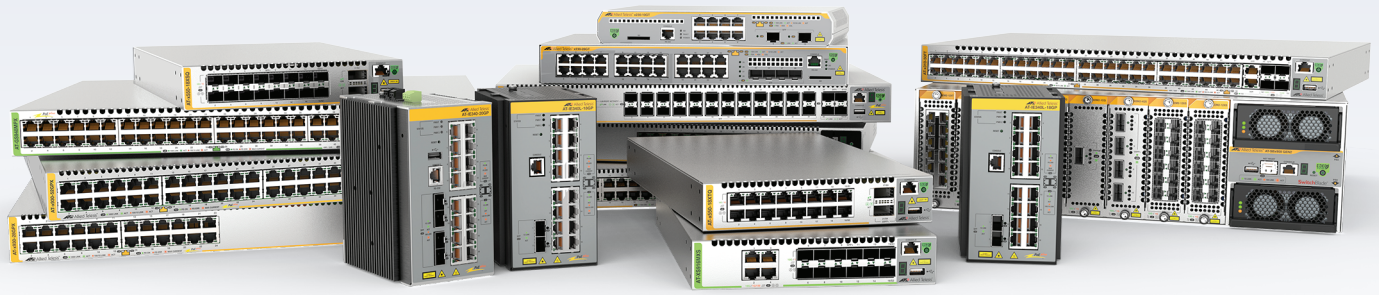
Release Note for AlliedWare Plus Software Version 5.5.4-2.x



AlliedWare Plus OPERATING SYSTEM

AMF Cloud
SBx81CFC960
SBx908 GEN2
x950 Series
x930 Series
x550 Series
x540L Series
x530 Series
x530L Series
x330 Series
x320 Series
x250 Series
x240 Series
x230 Series
x220 Series
IE360 Series
IE340 Series
IE220 Series
IE210L Series
SE540L Series
SE250 Series
SE240 Series
XS900MX Series
GS980MX Series
GS980EM Series
GS980M Series
GS970EMX Series
GS970M Series
AR4000S-Cloud
10GbE UTM Firewall
AR4050S-5G
AR4050S
AR3050S
AR1050V
TQ6702 GEN2-R

» 5.5.4-2.3

Acknowledgments

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Content

What's New in Version 5.5.4-2.3

Product families supported by this version:

AMF Cloud
SwitchBlade x8100: SBx81CFC960
SwitchBlade x908 Generation 2
x950 Series
x930 Series
x550 Series
x540L Series
x530 Series
x530L Series
x330 Series
x320 Series
x250 Series[1]
x240 Series
x230 Series
x220 Series
IE360 Series
IE340 Series
IE220 Series
IE210L Series
SE540L Series[1]
SE250 Series[1]
SE240 Series[1]
XS900MX Series
GS980MX Series
GS980EM Series
GS980M Series
GS970EMX Series
GS970M Series
10GbE UTM Firewall
AR4000S-Cloud
AR4050S
AR4050S-5G
AR3050S
AR1050V
TQ6702 GEN2-R

1. Not available in all regions

Introduction

This release note describes the new features in AlliedWare Plus software version 5.5.4-2.3.

Software file details for this version are listed in Table 1 on the next page. You can obtain the software files from the Allied Telesis Support Portal.

For instructions on how to upgrade to this version, see "Installing this Software Version" on page 33.

For instructions on how to update the web-based GUI, see "Accessing and Updating the Web-based GUI" on page 35. The GUI offers easy visual monitoring and configuration of your device.

Caution: Using a software version file for the wrong device may cause unpredictable results, including disruption to the network.

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The following table lists model names and software files for this version. Note that some models are not available in all regions.

Table 1: Models and software file names

Models	Family	Date	Software File
AMF Plus Cloud		01/2025	vaa-5.5.4-2.3.iso (VAA OS) vaa-5.5.4-2.3.vhd and upload_vhd.py (for AWS) vaa_azure-5.5.4-0.2.vhd (for Microsoft Azure)
SBx81CFC960	SBx8100	01/2025	SBx81CFC960-5.5.4-2.3.rel
SBx908 GEN2	SBx908 GEN2	01/2025	SBx908NG-5.5.4-2.3.rel
x950-28XSQ x950-28XTQm x950-52XSQ x950-52XTQm	x950	01/2025	x950-5.5.4-2.3.rel
x930-28GTX x930-28GPX x930-28GSTX x930-52GTX x930-52GPX	x930	01/2025	x930-5.5.4-2.3.rel
x550-18SXQ x550-18XTQ x550-18XSPQm	x550	01/2025	x550-5.5.4-2.3.rel
x540L-28XTm x540L-28XS	x540L	01/2025	x540-5.5.4-2.3.rel
x530-10GHXm x530-18GHXm x530-28GTXm x530-28GPXm x530-52GTXm x530-52GPXm x530DP-28GHXm x530DP-52GHXm	x530	01/2025	x530-5.5.4-2.3.rel
x530L-10GHXm x530L-18GHXm x530L-28GTX x530L-28GPX x530L-52GTX x530L-52GPX	x530L	01/2025	x530-5.5.4-2.3.rel
x330-10GTX x330-20GTX x330-28GTX x330-52GTX	x330	01/2025	x330-5.5.4-2.3.rel
x320-10GH x320-11GPT	x320	01/2025	x320-5.5.4-2.3.rel

Table 1: Models and software file names (cont.)

Models	Family	Date	Software File
x250-18XS x250-28XS x250-28XTm	x250	01/2025	x250-5.5.4-2.3.rel
x240-10GTXm x240-10GHXm x240-26GHXm	x240	01/2025	x240-5.5.4-2.3.rel
x230-10GP x230-10GT x230-18GP x230-18GT x230-28GP x230-28GT x230L-17GT x230L-26GT	x230 and x230L	01/2025	x230-5.5.4-2.3.rel
x220-28GS x220-52GT x220-52GP	x220	01/2025	x220-5.5.4-2.3.rel
IE360-12GTX IE360-12GHX	IE360	01/2025	IE360-5.5.4-2.3.rel
IE340-12GT IE340-12GP IE340-20GP IE340L-18GP	IE340	01/2025	IE340-5.5.4-2.3.rel
IE220-6GHX IE220-10GHX	IE220	01/2025	IE220-5.5.4-2.3.rel
IE210L-10GP IE210L-18GP	IE210L	01/2025	IE210-5.5.4-2.3.rel
SE540L-28XTm SE540L-28XS	SE540L	01/2025	SE540-5.5.4-2.3.rel
SE250-18XTm SE250-28XTm SE250-28XS	SE250	01/2025	SE250-5.5.4-2.3.rel
SE240-10GTXm SE240-10GHXm	SE240	01/2025	SE240-5.5.4-2.3.rel
XS916MXT XS916MXS	XS900MX	01/2025	XS900-5.5.4-2.3.rel
GS980MX/10HSm GS980MX/18HSm GS980MX/28 GS980MX/28PSm GS980MX/52 GS980MX/52PSm	GS980MX	01/2025	GS980MX-5.5.4-2.3.rel
GS980EM/10H GS980EM/11PT	GS980EM	01/2025	GS980EM-5.5.4-2.3.rel
GS980M/52 GS980M/52PS	GS980M	01/2025	GS980M-5.5.4-2.3.rel
GS970EMX/10 GS970EMX/20 GS970EMX/28	GS970EMX	01/2025	GS970EMX-5.5.4-2.3.rel
GS970M/10PS GS970M/10 GS970M/18PS GS970M/18 GS970M/28PS GS970M/28	GS970M	01/2025	GS970-5.5.4-2.3.rel
AR4000S-Cloud		01/2025	AR-4000S-Cloud-5.5.4-2.3.iso

Table 1: Models and software file names (cont.)

Models	Family	Date	Software File
10GbE UTM Firewall		01/2025	ATVSTAPL-1.9.4.iso and vfw-x86_64-5.5.4-2.3.app
AR4050S AR4050S-5G AR3050S	AR-Series UTM firewalls	01/2025	AR4050S-5.5.4-2.3.rel AR3050S-5.5.4-2.3.rel
AR1050V	AR-Series VPN routers	01/2025	AR1050V-5.5.4-2.3.rel
TQ6702 GEN2-R	Wireless AP Router	01/2025	TQ6702GEN2R-5.5.4-2.3.rel

ISSU (In-Service Software Upgrade) on SBx8100 with CFC960

The 5.5.4-2.3 software version is **not** ISSU compatible with previous software versions.

