

Firmware V5.10 Release Note

ZAP 5.0

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Firmware Release V5.10

1. Overview

This document provides firmware release information on Zyxel NXC WLAN Controller and Unified Access Pointsplatforms, plus new features, enhancements, read me first before firmware upgrade, known issues and workarounds information for Release V5.10.

2. What's New in This Release

Zyxel Firmware Release V5.10 is an innovative firmware with Standalone and Managed AP support by default, a.k.a. Zyxel APFlex™ feature, enabling a zero-touch AP mode changing experience at initial installation.

With Zyxel Firmware Release V5.10, SMBs, Enterprises and Education Schools are able to enjoy a more performing and easier deploying wireless access service to fulfill diverse business requirement across multiple locations. The new features and enhancements in this release include:

- Zyxel Brand2.0 Web GUI & AP Status Enhancement
- 802.11ac Wave 2 AP support, including NWA1123-AC HD, NWA5123-AC HD & WAC6303D-S
- NXC2500 Setup Wizard ^{BETA}
- AP Setup Wizard
- Multiple Captive Portal Redirect
- Legacy 802.11a/b/g Clients Rejection ^{BETA}
- BLE Proximity Sensing support on WAC6303D-S
- AP firmware upgrade by manual or AP group on NXC^{BETA}
- AP reboot by group on NXC
- The limited-admin account able to use the Reboot AP button.
- Client info (Station capability)
- Config Non-support or Config Conflict event handle
- MAC Auth fallback to Web Auth support on WAC5302D-S & WAC6303D-S
- uAPSD enable/disable on Web GUI
- Rogue AP detection support in AP mode for Managed AP
- Rogue AP detection support in AP mode for Standalone APs, including WAC5302D-S, NWA1123-AC HD, NWA5123-AC HD & WAC6303D-S
- Vietnam country code support on NXC
- SNMP OID for 2.4G & 5G traffic usage (byte) on AP
- SNMP OID for RSSI on Thin/FAT Aps.

3. Supported Platforms:

Zyxel Controllers

- NXC2500 V5.10(AAIG.1)
- NXC5500 V5.10(AAOS.1)

Zyxel Access Points

- NWA3160-N V5.10(UJA.1)
- NWA3550-N V5.10(UJB.1)
- NWA3560-N V5.10(UJC.1)
- NWA5160N V5.10(AAS.1)
- NWA5550-N V5.10(UJD.1)
- NWA5560-N V5.10(UJE.1)
- NWA5121-NI V5.10(AAID.1)
- NWA5123-NI V5.10(AAHY.1)
- NWA5121-N V5.10(AAIF.1)
- NWA5123-AC V5.10(AAZY.1)
- NWA5301-NJ V5.10(AANB.1)
- WAC6502D-E V5.10(AASD.1)
- WAC6502D-S V5.10(AASE.1)
- WAC6503D-S V5.10(AASF.1)
- WAC6553D-E V5.10(AASG.1)
- WAC6103D-I V5.10(AAXH.1)
- NWA1123-ACv2 V5.10(ABEL.1)
- NWA1123-AC PRO V5.10(ABHD.1)
- WAC6552D-S V5.10(ABIO.1)
- WAC6303D-S V5.10(ABGL.1)
- NWA5123-AC HD V5.10(ABIM.1)
- NWA1123-AC HD V5.10(ABIN.1)

4. Supported Utilities:

Zyxel One Network (ZON):

Product	Series	Model
Wi-Fi Access Point	WAC6500 series	WAC6502D-E WAC6502D-S WAC6503D-S WAC6553D-E
	WAC6100 series	WAC6103D-I
	WAC6300 series	WAC6303D-S
	WAC5300 series	WAC5302D-S
	NWA5120 series	NWA5121-NI NWA5121-N NWA5123-NI NWA5123-AC NWA5123-AC HD
	NWA5301-NJ	NWA5301-NJ
	NWA1000 series	NWA1123-ACv2 NWA1123-AC PRO NWA1123-AC HD
NXC Controller	NXC series	NXC5500 NXC2500

Zyxel AP Configurator (ZAC):

Series	Access Point
Model	NWA1123-ACv2 NWA1123-AC PRO NWA1123-AC HD NWA5121-NI NWA5121-N NWA5123-NI NWA5123-AC NWA5123-AC HD NWA5301-NJ WAC5302D-S

	WAC6103D-I WAC6502D-E WAC6502D-S WAC6503D-S WAC6553D-E WAC6303D-S
--	--

* ZAC configuration of Access Point is supported with Standalone AP mode.

Zyxel Wireless Optimizer (ZWO)

Series	Access Point	Wireless LAN Controller
Model	NWA1123-ACv2 NWA1123-AC PRO NWA1123-AC HD NWA3160-N NWA3560-N NWA3550-N NWA5160N NWA5560-N NWA5550-N NWA5123-AC NWA5121-NI NWA5121-N NWA5123-NI NWA5123-AC HD NWA5301-NJ WAC5302D-S WAC6103D-I WAC6502D-E WAC6502D-S WAC6503D-S WAC6553D-E WAC6303D-S	NXC2500

5. Files lists contains in the Release ZIP file

File name: *.bin

Purpose: This binary firmware image file is for normal system update.

Note: The firmware update may take five or more minutes depending on the scale of device configuration. The more complex configuration will take more update time. Do not turn off or reset the NXC2500 while the firmware update is in progress. The firmware might get damaged, if device loss power or you reset the device during the firmware upload. You might need to refer to Appendix 2 of this document to recover the firmware.

File name: *.conf

Purpose: This ASCII file contains default system configuration commands.

File name: *.ri

Purpose: This binary firmware recovery image file is for emergent system firmware damage recovery only.

