security feature allows you to enable recommended security settings for a group of UTM firewall devices based on an industry type and security strength. This simplifies the process as there is no need to manually choose website or reputation categories for each device.

Note: For this feature to be fully functional, you may need to do additional configuration in the device GUI. Internet access and domain name lookup are required. Enable the ATL Live update server in order to download and check for IP reputation or web control updates.

Step 1: Enable security features and select industry settings.

Use the Security > General tab

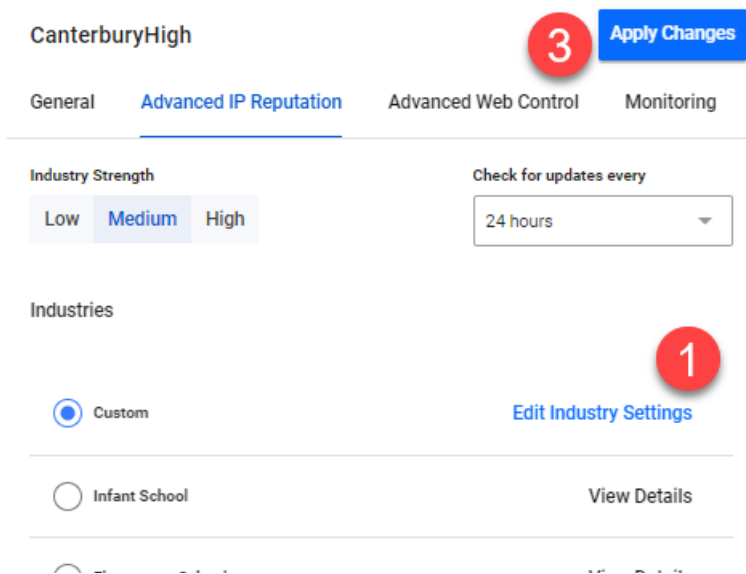
1. Enable **IP Reputation** and **Web Control** for the desired device group(s).
2. Select the industry type (e.g. school).
3. Set a time to check for updates.
4. Select the desired security strength for the industry (e.g. medium).
5. Click **Apply Changes**.



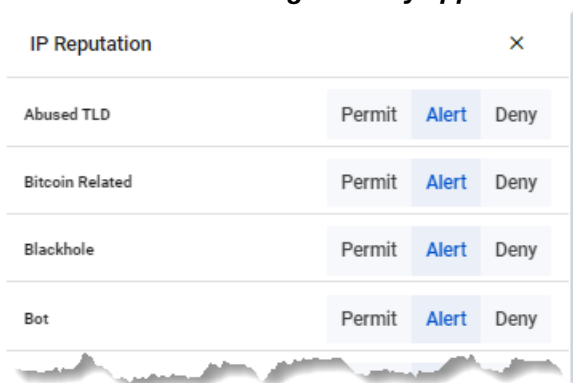
Step 2: Edit advanced IP reputation settings if required.

Use the Security > Advanced IP reputation tab

1. Click **Edit Industry Settings**.



2. **Permit, alert, or deny** a reputation category action as needed.
A warning appears if one of more devices in the group have had different IP reputation or Web Control settings already applied via another group.



3. Click **Apply Changes**. This changes the industry type to Custom.

Step 3: Edit advanced Web Control settings if required.

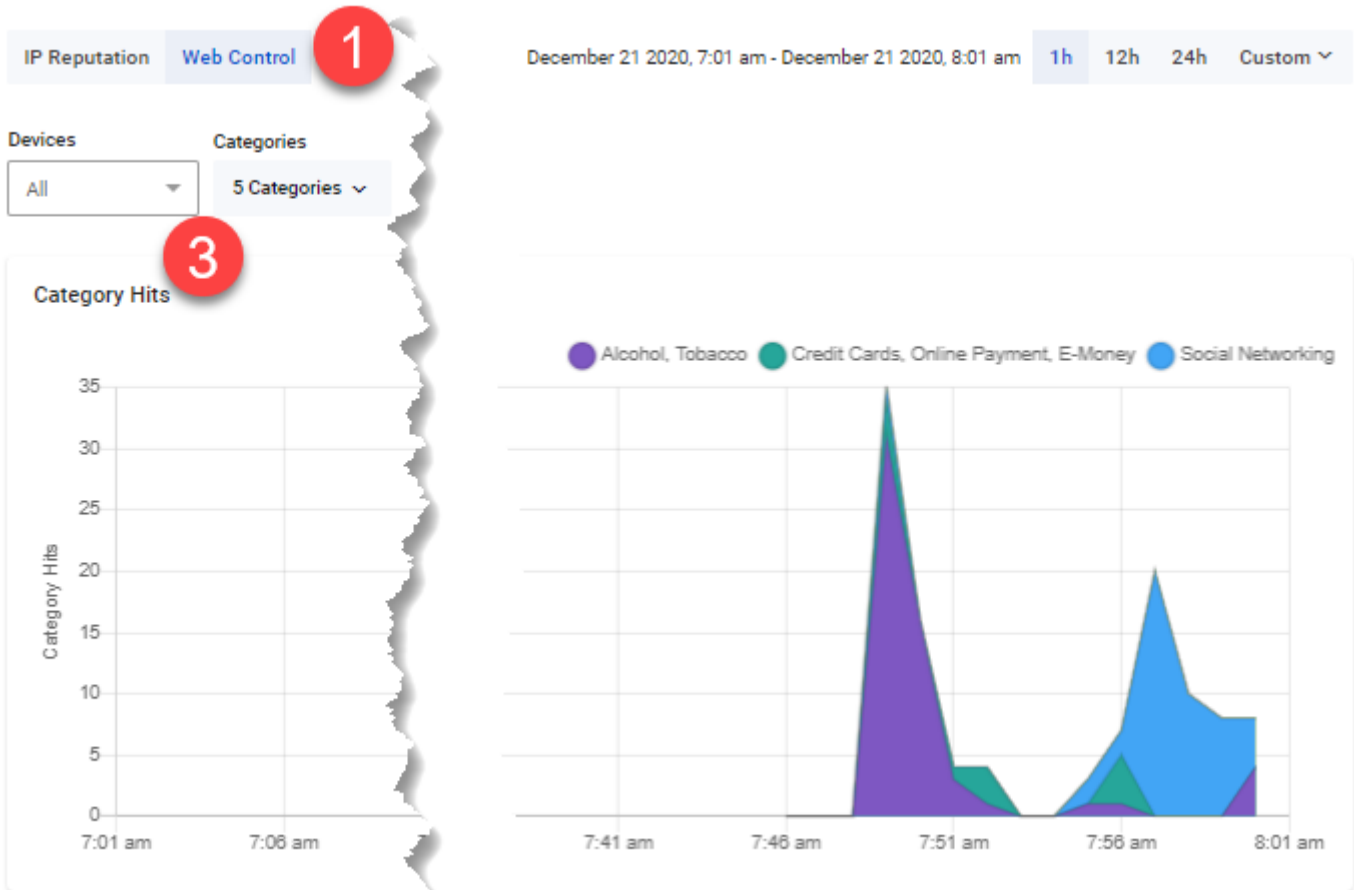
Use the Security > Web Control tab

1. Click **Edit Industry Settings**.
2. **Permit or deny** website categories as needed.
A warning appears if one of more devices in the group have had different IP reputation or Web Control settings already applied via another group.
3. Click **Apply Changes**. This changes the industry type to Custom.

Step 4: Monitor Web Control and IP Reputation performance.

Use the Security > Monitoring tab

1. Click on the IP Reputation and Web Control buttons to view respective graphs.
2. For IP Reputation, click the dropdown list to select the UTM firewall device from a specific location to view.
3. For Web Control, click the dropdown list to select the UTM firewall device from a specific location to view. Clicking Categories on the legend or dropdown list lets you add/remove categories to view on the graph.



Using the SD-WAN Feature

Introduction

Software Defined WAN (SD-WAN) provides you with improved inter-branch network performance and reduced cost, by automatically optimizing application traffic over multiple VPN links between offices.

The SD-WAN orchestrator integrated into Vista Manager EX provides centralized management of your WAN infrastructure, and dynamically configures the firewall/router endpoints at each branch location. You can easily set acceptable performance metrics for any application, and load-balance traffic to meet requirements. By monitoring VPN link quality, time-sensitive or critical traffic is automatically switched over to the optimal link as required.

Visual monitoring enables easy management of the WAN, with the ability to drill down to specific VPN links or applications to assess live and historical operation.

For more information on SD-WAN, and details on instead configuring it via the CLI of individual firewall/router endpoints, refer to the [SD-WAN Feature Overview and Configuration Guide](#).

Limitations

The initial implementation of SD-WAN in Vista Manager EX does not offer all the functionality available through the CLI. The following limitations apply.

- You cannot apply asymmetric rules between two devices using Vista Manager EX. This means you cannot specify different rules at each end of the same tunnel. This has further limitations when Vista Manager EX is configured on an existing network that already has SD-WAN rules defined. This behaviour is outlined in the [“Rule Discovery”](#) section.
- You cannot specify the exact values associated with a probe. Default values are set by the SD-WAN feature for:
 - IP Version (IPv4 or IPv6)
 - Interval (ms)
 - Packet size (bytes)
- You also cannot create groups, profiles, or linkmon probes directly. These are all handled automatically by Vista Manager EX.
- Rule Discovery
 - You cannot see a PBR rule in Vista Manager if it was created in the CLI.
 - You should not alter any SD-WAN rules in the CLI if you intend to use Vista Manager to maintain your SD-WAN rules.

- A naming convention is applied to all SD-WAN configurations performed by Vista Manager. These configurations are prefixed with "VM_" and should never be altered via the CLI. This will cause unexpected behaviour in Vista Manager EX.
- Vista Manager EX only discovers rules from a device upon start-up, or the discovery of a new device. Any changes in the CLI will not be reflected in Vista Manager at run time.
- There are specific pre-configuration steps required to get SD-WAN working on Vista Manager. These are noted in the [“Configuring devices for SD-WAN”](#) section.
- The following tunnel types are supported:
 - ipv4 (ipsec)
 - ipv6 (ipsec)
- You cannot edit a tunnel name from Vista Manager EX. The configuration of tunnel names is described in the [“Tunnel Names”](#) section.
- No more than 500 rules can be configured on any one device. This is an existing AlliedWare Plus SD-WAN constraint on PBR rules.

Configuring devices for SD-WAN

The Vista Manager EX SD-WAN feature provides a GUI for you to set up your network. Before that can be done, the devices first need some initial configuration via the CLI.

Tunnel Setup

Vista Manager detects tunnels using an algorithm. Only tunnels that match that algorithm can be shown on the map. IP Sec tunnels must be pre-configured on the network as shown below.

```
interface tunnel10
  tunnel source
  tunnel destination
  tunnel local name
  tunnel remote name
  tunnel protection ipsec
  tunnel mode ipsec
  description <<<tunnel name>>>
```

STATUS	DESCRIPTION
interface tunnel10	This does not need to match the other end of the tunnel.
tunnel source	This must be either eth, subinterface, or PPP, or the IP of those. The API must return an IP address.
tunnel destination	This must match the source IP address of the other end of the tunnel. Where the destination is a domain, the API must return an IP address.
tunnel local name	Not used for tunnel matching logic.
tunnel remote name	Not used for tunnel matching logic.
tunnel protection ipsec	Must be present.

STATUS	DESCRIPTION
tunnel mode ipsec	Must be only this mode, and either ipv4 or ipv6. Must match the config of the other end of the tunnel.
description <<<tunnel name>>>	Optional. If description is not present, the VTI name is used (e.g. tunnel10).

Tunnel Names

If you want to set a custom tunnel name inside Vista Manager EX, you can specify the name in the description field of the interface. An example can be found above, or in the example configuration file below.

Routing

Routing must be up and working before SD-WAN functionality will work in Vista Manager EX.

DPI Engine

When creating a rule, you have the ability to select an application to monitor. The application is determined using DPI on the device. The SD-WAN feature uses the enabled DPI Engine. If no DPI Engine is set, it will default to the built-in engine. DPI is not enabled for SD-WAN by default. You must pre-configure DPI on the device, or enable it via Traffic Monitoring in Vista Manager EX.

Note: If you have purchased a Procera license, it is strongly recommended that Procera is set as your DPI Engine, and enabled on all of your devices before running the SD-WAN feature.

Network time protocol

Network time protocol (NTP) is a protocol designed to synchronize the clocks of computers over a network. The objective of NTP is simple: to allow a client to synchronize its clock with Coordinated Universal Time (UTC), and to do so with a high degree of accuracy and stability.

To allow SD-WAN to work correctly, NTP should be running on the network so that all clocks are synchronized. For more information on NTP, refer to the [Network Time Protocol \(NTP\) Feature Overview and Configuration Guide](#).