New Features and Enhancements

This section summarizes the new features and enhancements in AlliedWare Plus version 5.5.4-2.3.

To see how to find full documentation about all features on your product, see "Obtaining User Documentation" on page 27.

This version supports the following enhancements:

General enhancements

Firewall enhancements

Wireless AP router enhancements

Switch enhancements

Password change required when first logging into a device

Applies to all devices running AlliedWare Plus

From 5.5.4-2.3 onwards, users are prompted to change the login password when they first log into a device that is in factory new state (or a device that has been reset to that state).

Devices that already have a user configuration will not be affected.

Password strength checked for users at all privilege levels

Applies to all devices that run AlliedWare Plus

From 5.5.4-2.3 onwards, the same password check is done for new login passwords for all users, regardless of the user privilege level. Previously, strong password rules were only enforced on users with administrator-level privileges (level 15).

DHCP Relay Short Lease Time

Available on: All Firewalls and routers, and all Layer 3 switches running AlliedWare Plus

From 5.5.4-2.3 onwards, DHCP Relay short lease time is supported.

When a device connects to a network, a DHCP server assigns it an IP address and a 'lease time', which specifies how long the address can be used before renewal. Long lease times can cause issues in dynamic networks where devices move between segments, such as VLANs, as the device may retain an outdated IP address from its previous VLAN, disrupting communication.

The **ip dhcp-relay short-lease** command resolves this by allowing you to reduce lease times, typically to one or two minutes. This forces devices to quickly request a new IP address when changing VLANs, ensuring compatibility with the new segment. This command is particularly useful in networks with high turnover of devices or in environments where IP addresses are scarce.

The key concepts

The following are key concepts and components involved in DHCP Relay Short Lease Time:

DHCP Relay A DHCP Relay is a network helper that makes sure devices in different parts of a network can still connect to a central DHCP server to get IP addresses. It works by taking the IP request from a device, passing it to the DHCP server, and then bringing the server's response back to the device, even if they are on different sections of the network. This allows all devices to get IP addresses from the same server, no matter where they are in the network.

Renewal time Renewal time, referred to as T1 in DHCP, is the time at which a DHCP client begins attempting to renew its IP address lease with the DHCP server. This occurs before the lease expires, ensuring the client can continue using the same IP address without interruption. If the renewal is successful, the lease is extended. If it is not, the client will continue to use the current lease until it attempts a rebinding closer to the lease expiration. Typically T1 sets at approximately 50% of the lease time.

Binding time Binding time, referred to as T2 in DHCP, is the time when the client, having failed to renew the lease at T1, will attempt to rebind with any available DHCP server to extend its lease before the current lease expires. Typically T2 sets at approximately 87.5% of the lease time.

Lease time Lease time in DHCP is the total duration for which an IP address is assigned to a client. During this lease period, two key milestones, T1 (Renewal time) and T2 (Binding time), help manage the lease.

Asymmetric DHCP lease timing Asymmetric DHCP Lease Timing refers to a setup where devices on a network have different schedules for when their DHCP leases expire and need to be renewed. This timing is not the same for every device, which means they don't all request a new IP address from the DHCP server at the same time. This is particularly useful in networks where a DHCP Relay is used to manage DHCP communications across different network segments, such as VLANs.

New commands

The new commands available with this feature are:

ip dhcp-relay short-lease-ipv6

For example, to configure a DHCP Relay on interface vlan1 to set a 2000 seconds valid and 1000 seconds **preferred** lease time for **IPv6**, use the commands:

```
awplus(config)# interface vlan1
awplus(config-if)# ip dhcp-relay short-lease-ipv6 2000 1000
```

ip dhcp-relay short-lease

For example, to configure a DHCP Relay on interface vlan1 to set 200 seconds lease time for IPv4, use the commands:

```
awplus(config)# interface vlan1
awplus(config-if)# ip dhcp-relay short-lease 200
```

Updated command

You can see the DHCP Relay short-lease information line in the output of the command **show ip dhcp-relay interface** <***ifname***>

```
awplus#show ip dhcp-relay interface vlan1

DHCP Relay Service is enabled
Use of client side address as source address is disabled
vlan1 is up, line protocol is up
Maximum hop count is 10
Maximum DHCP message length is 1400
DHCP Relay short lease time for IPv4 is 200 seconds <----
DHCP Relay short lease time for IPv6 are 2000/1000 (valid/preferred) seconds <---
Insertion of Relay Agent Option is enabled
Checking of Relay Agent Option is disabled
Insertion of Subscriber-ID auto-MAC is disabled
The Remote Id string for Relay Agent Option is 5254.1992.0861
Relay Information policy is to replace existing relay agent information
List of servers :   192.168.1.33
```

For more information on DHCP for IPv4, see the DHCP Feature Overview and Configuration Guide.

For more information on DHCP IPv6, see the DHCP for IPv6 (DHCPv6) Feature Overview and Configuration Guide.

IP Flow Information Export (IPFIX) enhancements

Applies to SBx8100 CFC960 control card, x320, x220, GS980MX, GS980EM, and GS980M series switches

From 5.5.4-2.3 onwards, IPFIX is supported on the above new platforms. Previously, it was supported only on x530 series switches.

In addition, this version supports IPv6 traffic monitoring on the above switches and x530 series switches.

IPFIX is an IETF protocol defined in RFC 7011 that provides a standard for exporting IP flow data from a network for analysis. Network administrators analyze the IP flow data, and make decisions, such as applying QoS policies or maybe adding more bandwidth to network areas that need it.

For more information on IPFIX, see the IPFIX Feature Overview and Configuration Guide.

Restart Notification trap

Applies to all devices running AlliedWare Plus

From 5.5.4-2.3 onwards, the restartNotification trap is supported on system shutdown. This implements the restartNotification trap that exists in AT-SYSINFO-MIB in AlliedWare Plus, and results in an SNMP trap when the administrator reboots the device.

For more information on SNMP MIBs, see Support for Allied Telesis Enterprise MIBs in AlliedWare Plus.

Support for more YANG data models

Applies to all devices running AlliedWare Plus

From 5.5.4-2.3 onwards, new YANG data models are supported, as well as changes to existing models. You can see full details and the latest models at: https://github.com/alliedtelesis/yang.

For more information about using YANG models, see the NETCONF and RESTCONF Feature Overview and Configuration Guide.

Improved diagnostics for memory consumption issues

Applies to all AlliedWare Plus devices, except for AMF Cloud

From 5.5.4-2.3 onwards, diagnostics of low-memory issues have been improved, in the following ways:

- When memory drops sufficiently low, the device will now automatically terminate the non-critical process that has the highest memory consumption. Note that only a non-critical process will be terminated automatically, not a critical process.
- SNMP traps can be generated when available memory drops beneath low, very low and critical thresholds, and when it returns to normal. The traps are:
  - 1.3.6.1.4.1.207.8.4.4.3.7.0 memoryTraps
  - 1.3.6.1.4.1.207.8.4.4.3.7.0.1 memoryLowTrap
  - 1.3.6.1.4.1.207.8.4.4.3.7.0.2 memoryVeryLowTrap
  - 1.3.6.1.4.1.207.8.4.4.3.7.0.3 memoryCriticalTrap
    (However, note that when the system reaches the critical memory threshold, it reboots before a trap can be sent.)
  - 1.3.6.1.4.1.207.8.4.4.3.7.0.4 memoryReturnToNormalTrap
  - 1.3.6.1.4.1.207.8.4.4.3.7.0.5 vcstackId

  To enable the traps, use the command:

  ```
  awplus(config)# snmp-server enable trap low-memory
  ```

- The memory thresholds have been adjusted, to make sure that the device can produce sufficient debugging output before reaching the critical threshold and rebooting.

- A new command enables you to specify a process for the device to terminate if available memory is sufficiently low. This command is intended for use in consultation with Allied Telesis customer support. Using this command will make the device produce a core dump when the process terminates, which makes it easier for Allied Telesis engineers to debug any issues.

  The new command is:

  ```
  awplus(config)# low-memory restart <process-name>
  ```

  The process does not have to be running when you enter this command. If it is running at the time the available memory becomes sufficiently low, the device will terminate it.

