



Cisco Spaces Partner Ecosystem Federal Support

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CHAPTER 1

Overview

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Cisco Spaces partner ecosystem

A Cisco Spaces partner integration is a collaboration feature that

- connects third-party business applications to your physical locations through Cisco Spaces
- provides partners with real-time location-based data using your existing Wi-Fi infrastructure, and
- empowers partners to deliver enhanced services, insights, and management tools for your business.

The Cisco Spaces- Partner Firehose API delivers a continuous, real-time stream of data as events occur.

After processing data from Cisco Spaces, you can perform these actions to suit your business needs:

- Visualize the data
- Publish the data
- Graph the data



CHAPTER 2

Onboarding Details

- [Onboarding details overview, on page 3](#)
- [App center information, on page 3](#)
- [Use cases, on page 4](#)
- [App tile, on page 4](#)
- [Event types, on page 4](#)
- [Integration types, on page 5](#)
- [Location details for activation, on page 5](#)

Onboarding details overview

Customer onboarding information required for Cisco team configuration and activation.

- Provide all required onboarding information. After submission, the Cisco internal team validates the details, enters the information into the application, performs the required configuration, and completes onboarding and activation.

To onboard a partner app, provide the following details in this document. The Cisco internal team will create/configure the application and complete onboarding.

- [App Center](#)
- [Use Cases](#)
- [App Tile](#)
- [Events](#)
- [Integration Details](#)
- [Location Details for Activation](#)

App center information

Provide the requested information, images, and selections. The Cisco internal team will enter the information into the application.

- **App Name**

- **App Tagline**
- **App Icon**
- **App Description**
- **Primary Industry**
- **Company Logo**
- **Company Name**
- **Company Website**

Use cases

(Optional - Only if Use Cases are enabled) Provide a brief description of the intended integration use case and expected business outcome.

- Use Case Headline: Add the **Use Case Headline** title.
- Use Case Icon: Attach the **Use Case Icon** image.
- Use Case Short description: Add the **Use Case Short Description**.
- Use Case Long description: Add the **Use Case Long Description**.
- Compatibility Notes: Add the **Compatibility Notes**.
- Use Case Category: Select the **Use Case Category** from the dropdown.
- Use Case Sub-Category: Select the **Use Case Sub-Category** from the dropdown.

App tile

To ensure consistent application display settings, always provide these fields when configuring an app tile:

- App Tile Label: Enter the **App Tile Label**.
- App Tile Tagline: Enter the **App Tile Tagline**.

Event types

We recommend these when monitoring updates and changes using event types:

- Track profile updates, location changes, app activation, and device associations to achieve comprehensive oversight of user and device management.
- Review event logs for updates related to account administration, device counts, camera counts, network telemetry, Webex telemetry, and presence states to maintain accurate system records.
- Monitor space occupancy changes and device location updates to support efficient resource allocation and security.

Common event types include:

- Profile Update.
- Device Location Update.
- Device Presence.
- User Presence.
- Network Telemetry.

Integration types

Provide the pull channels that best fit your application's requirements.

- HTTP,
- gRPC, and
- Websocket

Location details for activation

Provide the following location details required for onboarding and activation.

- To proceed with the activation, provide the exact location hierarchy details:
 - Campus or site name.
 - Building name or number.
 - Floor number.

- The Cisco internal team will coordinate API key generation and activation activities as part of the onboarding process, if applicable.
- Confirm your endpoint domain.

Endpoint domain example:

Endpoint Domain: <https://partners.spaces-gov.cisco/>

- Use the curl command below to preview incoming events, replacing <ENDPOINT_DOMAIN> and <API_KEY> with your values:

Sample curl command:

```
curl "https://<ENDPOINT_DOMAIN>/api/partners/v1/firehose/events" -H "X-API-Key: <API_KEY>"
```




CHAPTER 3

Pull Channels

- [Pull channels, on page 7](#)

Pull channels

A pull channel is a data delivery mechanism that

- enables clients to retrieve (pull) data from a source instead of passively receiving it,
- supports multiple modes for event handling (such as HTTP, event replay, and de-duplication), and
- allows configuration for scalability and event retention based on system requirements

HTTP

Ensure your application meets these integration specifications:

- Your application must support secure (HTTPS) connections to the endpoint.
- Events are encoded as JSON and separated by a newline character. For sample JSON format events, see [Sample Events JSON format](#).
- For on-premise applications, you can request a replica of the Firehose stream for standby or secondary instances by using the `replicaId` query parameter (integer; default 1).