Configuration example

Below is an example of a configuration for a device that will be used in a Vista Manager EX SD-WAN network.

```
!
service password-encryption
!
hostname AR3050S-Master
!
no banner motd
!
username manager privilege 15 password 8 $1$bJoVec4D$JwOJGPr7YqoExA0GVasdE0
!
!
no service ssh
!
service telnet
!
service http
!
snmp-server
!
!

aaa authentication enable default local
aaa authentication login default local
!
!
atmf network-name SDWAN
atmf master
atmf area B id 2 local
atmf area B password 8 rnTNKv0fF4iHLJO+qhWojjIeSpzhx7FdZTOUyOPEtxE=
atmf area A id 1
atmf area A password 8 FtzApz+UFXW792nmEuo/TbLSxIuPYiQ8tbu8Mt4Z6a0=
atmf topology-gui enable
!
!
dpi
provider built-in ←DPI engine should be specified, otherwise Vista Manager will default to built-in
enable
!

crypto isakmp key 8 356oBeBg/eKTE/uhg5C5May0drVT1L4o0bB1kauVp9c= hostname
TUNNEL10
crypto isakmp key 8 2efK2dZ6h0EMVG7+8qfBEKIm73JX3UurzJ2+MVpiH7I= hostname
TUNNEL100
crypto isakmp key 8 jv6hbNiRdJwN0luRU/3KFkkKQ8Cq6XJ9+otnF+SahaA= hostname
TUNNEL1000
crypto isakmp key 8 wXyMxF5WzvFVc/BtCk5JatDonDQfLMct4pjnK+N5Lzk= hostname
TUNNEL11
crypto isakmp key 8 c/KHKV6pkaCDimGlrFqsTZBIdsZYNIh7UnlGC3cYaeA= hostname
TUNNEL2100
crypto isakmp key 8 Sg3MBt18tCHZD9aPkwqrqK5F/FBJiduj1NAFF/rFyknE= hostname
TUNNEL2101
!
!
!
!
ip domain-lookup
!
no service dhcp-server
!
no ip multicast-routing
!
spanning-tree mode rstp
!
tunnel security-reprocessing
no lacp global-passive-mode enable
!
```

```

vlan database
vlan 4000 name testNet
vlan 4000 state enable
!
interface port1.0.1
switchport
switchport mode access
switchport access vlan 4000
!
interface port1.0.2-1.0.6
switchport
switchport mode access
!
interface port1.0.7
switchport
switchport mode trunk
switchport atmf-link
!

interface port1.0.8
switchport
switchport mode trunk
rmon collection history 4 buckets 10 interval 30 owner VISTA
switchport atmf-link
!
interface eth1
encapsulation dot1q 2
encapsulation dot1q 3
encapsulation dot1q 1000
!
interface eth1.1000
ipv6 address 2001:db9:1:1::2/64
!
interface eth1.3
ip address 11.0.5.1/30
!
interface eth1.2
ip address 11.0.4.1/30
!

interface eth2
encapsulation dot1q 100
!
interface eth2.100
ip address 12.0.100.1/30
!
interface mgmt
ip address 10.37.130.10/27
!
interface tunnel11 ←Ipsec tunnel interfaces must already be configured
tunnel source eth1.2
tunnel destination 11.0.2.1
tunnel local name TUNNEL11
tunnel remote name TUNNEL10
tunnel protection ipsec
tunnel mode ipsec ipv4
ip address 192.168.10.2/30
!

```

```

interface tunnel100
 tunnel source eth1.3
 tunnel destination 11.0.3.1
 tunnel local name TUNNEL100
 tunnel remote name TUNNEL100
 tunnel protection ipsec
 tunnel mode ipsec ipv4
 ip address 192.168.100.2/30
 !
interface tunnel1000
 description <<<IPv6 Tunnel>>> ←Example tunnel name configuration
 tunnel source eth1.1000
 tunnel destination 2001:db9:2:1::2
 tunnel local name TUNNEL1000
 tunnel remote name TUNNEL1000
 tunnel protection ipsec
 tunnel mode ipsec ipv6
 ipv6 address fd00:10::2/64
 !

interface tunnel2100
 tunnel source eth2.100
 tunnel destination 12.0.100.2
 tunnel local name TUNNEL2100
 tunnel remote name TUNNEL2100
 tunnel protection ipsec
 tunnel mode ipsec ipv4
 ip address 192.168.200.2/30
 !
 atmf virtual-link id 11 interface eth1.2 remote-id 10 remote-ip 11.0.2.1 remote-
 area A
 atmf virtual-link id 200 ip 12.0.100.1 remote-id 201 remote-ip 12.0.100.2
 !
 ipv6 forwarding
 !

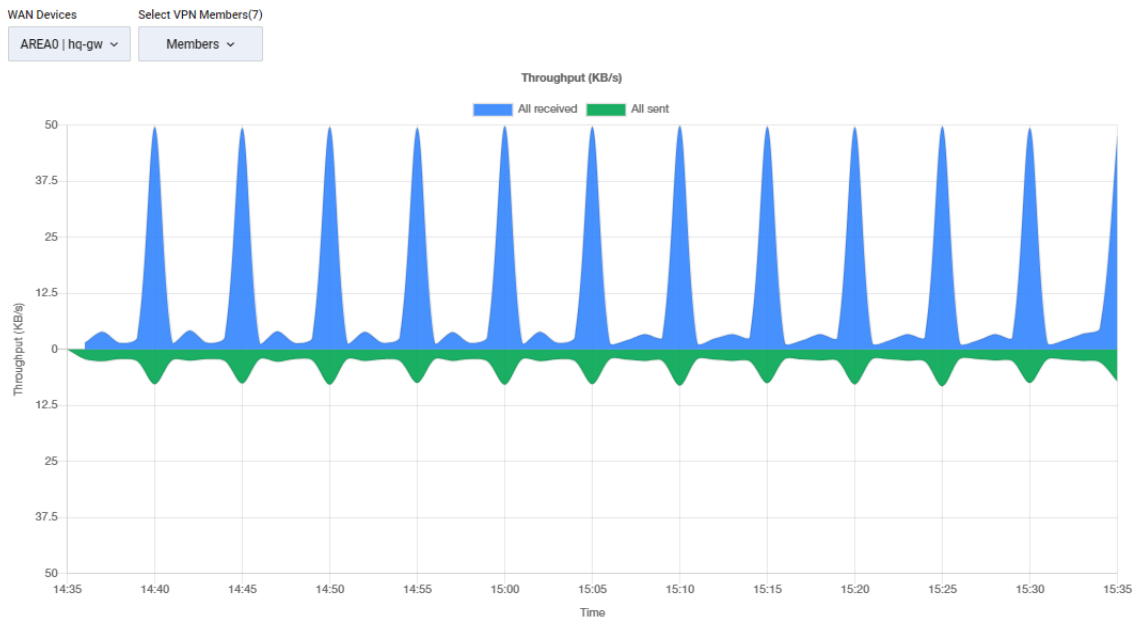
ip route 11.0.2.0/30 11.0.4.2 ←Routing must already be set up and working for SD-WAN features to
 work
ip route 11.0.3.0/30 11.0.5.2
 !
ipv6 route 2001:db9:2:1::/64 2001:db9:1:1::1
 !
line con 0
 exec-timeout 0 0
line vty 0 4
 !
end

```

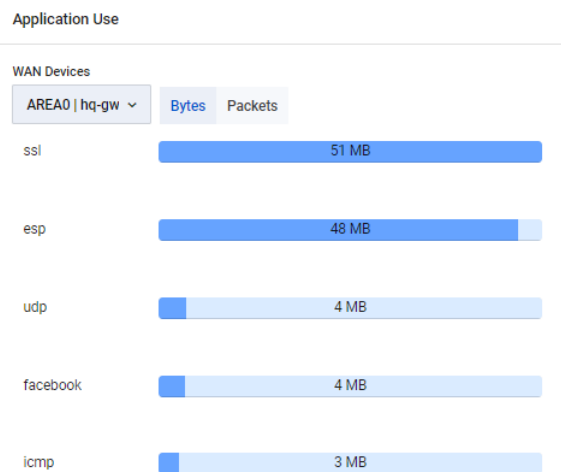
Dashboard

The SD-WAN dashboard provides you with an overview of the current state of your network. You can see throughput, a breakdown of application use, the state of rules that have been applied, and events in the network.

You can also choose the time-frame you wish to display; either the last 1 hour, the last 12 hours, the last 24 hours, or a custom range.



The throughput chart shows an overview of sent and received data for a device. You can select which device to view from the WAN Devices drop-down. You can also choose which members to include from the Select VPN Members drop-down.

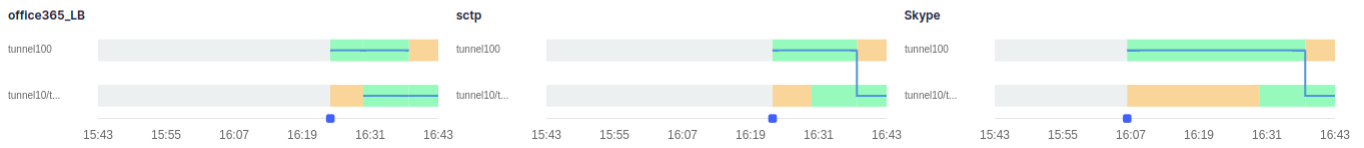


The application use chart shows the amount of data sent and received for a device, broken down by application. You can select which device to view from the WAN Devices drop-down. You can also choose whether to view bytes or packets by choosing the appropriate toggle.

SD-WAN Rule Monitoring 3 of 3

Source-Dest

A.AR2050V-top -> B.AR4050S-bottom



The rule monitoring chart shows the status of rules in your network. You can change which rules are shown from the Source-Destination drop-down.

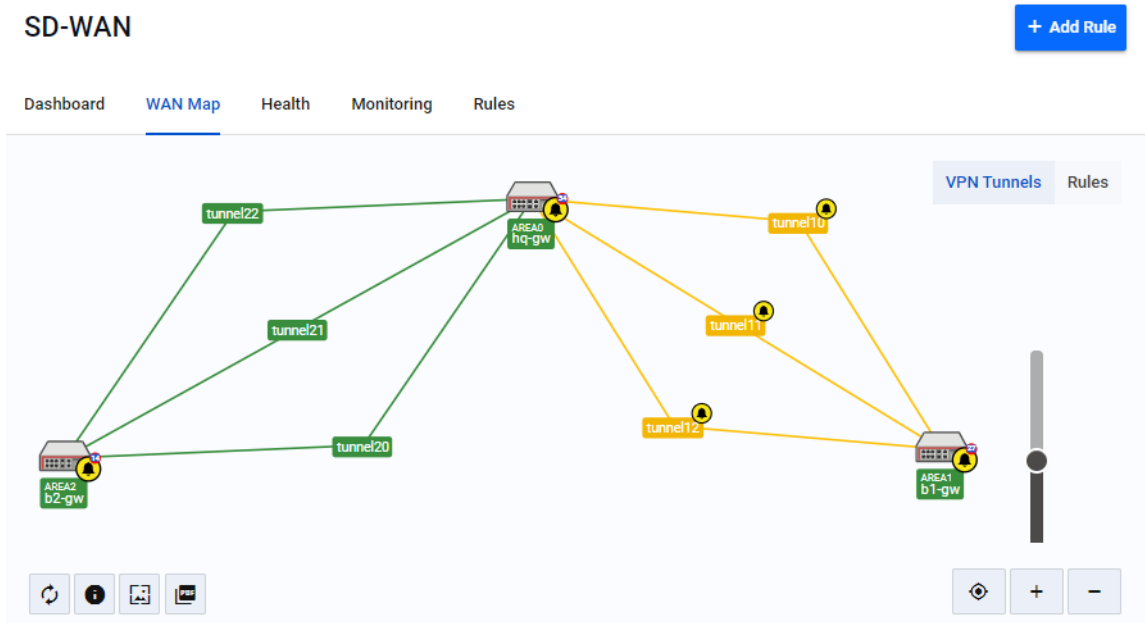
SD-WAN Events

Date	Rule	Application	Source	Destination	Event	Previous Link	Selected Link	Selection decision	Message
09:55:13 2019-09-10	Connect	http_connect	AR4050S-bottom B	AR2050V-top A	Link State Good tunnel11	-	tunnel11 192.168.10.2	-	[Rule: Connect] tunnel11 lin
09:55:13 2019-09-10	Connect	http_connect	AR4050S-bottom B	AR2050V-top A	Link Selected Configuration change	-	tunnel10 192.168.10.1	lowest available member id	cause: Configuration chang
09:55:13 2019-09-10	Connect	http_connect	AR4050S-bottom B	AR2050V-top A	Link State Good tunnel100	-	tunnel100 192.168.100.2	-	[Rule: Connect] tunnel100 li
09:55:13 2019-09-10	Connect	http_connect	AR2050V-top A	AR4050S-bottom B	Link Selected Configuration change	-	tunnel11 192.168.10.2	lowest available member id	cause: Configuration chang

The SD-WAN Events chart shows all of the events that have occurred. You can limit which events are shown by using a keyword to filter the results. Click on the Export as CSV button to export all values. Click on the Columns button to choose which columns are shown.

Topology map

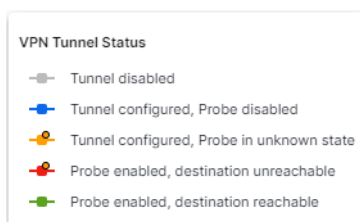
The SD-WAN topology map gives you a visual overview of your network.



You can see the state of all tunnels on the map. The state of each tunnel is indicated by the following colors:

- Grey with dashed line - Tunnel disabled or tunnel configuration incorrect
- Blue - Tunnel configured, probe disabled
- Orange - Tunnel configured, probe in unknown state
- Red - Probe enabled and tunnel destination is not reachable
- Green - Probe enabled and tunnel destination reachable

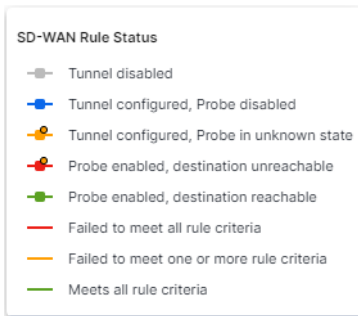
You can click on the Information button to bring up a key explaining each of the colors.



