

What's New in ZoneFlex Software Release 9.3

This application note describes the new features available in Version 9.3 of the Ruckus Wireless ZoneFlex family. This document assumes familiarity with the Ruckus ZoneFlex product line and the features of earlier releases.

Highlights of this Release

ZoneFlex software release 9.3 provides Enterprises, HotZone Operators and Managed Service Providers a higher performing, more reliable, and easier to deploy and use way of providing wireless access to diverse groups of users across multiple locations:

- ZoneDirector 5000
- ZoneFlex 7762-T 802.11n Dual-band Outdoor AP with High Gain 2.4 GHz Omni Antenna
- ZoneFlex 7761-CM 802.11n dual-band Outdoor AP with Cable Modem
- ChannelFly™
- Ethernet Port Security
- Increased Number of Clients Supported
- Encryption for Tunneled Data
- WISPr Enhancements
 - WISPr Smart Client Support
 - Dynamic Per-User Rate Limiting
 - Support on Standalone 802.11n APs
- Smart Mesh Networking Enhancements
 - Timing optimizations
 - Mesh AP Recovery
 - ARP Broadcast Filter
 - Mesh Packet Forwarding Filter
- NAT/Router on Standalone ZoneFlex APs
- L2TP on Standalone 802.11n APs
- IPv6
- Wireless Packet Capture
- Limited ZD Discovery Enhancements
- Automatic Proxy Configuration for Clients
- Configurable User Timeouts
- Radio Configurability Enhancements
 - Setting Transmit Power in 1 dB Increments
 - Outdoor AP and Bridge Channel Selection Enhancements
 - 5.8 GHz band on ZoneFlex Outdoor APs for License Holders in Great Britain
- Manageability Enhancements
 - AP Groups
 - More WLANs and WLAN Groups
 - DHCP Option 82
 - FQDN Provisioning
 - Granular Alarm Notification
 - Multiple SNMP Trap Receivers
 - Configurable Admin Login Timeout
- ZoneDirector Deployed Behind NAT
- RADIUS Change of Authorization
- VLAN Enhancements
 - Dynamic VLANs support for Dynamic PSK™ users
 - General Port
 - Configurable Untagged VLAN ID of Trunk Port Type

- Quality of Service Enhancements
 - VLAN Based QoS
 - Traffic Prioritization on Ethernet Ports
- FlexMaster Enhancements
 - ZoneFlex 7731 Bridge Link Display in Google Maps
 - Scheduled ZoneDirector Configuration Backup
 - Recent Events Dashboard Widget
 - Additional Reports
 - Custom Logo in FlexMaster
- SNMPv3 on ZoneFlex 7731 Outdoor Wireless Bridge

Supported Platforms

- FlexMaster version 9.3
 - ZoneDirector 1000 Smart/OS version 9.3
 - ZoneDirector 1100 Smart/OS version 9.3
 - ZoneDirector 3000 Smart/OS version 9.3
 - ZoneDirector 5000 Smart/OS version 9.3
 - ZoneFlex 2942 802.11g Access Point version 9.3
 - ZoneFlex 7025 802.11n Wired/Wireless Wall Switch version 9.3
 - ZoneFlex 7341 802.11n Access Point version 9.3
 - ZoneFlex 7343 802.11n Access Point version 9.3
 - ZoneFlex 7363 802.11n Dual-band Access Point version 9.3
 - ZoneFlex 7962 802.11n Dual-band Access Point version 9.3
 - ZoneFlex 2741 802.11g Outdoor Access Point version 9.3
 - ZoneFlex 7761-CM 802.11n Dual-band Outdoor Access Point with Cable Modem version 9.3
 - ZoneFlex 7762 802.11n Dual-band Outdoor Access Point version 9.3
 - ZoneFlex 7762-S 802.11n Dual-band Outdoor Access Point with Sector Antenna version 9.3
 - ZoneFlex 7762-T 802.11n Dual-band Outdoor Access Point with High Gain 2.4 GHz Omni Antenna version 9.3
 - ZoneFlex 7731 802.11n Outdoor Bridge version 9.2
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1. Introduction to Ruckus Wireless ZoneDirector 5000

The Ruckus Wireless ZoneDirector 5000 is the first WLAN controller to uniquely combine power, simplicity and scalability into an affordable system. Supporting up to 20,000 clients and 2048 WLANs per device, the ZD5000 manages up to 1000 ZoneFlex Smart Wi-Fi access points from a single location.

