WiNG 7.3.0.0-038R Release Notes

CONTENTS

OVERVIEW

WiNG 7.3.0 continues to build on unique WiNG7 software architecture that combines the scale, features and functions of ExtremeWireless and ExtremeWireless WiNG, offering flexible deployment option covering both campus mode and distributed mode. WING 7.3.0 is a minor release that extends feature support for new 11ax AP portfolio for ExtremeWireless OmniEdge product line as well as provides stability fixes for new APs.

1.   PLATFORMS SUPPORTED

Note:

APXXXX-LEAN-7.3.0.0-038R.img - built **without GUI component**. AP lean images are also bundled within controller full image.

NXXXXX-LEAN-7.3.0.0-038R.img – built **without AP images.**

WiNG 7.3.0 supports the following platforms with the corresponding firmware images:

Controller Platform	Firmware Image
NX 9500/ NX 9510	NX9500-7.3.0.0-038R.img, NX9500-LEAN-7.3.0.0-038R.img
NX 9600 / NX 9610	NX9600-7.3.0.0-038R.img, NX9600-LEAN-7.3.0.0-038R.img
NX 75XX	NX7500-7.3.0.0-038R.img, NX7500-LEAN-7.3.0.0-038R.img
NX 5500	NX5500-7.3.0.0-038R.img, NX5500-LEAN-7.3.0.0-038R.img

Virtual Platform	Firmware Image
VX 9000[1]–production iso/img image	VX9000-INSTALL-7.3.0.0-038R.iso, VX9000-7.3.0.0-038R.img, VX9000-LEAN-7.3.0.0-038R.img
VX 9000 – demo iso image	VX9000-DEMO-INSTALL-7.3.0.0-038R.iso[2]

[1]VX 9000 image has default 64 AP license.

[2]The VX demo image is a 60-day trial image of the VX 9000 software VM that can be used for demos and in the lab environments. This image does not need any additional licenses; it comes with 16 AAP licenses built-in. There is no migration from the demo image to the production image.

AP Platforms	Firmware Image
AP410/460	AP4xx-7.3.0.0-038R.img AP4xx-LEAN-7.3.0.0-038R.img (included in all Controller images)
AP505/510/560	AP5xx-7.3.0.0-038R.img AP5xx-LEAN-7.3.0.0-038R.img (included in all Controller images)

AP Platforms	Firmware Image
AP 7522	AP7522-7.3.0.0-038R.img AP7522-LEAN-7.3.0.0-038R.img (included in all NX controller images)
AP 7532	AP7532-7.3.0.0-038R.img AP7532-LEAN-7.3.0.0-038R.img (included in all NX controller images)
AP 7562	AP7562-7.3.0.0-038R.img AP7562-LEAN-7.3.0.0-038R.img (included in all NX controller images)
AP 8533	AP8533-7.3.0.0-038R.img AP8533-LEAN-7.3.0.0-038R.img (included in all NX controller images)
AP 8432	AP8432-7.3.0.0-038R.img AP8432-LEAN-7.3.0.0-038R.img (included in all NX controller images)
AP 7612	AP7612-7.3.0.0-038R.img AP7612-LEAN-7.3.0.0-038R.img (included in all NX controller images)
AP 7632	AP7632-7.3.0.0-038R.img AP7632-LEAN-7.3.0.0-038R.img (included in all NX controller images)
AP 7662	AP7662-7.3.0.0-038R.img AP7662-LEAN-7.3.0.0-038R.img (included in all NX controller images)

2.   NEW FEATURES IN WING 7.3.0

New platforms

AP 410/460 Introduction

AP410i/e (Indoor) and AP460i/e (Outdoor) AP are a new Enterprise WiFI 6 (802.11ax) AP with dual band 2.4/5GHz support plus a third radio which can be configured as a dedicated dual band sensor.

The following SKU models are supported:

- -FCC for FCC domain
- -WR for rest of the world outside the North America, excluding Canada and Israel.
- -CAN for Canada only
- -IL for Israel only

New features

Auto-Select Sensor for Tri-Radio AP400 series

The Auto-Select Sensor support has been added to tri-radio AP400 series with the third radio which can be automatically enabled or disabled as a dedicated sensor.

Spectrum Analysis Support on AP500 and AP400

ADSP Spectrum Analysis support has been added for AP500/AP400 series APs.

