

Tropos 9532

Outdoor Public Safety Mesh Router

TROPOS
networks
GREENER, SAFER, SMARTER



FEATURES

Metro Mesh OS

- Patented, purpose-built layer 3 mesh routing intelligence
- Predictive Wireless Routing Protocol dynamically employs links across multiple frequency bands to form the highest throughput, lowest latency end-to-end path
- Spectrum and Application Based Routing Engine (SABRE) provides rule-based traffic segmentation, preserving 4.9GHz for public safety while delivering dynamic fault tolerance and increased capacity with the second band
- Dynamic channel assignment, automatic power control and automated data rate selection provide the most efficient use of RF spectrum
- Redundant, self-configuring and self-healing network architecture
- High-speed, session-persistent roaming for 4.9GHz and 802.11g clients

Secure Management

- User-defined traffic filters
- 802.1x/802.11i/WPA2
- MAC address access control lists
- AES encryption of mesh data and control traffic
- Secure local and remote configuration via HTTPS
- SNMP-based element management system

Platform

- Dual 4.9GHz/802.11g radios for meshing and client access
- Best-in-class link budget for superior RF propagation
- Ruggedized and weatherized for extreme outdoor conditions
- FIPS 140-2 certifiable

The Tropos® System Architecture delivers the maximum scalability, high capacity at low cost and great user experience demanded by customers. Tropos Architecture combines the innovative and patented Tropos Mesh OS, the industry's most sophisticated metro-scale mesh routing intelligence, with the Tropos analysis and control tools for centralized visibility, provisioning and management, and purpose-built Tropos routers with peerless 802.11 radio performance. Tropos' complete solution enables citywide mobile and fixed multi-megabit connectivity for IP-based data, video and voice applications.

The Tropos Mesh OS, including the Predictive Wireless Routing Protocol (PWRP), the industry's most scalable mesh routing algorithm. It uses 4.9GHz and 802.11b/g radio options to form the mesh infrastructure and provide client coverage and connectivity.

A unique Tropos feature, Spectrum and Application Based Routing Engine (SABRE), provides software-enabled policy-based multi-band mesh routing. It reserves the 4.9GHz band for public safety use, while optionally allowing the use of 2.4GHz spectrum to provide fault tolerance and enhance network capacity. SABRE provides rule-based traffic segmentation, separating public safety from other traffic by carrying applications on different spectrum and radios, while supporting dynamic fault tolerance in the event of link congestion or failure. It ensures that each packet is routed along the optimal and appropriate path for both mesh and capacity injection layers.

SABRE is a component of PWRP that provides rule-based traffic segmentation, carrying traffic for different applications on different spectrum and radios while supporting dynamic fault tolerance in the event of link congestion or failure.

Utilizing the embedded PWRP, the Tropos 9532 creates a self-organizing and self-healing 4.9GHz wireless mesh that intelligently selects the optimum end-to-end data path through the mesh. Because the Tropos Mesh OS consumes negligible available bandwidth, networks can be scaled to many thousands of routers without any client throughput or network capacity degradation.

Tropos routers require only power and can be deployed anywhere it is available. Each Tropos router provides wireless connectivity to standard 802.11b/g clients and extends the coverage area of the metro-scale Wi-Fi network.

The ruggedized and weatherized Tropos 9532 is NRTL certified for outdoor installation. It can be mounted on external structures such as buildings or lampposts in less than 15 minutes by a trade-level worker with one tool. Tropos routers can run on a wide range of power options and are available with an optional, factory-installed battery backup system.

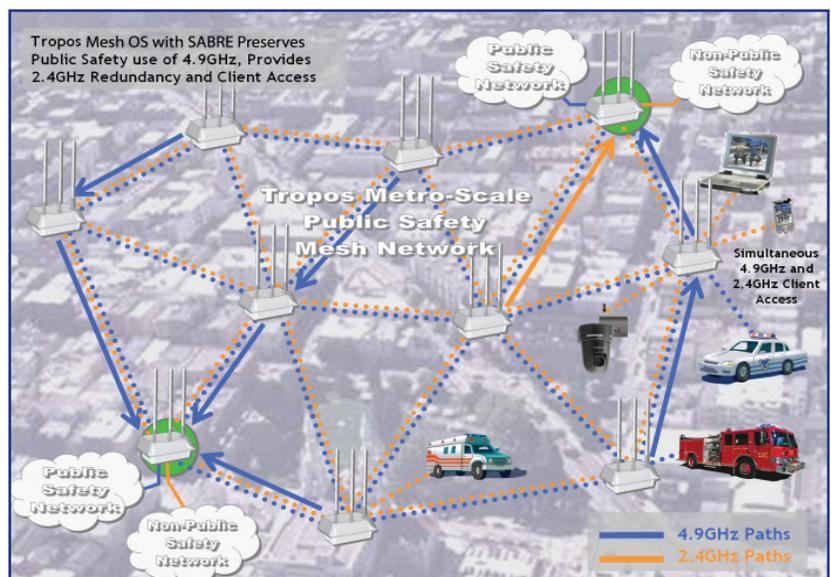


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Tropos 9532

Outdoor Public Safety Mesh Router



TECHNICAL SPECIFICATIONS

Wireless

- IEEE 802.11b/g
- Frequency band: 2.4-2.483 GHz
- Modulation: 802.11g - OFDM (64-QAM, 16-QAM, QPSK, BPSK)
802.11b - DSSS (DBPSK, DQPSK, CCK)
- TX Power: 36dBm (EIRP)
- 7.4dBi Omnidirectional antennas
- Optional 6.0dBi omni-directional or 12dBi sector antenna(s)
- Media Access Protocol: CSMA/CA with ACK
- RX Sensitivity:

-100dBm @ 1 Mbps	-89dBm @ 18 Mbps
-95dBm @ 5.5 Mbps	-86dBm @ 24 Mbps
-91dBm @ 11 Mbps	-83dBm @ 36 Mbps
-94dBm @ 6 Mbps	-78dBm @ 48 Mbps
-92dBm @ 12 Mbps	-76dBm @ 54 Mbps
- Transmit and Receive diversity

- IEEE 802.11a
- Frequency band: 4.940 - 4.990 GHz
- Modulation: 802.11a - OFDM (64-QAM, 16-QAM)
- TX Power: 29dBm EIRP
- 9.1dBi Omnidirectional antenna
- Optional 12.0dBi sector (or) 19dBi patch antenna
- Media Access Protocol: CSMA/CA with ACK
- RX Sensitivity:

-94dBm @ 6 Mbps	-86dBm @ 24 Mbps
-93dBm @ 9 Mbps	-83dBm @ 36 Mbps
-92dBm @ 12 Mbps	-78dBm @ 48 Mbps
-89dBm @ 18 Mbps	-76dBm @ 54 Mbps
- Configurable support for 20MHz, 10 MHz or 5 MHz channels

Networking

- TCP and VPN session persistent roaming
- Full 802.11b/g client compatibility
- NAT support
- Layer 2 and Layer 3 support
- DHCP Server and Relay
- Sub-interface support
- Ethernet port

Management

- HTTPS to on-board configuration management tools
- Secure local and remote configuration via HTTPS
- SNMP V2c
- Tropos MIB
- Browser-based management tool
- Simple configuration save and restore
- Network & client monitoring and statistical capture features

Security

- Authentication: 802.11i, WPA, WPA2, 802.1x (including EAP-TLS/TTLS/SIM/PEAP)
- Encryption: Open, WEP, TKIP, AES
- AES encryption of mesh and control traffic
- Multiple BSSIDs & ESSIDs (ESSID suppression)
- Full VPN compatibility (VPN filtering—rejects non-VPN traffic)
- MAC address access control lists
- HTTPS only to on-board management tools
- Packet filtering
- FIPS 140-2 certifiable

Environmental Specifications

- Operating temperature range: -40°C to 55°C
- Storage temperature range: -40°C to 85°C
- Weather rating: IP67 weathertight
- Wind survivability: >165 mph
- Wind loading (165 mph): <300 Newtons
- ASTM B117 Salt Fog rust resistance compliant
- Shock & vibration: ETSI 300-19-2-4 spec T41.E class 4M3
- Transportation: ISTA ZA

Optional Battery Back-Up

- Factory Installed Li-Ion battery
- Back-up power 2 - 6 hours typical

Package Contents

- Tropos 9532
- 7.4dBi omni-directional antennas (2), 802.11b/g
- 9.1dBi omni-directional antenna (1), 802.11a
- Mounting bracket and accessories
- Hardware Installation and Quick Start Guides

Warranty

- One (1) year on parts and labor; return to point of purchase
- *Optional* standard and premium support packages available

Optional Accessories

- Power Cables
 - Street light NEMA photo-electric control power tap 100-480 VAC, 2 wire 4 ft. power cable
 - Street light NEMA photo-electric control power tap 100-480 VAC, 2 wire 20 ft. power cable
 - Electrical power cord, US/Canada 120 VAC, 15 A, 3 prong 6 ft. or 30 ft.
- CAT5 building entrance data protection; network protection unit
- 19dBi patch antenna, 802.11a

Approvals

- FCC CFR 47 Part 15, Class B
- FCC Part 90
- UL 60950-1
- CSA 22.2 No. 60950-1
- UL 579 IP67 rated for outdoor use
- UL 1449

Hardware Specifications

- Autosensing 10/100BaseT Ethernet
- Power input: 100-480VAC 50/60Hz single and split-phase ANSI/IEEE C62.41 category C3 integrated branch circuit protection
- AC power consumption: 18 W typical
- Power over Ethernet power sourcing capability: 12Vdc, 24Vdc, 48Vdc @ 30W output
- Power-on and network status lamp: Green/Red
- Dimensions (w/o mounting brackets or antennas): 13.00 in wide x 8.00 in deep x 5.3 in high
- Weight: 16 lbs (7.20 kg) max., with mounting brackets,

Protection Circuits

- Antenna Protection: ≤ 0.5µJ for 6kV/3kA @ 8/20µS Waveform
- Electrical Protection:
 - ANSI/IEEE C62.41, UL 1449-2nd ed., 10kA @ 8/20 µS Wave form, 36kA per phase, L-L, L-N, L-PE
 - EN61000-4-5 Level 1 & 2 AC Surge Immunity
 - EN61000-4-4 Level 2 Electrical Fast Transient Burst Immunity
 - EN61000-4-3 Level 2 EMC Field Immunity
 - EN61000-4-2 Level 2 (contact), Level 3 (air) ESD immunity

Ordering Information:

- Part Number: 95323030
Tropos 9532 router, FCC TX; 2.4 & 4.9 GHz; two 7.4dBi & one 9.1dBi omni antennas, bracketry
- Part Number: 95323130
Tropos 9532 router, FCC TX; 2.4 & 4.9 GHz; battery backup; two 7.4dBi & one 9.1dBi omni antennas, bracketry

For additional configuration options please contact your Tropos Representative