Unlike conventional wireless LAN systems that are costly, complex and cumbersome to deploy, the ZD5000 is designed for simplicity and ease of use. It's ideal for any large-scale enterprise requiring a high-performance wireless LAN that can be easily deployed and managed. The ZD5000 integrates the Ruckus Smart/OS application engine that delivers advanced features such as smart wireless meshing, high availability, hot spot authentication, elegant guest networking and dynamic Wi-Fi security. Deployed and operated by non-wireless experts and installed quickly and easily, with the ZD5000, any organization with limited IT staff and budget can create a robust and secure multimedia WLAN in a matter of minutes.

The ZD5000 easily integrates with network, security and authentication infrastructure already in place and is easily configured through a point-and-click web wizard. Ruckus ZoneFlex APs automatically discover and are configured by the ZoneDirector.

Redundant and secure, the ZD5000 provides WLAN-wide network, security, RF and location management within a single, easy-to-use and affordable WLAN system.

Customer Benefits

- High scalability supporting up to 1000 APs, 2048 WLANs and 20,000 clients
- Simple to use, configure and deploy with advanced WLAN features of security, RF management, centralized network management and mesh
- Supporting complete centralized forwarding with enhanced tunneled throughput
- Robust hardware with dual/hot-swappable power supply units supporting both AC and DC power source for deployment flexibility
- Redundant/field-swappable fans for easy maintenance

Availability

ZoneDirector 5000 with software release 9.3

2. Introduction to Ruckus Wireless ZoneFlex 7762-T 802.11n Dual-band Outdoor AP with High-Gain 2.4 GHz Omni Antenna

The Ruckus Wireless ZoneFlex 7762-T is the first high-speed, dual-band 802.11n Smart Wi-Fi outdoor access point that integrates a dual-polarized, omni, smart antenna array and is capable of delivering 600 Mbps of throughput, up to 10dBi of signal gain and 15dB of interference rejection covering 360°. This provides excellent omni signal coverage, better signal penetration into buildings and more resilient mesh connections that adapt to interference and changing environmental conditions.

Supporting advanced Smart Mesh Networking, the ZoneFlex 7762-T is perfect for providers looking to quickly and economically expand branded broadband services, offload data traffic from congested 3G networks, deploy multimedia hotspots or offer wireless broadband services where fixed line access is limited. Separate radios for access and backhaul traffic deliver high throughput to clients.

IP-67 rated, the ZoneFlex 7762-T can be deployed as a standalone AP or as part of a unified wireless system managed by the Ruckus ZoneDirector WLAN controller or FlexMaster Wi-Fi management system. When used with a high-power Ruckus PoE injector, the ZoneFlex 7762-T can power an adjacent device (e.g. surveillance camera) via standard PoE (802.3af). Self-provisioning, self-organizing and self-healing, the ZoneFlex 7762-T mesh AP provides unprecedented deployment simplicity.

Customer Benefits

- Wire-like performance and reliability
- Ideal for high-density outdoor deployments
- Omni, high-gain antennas dynamically combine to deliver two- to four-times the coverage over typical outdoor APs
- Compact, lightweight design is easy to deploy and draws minimal attention
- Ideal for Service Providers looking to offload data from their congested 3G networks
- Distributed forwarding architecture eliminates controller bottlenecks with 802.11n APs
- Standard 802.3af support for painless migration leveraging existing PoE switches
- Unified indoor/outdoor WLAN has never been simpler to deploy or manage

Availability

ZoneFlex 7762-T 802.11n Access Point with software release 9.3

3. Introduction to Ruckus Wireless ZoneFlex 7761-CM 802.11n Dual-band Outdoor AP with Cable Modem

The Ruckus ZoneFlex 7761-CM is the first purpose-built strand-mounted access point to combine dual-band 802.11n with an integrated DOCSIS 3.0 (or EuroDOCSIS) certified modem and patented smart antenna array technology to deliver unprecedented range and reliability for multiple system cable operators (MSOs).

Plant-powered, the Ruckus 7761-CM is lightweight and can be easily installed and integrated with the cable operator's network. It leverages existing cable assets, including mounting, power, backhaul and customer service systems to quickly and easily extend wireless services to cable operators' customers.