File name: *-MIB.zip

Purpose: The MIBs are to collect information on device. The focus of the MIBs is to let administrators collect statistical data and monitor status and performance.

File name: The customized page of Multiple Captive Portal SOP.pdf

This document is the guide for user who is using version 5.00 customized portal to edit portal file so that it can be completely working in the latest version 5.10 multiple portals.

6. Read Me First before Upgrade

This section encompasses important notes while upgrading this firmware release for Zyxel NXC controllers and Zyxel Access Points.

Zyxel NXC WLAN Controller

1. FW v5.10 supports three 11ac Wave2 APs plus more advanced features such as NXC2500 Setup Wizard^{BETA}, Multiple Captive Portal Redirect, Rogue AP detection support in AP mode for Managed AP and BLE Proximity Sensing support on WAC6303D-S. To upgrade the FW from v5.00 to v5.10, the NXC2500 requires proper system conversion for better service and more functions support.

1. For expert users who are familiar with CLI and FTP command, please use the FTP session to upgrade the official firmware (xxxx.bin).

2. For users who prefer to use Web GUI for FW upgrade, please reboot the NXC2500 first, then upgrade the official firmware (xxxx.bin).

If the above 2 options fail for successful FW upgrade, please apply the stage firmware (xxxx_staging.bin) first. After applying the stage firmware, please then upgrade to the official firmware xxxx.bin.

2. Following NXC features in the FW v5.10 are BETA version.

- NXC2500 Setup Wizard^{BETA}
- Legacy 802.11a/b/g Clients Rejection^{BETA}
- AP firmware upgrade by group on NXC^{BETA}

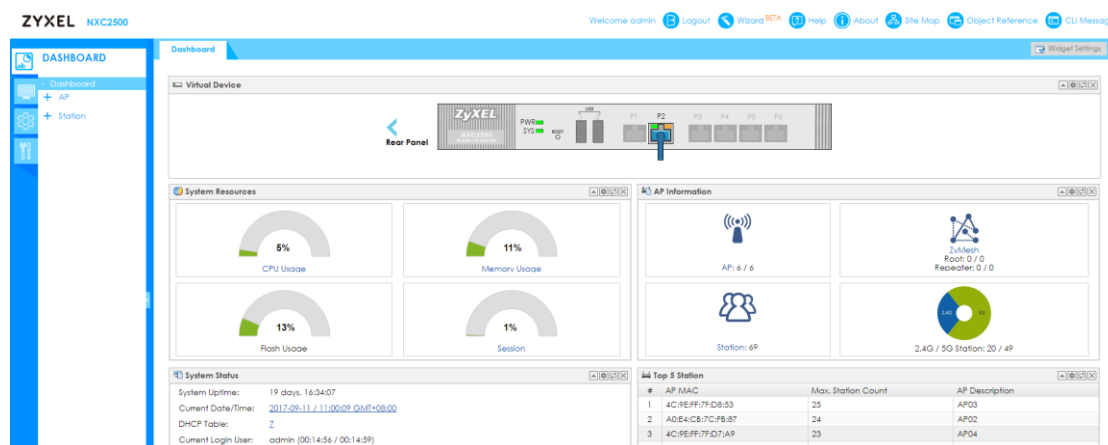
Zyxel Access Points

1. In the FW v5.10, AP Setup Wizard feature in AP Standalone mode is BETA version.

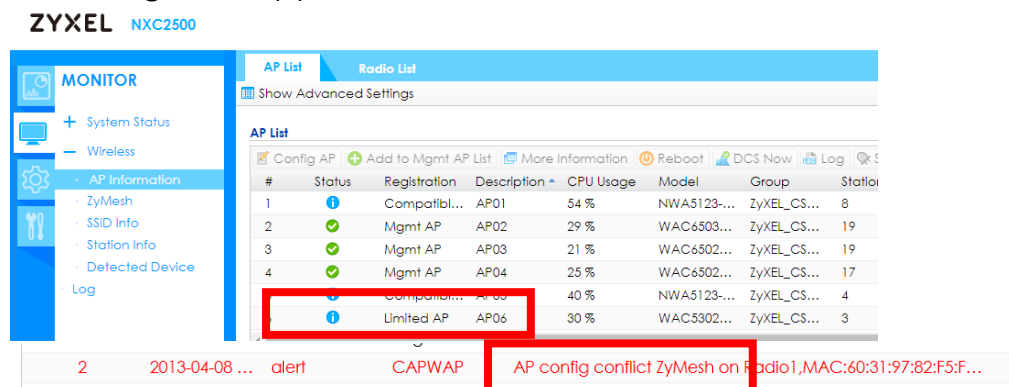
7. Enhancements:

This section includes the enhancements in this firmware V5.10 release.

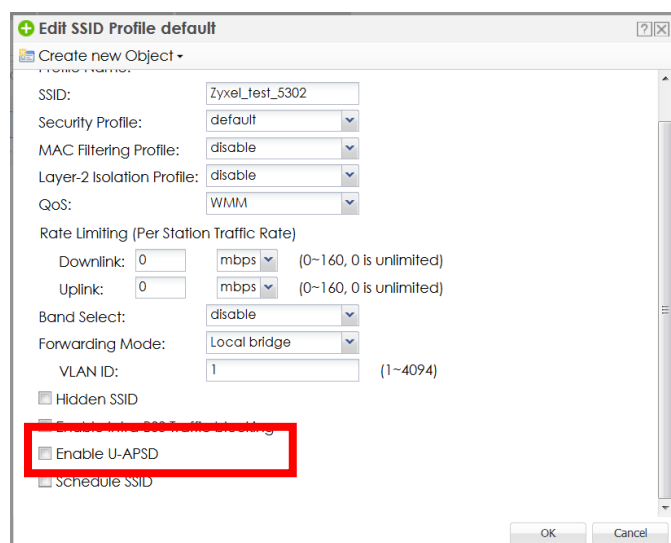
- New GUI



- Config non-support/conflict feature handle.



