Release Notes

December, 2018

This document describes features and known issues for the following firmware images:

T5 Switch, model TS-524 and TW-5XX Wallplates	Firmware 5.4.3.0-018R

Table of Contents

Hardware

T5 WiFi over VDSL Switch, model TS-0524-WR

The T5 Switch (TS-0524-WR) is a 24-port concentrator installed in a central wiring closet. It connects to single pair telephone grade UTP wire and delivers high speed data along with line power to Wallplate devices installed in a remote room.

TW 522 Wireless Wallplate, Dual Radio 802.11ac, model TW-0522-67030

TW-0522-67030-US = for shipment into the United States and territories
TW-0522-67030-1-WR = for shipment into EU and other Non-US countries. Not all global countries are supported by the TW-522
TW-0522-67030-EU = No longer available. Use "-1-WR" version for EU countries

The TW-522 Wireless Wallplate has 2 x 10/100Mb Ethernet ports, and integrated 802.11a/b/g/n/AC radios with enterprise class features. It is managed by the T5 PowerBroadband Switch. The TW-522 supports both 2.4GHz network and 5GHz network concurrently using two integrated radios.

TW 511 Wireless Wallplate, model TW-0511-60010

TW-0511-60010-US = for shipment into the United States and territories
TW-0511-60010-EU = for shipment into countries of the European Union
TW-0511-60010-WR = for shipment into other countries not covered by the EU or US regulatory domains. Not all global countries are supported by the TW-511

The Wireless Wallplate has 2 x 10/100Mb Ethernet ports, and an integrated 802.11a/b/g/n radio with enterprise class features. It is managed by the T5 PowerBroadband Switch.

TW 510 Ethernet Wall switch, model TW-0510-WR

The Wired Wallplate (TW-0510-WR) has 2 x 10/100Mb Ethernet ports. Each Ethernet port can be managed from the T5 Switch; setting speed, duplex, up/down, along with per port VLANs and QoS.

Compatibility with older T-Series

The TS-524 is not compatible with previously released T-series products. This includes previously released T-Series switches (model 45025, 45125, 45225 and 45325) and M-series Wallplates (model 45001, 45101, 45002, 45004, 45010).

The inline filters and local power supplies are fully compatible with TS-524 (models 65602, 65603, 65604, 65004).

Key Features in the T5 PowerBroadband System

VDSL2

The T5 PowerBroadband system uses VDSL2 to provide line rates up to 100Mbps downstream and 50Mbps upstream. VDSL2 uses DMT signal coding to provide superior EMI avoidance.

Country-Code Selection

The country code must be configured on the T5 Switch. The Wallplate SKU must match the configured country code on the T5 Switch. If the SKU does not match the configured code, the radio will not be enabled.

To view the country SKU of the connected Wallplate, use command:
>   TS-0524# show cpe system
To identify Wallplates that have disabled radios due to a country code mismatch, use command:
>   TS-0524# show cpe status

> A Wallplate that has been disabled by the TS-524 will have the alarm "regulatory". Only the radio will be disabled, the Ethernet ports will continue to operate.

Adaptive Line Power

The T5 PowerBroadband system retains the same line power system as the T3 Switch, model 45325. This provides operating power for the remotely installed Wallplate AP over the same single pair of telephone wire used for VDSL backhaul and analog telephone service. The following chart shows the estimated wire length for each type of connected Wallplate.

Length of telephone wire	TW-510 pwr	TW-511 pwr	TW-522 pwr	Line Rate DN (Mbps)	Line Rate UP (Mbps)
500ft (150m)	Line powered	Line powered	Line powered	105	50
1000ft (300m)	Line powered	Line powered	Line powered	105	50
1500ft (450m)	Line powered	Line powered	Local power	105	50
2000ft (600m)	Line powered	Local power	Local power	103	40
3000ft (1000m)	Local power	Local power	Local power	60	18
4000 (1200m)	Local power	Local power	Local power	45	5

SNMP ifTable

The TS-524 Switch uses the interface index scheme from the T3 Switch. The interface descriptions contain changes listed in the following chart.

ifTable
iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable (1.3.6.1.2.1.2.2)

All interfaces will appear in this table. Note that not all information is available for each entry. The port description field will show the default port name if not otherwise configured from the CLI or webUI.

Interfaces are indexed using 6 positions

00000e: For CO Gigabit Ethernet port (e=1-2)
- o   000001 = ge1
- o   000002 = ge2

000dd0: For CO DSL port (dd=01-24)
- o   000010 = dsl1
- o   000240 = dsl24

dd000e: For CPE Ethernet port (dd=01-24, e=1-2)
- o   010001: fe1.1
- o   010002: fe1.2
- o   240002: fe24.2

ddr000: For CPE radio (dd=01-24, r=1-2)
- o   011000: radio1.1
- o   241000: radio24.1
- o   122000: radio12.2

ddr0w0: For CPE wlan (dd=01-24, r=1-2, w=1-8)
- o   011010: wlan1.1
- o   241080: wlan24.8

Installation Tips and Guidelines

1. Only enable line power on DSL ports that are terminated to the in-building wiring and have a TW-510, TW-511 or TW-522 Wallplate connected on the other end
   a. This is a firm guideline that must be followed

2. With long wire lengths, it may take longer than expected for the DSL lines to achieve a stable link. It may be useful to establish the maximum stable line rate, and then apply that line rate across all other DSL lines. Follow this suggested procedure:
   a. Enable two or three DSL lines
   b. After they link, note the SNR Margin. It should be above 6dB. Note the Downstream and Upstream data rates
   c. For other DSL lines, enter the same value for Downstream and Upstream Target data rate
   d. All DSL lines should quickly achieve a stable link
   e. Go back and verify the first few DSL lines maintain a SNR Margin of 6dB or higher

3. Deploy the same firmware version on Wallplates and the TS-524 Switch. Having mismatched firmware can lead to unpredictable behavior. Wallplate firmware can be stored on the file system of the TS-524 Switch or on an external FTP/TFTP server.

New Features in 5.4.3.0-018R

RADIUS Dynamic Authorization

Add support for RFC3576 RADIUS dynamic authorization for wpa-enterprise

NAS-Identifier and Service-Type in WPA-Enterprise

Add WLAN NAS-Identifier and support for Service-Type attribute for WPA-Enterprise
    NAS-Identifier command located in WLAN config: *radius nas-identifier <string>*

Access Control List for Wireless

GUI: Access Control List configuration is located under Security -> Access Control
    Assignment of Access Control List is configured in WLAN configuration.

Example of CLI Commands to allow ARPs from hosts of a specific vendor:
mac access-list TestACL
  permit 00:E0:81:00:00:00/FF:FF:FF:00:00:00 any priority 100 type arp
 deny any any priority 9999 type arp
 exit
wlan TestWLAN
 access-list TestACL direction out
 exit

Auto-channel Restriction to 1, 6 and 11 on 2.4GHz

Auto-channel can now be configured to restrict channels to only 1, 6 and 11 on 2.4GHz
        Command: *interface radioX-Y.1 channel auto-1.6.11*
        Example: *interface radio1-24.1 channel auto-1.6.11*

Support for 802.11ac 80MHz channels

        Command: *interface radioX.2 channel Y bandwidth 80* (where X=DSL port and Y=Channel)
        Example: *interface radio1.2 channel 36 bandwidth 80*

Minimum Data Rate Configuration for 2.4GHz

A minimum data-rate can now be configured for 2.4GHz in the WLAN
        Command located in WLAN config: *min-rate <auto|6|12|24>*
        Example Commands: *wlan EXTREME-WIRELESS*
                min-rate 6

Security Improvements

Various improvements, including updated Dropbear SSH

GUI and Graph Improvements

Various improvements, including more drill-down options in pie charts on Summary Page

Cluster Manager Improvements

Various improvements, including ability to assign a profile to Cluster Manager

WPA passcode allows additional special characters

Enhancements to WMM

Support 5.9.2+ WiNG management

Upgrade OpenSSL library to 1.0.2p

Updated OUI Database

Wireless Client Uptime

        In GUI, under Wireless Client Status, hit the "#" sign and select "Uptime" to add to the view
        In the CLI, use command: *show wireless client custom uptime*

Bugs Fixed in 5.4.3.0-018R

Passpoint: Increase domain name, nai realm, operator and osu names to 256 characters
SNMP MIB: Changed MIB to fix a compile error seen in OpenNMS
Various fixes to 802.1X Wired Authentication
Double CPE config timeout to allow larger configurations to complete
Fixed several problems that occurred when an SSID was changed on an enabled WLAN.