ADSP Enhancement on 802.11ax Sensor Support

The 802.11ax sensor feature has been enhanced with the following support:

- WPA3 anti-clogging id support
- Added ability to dump raw packets from sensor for debug purposes
- 11ax live-view enhancement – added new frames & filters for live-view captured by sensor

Extreme Location Enhancement

The enhancement of the Extreme Location Support includes the following:

- Using linear exponential average of all RSSI data received in the RSSI interval frame.
- Add the support of BLE asset tracking for AP500/AP400 series APs.
- Add the support of BLE asset tracking for legacy APs.

AP560i-WR Maximum Transmit Power Reduction for Outdoor Channel

For AP560i-WR model, the maximum allowed transmit power is reduced due to the EU Radio 1 Body SAR test result. The amount of the power reduction varies from 1 to 3db across channels.

Added option to support non-blinking LED mode for radio active state on AP500 and AP400 series

An option is added to allow the LED to be SOLID instead of BLINKING for AP500 and AP400 series.

Regulatory update:

AP560i-WR maximum allowed transmitted will be reduced up to 3dB.

AP410i-IL and AP460i-IL will be support in this release – Pending regulatory certification

3. GENERAL INFORMATION FOR FIRMWARE UPGRADE / DOWNGRADE

3.1 Device Upgrade/Downgrade matrix

This section documents allowed upgrade/ downgrade combinations. Please ensure that the WiNG controller and AP are on the same WiNG version after the upgrade is complete in the controller deployment.

Adaptive with the RFS controller	Upgrade from	Downgrade to	Notes
AP 7532/AP 7522	v5.5.3.1 onwards, excluding v5.6.x	v5.5.3.1 onwards, excluding v5.6.x	AP image is contained within the NX controller image
AP 7612/7632/7662	v5.9.1	v5.9.1	AP image is contained within the NX controller image.
AP 8533/ AP 8432	v5.8.4 onwards	v5.8.4 onwards	AP image is contained within the NX controller image.
AP 505/510i	v7.1 onwards	v7.1	AP 5xx image is contained within the controller image
AP 510e	v7.1.1 onwards	V7.1.1	AP 5xx image is contained within the controller image
AP 560i-FCC	v7.1.1 onwards	v7.1.1	AP 5xx image is contained within the controller image
AP 560h-FCC	v7.1.2 onwards	V7.1.2	AP 5xx image is contained within the controller image
AP 410/460i	v7.3.0 onwards	v7.3.0	AP 4xx image is contained within the controller image
AP 410/460e	v7.3.0 onwards	v7.3.0	AP 4xx image is contained within the controller image
NX 5500	v5.8 onwards	v5.8 onwards	NX 5500 is supported starting with v5.8
NX 75XX	v5.5.2 onwards	v5.5.2 onwards	Note: WiNG 5.6 doesn't support NX 7500.
NX 9500	v5.2.1 onwards	v5.2.1 onwards	
NX 9510	v5.4.1 onwards	v5.4.1 onwards	
NX 96XX	v5.5.6 onwards	v5.5.6 onwards	NX 96XX is not supported with v5.6.x and v5.7.x
VX 9000	v5.6 onwards	v5.6 onwards	

3.2 Software compatibility matrix with Extreme Products

WiNG	Extreme	ADSP	ExtremeGuest	ExtremeNSight	

	CloudAppliance				ExtremeLocation
WiNG 7.1	4.36.01	n/a	ExtremeGuest 5.9.3.1	n/a	n/a
WiNG 7.1.1	4.36.02	10.1.0-13a	ExtremeGuest 5.9.3.1	n/a	n/a
WiNG 7.1.2	4.36.03	10.1.0-13a	ExtremeGuest 5.9.3.1	n/a	2.1
WiNG 7.2.0	4.56.01	10.2.x	ExtremeGuest 5.9.3.1	n/a	2.1
WiNG 7.2.1	4.56.02	10.2.x	ExtremeGuest 5.9.3.1/6.0	n/a	3.1
WiNG 7.3.0	4.76.01	10.2.x	ExtremeGuest 5.9.3.1/6.0	n/a	3.1

3.3 General Important Notes on Upgrade / Downgrade

IMPORTANT:

- **AP505i/510 that have rev AA on the label – need to be upgraded to release firmware prior to operation. Please refer to instructions posted on** https://extr.co/2Tyivv3.

- WiNG controller must be running a WiNG 7 controller code to be able to recognize, adopt and upgrade 11ax APs.
- Always create config back-up before the upgrade.
- Firmware upgrades can take several minutes; aborting an update by removing power may damage the AP or controller.   Please allow time for devices to complete the upgrade. Where APs are powered through PoE connections to WLAN controllers, the controller needs to stay up during the upgrade process.
- Both the WiNG controller and WiNG AP should be upgraded to the same versions – a firmware mismatch can cause network disruptions and should be avoided. When upgrading, the controllers should be upgraded first and then the APs. When downgrading, the APs should be downgraded first, and then the controller.