- Add the U-APSD enable/disable



- Vietnam country code support.

Edit Radio Profile default

☐ Hide Advanced Settings

Advanced Settings

Country Code: Vietnam

Guard Interval: Long

☒ Enable A-MPDU Aggregation

A-MPDU Limit: (100~65535)

A-MPDU Subframe: (2~64)

☒ Enable A-MSDU Aggregation

A-MSDU Limit: (2290~4096)

RTS/CTS Threshold: (0~2347)

Beacon Interval: (40ms~1000ms)

DTIM: (1~255)

☐ Enable Signal Threshold

Station Signal Threshold: -105 dBm (-20 ~ -76)

Disassociate Station Threshold: -105 dbm (-20 ~ -105)

☐ Allow Station Connection after Multiple Retries

Station Retry Count: 6 (1 ~ 100)

☐ Allow 802.11n/ac stations only i

- Station Capability information

Station List

☐ Show Advanced Settings

Station List

#	IP Address	Associate...	SSID Name	Tx Rate	Rx Rate	Associatio...	Capability ^{BETA}	Band
1	10.214.60.44	AP04	ZyXEL_CS...	216M	702M	2017/09/1...	802.11ac	5G
2	10.214.60.70	AP02	Roaming11	585M	390M	2017/09/1...	802.11ac	5G
3	10.214.60.1...	AP03	ZyXEL_CS...	129M	75M	2017/09/1...	802.11b/g	2.4G
4	10.214.60.1...	AP04	ZyXEL_CS...	234M	234M	2017/09/1...	802.11ac	5G
5	10.214.60.82	AP04	ZyXEL_CS...	585M	780M	2017/09/1...	802.11ac	5G
6	10.214.60.1...	AP01	ZyXEL_CS...	26M	104M	2017/09/1...	802.11b/g/n	2.4G
7	10.214.60.48	AP02	ZyXEL_CS...	100M	23M	2017/09/1...	802.11b/g	2.4G
8	10.214.60.63	AP04	ZyXEL_CSO	81M	108M	2017/09/1...	802.11a/b/g/n	5G

- AP Setup Wizard

After apply system default, wireless station can input the URL <http://1.1.1.1> to log into device.

Once the device is not default setting, this feature will be disabled.

Wizard setting

ZYXEL NXC2500

Welcome to the Setup Wizard

Country Code: USA

Time Zone

Uplink

Management VLAN

VLAN

Radio

SSID

Summary

- Legacy 802.11a/b/g Clients Association Rejection

Edit Radio Profile default

Hide Advanced Settings

Guard Interval: ☒ Short ☐ Long

☒ Enable A-MPDU Aggregation

A-MPDU Limit: (100~65535)

A-MPDU Subframe: (2~64)

☒ Enable A-MSDU Aggregation

A-MSDU Limit: (2290~4096)

RTS/CTS Threshold: (0~2347)

Beacon Interval: (40ms~1000ms)

DTIM: (1~255)

☐ Enable Signal Threshold

Station Signal Threshold: dBm (-20 ~ -76)

Disassociate Station Threshold: dbm (-20 ~ -105)

☐ Allow Station Connection after Multiple Retries

Station Retry Count: (1 ~ 100)

☒ Allow 802.11n/ac stations only **BETA** **i**

Multicast Settings

Transmission Mode: ☐ Multicast to Unicast ☒ Fixed Multicast Rate

Multicast Rate(Mbps): ☐ 1 ☐ 2 ☐ 5.5 ☒ 11 ☐ 6 ☐ 9 ☐ 12 ☐ 18 ☐ 24 ☐ 36 ☐ 48 ☐ 54

- Rogue AP detection in AP mode for Managed AP

ZYXEL NX2500 Welcome admin Logout Wizard **BETA** Help About Site Map

CONFIGURATION

- Licensing
- Wireless
- Controller
- AP Management
 - Rogue AP
 - Auto Healing
- Network
 - Captive Portal
 - RTLS
 - Firewall
 - Object
 - System
 - Log & Report

Rogue/Friendly AP List

Suspected Rogue AP Classification Rule

☐ Weak Security (Open, WEP, WPA-PSK)

☐ Un-managed AP

☐ Hidden SSID

☐ SSID Keyword

☐ MAC Keyword

Rogue/Friendly AP List

#	Containment	Role	MAC Address	Description
1				

Page 1 of 0 | Show 50 items

Rogue AP List Importing/Exporting

File Path:

Friendly AP List Importing/Exporting

File Path:

Monitor Mode Settings

☐ Enable Rogue AP Containment

- Multiple Captive Portal

ZYXEL NXC2500

Welcome admin

CONFIGURATION

- + Licensing
- + Wireless
- + Network
- Captive Portal**
- + Firewall
- + Object
- + System
- + Log & Report

Captive Portal Custom Captive Portal Redirect on Controller Redirect on AP

Customized Page

+ Add Edit Remove Copy

#	Theme Name
1	Controller_default
2	Customized_prev

Page 1 of 1 Show 50 items

Upload File

Remove Download

#	File Name	Size
1	Uploaded_default.zip	47122
2	Uploaded_prev.zip	45460

Page 1 of 1 Show 50 items

Preview: Login Page Welcome page Error page Session page Logout page User-Logout page

To use uploaded Captive Portal, please first upload the zip first within the login.html, welcome.html, error.html, session.html and

File Path:

- The limited-admin account now able to use the Reboot AP button.
- AP firmware upgrade by manual or AP Group on NXC BETA
- AP reboot by group.