- On SBx8100, this full feature set is only available on the SBx81CFC960 control card, the SBx81XLEM modular line card, and the modules that plug into the SBx81XLEM. Only the SNMP traps are available on other line cards.

Testing connectivity to an SNMP manager

Applies to all AlliedWare Plus devices except AMF Cloud

From 5.5.4-2.3 onwards, you can enter a command to test connectivity between the AlliedWare Plus device and an SNMP manager. The new command tests the connectivity by sending a one-off coldStart or warmStart trap. The new command is:

```
awplus# test snmp trap snmp coldstart
```

or

```
awplus# test snmp trap snmp warmstart
```

Compatibility of Local RADIUS Server and TQ series access points

Applies to all devices that support the local RADIUS server

From 5.5.4-2.3 onwards, the local (in-built) RADIUS server on AlliedWare Plus devices has been upgraded. As a result of that upgrade, the AlliedWare Plus device may require an extra command if you want to authenticate TQ series APs through the local RADIUS server. This command is needed if you use both web authentication and MAC authentication to authenticate the same AP. Without this command, web authentication may fail.

The command is accessed in RADIUS Server Configuration mode:

```
awplus# configure terminal
awplus(config)# radius-server local
```

```
awplus(config-radsrv)# nas <ip-address> message-authenticator
optional
```

This command is required because the upgraded local RADIUS server changes how message authentication is handled by default. From 5.5.4-2.3 onwards, if the first packet that the server receives from the client contains a valid Message-Authenticator attribute, then by default all subsequent packets from that client must also contain the same Message-Authenticator attribute. If packets don't contain the attribute, the server drops them. This can cause an issue on TQ series APs, because on these APs, MAC authentication's initial packet contains the attribute, and web authentication's initial packet doesn't. This means that web authentication will fail if MAC authentication has already happened.

The new command allows the server to accept packets from a client when the packets don't have a Message-Authenticator attribute, even if the server has already received a packet from that client that contained a Message-Authenticator attribute. This means both web authentication and MAC authentication will succeed, no matter which happens first.

Login accounting periodic updates

Applies to all devices running AlliedWare Plus

From 5.5.4-2.3 onwards, the **aaa accounting login** command supports the **aaa accounting update periodic** command.

Example

To configure RADIUS login accounting with periodic updates, use the following commands:

```
awplus# configure terminal
awplus(config)# aaa accounting login default start-stop group
radius
awplus(config)# aaa accounting update periodic <1-65535>
```

The number specifies the interval in minutes at which interim updates will be sent.

For more information on RADIUS, see the RADIUS Feature Overview and Configuration Guide.

For more information on AAA, see the AAA Feature Overview and Configuration Guide.

OpenVPN RADIUS accounting support

Available on all devices that support OpenVPN

From 5.5.4-2.3 onwards, if you use an external RADIUS server when authenticating OpenVPN tunnels, you can enable RADIUS accounting. To do this, use the commands:

```
awplus# configure terminal
awplus(config)# aaa accounting openvpn default {start-stop|
stop-only|none} group <radius-server-group>
```

You can also enable interim updates using the following command, where the number specifies the interval in minutes at which interim updates will be sent:

```
awplus(config)# aaa accounting update periodic <1-65535>
```

For more information on RADIUS, see the RADIUS Feature Overview and Configuration Guide.

For more information on AAA, see the AAA Feature Overview and Configuration Guide.

GeoIP support in firewall entities

Applies to all UTM firewalls and VPN routers running AlliedWare Plus

From 5.5.4-2.3 onwards, the GeoIP (Geographic IP) feature is supported.

The GeoIP feature is a network security and traffic management tool. It uses IP address geolocation to identify the approximate geographic location of clients or servers by mapping IP address blocks to specific countries or regions.

GeoIP is widely used for purposes such as security, access control, and traffic optimization. For instance, it can restrict access to a service to only those with source IP addresses from a specific region. Similarly, it can block all traffic originating from regions known for frequent malicious or nuisance network activities.

The feature enables you to dynamically add all networks assigned to a specific country to an entity with a single command. These networks are sourced from a third-party provider and updated automatically on a regular basis.

GeoIP is a best-effort service designed to conveniently limit or block traffic based on expected sources or destinations. However, it does not guarantee that all traffic associated with these locations will be detected, nor does it prevent parties from obscuring their true location. Users are encouraged to utilize additional features, such as Advanced IPS, IP Reputation, and Web Categorization, to enhance protection against malicious activity.

New commands

The following new commands are available:

```
ip subnet dynamic geoip
ipv6 subnet dynamic geoip
geoip update-interval
```

Examples

1. To configure an entity to select traffic to/from Russia, use the following commands:

```
awplus# configure terminal
awplus(config)# zone russia
awplus(config-zone)# network geoip
awplus(config-network)# ip subnet dynamic geoip RU
```

2. To only allow OpenVPN traffic to the device when it comes from a source address associated with Japan:

   Create the GeoIP entity:

```
awplus# configure terminal
awplus(config)# zone japan
awplus(config-zone)# network geoip
awplus(config-network)# ip subnet dynamic geoip JP
```

   Add the rule:

```
awplus(config)# firewall
awplus(config-firewall)# rule permit openvpn from japan to
wan.wan_int.wan_ip
```

Improved support for security processing of TLS1.3-encrypted traffic

Applies to all AlliedWare Plus firewalls that support licensed security features

From 5.5.4-2.3 onwards, performance of security features on AlliedWare Plus firewalls has improved for TLS1.3-encrypted traffic. This applies to the licensed security features (application control, web control, advanced IPS, IP reputation, URL filtering, and web categorization).

For more information about these features, see the Advanced Network Protection Feature Overview and Configuration Guide.

Support for DPI Web Categorization on the TQ6702 GEN2-R

From 5.5.4-2.3 onwards, DPI Web Categorization is supported on the TQ6702 GEN2-R Wi-Fi Access Point and VPN router.

Web Categorization helps protect users on the network based on the type of website they access. It enables businesses to manage the types of website their staff can access.

The DPI engine does this by scanning packets traversing the system and identifying HTTP hostnames or TLS server names and passing these to the Web Categorization engine for subsequent processing.

Web Categorization then matches the hostname against custom hosts configured under the 'application' configuration mode, and/or sends it to the third party categorizer for processing. So for example, you could block all 'Gambling' websites. Once a category has been determined, the packet flow will match rules that specify that category in their application field, for example, Firewall, NAT or PBR rules.

For more information on DPI and Web Categorization, see the Advanced Network Protection Feature Overview and Configuration Guide.

Ethernet ports on TQ6702 GEN2-R support 10M link speed

From 5.5.4-2.3 onwards, the TQ6702 GEN2-R wireless router can link up to a device that advertises a link speed of 10M. The TQ6702 GEN2-R now supports auto-negotiation at 10M Full Duplex on both Ethernet ports. Note that setting 10M as a fixed speed is not supported.

Support for CCMP cipher with WPA3 encryption on TQ6702 GEN2-R

From 5.5.4-2.3 onwards, the CCMP cipher is supported for WPA Enterprise version WPA3 on TQ6702 GEN2-R wireless AP routers. The default cipher for WPA3 is still GCMP.

This enhancement means you can now select either CCMP or GCMP as the cipher, using a CLI command. For example, to select CCMP on security-ID 1, use the commands:

```
awplus(config)# wireless
awplus(config-wireless)# security 1 mode wpa-enterprise
awplus(config-wireless-sec-wpa-ent)# version wpa3
awplus(config-wireless-sec-wpa-ent)# ciphers ccmp
```

Removal of requirement to specify a basic rate on TQ6702 GEN2-R

From 5.5.4-2.3 onwards, you are no longer required to specify a basic rate for Radio 1, when you specify the legacy rates to use.

Basic rates are the most backward compatible rates in a Wi-Fi network - rates that will work with the oldest Wi-Fi standards. For 2.4Ghz, the basic rates are: 1Mbps, 2Mbps, 5.5Mbps, and 11Mbps. For 5Ghz, the basic rates are: 6Mbps, 12Mbps, and 24Mbps.

To use the CLI to select the legacy rate or rates you want to use, use the commands:

```
awplus(config)# wireless
awplus(config-wireless)# ap-profile local
awplus(config-wireless-ap-prof)# radio 1
awplus(config-wireless-ap-prof-radio)# legacy-rates <list>
```

The rates can be one or more of 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, or 1.