3.4 Device Upgrade/Downgrade Procedure

1. Copy firmware image for device that needs to be upgraded to you ftp/tftp server. Refer to section 2 for correct firmware image for your device.

2. Use the —**upgrade ftp://<username>:<password>@<ip address of server>/<name of file>**, or —**upgrade tftp://<ip address of server>/<name of file>** command from CLI or **Switch->Firmware->Update Firmware** option from the GUI. You may need to specify the username and password for your ftp server.

3. Restart the device. From CLI the command is —**reload**.

3.5 AutoInstall

AutoInstall in WiNG 5 works via the DHCP server. This requires the definition of Vendor Class and three sub-options that can be either sent separately or under option 43:
Option 186 - defines the tftp/ftp server and ftp username, password information (IP address and
protocol need to enter as a string: —ftp://admin:admin123@192.168.1.10)
Option 187 - defines the firmware path and file name
Option 188 - defines the config path and file name

Autoinstall of firmware and autoinstall of configuration can be enabled or disabled. Ensure to enable "ip dhcp client request options all" on the VLAN interface which is being used to perform the above autoinstall.
DHCP vendor class for platforms is noted below:

Appliances:
- WingNX.NX5500
- WingNX.NX7500
- WingNX.VX
- WingNX.NX9000

AP:
- WingAP.AP410
- WingAP.AP460
- WingAP.AP505
- WingAP.AP510
- WingAP.AP560
- WingAP.AP7522
- WingAP.AP7612
- WingAP.AP8533
- WingAP.AP7532
- WingAP.AP7632
- WingAP.AP8432
- WingAP.AP7562
- WingAP.AP7662

4.   FIRMWARE UPGRADE / DOWNGRADE – CONTROLLERS

4.1 Platform Important notes

1. VX 9000:
   a. Secondary storage: VX 9000 has disk size limitation on the default disk of 2TB. However, when a secondary virtual disk is used, VX 9000 can support disks size larger than 2TB

   - Enabling secondary storage does not copy data files to the new location
   - It is recommended immediately after provisioning the guest instance, before enabling NSight or Captive-Portal
   - If the secondary storage needs to be enabled after NSight/Captive-portal, it is recommended to back up the database, and restore the database after secondary storage is enabled.

- If the VX 9000 instance is not a primary (replica-set member), the database server will perform full data sync after it is restarted with the new secondary storage disk.

2. When upgrading from prior versions – new profiles for newly supported platforms will not be present in the startup-config. The user can either create a default profile or do "erase startup-config".

4.2 Device Upgrade Options

WiNG 7.x supports device firmware upgrade from the controller. For firmware upgrade through the controller, firmware image needs to be loaded onto a controller and the same can be used for the upgrade of all the corresponding devices.
Available firmware on the controller can be checked using the below command:
>*nx9600#show device-upgrade versions*
If device firmware is not part of controller image, a new image can be uploaded using the following command:
>*nx9600#device-upgrade load-image*
Once device firmware is loaded on the controller, below are the different options that are available for device firmware upgrade:

- **Manual Upgrade**

Firmware upgrade can be initiated on a single or a list of Aps using the below command.
>*nx9600#device-upgrade ap505 ?*
> *no-reboot   No reboot (manually reboot after the upgrade)*
> *reboot-time   Schedule a reboot time*
> *upgrade-time Schedule an upgrade time*

>*nx9600#device-upgrade ap510 all ?*
> *force   Force upgrade on all devices*
> *no-reboot   No reboot (manually reboot after the upgrade)*
> *reboot-time   Schedule a reboot time*
> *staggered-reboot Reboot one at a time without network being hit*
> *upgrade-time   Schedule an upgrade time*

- **Scheduling Firmware upgrade**

Firmware upgrade can be scheduled on a controller, that is upgrade time and reboot time can be configured. Firmware upgrade on the Aps follows the configured upgrade time.
>*nx9600# device-upgrade all ?*
> *no-reboot   No reboot (manually reboot after the upgrade)*
> *reboot-time   Schedule a reboot time*
> *staggered-reboot Reboot one at a time without network being hit*
> *upgrade-time Schedule an upgrade time*