Mgmt. AP List **AP Policy** **AP Group**

Group setting

Default Group:

Group Summary

+ Add Edit Remove Reboot DCS Now Upgrade Now

#	Group Name	Member Count
1	default	0
2	Unclassified	0
3	LABtest	0
4	ZyXEL_CSO_Mesh	0
5	ZyXEL_CSO_AC	6

Page 1 of 1 Show 50 items

- BLE (Bluetooth Low Energy) Proximity support for WAC6303D-S.
- SNMP MIB Enhancement
 - OID for 2.4G & 5G traffic usage (byte) on AP
 - OID for RSSI on Thin/FAT Aps.

8. Resolved Issues:

1. [SPR: 161202018]
[eITS: 161100645]
[Symptom] Go to Configuration > Network > NAT, if user edits or adds NAT configuration and select Port Mapping Type to 1:1 NAT, the Port Mapping Type of Mapping Rule should be any, no other options can be selected.
2. [SPR: 161212477]
[eITS: 161200209]
[Symptom] When connecting the switch (include the AP) to the NXC series controller, the NXC connect with PC and run the ZON utility. The ZON utility only can list the NXC controller. However, when the switch connects PC and run the ZON utility, all of devices can be listed on the ZON utility.
3. [SPR: 170105122]
[eITS: 170400134]
[Symptom] Login Page] When clients are logged captive portal on ap side, the associated ap info did not show on login users page.
4. [SPR: 170217672]
[eITS: 170200496]
[Symptom] Configure a mac address by manual in the field of 'Radio 1 Uplink MAC Address' and press "apply" twice. The setting will jump to Auto after AP reboot.
5. [SPR: 170220841]
[eITS: 170200393]
[Symptom] There is a typo in the Help guide. Go to Radio > Add/Edit Radio Profile > Enable 5GHz DFS Aware. The typo is 'devide', the correct word should be 'device'.
6. [SPR: 1702231160]
[eITS: 170200560]

[Symptom] The WAC6103D-I could not be configured by ZAC v1.1.2 when configuring the AP profile setting (SSID, security) on FW v5.0. ZAC will pop up the error message "error occurred while processing the configuration file" and indicate "no profile to edit".

7. [SPR: 170301039]

[eITS: 170200391]

[Symptom] When clicking "?" on GUI page, the topic displays is not correct, for example, clicking Configuration > Object > AP Profile > Radio > Edit > ? , it should be AP profile > radio displaying in help Page.

8. [SPR: 170307236]

[eITS: 170300092]

[Symptom] Customer upgrades the firmware from 422AAIG1-DF-2016-08-01_NXC_dynamic_VLAN_support_by_user_role to 5.00(AAIG.3)C0. It occurred the config loading fail. The device booted up with RS232 checking and ZySH Daemon is unable to start.

9. [SPR: 170309508]

[eITS: 170300077]

[Symptom] NXC controller cannot be accessed by ssh, telnet, and Web GUI on v5.00(AAOS.3)C0. It indicated that the zyshd daemon is dead.

10. [SPR: 1703231035]

[eITS: 170300442]

[Symptom] Stations are not able to get IP when connected with AP after 802.1X authentication.

11. [SPR: 1703281231]

[eITS: 170200497]

[Symptom] Customer has three WA6103D-I for one hop WDS scenario. When clients connect to the different repeaters in the same subnet, they cannot ping to each other.

12. [SPR: 1703311444]
[eITS: 160900630]
[Symptom] Every logged user is able to download the configuration file "startup-config.conf".
13. [SPR: 170421499]
[eITS: 170400194]
[Symptom] 802.1X AD authentication failed when user input the User principal name (UPN) format.
14. [SPR: 170426585]
[eITS: 170400729]
[Symptom] iPhone7 will not do roaming when 802.11r feature adopts "over the DS" in NXC. When we do the roaming from AP1 to AP2, the station (iPhone7) is always connected with AP1 and traffic is not working (failed to ping 8.8.8.8).
15. [SPR: 170504097]
[eITS: 170400691]
[Symptom] The port 2-6 of NXC2500 has no data graph information in daily report.
16. [SPR: 170512280]
[eITS: 170400222]
[Symptom] When online stations over 200 units and press NXC's DASHBOARD > Station > traffics, it will cause NXC zysh daemon dead. The reason is NXC has no enough memory for querying station info.
17. [SPR: 170522583]
[eITS: 170500424]
[Symptom] RADIUS daemon is dead.
18. [SPR: 170602051]
[eITS: 170500766]
[Symptom] NXC2500 Web login failed - Login denied validate user

has failed (uamd daemon is down).

19. [SPR: 170608213]
[eITS: 170500268]
[Symptom] User is able to access the Internet without login captive portal.
20. [SPR: 170608214]
[eITS: 170500771]
[Symptom] After NXC reboot within 30 minutes, the external captive portal cannot be redirected by NXC controller. The function works after 30 minutes.
21. [SPR: 170616386]
[eITS: 170500979]
[Symptom] In extreme case, NXC2500 has RAM consumption issue, which may result in device reboot.
22. [SPR: 170626715]
[eITS: 170600574]
[Symptom] Reboot occurred on NXC5500 if user access TopN page.
23. [SPR: 170627850]
[eITS: 170600824]
[Symptom] Issue: The TLS session cache in FreeRADIUS before 3.0.14 fails to reliably prevent resumption of an unauthenticated session, which allows remote attackers (such as malicious 802.1X supplicants) to bypass authentication via PEAP or TTLS.
24. [SPR: 170628878]
[eITS: 170600615]
[Symptom] Captive portal has the following issues: (1) The login page sometimes shows an error message; (2) After a user successfully connects, when the screen locks on the phone or ipad (screen activity timeout) after about 1-3 minutes, the user gets Dis-associated from the Wifi and then has to re-authenticate. When

this happens, sometimes the user received an error message (issue #1 above) or the page simply says "success" and nothing else; (3) Sometimes when the user tries to authenticate, after logging in they will receive a welcome page with a link that simply says "Cancel" at the page bottom. This only happens on iOS devices (iphone and ipad).