- Clients would continue to show up on old SSID
- Clients could no longer authenticate to other (unchanged) WLAN on the same T5 switch

Known Issues in 5.4.3.0-018R

TW5XX CPEs running old pre-5.1.0.0 firmware may have problems linking to a T5 switch running 5.4.3.0 firmware. If you are upgrading from old firmware, be sure to upgrade the CPEs and boot them to the new image at the same time or before the T5 switch.

When a T5 switch is configured via WiNG, CPE LED configuration only works correctly if configured in either the Profile, or in the Device. If changes are made to both, the configuration changes stop taking effect.
Work-around: Only configure the CPE LED in one place. Choose to use either the Profile, or the Device.

To download software and documentation

Go to Support page at http://support.extremenetworks.com

It is recommended that you upgrade to the latest firmware version as soon as it becomes available.

Upgrade Instructions

You can upgrade from the GUI or from the CLI. In either case, a TFTP or FTP server is required.

In the GUI, Upgrade is under the Administer menu. To copy the TWXX image to the T5 switch, use Copy under the Files menu. The Source Path is the FTP/TFTP path and filename (TW5XX-5.4.3.0-018R.img), Destination is simply the filename.
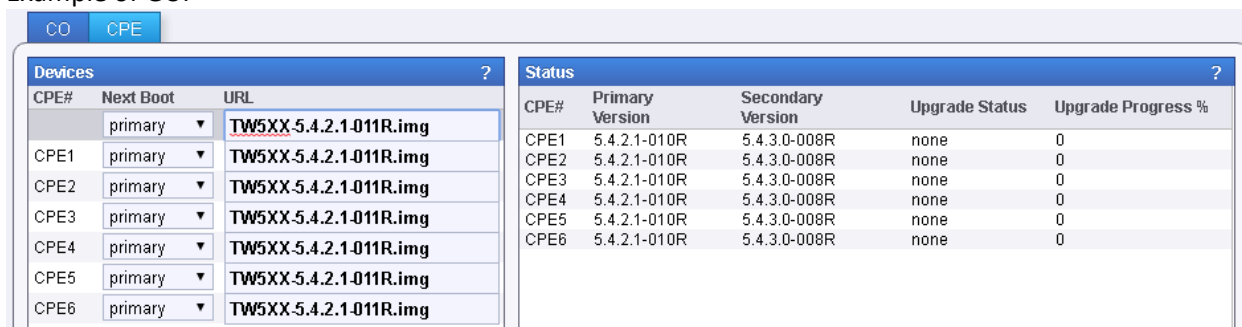
Example of GUI

When the file has finished copying, the "Sending" message will go away and the file will show up under "Files" in Root (located in that same Files menu).

Upgrade TW5XXs in the Administer / Upgrade / CPE menu.
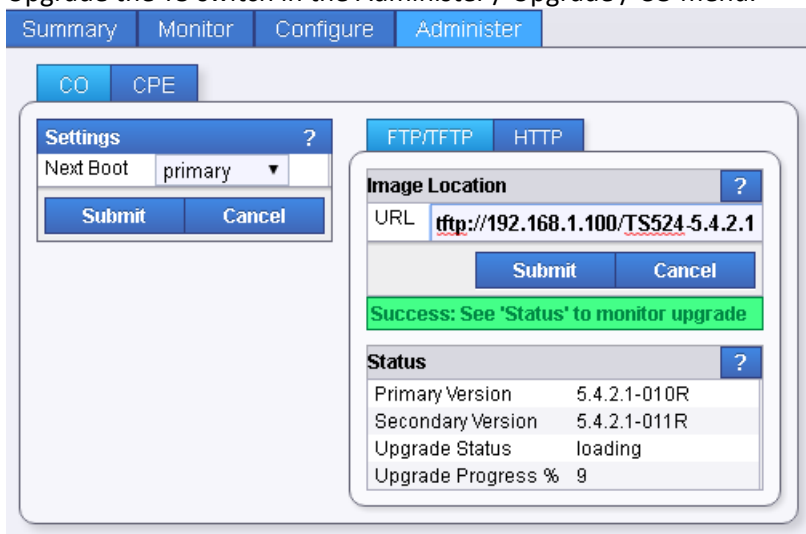
Example of GUI

When status for CPEs is Success, Set "Next Boot" to Secondary and hit Submit (won't reboot anything)

Upgrade the T5 switch in the Administer / Upgrade / CO menu.

When Upgrade Status says "Success", set "Next Boot" to Secondary and hit Submit.

Use the Administer / Reboot menu to reboot the T5 switch. If you are using Line Power for the TW5XX wallplates, this will also reboot them. If using local power, reboot them first, then reboot the T5 switch.

For **CLI**, you must be in Configuration Mode. To enter Configuration Mode, use command: config

Step 1a – Make a back-up of your current configuration.
> CLI Command: copy running-config myconfig

Step 1b - Copy the back-up config to your TFTP or FTP server
> CLI Command: copy myconfig tftp://<IP address>/<path/filename>

Step 2 - Download the firmware and copy the image files to your local TFTP or FTP server.

Step 3 – Copy the TW5XX-5.4.3.0-018R.img file to the local file system of your T5 switch using either TFTP or FTP. This is the CPE image file that will be used to upgrade the remote TW5XX wallplates.

> CLI Commands:
> copy tftp://<IP address>/<path/filename> <filename>
> copy ftp://<user>:<password>@<IP address>/<path/filename> <filename>
>
> Example: copy tftp://192.168.1.10/downloads/TW5XX-5.4.3.0-018R.img TW5XX-5.4.3.0-018R.img

Step 4 – Verify file is now on T5 local file system. Command: dir

Step 5 – Upgrade TW5XX CPEs, but do not boot to secondary image yet.

> Command: cpe upgrade cpe<range> <filename>
>
> Example: cpe upgrade cpe1-24 TW5XX-5.4.3.0-018R.img

Step 6 – Check status of CPE upgrade. Do not go to next step until they have completed (100%)

> Command: show cpe boot

Step 7 – Upgrade the T5 switch using either TFTP or FTP

> Commands:
> upgrade tftp://<IP address>/<path/filename>
> upgrade ftp://<user>:<password>@<IP address>/<path/file>
>
> Example: upgrade tftp://192.168.1.10/downloads/TS524-5.4.3.0-018R.img

Step 8 – Check status of T5 upgrade. Do not go to next step until the upgrade has completed (100%)

> Command: show boot

Step 9 – Set T5 switch and TW5XX CPEs to boot to their secondary image

Commands:
boot system secondary
cpe boot system cpe<range> secondary

Example of CPE command: cpe boot system cpe1-24 secondary

Step 10 – Reboot the T5 switch and TW5XX CPEs.

If using local power supplies for the CPEs, you need to reboot them before rebooting the T5 switch. If you are only using T5 to line power the CPEs, you only need to reboot the T5 switch and that will automatically reboot the CPEs.

Command to reboot the CPEs: cpe reload cpe<range>
Command to reboot the T5 switch: reload

Step 11 – Verify T5 switch and TW5XX CPEs are running 5.4.3.0-018R.img

Commands:
show boot
show cpe boot

If you are having trouble upgrading the TW5XX wallplates, try booting the T5 switch to the newest firmware first, then attempt the TW5XX upgrade again.

Important Note on Downgrading from 5.4 to Previous Release

If you need to downgrade from 5.4.3.0-018R to an earlier release that doesn't support the Cluster Controller feature (pre-5.4.2.1 firmware), you must first remove profiles and devices from your startup.cfg. This only applies if you have configured the T5 as a Cluster Controller. If you made a backup of your configuration file prior to upgrading, you can simply copy that back to the startup.cfg and reboot.
Command: copy myconfig /config/startup.cfg

TW-511 and TW-522 Survey Instructions

The TW511 and TW522 Wallplates will automatically be in Wireless Survey mode when powered up while disconnected from the T5 switch.   Contact pbn.support@extremenetworks.com for updated TW-522 survey code.

Survey Configuration Instructions:
Connect a PC to FE1 on the TW-5XX. Configure your PC to have a static IP address in the accepted range, and log in using this information:

Default IP address: 192.168.1.250/24
Username: survey
Password: admin123 (all lower case)
The following configurations are supported in Site Survey mode:

Configure IP Address: IP address of the unit. <IP address>/<subnet mask bits>
Configure Wireless: SSID, Transmit Power, Channel (1-11, 36, 40, 44, 48)
Configure iPerf: TCP or UDP. Always runs in Server mode

```
           Main Menu:
  1. Configure IP Address
  2. Configure Wireless
  3. Configure iPerf
  4. Save Configuration
  5. Reboot (to activate new config)
  6. Upgrade Software
  0. Exit
```

Important Note Once the survey is configured and saved, the only way to reset the survey to Default is by connecting it to a T5 switch. If the IP address is changed from the default configuration, that is the units new IP address. You will need to use that new IP address to access the survey menu. Currently, there is no way to default the unit without a T5 switch.