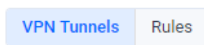
You can also see the health of SD-WAN rules on the map. The health of each rule is indicated by the following colors:

- Red - Failed to meet all rule criteria
- Orange - Failed to meet one or more rule criteria
- Green - Meets all rule criteria

As with the VPN Tunnel Status, you can click on the Information button to bring up a key explaining each of the colors.



To change between showing the health of the tunnels or the rules, select either VPN Tunnels or Rules by clicking on the control in the top right corner.



When you click on a tunnel, the tunnel details are displayed in the side panel. The side panel shows the following information:

Tunnel details tab:

@ tunnel10 / tunnel11 X

Tunnel Rules

Probe Status

Protection IPSec

Mode IPSec

tunnel10 Router: A/AR2050V-top ^

Interface Name tunnel10

Source eth1.2

Source IP

Destination

tunnel11 Router: B/AR3050S-bottom ^

Interface Name tunnel11

Source eth1.2

Source IP

Destination

- Probe Status. You can use this slider to enable or disable a probe.
- Protection
- Mode
- Interface Name
- Source
- Source IP
- Destination

SD-WAN rules tab:

@ tunnel10 / tunnel11 X

Tunnel Rules

Facebook Ranked 2 ^

A | AR2050V-top

tunnel10

B | AR3050S-bottom

tunnel11

- Rule Name
- Rule Details

When you click on a router, the router details are displayed in the side panel. The side panel shows the following information:

Router details:

AR4050S-bottom ✕

[Reboot Device](#) [Backup Device](#) [SSH to Device](#)

Router [Members](#) [Rules](#)

Basic Information

Status	Normal
IP Addresses	
Type	Router
Model	AR4050S
Serial	
Version	5.4.9-1.3
Vendors	Allied Telesis Labs Ltd

AMF Information

Area	B
------	---

Events

Running config updated - Requires sav... ✕

- Status
- IP Address
- Type
- Model
- Serial
- Version
- Vendors
- AMF Information

VPN members:

AR2050V-top ✕

[Reboot Device](#) [Backup Device](#) [SSH to Device](#)

Router **Members** [Rules](#)

A AR2050V-... AR3050S-... B

tunnel10	Up
tunnel100	Up
tunnel1000	Up

- SD-WAN rules associated with this router. The colours here represent the status of each tunnel as described above.

Rules:

AR2050V-top X

[Reboot Device](#) [Backup Device](#) [SSH to Device](#)

Router Members **Rules**

Facebook Ranked 2 ^

A | AR2050V-top
tunnel10

A | AR2050V-top
tunnel100

- Rule Name
- Rule Details

Linkmon probes

When a rule is created, any required probes will also be created and enabled. However, you can also create, enable, and disable probes from the SD-WAN map screen.

On the SD-WAN map, you can enable a probe for a specific link. To enable a probe, select the tunnel by clicking on it on the map. In the side panel, click on the Probe Status slider to enable the probe.

@ IPv6 Tunnel X

Tunnel Rules

Probe Status

Protection IPSec

Mode IPSec-IPv6

The Probe Status slider will then show the status as enabled.

@ IPv6 Tunnel X

Tunnel Rules

Probe Status

Protection IPSec

Mode IPSec-IPv6

The SD-WAN feature will create the probe and provide sensible default values for:

- IP Version (IPv4 or IPv6)
- Interval (ms)
- Packet size (bytes)

Probes that are created use ICMP by default, and this cannot be changed by a user.

You can disable a probe again by clicking on the Probe Status slider.

You can also use the SD-WAN map to see which links have probes enabled and disabled.

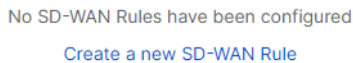
On the VPN-Members health screen, you can see a table of all VPN members in the network. You can also see which VPN Members have a probe enabled or disabled.

Note: If a probe has been configured by the CLI, it is not visible in the SD-WAN feature. It is recommended that you use the SD-WAN feature in Vista Manager EX to create the probes.

SD-WAN rules

SD-WAN rules, also known as PBR (policy-based routing), allow your network to determine the best path for network traffic. SD-WAN uses metrics about the health of the link to decide if the link is “good” or “bad”. This allows traffic to be re-directed from a “bad” link to a “good” link, even if both links are still up. The metrics that SD-WAN can use to judge the health of a link are jitter, latency, and packet loss. Each metric is examined separately, so that a link that is “bad” for voice traffic due to high latency may still be “good” for bulk data due to low packet loss.

When there are no rules configured, you will see the following message on the SD-WAN rules landing page:



No SD-WAN Rules have been configured
[Create a new SD-WAN Rule](#)

Click on the **Create a new SD-WAN Rule** link to create your first rule.

If you already have SD-WAN rules configured, you can create a new rule by clicking on the Add Rule button.



SD-WAN [+ Add Rule](#)

Dashboard > WAN Map > Health > Monitoring > Rules

You will then see the Application Rule screen.

The screenshot shows the 'Application Rule' configuration interface. At the top, there is a 'Name' field. Below it are three main sections: 'Performance Profile', 'Site Deployment', and 'Application'. The 'Performance Profile' section is expanded and contains 'Link Status Thresholds' with input fields for Latency (ms) and Jitter (ms) under 'Bad above' and 'Recovery margin' categories, and 'Probe Loss' with input fields for 'Bad when', 'Good when', and 'Unreachable when'. Below this is a 'Link selection strategy' dropdown menu set to 'Ranked'. The 'Site Deployment' section shows 'No group is selected' and the 'Application' section shows 'No application is selected'. There are '+ Add group' and '+ Add application' buttons.

The Name field allows you to specify a name for your new rule.

The Performance Profile is made of two parts. The Link Status Thresholds are used to determine each link's status (good/bad/unreachable). The Link Selection Strategy is used when any selected link moves from good to bad status. The Link Selection Strategy is used to pick the new selected link to use.

This is a detailed view of the 'Performance Profile' section. It includes the 'Link Status Thresholds' section with 'Latency (ms)' and 'Jitter (ms)' metrics. Each metric has a 'Bad above' threshold (e.g., 1-2000) and a 'Recovery margin' (e.g., 0-1999 (below 'Bad above)'). The 'Probe Loss' section has three input fields: 'Bad when' (1-100), 'Good when' (1-100), and 'Unreachable when' (1-100). Below this is the 'Link selection strategy' dropdown menu, which is currently set to 'Ranked'.

Link status thresholds

Each link in a rule has a set of metrics collected for it using probes. When these metrics for a particular link break or move back within the Link Status Thresholds, the status of that link changes between bad/good/unreachable.

Each row in Link Status Thresholds sets thresholds for a particular metric. At least one row needs to be configured. The rows configured are independent of the Link Selection Strategy.

A link must be within all three thresholds to be considered good. If a link is breaking at least one of the three thresholds it is considered bad.

Latency

- Bad above - If a link's latency increases past this threshold then the link's status becomes bad.
- Recovery margin - A bad link will be considered good again (at least in terms of latency) once latency has reduced below the 'Bad Above' threshold by this amount.

Jitter

- Bad above - If a link's jitter increases past this threshold then the link's status becomes bad.
- Recovery margin - A bad link will be considered good again (at least in terms of jitter) once jitter has reduced below the 'Bad Above' threshold by this amount.

Probe loss

- Bad when - A link will be considered bad (at least in terms of probe loss) if this many probes are lost in succession.
- Good when - A bad link will be considered good again (at least in terms of probe loss) once this many probes are successful.
- Unreachable when - A link will be considered unreachable if this many probes are lost in succession.

Link selection strategy

For each group of links, a rule is applied so there will always be a selected link (when not load-balanced). This selected link is the link that all traffic for that rule is directed through. If that selected link's metrics breaks one or more thresholds (configured by link status thresholds), then the Link Selection Strategy is used to determine the new selected link.

Regardless of Link Selection Strategy, links within threshold are always preferred over links breaking one or more thresholds.

Selection Strategies

- Latency - the link with the lowest latency is picked.
- Jitter - the link with the lowest jitter is picked.
- Probe Loss - the link with least current consecutive probe loss is selected.
- Ranked - the link highest in the groups list is selected.
- Combined - takes latency, jitter, and probe loss metrics into account to determine a single combined score. The link with the best (lowest) score is selected.

Site deployment

Site Deployment ⓘ

+ Add group

No group is selected

Links picked to make up the groups for a rule determine where the rule will be deployed. Between each router pair selected, two identical instances of the rule will be deployed, one on each of the routers.

Even though a 'source' and 'destination' router are selected, the rules are deployed identically on each router pairing.

Selecting a router pairing as Load Balanced means that when there are more than one link with a status of good (status determined by Link Status Thresholds) then traffic flows will proceed evenly over all those good links. If all links have gone bad then the Link Selection Strategy is used to pick one link for the traffic to use.

Within each router pair, links can be moved to have a higher or lower ranking within the group. This ranking is solely used for the Link Selection Strategy of 'Ranked'.

Site Deployment ⓘ

+ Add group

AR2050V-top A → B AR3050S-bottom

Load Balance Members

tunnel10/tunnel11	⋮
tunnel100	⋮

When selecting a VPN member, you will be notified how many more rules can be created on the device. Remaining rule spaces are calculated by taking the highest rule ID and subtracting it from 500. When there are 0 rules available, you cannot select the member as a source or destination.

When selecting a VPN member, you can only select links between a source and destination device that have the same IP Version. If you select a link of type IPV6, then an IPV4 link cannot be selected in the same rule. Likewise, if you select a link of type IPV4, then an IPV6 link cannot be selected in the same rule. You will see a warning message if you attempt to select links that do not match.

Application

Application ⓘ

+ Add application

No application is selected

The application list is provided by the active DPI engine. If there is no active DPI engine, then SD-WAN will enable the built-in DPI engine by default.

Applications ×

Search

afp
aim
aimini
ajp
amazon
amazonvideo
amqp
apple

Editing and deleting an SD-WAN rule

Name ▾	Link selectio... ▾	Application ▾	Members	Action
Rule_100_3601_iax	Ranked	iax	2 members	⋮
Rule_101_5498_yo...	Probe Loss	youtube	2 members	<div>Edit Delete</div>

To edit an SD-WAN rule, click on the Action drop-down, and select Edit. This will take you to the Application Rule screen for that rule.

To delete an SD-WAN rule, click on the Action drop-down, and select Delete. This will prompt you whether you want to delete the rule, and clicking on Delete will remove it.

Managing SD-WAN rules in Vista Manager

Dashboard WAN Map Health Monitoring **Rules**

≡ Filter data ▾ 🔍 Search by keyword ⬇️ 🔊

Name ▾	Link selectio... ▾	Application ▾	Members ▾	Action
Facebook	Ranked	facebook	2 members	⋮
Rule_1_dns	Ranked	dns	2 members	⋮
Rule_2_applepush	Ranked	applepush	2 members	⋮
Rule_3_ssl_no_cert	Jitter	ssl_no_cert	2 members	⋮

1 to 4 of 4 |< < Page 1 of 1 > >|

You can see a table of the existing rules by clicking on the Rules tab.

Rules that have been configured using the CLI will not be visible in Vista Manager. If a rule was configured by Vista Manager, and then is altered via the CLI, the changes made in the CLI will not be visible inside Vista Manager. Therefore, you should not alter rules created in Vista Manager from the CLI.

The table of existing rules contains link state history. History information is polled and stored, so may be up to one minute out-of-date in the rule table.

Rule Discovery

If the Vista Manager database is reset or initialized, the SD-WAN configuration will be read from each router in the network. The naming convention used by Vista Manager will be used to retrieve this information.

When the Vista Manager server is started, or when a new router is added to the network, the SD-WAN configuration will be read from the device and compared with the current database state. If there is a mis-match, then an event will be generated in Vista Manager to tell the user that the configuration of the device is not compatible with Vista Manager's SD-WAN feature. The event log entry will be created when:

- Any rule configuration parameter differs between the Vista Manager database and the device.
- Any profile configuration parameter differs between the Vista Manager database and the device.
- Any group configuration information differs between the Vista Manager database and the device.
- Any probe configuration parameter differs between the Vista Manager database and the device.
- A rule on a device does not have an equivalent rule on another device, to maintain Vista Manager's rule of symmetry.

When Vista Manager detects a configuration mismatch, it will generate one event for the device that has the mismatch:

SD-WAN configuration on the device does not match Vista Manager.

When Vista Manager detects a configuration mismatch, a notification will be displayed on the rule configuration table. The user will have the option to:

- Fix the rule using the **Reconcile** action, or
- Delete and recreate the rule.

User permissions for rules

- A user can only create or edit a rule if they have read/write permissions for all routers specified in that rule.
- If a user has at least read-only permissions to one router in a rule, then they are able to view the rule configuration.
- If a router in a rule is down, the user cannot edit that rule. They can press delete for the rule, but this will only do a partial delete. This will only remove it from the online routers in the rule. They

will be warned that the rule cannot be deleted from the routers that are offline. The rule containing the offline routers will remain in the configured rules table.

Health

The health tab gives you an overview of the current health of your network in a single location.