25. [SPR: 170628924]
[eITS: 170600847]
[Symptom] Zysh daemon dead when clicking Top N page on GUI.
26. [SPR: 1706301036]
[eITS: 170600046]
[Symptom] If going to Monitor -> AP List and scroll the page, the page scrolls "line by line" and very slow.
27. [SPR: 170703012]
[eITS: 170600137]
[Symptom] The number of connections displayed incorrectly, and Station info not changes. There is no information change for 3 Hours and DHCP 140(=Wi-Fi) but NXC monitor show only 33.
28. [SPR: 170703035]
[eITS: 170600861]
[Symptom] AP information cannot be edited.
29. [SPR: 170703040]
[eITS: 170600859]
[Symptom] NXC5500 Configuration > AP list drop down menu disappears, and selected AP is unselected.
30. [SPR: 170705180]
[eITS: 170500640]
[Symptom] Traffic logs of NXC2500 don't save src MAC address, no matter local bridge or tunnel mode are the same. The NXC should have a correct client_mac and not unknown.

31. [SPR: 170713457]
[eITS: 170500650]
[Symptom] The NXC always has 88-93% memory usage, with unknown reason.
32. [SPR: 170803138]
[eITS: 170700094]
[Symptom] Enable 802.11r will cause iPhone (cellphones support 802.11r) throughput drop after roaming. Symptom disappears after disable 802.11r.
33. [SPR: 170907153]
[eITS: 170400275]
[Symptom] Fallback to Captive Portal after MAC authentication failure, STA will be blocked or passed abnormally.
34. [eITS: 170200809]
[Symptom] Stations data in RRM database does not match.

9. Design Limitations and Known Issues

This section describes the system behavior or limitations in this firmware release. They will be created into knowledge base.

Design Limitations

Zyxel NXC WLAN Controller and Managed AP Mode

N/A

Zyxel Access Points

1. For following models, TKIP is not supported:
NWA1123-AC HD
NWA5123-AC HD
WAC5302D-S
WAC6303D-S
2. WAC5302 does not support SNMPv1.

Known Issues

Zyxel NXC WLAN Controller and Managed AP Mode

GUI:

1. [SPR: 140701012]
[Symptom] Plug in two USB thumb drives, the GUI shows only one USB Virtual Device in the Dashboard page.
2. [SPR: 150728882]
[Symptom] If creating an ext-group-user in User/Group page, and "Associated AAA Server Object" select AD-Server, the object reference of hyper link will redirect to the wrong page.

3. [SPR: 151103048]
[Symptom] Configure the 2.4GHz channel width as 20/40MHz for NWA3560-N, GUI channel width does not change to 20MHz on the GUI, but it is actually 20MHz configured.
4. [SPR: 151123781]
[Symptom] The value character can't have "_" in AAA Server' name for AD, LDAP, RADIUS server and cannot exceed 30 characters in RADIUS server.
5. [SPR: 151214770]
[Symptom] NXC Dashboard displays error with Microsoft Internet Explorer 10.
6. [SPR: 160308287]
[Symptom] There is an additional null row at the bottom of AP list.
7. [SPR: 160531033]
[Symptom] The SSID page "Object Name" , the hyperlink cannot be redirected back.
8. [SPR: 160511443]
[Symptom] CONFIGURATION > System > SNMP > SNMPv3 > add User > Select a user with less than 8 passwords (because the password is less than 8, it cannot be added) > User / Group to delete the selected User, it cannot be deleted.
9. [SPR: 161213541]
[Symptom] When enabling MAC auth fallback, the SSID Profile with MAC Cache on the captive portal page, it cannot be added when SSID profile name contains special characters,
10. [SPR: 170807338]
[Symptom] Using create new object button to create schedule Object, click TAB on start time, page will be hidden in the back.

11. [SPR: 170814605]
[Symptom] If user disable Firmware Update Schedule and apply > no, refresh page the schedule config is enable.
12. [SPR: 170821971]
[Symptom] click SSID info will show only clients connected to AP.

Monitor Mode:

1. [SPR: 140624104]
[Symptom] Inactivate Mon Mode profile, it will still keep device list in Detected Device.
2. [SPR: 140922844]
[Symptom] The old SSID data are not cleaned if all aps from MON mode to AP mode in Detected Device.
3. [SPR: 150901039]
[Symptom] The AP use Mon Mode to monitor 802.11AC SSID, it will be display 802.11n 40MHz WEP.
4. [SPR: 170609226]
[Symptom] When there is a SSID with special characters, might be garbled information displayed on detected device page.

Wireless:

1. [SPR: 140820699]
[Symptom] Wireless client cannot be authorized with EAP TTLS (Mschapv2), if controller uses following settings:
 - i. 802.1X
 - ii. Security: none
 - iii. Authentication method: local database

2. [SPR: 140820701]
[Symptom] Wireless client cannot be authorized with EAP PEAP (Mschapv2), if Controller uses following settings:
 - i. 802.1X
 - ii. Security: none
 - iii. Authentication method: local database
3. [SPR: 140820702]
[Symptom] Wireless client cannot be authorized with EAP PEAP (TLS), if controller uses following settings
 - i. 802.1X
 - ii. Security: none
 - iii. Authentication method: local database
4. [SPR: 141211739]
[Symptom] When SSID name with three spaces sequentially, it causes GUI display incorrectly.
5. [SPR: 161205035]
[Symptom] For WAC5302D-s, when enable Load Balancing (count=2), first 7 clients can connect, but the 8th client can't connect.

