

WiNG 7.1.2.0-015R Release Notes

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OVERVIEW

WiNG 7.1.2 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 7.1.2 is a maintenance 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-7.1.2.0-015R.img - built **without GUI component**. AP lean images are also bundled within controller full image.

NXXXXX-LEAN-7.1.2.0-015R.img – built **without AP images**.

WiNG 7.1.2 supports the following platforms with the corresponding firmware images:

Controller Platform	Firmware Image
NX 9500/ NX 9510	NX9500-7.1.1.0-015R.img, NX9500-LEAN-7.1.1.0-015R.img
NX 9600 / NX 9610	NX9600-7.1.1.0-015R.img, NX9600-LEAN-7.1.1.0-015R.img
NX 75XX	NX7500-7.1.1.0-015R.img, NX7500-LEAN-7.1.1.0-015R.img
NX 5500	NX5500-7.1.1.0-015R.img, NX5500-LEAN-7.1.1.0-015R.img

Virtual Platform	Firmware Image
VX 9000 ¹ —production iso/img image	VX9000-INSTALL-7.1.1.0-015R.iso, VX9000-7.1.1.0-015R.img, VX9000-LEAN-7.1.1.0-015R.img
VX 9000 – demo iso image	VX9000-DEMO-INSTALL-7.1.1.0-015R.iso ²

¹VX 9000 image has default 64 AP license.

²The 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
AP505/510/ 560i-FCC/560h-FCC	AP5xx-7.1.1.0-015R.img AP5xx-LEAN-7.1.1.0-015R.img (included in all Controller images)

2. NEW FEATURES IN WING 7.1.2

New Platform

AP560h

The ExtremeMobility AP560h is a purpose-built 802.11ax (WiFi 6) Outdoor Access Point 802.11ax High-Capacity Indoor/Outdoor AP with software selectable antennas for 30deg and 70deg beam widths, flexible installation options and IP67 protection from environmental elements. Incorporating software programmable dual radio, 4x4 802.11ax which is the 6th generation of 802.11 technology, dual GbE or Multi-Rate Gig ports, and integrated Bluetooth radio. Release is for North America - FCC only Domain.

AP560h-FCC	Cloud-ready, Dual 5GHz, Dual band, Sensor radio, Dual Radio 802.11ax/ac/abgn, 4x4:4 MIMO Outdoor 11ax access point. Internal 30deg/70deg Panel Antenna Domain: US
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New features

ExtremeAnalytics Integration - Application Visibility & Policy(Purview policy)

The new 11ax APs – AP505/510/560 – will support Application Analytics and insights using ExtremeAnalytics platform. ExtremeAnalytics leverages deep packet inspection (DPI) technology (embedded in the AP) to detect internally hosted applications (SAP, SOA traffic, Exchange, SQL, etc.), public cloud applications (Google, Blackboard, Email, YouTube, P2P, file sharing, etc.), and social media applications (Facebook, Twitter, etc.), providing deeper analytics and enabling improved quality user experience via flexible policy settings.

ESL SoluM support for AP 505/510

SoluM ESL (Electronic Shelf Label) uses small battery powered tags to display pricing, product information that can be modified on-demand through a Gateway device – running on a USB dongle. WiNG 7.1.2 adds support for SoluM USB dongle Gateway integration with AP 5xx.

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 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
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 CloudAppliance	ADSP	ExtremeGuest	ExtremeNSight	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

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.AP505
- WingAP.AP560
- WingAP.AP510

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 your 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 v7.1.2

1. Following features are now supported in WiNG 7.1.2:

Distributed and Campus mode:

- 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)
- 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:

- a. Smart-RF (requires ExtremeCloudAppliance 4.36.03 release). Note: select-shutdown feature is not supported in this release.
- b. OCS support when SMART-RF is not enabled for ADSP sensor and ExtremeLocation sensor support.

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-protocol 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-protocol 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: heterogeneous 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.

8. DFS TABLES, SENSOR AND RADIO SHARE

1. Following is the DFS support in WiNG 7.1.2 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	Disabled	Enabled	Enabled	Enabled	Disabled	Disabled	Disabled	Disabled
AP 510	Disabled	Disabled	Enabled	Disabled	Disabled	Disabled	Disabled	Disabled
AP 560i-FCC	Disabled	n/a	n/a	n/a	Disabled	n/a	n/a	n/a
AP 560h FCC	Disabled	n/a	n/a	n/a	Disabled	n/a	n/a	n/a

Note: For AP 5xx FCC SKU – DFS channels are closed for all countries supported on that SKU.

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	No	No	Yes	No	No	No	Yes	No

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	No	No	No	No	No	No	No	No	No

9. 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 7.1.2

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

WiNG 7.1/7.1.1

No updates in this release

10. ISSUES FIXED

Following issues have been fixed in WiNG 7.1.2 release:

SPR/CR	Description
SPR-3627	Output of show global domain manager has a delay when the site is down and unable to locate rf-domain manager
WING-38282	Loyalty App detection with AVC cannot be used in ExtremeGuest.
WING-38304	Repeated radar detection when smart-rf channel list only includes DFS channels – can put AP in the state where it's not able to serve clients
WING-38615	Show version on the main WEB GUI page
WING-38765	AP510E/560H Antenna-ID configuration menu to be added in Initial Setup Wizard

11. KNOWN ISSUES

Following issues are known issues in WiNG 7.1.2:

CQ/ SPR	Headline	Comments
WING-37960	Setting custom rates is not supported until WiNG 7.2 release.	Please use default rates until support is provided.
WING-38275	Multigig support shows low throughput with ExosX620	Issue is on EXOS switch and EXOS release with fix for xos0074975 is required.

CQ/ SPR	Headline	Comments
WING-38438	If channel-list id defined under smart-rf policy, when using dual 5Ghz mode – AP will not be able to switch channels when radar is detected	Remove smart-rf channel list as is not supported for dual 5Ghz mode.
WING-38579	Sniffer mode on AP5xx is not operational	
WING-38629	Purview policy: ICMP, DNS protocols are not detected.	
WING-38801	Purview policy: custom app detection is operational only after AP reboot	
WING-38806	Strict 11ac association doesn't work in dual 5Ghz mode on AP 5xx.	
WING-38815	iBeacon feeds are not sent to ADSP server	
WING-38831	After modifying a WLAN Service on ExtremeCloudAppliance for AP505/510/560 in a Campus site deployment, AP may stop providing the service and a manual reboot is needed to recover the AP service with the changes to take effect	

GLOBAL SUPPORT:

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For the toll-free support number in your country:

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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.

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