The Survey menu does not allow backspace. If you type incorrectly, simply <enter> through until you are back at the menu and start over on that command.

You must reboot to activate the new survey configuration and begin broadcasting.

Survey Upgrade Instructions:
5.0.11.0-005R added the ability to upgrade the TW5XX wallplate without the use of a T5 switch. If field units are on 5.0.11.0-005R or later, they can be upgraded to latest code without being connected to a T5 switch.

Example of Upgrade
Assume image file is in c:\downloads\T5 directory and the TFTP root download directory is "C:\downloads". Note - you must reboot to activate the new application image.

```
Main Menu:
 1. Configure IP Address
 2. Configure Wireless
 3. Configure iPerf
 4. Save Configuration
 5. Reboot (to activate new config)
 6. Upgrade Software
 0. Exit

Please select one (1-6, 0): 6
Enter Server Protocol (1=tftp, 2=ftp): 1
Enter Server IP (A.B.C.D): 192.168.1.20
Enter Server Path: /T5/TW5XX-5.4.3.0-018R.img
Loading..........................Programming..........Success

Main Menu:
 1. Configure IP Address
 2. Configure Wireless
 3. Configure iPerf
 4. Save Configuration
 5. Reboot (to activate new config)
 6. Upgrade Software
 0. Exit

Please select one (1-6, 0): 4
```

To obtain assistance and support

Contact: Extreme Networks Support

Email: support@extremenetworks.com

Phone: 800-872-8440

International: Go to http://www.extremenetworks.com/support/contact/ for complete list

Notes from Previous 5.x Releases

New Features in 5.4.2.2-003R

T5-5.4.2.2 enables support to configure EU country codes on WR SKU.
Downgrading the same device to pre T5-5.4.2.2 release software doesn't support EU country codes.

Bugs Fixed in 5.4.2.2-003R

Block unused TCP ports for security
Fix problem where CPEs with different configurations would incorrectly load the configuration of another CPE on the same T5 switch
Fix problem where some DLS ports will not stay linked on a T5 that doesn't have all ports enabled.
Message seen in syslog is "CPE time-out during detecting phase"

Known Issues in 5.4.2.2-003R

TW5XX CPEs running old pre-5.1.0.0 firmware may have problems linking to a T5 switch running 5.4.2.2 firmware. If you are upgrading from old firmware, be sure to upgrade the CPEs and boot them to the new image at the same time or before the T5 switch.

Bugs Fixed in 5.4.2.1-011R

Patches for KRACK attack

Bugs Fixed in 5.4.2.1-010R

Fixed auto-channel bug that was introduced in version 5.4.2.1-007R release. If TW-511 is configured for 5GHz and auto-channel, the radio status indicated "up", but radio would not broadcast. Occasionally, the bug can impact the TW-522 5GHz radio as well.

Fixed bug where SSID will be reset to the default (same as the WLAN name) when configuration changes are made to the WLAN.

GUI: Improvements to client wireless history graph and other minor changes.

Bugs Fixed in 5.4.2.1-007R

Passpoint: Increase domain name, nai realm, operator and osu names to 256 characters

Radio: Auto-channel can now be configured to use only channels 1, 6 and 11 on 2.4GHz
      command: interface radioX-Y.1 channel auto-1.6.11
      example: interface radio1-24.1 channel auto-1.6.11

SNMP MIB: Changed MIB to fix a compile error seen in OpenNMS

Bugs Fixed in 5.4.2.1-004R

Fix problem where some IOS devices suffer poor download performance
Increase CPE configuration timeout to allow larger configurations to complete

New Features in 5.4.2.0-010R

Wi-Fi Certified for 802.11n connectivity

Dynamic VLAN Support for Wireless Clients

The T5 now supports Dynamic VLANs for wireless clients in conjunction with RADIUS authentication for WPA Enterprise Security. When the T5 is configured for RADIUS and Dynamic VLANs are enabled, the T5 will assign a VLAN to the end-user based on the RADIUS configuration for that user. The T5 passes the authentication request to the configured 3rd party RADIUS server.

Configuration Instructions:

*** Note: These instructions assume that you already have a working T5 RADIUS configuration and that the wireless client has a VLAN association configured on the upstream RADIUS server.

RADIUS must be enabled and configured on the T5 and WPA-Enterprise must be configured on the WLAN. All VLANs that may be associated to a wireless client MUST be manually added to the necessary DSL and GE interfaces.

To enable Dynamic VLAN support:

      Enter configuration mode using command: config

      Change to the WPA-Enterprise configured WLAN context using command: wlan <WLAN name>

      Enable dynamic VLAN support using command: radius vlan-assignment

      Exit back to root context using command: exit

      Create the end-user VLANs and add them to the necessary T5 interfaces using commands:
            interface vlan<VLAN ID>
            exit
            interface ge<1 or 2> switchport trunk allowed vlan add <VLAN ID>

interface dsl1-24 switchport trunk allowed vlan add <VLAN ID>
Repeat above command for all necessary end-user VLANs

Save the configuration using command: write mem

Bugs Fixed in 5.4.2.0-010R

Bug 961
Cannot configure Bridge Aging time in the profile when using Google Chrome browser

Bug 960 and 989
Configuration errors and crashes when T5 is attempting to adopt to a WiNG controller

Bug 1025
Make radioX.2 default to 11ac

Bug 1030
Remove SGI 40MHz advertisement beacon on 20MHz channel

Bug 1033
Do not permit a-only on 40MHz channel

Bug 1044
SNMP queries will hang until T5 switch is rebooted

Management Hang – The T5 switch attempts to detect the management hang and recover by rebooting. A message is added to the log file identifying the reason for the reboot.

Miscellaneous Cluster Controller and WiNG adoption fixes

Miscellaneous GUI improvements and fixes

Fix problem where IPTV stream stops intermittently due to TW5XX wallplate acting as IGMP querier

Known Limitations in 5.4.2.0-010R

TW5XX CPEs that have very old firmware may have problems linking to a T5 switch that has been upgraded to 5.4.2.0-010R. CPEs with firmware versions 5.0.1.0-013R and 5.0.2.0-001R should be upgraded and booted to the new firmware prior to booting the T5 switch to 5.4.2.0-010R.

Bug 999
Can no longer view files in T5 file system if a file with a space in the name is uploaded
Work-around: none – contact pbn.support@extremenetworks.com

Bug 889
"*write memory*" command takes a long time to complete.
Work-around: none currently. The command does work, but may take longer than usual to complete.

Bug 1020
Some TW522 statistics show 0 on the 5GHz radio. Most important statistics are correct.
Workaround: none at this time

Bug 998
CPE Ethernet Loop-Detection does not block a pre-existing loop if it was disabled at the time the loop occurred.
Work-around: Disable and re-enable FE port, or make sure Loop-Detection is enabled before loops occur.

Bug 943
Wireless Client shows on 2 radios simultaneously - need to prune them
Workaround: use command *sho mac-address-table*

Bug 1021
Add/modify of radius server parameters requires reboot of CPE with WPA-enterprise 2 wlan
Workaround: reboot the CPEs after RADIUS parameter changes are made

Bug 1019
Two radius servers with same priority should not be allowed by T5
Workaround: correctly specify different priorities for each configured RADIUS server

Cluster Controller Bugs
Bug 997
Member loses network communication to controller if configured on VLAN other than 1
Work-around: Configure *ip default gateway* to IP address in same subnet as the controller / member VLAN, or use VLAN 1 for controller / member communication.

Bug 618
Downgrade from 5.4.2.0-010R causes problems and instability
Workaround: Contact pbn.support@zebra.com prior to downgrade – modification of the startup.cfg file may be necessary.

Bug 964
When you create a profile in the GUI, it should automatically show up under Manage Profiles
Work-around: Click on Manage Profiles a couple of times, or refresh browser

802.1x Authentication on FE ports is currently a **beta** feature only. Please contact pbn.support@zebra.com to get a list of known issues.