- **Upgrade through RF Domain manager**

Manual Firmware upgrade can be initiated through a domain manager
>*nx9600#device-upgrade rf-domain ?*
> *DOMAIN-NAME RF-Domain name*
> *all   Upgrade all RF Domains*
> *containing   Specify domains that contain a sub-string in the domain name*
> *filter   Specify additional selection filter*

4.3 Auto Upgrade

Auto firmware upgrade can be enabled on the controller using the below command. When enabled, any AP with a firmware version different than the controller will be upgraded to the controller's version on adoption.

nx9600 (config-device-XXX)# device-upgrade auto

The number of concurrent firmware upgrades can be configured using the below command based on the bandwidth available between the controller and the Aps.

nx9600(config-device-XXX)# device-upgrade count ?

<1-20> Number of concurrent AP upgrades

Note: Auto upgrade on the APs always happens through the controller.

5. FIRMWARE UPGRADE/DOWNGRADE – INDEPENDENT APS

5.1 Standalone AP Upgrade / Downgrade

1. Copy firmware image for device that needs to be upgraded to you ftp/tftp server. Refer to section 2 for correct firmware image for your device.
2. Use the ─**upgrade ftp://<username>:<password>@<ip address of server>/<name of file>**, or ─**upgrade tftp://<ip address of server>/<name of file>** command from CLI or **Switch->Firmware->Update Firmware** option from the GUI. You may need to specify the username and password for your ftp server.
3. Restart the device. From CLI the command is ─reload.

5.2 Virtual Controller upgrade

1. If there are no adopters/controllers in the network and several APs are required to be upgraded, use WiNG Virtual Controller (VC) mode to perform bulk AP upgrades.
2. Use WiNG configuration wizard to configure Virtual Controller (VC) on the AP.
3. When done with the WiNG configuration wizard, upgrade the VC to the latest image by using following command:
   ap510-1349AC#upgrade tftp://<hostname|IP>path/file
4. After upgrade is done, reboot the AP to load the latest code.
   ap510-1349AC#reload
5. Load the AP image file on to the VC by using following command:
   ap510-1349AC#device-upgrade load-image ap510 tftp://<hostname|IP>/path/file
6. Add rest of the APs to the network, the Virtual Controller (VC) will listen to the MLCP request from new APs, adopt and upgrade all the APs automatically.

5.3 Upgrading APs through WiNG controller or ExtremeCloud Appliance

1. APs with default unknown operation mode will find appropriate controllers based on the network provided discovery mechanism i.e. DHCP or DNS.
   - Standard DHCP option 191

- Standard DHCP option 192

- Vendor Class Identifier DHCP option 191

- DNS response for 'wing-wlc*'

2. If the AP is being adopted by the ExtremeCloud Appliance, upon adoption ExtremeCloud Appliance will automatically upgrade the AP image.

3. If the AP is adopted by a WiNG 7 controller, the controller will perform an upgrade based on how it's configured for upgrades i.e. auto upgrade upon adoption or on demand upgrade – refer to section 4.2 in this document.

6. IMPORTANT NOTES

New in v7.3.0

- Following features are now supported in WiNG 7.3.0:
  Distributed and Campus mode:
  - ADSP support:
    - Spectrum Analysis.
    - AP Test
  - SU/MU-11ac Beamforming is supported on AP505/510/560/410/460
  - STBC/SU MU_MIMO is supported in HE field on AP505/510/560/410/460
  - OFDMA needs to be disabled for AP500 and AP400.
  - Solid LED enable/disable command

    CLI command will look as below.

    [no] led change-blinking-to-solid-on

    Default value: "Disabled"

New in v7.2.1

- Following features are now supported in WiNG 7.2.1:
  - Imagotag support for AP 5xx.
  - Euclid, 3rd party RTLS support.
- Apple client support:
  - Apple client will not stay associated to WLAN with Fast BSS and FT-over DS reason code:17. Please disable PMF and Multiband operation to work around this issue.
  - Any Apple mobile client with iOS Version less than 12.1.1, won't connect to a WPA2/WPA3 transition mode WLAN.
    Official support for WPA3 is set for iOS version 13.
- Agile Multiband Operation
  - PMF-optional, 802.11v, 802.11u, 802.11k turned on by default now.
  - Default Value: "Enabled"

