



in reach

Key Features:

- Supports up to 16 independent Virtual Service Communities (VSC)
- Configurable QoS and security policies per VSC
- Comprehensive support for VoWLAN applications
- Configurable AP, WDS, or Security Monitor operating modes
- Rich management tools reduce network operations costs
- Hardware-assisted AES and RC4 encryption delivers high performance
- Centrally manageable as part of Colubris Intelligent MultiService System
- Single and dual radio models enable range of network configurations
- Plenum-rated indoor or outdoor enclosures for installation flexibility
- Daisy-chain Ethernet port provides wiring flexibility

InReach MultiService Access Points

Overview

InReach™ MultiService Access Points (MAP) bring intelligence to the edge of wireless LANs, delivering seamless mobility and strong security while enabling smooth scalability and minimizing operations costs. In addition to delivering a rich set of network services to 802.11 standard WLAN client devices, InReach MAPs provide the industry's most comprehensive feature set among enterprise class access points. When deployed as part of a Colubris Intelligent MultiService System (CIMS), they create a centrally managed multiservice WLAN infrastructure with capability to establish Virtual Service Communities—discrete groups of network users with assigned service policies tuned to meet their shared application and service needs.

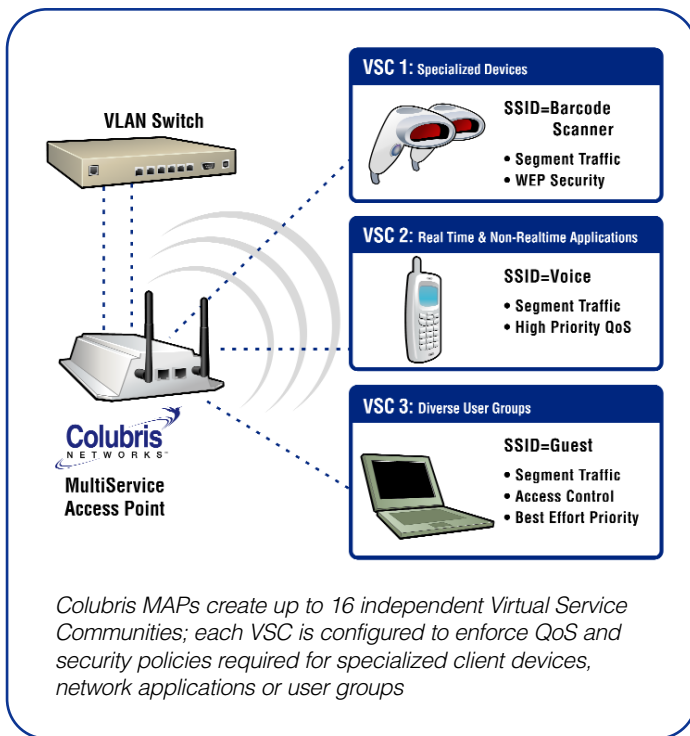
InReach MAPs are designed to satisfy the most demanding enterprise and service provider applications. They enhance performance and safeguard confidential network traffic by enforcing security and QoS policies at the boundary between WLANs and wired networks. They apply policies that are centrally defined, leveraging existing authentication and authorization servers for ease of administration. Because InReach MAPs come equipped with rich management interfaces, network administrators can manage them centrally, and integrate them into an SNMP network management system. InReach MAPs ensure consistent client coverage by automatically adjusting the RF configuration whenever they detect local sources of interference, and a self-healing feature automatically adjusts to changes in the RF environment.

With InReach MAPs, organizations have unmatched flexibility to configure their WLANs to suit their needs and the environment. All models can be configured to operate in any one of three operating modes: as an access point, a security monitor, or a wireless distribution system (wireless backhaul). The dual radio model takes flexibility one step further by supporting configurability on a per-radio basis, making it the most versatile access point in the industry.

MultiService Support

InReach MAPs can deliver as many as 16 different WLAN services, multiplying the flexibility and value of the infrastructure. The CIMS ensures each service is consistently delivered by each MAP, while traffic is segmented for security. Customers can deploy a range of services, including public/guest Internet access, secure data, voice, and video. Each service is mapped to a unique SSID and MAC address (BSSID), enabling client devices to quickly identify and associate with the service they need and ensuring complete interoperability with third-party client devices.

With InReach MAPs, organizations can create VSCs that enforce specific QoS and security policies. A variety of WLAN operating parameters can be customized to the needs of each VSC, including Delivery Traffic Information Map (DTIM) signals, which client devices use to optimize battery power. This per-service configurability enables customers to integrate the broadest range of client devices into their network, from



legacy barcode scanners to PDAs and new-generation dual mode Wi-Fi/cellular phones, while accommodating the varying security, QoS, and power management capabilities of each device.

