

C9800-40-K9

2RU hardware WLC for mid-size / regional deployments. Up to 2,000 access points / 32,000 clients; 40 Gbps; supports Catalyst 9100/916x APs; IOS XE-based.

Cisco Catalyst 9800-40 Wireless Controller

The Cisco Catalyst 9800-40 is a fixed-form wireless LAN controller that brings the IOS XE software architecture to wireless control. It supports up to 2,000 access points and 32,000 wireless clients with up to 40 Gbps of wireless throughput, making it a good control point for medium-to-large campus and branch Wi-Fi. It provides 8x 10/25G SFP+ network ports and ships with dual hot-swappable power supplies and fan trays. The 9800 family runs the same IOS XE 16.12+/17.x code base as Catalyst switches, unifying wired and wireless management under a single CLI, NETCONF/YANG model, and Cisco Catalyst Center (formerly DNA Center) automation stack.

Specification	Value
Form factor	2RU fixed-form hardware appliance
AP support	Up to 2,000 access points
Client support	Up to 32,000 wireless clients
Wireless throughput	Up to 40 Gbps (FW-based / datasheet-rated)
Network ports	8x 10/25G SFP+
Radio types	Supports Catalyst 9100 / 916x Wi-Fi 6 / 6E APs
CPU / DRAM	x86 platform / up to 64 GB DDR4 ECC (datasheet-rated)
Storage	Enterprise NVMe / HDD (RAID-capable)
Power supply	Dual hot-swappable AC PSU (redundant)
Software	Cisco IOS XE 16.12+/17.x (Catalyst 9800 software)

- Scalable to 2,000 APs / 32,000 clients in a fixed 2RU appliance.
- Up to 40 Gbps wireless throughput for converged voice, video, IoT and location traffic.
- 8x 10/25G SFP+ uplink ports for high-bandwidth wireless backhaul.
- Runs IOS XE - unified wired/wireless management, model-driven telemetry and gNMI/gRPC.
- Dual redundant hot-swappable AC power supplies and fan trays.
- Migrations path for Aironet 5520 / 8540 controllers.

Metric	C9800-40
Maximum access points	2,000
Maximum wireless clients	32,000
Wireless throughput	40 Gbps
Concurrent APs (recommended)	Up to 2,000 (license-tiered)

Metric	C9800-40
FlexConnect / mesh	Supported with controller / FlexConnect modes
SSID / WLAN scale	Up to 512 WLANs / VAPs (software-defined)
RF management	Cisco RRM, DCA, TPC, CleanAir integration
Clustering / N+1	N+1 / N+N controller redundancy supported

Component	Specification
Form factor	2 RU rack-mount
Network ports	8x 10/25G SFP+
Management ports	1x 1G RJ-45 mgmt + 1x RJ-45 console + 1x USB
CPU	Intel x86 platform
DRAM	Up to 64 GB DDR4 ECC (rated)
Storage	Enterprise NVMe SSD / HDD (RAID-capable)
Power supply	Dual hot-swappable AC PSU (redundant, ships 2)
AC input	100-240 VAC, autoranging
Fan	Dual hot-swappable fan trays
Airflow	Front-to-back

Cisco wireless platforms support the following capabilities as part of the Cisco wireless software release that runs on the platform.

Capability	Support
IEEE standards	802.11a/b/g/n/ac/ax (Wi-Fi 6/6E); 802.11d/e/h/i/k/r/u/v/w
MIMO / spatial streams	2x2:2, 4x4:4, 8x8:8 depending on platform (MU-MIMO and OFDMA)
Band steering	Automatic band steering and load balancing (RRM / DCA)
WPA3 security	WPA3-Personal / Enterprise, Enhanced Open, SAE / OWE transition mode
Fast roaming	802.11r (FT), 802.11k (RRM), 802.11v (BSS Transition)
Application visibility	Cisco AVC, NBAR2-based deep packet inspection
Telemetry	Model-driven telemetry; gNMI, gRPC; streaming telemetry to DNA Center
CleanAir / RF	Cisco CleanAir spectrum analysis (RF interference detection)
Mesh / FlexConnect	Wireless mesh and FlexConnect branch deployments (controller mode)
Guest services	Cisco Identity Services Engine (ISE) integration; web authentication
Location services	CMX / Cisco Spaces / DNA Spaces location services integration
IoT radio	BLE 5.x radio and Zigbee (platform-dependent) for IoT services

Cisco wireless platforms include Radio Resource Management (RRM), application visibility, and streaming telemetry for efficient large-scale Wi-Fi operations.