The Source-Destination drop-down allows you to select a specific router, or show all routers. You can also limit which rules are shown by using a keyword to filter the results.

Click on the Export as CSV button to export all values. Click on the Columns button to choose which columns are shown.

Clicking on the toggle allows you to change the view between Rule Health and VPN Health.

Rule health

Dashboard WAN Map **Health** Monitoring Rules

Source-Dest: All

Filter data Search by keyword

Name	Source/dest	Application	Performance Profile	Latency	Jitter	Member Loss	Rule Health
Rule_17_7030_dns	B.AR30... ↔ A.AR20...	dns	Latency	→ ■■ ← ■■	→ ■■ ← ■■	→ ■■ ← ■■	Good
Rule_14_4146_http_connect	B.AR30... ↔ A.AR20...	http_connect	Latency	→ ■■ ← ■■	→ ■■ ← ■■	→ ■■ ← ■■	Good
Rule_13_461_hotmail	B.AR30... ↔ A.AR20...	hotmail	Probe Loss	→ ■■ ← ■■	→ ■■ ← ■■	→ ■■ ← ■■	Good

The rule health tab shows a summary of the state of all the rules in the network. You can click on a specific rule to see more information about that rule:

- the rule settings
- the rule status
- the current settings for:
 - latency
 - jitter
 - probe loss

VPN health

Dashboard WAN Map **Health** Monitoring Rules

Source-Dest: All

Filter data Search by keyword

Name	Source/dest	Probe status	Latency	Jitter	Probe Loss
tunnel10 / tunnel11	A.AR2050V-top tunnel10 ↔ B.AR3050S-bottom tunnel11	On	→ 50 ← 51	→ 3 ← 5	→ 0 ← 0
tunnel100	A.AR2050V-top tunnel100 ↔ B.AR3050S-bottom tunnel100	On	→ 51 ← 50	→ 5 ← 3	→ 0 ← 0
IPv6 Tunnel	A.AR2050V-top IPv6 Tunnel ↔ B.AR3050S-bottom IPv6 Tunnel	Off	→ 0 ← 0	→ 0 ← 0	—

The VPN health tab shows a summary of the state of all the VPNs in the network.

Monitoring

Dashboard WAN Map Health **Monitoring** Rules

Source-Dest
A.AR2050V-top -> B.AR4050S-bottom

Application Rule
Alister

September 6 2019, 2:39 pm - September 6 2019, 3:39 pm

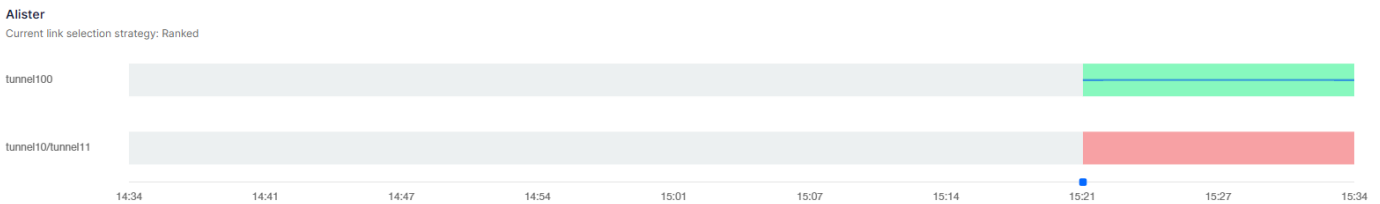
1h 12h 24h Custom

The monitoring tab displays historic link and rule information. Vista Manager EX allows you to view up to 7 days of historic data.

The Source-Destination drop-down allows you to select a specific router, or show all routers. The Application Rule drop-down lets you select which rule to show. You can also choose the time-frame you wish to display; either the last 1 hour, the last 12 hours, the last 24 hours, or a custom range.

You can toggle which charts are shown. The Performance Routing Events chart is always available. The Link Selection Path and Link Performance charts are only available after a source and destination have been selected.

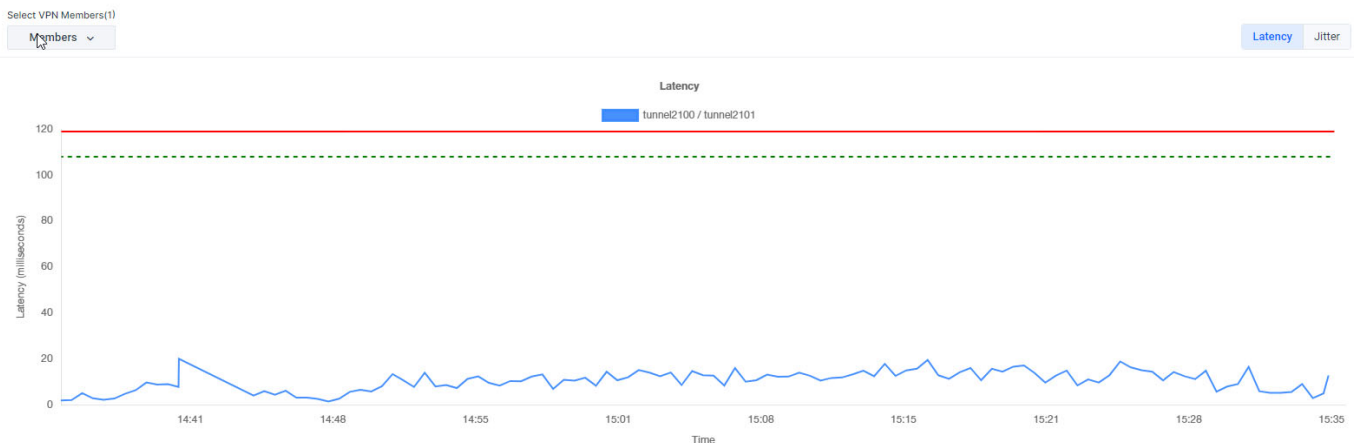
Link Selection Path



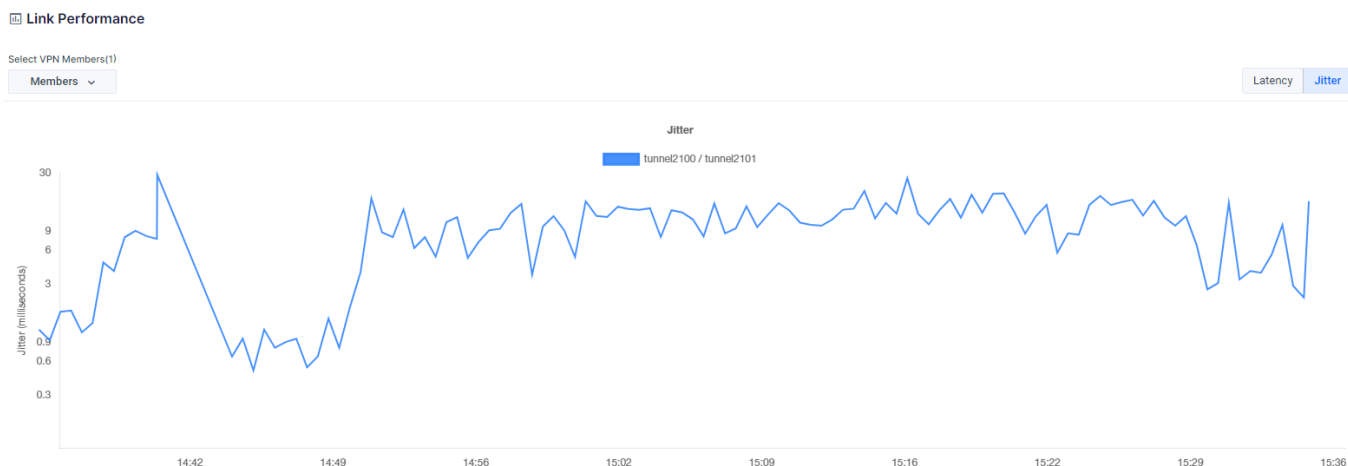
The Link Selection Path chart shows a time-line of which link is being used for the selected rule. You can see which link selection strategy is being used, and the history of which link has been chosen.

The Link Performance charts show the performance history of a link for either latency or jitter. You can select which member you would like to see from the Members drop-down, or select multiple members to compare them.

Link Performance



The latency chart shows the history of the latency for the link. It also shows the good-below (green line) and bad-above (red line) thresholds for the link if they have been configured.



The jitter chart shows the amount of jitter for the link.

Performance Routing Events

Filter data Search by keyword

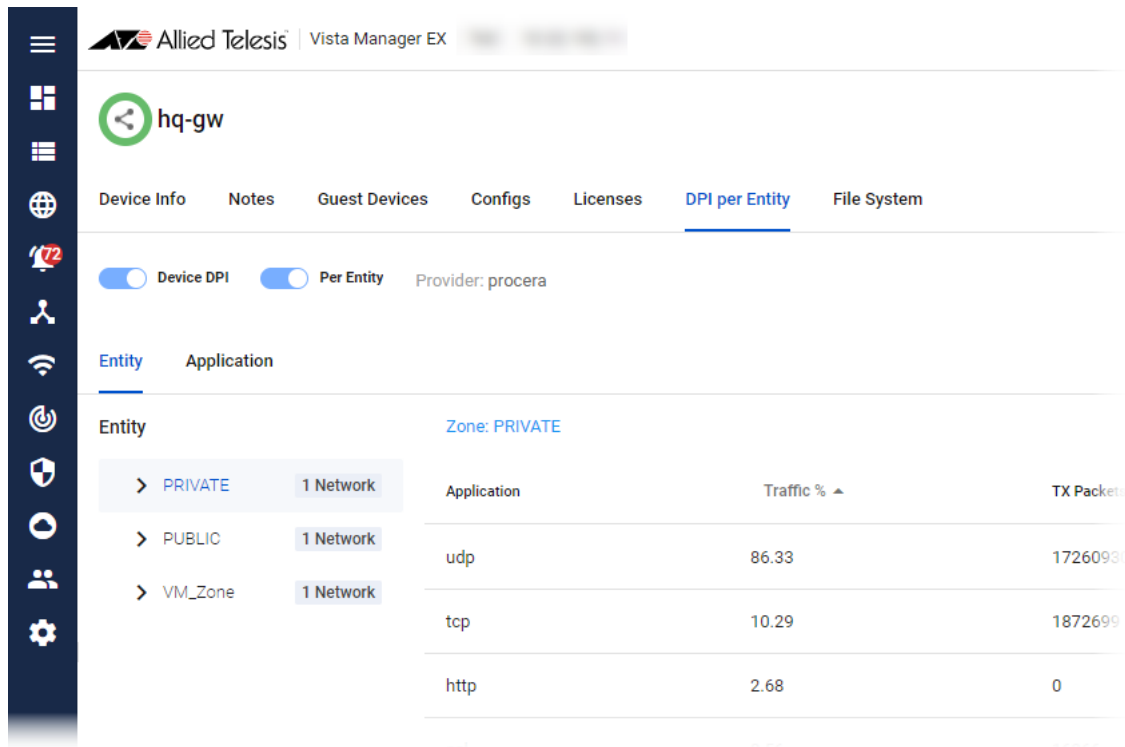
Date	Rule	Application	Source	Destination	Event	Previous Link	Selected Link	Selection decision	Message
11:25:34 2019-09-18	VNC	vnc	AR4050S-bottom B	AR2050V-top A	Link State Good tunnel100	-	tunnel100 192.168.100.2	-	[Rule: VNC] tunnel100 li
11:25:34 2019-09-18	VNC	vnc	-	-	Link Selected	-	-	-	cause: ID 2 removed fr
11:25:34 2019-09-18	VNC	vnc	AR4050S-bottom B	AR2050V-top A	Link Selected ID 1 added to group 'VM_VNC_	tunnel2101 192.168.200.1	tunnel100 192.168.100.1	only available link	cause: ID 1 added to gr
11:25:34 2019-09-18	VNC	vnc	AR4050S-bottom B	AR2050V-top A	Link State Good tunnel11	-	tunnel11 192.168.10.2	-	[Rule: VNC] tunnel11 lin

The Performance Routing Events chart shows all of the events that have occurred. You can limit which events are shown by using a keyword to filter the results. Click on the Export as CSV button to export all values. Click on the Columns button to choose which columns are shown.

User permissions

A user must have read permissions to at least one router in a router pair in order to view rule information for that router pair. This applies to both viewing rule configuration, and viewing the historic link selection path. A user can only see events in the SD-WAN Routing Events table when they have at least read permissions on the source router for that event.