Customers can also configure InReach MAPs to forward the traffic associated with each VSC to a separate wired network VLAN, enabling network operators to leverage existing network security and traffic management capabilities. When combined with MAP layered security features, VLAN mapping lets customers set and enforce a range of end-to-end security policies so that traffic from devices with weak security capabilities can be integrated into a single infrastructure.

Security

InReach MAPs enforce centrally defined multi-layer security policies to create a secure WLAN/wired network perimeter. This “defense-in-depth” approach secures the airwaves using strong WLAN client authentication and encryption. It protects the backbone network by restricting access to specific destinations and by leveraging existing VLAN-based security mechanisms.

Hardware-assisted layer 2 encryption processing using WEP, WPA, and WPA2 (802.11i) protocols ensures privacy over the air without compromising performance. Client devices can be authenticated using industry standard 802.1x port authentication protocols with support for popular EAP types, or by MAC address. MAPs support a standard RADIUS AAA interface, which provides compatibility with popular enterprise authentication servers, including Microsoft Active Directory and LDAP.

Customers can complement their WLAN security mechanisms and strengthen the network perimeter by configuring their InReach MAPs to apply layer 2/3 filtering and VLAN tagging on a per-VSC basis. They can also configure InReach MAPs to

monitor RF security by performing background rogue scans across the entire frequency band.

QoS and VoWLAN Support

Colubris InReach MAPs provide the most comprehensive QoS support in the industry, enabling customers to converge a range of real time and non-real time applications on a single WLAN infrastructure. Wi-Fi Alliance-certified support for the Wireless MultiMedia (WMM) specification ensures interoperability with third-party client devices that implement the IEEE 802.11e standard. Four levels of priority enable multiple applications—including voice and video—to share the same infrastructure. Traffic is integrated into the wired network by marking traffic using 802.1p or DiffServ.

For enterprise-class VoWLAN service, MAPs support the SpectraLink Voice Priority (SVP) protocol and the WMM protocol, which provides compatibility with the latest generation of VoWLAN telephones.

RF Management

Colubris makes RF management easy, because InReach MAPs automate the configuration and operation of the RF network. Each access point automatically selects a channel within the desired frequency band based on an interference scan. Once a channel is selected, the InReach MAP continuously optimizes performance by scanning the environment in background mode, changing channels or adjusting output power if necessary to avoid sources of interference or the addition/removal of another MAP.

InReach MAPs can also be dedicated to continuous realtime rogue scanning across the full 2.4 and 5 GHz spectrum. They instantly report rogue devices to the centralized network management system, or any other SNMP manager, for immediate action.

Manageability and Monitoring

During installation, the CIMS Network Management System automatically discovers InReach MAPs and assigns them to groups for fast configuration and deployment. The embedded web GUI and CLI interfaces are secured using SSH/SSL, while IPSec protects the SNMP interface. Secure FTP protocols protect downloadable firmware and configuration files.

In addition to these centralized management and control features, InReach MAPs feature comprehensive client device monitoring and powerful troubleshooting tools that minimize operations costs:

- Client data-rate matrix summarizes the distribution of transmit and receive packets by data rate for each client, providing an easy method to diagnose performance problems.
- Client event log provides a detailed history of 79 different association, security, and DHCP handshake events for each client.

- Packet capture tool grabs packets off the air or the LAN interface and saves them in PCAP file format for offline analysis.

When operating as a WLAN monitor, an InReach MAP can continuously monitor for rogue devices. It performs a passive full-frequency scan, including out-of-region frequencies as allowed by local regulation, ensuring rogue devices are immediately detected and reported to the CIMS, NMS, or any SNMP management system.

Installation Flexibility

Organizations can install InReach MAPs easily and affordably in almost any environment, thanks to their thoughtful design and support for a range of wireless network topologies. Customers can configure each radio independently to operate in one of several modes:

- Access point (infrastructure) mode
- Wireless distribution system (WDS)
- Simultaneous access point plus WDS, in which a single radio shares bandwidth between servicing clients and backhauling traffic to another access point
- Security monitor mode, which performs dedicated full-frequency rogue scans and supports network troubleshooting

Because they support WDS, InReach MAPs can be installed in areas where Ethernet cabling is either unavailable or cost prohibitive. The Colubris secure WDS implementation supports point-to-point and point-to-multipoint configurations, affording customers a range of price/performance options. It features WPA2 security for all backhaul traffic, plus QoS enforcement for transparent voice, video, and data applications support.

All InReach MAPs feature a software selectable a/b/g radio and a choice of plenum-rated or outdoor enclosures. The dual-radio MAP-330 is the industry's first a/b/g + a/b/g access point, giving network managers the added flexibility of operating two channels in any combination of the 2.4 GHz and 5 GHz frequency bands.