If none of the basic rates is specified, the device will use the lowest selected legacy rate as the basic rate. Note that the beacon frame and management frame must use this lowest rate.

This enhancement means that the multicast transfer rate you can specify has also changed. To use the CLI to select this, use the commands:

```
awplus(config)# wireless
awplus(config-wireless)# ap-profile local
awplus(config-wireless-ap-prof)# radio 1
awplus(config-wireless-ap-prof-radio)# multicast-tx-rate {1|2|
5.5|6|9|11|18|12|24|36|48|54}
```

Support Dynamic VLAN with MAC-Authentication on TQ6702 GEN2-R

From 5.5.4-2.3 onwards, Dynamic VLAN is now supported with MAC authentication on a wireless network on the TQ6702 GEN2-R. This makes it possible to use dynamic VLANs with WPA Personal.

Dynamic VLAN lets the TQ6702 GEN2-R dynamically assign the VLAN into which a device's traffic will be classified, once that device has been authenticated. This is achieved by a collaboration between the authenticator (the TQ6702 GEN2-R) and the authentication server (the RADIUS server). When the RADIUS server sends back a RADIUS accept message to the authenticator, it can also include attributes in that message that identify a VLAN to which the authenticated device should be assigned.

Previously, when MAC authentication was used, any VLAN assignment would be based on the VAP that the client connects to, where as Dynamic VLAN can assign a specific VLAN to each client.

To use the CLI to enable Dynamic VLAN with MAC authentication (on network 1 in this example), use the commands:

```
awplus(config)# wireless
awplus(config-wireless)# network 1
awplus(config-wireless-network)# mac-auth dynamic-vlan enable
```

You can also enable Dynamic VLAN in WPA enterprise security mode. If you have both, the VLAN assigned from the WPA Enterprise authentication will take precedence over the VLAN assigned from MAC authentication.

Support for IPv6 VRF multicast routing

Applies to SBx8100 CFC960, SBx908 GEN 2, x950, x930, x540L and x530 series switches

From 5.5.4-2.3 onwards, IPv6 multicast routing with VRF is supported for MLD, MLD Snooping, PIM-SM, Fast Failover for PIM-SM - all in IPv6 named VRFs. This allows for multiple IPv6 multicast routing tables to co-exist on the same device.

No new limitations exist, but note the existing limit of 100 VLANs that can support MLD.

Commands

You can use this command to enable multicast routing on a given VRF:

```
ipv6 multicast-routing vrf
```

You can now specify VRF on the following commands:

```
ipv6 multicast vrf VRF route-limit
ipv6 multicast vrf VRF forward-slow-path-packet
ipv6 pim vrf VRF accept-register
ipv6 pim vrf VRF anycast-rp
ipv6 pim vrf VRF bsr-candidate
ipv6 pim vrf VRF cisco-register-checksum
ipv6 pim vrf VRF crp-cisco-prefix
ipv6 pim vrf VRF ignore-rp-set-priority
ipv6 pim vrf VRF jp-timer
ipv6 pim vrf VRF register-rate-limit
ipv6 pim vrf VRF register-rp-reachability
ipv6 pim vrf VRF register-source
ipv6 pim vrf VRF register-suppression
```

```
ipv6 pim vrf VRF rp
ipv6 pim vrf VRF rp-address
ipv6 pim vrf VRF rp-candidate
ipv6 pim vrf VRF rp-register-kat
ipv6 pim vrf VRF spt-thresholdipv6 pim vrf VRF ssm
```

You can also specify VRF in the following show commands:

```
show ipv6 mld (vrf VRF|global)
show ipv6 pim (vrf VRF|global) sparse-mode
show ipv6 multicast forwarding (vrf VRF|global)
show ipv6 mif (vrf VRF|global)
```

Monitoring

You can learn more about the associated features and debug commands as described in the following MLD, PIM-SM, and VRF-lite guides:

- IGMP/MLD Feature Overview and Configuration Guide
- PIM Sparse Mode for IPv6 (PIM-SMv6) Feature Overview and Configuration Guide
- VRF-lite Feature Overview and Configuration Guide

Mirroring enhancements

Applies to SBx908 GEN 2, x950, x930, x550, x540L, x530, x530L, x330, x320, x250, x240, x230, x220, IE340, IE220, IE210L and XS900MX series switches

From 5.5.4-2.3 onwards, the number of allowable mirror ports has been increased on some devices.

For more information on mirroring, see the Mirroring Feature Overview and Configuration Guide

100M support added for SPTXc on x250, SE250, x540L and SE540L series switches

From 5.5.4-2.3 onwards, AlliedWare Plus supports a link speed of 100M on SPTXc transceivers on the following XS switch models: x250-18XS, x250-28XS, SE250-18XS, SE250-28XS, x540L-28XS and SE540L-28XS.

The following speed/duplex settings are supported:

Speed	Duplex
Autonegotiation at 100M	Autonegotiation
Autonegotiation at 100M	Full
Fixed at 100M	Autonegotiation

Mark a switch's PSU or power input as unused

Applies to x530, GS980MX, x320-10GH, GS980EM/10H, IE340 and IE360 Series switches

From 5.5.4-2.3 onwards, you can mark a switch's redundant PSU or power input as unused, if you have intentionally not plugged in that PSU. This may be helpful, because otherwise the switch treats an unused PSU or power input as an environmental fault. The fault is displayed in output from commands such as **show system**, and in some configurations, the environmental fault may trigger an alarm. Marking a PSU or power input as unused prevents this.

To mark a PSU or power input as unused, use the new command:

```
awplus(config)# system psu [member <1-8>] psu <1-4> unused
```

where:

- **member** is the stack member ID in a VCStack
- **psu <1-4>** is the numerical ID of the PSU or power input.

To see whether a PSU or power input has been marked as unused, use the new command:

```
awplus# show system psu config
```

Also note the following important points about this feature:

- The configuration is applied after the switch's code has started to run so an initial alarm may be raised, which will then be cleared.
- On IE360 and IE340 series switches, the voltage input sensor for the relevant PSU will be treated as unavailable, so the PSU will no longer be monitored and will not show in the output of **show system**.
- On switches where the voltage input sensor for the relevant PSU is treated as unavailable, no high or low threshold alarms will be generated for the sensor while it is marked as unused.
- IE series switches have some sensors that trigger SNMP traps or alarm monitoring events when power is applied or removed. These traps and events are not affected by this enhancement. In general, if a PSU is marked as unused, we expect that power will not be applied or removed during normal operation.
- On x530 and GS980MX series switches with dual fixed PSUs, the fixed PSU bay will be marked as 'power not required', to prevent alarms for the PSU power input regardless of state.
- The x320-10GH switch has three PSU inputs treated as fixed PSU slots. These will be marked as optional. When setting them to unused, the fixed PSU bay will be marked as 'power not required', to prevent alarms for the PSU power input regardless of state.
- On switches where this feature marks a PSU bay as 'power not required', SNMP traps may still be sent when the power status of the PSU changes state. However, the traps will always be AT-ENVMONv2-MIB::atEnvMonv2PsbAlarmClearedNotify. If the bay was not marked as 'power not required', instead an AT-ENVMONv2-MIB::atEnvMonv2Psb AlarmSetNotify trap would be sent if power was removed.
- A warning will be logged and printed to the CLI if a PSU that is detected as powered is marked as unused.

Denial of Service (DoS) protection added to more switch series

Applies to x230, x220, IE210, GS980M, GS970M

From 5.5.4-2.3 onwards, DoS protection has been added to the above series of switches. DoS protection is designed to detect, prevent, or mitigate Denial of Service (DoS) attacks. DoS attacks can include Ping of Death, Smurf, SYN Flood, and Teardrop attacks.

To enable DoS protection on (for example) port 1.0.1, use the commands:

```
awplus# configure terminal
awplus(config)# interface port1.0.1
awplus(config-if)# {ipoptions|land|ping-of-death|smurf
broadcast <ip-address>|synflood|teardrop} action {shutdown|
trap|mirror}
```

where **action** is whether to shut the port down, send an SNMP trap, or send the packets to a mirror port.

Important Considerations Before Upgrading

Please read this section carefully before upgrading.