WDS:

1. [SPR: 150717134]
[Symptom] If the Repeater AP's Ethernet port is attached to Lan1 port instead of Uplink port, the network will loop.
2. [SPR: 160202129]
[Symptom] In ZyMesh deployment, AP may have mesh disconnect log in some extreme cases due to driver issues, the log is triggered by the workaround embedded in the firmware. When it happens, the AP mesh link will disconnect and reconnect instantly, there is no significant wireless connection impact in general applications.

CAPWAP:

1. [SPR: 150526058]
[Symptom] Some station info will be kept in station info list on the NXC controller even the stations have been dissociated from the AP.
2. [SPR: 170816761]
[Symptom] WAC6303/WAC5302/NWA5123-AC-HD might happen CAPWAP disconnection when there are large amount of multicast packets in the LAN.

System:

1. [SPR: 140822847]
[Symptom] If user types are "user" or "limited-admin", user is able to perform ftp login on fat AP.
2. [SPR: 140919757]
[Symptom] Power management in WAC6503D-S Standalone mode is incorrect if using PoE 802.3af mode.
3. [SPR: 141111336]
[Symptom] While editing LAN PVID in AP Group Setting > Port Setting, the setting will apply to managed AP immediately even if Cancel button is clicked on AP Group Setting page.
4. [SPR: 141126208]
[Symptom] When VLAN interface gateway does not set, the Metric is not grayed out.
5. [eITS: 140800476]
[Symptom] Many VLANs are configured on the NXC2500. When rebooting the NXC2500, there is possibility that WLAN Clients for example in VLAN 1 getting IPs from DHCP Servers in VLAN 2.

6. [eITS: 150700345]
[Symptom] The Web GUI of NXC indicated the high CPU usage after long system up time.
7. [eITS: 151214794]
[Symptom] When changing the LAN provision for different APs at once, the configuration to the NWA5301-NJ has no effect.

SNMP:

1. [SPR: 150508405]
[Symptom] The OID value of "station associated time" displays the wrong time format.

Configuration Backup/Restore:

1. [SPR: 150525002]
[Symptom] If the configuration name is started with symbolic characters ".", the GUI will show 'Operation is prohibited'.

AAA:

1. [SPR: 140818646]
[Symptom] When client rejects by RADIUS, controller does not show the log of reject reason.
2. [SPR: 150709611]
[Symptom] When change the default order and priority of the authentication methods on the NXC controller or server IP address, it may occur the users cannot pass the authentication.
3. [SPR: 150821249]
[Symptom] If the case-sensitive user names are disabled on the AD profile, logging the username by ext-group-user on 802.1X authentication will show the user does not exist in the group.

4. [SPR: 151102017], [SPR: 160511466]
[eITS: 151001059]
[Symptom] Computer authentication will fail when the RADIUS server is not on the top of the Authentication Method list.
5. [SPR: 160506735]
[Symptom] Set up Accounting Max retry count = 3, when the accounting server is not be found, the Radius internal 802.1x will not retry 3 times.
6. [SPR: 160602137]
[Symptom] If browser is used the Firefox,the account and passwork will be display on GUI.
7. [SPR: 170125950]
[Symptom] When there are two APs behind NAT, if one AP was removed, wireless client vial MAC authentication would fail. In normal circumstance, wireless client shall be able to perform MAC authentication without issue while connecting to the other AP which was not removed.
8. [SPR: 170123761]
[Symptom] For WAC5302D-S, there is possibility that 802.1 X clients may not associate to the AP via either 2.4GHz or 5GHz in certain extreme environment, even though there is a AP reboot workaround in place.
9. [SPR: 170606142]
[Symptom] When there are 2 radius servers in an auth method, user may authenticate failed using 802.1x with the 2nd AAA server. Users are recommended to change preferred AAA server to the 1st AAA server in such circumstances.
10. [SPR: 170728906]
[Symptom] If there are more than 2 WAC5302
WAC6303/NWA5123-AC-HD behind the same NAT, it may cause computer authentication failed.

Captive Portal:

1. [SPR: 140820735]
[Symptom] When wireless client disassociated but login user will not be logout from controller.
2. [SPR: 160601066]
[Symptom] When enabling the captive portal on AP and Layer 2 isolation together, it needs to add the MAC address of AP into the list of Layer2 isolation.
3. [SPR: 160726983]
[Symptom] Captive portal request IOS clients to re-log in after disconnect the SSID.
4. [SPR: 161026967]
[Symptom] WAC5302D-S AP does not support MAC Authentication Fallback to Captive Portal after MAC authentication failure.
5. [SPR: 170606122]
[Symptom] Use 5.00 or older version NXC's uploaded Captive Portal, when client logging in, it can not be redirected. Please refer to The customized page of Multiple Captive Portal SOP.docx
6. [SPR: 170713481]
[Symptom] Enable Load balancing and portal on AP, authentication will finish slower and may cause roaming clients to authenticate again.
7. [SPR: 170804234]
[Symptom] The preview customized page is different form captive portal login page

User / Group / Captive Portal:

1. [SPR: 150723471]
[Symptom] The User idle timeout does not work.

User / Group / GUI:

1. [SPR: 170825179]
[Symptom] user service control denies function is not working in www.

ZON:

1. [SPR: 151120733]
[Symptom] If managed AP was enabled LED locator by using ZON utility, the type of icon should be changed to flash icon but managed AP does not.

Rate Limit:

1. [SPR: 160802043]
[Symptom] Rate limit using tunnel mode with management VLAN (2~4094) cause station upload rate limit can not work.

Auto Healing:

1. [SPR: 150513963]
[Symptom] NXC2500's Auto Healing Log and console log cannot update AP Description in time.

Certificate:

1. [SPR: 160511432]
[Symptom] uses SHA1 certificate, the HTTPS connection in Safari does not work with the Web.