New Features in 5.4.1.0-006R

Cluster Controller

When cluster mode is enabled, one TS-524 Switch can be used to monitor-only the network; or adopt and manage up to 11 other TS-524 Switches and their connected Wallplate devices. A total of 288 Wallplates can thus be centrally managed (12 Switches * 24 Wallplates). Management features include provisioning DSL lines, Wallplates and Radios; upgrading firmware; and gathering operational statistics for all connected DSL lines and Wallplates.

802.1x Wired Port Authenticator

This feature is included in the T5-5.4.1.0-006R release as a demo feature. It may have operational issues, please see the bug list to see if this feature will work for your topology. When 802.1x authentication is enabled, the Fast Ethernet port on the Wallplate will assign a unique VLAN ID upon successful authentication to a AAA server. If authentication fails, the port native VLAN ID is assigned to device packets ingressing on the Fast Ethernet port. This applies to the TW-510, TW-511, and TW-522.

Dual Band Concurrent Radio

The TW-522 includes two radios for dual band concurrent access at 2.4GHz and 5GHz. The 2.4GHz radio supports 802.11b/g/n; while the 5GHz radio supports 802.11a/n/ac. 802.11ac support includes 256QAM MCS rates and channel bonding up to 40MHz. Maximum RF datarate on the 5GHz radio is 433Mbps.

Fast Ethernet Port Loop Detection

Wallplates with Fast Ethernet ports now include Loop Detection and shutdown. When enabled, Fast Ethernet ports will detect a port loop and block the interface. The port will be unblocked when loop back condition is cleared and detection will resume. This feature applies to the TW-510, TW-511, and TW-522.

Miscellaneous Enhancements

GUI: Implemented pull-down menus for cleaner look and feel

Upgrades: The CPE image is now cached on the T5 switch, so it is no longer necessary to copy the CPE image file to the T5 file system – CPE upgrades can be done directly from the TFTP/FTP server.

SNMP: Added SNMP Traps for radio up/down

Support for TW-522 Dual Radio Wallplate

CLI configuration for TW-522

Radio CLI configuration for the TW-522 is accomplished using the following 2 commands:
int radioX.Y rf-mode <2.4GHz-wlan|5GHz-wlan>
int radioX.Y data-rates <b-only|g-only|a-only|bg|bgn|gn|an|ac>
X = DSL port
Y = Radio 1 or 2 on the TW522
Note: Only the 2nd radio supports ac (radioX.2).

LED Behavior for TW-522 – Radio LED

Blink green/amber when both radios are enabled.
Solid green and blink on traffic when only 2.4GHz radio is enabled (same as TW-511)
Solid amber and blink on traffic when only 5GHz radio is enabled (same as TW-511)

CPE Ethernet Loop Detection

The T5 can now be configured to detect and stop loops on the TW-5XX FE ports.

New CLI Commands for CPE Ethernet Loop Detection

int feX.Y loop-detection enable
       Enable loop detection on the FE ports. Use "*int feX.Y no loop-detection*" to disable.

show int fe status
       Shows the status of the FE port.
              Forwarding = packets are forwarded on that port
              Blocking = Loop detected and packets are blocked on that port
              Disabled = Loop-Detection is disabled on that port

Cluster Controller Configuration

The T5 switch can now act as a Cluster Controller for up to 12 T5 switch members. It can be set to simply monitor the adopted members, or it can be set to configure the members.
The adoption mode specifies whether the controller automatically adopts new members or whether they must be added manually.

Profiles can be created on the controller and assigned to the adopted members to simplify configuration.

Tags are used to easily group T5 members together for monitoring and basic administrative tasks, such as upgrades, reboots and profile assignments. There are two pre-defined tags: *adopted-t5* and *all-t5.*

Devices are either T5 switches or Tags that signify a group of T5 switches.

Most administrators will create a basic profile and make all T5 switches a member. Things like hostname and DSL description will be configured on the individual members. If the cluster controller access is set to "view-only", the individual configurations must be done locally on the T5 switch. If the access is set to "configurable", they must be done from the controller.

It is recommended that customers contact pbn.support@zebra.com prior to implementing the Cluster Controller in a live environment. Support will provide an App Note with recommended processes.

CLI Commands for Cluster Controller

cluster mode <standalone|controller|member>
> standalone = no cluster controller
> controller = the T5 switch will act as a cluster controller for members on the network
> member = the T5 switch will be adopted by a cluster controller

Cluster Controller CLI Commands

cluster access <view-only|configurable>
> view-only = the adopted members will be view-only
> configurable = the adopted members are configured by the controller

cluster adoption <auto|manual>
> auto = the controller will automatically adopt T5s on the same network that are configured as members
> manual = the members must be manually added to the controller before they will be adopted

cluster address vlan <vlan ID> range-start <IP address> range-end <IP address>
> Defines the IP addresses that will be assigned to the adopted members. The members must be on the same subnet and VLAN as the controller.
> A cluster address range must be specified, regardless if the members will be view-only or configurable.
> The cluster address range can either match the configured T5s in the network, or it can be different. If the T5 member has an IP address within the specified range, the controller will use that same IP for the member, unless it has already been leased to another T5 on the network.

device <MAC address |Tag>
> *MAC address* = used to issue commands to a specific T5 switch. Format is AA:BB:CC:DD:EE:FF
> *Tag* = used to issue commands to a group of T5 switches.
>> *adopted-t5* = adopted T5 members
>> *all-t5* = adopted T5 members plus the controller itself
> Example: *device AA:C7:99:9C:9B:40 tag test*

no device <MAC address>
>   Use to remove an adopted member device from the controller's configuration.

profile <string>
>   Create or modify a configuration profile that can be assigned to T5 members.

tag <string> **Not Currently Supported. See device command above.**

show cluster adoption status
>   Display status of members that are, or have been adopted by the controller

show cluster adoption history
>   Provides adoption details of cluster members

show profile members
>   Display the profile for the cluster members

show profile list
>   Display all profiles on the controller

Show tag list
>   Display all tags on the controller

Show tag members <tag>
>   Display all members for the specified tag

Cluster Member CLI Commands

show cluster member status
>   Display adoption status of the cluster member

CLI Basic Cluster Controller Configuration

Configure Cluster Controller
  cluster mode controller
  cluster address vlan <VLAN ID> range-start <start of member IP range> range-end <end of IP range>

Configure Cluster Members
  cluster mode member

Creating a Basic DSL Profile for T5 Cluster Members

When members are set to be "configurable" by the controller, the stand-alone default configuration is no longer used. You must configure the CPE address range and VLAN mappings. Here is an example of commands to create a basic profile. Note: Add line-power and no shut down commands to the basic profile.

profile basic
>> *int vlan4090*
>>> *ip-address 192.168.10.3/24*
>>> *exit*
>> *cpe address vlan 4090 range-start 192.168.10.201 range-end 192.168.10.224*
>> *int dsl1-24 switchport mode trunk*
>> *int dsl1-24 switchport trunk allowed vlan add 4090*
>> *exit*

write mem

Use the GUI to assign members to the profile. The CLI command to accomplish that is currently unavailable in the CLI. See Bug 1004 below.

Examples of Cluster Controller CLI Commands

To view the show command on adopted member, use "*device" and specify the member MAC*

>> *device AA:BB:CC:DD:EE:FF*
>>> *show context*
>>>> *or*
>>> *show cpe status*

Use "*exit*" command to go back to controller context

To view the firmware versions of all T5 switches and CPEs, use predefined Tag

>> *device all-t5*
>>> *show version*
>>> *show cpe version*

Bugs Fixed in 5.4.1.0-006R

Bug 901
Unable to remotely manage T5 until it is rebooted. Guest traffic is not affected.
Customer Impact: High

Bug 890
Various SNMP MIB compile errors
Customer Impact: Medium

New Features in 5.3.2.0-021R

TW-511 running 5.3.2 complies with the requirements of ETSI 1.7.1 / 1.8.1

WiFi Alliance 802.11n – Certification Pending

Passpoint 2.0 – Certification Pending

Wireless Client IP/Mac Reporting

> TS-524 Switch will report the wireless client IP address and MAC address in a syslog message when the client associates or disassociates. Logging disabled by default.

> Command to enable: logging event wifi-client-ipassign

Admin and User passwords now support special characters

RADIUS passwords now support special characters

WPA Pre-shared key now support special characters

Descriptions now support special characters

SNMP now supports configurable Trap Communities

> The default value is "trap"

Add "show int dsl counters" to "show tech-support dsl"

Security Update – Prevent Poodle Exploit

Updated OUI Database

> The OUI database is used to translate MAC addresses to Manufacturer – more translations have been added.

Add Support for IGMP version 3

WiNG Enhancements in 5.3.2.0-021R

Hello-Interval and Adjacency-Hold-Time are now configurable – These parameters control the transmission of keep-alive packets sent from the T5 to the WiNG controller.