This section describes changes that may affect your device or network behavior if you upgrade:

- Limits to Upgrade Compatibility on SwitchBlade x908 GEN2, x950 and x930 Series Switches
- Changes that may affect device or network configuration

It also describes the new version's compatibility with previous versions for:

- Software release licensing
- Upgrading a VCStack with rolling reboot
- Forming or extending a VCStack with auto-synchronization
- AMF software version compatibility
- Upgrading all devices in an AMF network

Please check previous release notes for other important considerations. For example, if you are upgrading from a 5.5.2-3.x version, please check the 5.5.3-0.x, 5.5.3-1.x and 5.5.3-2.x release notes. Release notes are available from our website, including:

- 5.5.4-x.x release notes
- 5.5.3-x.x release notes
- 5.5.2-x.x release notes
- 5.5.1-x.x release notes
- 5.5.0-x.x release notes
- 5.4.9-x.x release notes
- 5.4.8-x.x release notes
- 5.4.7-x.x release notes
- 5.4.6-x.x release notes

Limits to Upgrade Compatibility on SwitchBlade x908 GEN2, x950 and x930 Series Switches

These switches can only be upgraded to the most recent firmware versions from specified older firmware versions. If you attempt to upgrade from other older firmware versions, the firmware becomes corrupt and the switch will not boot up.

The solution Before upgrading to the latest firmware version, upgrade to one of the specified older versions. See "Details for SBx908 GEN2 and x950 Series" on page 21 and "Details for x930 Series" on page 22 for details.

Affected Products

The following models could be affected:

x930 Series running any bootloader version	x950 Series running bootloader versions older than 6.2.24	SBx908 GEN2 running bootloader versions older than 6.2.24
x930-28GTX	x950-28XSQ	SBx908 GEN2
x930-28GPX	x950-28XTQm	
x930-52GTX		
x930-52GPX		
x930-28GSTX		

For SBx908 GEN2 and x950 Series, the restriction only applies to switches running bootloader versions older than 6.2.24.

Recovering from upgrading from an incompatible version

If you try to upgrade from an incompatible firmware version, the switch will not finish booting up. If this happens, you can recover by using the bootloader menu to boot with a compatible version from an alternative source, such as a USB stick. See the Bootloader and Startup Feature Overview and Configuration Guide for details.

Details for SBx908 GEN2 and x950 Series

For these switches, switches where the bootloader is older than 6.2.24 are affected. If your bootloader is older than 6.2.24, you **cannot** upgrade to the most recent firmware version directly from:

- 5.4.9-1.x
- 5.4.9-0.x
- any version before 5.4.8-2.12.

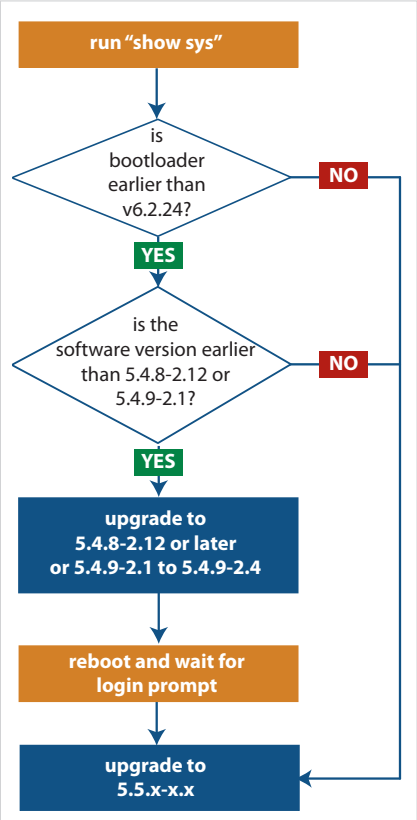
Instead, before upgrading from one of those versions to the current version, make sure your switch is running one of these specified versions:

- 5.4.8-2.12 or a later 5.4.8-2.x version
- 5.4.9-2.1 to 5.4.9-2.4.

If it is not, upgrade to one of these versions before upgrading to the most recent firmware version.

To see your bootloader and current software version, check the "Bootloader version" and "Software version" fields in the command:

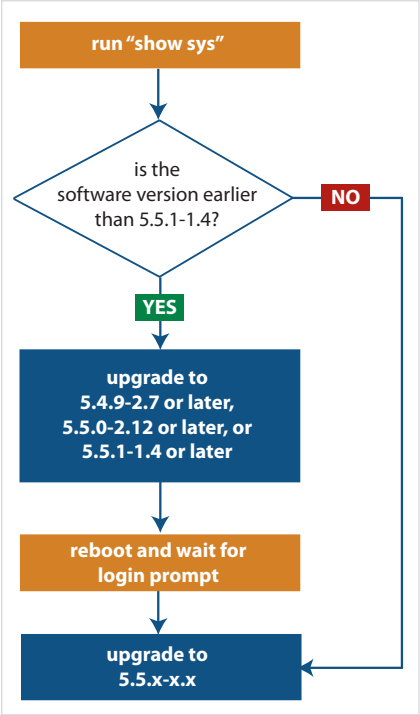
```
awplus# show system
```



Details for x930 Series

For these switches, **versions 5.5.1-2.1** and later are affected, on switches with all bootloaders. You **cannot** upgrade to most recent firmware version directly from:

- 5.5.1-1.3 or earlier
- 5.5.1-0.x
- 5.5.0-2.11 or earlier
- 5.5.0-1.x
- 5.5.0-0.x
- any version before 5.4.9-2.7.



Instead, before upgrading from one of those versions to most recent firmware version, make sure your switch is running one of these specified versions:

- 5.4.9-2.7 or a later 5.4.9-2.x version
- 5.5.0-2.12 or a later 5.5.0-2.x version
- 5.5.1-1.4 or a later 5.5.1-1.x version.

If it is not, upgrade to one of these versions before upgrading to most recent firmware version.

To see your current firmware version, check the "Software version" field in the command:

```
awplus# show system
```

Changes that may affect device or network configuration

The following changes may require you to modify your device or network configuration when you upgrade to this release.

Summary	Affected devices	Detail
VRF configuration reordered in running config	All devices that support VRF	From 5.5.4-0.1 onwards, VRF configuration is printed near the start of running configuration files. This makes sure that AlliedWare Plus creates the VRF instances before running commands that use those VRFs.

Summary	Affected devices	Detail

DES deprecated for TACACS+ server key encryption	All devices that support TACACS+	From 5.5.4-0.1 onwards, newly-created TACACS+ shared keys are stored as AES-encrypted keys. It is no longer possible to create a DES-encrypted key. If the device's running-config contains a DES key, the device will automatically convert it to an AES key.
		
		This means that if the running-config contains this command:
		
		`tacacs-server key 8 <DES-obfuscated-string>`
		
		the device will convert it to this command:
		
		`tacacs-server key 9 <AES-obfuscated-string>`

Software release licensing

Applies to SBx908 GEN2 and SBx8100 Series switches

Please ensure you have a 5.5.4 license on your switch if you are upgrading to 5.5.4-x.x on your SBx908 GEN2 or SBx8100 switch. To obtain a license, contact your authorized Allied Telesis support center. You will need to provide the MAC addresses of the switches you want to license. For details, see:

- "Licensing this Version on an SBx908 GEN2 Switch" on page 29
- "Licensing this Version on an SBx8100 Series CFC960 Control Card" on page 31.

Upgrading a VCStack with rolling reboot

Applies to all stackable AlliedWare Plus switches, except SBx8100

This version supports VCStack "rolling reboot" upgrades. With the **reboot rolling** command, you can reduce downtime when upgrading a VCStack.

For SBx908 GEN2, x950 and x550 Series switches

You can use rolling reboot to upgrade to this version from:

- All versions from 5.5.0-x.x onwards

On these switches, you **cannot** use rolling reboot to upgrade to this version from any version earlier than 5.5.0-0.x.

For x530 Series switches using DAC to stack

If you are using DACs (Direct Attach Cables) to connect stack members, you can use rolling reboot to upgrade to this version from:

- All versions from 5.5.0-x.x onwards
- 5.4.9-0.x (but not 5.4.9-1.x or 5.4.9-2.x)
- 5.4.8-2.x

For other switches and for x530 switches using SFP+ to stack

Otherwise, you can use rolling reboot to upgrade to this version from:

- All versions from 5.4.5-x.x onwards
- 5.4.4-1.x

To use rolling reboot

First enter the **boot system** command, which will install the new release file on all stack members. Then enter the **reboot rolling** command.