Web Wizard ^{BETA}:

1. [SPR: 170707280]
[Symptom] AP-group & Security profile generated by web wizard can not be edited.
2. [SPR: 170816733]
[Symptom] Using web wizard and without changing IP, there will be "Wrong CLI command" pops out for some versions of firefox, but the changes are saved.
3. [SPR: 170822056]
[Symptom] Country code of radio profile generated by wizard will not be updated if user using wizard to config again.

Zyxel Access Points in Standalone Mode

1. [SPR: 141204234]
[Symptom] Using IE11 and Chrome cannot login to Standalone AP when enabling Https and Authenticate Client Certificates.
2. [SPR: 140625215]
[Symptom] The SNMPv1 cannot work on Standalone AP.
3. [SPR: 150114622]
[eITS: 150100208]
[Symptom] The error message "Do NTP update has failed" shows up when pressing "Sync. Now" button from Date/Time configuration page on Repeater AP.
4. [SPR: 160223491]
[Symptom] If client connect to SSID VLAN(2~4094),daily report does not display radio traffic.
5. [SPR: 160330505]
[Symptom] Accounting Interim Update should be gray out on the

GUI when the authentication Settings set as PSK.

6. [SPR: 170817823]

[Symptom] Fat AP+ default config + chrome(flush cookie) + 1st login and cancel wizard to configuration page will not able to config.

Appendix - A. System Default Setting

Zyxel NXC WLAN Controller

Following is the system default configuration

- The default device information for NXC controllers
IP: 192.168.1.1
Administration username: admin
Password: 1234
- The default LAN interface is vlan0. The default LAN subnet is 192.168.1.0/24.
- By default, SSH service can only be accessed from LAN subnet.

Zyxel Access Points

- For AP in Standalone mode, following is the system default configuration:
The default device information for Unified Access Points
IP: 192.168.1.2
Administration username: admin
Password: 1234
- For AP in Managed AP mode by default, DHCP client enabled is by default.

Appendix - B. Firmware Upgrade / Downgrade Procedure

The following is the firmware **upgrade** procedure:

1. If user did not backup the configuration file before firmware upgrade, please follow the procedures below:
 - Use Browser to login into NXC2500 as administrator.
 - Click Maintenance > File Manager > Configuration File to open the Configuration File screen. Use the Configuration File screen to backup current configuration file.
 - Find firmware at www.Zyxel.com in a file that (usually) uses the system model name with the .bin extension, for example, "**510AIG1.bin**".
 - Click Maintenance > File Manager > Firmware Package to open the Firmware Package screen. Browser to the location of firmware package and then click Upload. The NXC2500 automatically reboots after a successful upload.
 - After several minutes, the system is successfully upgraded to newest version.

The following is the firmware **downgrade** procedure:

(We do not recommend user to downgrade f/w of device.)

1. If user has already backup the configuration file before firmware upgrade, please follow the procedures below:
 - Use Console/Telnet /SSH to login into NXC2500.
 - Router>**enable**
 - Router#**configure terminal**
 - Router(config)#**setenv-startup stop-on-error off**
 - Router(config)#**write**
 - Load the older firmware to NXC2500 using standard firmware upload procedure.
 - After system uploads and boot-up successfully, login into NXC2500 via GUI.
 - Go to GUI → "File Manager" menu, select the backup configuration filename, for example, statup-config-backup.conf and press "Apply" button.
 - After several minutes, the system is successfully downgraded to older version.

2. If user did not backup the configuration file before firmware upgrade, please follow the procedures below:
 1. Use Console/Telnet /SSH to login into NXC2500.
 2. Router>**enable**
 3. Router#**configure terminal**
 4. Router(config)#**setenv-startup stop-on-error off**
 5. Router(config)#**write**
 6. Load the older firmware to NXC2500 using standard firmware upload procedure.
 7. After system upload and boot-up successfully, login into NXC2500 via Console/Telnet/SSH.
 8. Router>**enable**
 9. Router#**write**

Now the system is successfully downgraded to older version.

Note: NXC2500 might lose some configuration settings during this downgrade procedure. It is caused by configuration conflict between older and newer firmware version. If this situation happens, user needs to configure these settings again.

Appendix - C. SNMPv3 private MIBS support

SNMPv3 private MIBs provides user to monitor NXC2500 platform status. If user wants to use this feature, you must prepare the following step:

1. Have NXC2500 mib file and install to your MIBs application (like MIB-browser).
2. NXC2500 SNMP is enabled.
3. Using your MIBs application connects to NXC2500

Appendix - D. Firmware Recovery

In some rare situation, NXC2500 might not boot up successfully after firmware upgrade. The following procedures are the steps to recover firmware to normal condition. Please connect console cable to NXC2500.

If NXC2500 Booting failed, NXC2500 will automatically perform the "Restore Firmware" process. Example: The device show "Bad Data CRC" while uncompressing "Kernel Image".

```

BootModule Version: V1.00 | 2013-03-29 15:39:33
DRAM: Size = 1024 Mbytes

Kernel Version: V2.6.32.27 | 2013-05-23 19:55:22
ZLD Version: V4.00(AAIG.1) | 2013-05-28 09:35:00
CAPWAP Version: V1.00.02

MMC read: dev # 0, block # 2048, count 2048 ... 2048 blocks read: OK

Press any key to enter debug mode within 3 seconds.

BM cmd line: console=ttyS0,115200 numcores=2 mem=1024M
local_args[0]=bootm, local_args[1]=0x20000000
Execute Command (Load Normal Kernel): mmc read 0 0x20000000 0x32801 0x27fff

MMC read: dev # 0, block # 206849, count 163839 ... 163839 blocks read: OK
## Booting kernel from Legacy Image at 20000000 ...
Image Name:      Linux Kernel Image
Created:         2013-05-06   8:05:04 UTC
Image Type:      MIPS Linux Kernel Image (lzma compressed)
Data Size:       2931281 Bytes = 2.8 MiB
Load Address:    05000000
Entry Point:     80101400
Verifying Checksum ... Bad Data CRC
ERROR: can't get kernel image!
Execute Command (Load Recovery Kernel): mmc read 0 0x20000000 0xa800 0x28000

```

1. Restore Firmware

- If "Connect a computer to port 1 and FTP to 192.168.1.1 to upload the new file" displays on the screen, you need to recover the firmware by the following procedure.