DPI statistics

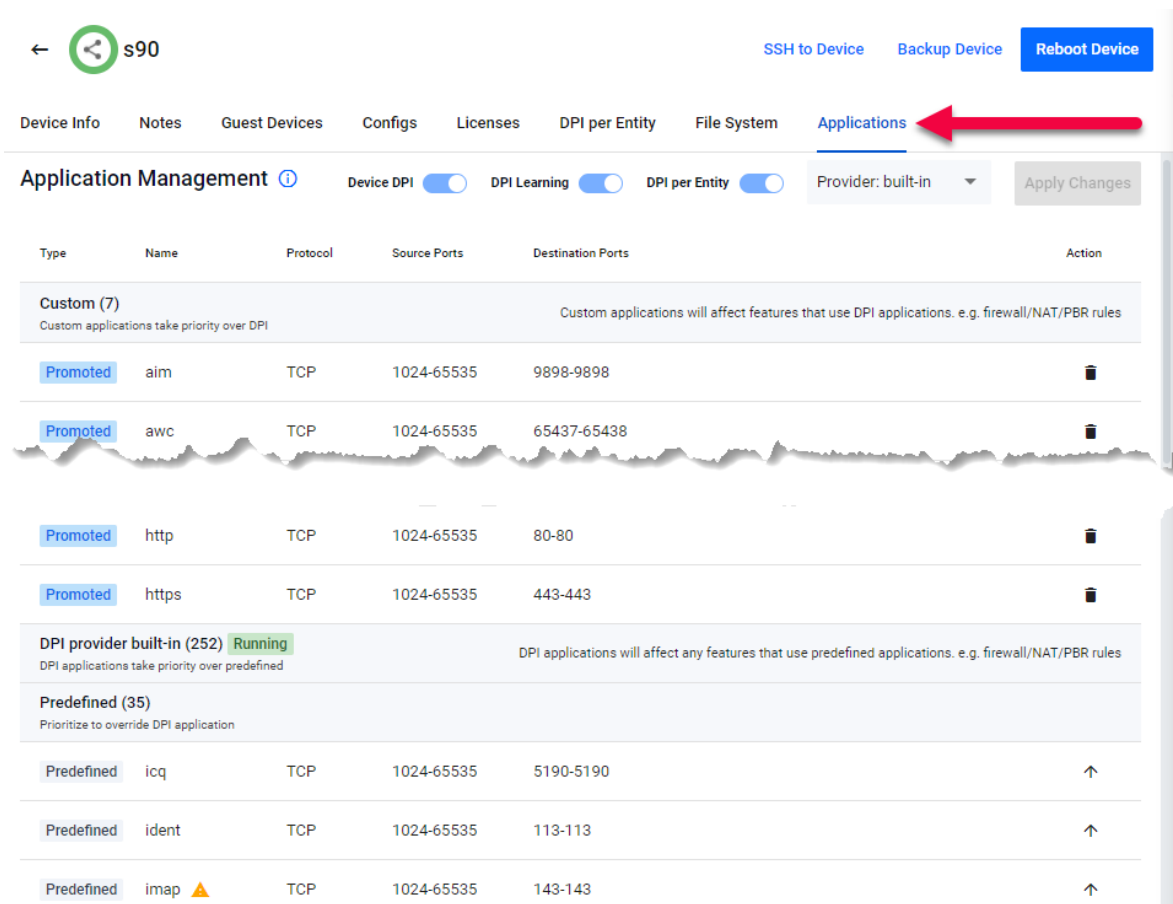
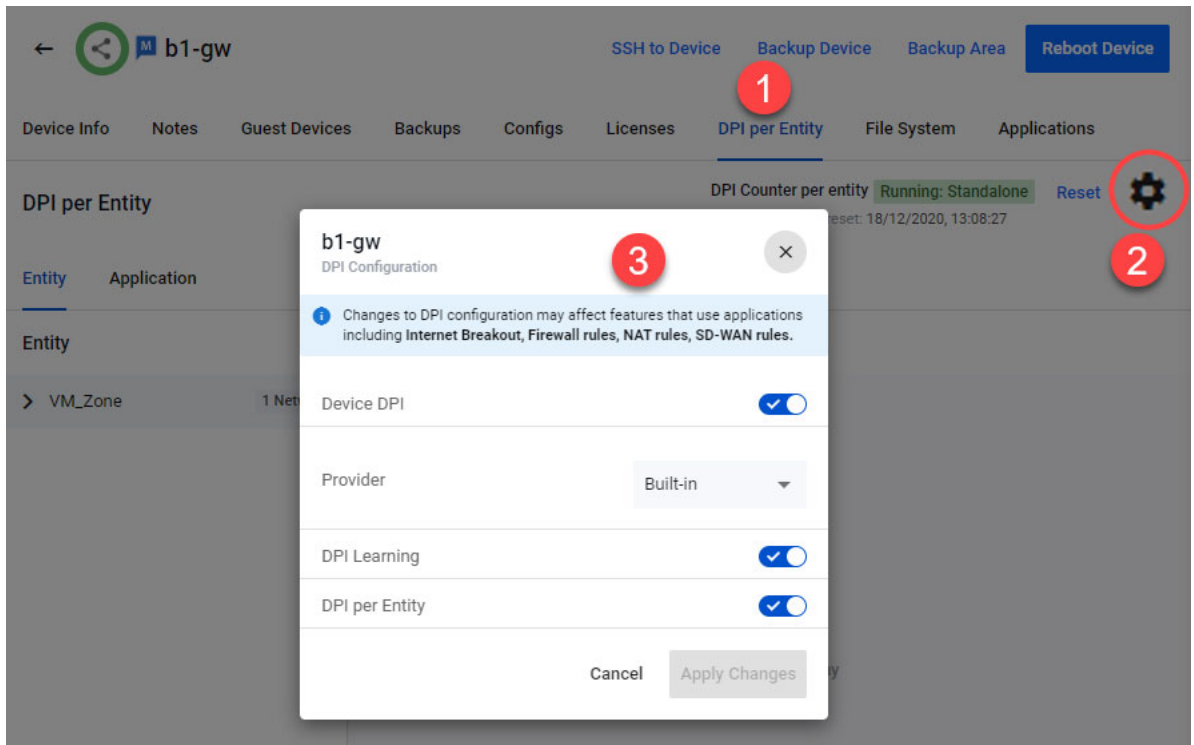


You can view DPI statistics for each entity for SD-WAN. To view the DPI statistics, navigate to Asset Management and click on a device. On the row of tabs, to the right of Licenses, click DPI per Entity. If Device DPI and Per Entity aren't already toggled on, click each of them to toggle them on.

Clicking on each entity on the left will show the stats, sorted by the highest % of traffic at the top. Clicking on a column sorts by that field. Clicking the > arrow to the left of the entity name will show the networks inside. If there's an arrow to the left of the network name, you can drill down to see each host. By clicking the Application tab, you can click on a particular application to see their stats. In the table, you can click on the zone to see the stats for networks, and drill down into a network and into hosts.

Application reconfiguration support

Because enabling DPI may affect existing firewall/NAT/PBR rules, Vista Manager EX automatically redirects you to the **Applications** tab for a detailed reconfiguration of applications if required. Alternatively, you can navigate directly to this page to adjust the list of applications before enabling DPI, to ensure the router functions normally.



Here, you will see custom applications and predefined applications of your selected device. If DPI is enabled, you will also see the DPI running status, providers and the number of DPI applications on the device.

Custom applications and predefined applications will appear in two groups, separated by the DPI group, which indicates priority:

1. Custom
2. DPI
3. Predefined

When DPI is enabled, a warning icon will appear beside the predefined applications. This indicates that:

- they may not work due to their lower priority, prompting you to promote them to custom
- if they overlap with DPI applications, they should be considered for promotion if any rules are using them

As a user with write permission, you will be able to:

- enable/disable various DPI settings
- change the DPI provider
- promote predefined applications to the custom category
- remove promoted applications from the custom category

DPI learning and application sharing

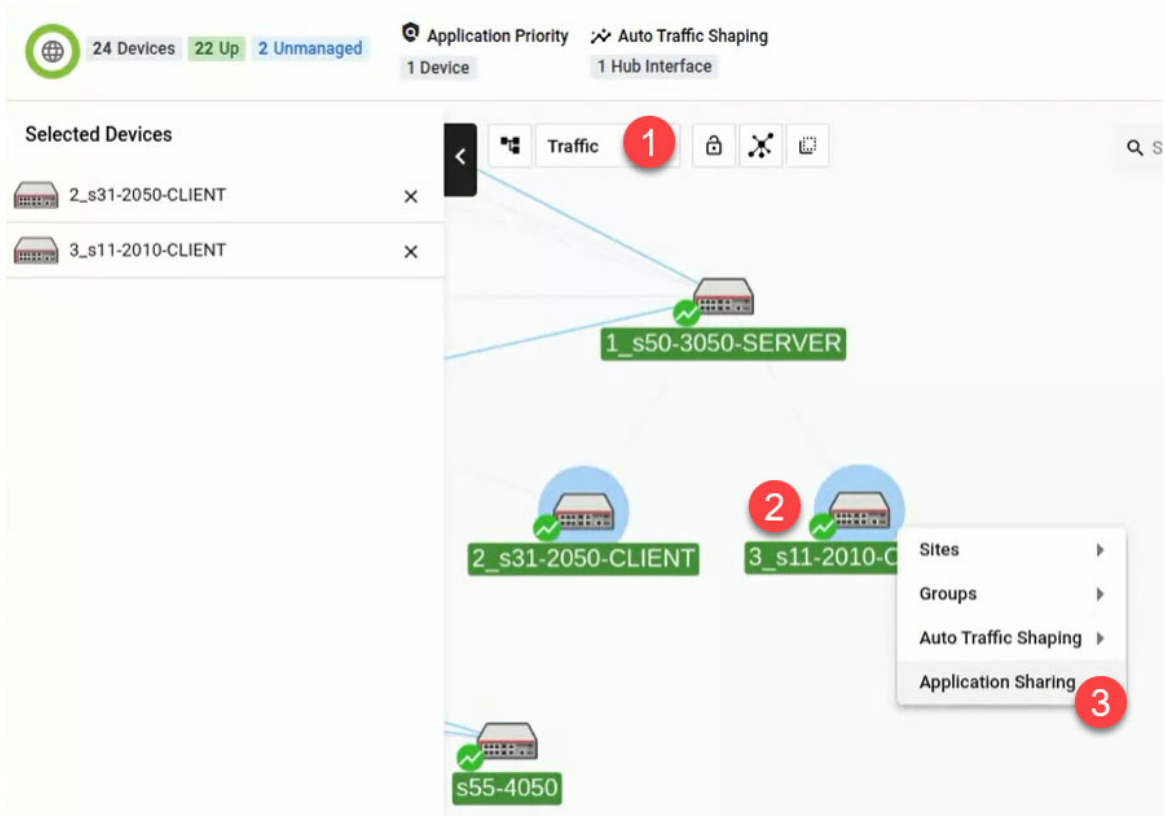
Branch office routers (clients) can gain access to applications on a head office router (server) by using this functionality. Applications learned on the servers can be distributed to the clients, thus allowing features like Internet Breakout to be enabled on a client.

- **AR3050S** and **AR4050S** can be used as server devices that have advanced DPI engines available. This means that they can share their applications with other devices.
- **AR2010V** and **AR2050V** can be client devices. They will use a server device to send them the application data.
- This functionality requires AR-series devices to run AlliedWare Plus 5.5.1-1 or later.

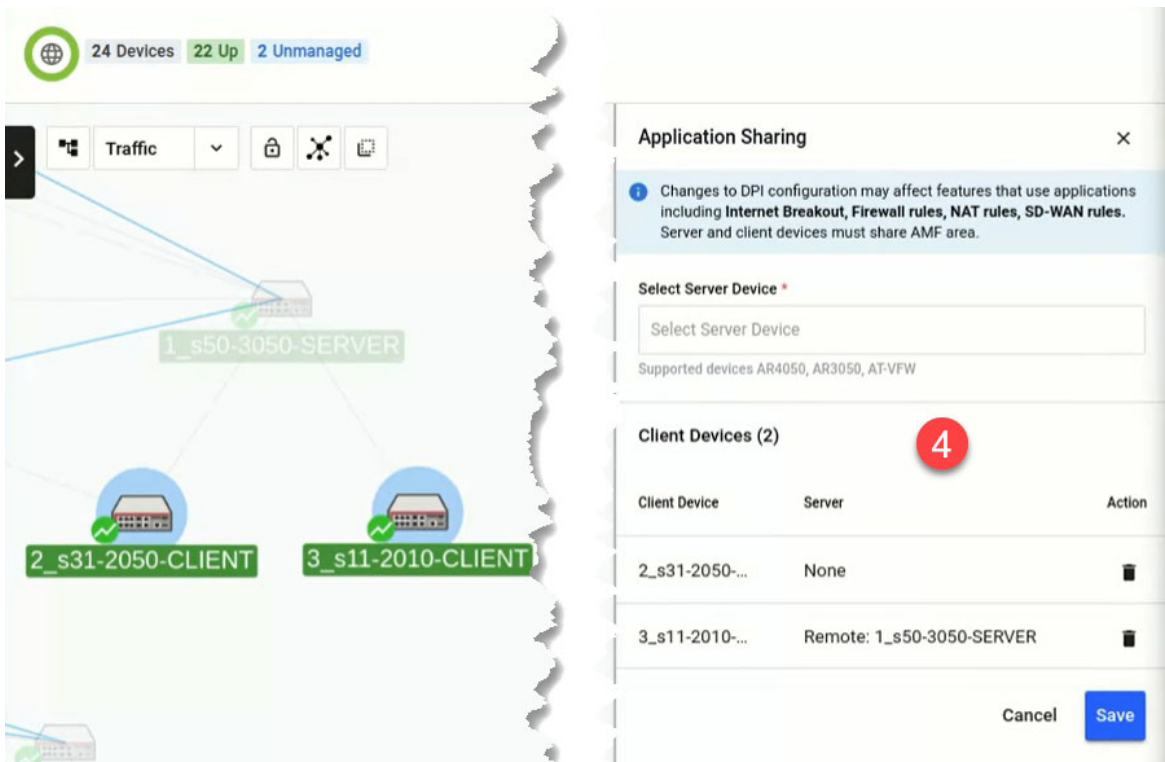
Configure application sharing via 3 options:

- Traffic map context menu
- Traffic side panel
- Asset Management > Applications tab of individual devices

Option 1: via Traffic map context menu



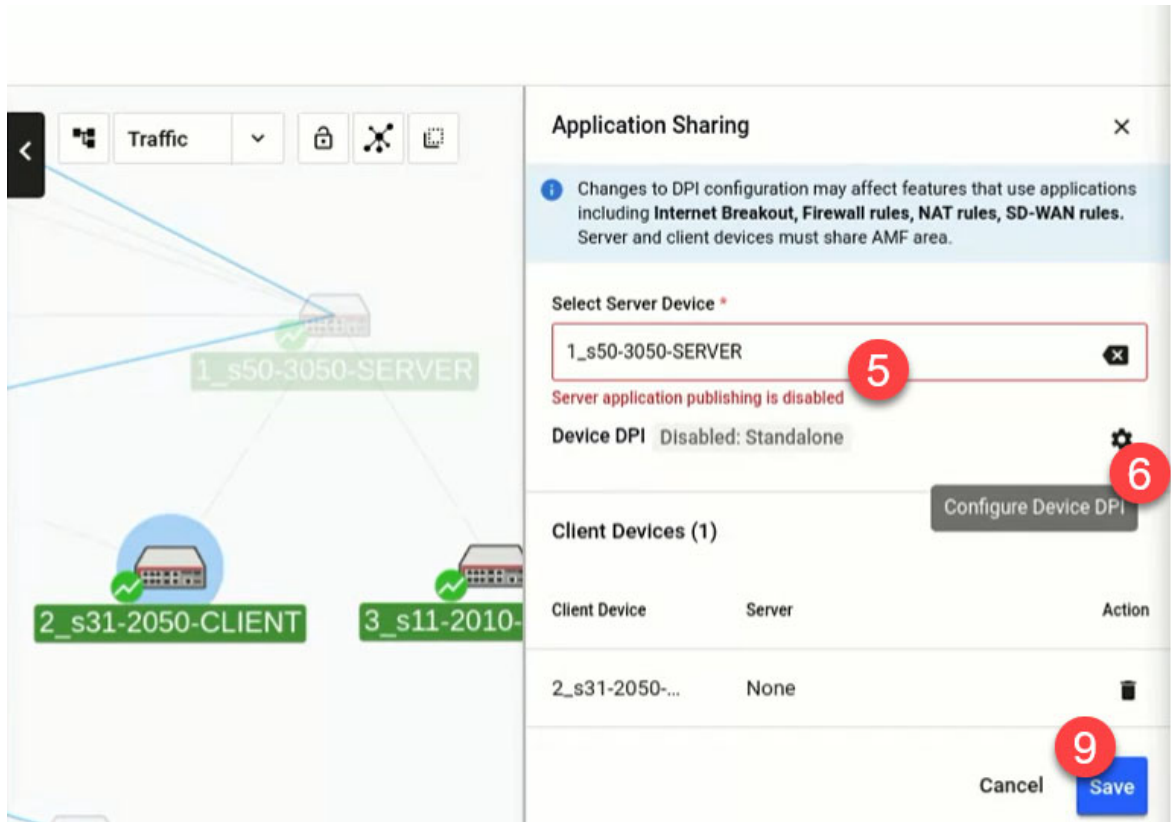
1. Navigate to the traffic map.
2. Select at least one client router.
3. Right-click on the selected router(s) and select **Application Sharing** from the menu.



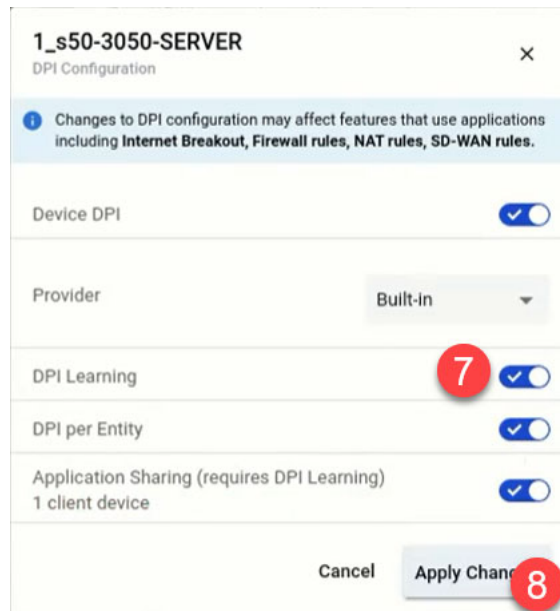
4. This opens up the Application Sharing side panel. You may remove or add more client devices

here.

- Next, select a server device from the dropdown list. Take note of the current DPI state of the server.



- Click on the **Configure Device DPI** gear icon button if device DPI is disabled or to configure its settings.



- Turn on all settings to ensure a successful application sharing setup.
- Click **Apply Changes**.
- Finally, click **Save** on the side panel.

Option 2: via Traffic side panel

The screenshot displays a network management dashboard. At the top, it shows '24 Devices' with '21 Up', '1 Down', and '2 Unmanaged'. On the right, there are settings for 'Application Priority' and 'Auto Traffic Shaping', with '1 Device' and '1 Hub Interface' selected. The main content area is split into two panels. The left panel, titled '1_s50-3050-SERVER', shows 'Advanced Traffic Monitoring' and 'Device DPI' (Running: Server). Below this is a 'Top 5 Protocols' pie chart and a 'Top 10 Applications' table for the last hour. The right panel is a traffic map showing a central server node '1_s50-3050-SERVER' connected to two client nodes, '2_s31-2050-CLIENT' and '3_s11-2010-CLIENT', and another node 's55-4050'. Red circles with numbers 1, 2, and 3 highlight the 'Traffic' button, a server node, and a gear icon, respectively.

Application	During last hour
udp	169 MB
facebo...	75 MB
quora	43 MB
gre	28 MB

1. Navigate to the traffic map.
2. Select a supported server/client device. This opens up the Traffic side panel.
3. Click on the **Device DPI** gear icon button if device DPI is disabled or to configure its settings.
4. If a server device was selected, carry out **Steps 7-8 in Option 1**.
5. If a client device was selected, fewer DPI settings will be displayed. Select a **Remote** provider to

choose a server next.

2_s31-2050-CLIENT
DPI Configuration

Changes to DPI configuration may affect features that use applications including Internet Breakout, Firewall rules, NAT rules, SD-WAN rules.

Device DPI

Provider Remote

Select Server Device *

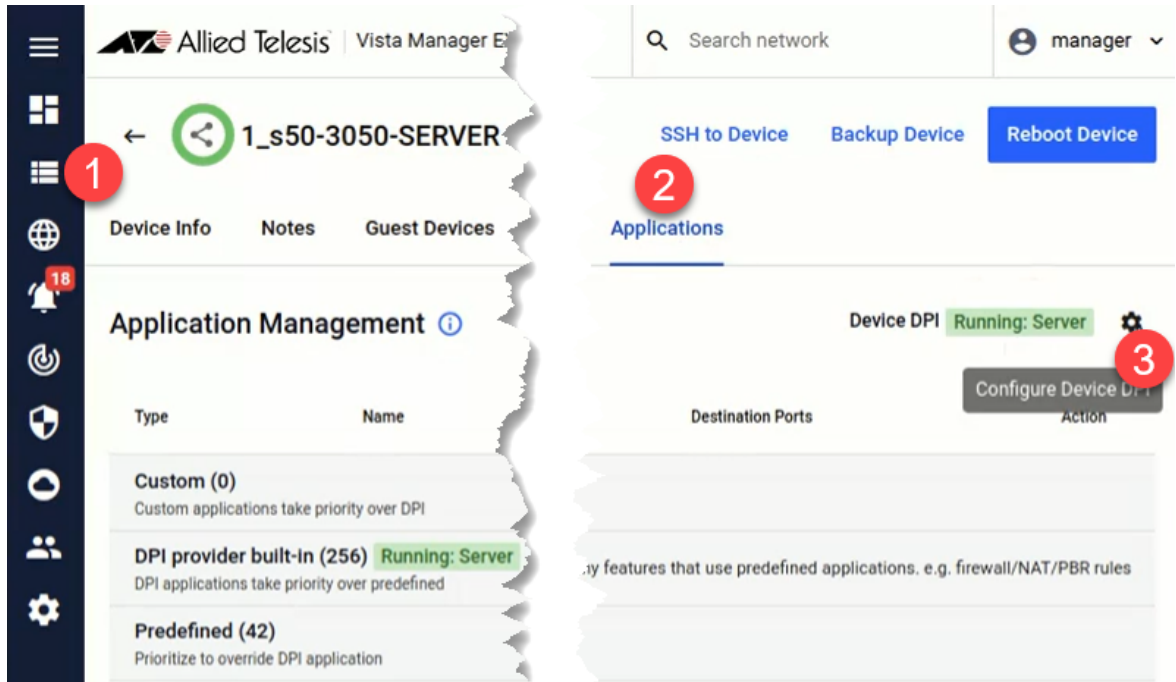
1_s50-3050-SERVER

Supported devices AR4050, AR3050, AT-VFW

Cancel Apply Changes

6. Select a server from the dropdown list.
7. Click **Apply Changes**.

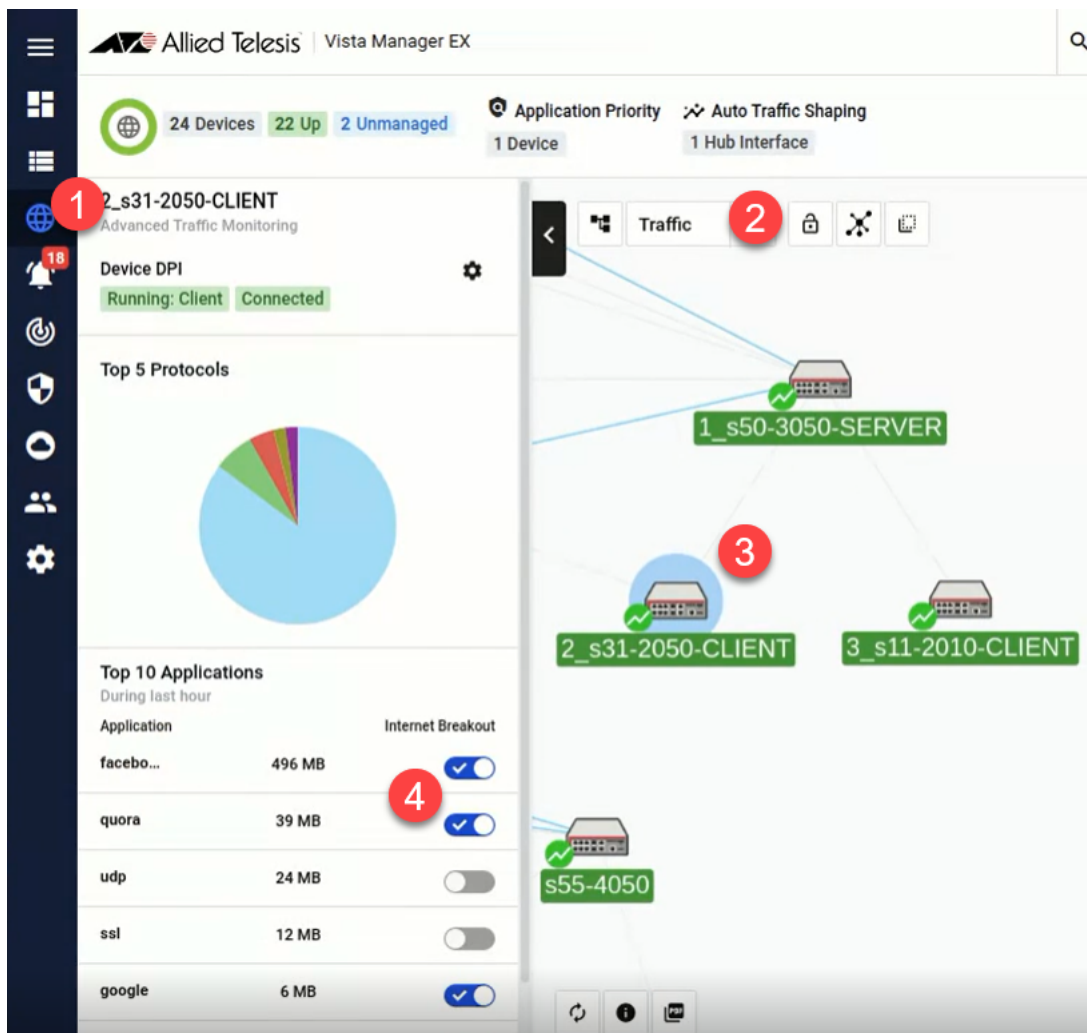
Option 3: via Asset Management > Applications tab



1. Navigate to **Asset Management**. Select a supported device from the list.
2. Next, go to the **Applications** tab of that device.
3. Click on the **Configure Device DPI** gear icon button if device DPI is disabled or to configure its settings.
4. If a server device was selected, carry out **Steps 7-8 in Option 1**.
5. If a client device was selected, fewer DPI settings will be displayed. Carry out **Steps 5-7 in Option 2**.

With DPI learning and application sharing configured and running successfully, you can then enable Internet Breakout for specific applications on clients from the Traffic side panel. Here, you can also see what applications have been learned from the server.