The ZoneFlex 7761-CM provides similar features and functionalities to the ZoneFlex 7762-T including a dual-polarized, omni, smart antenna array and smart meshing. IP-67 rated, the ZoneFlex 7761-CM can be deployed as a standalone AP or as part of a unified wireless system managed by the Ruckus ZoneDirector WLAN controller or FlexMaster Wi-Fi management system.

Customer Benefits

- Wire-like performance and reliability
- Ideal for high-density outdoor deployments
- Omni, high-gain antennas dynamically combine to deliver two- to four-times the coverage over typical outdoor APs
- Ideal for Cable Operators looking to provide new revenue-generating services such as community Wi-Fi, IP-video applications, multimedia hotspots, extended WLAN services outdoors and 3G data offloading
- Unified indoor/outdoor WLAN has never been simpler to deploy or manage
- Integrated DOCSIS 3.0 (or EuroDOCSIS) Cable Modem for seamless power and backhaul.

Availability

ZoneFlex 7761-CM 802.11n Access Point with software release 9.3

4. ChannelFly™

ChannelFly is Ruckus Wireless' new, ground-breaking auto channel selection algorithm. It introduces an adaptive channel selection feature that maintains optimum Wi-Fi throughput based on real, observed channel capacity potential. Without the need for background scanning, ChannelFly continuously learns the throughput potential of each channel and evolves its channel decision intelligence. This learning process adapts to all RF environments and avoids interference for other wireless networks and non-Wi-Fi sources. ChannelFly also provides fast reaction time to significant drops in throughput. By default, standalone APs select channels using ChannelFly auto channel selection algorithm. Zone Director-managed APs configured to automatically select channels use background scanning unless enabled to use ChannelFly.

Customer Benefits

- Maintains maximum network throughput
- Quickly avoids interference from congested and noisy environments

Availability

ZoneFlex Access Points and ZoneDirector with Smart/OS software release 9.3

5. Ethernet Port Security

With this release, Ruckus ZoneFlex Access Points can support 802.1X Wired Ethernet Port Security.

5.1. Authenticator

Administrators can require devices connecting to the Ethernet ports of ZoneFlex Access Points to authenticate using 802.1X Authentication. This secures APs installed in public areas against unauthorized network access.

5.2. Supplicant

ZoneFlex APs can be deployed in networks with 802.1X wired port security. Equipped with an EAP-MD5 supplicant, the AP can provide authentication credentials to a requesting upstream switch.

Customer Benefits

- Extends wired port access security to the Ethernet port of the AP
- Seamless integration with existing network security policies
- Enhances security and network control

Availability

ZoneFlex Access Points, ZoneFlex Bridges, and ZoneDirector with Smart/OS software release 9.3

6. Increased Number of Clients Supported

With this release, certain ZoneFlex 802.11n Access Points can associate up to 256 clients, distributed across either radio or all on a single radio. This feature can enable 3G network carriers to offload the data traffic from a larger number of clients to higher-speed Wi-Fi networks.

Customer Benefits

- Increased scalability for high-density environments (e.g. auditoriums, transportation hubs, ...)
- Improves mobile subscriber Internet experience

Availability

ZoneFlex 802.11n Access Points (7300 Series, 7962, 7762, 7762-S, 7762-T, 7761-CM,) with software release 9.3

7. Encryption for Tunneled Data

With this release, tunneled traffic over the Ethernet interface between ZoneFlex Access Points and ZoneDirector WLAN Controller can be encrypted. This provides an additional layer of security for traffic transmitted over the wire, such as in some architectures designed to be PCI compliant.

Customer Benefits

- Increases data privacy over the wired infrastructure
- A component of a PCI-compliant network design

Availability

ZoneDirector with Smart/OS software release 9.3

8. WISPr Enhancements

Wireless Internet Service Provider roaming (WISPr) provides an authentication framework for hotspot operators. When a user first opens up their browser, the hotspot operator can redirect them to their custom web portal where the user may provide authentication credentials. Unauthenticated users can be restricted to web sites within the operator-defined walled garden, while authenticated users gain full Internet access. With WISPr, a customer or user of one service provider or enterprise can gain Internet access at a multitude of hotspots owned by affiliated operators using just their home entity credentials. With this release, several enhancements are made to the WISPr hotspot solution.

