

Prerequisites

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Prerequisites for Sensor Connect

- Download the Sensor Connect Application software image that is posted in this Software Download page.

Note For more information about Sensor Connect for IoT Services, refer to these documentation:

- Cisco Sensor Connect for IoT Services Release Notes
- Cisco Sensor Connect for IoT Services: Partner Developer Guide

- Use a supported Cisco Catalyst 9800 Wireless Controller and supported access points. The supported hardware and scale limits are the same for on-premises and Cisco Spaces-managed deployments.
- Enable SSH on the controller when the workflow requires Sensor Connect to push controller or access-point configuration.
- For Cisco IOS XE 17.15 and 17.18, reserve a unique Sensor Connect subnet that does not overlap another controller subnet. Ensure that the Sensor Connect subnet is reachable from the access-point subnets.
- For Cisco IOS XE 26.1 and later, configure a default route to the default gateway of the VLAN interface before using automatic NAT configuration.
- For a Cisco Spaces-managed deployment, use Cisco IOS XE 26.1.2 or later, Cisco Spaces Connector 3.3 or later, and Service Manager 3.3.1 or later.
- If a Cisco Spaces Connector is upgraded from 3.2 or earlier to 3.3 or later and it is not connected to the current Cisco Spaces domain, re-token the connector.
- The Cisco Spaces Connector gateway service and Wireless IoT service are mutually exclusive on the same connector.

- The Cisco Catalyst 9800 Wireless Controller communicates with Sensor Connect using a VirtualPortGroup interface. This interface has its own subnet and will be configured automatically during the Day 0 installation process.
- When using Sensor Connect for IoT Services in device-tracking scenarios where timestamp accuracy is critical, ensure that the network between Cisco access points and any third-party application is time-synchronized. This can be achieved, for example, by configuring Network Time Protocol (NTP) on the Cisco APs to maintain consistent time across the network.
- Cisco Sensor Connect for IoT Services is not supported on Cisco Catalyst 9800 Wireless Controllers running Cisco IOS XE 17.12.x. Do not install or access the Sensor Connect application through a VirtualPortGroup interface on Cisco IOS XE 17.12.x. This action may cause the controller to reload. Upgrade the controller to a supported Cisco IOS XE release before deploying Sensor Connect.

License

Use one of these licenses to operate sensor connect:

- Cisco Spaces Smart Operation
- Cisco Spaces ACT
- Cisco Spaces Unlimited
- Cisco Wireless Advantage
- Cisco Spaces Premier

System configuration

Supported access points

- C9105AX
- C9115AX
- C9120AX
- C9130AX
- C9124AX
- C9136I
- CW9162I
- CW9164I
- CW9166I
- CW9172H
- CW9172I

- CW9176
- CW9178
- CW IW9167
- CW9163E
- CW9174
- CW9171
- CW9177
- CW9179

Note While Cisco Catalyst 9115 AP is supported with Sensor Connect for IoT Services feature for scanning and advertising, however, Cisco does not recommend using this AP model for delivering high density, latency-sensitive, or mission critical BLE use cases due to known hardware performance limitations.

The Cisco Wireless 9177 AP is supported starting with Sensor Connect release 1.2.2.

Supported platforms

- Cisco Catalyst 9800-L Wireless Controller
- Cisco Catalyst 9800-40 Wireless Controller
- Cisco Catalyst 9800-80 Wireless Controller
- Cisco CW9800L Wireless Controller
- Cisco CW9800M Wireless Controller
- Cisco CW9800H1 and CW9800H2 Wireless Controllers

Scale Summary

Table 1: Scale summary

KPIs	C9800-L	C9800-40	C9800-80	CW9800L	CW9800M	CW9800H1 and CW9800H2
Maximum BLE devices that can be onboarded (including connected)	1000, 2000 (with Performance license)	6400	12800	1000, 2000 (with Performance license)	6400	12800

Maximum BLE devices connected	1000, 2000 (with Performance license)	6400	12800	1000, 2000 (with Performance license)	6400	12800
Maximum number of APs to be onboarded to Sensor Connect	250/500	2000	6000	250/500	3000	6000
Maximum BLE advertisements handling	Subscribed: 8K/sec Total Advertisements: 22K/sec	Subscribed: 24K/sec Total Advertisements: 100K/sec	Subscribed: 40K/sec Total Advertisements: 120K/sec	Subscribed: 8K/sec Total Advertisements: 22K/sec	Subscribed: 35K/sec Total Advertisements: 125K/sec	Subscribed: 80K/sec Total Advertisements: 200K/sec
Maximum channel throughput	6 Mbps	20 Mbps	28 Mbps	6 Mbps	25 Mbps	56 Mbps
Maximum and average latency	Maximum: 3 seconds Average: 1.5 seconds	Maximum: 2 seconds Average: 1.0 second	Maximum: 2 seconds Average: 1.0 second	Maximum: 3 seconds Average: 1.5 seconds	Maximum: 2 seconds Average: 1.0 second	Maximum: 2 seconds Average: 1.0 second
High Availability Failover Time	360 seconds	300 seconds	300 seconds	360 seconds	300 seconds	300 seconds
Any impact to existing Wi-Fi capabilities	Maximum WiFi clients reduced: From 5000 to 4000, From 10000 to 8000 (with Performance license)	Maximum Wi-Fi clients reduced from 32000 to 25600	Maximum Wi-Fi clients reduced from 64000 to 51200	Maximum WiFi clients reduced: From 5000 to 4000, From 10000 to 8000 (with Performance license)	No impact	No impact

Note

- Key Performance Indicators (KPIs): KPIs are collected in ideal lab conditions with negligible network latency. The above table represents only ideal conditions. In production, numbers may vary from environment to environment.
- Latency: The delay between BLE events initiated from AP to when they are received from the MQTT application (third-party application).
- Maximum MQTT throughput: The throughput of the MQTT channel between Sensor Connect and third-party application.
- Maximum GRPC events or messages: The maximum number of events or messages Sensor Connect can handle from AP.
- Maximum BLE advertisements handling: The maximum BLE advertisements Sensor Connect can process or handle.
- Total advertisements: Covers both subscribed advertisements and advertisements received from non-onboarded or connected devices.
- High Availability failover time: The time taken for Sensor Connect to resume operations after active controller goes down.