Capability	Description
Radio Resource Management (RRM)	Cisco RRM with DCA, TPC, CHDM for automatic RF optimization
BandSelect	Automatic band steering of dual-band clients to 5 GHz
Optimized Roaming	RADIUS-assisted client roaming decisions
Application Visibility and Control (AVC)	NBAR2-based application recognition and QoS marking
Bonjour services	Cisco Bonjour gateway / services directory integration
Streaming telemetry	gNMI / gRPC streaming telemetry to DNA Center / Cisco Spaces
Wi-Fi 6E awareness	6 GHz spectrum support with AFC (Automated Frequency Coordination)
Guest portals	Centralized guest web authentication via DNA Center / ISE
Location services	Cisco Spaces / CMX location services, asset tracking
Spectrum analysis	Cisco CleanAir / RF analysis for interference mitigation
Energy efficiency	Wi-Fi 6 / 6E Target Wake Time (TWT) and 802.3az Energy Efficient Ethernet
Mesh / FlexConnect	Cisco wireless mesh and branch FlexConnect deployments

Catalyst 916x access points and the Catalyst 9800 controllers that manage them fully support IEEE 802.11ax (Wi-Fi 6 / Wi-Fi 6E). The technology features below are delivered by 802.11ax radios.

802.11ax Feature	Description
OFDMA	Orthogonal Frequency-Division Multiple Access for efficient multi-client uplink / downlink
MU-MIMO	Multi-user MIMO up to 4x4:4 on supported radios for concurrent client streams
1024-QAM	Higher modulation for up to ~40% more throughput than Wi-Fi 5
6 GHz (6E)	Dedicated 6 GHz band with new 6E channels, less interference (where enabled)
TWT	Target Wake Time for client power saving and IoT battery life
BSS Coloring	Improved spatial reuse in dense deployments
Enhanced Open (OWE)	Opportunistic Wireless Encryption for open networks
WPA3	WPA3-Personal / Enterprise with GCMP-256 and SAE
OFDMA uplink	Coordinated uplink scheduling for lower latency
Spatial reuse	Adaptive power control for high-density venues
CleanAir	Spectrum analysis on the radio (RF interference detection)
Backhaul	mGig uplink (2.5G / 5G) to avoid radio-to-wire bottleneck

Robust RF management and client security are core to enterprise Wi-Fi. The platform (controller + AP) delivers the following RF and security capabilities.

Capability	Description
RRM (Radio Resource Management)	Automatic channel (DCA) and power (TPC) optimization
BandSelect	Steering dual-band clients to the less congested 5 GHz band
CleanAir	Proactive spectrum analysis and interference mitigation
WPA3 / Enhanced Open	Modern encryption and secure open networks
802.1X / AAA	Enterprise authentication with RADIUS / ISE integration
Fast roaming	802.11r FT, 802.11k neighbor reports, 802.11v BSS transition
Client analytics	Client 360, RF health and history analytics
Guest access	Centralized web-auth guest portals
FlexConnect	Branch AP mode with local switching / survivability
Mesh	Wireless mesh backhaul for extended coverage
mDNS / Bonjour	Service discovery across subnets (Bonjour gateway)
IoT	BLE / Zigbee radio support on select APs for IoT services

Catalyst 9800 controllers provide a centralized wireless control plane built on Cisco IOS XE. The platform-level capabilities below are common to the 9800 family.

Platform Feature	Description
Software foundation	Cisco IOS XE (shared with Catalyst switching)
AP management	CAPWAP local / FlexConnect modes for Catalyst APs
WLAN policies	Per-WLAN security, QoS, and access policies
RF management	RRM / DCA / TPC / CleanAir on the managed radios
Client services	Client 360 analytics, history and health
Programmability	NETCONF/YANG, RESTCONF, gNMI/gRPC streaming telemetry
Automation	Catalyst Center (DNA) intent-based workflows
Location	Cisco Spaces / DNA Spaces location and analytics
Observability	Model-driven telemetry, streaming to collectors
Security	WPA3, ISE integration, AVC, policy-based access
Mobility	Mobility groups, guest anchoring, N+1/N+N
AP scale	Tiered per model (9800-L / 9800-40 / 9800-80 / 9800-CL)

Catalyst 9800 controllers and the APs they manage can be deployed in several architectures for resilience and flexible branch operations.