8.1. WISPr Smart Client Support

ZoneDirector supports automatic authentication for devices with a WISPr Smart Client. Operators who have a WISPr Smart Client available for their subscribers' devices can configure ZoneDirector Hotspot Services to automatically authenticate a device when it attempts to join the network. The WISPr Smart Client automatically extracts XML data from the welcome or login pages, and responds with their authentication credentials. Users do not need to launch their browser to manually login.

8.2. Dynamic Per-User Rate Limiting

Administrators can control the upstream and downstream bandwidth rates for Hotspot WLANs on a user by user basis. When a user authenticates to a Hotspot network, if individual rate limits are defined in RADIUS, ZoneFlex APs will apply those limits to the specific user to control their upstream and downstream bandwidth. Along with per-WLAN rate limiting, dynamic, per-user rate limiting provides the network operator with more options to control network usage.

8.3. Support on Standalone 802.11n APs

WISPr has been available on ZoneFlex 2942 as a standalone AP and on ZoneDirector for all ZoneFlex APs. With this release, WISPr is extended to all ZoneFlex 802.11n APs used as standalone APs.

Customer Benefits

- Automatic authentication eliminates manual user intervention and enhances end-user experience
- Encourages more clients to offload their data traffic from congested 3G networks to higher capacity Wi-Fi
- Single portal supports clients with and without WISPr Smart Client
- Ability to enforce Service Level Agreements (SLAs)
- Tiered services maximize revenue opportunity
- Seamless integration with RADIUS server
- Easy to use, web-based authentication
- Flexible and customizable
- Ideal for small hotspots like coffee shops

Availability

ZoneFlex 802.11n Access Points with software release 9.3

9. Smart Mesh Networking Enhancements

With this release, Ruckus Smart Mesh Networking is enhanced for large-scale mesh networks with specific timing and traffic optimizations and troubleshooting capabilities.

9.1. Timing optimizations

Ruckus Smart Mesh Networking is enhanced for large-scale mesh networks. A series of timers have been optimized to provide faster self-healing and mesh stability during link failures and uplink re-building. To improve network throughput, uplink decisions now favor an eMap vs. a MAP and enhancements were made to reduce the effect of hidden node interference.

9.2. Mesh AP Recovery

Administrators can recover a Mesh AP which has lost its connection to the wireless mesh network. If a mesh node can no longer reach the default gateway, the AP will enable a special SSID that is used for recovery purposes only. This allows an administrator to access the AP management interface to troubleshoot connection problems. During recovery mode, the network is protected since traffic from the recovery SSID is not bridged.

9.3. ARP Broadcast Filter (ABF)

ARP Broadcast Filter (ABF) is designed to reduce ARP broadcast over the air. APs snoop ARPs, maintain an "ARP cache", convert ARP broadcasts into unicast packets for snooped devices, and rate-limit other ARP broadcasts.

Once enabled, the APs will sniff ARP responses and will internally maintain a table of IP address-to-MAC address entries. When the AP receives an ARP broadcast request, it uses the ARP request IP address to look up the MAC address in the table. If found, the AP converts the ARP broadcast request packet into a unicast request by replacing the broadcast address with the target MAC address. If not found, the AP inserts the request into a rate-limited forwarding queue. All such "unknown" ARP broadcasts will be egressed at the specified packet per second (pps) rate. The administrator can configure the rate limit on ARP traffic from 1 to 1000, where a rate of 0 pps means the AP will drop all unknown broadcasts.

9.4. Mesh Packet Forwarding Filter (MPFF)

Mesh Packet Forwarding Filter is designed to filter Layer-2 Packets at the uplink port (Ethernet or mesh) which are not sourced from the gateway, filter Layer-2 packets coming from the wireless side which are sourced from the gateway, and prevent gateway ARP spoofing.

When MPFF is enabled, packet filtering is applied to the uplink port of an AP. For Root APs (RAPs) and Ethernet Mesh APs (eMAPs), the uplink port is the Ethernet port. For Mesh APs (MAPs), the uplink port is the wireless uplink. Packets received from the uplink port will be blocked if the source MAC address fails to match one of the gateway MAC addresses specified. Packets being transmitted out via the uplink port will be blocked if the source MAC address matches one of the gateway MAC addresses specified. Administrators can configure MAC addresses of the gateway and BRAS servers.