- Smart Sensor important notes:
    - BLE sensor and smart-sensor feature currently can't be enabled simultaneously
    - 3rd radio on AP 8533 must be disabled in the config.
    - When smart-sensor feature is enabled in the config – trigger command needs to be issued on the domain to start sensor assignment.
    - When using smart-sensor feature – please use AP 8533 profile – not anyap profile.
    - BLE sensor and smart-sensor currently can't be enabled together.
    - Smart-sensor feature currently can't be triggered in controller-managed rf-domains.
- New 11ax config:
    - OFDMA enable/disable command:
        CLI Command will look as below under Radio context:
        [no] 11axOFDMA(dl | ul | both)

        Default value: "Disabled"

    - BSS Coloring:
        [no] 11axBSS-color (1-63)
        Default Value: "Disabled"
        Note: This functionality is currently not fully supported.
    - TWT enable/disable command:
        [no] 11axTWT
        Default value: "Disabled"
        Note: This functionality is currently not fully supported.
    - Guard Interval:
        We already have a CLI command to set GI on legacy AP with options GI-Any or GI-Long
        3 new options added in WING-7.2.0 release as "base | double | quadruple"
- 11ax added functionality:
    - Custom rates are now supported.
    - 160Mhz channels are now supported on 5Ghz.
    - Existing ldpc has been turned on by default now.
    - Sniffer re-direct support for 11ax
        - OFDMA, MU-MIMO not supported yet.

New in v7.2.0

- Following features are now supported in WiNG 7.2.0:
    Distributed and Campus mode:
    - ExtremeLocation support:
        - Following features are supported:
            - Zone tracking (requires 6 sec feed interval)
            - Position tracking (requires 1 sec feed interval)
    - ADSP support on AP 5xx:
        - 802.11ax LiveView.
        - Radio share support
    - AP 5xx: SmartRF Support for Dual 5GHz split radio mode.

Distributed mode:
a. AeroScout RTLS is now supported on AP 5xx.
b. ExtremeAnalytics (Purview):
- Support for TCP RTT.
- Support for custom applications rules.
c. WPA3 support:
- When the WPA3 is configured, no inferior encryption shall exist on the same AP as WPA3. This is enforced by WiFi Alliance as the mandatory requirement for WPA3.
- New CLI command to configure WPA3 authentication type:

ap505-1344D4(config-wlan-temp)#authentication-type ?

    sae   WPAv3-Personal (SAE Authentication)

    sae-psk   WPAv3-Compatibility (SAE or WPAv2 PSK authentication)

d. AP 5xx Sniffer-redirect is now (Note: 802.11ax protocol support will be added in later release).

Campus mode:
a. RTLS – AiristaFlow (EKAHAU), AeroScout, Centrak, Euclid.
b. OCS support when SMART-RF is not enabled for ADSP sensor and ExremeLocation sensor support.
c. DFS Fallback Channels on 5Ghz Radio in Campus mode - Adding the Client Load Balance on AP505/AP510/AP560. This feature allows the APs in the same load balance group to communicate with each other to balance the number of clients associated with each APs inside the same group. Requires XCA 4.56.01 release.
d. Client Load Balance on AP505/510 In Campus mode - Adding the support of a predefined channel on the 5GHz band on AP505/AP510/AP560 which allows the AP to switch to this predefined channel in case there is a Rader signal detected by DFS algorithm on the operational channel. Note: feature already exists in Distributed mode. Requires XCA 4.56.01 release.
e. AP "Name" in the Beacon in Campus mode – Ability to add AP hostname to the beacon. Requires XCA 4.56.01 release.

- WiNG 7.2 added ability to enable/disable 11ax functionality on the AP 5505/AP510/AP560:
ap510-137D1E(config-device-94-9B-2C-13-7D-1E-if-radio2)#?
Radio Mode commands:
  11axSupport Configure support for 802.11ax mode

ap510-137D1E(config-device-94-9B-2C-13-7D-1E-if-radio2)#no 11axSupport
ap510-137D1E(config-device-94-9B-2C-13-7D-1E-if-radio2)#11axSupport

The default value is "11axSupport" which enables the 11ax mode on the radio.

- AP 5xx 11ax radio functionality limitations:
    a. 11ax enabled WLAN must be on the 1st BSS
    b. 40Mhz channels are not supported on 2.4 Ghz radio.
    c. Customer rates are not supported – please use default rates only.
    d. Channel width of 160Mhz is not supported.

- AP 5xx now supports 512 clients per radio.

- When adopting any AP running firmware prior to WING 7.2, wireless clients fail to associate to APs running prior version with reason code "max-clients on wlan associated". WLANs mapped to those APs will need to use the workaround of setting "wireless-client count-per-radio 256".