Note `replicaId` is supported only for on-premise applications.

You can request to replay events from a specific timestamp by using the `fromTimestamp` parameter:

- Provide the timestamp as the number of milliseconds since epoch.
- If you do not specify `fromTimestamp`, the HTTP Pull endpoint sends only events received after the HTTP connection is established.

Event replay and de-duplication

To manage event de-duplication and ensure data continuity, follow these best practices:

- Use the unique identifier (record UID) present in all events to de-duplicate and avoid processing duplicate events.
- During production deployments, if a restart occurs, use the `EventsStreamRequest` with the `fromTimestamp` value in combination with de-duplication methods to prevent missing events or data loss.

Event retention window

Scaling with multiple receivers

These guidelines to scale your application and optimize throughput for the Firehose API:

- To distribute load across multiple receivers in your application, or to increase throughput for high-latency connections, you can open multiple connections to the Firehose API HTTP endpoint.
- Your application can have up to 12 receivers.
- When you use more than one connection, you must specify the partitions each connection receives by setting the **minPartition** (default one) and **maxPartition** (default 12) parameters in the GET request.



CHAPTER 4

gRPC

- [gRPC, on page 9](#)

gRPC

gRPC is a popular, high-performance, open-source RPC framework. It supports

- Cisco Spaces Firehose API gRPC service definition is provided as a proto file. You can compile this file using the protocol buffer compiler (language specific).
- gRPC operates over HTTP/2.
- Events are encoded as Protocol Buffers (protobuf).



Note The Cisco SpacesFirehose API maintains a rolling window of recent events for the partner. The width of this window is unspecified and is subject to change; providing timestamps within the preceding hour is expected to work.

Multiple receiver and partitions

These guidelines to configure multi-receiver deployments for your application:

- If your application uses multiple receivers, include the `min_partition` and `max_partition` values in the `EventsStreamRequest`.
- Your application can have up to 12 receivers.

For example, if you have 4 receivers within your application, you would have the these:

- Receiver #1 with `min_partition = 1` and `max_partition = 3`
- Receiver #2 with `min_partition = 4` and `max_partition = 6`

Receiver partition assignments

Configure your receivers with the these partition assignments:

- Receiver #3 with `min_partition = 7` and `max_partition = 9`
- Receiver #4 with `min_partition = 10` and `max_partition = 12`



CHAPTER 5

Port 443

- [Port](#), on page 11

Port

Utilize explicit partitioning to enable these capabilities:

- Explicit partitioning allows your application to perform a rolling upgrade.
- Because partition assignments remain stable, the upgrade does not move load to other receivers.
- Each receiver can use the `fromTimestamp` replay parameter to replay events for its assigned partitions without affecting events sent to other receivers.

The Keep Alive event is sent every 15 seconds when no other event is sent.

Expected gRPC status codes

These gRPC status codes indicate the result of your request:

- `Status.OK`: Success
- `Status.UNAUTHENTICATED`: Invalid API key or unauthorised API key
- `Status.PERMISSION_DENIED`: gRPC channel is not enabled
- `Status.RESOURCE_EXHAUSTED`: Exceeded connection limit (`replicaId > 3` or number of connections `> 12`)



CHAPTER 6

Event Types

- [Event types, on page 13](#)

Event types

Most events group by technology. This section lists Wi-Fi events.