Customer Benefits

- Increase mesh reliability
- Improve mesh link failure recovery times
- Improve mesh throughput and performance
- Improves troubleshooting
- Reduces the need to physically access the AP when it becomes orphaned, eliminating the need for specialized equipment
- Increased overall network performance
- Enhanced security against gateway ARP spoofing

Availability

ZoneDirector with Smart O/S software release 9.3

10. NAT/Router on Standalone ZoneFlex APs

With this release, Standalone ZoneFlex Access Points can provide Network Address Translation (NAT) services and route between the private LAN and the external WAN. Network operators can map access Ethernet ports and multiple WLANs to one of up to 4 subnets, each with its own DHCP pool. The IP address from WLAN and Ethernet client traffic will be translated to the AP's IP address before being sent out to the WAN.

Customer Benefits

- Reduces the amount of equipment needed in small installations like coffee shops
- Reduces or eliminates expenditure for multiple public addresses
- Enhances security for LAN devices

Availability

ZoneFlex Access Points with software release 9.3

11. L2TP on Standalone 802.11n APs

With this release, Layer 2 Tunneling Protocol (L2TP) is supported on ZoneFlex 802.11n access points used as standalone APs. Remotely deployed APs can use L2TP to VPN to a central network. If the L2TP tunnel is unavailable, APs can be configured to disable WLAN services, preventing wireless clients from being stranded on the network.

Customer Benefits

- Seamless integration into existing network architecture

Availability

ZoneFlex 802.11n Access Points with software release 9.3

12. IPv6

IPv6 is supported with this release. IPv6 is the next generation internet protocol that uses a 128-bit addressing scheme to meet the needs of the exploding number of internet-connected devices. Entities can now deploy ZoneFlex Access Points, ZoneFlex Bridges, ZoneDirector WLAN Controllers, and FlexMaster in an IPv6 network, while IPv4/IPv6 dual-stack support enables the transition from IPv4.

Customer Benefits

- Virtually limitless addressing for the next generation in internet-connectivity
- Stateless auto-configuration simplifies network administration
- Compatible with current IPv4 networks, while future-proof for seamless transition to IPv6
- Ideal for carrier networks

Availability

ZoneFlex Access Points, ZoneFlex Bridges, ZoneDirector 1100, 3000 and 5000 Series with Smart/OS, and FlexMaster software release 9.3

13. Wireless Packet Capture

With this release, access points can capture wireless packets for troubleshooting and network analysis. A snapshot of packet traffic can be saved as a pcap file and viewed in a third-party packet analyzer like Wireshark (not available for ZoneDirector 1000 Series), or can be streamed in real-time to the packet analyzer for any ZoneDirector platform. APs continue to serve wireless clients as they capture over-the-air traffic.

Customer Benefits

- Enhances troubleshooting and network planning
- Uninterrupted service for wireless clients

Availability

ZoneFlex Access Points, ZoneFlex Bridges, and ZoneDirector with Smart/OS software release 9.3

14. Limited ZD Discovery Enhancements

With this release, administrators can control whether a ZoneFlex Access Point's designated primary and secondary ZoneDirector, which have been designated through Limited ZD Discovery, remain fixed as such when the AP joins the secondary controller. Additionally, administrators can control whether APs actively seek to connect to their primary controller should they have failed-over to their secondary controller, or whether the AP passively stays with their secondary controller.

ZoneFlex APs remember a set of primary and secondary ZoneDirector IP address out of which they will join. When an AP connects to a controller for the first time, the configuration in Limited ZD Discovery is remembered by the AP. If the AP subsequently connects to the secondary controller, and the secondary controller has a different configuration for Primary and Secondary ZD Address in Limited ZD Discovery, administrators can control whether the AP retains the original primary and secondary address configuration or whether the AP's memory will be overwritten by the configuration from the secondary controller.

Note that Limited ZD Discovery and Smart Redundancy are alternative methods for architecting a redundant network. Limited ZD Discovery defines which controller(s) an AP can connect to and in which preferred order; each controller can be differently configured. With Smart Redundancy, APs connect to the Active controller in a Smart Redundancy pair. The configuration of the pair of controllers is kept the same through automatic synchronization. If the Active controller fails or is unreachable, the Backup controller becomes active. Either Limited ZD Discovery or Smart Redundancy should be used, but not both at the same time.