The Hello-Interval parameter defines how often the keep-alive packets are sent and the Adjacency-Hold-Time defines how long the T5 should wait without receiving keep-alive packets from the controller before disconnecting.
Command:

Syntax

controller hello-interval <1-120> adjacency-hold-time <2-600>

Parameters

<1-120>: (seconds) hello packet exchange interval.

<2-600>: (seconds) link reset timeout. Must be greater than hello-interval.

Bugs Fixed in 5.3.2.0-021R

Bug 207523
CPE loses VLAN native configuration when rebooted / relinked
Customer Impact: High

Bug 206147
WiNG: Fix un-adoption caused by change to DST
Customer Impact: High

Bug
The T5 can be left in an incomplete configuration state if a communication error with the WiNG controller occurs while the configuration is being pushed to the T5
Customer Impact: High

Bug 202832 and 202373
FE port on TW51X goes into power down mode for no reason
Customer Impact: Medium

Bug 209230
Disable SSH forwarding to prevent hackers from sending traffic from T5
Customer Impact: Medium

Bug 203044
SNMP InDiscard counter reports incorrect value
Customer Impact: Medium

Bug 204999
SNMP Traps: T5 should send a trap when a DSL link goes down
Customer Impact: Medium

Bug 205000, 206146
Port stays in Idle and T5 continues to power the line when a CPE is disconnected (normally occurs when wire pair is disconnected in at the MDF)
Customer Impact: Medium

Bug 203323
GUI: RADIUS allows invalid entries, such as no Secret and missing values
Customer Impact: Medium

Bug 203322
GUI: "Reboot at" changes the entered time when you hit submit and doesn't reboot at specified time
Customer Impact: Medium

Bug 204406
VLAN configuration gets corrupted when BSS2 is used, but there is no BSS1 defined
Customer Impact: Medium

Bug
Locally powered CPEs do not reinitialize when the DSL link is disconnected
Customer Impact: Medium

Bug 204386
GUI: Tools->Query->DSL Up/DS margins show incorrect values
Customer Impact: Low

Bug 205768
Syslog fills up with WiFi Client CPEMGR signal level change events when on system with many wifi clients
Customer Impact: Low

Bug 203399
GUI: Summertime screen needs to display the various configuration options separately
Customer Impact: Low

Bug 202473
Log when user disables line-power
Customer Impact: Low

Important Changes in 5.3.2.0-021R

- **Default Admin password is now "admin123"**

  Note that if the default password has already been changed by the administrator, upgrading to 5.3.2 will not change the password. This change only applies to a default configuration.

  The default password for the TW511 Site Survey utility has also been changed to admin123

Bugs Fixed in 5.3.1.2-002R

The 5.3.1.2-002R Service Release addresses a bug that is normally only seen in flat networks with very large broadcast domains.

Bug 204407
Packets stop transmitting to wireless client until TW511 is rebooted. FE ports continue to function normally.
Customer Impact: High

Bugs Fixed in 5.3.1.0-003R

The 5.3.1.0-003R Service Release addresses bugs that occur when T5 is being adopted by a WiNG Controller. Customers who are not using a WiNG Controller in conjunction with T5 do not need to apply this update.

For this patch to be effective, the WiNG Controller firmware should be updated to the latest release, 5.6.1.1-00xR.

Bug MAP00201860
Reclassify low impact "configuration errors" as "configuration warnings". This can occur when the same configuration is overwritten by the WiNG Controller
Customer Impact: Medium

Bug
Fix problem where WiNG controller may crash due to large number of T5 devices attempt to adopt at once
Customer Impact: High

New Features in 5.3.0.0-010R

User Selectable DSL Band Plans

Version 5.3 firmware introduces the ability to select a DSL band plan that best suits the needs of the individual property. The band plans that are currently available are:

Default – This is the DSL band plan that ships with all T5 systems. It provides up to 100 Mbps downstream and up to 50 Mbps upstream. It optimizes the downstream while attempting to provide approximately 30% of the bandwidth for the upstream. It is a good band plan to use at properties that are focused on providing internet access to their guests. It is designed for properties that do not exceed 1500 feet of wire distance.

DS Plus – This DSL band plan focuses the bandwidth on the downstream by sacrificing some of the upstream bandwidth. It provides up to 100 Mbps downstream and up to 14 Mbps upstream. The benefit of this band plan is longer distance links will achieve higher speeds compared to the default. It is designed for properties that need more downstream bandwidth and is especially useful when implementing video.

LongReach – This DSL band plan is designed for properties that often exceed 1500 feet and will likely be using local power supplies. The LongReach band plan allows for links up to 4500 feet.

The band plan can be selected in the GUI on the Wired/DSL/Common Settings section. Once you select a new band plan and hit <submit>, it will cause all DSL lines to drop and re-link.

Or it can be selected in the CLI using command: dsl bandplan <Default|DS.Plus|LongReach>

Improved GUI and new Diagnostic tools

GUI Improvements – The GUI has many improvements including important additions to the Summary and DSL Monitor pages.

The summary page provides a quick, but effective look at the overall health of the network. Additions to this page include DSL and System statistics.

The DSL Monitor page now has a History tab that allows you to see critical DSL information over a selected period of time, either 1, 7 or 30 days. Information includes link losses, errors and power draw.

These diagnostic tools are only available in the GUI and are located in the Tools section.

Various Fixes and Changes
Added more details to interface counters
Added Name to "show interface custom" command
Removed TKIP Security option
Added support for "\" in the SSID

Client Query Tools

Allows the user to select and view critical wireless statistics in real time, such as average RSSI, throughput and transmit retry percentage. Simply click on the fields that you wish to display simultaneously and hit submit. The results can be exported to an Excel spreadsheet via the Export button in the upper right corner of the results section – button is shown as an "E".

DSL History Query Tool

Allows the user to filter DSL operational parameters, errors, and performance. Single data sets may be queried, or multiple data sets combined to filter the results based on varying parameters and thresholds. The results are displayed for current data, or a time filter can be applied to expand the data up to the prior 30 days. It is extremely useful for troubleshooting and for checking the health of the DSL network. Simply click on the fields that you wish to display simultaneously and hit submit. The results can be exported to an Excel spreadsheet via the Export button in the upper right corner of the results section – button is shown as an "E". The values are collected at 15 minute intervals, so the query range must be at least 15 minutes yield results.

> **Note:** Only ten criteria can be used simultaneously for DSL queries. Two criteria are reserved for time limits and up to eight additional criteria can be selected for a query.

Broadcast Storm control added

T5 will limit rate of incoming broadcast and unknown unicast packets to ensure bandwidth for user data in case of broadcast storms.

Demo Features in 5.3.0.0-010R

These features have been added, but are not fully tested. They are considered demo features only. The Audit History is available under Tools.

Audit History

Audit history allows the user to monitor network latency to a given host. This feature is effective in testing response time for network elements that are not managed by a Zebra management platform. Examples include the Internet router, or a host on the Internet. By comparing values for multiple hosts at different points in the network, the administrator can determine the location where network latency is occurring. Up to three hosts may be entered. Two network tests are supported:

Network Latency – This test performs a ping test to the configured host IP address. Simply add the IP address of the host and hit submit.

DNS Latency – This test performs a check of the DNS latency in resolving the configured host. To configure this test, add the IP address of the DNS server and the DNS name of the host. Example of DNS hostname: zebra.com

Additionally, you can configure the Latency Threshold. When this value is configured, an alarm will be generated when the latency exceeds the configured value.

Bugs fixed in 5.3.0.0-010R

Bug 199882
T5 management hang on large listing of files
Customer Impact: high

Bug 199896
Many RADIUSClient core files in the /log directory on T5 switch
Customer Impact: medium

Bug 199780
SNMP: crash fix getnext on WifiClient under certain conditions
Customer Impact: Medium

Bug 198755
Fix bug that generated corrupt signal strength message when too many devices were seen within a small window of time
Customer Impact: low

Bug
Fix problem where FE port IGMP stops working when a WLAN is set to the same VLAN
Note: We do not recommend running IPTV on both the WLAN and the FE ports of a particular wallplate simultaneously. Channel changing will be slow to respond.
Customer Impact: low

Known Limitations in 5.3.0.0-010R

This is a list of known issues in 5.3 firmware.

Bug 200296
Old CPE versions do not stay linked to Switch: 5.0.2.0-001R and 5.0.1.0-013R
Workaround: The older versions of CPE firmware are not supported. You must run the same code on the T5 and on the CPEs. The older versions will allow the T5 to link to the CPEs and upgrade them, but if any queries are run against those CPEs, it will cause the link to drop.