- There is a configuration error issue when adopting APs that don't support RRM-TPC report with firmware prior to 7.3.0.0 and 5.9.6. Workaround: Disable RRM-TPC in WLAN when it is adopting AP5xx with firmware prior to 7.3.0.0 or other APs running 5.9.5 or earlier that don't support RRM-TPC.

New in v7.1.2

1. Following features are now supported in WiNG 7.1.2:
    Distributed and Campus mode:
    o ExtremeLocation support (limited):
        - Following features are supported:
            - Presence
        - Following is not yet fully supported in this release:
            - Zone tracking (requires 6 sec feed interval)
            - Position tracking (requires 1 sec feed interval)
    o IoT support:
        - iBeacon
        - Eddystone
        - iBeacon Scan
        - Eddystone-url Scan

    Distributed mode:
    a. LACP support for AP 5xx.
    b. USP port support on AP 5xx.
    c. Strict 11ac association for AP5xx.

    Campus mode:
    d. Smart-RF (requires ExtremeCloudAppliance 4.36.03 release). Note: select-shutdown feature is not supported in this release.
    e.
2. AP560h antenna options – there are two options for AP560h internal antenna:

```
ap560(config-device)#antenna-id internal ?
  internal-560h-30  Internal 560h eight feed 30 degree sector antenna    (Default option)
  internal-560h-70  Internal 560h eight feed 70 degree sector antenna
```

3. ExtremeAnalytics (Purview) important notes:
    a. Application policy for ExtremeAnalytics DPI engine can be configured from WING controllers for ExtremeAnalytics DPI engine supporting APs. WING controllers however don't support ExtremeAnalytics DPI engine in current release. Support for same will be enabled on WING controllers in a future release.
    b. Application and application category names are different in legacy application policy and Purview application policy rules.
    c. RTP and TCP-RTT metadata configuration and extraction is not supported in current release for Purview DPI engine supporting APs.
    d. Application groups for ExtremeAnalytics DPI engine applications will not work with NSight release 5.9.3.
    e. Custom application configuration no longer supports multiple url-lists for hostnames, common names and server names and port-proto rules. If custom application configuration exists with multiple such rules, make sure to split it up into multiple custom application configuration each containing only one rule for url-list, common name, server name and port-proto rule as applicable.
    f. WiNG 7.1.2 doesn't have UI support for configuring Purview (ExtremeAnalytics) policy – configuration only available in CLI.

New in v7.1.1

1. WiNG 7.1 controllers can adopt WiNG 5.9.4 and WiNG 5.9.4.1 APs in this release. WiNG 5.9.4 APs should be in separate rf-domain from WiNG 7.1 APs.
2. Following features are now supported in WiNG 7.1.1:
    Distributed mode:
    a. REST API
    b. ADSP sensor – dedicated mode only (refer to matrix below for features supported).
    c. Smart-rf Select-shutdown
    d. Dynamic VC (note: heterogenous AP deployment is not supported yet).
    e. IPsec and L2TPv3 tunneling

    f. Layer 3 assisted mobility

    g. NAT

    h. Bonjour support

    i. WiNG extensions (including scan assist)

    j. USB port

    Campus mode:

    a. ADSP sensor
    b. Energy Efficient ethernet

3. AP 510e - configuring "antenna-id" command in device/profile of the AP is needed to radio to operate.
   "antenna-id group-1 antenna_name"– use for 2.4/5GHz dual band antenna types.
   "antenna-id group-2 antenna_name" - use for 5GHz single band antenna types.

4. For AP 510e when using high gain directional antennas in 4x4 mode – lower channels are not supported, and radio will not be enabled. Please reference antenna guide for correct channel, power and antenna settings.

New in v7.1

1. WiNG 7.1 will only support AP 505/510 in this release. 11AC ExtremeWireless WiNG APs will be added in later release.
2. Following features are not supported on AP505/510 in this release:
   Distributed mode:
   - NSight

   - ADSP sensor

   - Location sensor (all modes)

   - MCX and MCX related features

   - REST API

   - Layer 3 assisted mobility

   - Smart-RF:

     - Select-shutdown

     - Dual 5Ghz radio support

   - Client Bridge

   - IoT/BLE

   - AVC and Application Policy

   - Dynamic VC and Heterogenous AP deployment has not been tested

   - NAT

   - Bonjour support

   - WiNG extensions (including scan assist)

   - IPsec and L2TPv3 tunneling

- LACP

- Receive Sensitivity

- PPPoE

- 802.11k

- RTLS (Aeroscout, Centrak, and Ekahau)

- USB port is not supported yet

- Sniffer redirect

Campus mode:
- 802.11r (Fast Transition)