Customer Benefits

- Enhances use in an N+1 redundant deployment
- Increases control for balancing AP load across multiple controllers.

Availability

ZoneDirector with Smart/OS software release 9.3

15. VLAN Enhancements

With this release, several enhancements to VLAN functionality have been made.

15.1. *Dynamic VLANs for Dynamic PSK™ Users*

ZoneDirector can assign users authenticating with a Dynamic Pre-Shared Key (D-PSK) to a VLAN based on their RADIUS profile. Available already for 802.1x associations, dynamic VLAN assignment allows user within the same WLAN to be associated to different VLANs based on RADIUS. Combined with D-PSK and ZeroIT auto-provisioning, administrators can quickly and easily deploy a secure wireless network while controlling user traffic through VLANs. With nothing to install on the client device, this can be used by Service Providers and enterprises to provide their users secure wireless with enhanced VLAN assignment.

15.2. *General Port*

Administrators have the option to configure an Ethernet port of a ZoneFlex AP as a General port type, in addition to Access or Trunk port type. A General port supports multiple tagged VLANs and one untagged VLAN.

15.3. *Configurable Untagged VLAN ID of Trunk Port Type*

Administrators can configure the untagged VLAN ID on a Trunk Port any number from 1 to 4094.

Customer Benefits

- Improved security and network control
- Reduced management traffic (e.g. fewer beacons) increases overall RF efficiency
- Automatic configuration of secure, 63-byte encryption key
- Ideal for service providers, enterprises and schools whose users have a multitude of client devices using various operating systems and drivers
- Seamless integration with existing network infrastructure
- Enhanced security and network control

Availability

ZoneFlex Access Points and ZoneDirector with Smart O/S software release 9.3

16. Quality of Service Enhancements

With this release, Ruckus Wireless enhances Quality of Service on ZoneFlex APs.

16.1. *VLAN Based QoS*

Administrator can assign traffic class to a VLAN ID, and packets belonging to that VLAN will be prioritized and queued in one of the four priority queues accordingly.

16.2. *Traffic Prioritization on Ethernet Ports*

Ruckus Wireless expands the traffic prioritization to the wired Ethernet ports so the Quality of Service is maintained across wired and wireless ports.

Customer Benefits

- Seamless integration with existing network infrastructure
- Enhanced classification options to enforce quality of service
- Converged multi-media platform with advanced QoS

Availability

ZoneFlex Access Points and ZoneDirector with Smart O/S software release 9.3

17. Automatic Proxy Configuration for Clients

With this release, the web proxy settings for a client browser can be automatically configured when the user joins the wireless network. When a user associates to an AP, using the Web Proxy Auto Discovery protocol (WPAD), their computer learns through DHCP or DNS responses from where the wpad.dat file is to be downloaded. The wpad.dat file, which can be hosted on ZoneDirector or an external web server, is then downloaded into the client browser and parsed to determine the proxy server for each requested URL.

Customer Benefits

- Use of proxies enhances security and network performance
- Seamless integration into existing network architecture
- Ideal for Educational institutions and enterprises

Availability

ZoneDirector with Smart/OS software release 9.3

18. Configurable User Timeouts

18.1. Idle Client Timeout

With this release, administrators can configure the period for which an idle client times-out. Clients that are timed-out for surpassing the idle period threshold are no longer associated to the AP, freeing up allocation for another active client to associate to the AP. The timeout value can be set to any value between 1-500 minutes, with default of 5 minutes.

18.2. Web Authentication Grace Period Enhancement

With this release, administrators can configure the grace period for which clients authenticating through a web portal can be idle before they are required to re-authenticate. With WLANs requiring web authentication, including guest access and hotspot WLANs, users are redirected to a web page to provide login credentials. If the user is inactive for longer than the grace period, they are required to login again before they are provided WLAN services. This time can be configured to meet network usage policies.