Forming or extending a VCStack with auto-synchronization

Applies to all stackable AlliedWare Plus switches

If you create a VCStack from switches that are running different software versions, auto-synchronization ensures that all members will run the same software version when they boot up.

If auto-synchronization is not supported between the software versions on the devices in your stack, you need to make sure all devices are running the same version before you connect the stack together.

For SBx908 GEN2, x950 and x550 Series switches

Auto-synchronization is supported between this version and:

- All versions from 5.5.0-x.x onwards

On these switches, auto-synchronization is not supported between this version and any version earlier than 5.5.0-0.x.

For CFC960 cards in an SBx8100 system

If you want to combine CFC960 v2 and earlier CFC960 cards in a chassis or stack, make sure that the earlier cards are running 5.5.0-x.x or later before you combine them. This applies whether you:

- add a CFC960 v2 card to a chassis or stack that contains earlier CFC960 cards, or
- add an earlier CFC960 card to a chassis or stack that contains CFC960 v2 cards.

Auto-synchronization will not update the software on the earlier CFC960 cards.

Note that this situation only applies if your chassis or stack includes CFC960 v2 cards that are labeled “SBx81CFC960 v2” on the front panel of the card. All cards that are labeled “SBx81CFC960” are referred to as earlier cards, even if their documentation refers to them as version 2.

If you do combine cards that are running incompatible software, then remove the CFC960 v2 card or cards, update the software on the other cards, and re-install the CFC960 v2 cards.

For x530 Series switches using DAC to stack

If you are using DACs (Direct Attach Cables) to connect stack members, auto-synchronization is supported between this version and:

- All versions from 5.5.0-x.x onwards
- 5.4.9-0.x (but not 5.4.9-1.x or 5.4.9-2.x)
- 5.4.8-2.x

For other switches and for x530 switches using SFP+ to stack

Otherwise, auto-synchronization is supported between this version and:

- All versions from 5.4.7-x.x onwards
- 5.4.6-2.x
- 5.4.6-1.2 and all later 5.4.6-1.x versions.

It is not supported between this version and 5.4.6-1.1 or **any** earlier releases.

AMF software version compatibility

Applies to all AlliedWare Plus devices

We strongly recommend that all nodes in an AMF network run the same software release. However, if this is not possible, then nodes running this version are compatible with nodes running:

- All versions from 5.4.4-x.x onwards
- 5.4.3-2.6 or later.

Upgrading all devices in an AMF network

Applies to all AlliedWare Plus devices

This version supports upgrades across AMF networks. There are two methods for upgrading firmware on an AMF network:

- Reboot-rolling, which upgrades and reboots each node in turn
- Distribute firmware, which upgrades each node, but does not reboot them. This lets you reboot the nodes at a minimally-disruptive time.

You can use either reboot-rolling or distribute firmware to upgrade to this software version, from 5.4.3-2.6 and later.

However, if you use reboot-rolling or distribute firmware to upgrade an AMF network, and any of the devices are running 5.4.7-1.1 or later, then you must initiate the upgrade from a device that is running 5.4.7-1.1 or later. Otherwise, the devices running 5.4.7-1.1 or later will not be upgraded.

If you are using rolling-reboot, we recommend limiting it to working-sets of 42 nodes or fewer.

In summary, the process for upgrading firmware on an AMF network is:

1. Copy the release .rel files for each product family to the media location you intend to upgrade from (Flash memory, SD card, USB stick etc).

2. Decide which AMF upgrade method is most suitable.

3. Initiate the AMF network upgrade using the selected method. To do this:
   a. create a working-set of the nodes you want to upgrade
   b. enter the command **atmf reboot-rolling <*location*>** or **atmf distribute-firmware <*location*>** where **<*location*>** is the location of the .rel files.
   c. Check the console messages to make sure that all nodes are “release ready”. If they are, follow the prompts to perform the upgrade.

Obtaining User Documentation

For full AlliedWare Plus documentation, click here to visit our online Resource Library. For AlliedWare Plus products, the Library includes the following documents:

- **Feature Overview and Configuration Guides** - find these by searching for the feature name and then selecting Configuration Guides in the left-hand menu.
- **Datasheets** - find these by searching for the product series and then selecting Datasheets in the lefthand menu.
- **Installation Guides** - find these by searching for the product series and then selecting Installation Guides in the lefthand menu.
- **Command References** - find these by searching for the product series and then selecting Reference Guides in the lefthand menu.

Verifying the Release File

On devices that support crypto secure mode, to ensure that the release file has not been corrupted or interfered with during download, you can verify the release file. To do this, enter Global Configuration mode and use the command:

```
awplus(config)# crypto verify <filename> <hash-value>
```

where <*hash-value*> is the known correct hash of the file.

This command compares the SHA256 hash of the release file with the correct hash for the file. The correct hash is listed in the table Hash values for 5.5.4-2.3 below or in the release's sha256sum file, which is available from the Allied Telesis Support Portal.

Caution

If the verification fails, the following error message will be generated:
"% Verification Failed"
In the case of verification failure, please delete the release file and contact Allied Telesis support.

All switch models of a particular series run the same release file and therefore have the same hash. For example, all x930 Series switches have the same hash.

If you want the switch to re-verify the file when it boots up, add the **crypto verify** command to the boot configuration file.

Table: Hash values for 5.5.4-2.3

Product family	Software File	Hash
AMF Cloud	vaa-5.5.4-2.3.rel	bf4ece2659bbc8053b2539c16d475df6e77d07da2ceeee4034b3218602840700
SBx8100	SBx81CFC960-5.5.4-2.3.rel	d5e4f97d500289ede25cd1eaa3dc27e1a246c44d1c005b4f6f2462f5ea50189b
SBx908 GEN2	SBx908NG-5.5.4-2.3.rel	4eb3cff510fb578f543b2d42097573939a9a886962780384b1cfd449298eaa5d
x950	x950-5.5.4-2.3.rel	4eb3cff510fb578f543b2d42097573939a9a886962780384b1cfd449298eaa5d
x930	x930-5.5.4-2.3.rel	366fe84b0052ee0341876c9f5bbf5005b929a9e59dc579dd81d67af90301b76c
x550	x550-5.5.4-2.3.rel	12bc2b261ca765611499b9df6e5827bfc88dc1e47b28e041fd68c2daffba1985
x540L	x540-5.5.4-2.3.rel	4d4982b71104e9d2049f6e49763589da63c5ab20b3c8cbf8d34d0df2595222ed
x530 & x530L	x530-5.5.4-2.3.rel	7da1281f41ca1a6893c68f49d60214303f1fe533150931c2018456b515d56817