- Smart-RF

- Client Load Balance/Band Steering

- Airtime Fairness

- Admission Control

- IoT/BLE/Thread

- ADSP sensor

- ExtremeLocation sensor
- Positioning
- RTLS (Aeroscout, Centrak, and Ekahau
- Probe Suppression on Low RSS
- USB port not supported

3. Smart-rf for dual 5Ghz radio on AP510 is not supported currently – please assign channel and power statically.
4. WiNG 7.1 controllers can adopt WiNG 5.9.3 APs only in this release. WiNG 5.9.3 APs should be in separate rf-domain from WiNG 7.1 APs.
5. Default BLE beacon tx power must be changed to value permitted for 7632/62 platform to permit adoption – i.e. beacon tx power 10.
6. AP 505/510 - default password in all modes is admin123 for all operational modes.
7. Setting of custom rates is not supported in this release – please use default rates.

Deriving secondary IP

APs have a shadow or secondary IP for gaining access to the AP if the IP address of the AP is not known but the MAC address is known. To derive the shadow IP address of an AP, use the last two hex bytes of the AP's MAC address to determine the last two octets of the IP address.
- AP MAC address - 00:C0:23:00:F0:0A

- AP IP address equivalent – 169.254.240.10

To derive the AP's IP address using its factory assigned MAC address
- Open the Windows calculator by selecting Start>All Programs>Accessories>Calculator. This menu path may vary slightly depending on your version of Windows.
- With the Calculator displayed, select View>Scientific. Select the Hex radio button.
- Enter a hex byte of the AP's MAC address. For example, F0.
- Select the Dec radio button. The calculator converts the F0 to 240. Repeat this process for the last AP MAC address octet.

7. DFS TABLES, SENSOR AND RADIO SHARE

1. Following is the DFS support in WiNG 7.3.0 for the supported radio platforms:

Product	Master DFS FCC	Master DFS IC	Master DFS ETSI	Master DFS Japan	Client DFS FCC	Client DFS IC	Client DFS ETSI	Client DFS Japan
AP 410i	Disabled	Disabled	Enabled	Disabled	Disabled	Disabled	Disabled	Disabled
AP 410e	Disabled	Disabled	Enabled	Disabled	Disabled	Disabled	Disabled	Disabled
AP 460i	Disabled	Disabled	**Enabled**	Disabled	Disabled	n/a	n/a	n/a
AP 460e	Disabled	Disabled	**Enabled**	Disabled	Disabled	n/a	n/a	n/a

Note: For AP 410/460i and AP410/460e FCC/IL/CAN SKU – DFS channels are closed for all countries supported on these SKUs.

2. Following is the DFS support in WiNG 7.2.1 for the supported radio platforms:

Product	Master DFS FCC	Master DFS IC	Master DFS ETSI	Master DFS Japan	Client DFS FCC	Client DFS IC	Client DFS ETSI	Client DFS Japan
AP 505	Enabled	Enabled	Enabled	Enabled	Disabled	Disabled	Disabled	Disabled
AP 510i	Enabled	Enabled	Enabled	Enabled	Disabled	Disabled	Disabled	Disabled
AP 510e	**Enabled**	**Enabled**	Enabled	Enabled	Disabled	Disabled	Disabled	Disabled
AP 560i	Enabled	**Enabled**	**Enabled**	Enabled	Disabled	n/a	n/a	n/a
AP 560h	Enabled	**Enabled**	**Enabled**	Enabled	Disabled	n/a	n/a	n/a

2. Air Defense sensor capabilities supported on the 802.11ax APs in this release.

As a dedicated sensor	WIPS & Advanced Forensics	Spectrum Analysis	Advanced Spectrum Analysis	Live View	AP Test	Connection Troubleshooting	WVA	Alarms	Termination
AP 505/510/ 560	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

3. Radio Share functionality (allows for enabling the Network Assurance toolkit in ADSP, without dedicating a radio as a sensor) is NOT available on the 802.11ax APs in this release:

As radioshare sensor	WIPS & Advanced Forensics	Spectrum Analysis	Advanced Spectrum Analysis	Live View	AP Test	Connection Troubleshooting	WVA	Alarms	Termination
AP 505/510/ 560	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

8.   VULNERABILITY UPDATES

In case a patch has been applied to address vulnerability even though vulnerability was addressed – some security scans only check the version number of the component as opposed to testing the actual vulnerability – and therefore might still report issue being present.