Customer Benefits

- Increased control over network usage
- Ideal for mobile carrier networks with high user turn-over

Availability

ZoneDirector with Smart/OS software release 9.3

19. ZoneDirector Deployed Behind NAT

With this release, ZoneDirector can be deployed in a private network behind a NAT server. When ZoneDirector is deployed on an isolated private network where NAT is used, administrators can manually configure a port-mapping table on the NAT server to allow remote access into ZoneDirector. This allows APs to establish an LWAPP connection with ZoneDirector, as well as allows remote HTTPS and SSH management access to ZoneDirector.

Customer Benefits

- Seamless integration into existing networks architectures

Availability

ZoneDirector with Smart/OS software release 9.3

20. RADIUS Change of Authorization - Disconnect Message (CoA-DM)

With this release, ZoneDirector will terminate a user session if it receives a Change of Authorization-Disconnect Message (COA-DM) from the RADIUS server. The COA-DM message may be used when a client changes service levels. For instance, a new user may initially connect to a free, low-rate service on one WLAN. When they purchase access on a higher-rate service, RADIUS will send a COA-DM message to ZoneDirector, causing the user to re-connect to an alternative WLAN. COA-DM may also be used to remove a client if a user exceeds their total bandwidth allowance or time on the network.

Customer Benefits

- Increased integration with RADIUS services
- Ideal for service providers and hotspot operators

Availability

ZoneDirector with Smart/OS software release 9.3

21. Radio Configurability Enhancements

With this release, more flexibility is provided for configuring radio parameters.

21.1. Setting Transmit Power in 1 dB Increments

Administrators can reduce the transmit power of the AP radios in 1 dB increments from full power. This enhances the ability to control the range of an AP.

21.2. Outdoor AP and Bridge Channel Selection Enhancements

Administrators can configure whether their ZoneFlex Outdoor APs and Bridges can be set to a channel designated for indoor-only use. If an AP or Bridge is to be installed outdoors, and local regulations restrict the use of certain channels from being used outdoors (as may be the case for certain 5 GHz channels), the AP will not use those indoor-only channels when configured with SmartSelect to automatically select its channel. For Outdoor products installed in challenging *indoor* environments, administrators can configure ZoneFlex so that SmartSelect still uses any possible channel (including indoor channels).

21.3. 5.8 GHz band on ZoneFlex Outdoor APs for License Holders in Great Britain

ZoneFlex Dual-band Outdoor APs with country code setting Great Britain can be configured to operate in the licensed 5.8 GHz band. For customers who have obtained a license with Ofcom, once the AP is enabled to use the 5.8 GHz band, the AP can be set manually to a channel in this band, or may select a channel in the band if the AP is set to automatically select its channel. Customers who do not have a license to operate in this band may not operate their AP in this band.

Customer Benefits

- Enhances control of radio settings
- Licensed bands provide exclusive use of the channel, eliminating co-channel interference
- Regulations allow higher EIRP, enabling increased range when compared to other 5 GHz channels

Availability

ZoneFlex Access Points and ZoneDirector with Smart/OS software release 9.3.

5.8 band for Great Britain country code is available for ZoneFlex Dual-band Outdoor Access Points (ZoneFlex 7762, 7762-S, 7762-T), with software release 9.3

22. Manageability Enhancements

With this release, several enhancements are made to manage the wireless network through ZoneDirector, ZoneFlex APs, or both.

22.1. AP Groups

Administrators can configure access points by grouping them in related sets. Administrators can define up to 8, 32, 256 or 512 groups in ZoneDirector 1000, 1100, 3000 or 5000, respectively. For each group, administrators create a configuration profile that defines the access points' channels, power level, ports and other configurable fields. An AP that is assigned to that group will use the configuration profile. Configuration defined in the group can also be overridden for the individual parameters for individual AP.

22.2. More WLANs and WLAN Groups

The numbers of possible WLANs and WLAN Groups are increased on certain platforms. Administrators can define up to 32, 128, 1024 or 2048 WLANs and up to 128, 1024 or 2048 WLAN groups in ZoneDirector 1000, 1100, 3000 or 5000, respectively. This increase enables a managed service provider to operate a large number of small-sized networks from a single controller.

22.3. DHCP Option 82

ZoneFlex Access Points now support DHCP Option 82. When an AP receives a DHCP request from a wireless client, it will insert the WLAN or Ethernet indicator type, the AP Base MAC Address, Name, Model Name, Interface Name, ESSID, Station MAC address and Station VLAN ID into the request and forward it to the DHCP server. The DHCP server can use this information to allocate an IP address to the client from a particular DHCP pool based on these parameters. This feature is ideal for service providers and wholesale operators. DHCP Option 82 can be enabled on Standalone APs or APs managed by ZoneDirector.