Table: Hash values for 5.5.4-2.3

Product family	Software File	Hash
x330	x330-5.5.4-2.3.rel	3394206ac0c4297c27de8bad5d6751dd50cd5a7b3431733fa23d017928491e70
x320	x320-5.5.4-2.3.rel	7da1281f41ca1a6893c68f49d60214303f1fe533150931c2018456b515d56817
x250	x250-5.5.4-2.3.rel	1c815342bb20d72396f9080dcb50f844a48ea78a84d278ddf91460b8992e4e2b
x240	x240-5.5.4-2.3.rel	cddb4d9cf727c0340cdadc86536ba8e371544d3b87dc51020e4a94f27a722d4a
x230 & x230L	x230-5.5.4-2.3.rel	b430e6f96c517fab5dff3af25c8b425b647ac076ee0f76786a2909186b1669c0
x220	x220-5.5.4-2.3.rel	59bd44f8c7d914ce1106eef59acbccb87aadee5b424349526dc3e5320b076c40
IE360	IE360-5.5.4-2.3.rel	667b0e36d543e2d1c85633fb894470c6e26d5872b1a287ff55337461ad4bd08e
IE340 & IE340L	IE340-5.5.4-2.3.rel	9a70b69bc7ec9cf34c82ad8c235c28895e54a83444bb0e6ee89f9d9c1a268475
IE220	IE220-5.5.4-2.3.rel	fbf9f9af3fce9066a5407a8f0509e961bf665bbf5fae4cf95753bc508a164508
IE210L	IE210-5.5.4-2.3.rel	b430e6f96c517fab5dff3af25c8b425b647ac076ee0f76786a2909186b1669c0
SE540L	SE540-5.5.4-2.3.rel	4d4982b71104e9d2049f6e49763589da63c5ab20b3c8cbf8d34d0df2595222ed
SE250	SE250-5.5.4-2.3.rel	1c815342bb20d72396f9080dcb50f844a48ea78a84d278ddf91460b8992e4e2b
SE240	SE240-5.5.4-2.3.rel	cddb4d9cf727c0340cdadc86536ba8e371544d3b87dc51020e4a94f27a722d4a
XS900MX	XS900-5.5.4-2.3.rel	d2cfa830035730fd761d308eccd4bc9f2e9106c515c02e0c498069cb5dd16fa0
GS980MX	GS980MX-5.5.4-2.3.rel	7da1281f41ca1a6893c68f49d60214303f1fe533150931c2018456b515d56817
GS980EM	GS980EM-5.5.4-2.3.rel	7da1281f41ca1a6893c68f49d60214303f1fe533150931c2018456b515d56817
GS980M	GS980M-5.5.4-2.3.rel	59bd44f8c7d914ce1106eef59acbccb87aadee5b424349526dc3e5320b076c40
GS970EMX	GS970EMX-5.5.4-2.3.rel	3394206ac0c4297c27de8bad5d6751dd50cd5a7b3431733fa23d017928491e70
GS970M	GS970-5.5.4-2.3.rel	b430e6f96c517fab5dff3af25c8b425b647ac076ee0f76786a2909186b1669c0
AR4050S-5G	AR4050S-5.5.4-2.3.rel	804b2fc7d04f7b0c77a8f824504eb81b3bf740e3151117590cdf3f2a8cc90e2b
AR4050S	AR4050S-5.5.4-2.3.rel	804b2fc7d04f7b0c77a8f824504eb81b3bf740e3151117590cdf3f2a8cc90e2b
AR3050S	AR3050S-5.5.4-2.3.rel	804b2fc7d04f7b0c77a8f824504eb81b3bf740e3151117590cdf3f2a8cc90e2b
AR1050V	AR1050V-5.5.4-2.3.rel	e8789031cf47a5e7c3975956b92bfec7abe9bbf5abfafb668976e472be97e95f
TQ6702 GEN2-R	TQ6702GEN2R-5.5.4-2.3.rel	31f6a317b8bd50c7d798cda4253bfaa244e46b8c06534458278c003295bed6a4

Licensing this Version on an SBx908 GEN2 Switch

Release licenses are applied with the **license certificate** command, then validated with the **show license** or **show license brief** commands. Follow these steps:

- Obtain the MAC address for a switch
- Obtain a release license for a switch
- Apply a release license on a switch
- Confirm release license application

1. Obtain the MAC address for a switch

A release license is tied to the MAC address of the switch.

Switches may have several MAC addresses. Use the **show system mac license** command to show the switch MAC address for release licensing:

```
awplus#show system mac license
MAC address for licensing:
eccd.6d9d.4eed
```

2. Obtain a release license for a switch

Contact your authorized Allied Telesis support center to obtain a release license.

3. Apply a release license on a switch

Use the **license certificate** command to apply a release license to your switch.

Note the license certificate file can be stored on internal flash memory, or an external SD card, or on a server accessible by the TFTP, SCP or HTTP protocols.

Entering a valid release license changes the console message displayed about licensing:

```
11:04:56 awplus IMI[1696]: SFL: The current software is not licensed.
awplus#license certificate demo1.csv
A restart of affected modules may be required.
Would you like to continue? (y/n): y
11:58:14 awplus IMI[1696]: SFL: The current software is licensed. Exiting
unlicensed mode.

Stack member 1 installed 1 license

1 license installed.
```

4. Confirm release license application

On a stand-alone switch, use the commands **show license** or **show license brief** to confirm release license application.

On a stacked switch, use the command **show license member** or **show license brief member** to confirm release license application.

The **show license** command displays the base feature license and any other feature and release licenses installed on AlliedWare Plus switches. The following example shows output on an SBx908 GEN2 switch:

```
awplus#show license

Board region: Global

Index                          : 1
License name                   : Base License
Customer name                  : Base License
Type of license                : Full
License issue date             : 20-Mar-2024
Features included              : AMF-APP-PROXY, AMF-GUEST, AMF-Starter, BGP-64,
                                 EPSR-MASTER, IPv6Basic, L3-FORWARDING,
                                 L3-MC-ROUTE, LAG-FULL, MLDSnoop, OSPF-64,
                                 RADIUS-100, RIP, VCStack, VRRP

Index                          : 2
License name                   : 5.5.4
Customer name                  : ABC Consulting
Quantity of licenses           : 1
Type of license                : Full
License issue date             : 20-Mar-2024
License expiry date            : N/A
Release                        : 5.5.4
```

Licensing this Version on an SBx8100 Series CFC960 Control Card

Release licenses are applied with the **license certificate** command, then validated with the **show license** or **show license brief** commands. Follow these steps:

- Obtain the MAC address for a control card
- Obtain a release license for a control card
- Apply a release license on a control card
- Confirm release license application

If your CFC960 control card is in a stacked chassis, you do not need to perform these steps on each chassis in the stack, only on the stack master.

If your license certificate contains release licenses for each control card present in a stacked chassis, entering the **license certificate** command on the stack master will automatically apply the release licenses to all the control cards within the stack.

1. Obtain the MAC address for a control card

A release license is tied to the control card MAC address in a chassis.

Chassis may have several MAC addresses. Use the **show system mac license** command to show the control card MAC address for release licensing. Note the MAC addresses for each control card in the chassis. The chassis MAC address is not used for release licensing. Use the card MAC address for release licensing.

```
awplus#show system mac license

MAC address for licensing:


Card                MAC Address
-------------------------------------
1.5                 eccd.6d9e.3312
1.6                 eccd.6db3.58e7

Chassis MAC Address eccd.6d7b.3bc2
```

2. Obtain a release license for a control card

Contact your authorized Allied Telesis support center to obtain a release license.

3. Apply a release license on a control card

Use the **license certificate** command to apply a release license to each control card installed in your chassis or stack.

Note the license certificate file can be stored on internal flash memory, a USB drive, or on a server accessible by the TFTP, SCP or HTTP protocols.

Entering a valid release license changes the console message displayed about licensing:

```
11:04:56 awplus IMI[1696]: SFL: The current software is not licensed.
awplus#license certificate demo1.csv
A restart of affected modules may be required.
Would you like to continue? (y/n): y
11:58:14 awplus IMI[1696]: SFL: The current software is licensed. Exiting
unlicensed mode.

Stack member 1 installed 1 license

1 license installed.
```

4. Confirm release license application

On a stand-alone chassis, use the commands **show license** or **show license brief** to confirm release license application.

On a stacked chassis, use the command **show license member** or **show license brief member** to confirm release license application.

The **show license** command displays the base feature license and any other feature and release licenses installed on AlliedWare Plus chassis:

```
awplus#show license
OEM Territory : ATI USA
Software Licenses
------------------------------------------------------------------------
Index                          : 1
License name                   : Base License
Customer name                  : ABC Consulting
Quantity of licenses           : 1
Type of license                : Full
License issue date             : 20-Mar-2024
License expiry date            : N/A
Features included              : IPv6Basic, LAG-FULL, MLDSnoop, RADIUS-100
                                 Virtual-MAC, VRRP

Index                          : 2
License name                   : 5.5.4
Customer name                  : ABC Consulting
Quantity of licenses           : -
Type of license                : Full
License issue date             : 20-Mar-2024
License expiry date            : N/A
Release                        : 5.5.4
```

Installing this Software Version

Caution: This software version requires a release license for the SBx908 GEN2 and SBx8100 switches. Contact your authorized Allied Telesis support center to obtain a license. For details, see:

- "Licensing this Version on an SBx908 GEN2 Switch" on page 29 and
- "Licensing this Version on an SBx8100 Series CFC960 Control Card" on page 31.

To install and enable this software version on a switch or AR series device, use the following steps:

1. Copy the software version file (.rel) onto your TFTP server.

2. If necessary, delete or move files to create space in the switch's Flash memory for the new file. To see the memory usage, use the command:

   ```
   awplus# show file systems
   ```

   To list files, use the command:

   ```
   awplus# dir
   ```

   To delete files, use the command:

   ```
   awplus# del <filename>
   ```

   You cannot delete the current boot file.