InReach Model Numbers			
	MAP-320	MAP-320R	MAP-330
802.11 Radio	Single a/b/g	Single a/b/g	Dual a/b/g + a/b/g
Enclosure	Plenum-rated indoor	Outdoor	Plenum-rated indoor
Power Inputs	External AC adaptor or 802.3af PoE	802.3af PoE	External AC adaptor or 802.3af PoE
Operating Modes	AP, WLAN Monitor, WDS	AP, WLAN Monitor, WDS configurable per radio	AP, WLAN Monitor, WDS
Simultaneous VSCs (SSID/BSSID)	16	16	16

Product Specifications			
Model Number	MAP-320 MultiService Access Point	MAP-330 Dual Radio MultiService Access Point	MAP-320R Outdoor MultiService Access Point
Radio(s)	Single a/b/g selectable	Dual a/b/g + a/b/g, independently selectable	Single a/b/g selectable
Network Ports	(2) RJ-45, auto-sensing 802.3 10/100 BASE-T Ethernet. Supports daisy chaining	(2) RJ-45, auto-sensing 802.3 10/100 BASE-T Ethernet. Supports daisy chaining	(1) Waterproof RJ-45, Auto-sensing 802.3 10/100 BASE-T Ethernet (includes male and female)
Status LEDs	WLAN and LAN activity, power indicators	WLAN and LAN activity, power indicators	
Antenna Connectors	(2) Reverse polarity male SMA with diversity	(4) Reverse polarity male SMA with diversity	(2) Waterproof reverse polarity N male with diversity
Antenna	(2) 2 dBi dual band 2.4/5 GHz omni-directional	(4) 2 dBi dual band 2.4/5 GHz omni-directional	(2) 5.5 dBi 2.4GHz omni directional
Power Inputs	5 VDC Connector (power supply sold separately), or RJ-45 Power over Ethernet, 802.3af compliant	5 VDC Connector (power supply sold separately), or RJ-45 Power over Ethernet, 802.3af compliant	RJ45 Power over Ethernet, 802.3af compliant (power injector sold separately)
Power Requirements	3.5 Watts, max.	8.6 Watts, max.	6.5 Watts, max.
Temperature Range	Operating: 0° to 50°C Storage: -40° to 70°C	Operating: -20° to 45°C Storage: -40° to 90°C	Operating: -20°C* to +50°C Storage: -40°C to 80°C
Humidity	5% to 95% typical (non-condensing)	5% to 95% typical (non-condensing)	5% to 95% typical (non-condensing)
Enclosure	Metal, plenum-rated	Metal, plenum-rated	Die cast aluminum with 3-point silicone rubber gasket, includes pole-top U-bolts and wall mounting brackets.
Safety Compliance	IEC 60950, UL 1950 and 2043, CSA 22.2 No. 950-95, EN 60950	IEC 60950, UL 1950 and 2043, CSA 22.2 No. 950-95, EN 60950	UL 1950, CSA 22.2 No. 950-95, EN 60950
Overall Physical Dimensions	H: 47.752 mm (1.880 in); L: 165.735 mm (6.525 in); W: 162.560 mm (6.400 in)	H: 47.752 mm (1.880 in); L: 165.735 mm (6.525 in); W: 162.560 mm (6.400 in)	H: 46 mm (1.811 in); L: 180mm (7.087 in); W: 125mm (4.921 in);
Shipping Weight	1.4 Kg (3.0 lbs)	1.4 Kg (3.0 lbs)	4.08 Kg, (9.0 lbs)
* At -20°C ambient, the radio may take 10-15 minutes to warm up to the operating temperature			