If you have older versions of CPE firmware linked to the T5, you will need to stop all queries to the radios, including GUI, CLI and SNMP queries and get the CPEs upgraded. Supported commands on older CPEs are: "sho cpe boot", "cpe upgrade", "cpe boot system ", and "cpe reload"

Following known bugs will be fixed in future release(s).

Bug 200337
GUI: System - Files: When a large number of files exist, GUI will stay at loading and never display files.
Work around: display listing of files using the CLI command: dir

Bug 199525
"show users" output for cli and web is not correct when a RADIUS user is logged into the T5 management

Bug 199877
Graphs on summary page are not aligned when using Internet Explorer version 11
Workaround: use a different browser such as Google Chrome or Firefox

Bug 199930
Client Query Tools - incorrect data entries, such as special characters or letters in numeric fields should give error
Workaround: do not enter invalid data

New Features in 5.2.0.0-015R

Hierarchical Management for T5 Solution

T5 Switch model TS-524 and its dependant TW-51x devices can be managed by a WING Controller. Adopt, provision, push firmware, and monitor performance and error metrics. Requires one adaptive AAP license applied to the WING Controller for every TS-524 Switch adopted.

IGMP Snooping with IGMP Fast Leave

Supports snooping for IGMP v1 and v2 packets. IGMP Fast Leave provides break-before-make to accelerate channel changing performance on a single VDSL line.

Wireless Multicast Acceleration

Multicast packets destined for wireless clients are converted to unicast for efficient transmission. Requires IGMP to be enabled.

Site Survey Recovery

The TW511's built in site survey allows the user to change the IP address. In the previous release, there was no way to reset the TW511 back to the default IP address without connecting it to a T5 switch. This was problematic if a field person with no access to a T5 switch forgot what IP address they had set. 5.2.0.0-015R has enabled FE2 in survey mode on IP address 192.168.10.250. This address cannot be changed. If the user forgets their IP address, they simply connect to FE2 with an IP address on the 192.168.10.X network, TELNET to 192.168.10.250 and change the IP address for FE1, save and reboot. FE2 should only be used as the backdoor to reconfigure the IP address assigned to FE1.

Alarms

In version 5.2, T5 now tracks critical alarm conditions, including Over-Current, Line Errors, Line Availability, Regulatory, System Temperature and System Power.
Alarms can be viewed via CLI, SNMP and GUI.
See the "New Commands in 5.2.0.0-015R" section for CLI alarm commands.
In the GUI, the alarms can be viewed in Monitor-> Alarms
With the latest Enterprise MIB, the T5 will send traps. See SNMP Alarm Traps section below.

Alarm List

T5 tracks the following types of alarms:

- DSL Line OverCurrent

- o Trigger Condition: line power exceeds pre-set hardware limit
- o Clear Condition: user administratively disable line power
- o Severity: Major

- DSL Line Error
  - o Trigger Condition: 15-minute Error Seconds (ES) and/or Severely Error Seconds (SES) exceed configured threshold
  - o Clear Condition: end of 15-minute period
  - o Severity: Minor

- DSL Availability
  - o Trigger Condition: 15-minute Unavailable Seconds (UAS) exceed configured threshold
  - o Clear Condition: end of 15-minute period
  - o Severity: Minor

- CPE Regulatory
  - o Trigger Condition: country-code configuration does not match CPE SKU
  - o Clear Condition: DSL line disconnect, which indicates loss of CPE
  - o Severity: Minor

- System Power
  - o Trigger Condition: combined line power consumption exceeds pre-set hardware limit
  - o Clear Condition: system reboot
  - o Severity: Critical

- System Temperature
  - o Trigger Condition: T5 concentrator temperature exceeds 70C
  - o Clear Condition: T5 concentrator temperature falls below 60C
  - o Severity: Critical

SNMP Alarm Traps

NOTE: Requires latest T5 SNMP Enterprise MIB.

SNMP notifications for over-current,

```
tutMgmtEnvMonNotification.tutMgmtEnvMonLinepowerAlarm
tutMgmtEnvMonNotification.tutMgmtEnvMonLinepowerAlarmClear
```

SNMP notifications for DSL error threshold crossing,

```
tutMgmtXdsl2Trap.tutMgmtXdsl2LinePerf15MinFECSThreshDs
tutMgmtXdsl2Trap.tutMgmtXdsl2LinePerf15MinFECSThreshUs
tutMgmtXdsl2Trap.tutMgmtXdsl2LinePerf15MinESThreshDs
tutMgmtXdsl2Trap.tutMgmtXdsl2LinePerf15MinESThreshUs
tutMgmtXdsl2Trap.tutMgmtXdsl2LinePerf15MinSESThreshDs
```

```
tutMgmtXdsl2Trap.tutMgmtXdsl2LinePerf15MinSESThreshUs
tutMgmtXdsl2Trap.tutMgmtXdsl2LinePerf15MinUASThreshDs
tutMgmtXdsl2Trap.tutMgmtXdsl2LinePerf15MinUASThreshUs
```

SNMP notifications for system power,

```
tutMgmtEnvMonNotification.tutMgmtEnvMonPowerControllerAlarm
tutMgmtEnvMonNotification.tutMgmtEnvMonPowerControllerAlarmClear
```

SNMP notification for system temperature,

```
tutMgmtEnvMonNotification.tutMgmtEnvMonTemperatureAlarm
tutMgmtEnvMonNotification.tutMgmtEnvMonTemperatureAlarmClear
```

Default Wireless Transmit Power

Changed the default wireless transmit power from 8dBm to max

Updates to OUI Database

Updated the MAC -> Vendor list

Over-Current Auto-Disable

If a DSL port experiences more than 20 over-currents within a 30 minute period, the port will be disabled and the DSL Status will show "failed". Once the cause of the over-current has been rectified, the administrator can simply re-enable the port.

Improved GUI Diagnostics

The Diagnostics section of the GUI has been updated and enhanced to help with troubleshooting.

New Commands in 5.2.0.0-015R

Adoption by a WING Controller

"*controller host <priority> <IP address of WING Controller>*" – enables adoption by WING controller
"*no controller host <priority>*" – disables adoption to WING controller
"*sho adoption status*" – Shows the status of T5 adoption to a WING controller
"*sho adoption history*" – Give history of T5 adoption to WING controller
For help with WING Controller configuration, contact support for the "WiNG and T5 Adoption Reference Setup Guide"

Wireless Multicast Acceleration

"wlan <wlan name> accelerated multicast [autodetect|disable]" – enable or disable multicast to unicast conversion

IGMP

"int <vlanX> ip igmp snooping" – Enable and configure IGMP Snooping
"int <vlanX> ip igmp fastleave" – Enable IGMP Fast Leave
"int <vlanX> no igmp snooping" – Disable IGMP snooping
"int <vlanX> no igmp fastleave" – Disable IGMP fastleave
Replace "X" with the multicast VLAN
"show ip igmp groups" Displays the multicast IP addresses that are currently being streamed

Alarms

"show alarm list" – Displays list of current alarms with data/time, severity and interface (if applicable)
"show alarm log" – Maintains a historical list of all alarms since last reboot
"show alarm severity" – Displays a list of current number of alarms based on severity

Bugs fixed in 5.2.0.0-015R

Bug 107583
Setting clock to 30 Dec 2013 causes clock to be set to 30 Dec 2014
Customer Impact: Medium

Bug 107136
Statistics data in the GUI under Monitor/DSL/Diagnostics/Error Seconds displays incorrect information.
Customer Impact: low

Bug 107233
RADIUS - "Bad Value" returned when key is over 32 characters, but is still written to running-config
Customer Impact: Low

Bug 105958
SNMP: Need to allow multiple SNMP-Server entries for same community
Customer Impact: Medium

Bug 105643
Management Hang - Can Telnet, but cannot execute commands (additional fixes added)
Customer Impact: Medium

Bug 108637
Command "show context" caused next command to crash
Customer Impact: Medium

Bug
SNMP: IP address is not checked for SNMP-Server – as long as community is correct, access is granted
Customer Impact: Medium

Bug 107984
Command "no description" does not clear the description in the WLAN
Customer Impact: Low

Bug 98683
GUI: Clock / Time setting allows invalid entry.
Customer Impact: Low

Bug: 93523
CLI: Prevent Tab Completion after a <space>
Customer Impact: Low

Bug
Disallow 802.11n for WLAN if using WEP or TKIP
Customer Impact: Low

Bug
SNMP: Radio displays WLAN statistics and WLAN displays Radio statistics (reversed)
Customer Impact: Low

Bug
Multicast Packets are not counted in radio receive packet count
Customer Impact: Low

Bug
Upon VLAN deletion, associated "switchport access vlan" remains in the running-config
Customer Impact: Low

Bug
DSL UAS (Unavailable Seconds) counter does not increment when DSL link is down
Customer Impact: Low

Bug
GUI: First DSL History Interval is always 0
Customer Impact: Low

Bug
GUI: crash when more than 16 columns are selected in the column customization page
Customer Impact: Low

Bug
A failed login attempt generates a RADIUS coredump even if RADIUS is not configured.
Customer Impact: Low

Bug
Simultaneous CPE upgrades via external FTP server cause timeouts and upgrade failures.
Customer Impact: Low

GUI and CLI improvements, including UI Charts and reduction of NTP logging in internal syslog

VLANs limited to 100 entries. Valid VLAN numbers remain at 1 – 4094.