22.4. Fully Qualified Domain Name (FQDN) Provisioning

ZoneDirector can be designated with a Fully Qualified Domain Name, allowing ZoneFlex APs to easily find it. When ZoneFlex APs are configured with the ZoneDirector's FQDN, requests to this address will be resolved by DNS servers to the ZoneDirector's management IP Address.

22.5. Granular Alarm Notification

Finer granularity is provided for notification of alarm events by ZoneDirector. Administrators can now select for which alarms they do or don't want to receive email notification. For instance, administrators can choose to receive an email notification when their SSID is being spoofed, but not when an ad-hoc network is detected.

22.6. Multiple SNMP Trap Receivers

ZoneDirector can send SNMP traps to up to 4 different trap receivers. This can be useful if there are multiple entities or administrators managing the network.

22.7. Configurable Administrator Timeout

The period that a ZoneDirector administrator can be idle before being timed out can be configured. With a default value of 30 minutes, this idle timer can be configured from 1 minute up to 24 hours.

Customer Benefits

- Increases scalability and simplifies management for large networks
- Simplifies architecture for a multi-operator, multi-user group environment
- Increased deployment options
- Enhanced usability and increased visibility of important network events
- Network management can be aligned with administration security policies

Availability

ZoneFlex Access Points and ZoneDirector with Smart/OS software release 9.3

23. FlexMaster Enhancements

With this release, several enhancements are made to FlexMaster.

23.1. ZoneFlex 7731 Bridge Link Display in Google Maps

FlexMaster map view now displays ZoneFlex 7731 bridge link topology for point-to-point connections.

23.2. Scheduled ZoneDirector Configuration Backup

FlexMaster can schedule automatic backup of ZoneDirector configuration file. Backups can be scheduled to run daily, weekly or monthly.

23.3. Recent Events Dashboard Widget

A new widget displays a list of the most recent events in FlexMaster dashboard. This configurable widget provides quick access to real-time events based on devices, views, and event severity.

23.4. Access Point Trend View

The new trend view incorporates an easy to use access point selector and displays up to a weeks' worth of statistics. The statistics include associated clients, Tx/Rx traffic, association state, and ping latency. The trend views can be exported to PDF for archiving and reporting needs.

23.5. Rogue AP Report

A new *Rogue AP* report is available under the Device View reports. The Rogue AP report provides a list of all discovered rogues, and includes information on what channel, which SSID and a timestamp of when the rogue was last discovered. The report can be exported via XLS file format, and can be scheduled to run automatically and emailed to the administrator on a daily, weekly or monthly basis.

23.6. Custom Logo

This feature allows customization of the logo displayed in FlexMaster. The customized logo is displayed for the login/password screen and at the top left area of each page (Dashboard, Inventory, Monitor, Configure, Reports, Administer). The logo image is 138x40 pixels with a maximum size of 20 KB and supports GIF image format.

Customer Benefits

- Complete visual representation of mesh and bridge topology
- Automated backup of configuration file for safe keeping reduces administrative workload, and aids roll-backs and disaster recovery
- Recent Events dashboard widget provides easy access to real-time events alongside most important device views
- Access Point Trend View consolidates key statistics history, enhancing trend analysis
- Rogue AP report and scheduled email delivery enhances monitoring of Rogue APs.
- Allows custom branding of the FlexMaster GUI
- Provides brand awareness to promote recognition and loyalty for resellers

Availability

FlexMaster with software release 9.3

24. SNMPv3 on ZoneFlex 7731 Outdoor Wireless Bridge

ZoneFlex 7731 Outdoor Wireless Bridge can be managed using SNMPv3 with software release 9.2. With SNMPv3, an external, third-party network management system can establish a secure connection to ZoneFlex 7731, ensuring that configuration changes and configuration or status information requests are kept private and only made by authorized network managers. Additionally, read-only and read-write roles allow tiered privileges to differentiate access levels.

Customer Benefits

- Enhances security
- Seamless integration with existing network infrastructure and network policies

Availability

ZoneFlex 7731 Outdoor Wireless Bridge with software release 9.2