- Wi-Fi events
- IoT events
- Camera events
- Location hierarchy events
- Activation events

Wi-Fi events

These events provide updates regarding device profiles and location changes:

- **Profile Update:** Sent when a device profile is updated or changed. For example, when an end user provides information in a captive portal.
- **Device Location Update:** Sent when a device location is updated.

Leverage these location-based tracking features and requirements to support your application:

- Continuously generates an approximate device location while the device is connected to the network.
- Your app requires X,Y and/or latitude and longitude location data, and a map of the location.
- Includes Location Updates and Device Dwell data for devices connected to your network.
- Generates events when a device enters or exits a building, a floor, or a zone.

Consider these features and requirements for your location-based application:

- Continuously generates an approximate device location while the device is connected to the network.
- Your app requires X,Y and/or latitude and longitude location data, and a map of the location.
- Includes Location Updates and Device Dwell data for devices connected to your network.

- Generates events when a device enters or exits a building, a floor, or a zone.

These requirements when configuring device location and presence event settings:

- Cisco Spaces also shares information about these devices and high-level details about their location.
- You can choose to receive geo-coordinate data for the Device Location Update event.
- If you do not select the Device Location Update event, select either the Device Presence or the User Presence event in the Event Types section.
- Apps that use presence events require zone-, floor-, or site-level presence data.

The system generates these events to provide visibility into device and user activity:

- **Device Presence:** Tracks the lifecycle of a device at a location (site). Events occur at device entry, after 10 minutes of inactivity, when a device becomes active after inactivity, and when the device is determined to have exited. These events also provide the current count of active and inactive devices at the location.
- **User Presence:** Based on the authentication in use and information available from the network, Cisco Spaces can map multiple devices owned by a user. Events occur at device entry, after 10 minutes of inactivity, when a device becomes active after inactivity, and when the device is determined to have exited. These events also provide the current count of active and inactive devices at the location.
- **Device Count:** Sent when the number of devices at the location changes.
- **Network Telemetry:** Sent at periodic intervals with health and performance telemetry for the location.

IOT events

The system generates these event types based on device and user activity:

- **Device RSSI Update:** Sent when a device's RSSI updates.
- **IoT Telemetry:** Sent when telemetry updates arrive from BLE, RFID, and Zigbee IoT devices.
- **IoT User Action:** Sent when users perform actions on IoT devices.
- **BLE RSSI Update:** Sent when a BLE device at the location pings.

Camera events

The system provides the following camera-based people counting events:

- **Camera Count:** Sent when the aggregated people count (computed via the Meraki Video Camera) changes at the location.
- **Raw Camera Count:** Sent when an individual camera count (computed via the Meraki Video Camera) changes at the location.

Location hierarchy events

The system generates these events to track updates to your location hierarchy and network structure:

- **Location Information Change:** Sent when a location is updated; for example, when a location is moved under a group, renamed, or its metadata changes.
- **Location Anchor Update:** Sent when a location anchor is added to, updated in, or removed from IoT Services.

- AP Topology Change: Sent when an AP's topology changes on the floor.

Activation events

App Activation: Sent when the Cisco internal team completes activation of the application on behalf of the customer.

Other events

These event types are generated for connection maintenance and Tele Presence reporting:

- Keep Alive: Sent when no other event has been sent for 15 seconds. Applies only to HTTP/gRPC channels to prevent your connection from timing out.
- Tele Presence: Sent when the Tele Presence system reports a people-count update.

Review the following requirements and data specifications for the Tele Presence option:

- If you select the Tele Presence option, the app requires data generated by the Tele Presence units.
- Includes the presence event and the people count event.
- Presence is provided by devices connected to the Telepresence unit via ultrasound.
- People count is provided by computer vision from the Telepresence video camera.
- Cisco Spaces does not receive any video or photographs. Cisco Spaces receives the final count of people recognized, and all video stays on the Tele Presence unit.

These events track updates to your account administration and network infrastructure status:

- Account Admin Change: Sent when an account admin is added, removed, or updated for the partner account.
- Network Status Update: Sent to represent the status of the connector and controller.