Known Issues in 5.2.0.0-015R

Bug 100384
VLAN 1 cannot be deleted from the system
Workaround: If having VLAN1 in the T5 is a security concern, you can change the Access and Native
VLANs to something other than 1, effectively removing VLAN1 from the system. By default, GE1 and
GE2 are set to VLAN Access mode on VLAN1. The DSL ports are VLAN Trunk mode with Native VLAN 1.
The FE ports on the CPEs are VLAN Access mode on VLAN1. You can change the native and access
VLANs to something other than 1 by using the int <interface> switchport command. See the T5 CLI
reference for details on those commands.

Bug 107235
WLAN and Radio commands may take a long time to respond if there are DSL lines that are enabled but
not linked.
Workaround: Wait until DSL lines are all linked before running WLAN and Radio related commands. If
there is a DSL line that is having trouble linking, or is bouncing, you may disable that line until the issue is
resolved.

Bug 105989
Session Time-out settings do not take effect until you close and re-open the CLI or UI session.
Workaround: Set the inactivity time-out and then exit and restart your CLI or UI session. If you want the
change to be permanent, be sure to issue "write memory" to save the changes to your startup.cfg.

Features added in 5.1.0.0-011R

Added Secure Management Access and Controls
T5 Switch supports the following network management interfaces: Telnet, SSH, HTTP, HTTPS, SNMP. By
default, Telnet, SSH, HTTP, HTTPS are enabled. SNMP is disabled by default. Each network interface
may be disabled individually to exclude un-secure protocols e.g. disable Telnet and HTTP.

RadioShare WIPs
In T5-5.1.0, this is an evaluation feature, pending release of ADSP version 9.1.1.

5.1.0 includes RadioShare WIPs when used with the AirDefense appliance for forensic security analysis and PCI compliance reporting. RadioShare WIPs requires a valid license on the AirDefense appliance. Support for T5 on the AirDefense appliance is scheduled for Q1-2014 in ADSP version 9.1.1. RadioShare WIPs operates on the same radio used for data access and does not require a dedicated radio.

Location Based Services
In T5-5.1.0, this is an evaluation feature, pending release of ADSP version 9.1.1.
5.1.0 includes support for 802.11 wireless locationing when used with the AirDefense appliance.
Location services requires a proximity license on the ADSP appliance.
Support for T5 is scheduled for Q1-2014 in ADSP version 9.1.1.

Increased Wireless Transmit Power
5.1.0 includes a new regulatory power table for all US, EU, and WR SKUs. The new power table is more granular and provides an overall increase in transmit power.

NAT feature added for TW51X CPEs
The T5 switch will perform Network Address Translation services for CPEs configured on a private VLAN. This enables services such as ADSP WIPs and CPE upgrades from an external TFTP/FTP server without configuration on the public network.

Bugs fixed in 5.1.0.0-011R

Bug
When setting the radio to "gn" mode; b-mode was not disabled.
Customer Impact: Medium

Bug 106701
Wireless Client shows up on 2 WLANs after roam when using "show wireless client"
Customer Impact: Medium

Bug
Allow copy operations from /log directory
Customer Impact: Medium

Bug 106623
Prevent CO switch from flooding CPU and causing CPE reboots under a broadcast storm condition
Customer Impact: Medium

Bug
Assert when "sho wireless client" was issued when T5 is in process of initializing
Customer Impact: Low

Bug 105463
"Failed Image" error when attempting to upgrade TW51x CPEs
Customer Impact: Low

Bug 105906
Filter out unnecessary syslog messages
Customer Impact: Low

Bug
Fix problem where each unknown unicast pkt sent out FE ports twice
Customer Impact: Low

GUI and CLI Improvements

Various GUI and CLI design improvements, including additions of DSL and CPE monitor graphs

Logging improvements

Increased RADIUS shared secret key size from 32 to 64 characters

Added minimum, maximum and average latency over the DSL lines
In the GUI, these statistics are found under Monitor-> CPE-> Statistics
In the CLI, you can view the average response time using command: sho cpe status

CLI – New Commands:
 "show interface radio <counter|status|utilization>"
 "show wireless client <counter|status|utilization>"
"no reload" command to cancel either "reload in" or "reload at" actions
New Commands for Support-related issues – These commands call a series of other commands that are useful when working with customer support.

"show tech-support"
"show tech-support wireless"
"show tech-support dsl"

SNMP Improvements

Added ieee wlan status and wlan reasons for wifi client traps
Added RX and TX pause frames to IfEther
Fixed SNMPWalk getting stuck
Customizable Traps: Specific SNMP traps can be enabled/disabled individually
CLI command: snmp-server trap <trap> / "no snmp-server trap <trap>" to disable
Enterprise MIB now supports configuration of DSL, WLAN and Ethernet ports. Contact support for the Enterprise MIB and a list of newly supported OIDs

Various changes to radio-related configurations

Removed antenna-mode from radio configuration
Removed channel bonding from 2.4Ghz band. Channel bonding is supported only on 5Ghz bands
Removed channel 14 option when the selected country is Japan.
SSID: added support for all characters except " and \ (Note: to use a ? in the SSID, you must use the GUI)

Bugs fixed in 5.0.11.0-005R

Bug 105643
Management Hang – user can Telnet to T5 switch, but cannot execute commands
Customer Impact: High

Bug 104934
DSL throughput performance improvement
Customer Impact: High

Bug 105432
Fix CPE reset during heavy upstream traffic
Customer Impact: High

Bug 105326
Fix problem where CPE reboots when in vlan 1 and after user assigns switchport access vlan to FE port
Customer Impact: High

Bug 100296
Auto channel selection is now based on Country Code, extending the number of channels used
Customer Impact: Medium

Bug 100378
When a VLAN is removed, all MAC addresses on that VLAN should be removed from bridge table
Customer Impact: Medium

Bug 105596
Fix RADIUS login from Telnet, SSH and Serial Console using RADIUS servers (Microsoft, Cisco ACS)
Customer Impact: Medium

Bug 104977
SSH login failed on 2nd login attempt after reboot of T5
Customer Impact: Medium

Bug 105529
Fixed caching issues with log content
Customer Impact: Low

Bug 105204
Remove "Power Status" from "show cpe status" output
Customer Impact: Low

Add DSL flow control parameter
Customer Impact: Low

Improve Switch LED behavior
 LED will be solid yellow when over-current
 LED will slow blink yellow when no CPE present
Customer Impact: Low

Add BETA HTTPS support using default self-signed certificate – Note: this feature is **BETA** until the 5.1 release
Customer Impact: Low

DSL Link and Stability fixes
Bug 105144
Reset CPE if stuck in detecting
Customer Impact: High

Bug 104941
Updated VDSL drivers – make the links more stable and prevent loss of multiple DSL links when operating in bad wire environment
Customer Impact: High

Bug 105393
Fix problem where Windows client connected to FE port prevented DSL from linking upon reboot of CPE
Customer Impact: High

Bug 103333
Line power change – prevent high power draw when CPE is absent. This will prevent stressing components in the T5 if the line is un-terminated when line power is enabled.
Customer Impact: Medium

Fix problem where CPEs lose communication immediately after radio is enabled
Customer Impact: Medium

Fix problem where in bad wiring environment locally powered CPEs get Over-Current
Customer Impact: Medium

Radio Improvements

Slight increase in radio transmit power on some channels (implemented a per-channel power database) – middle channels will have higher power, per regulatory table
Customer Impact: Medium