Connect a computer to port 1 and FTP to 192.168.1.1 to upload the new file.

- You will use FTP to upload the firmware package. Keep the console session open in order to see when the firmware recovery finishes.
- Set your computer to use a static IP address from 192.168.1.2 ~ 192.168.1.254. No matter how you have configured the NXC2500's IP addresses, your computer must use a static IP address in this range to recover the firmware.
- Connect your computer to the NXC2500's port 1 (the only port that you can use for recovering the firmware).
- Use an FTP client on your computer to connect to the NXC2500. This example uses the ftp command in the Windows command

prompt. The NXC2500's FTP server IP address for firmware recovery is 192.168.1.1

- Log in without user name (just press enter).
- Set the transfer mode to binary. Use "bin" (or just "bi" in the Windows command prompt).
- Transfer the firmware file from your computer to the NXC2500 (the command is "put 510AAIG0b3.bin" in the Windows command prompt).

```
c:\users\zt01571\documents\esbu\nxc2500\Patch1C0\400AAIG1C0>ftp 192.168.1.1
Connected to 192.168.1.1.
220-=((<*>)=-.: (( Welcome to PureFTPd 1.0.11 )) ..-=((<*>)=
220-You are user number 1 of 50 allowed
220-Local time is now 00:04 and the load is 0.00. Server port: 21.
220-Only anonymous FTP is allowed here
220 You will be disconnected after 15 minutes of inactivity.
User (192.168.1.1:(none)):
230 Anonymous user logged in
ftp> bin
200 TYPE is now 8-bit binary
ftp> put 400AAIG1C0.bin
```

- Wait for the file transfer to complete.

```
200 PORT command successful
150 Connecting to port 61419
226-399.5 Mbytes free disk space
226-File successfully transferred
226 8.191 seconds (measured here), 11.08 Mbytes per second
ftp: 95152648 bytes sent in 8.195seconds 11620.99Kbytes/sec.
ftp>
```

- The console session displays "Firmware received" after the FTP file transfer is complete. Then you need to wait while the NXC2500 recovers the firmware (this may take up to 4 minutes).

```
Firmware received ...
Start to check file system...
/dev/mmcblk0p6: 42/30720 files (4.8% non-contiguous), 47789/122880 blocks
/dev/mmcblk0p7: 132/131072 files (2.3% non-contiguous), 17447/26kjournal starting. Commit interval 5 seconds
2144 blocks
Done
Updating ...
```

- The message here might be "ZLD-current received". Actually, it is equivalent to "Firmware received".

```
ZLD-current received ...
```

```
[Update Filesystem]
Updating Code
..
```

- The console session displays “done” when the firmware recovery is complete. Then the NXC2500 automatically restarts.

```
[Updating] /share/wtp_image/NWA5KCN50
[Updating] done.
[Updating] /share/wtp_image/wtpinfo
[Updating] done.
rmdir/mkdir /tmp/p6
mount -t ext3 /dev/mmcblk0p6 /tmp/p6
[Updating] /tmp/p6/compress.img
[Updating] done.
umount/rmdir /tmp/p6
[Updating] touch .fsextract_done is done
mount: mount point /etc/zyxel/ftp/wtp_image/real_wtp_image/ does not exist
Error: We can't mount real_wtp_image partition
md: stopping all md devices.
Restarting system.
```

- The username prompt displays after the NXC2500 starts up successfully. The firmware recovery process is now complete and the NXC2500 is ready to use.
- If one of the following cases occurs, you need to do the “firmware recovery process” again. Note that if the process is done several time but the problem remains, please collect all the console logs and send to Zyxel for further analysis.

Appendix - E. ATSH Information

Here is the information displayed by ATSH command in debug mode.

```
Router> psm
Router(psm)# atsh
Kernel Version      : V2.6.36 | 2017-07-10 01:55:06
ZLD Version         : V5.10(ABIN.0) | 2017-07-10 02:18:04
BootModule Version  : V1.10 | 2017-06-28 18:03:32
Vendor Name         : Zyxel Communications Corp.
Product Model       : NWA1123-AC-HD
System Type         : 10
First MAC Address   : 001349000001
Last MAC Address    : 001349000003
MAC Quantity        : 3
Default Country Code : FF
Boot Module Debug Flag : 01
Hardware Version    : Zyxel NWA1123-AC-HD BCM47452
Serial Number       : Z34131340 80-009-011001AA
Baud Rate           : 115200 bps
BM Checksum         : B8F2D932
ZLD Checksum        : 8FA8BB66
Core Checksum       : 0000BC86
Conf Checksum       : 8FF910A2
SNMP MIB level & OID : 060102030405060708091011121314151617181920
Main Feature Bit     : 00
Other Feature Bits   :
E1 44 00 00 00 00 00 00-00 00 88 00 00 00 00 00
03 00 00 00 00 00 00 00-00 00 00 00 00 00 00
MFG Flag            : 0
```

Appendix - F. Check list for the items may be related to HW functions

Items	Any change?	Comments
Modem code		
Wireless driver		
Dying gasp		
LED behavior		
Temperature sensor control		
Others		