Architecture	Description
N+1 / N+N redundancy	Standby controllers take over APs on primary failure
SSO (Stateful Switchover)	Active / standby pair with synchronized state (hardware models)
Mobility groups	Controllers in a mobility group share client roaming / guest state
Guest anchoring	Guest traffic anchored to a designated controller / DMZ
FlexConnect	Branch APs keep serving locally if WAN / controller link fails
Mesh	AP mesh backhaul extends wireless reach to hard-to-wire areas
Clustering	Controller clustering for scale-out (per-software version support)
Split-tunnel / local switching	FlexConnect local switching to keep branch traffic local
Central / local auth	Central AAA or local EAP for WLAN authentication
Software upgrades	Rolling AP upgrades with minimal client impact (N+1 image management)

Accessories, mounting kits and deployment accessories for C9800-40-K9 are available from Cisco and authorized partners.

Accessory	Description
Mounting bracket	Standard AIR-AP-BRACKET or vendor-specific mounting kit
Power adapter	Cisco MA-PWR-30W or MA-PWR-50WAC (for APs that require DC power)
PoE source	IEEE 802.3at / 802.3bt Power-over-Ethernet midspan or switch uplink
Console / management	RJ-45 console cable for controller local CLI access
External antenna	External antenna for -E / -I external-AP models (where applicable)
Spare PSU (controllers)	Hot-swappable AC / DC PSU for hardware controllers (where applicable)
Stacking / clustering	Controller clustering / SSO for hardware platforms (where supported)
Software license	Cisco DNA / Network Essentials or Advantage tier
Smart Net Total Care	Optional service contract for hardware replacement

The platform complies with the following interoperability, safety and environmental standards. Compliance is verified by independent testing laboratories.

Category	Standard
IEEE 802.11 standards	802.11a/b/g/n/ac/ax; 802.11d/e/h/i/k/r/u/v/w; WMM, WMM-PS
WPA3 / security	WPA3-Personal/Enterprise, SAE, OWE, GCMP-256; 802.1x with RADIUS / TACACS+
Networking	RFC 1812 IPv4, RFC 4291 IPv6, RFC 4861 ND; CAPWAP (RFC 5415/5416)
QoS	802.1p, DSCP (RFC 2474), WMM (Wi-Fi Multimedia)

Category	Standard
Management	SNMPv2c/v3, NETCONF/YANG, RESTCONF, gNMI/gRPC telemetry, HTTPS WebUI
Time sync	NTPv4 (RFC 5905); AP time sync via CAPWAP / 1588v2
Safety	UL/CSA/IEC/EN 62368-1, UL/IEC/EN 60950-1, AS/NZS 60950.1
EMC / EMI	FCC 47 CFR Part 15 Class B (residential APs) or Class A (enterprise APs), EN 55032/CISPR 32, EN 55024/55035, EN 300 386
Environmental	RoHS 2011/65/EU, WEEE 2012/19/EU; operating/storage altitude per datasheet
RF regulatory	FCC Part 15 Subpart C / E / Y (US), EN 301 893 / EN 300 328 (EU), TELECOM (Japan), RSS-Gen (Canada)

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Networking	RFC 1812 IPv4, RFC 4291 IPv6, RFC 4861 ND; CAPWAP (RFC 5415/5416)
QoS	802.1p, DSCP (RFC 2474), WMM (Wi-Fi Multimedia)
Management	SNMPv2c/v3, NETCONF/YANG, RESTCONF, gNMI/gRPC telemetry, HTTPS WebUI
Time sync	NTPv4 (RFC 5905); AP time sync via CAPWAP / 1588v2
Safety	UL/CSA/IEC/EN 62368-1, UL/IEC/EN 60950-1, AS/NZS 60950.1

Category	Standard
EMC / EMI	FCC 47 CFR Part 15 Class B (residential APs) or Class A (enterprise APs), EN 55032/CISPR 32, EN 55024/55035, EN 300 386
Environmental	RoHS 2011/65/EU, WEEE 2012/19/EU; operating/storage altitude per datasheet
RF regulatory	FCC Part 15 Subpart C / E / Y (US), EN 301 893 / EN 300 328 (EU), TELEC (Japan), RSS-Gen (Canada)