WiNG 7.3.0

CVE-2019-16275: hostapd before 2.10 Allow an incorrect indication of disconnection in certain situations because source address validation is mishandled.

CVE-2019-13012 GNOME GLib (aka glib2.0).

WiNG 7.2.1

CVE-2018-2048: Wget vulnerability in version 1.16

CVE-2019-13377: Timing-based side-channel attack against WPA3's Dragonfly handshake when using Brainpool curves

WiNG 7.2.0

Linux Kernel 4.1.51 Patch Update for Vulnerability: TCP SACK panic, CVE-2019-11477.

WPA supplicant updated to v2.8 to mitigate following WPA3 vulnerabilities: CVE-2019-9494, CVE-2019-9495, CVE-2019-9496, CVE-2019-9497, CVE-2019-9498, CVE-2019-9499.

WiNG 7.1.2

Both Campus and Distributed mode are using same openSSL version 1.0.2q

WiNG 7.1/7.1.1

No updates in this release

9. ISSUES FIXED

Following issues have been fixed in WiNG 7.3.0 release:

CR/ESR	Description
WING-39661	SPR-3690 AP7662 running v5.9.6 rim crash is seen
WING-39557	SPR-3680 Kernel panic due to mesh and tx deadlocks on multiple CPUs
WING-42015	SPR-3688 Crash PC is at 0x0N LR is at process_tx_info+0x158/0x9c0 [qca_ol]
WING-39186	CVE-2019-13012
WING-39623	SPR-3685 RIM crash due to negative wlan index
WING-39529	SPR-3679 AP8432 generates thinap2 core when debug is enabled
WING-38523	SPR-3621: Panic file "PC is at hs_tx_dns_rsp" seen on AP when processing DNS response
WING-39042	SPR-3648: HSD process core seen when sending DNS response to CP client
WING-39265	SPR-3663: Access point generated duplicate SNMPv3 EngineID
WING-39283	SPR-3664: Client-detail event needs to be turned off/disabled by default for WiNG deployments
WING-39287	SOMWSW-218 API to fetch/publish AP information
WING-39253	SPR-3662: Onboard WIPS Rogue/Unsanctioned Events UI displays SSID, Syslog does not display SSID
WING-39336	SPR-3667: WiNG device improperly routes UDP packet with source port 54345 across subnets
WING-39337	SPR-3666: BSSID missing from 'show wireless radio detail' output
WING-39373	SPR-3671: Cfgd crashes with overflowError when corrupt packet received from APs during adoption.
WING-39374	SPR-3672: Cfgd crashes with KeyError when corrupt packet is received from AP during adoption.
WING-39466	SPR-3676: MCX: "show wireless meshpoint on rf-domain" shows root host name <unknown>
WING-39370	SPR-3668: Softlockup happened when the CPU was otherwise idle
WING-39431	SPR-3673: HSD core crashes on APs with high quantity of clients connected
WING-39481	SPR-3677 Panic due to interim account timeout has become zero and MU roaming happened at same time
WING-39494	SPR-3675 WLAN data-rate override for 2.4GHz is throwing error on 5GHz radio
WING-39560	Fixed the Ticket Master client connectivity issue in Campus mode
WING-39591	Fix the Vocera Badge connectivity issue when the FT is enabled on Campus mode

10. KNOWN ISSUES

Following issues are known issues in WiNG 7.3.0:

CQ/ SPR	Headline	Comments
WING 42300	Legacy WiNG APs don't update new channel width when changed in Smart RF.	
WING 42344	Aggregation frequently does not work. As a result, AP will transmit more MSDU/MPDU frames than AMSDU/AMPDU frames	
WING-42200	For AP410, after few minutes 11ax clients iPerf UDP traffic may stop in both direction with 11axOFDMA UL enabled.	WING-42202 , WING-39512, WING-42157 has the same root cause. Workaround to all these issue to disable OFDMA
WING-42334	GE1 LED on AP410/460 will not display the purple color (2.5GB) or Green color (1GB).	Ignore the GE1 LED Color for the link speed.
WING-42250	AP400/500 series may not obtain AT power from Cisco Catalyst Switch via LLDP and the AP will run in reduced power mode.	On the Cisco Switch, configure the port to be "power inline static max 25500" or on the AP use the CLI command ""service power-config force-at" in order to force the AP running in full power mode.
WING-42341	After the AP400/500 series AP is adopted by the ExtremeCloud Appliance, the BLE radio information may not be shown using the CLI command	

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For information regarding the latest software available, recent release note revisions, or if you require additional assistance, please visit the Extreme Networks Support website.