1. Navigate to the network map.
2. Select Traffic map mode.
3. Select a client device that you wish to enable Internet Breakout for.
4. On the Traffic side panel that launches, enable Internet Breakout accordingly.



Note: Application sharing (between a server and clients) will only be functional within an AMF area. It is possible to have multiple servers in different areas, but the clients of each server must be located in the same area as the server.

Troubleshooting

Ports used by Vista

Vista Manager EX makes use of the following ports. These ports may need to be configured on your firewall:

[APLIVRTIWINIVA]:

- UDP port 514 (syslog), used by the AMF master/controller to send logs to Vista Manager EX.
- TCP port 443 (HTTPS), used if the HTTPS mode of Vista Manager EX is enabled.
- TCP ports 443 and 12943, used if you are not using certificates for device authentication.
- TCP ports 12945 and 12946, used if you are using certificates for device authentication (recommended).

[WIN]:

- TCP port 5000, which gives access to the Vista Manager web interface.

[APLIVRTIWIN]:

- TCP port 5443, which gives access to the AWC plug-in web interface. (This depends on which port you configured the AWC plug-in to run on during installation.)
- TCP port 65437-65439, which the wireless APs use to communicate with the AWC plug-in.
- TCP port 6443, which gives access to the SNMP plug-in web interface.
- UDP port 162 (SNMP trap), used by SNMP devices to send traps to the SNMP plug-in.

[WINIVA] You may need to create Windows inbound firewall rules and Virus scanning exclusions.

Clear browser cache

Clear your browser's cache after upgrading your Vista Manager EX installation. Incomplete dialog boxes, incorrectly populated drop-down lists, and truncated forms are all symptoms of a caching problem.

Allow Vista Manager EX to discover the AMF network

If, after installation, there are no devices on the AMF network/area map check that the following command has been run on your AMF controller (if present) and all AMF masters.

```
awplus# configure terminal
awplus(config)# atmf topology-gui enable
```

x930 Expansion Module

Caution: The x930 expansion module is not recognized by Vista Manager. This means that it cannot configure VLANs on those ports.

Vista Manager and RMON

When Vista Manager connects to an AlliedWare Plus network, it automatically enables the RMON (Remote Network Monitoring) commands on each AMF interface port that it finds. This is done for the purpose of collecting traffic statistics.

It does this by modifying the running config on all switchports that interconnect AMF devices (including LAGs). No notification is shown that these changes are being made.

Caution: If the **copy run start** or **wr** commands are run on one of these devices, these config changes will be made permanent.

Testing Windows server [WIN]

If you cannot connect remotely on Windows, try connecting locally on the Windows server by using localhost:

```
http://localhost:5000
```

You can test whether the plug-in APIs are active using the following URLs:

- https://localhost:5443/wireless_plugin/api/plugin_registration



```
{"version":"100","baseUrl":"http://localhost:8080/wireless_plugin/api","product":{"name":"AT-Vista Man: plugin","type":"awc"},"version":{"major":"1","minor":"2","revision":"0","build":"B06"},"capabilities":["node
```

- https://localhost:6443/NetManager/api/plugin_registration

```
{"version":"1.0.0","baseUrl":"http://10.33.24.38/NetManager/api","product":{"name":"SNMP Plugin","type":"anr {"major":1,"minor":0,"revision":0,"build":"B04"},"capabilities":["menu","event"]}}
```

Note that these URLs can only be used locally on the Vista Manager server using "localhost".

Reboot AMF master/controller after configuring certificates

If you receive the following error message:

```
Error during polling - Error: Device did not accept a certificate request
and basic auth fallback is disabled. Details: Error: connect ECONNREFUSED
xxx.xxx.xxx.xxx:12946
```

Check that you have correctly configured your AMF master/controller for certificate authentication and that you saved your configuration and rebooted your master/controller after running the **atmf trustpoint** command (see "[Configure certificate for device authentication](#)" on page 5).

Problems adding plug-ins

If you are having difficulty adding the plug-ins in Vista Manager EX, make sure that you have done the following:

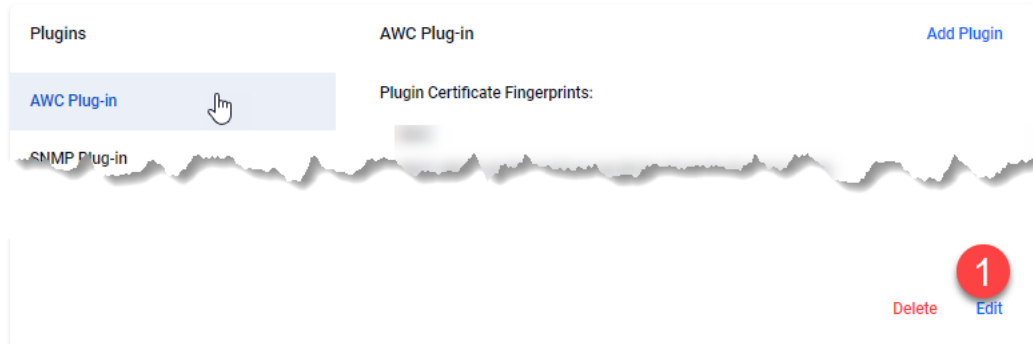
- **[APLIVRTIWIN]** Check that you have the correct URL for each plug-in as described in "[Registering the plug-ins](#)" on page 11, and click on Verify Connection.
- **[APLIVRT]**] Prior to Vista Manager 3.5.0, the Windows-based version of Vista Manager supported a lowercase URL for registering the SNMP plug-in. If you are upgrading from an earlier version, or porting to a different platform, you should re-register the SNMP plug-in using the mixed-case URL.

Server URL: `https://<ip-address>:6443/NetManager`
where <ip-address> is the IP address of the SNMP plug-in.
- **[WIN]** Make sure that you have imported the plug-in server certificates as described in the "Initial Login" section in the [Vista Manager EX™ Installation Guide](#).
- **[WIN]** Add the Vista Manager EX server address to your trusted sites as described in the [Vista Manager EX™ Installation Guide](#).
- **[WIN]** Add an exception for the server to your web proxy as described in the [Vista Manager EX™ Installation Guide](#).

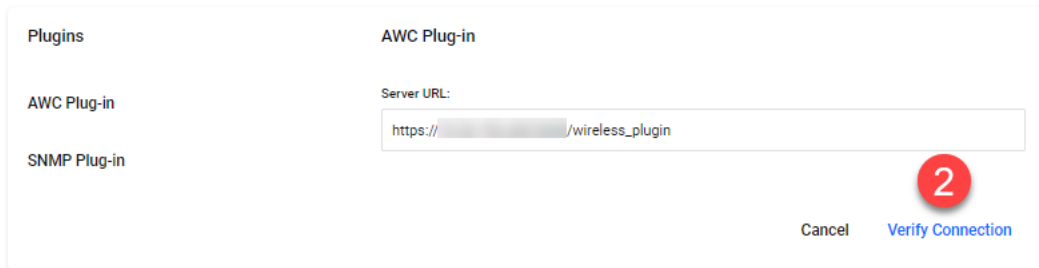
Updating plug-ins

If you are having issues with plug-ins, you can update a plug-in without deleting it.

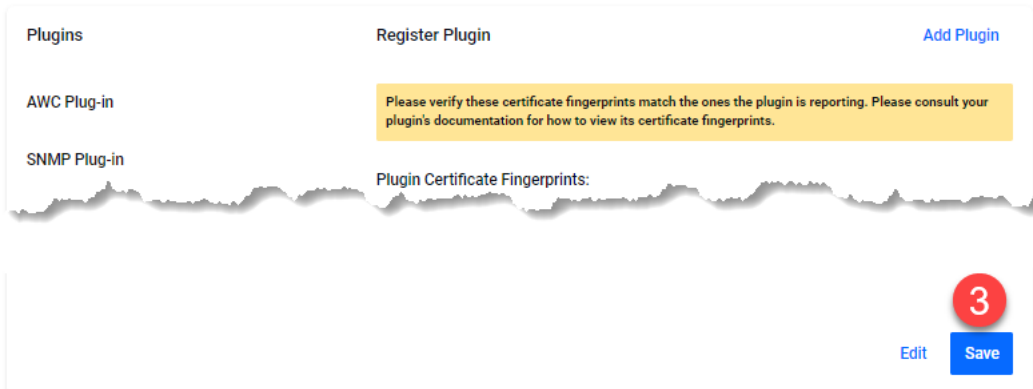
1. From the System Management menu, go to the **Plugins** tab. Select the plug-in to update. Click **Edit..**



2. Click **Verify Connection.**



3. Click **Save.**

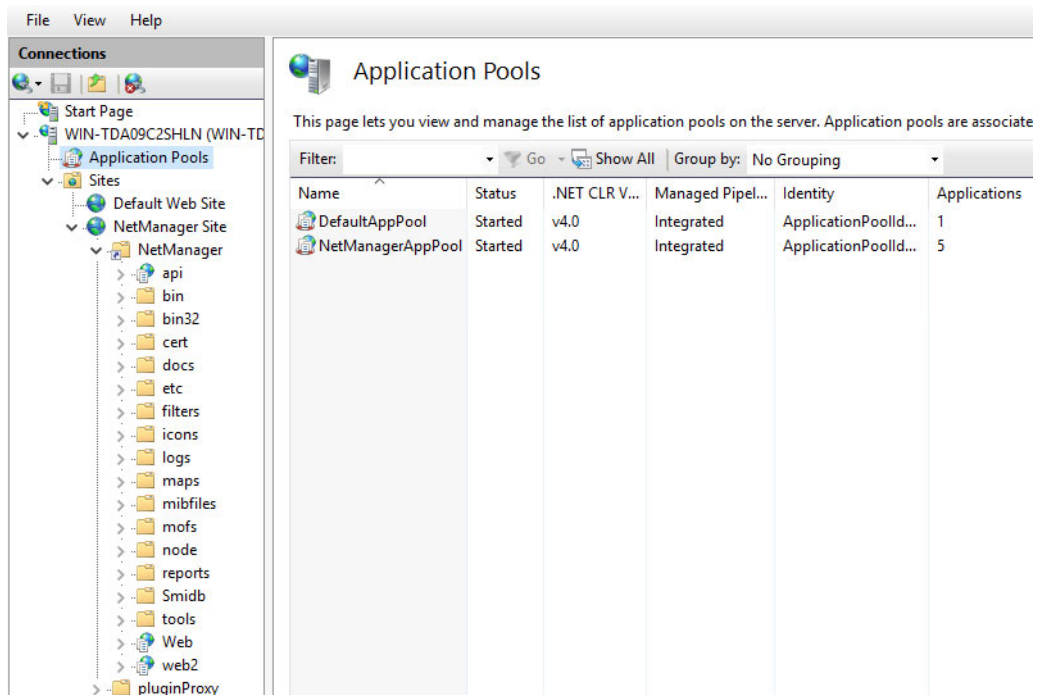


SNMP plug-in application pool settings [WIN]

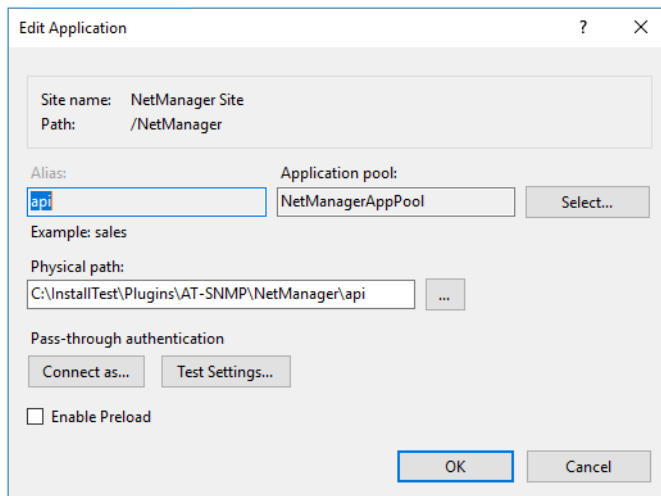
If you are having issues with the SNMP plug-in, you can check the IIS settings are correct.

1. Launch **Internet Information Services (IIS) Manager** on the Vista Manager EX server.
2. Expand out the following items in the Connections pane tree on the left-hand side:
Computer name -> Sites -> NetManager Site -> NetManager

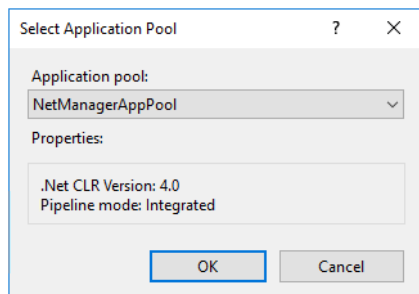
3. Make sure that the **api** and **web2** applications are available, and configured, as in the following screenshots.



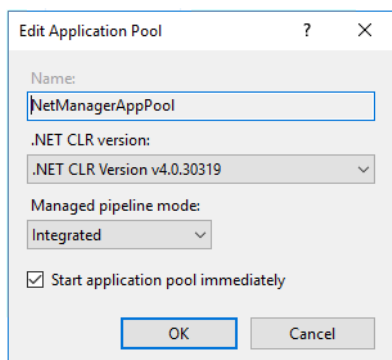
4. Select **api** in the Connections pane and then select Basic Settings in the Actions pane.