Networking Specifications	
Configurable Operating Modes Per Radio	<ul style="list-style-type: none"> • Access Point (infrastructure) • Wireless Distribution System (WDS) • WLAN Monitor • Simultaneous Access Point/WDS
Networking	IEEE 802.1d compliant bridging, IEEE 802.1q VLAN tagging DHCP Client, ARP (RFC 826)
Virtual Service Communities	Up to 16 SSIDs each with unique MAC address, configurable SSID broadcasts <hr/> Individual security and QoS profile per VSC <hr/> Configurable DTIM and minimum data rate per VSC <hr/> Each VSC mapped to separate GRE tunnels and/or 802.1q VLANs
Client Access Control and Security Functions	802.1x authentication using EAP-SIM, EAP-TLS, EAP-TTLS and PEAP <hr/> MAC address authentication using local or RADIUS access lists <hr/> RADIUS AAA using EAP-MD5, PAP, CHAP, MSCHAP v2 <hr/> RADIUS Client (RFC 2865 and 2866) with location-aware support <hr/> Layer-2 wireless client isolation <hr/> Encryption: Wi-Fi Protected Access (WPA2) with AES support; Wired Equivalent Privacy (WEP) using static or dynamic keys of 40 or 128 bits
Quality of Service (QoS)	L2/L3 classification: 802.11p VLAN priority, SpectralLink SVP, DiffServ <hr/> Wi-Fi MultiMedia (WMM), 802.11e EDCF, Service-Aware priority assigned by VSC <hr/> VoIP call capacity: 8 active calls on 802.11b, 30 active calls on 802.11a/g
Network Management	Fully manageable using Colubris Network Management System (CNMS) <hr/> SNMP v2c, MIB-II with TRAPS, RADIUS Authentication MIB (RFC 2618), Colubris extensions for user session control and AP management <hr/> Embedded HTML management tool with secure access (SSL and VPN) <hr/> Scheduled configuration and firmware upgrades from central server <hr/> Client event log records association, authentication and DHCP events <hr/> Packet capture tool for Ethernet and 802.11 interfaces (PCAP format)
RF Management	Co-Channel Interference - Detects interfering non-roguer APs and alerts CNMS for RF optimization <hr/> Automatically selects channel on power-up and continuously optimizes channel selection <hr/> Configurable background rogue scanning <hr/> Automatically adjusts transmit power to minimize interference <hr/> Automatic radio shut-down upon LAN failure detection
Wireless Distribution System (WDS) Mode	Topologies: Point-point; point-multipoint <hr/> Security: WPA2 peer authentication and encryption, VLAN tags <hr/> QoS: Priority queuing honored for all traffic <hr/> Configurable ACK Time Out: Up to 35 Km Peer DFS coordination in 802.11a channels
WLAN Monitor Mode	Continuous full 2.4/5 GHz rogue scanning and optional SNMP TRAP generation, reports discrepancies from centralized list of known APs.

Radio Specifications		
	When configured for IEEE 802.11a operation	When configured for IEEE 802.11b or IEEE 802.11g operation
Data Rates Supported	6, 9, 12, 18, 24, 36, 48, 54 Mbps	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Frequency Band	USA: 5.250-5.350 GHz, 5.725 – 5.825 GHz Canada: 5.150 – 5.350 GHz, 5.725 – 5.825 GHz Europe: 5.150 – 5.350 GHz, 5.47 – 5.725 GHz (varies by country) Japan: 5.150 – 5.250 GHz	North America: 2.412 – 2.462 GHz 5.150 – 5.350 GHz, 5.47 – 5.725 GHz (varies by country) Japan: 2.412 – 2.484 GHz
Modulation	OFDM	802.11b: DSSS 802.11g: OFDM
Non-overlapping Channels	North America – 12, Europe: 19 (country specific), Japan – 4; 802.11h Dynamic Frequency Selection	Worldwide – 3; 802.11h Dynamic Frequency Selection
Receive Sensitivity	-90 dBm @ 6 Mbps -72 dBm @ 54 Mbps	802.11g Operation: -90 dBm @ 6 Mbps; -72 dBm @ 54 Mbps 802.11b Operation: -90 dBm @ 11 Mbps
Transmit Power Settings (Maximum power varies as per country regulations)	19 dBm +/- 2 @ 6-24 Mbps 12 dBm +/- 2 @ 54 Mbps 802.11h Transmit Power Control	802.11g Operation: 19 dBm +/- 2 @ 6-24 Mbps 14 dBm +/- 2 @ 54 Mbps 802.11b Operation: 19.5 dBm +/- 2 @ 1-11 Mbps 802.11h Transmit Power Control
Standards Compliance	Radio Approvals: Wi-Fi Alliance, FCC Part 15.401, 15.407, RSS-210 (Canada), ETS 301 893, ETS 300 328 (Europe), ARIB STD-T71 (Japan) EMI and Susceptibility (Class B): FCC Part 15.107 and 15.109, ICES-003 (Canada), VCCI (Japan), EN 301.489-1 and -17 (Europe) Other: IEEE 802.11a, RSS-102	Radio Approvals: Wi-Fi Alliance, FCC Part 15.247, RSS-139-1, RSS-210 (Canada), ETS 301 893, (Europe), TELEC 33B (Japan), EMI and Susceptibility (Class B): FCC Part 15.107 and 15.109, ICES-003 (Canada), VCCI (Japan), EN 301.489-1 and -17 (Europe) Other: IEEE 802.11b/802.11g, RSS-102



200 West Street
 Waltham, MA 02451
 t: 781.684.0001
 f: 781.684.0009
 e: info@colubris.com
 http://www.colubris.com