Fixed short/long preamble selection on AP WLANs
Customer Impact: Medium

Disable "B" rates for "G" and "GN" protocols
Customer Impact: Medium

TW511 SURVEY mode: Add software upgrade capability
Customer Impact: Medium

TW511 SURVEY mode: Add wireless data-rate configuration (bgn, g-only,...etc)
Customer Impact: Low

Country Code changed from UK to GB
Customer Impact: Low

GUI and CLI Improvements

GUI: Improved sorting capabilities on columns
Customer Impact: Medium

GUI: Wireless Client pie chart by vendor (OUI)
Customer Impact: Low

CLI: Command "show user" now shows management access method of users logged into the switch
Customer Impact: Medium

GUI: File execution to run configuration script and file rename
Customer Impact: Low

CLI: Command "exec <filename>" to execute configuration script
Customer Impact: Low

CLI: Command "session cli paging" to enable/disable page breaks. For current session only (not config)
Customer Impact: Low

CLI: Command "show config all" to see complete T5 configuration, including default settings
Customer Impact: Low

CLI: Command "show context" shows running configuration for the current context only
Customer Impact: Low

CLI, GUI session timeout configuration

Session cli inactivity- timeout <timeout in minutes / 0 to disable timeout>
Session gui inactivity-timeout <timeout in minutes / 0 to disable timeout>
Customer Impact: Medium

CLI: Command to Clear Counters added to CLI and GUI:
clear counters <interface>
clear counters wireless ? ("?" shows all options)
Customer Impact: Medium

Added vendor database to display OUI for mac-address-table and wireless displays
Customer Impact: Low

Better logging
Customer Impact: Low
Add data-rate to wireless client statistics
Customer Impact: Low

SNMP Fixes and Enhancements
Bug 104797
DSL configuration changes using MGSoft will not save
Customer Impact: Low

Bug 105639
Fix garbled input of and possible crash when setting ifName/ifAlias
Customer Impact: Medium

Bug 105639
Fix ifName, ifAlias and ifDescr to match T3 behavior
Customer Impact: Medium

Bug 105598
Change ifNumber to the maximum number of interfaces of 290
Customer Impact: Low

Increase sysContact/sysLocation size from 64 to 256 characters
Customer Impact: Low

Implement sysORLastChange
Customer Impact: Low

Remove tutMgmtCpeControlRebootIn and replace with tutMgmtCpeControlReboot
Customer Impact: Low

Bugs fixed in 5.0.2.0-001R

Bug 104084
Country Code: Country code for Great Britain changed from UK to GB

Bugs fixed in 5.0.1.0-013R

Bug 101025
Adaptive-Power appears to get stuck after initial adjustment
Customer Impact: High

Bug 97596
FE port that is not a member of VLAN10 received untagged packet from device on VLAN10
Customer Impact: High
Bug 103508
Site Survey mode does not support the 5Ghz channels
Customer Impact: High

Bug 102375 and 102373
Radio fails after the max-client associations has been exceeded
Customer Impact: High

Bug 101080
When Country Code=US, Channels 149, 153, 157, 161 and 165 should be allowed
Customer Impact: High

Bug 101079
CC=US and AU - channels 38, 42, 46 should not be allowed
Customer Impact: Medium

Bug 102048
"show system temperature" should reflect "shutdown" and "recovery" = DSL shutdown/recovery
Customer Impact: Medium

Bug 98436
TW511 LED: Wireless Status LED color doesn't reflect reconfigured rf-mode unless CPE is rebooted
Customer Impact: Medium

Bug 101659
"show wireless neighbors" hangs onto entries for radio that has been disabled
Customer Impact: Medium

Bug 101087
When Country Code=JP, Channels 34, 38, 42, 46 should not be allowed
Customer Impact: Medium

Bug 101471
Should not allow user to configure a country code that does not exist
Customer Impact: Medium

Bug 99067
Wrong syslog message about changing the password for admin
Customer Impact: Medium

Bug 99264
Need DSL distance / wire length estimate (Current Length in Meters)
Estimated distance now shows in the "show int dsl status" command
Customer Impact: Medium

Bug 97864
Need "Next Boot" option to show the image that will load upon reboot of Switch or CPEs
"Next Boot" now shows in "show cpe boot" and "show boot" commands
Customer Impact: Low
Bug 93527
DSL speed should display in Mb instead of Kb
Customer Impact: Low

Bug 98908
"show logging" should have recent activity at the top
Customer Impact: Low

Bug 101473
Country Codes are sorted alphabetically with the exception of AE
Customer Impact: Low

CLI Fixes:

Bug 98435
Cannot use bulk radio command unless the radios are listed in numerical order
Customer Impact: Low

Bug 97977
 "int radioX.X wlan ?" command should provide list of available WLANs
Customer Impact: Low

Bugs 94042 and 100069
Provide better help in CLI
Customer Impact: Low

Bug 94154
Add "show system power" command

Customer Impact: Low

Bugs 101026 and 100766
"show cpe uptime" and "show int radio custom MacAddress" should have a wider display to fit the data
Customer Impact: Low

Bug 98645
Need to add key-words "running-config" and "startup-config" to help for "copy ?" command
Customer Impact: Low

Bug 103259
Adaptive Power help should provide unit of measure
Customer Impact: Low

GUI Fixes:

Bug 93911
RADIUS Host allows entry of invalid IP address and converts it to a new IP instead of giving error
Customer Impact: Medium

Bug 97905
NTP allows entry of invalid IP address and converts it to a new IP instead of giving error. Deletion of invalid IP causes an error.
Customer Impact: Medium

Bug 93720
WLAN, Monitor, Status information is confusing
Customer Impact: Medium

Bug 101941
Need ARP display
Customer Impact: Medium

Bug 100989
The "Logs" tab should be renamed to "Log"
Customer Impact: Medium

Bug 100157 and 100156
GUI does not support sortable statistics table or graphing of historical statistics
Customer Impact: Low

Bug 98697
Using Opera 12.14 browser, GUI displays "Empty" in the CPE Ethernet Monitor
Customer Impact: Low

Bug 98691

Need Ping utility
Ping utility is located in the Tools tab
Customer Impact: Low

Bug 97976
Radio Association should give list of available WLAN Profiles to choose from
Customer Impact: Low

SNMP Fixes:

Bug 102458
Speed up ifTable SNMP queries by caching information on the T5
Cache is refreshed every 5 seconds
Customer Impact: Medium

Bug 101930
sysDescr OID should give firmware Version
Customer Impact: Medium

Bug 98548
GUI and CLI always show 0 for "show ip statistics snmp" command
Customer Impact: Medium

Bug 101019
Country Code can only be set from the tutMgmtWifiRadioConfigTable
Now country code can be set from the SNMP system OID level
Customer Impact: Low

Time-related Fixes:

Bug 100205
Removing Timezone setting requires reboot to take effect
Customer Impact: Medium

Bug 100195
Clock Set and Timezone behave erratically
Customer Impact: Medium

Bug 99961
Summer-time setting should require the user to enter Timezone first
Customer Impact: Medium

Bug 93997
"Clock Summertime" appears to change back at wrong time
Customer Impact: Medium

Bug 99962
Summertime configuration allows end-time entry that occurs within the offset
Customer Impact: Low

Additional Fixes:

GUI: User-Customizable Interface Configuration pages added. Click on "#" symbol to select columns that you want to display in the main configuration screen. This allows bulk configuration of the interfaces. Changes will be saved to your browser.
Customer Impact: Medium

Radio and Client bit rate are now displayed in Kbps

"Show Clock" command now displays timezone

Change switch fan speed to be based on line-power consumption

Added "Days" to GUI "Up Time" display
Added "Clear Counters" to GUI interface monitor

Fix problem where "Length" in command "show int dsl status" shows value when link is down

Changed adaptive-power intervals to minutes, duration and interval to hours

Remove "int feX.Y no duplex" string from running-config

Reduce unnecessary syslog messages

New CLI commands:

"clrscr" command: clears the screen

"clear counters" command: resets interface counters

"show users" command: shows users that are logged into the switch management interface

Known Limitations in 5.0.1.0-013R

IGMP

IGMP is unavailable in release 5.1.0.0-011R. It will be added in a future release.

Web UI

Improvements will be made to the Web UI in a future release. Known issues in release 5.0.11.0-005R include:

Bug 99752 - Deleting directories return "Success", even though the operation is not valid

Miscellaneous Bugs scheduled to be fixed in future release

Bug 107235 – Radio and WLAN commands and GUI pages intermittently slow

Bug – "Failed Image" error when upgrading 24 CPEs at once. Workaround: Retry the upgrade on CPEs that had the error.