5. Click the select button and check that the Select Application Pool settings have the following properties:
 - .Net CLR version: 4.0
 - Pipeline mode: integration



6. Repeat for the **web** application.
7. If the **NetManagerAppPool** does not have the required properties, then select Application Pool in the Connections pane.
8. Select **NetManagerAppPool** from the Application Pools screen and select Basic Settings from the Edit Application Pool pane.
9. The application pool settings should look like the following:



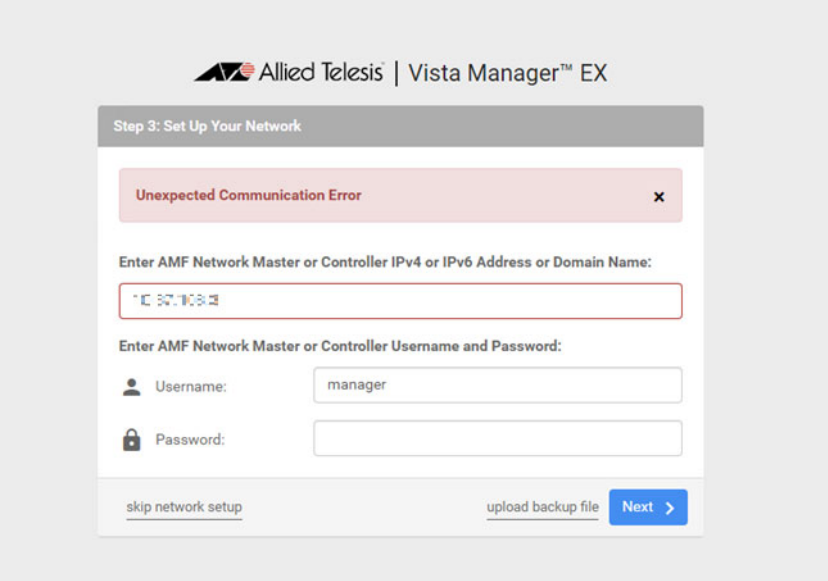
Note: The “xxxxx” portion of the **.Net CLR Version v4.0.xxxxx** version will vary depending on the Windows OS installed.

De-register the AWC plug-in on large wireless networks

[WIN] Individual APs may disappear from the AWC plug-in if the plug-in is managing a large wireless network (approximately 600 APs or more). If this occurs, de-register the AWC plug-in from the Vista Manager’s **System Management -> Plug-in Management** page. Features such as licensing, auto-recovery, and importing an AP from a guest device will still work, even if the plug-in is not registered.

Unexpected Communication Error during installation

When setting up your connection (Step 3: Set Up Your Network), you may receive the following error:



The screenshot shows the 'Step 3: Set Up Your Network' screen of the Vista Manager EX interface. At the top, the Allied Telesis logo and 'Vista Manager™ EX' are displayed. Below the title bar, a red error banner reads 'Unexpected Communication Error' with a close button (x). The main form area contains the following fields and options:

- Label: 'Enter AMF Network Master or Controller IPv4 or IPv6 Address or Domain Name:'
Input field: [Empty]
- Label: 'Enter AMF Network Master or Controller Username and Password:'
 - Username: [manager]
 - Password: [Empty]
- Buttons: 'skip network setup', 'upload backup file', and 'Next >'.

This is due to the **atmf topology-gui enable** command not having been run on the master. You can resolve this by running the command on the master, then clicking the Next button.

For further information, refer to "[Allow Vista Manager EX to discover the AMF network](#)" on page 149.

Syslog generation for AMF guest devices

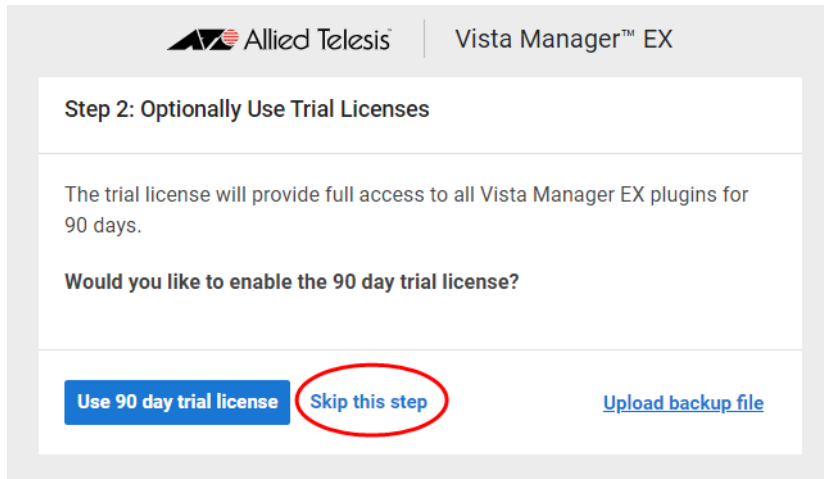
[WINIAPLIVA] When a guest device joins or leaves an AMF network, syslog messages will be generated containing these fields:

- Network name
- Area name
- Port number
- Model type
- MAC address
- IP address

Information from these log messages are intended to help facilitate easy deployment and replacement of APs.

Unable to enter Master/Controller IP address after skipping license page [APL]

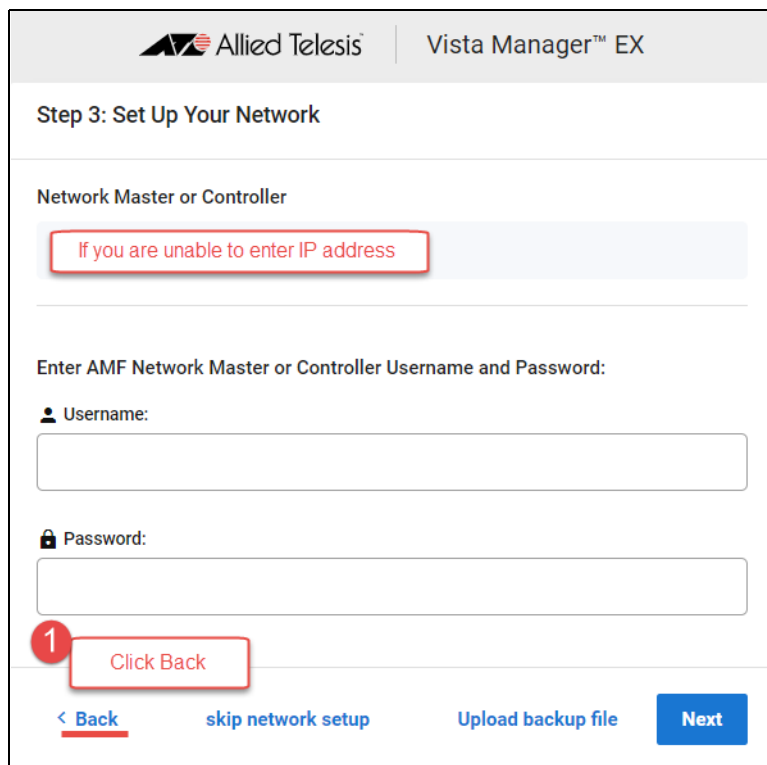
Vista Manager 3.7.0 does not require a license on the VST-APL. If you skip the license step when installing the Vista Manager application, then at **Step3: Set up Your Network**, you may not be able to enter your Master or Controller's IP address.



The screenshot shows the 'Step 2: Optionally Use Trial Licenses' screen. At the top, the Allied Telesis logo and 'Vista Manager™ EX' are displayed. The main heading is 'Step 2: Optionally Use Trial Licenses'. Below this, a message states: 'The trial license will provide full access to all Vista Manager EX plugins for 90 days.' A question follows: 'Would you like to enable the 90 day trial license?'. At the bottom, there are three buttons: 'Use 90 day trial license' (blue), 'Skip this step' (blue, circled in red), and 'Upload backup file' (blue link).

To work-around this issue, perform the following steps:

1. Click **Back**:



The screenshot shows the 'Step 3: Set Up Your Network' screen. At the top, the Allied Telesis logo and 'Vista Manager™ EX' are displayed. The main heading is 'Step 3: Set Up Your Network'. Below this, the section is titled 'Network Master or Controller'. A message box with a red border contains the text: 'If you are unable to enter IP address'. Below this, the instruction reads: 'Enter AMF Network Master or Controller Username and Password:'. There are two input fields: 'Username:' and 'Password:'. At the bottom, there is a red circle with the number '1' next to a 'Click Back' button. Below the input fields, there are four buttons: '< Back' (blue link), 'skip network setup' (blue link), 'Upload backup file' (blue link), and 'Next' (blue button).

2. This takes you to **Set Up Your Network**, and you can then enter the IP address of your AMF Master or Controller...

Step 3: Set Up Your Network

Enter AMF Network Master or Controller IPv4 or IPv6 Address or Domain Name:

xxx.xxx.xxx.xxx

skip network setup Upload backup file **Next**

3. Click **Next**.

Supported Device List

AlliedWare Plus devices

The following table lists the AlliedWare Plus devices supported by Vista Manager EX 3.8.0.

We recommend you run the most recent AlliedWare Plus version available for your device. The new features for version 3.8.0 are only available on devices running AlliedWare Plus version 5.5.1-1.x or later.

Table 1: AlliedWare Plus devices supported by Vista Manager EX 3.8.0

Models	Family
SBx81CFC960	SBx8100
SBx908 GEN2	SBx908 GEN2
x950-28XSQ x950-28XTQm x950-52XSQ	x950
x930-28GTX x930-28GPX x930-52GTX x930-52GPX x930-28GSTX	x930
x550-18SXQ x550-18XTQ x550-18XSPQm	x550
x530-28GTXm x530-28GPXm x530-52GTXm x530-52GPXm x530L-52GTX x530L-52GPX x530L-28GTX x530L-28GPX x530L-10GHXm x530L-18GHXm	x530 and x530L
x510-28GTX x510-52GTX x510-28GPX x510-52GPX x510-28GSX x510-28GSX-80 x510DP-28GTX x510DP-52GTX x510L-28GT x510L-28GP x510L-52GT x510L-52GP	x510 and x510L
IX5-28GPX	IX5
x330-10GTX x330-20GTX x330-28GTX	x330

Table 1: AlliedWare Plus devices supported by Vista Manager EX 3.8.0

Models	Family
x320-10GH x320-11GPT	x320
x310-26FT x310-50FT x310-26FP x310-50FP	x310
x230-10GP x230-10GT x230-18GP x230-18GT x230-28GP x230-28GT x230L-17GT x230L-26GT	x230 and x230L
x220-28GS x220-52GT x220-52GP	x220
IE510-28GSX	IE510-28GSX
IE340-20GP IE340L-18GP	IE340
IE300-12GT IE300-12GP	IE300
IE210L-10GP IE210L-18GP	IE210L
IE200-6FT IE200-6FP IE200-6GT IE200-6GP	IE200
XS916MXT XS916MXS	XS900MX
GS980MX/10HSm GS980MX/18HSm	GS980MX
GS980EM/10H GS980EM/11PT	GS980EM
GS980M/52 GS980M/52PS	GS980M
GS970EMX/10 GS970EMX/20 GS970EMX/28	GS970EMX
GS970M/10PS GS970M/10 GS970M/18PS GS970M/18 GS970M/28PS GS970M/28	GS970M
GS924MX GS924MPX GS948MX GS948MPX	GS900MX/MPX

Table 1: AlliedWare Plus devices supported by Vista Manager EX 3.8.0

Models	Family
FS980M/9 FS980M/9PS FS980M/18 FS980M/18PS FS980M/28 FS980M/28PS FS980M/52 FS980M/52PS FS980M/28DP	FS980M
AR4050S AR3050S	AR-series UTM firewalls
AR2050V AR2010V AR1050V	AR-series VPN routers
AMF Cloud	

Allied Telesis Wireless APs

The following table lists the Allied Telesis wireless APs, and the firmware versions, supported by Vista Manager EX 3.8.0 with the AWC plug-in.

Table 2: Allied Telesis wireless APs supported by Vista Manager EX 3.8.0

Models	Supported
AT-TQ4400e	4.3.x
AT-TQ4600	4.3.x
AT-TQ4600 (SDN version)	4.1.1-S05
AT-TQ1402	6.0.1-x.x, 6.0.0-0.x
AT-TQ1402m	6.0.1-x.x, 6.0.0-0.x
AT-TQ5403	6.0.1-x.x, 5.4.x, 5.3.x
AT-TQ5403e	6.0.1-x.x, 5.4.x, 5.3.x
AT-TQm5403	6.0.1-x.x, 5.4.x, 5.3.x
AT-TQ6602	7.0.0-x.x

Notes:

- Older software versions may not support all features of AWC.
- AWC-SC are not yet supported on AT-TQ6602.

C613-04120-00 REV A



NETWORK SMARTER

North America Headquarters | 19800 North Creek Parkway | Suite 100 | Bothell | WA 98011 | USA | T: +1 800 424 4284 | F: +1 425 481 3895

Asia-Pacific Headquarters | 11 Tai Seng Link | Singapore | 534182 | T: +65 6383 3832 | F: +65 6383 3830

EMEA & CSA Operations | Incheonweg 7 | 1437 EK Rozenburg | The Netherlands | T: +31 20 7950020 | F: +31 20 7950021

alliedtelesis.com

© 2021 Allied Telesis, Inc. All rights reserved. Information in this document is subject to change without notice. All company names, logos, and product designs that are trademarks or registered trademarks are the property of their respective owners.