3. Copy the new release from your TFTP server onto the switch.

   ```
   awplus# copy tftp flash
   ```

   Follow the onscreen prompts to specify the server and file.

4. Move from Privileged Exec mode to Global Configuration mode, using:

   ```
   awplus# configure terminal
   ```

   Then set the switch to reboot with the new software version:

Product	Command
SBx8100 with CFC960	`awplus(config)# boot system SBx8100-5.5.4-2.3.rel`
SBx908 GEN2	`awplus(config)# boot system SBx908NG-5.5.4-2.3.rel`
x950 series	`awplus(config)# boot system x950-5.5.4-2.3.rel`
x930 series	`awplus(config)# boot system x930-5.5.4-2.3.rel`
x550 series	`awplus(config)# boot system x550-5.5.4-2.3.rel`
x540L series	`awplus(config)# boot system x540-5.5.4-2.3.rel`
x530 series	`awplus(config)# boot system x530-5.5.4-2.3.rel`
x330 series	`awplus(config)# boot system x330-5.5.4-2.3.rel`
x320 series	`awplus(config)# boot system x320-5.5.4-2.3.rel`
x250 series	`awplus(config)# boot system x250-5.5.4-2.3.rel`
x240 series	`awplus(config)# boot system x240-5.5.4-2.3.rel`
x230 series	`awplus(config)# boot system x230-5.5.4-2.3.rel`
x220 series	`awplus(config)# boot system x220-5.5.4-2.3.rel`

Product	Command
IE360 series	`awplus(config)# boot system IE360-5.5.4-2.3.rel`
IE340 series	`awplus(config)# boot system IE340-5.5.4-2.3.rel`
IE220 series	`awplus(config)# boot system IE220-5.5.4-2.3.rel`
IE210L series	`awplus(config)# boot system IE210-5.5.4-2.3.rel`
SE540L series	`awplus(config)# boot system SE540-5.5.4-2.3.rel`
SE250 series	`awplus(config)# boot system SE250-5.5.4-2.3.rel`
SE240 series	`awplus(config)# boot system SE240-5.5.4-2.3.rel`
XS900MX series	`awplus(config)# boot system XS900-5.5.4-2.3.rel`
GS980M series	`awplus(config)# boot system GS980M-5.5.4-2.3.rel`
GS980EM series	`awplus(config)# boot system GS980EM-5.5.4-2.3.rel`
GS980MX series	`awplus(config)# boot system GS980MX-5.5.4-2.3.rel`
GS970EMX series	`awplus(config)# boot system GS970EMX-5.5.4-2.3.rel`
GS970M series	`awplus(config)# boot system GS970-5.5.4-2.3.rel`
AR4050S-5G	`awplus(config)# boot system AR4050S-5.5.4-2.3.rel`
AR4050S	`awplus(config)# boot system AR4050S-5.5.4-2.3.rel`
AR3050S	`awplus(config)# boot system AR3050S-5.5.4-2.3.rel`
AR1050V	`awplus(config)# boot system AR1050V-5.5.4-2.3.rel`
TQ6702 GEN2-R	`awplus(config)# boot system TQ6702GEN2R-5.5.4-2.3.rel`

Return to Privileged Exec mode and check the boot settings, using:

```
awplus(config)# exit
awplus# show boot
```

5. Reboot using the new software version.

```
awplus# reload
```

Accessing and Updating the Web-based GUI

This section describes how to access the GUI to manage and monitor your AlliedWare Plus switch.

The GUI is a convenient tool for monitoring your device's status and performing basic management tasks. Its dashboard provides at-a-glance monitoring of traffic and other key metrics.

On AR4050S and AR3050S firewalls, you can use the GUI to create an advanced application-aware firewall with features such as Application control and Web control. Alternatively, you can configure real-time threat protection with URL filtering, Intrusion Prevention and Malware protection.

On select AlliedWare Plus devices, you can also optimize the performance of your Allied Telesis APs through Vista Manager mini.

Browse to the GUI

Note: In version 5.5.2-2.1, AlliedWare Plus was enhanced so that only strong cipher suites can be used for accessing the Device GUI. This may prevent some very old browsers from accessing the GUI.

Perform the following steps to browse to the GUI.

1. If you haven't already, add an IP address to an interface. For example:

   ```
   awplus> enable
   awplus# configure terminal
   awplus(config)# interface vlan1
   awplus(config-if)# ip address 192.168.1.1/24
   ```

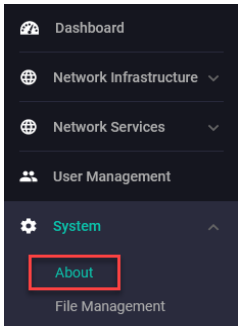
   Alternatively, on unconfigured devices you can use the default address, which is:

   - on switches: 169.254.42.42
   - on AR-Series: 192.168.1.1

2. Open a web browser and browse to the IP address from step 1.

3. The GUI starts up and displays a login screen. Log in with your username and password. The default username is *manager* and the default password is *friend*.

Check the GUI version



To see which version you have, open the **System** > **About** page in the GUI and check the field called **GUI version**. The version to use with 5.5.4-2.x is 2.19.0.

If you have an earlier version, update it as described in "Update the GUI on switches" on page 36 or "Update the GUI on AR-Series devices" on page 37.

Update the GUI on switches

Perform the following steps through the Device GUI and command-line interface if you have been running an earlier version of the GUI and need to update it.

1. Obtain the GUI file from the Allied Telesis Support Portal. The GUI filename to use with AlliedWare Plus v5.5.4-2.x is awplus-gui_554_37.gui.

   The file is not device-specific; the same file works on all devices. Make sure that the version string in the filename (e.g. 554) matches the version of AlliedWare Plus running on the switch.

2. Log into the GUI:

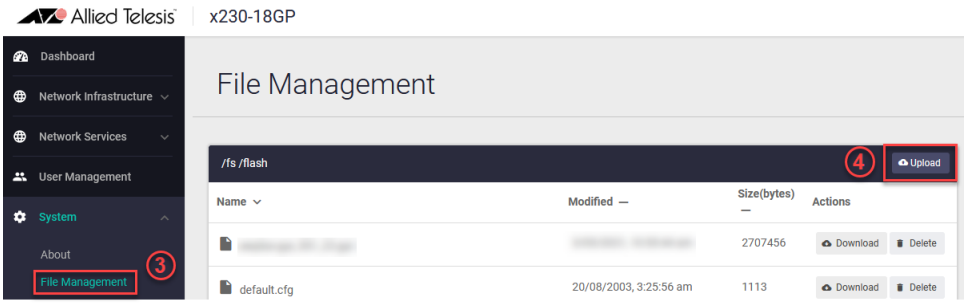
   Start a browser and browse to the device's IP address, using HTTPS. You can access the GUI via any reachable IP address on any interface.

   The GUI starts up and displays a login screen. Log in with your username and password.

   The default username is *manager* and the default password is *friend*.

3. Go to **System** > **File Management**

4. Click **Upload**.



5. Locate and select the GUI file you downloaded from our Support center. The new GUI file is added to the **File Management** window.

   You can delete older GUI files, but you do not have to.

6. Reboot the switch. Or alternatively, use **System** > **CLI** to access the command line interface, then use the following commands to stop and restart the HTTP service:

   ```
   awplus> enable
   awplus# configure terminal
   awplus(config)# no service http
   awplus(config)# service http
   ```

   To confirm that the correct file is now in use, then use the commands:

   ```
   awplus(config)# exit
   awplus# show http
   ```

Update the GUI on AR-Series devices

Prerequisite: On AR-Series devices, if the firewall is enabled, you need to create a firewall rule to permit traffic generated by the device that is destined for external services. See the "Configuring a Firewall Rule for Required External Services" section in the Firewall and Network Address Translation (NAT) Feature Overview and Configuration Guide.

Perform the following steps if you have been running an earlier version of the GUI and need to update it.

1. Log into the GUI and use **System** > **CLI** to access the command line interface.
2. Use the following commands to download the new GUI:

```
awplus> enable
awplus# update webgui now
```

3. Browse to the GUI and check that you have the latest version now, on the **System** > **About** page. You should have v2.18.0 or later.