Cisco Spaces – Rich Maps

Developer Guide

V2.0

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Introduction

This guide will walk you through the integration of Cisco Spaces RichMap SDK with your web application.

Getting Started

Include the SDK in your project by adding the script tag to the head of your HTML.

```
<head>

. . .

<script src="https://maps.ciscospaces.io/js/spaces-rich-maps-2.0-
beta.min.js"></script>

. . .

</head>
```

Then initialize the map using the below snippet

```
const accessToken = "<your-spaces-rich-map-access-token>"
const richMap = new SpacesRichMap({
    mapContainer: 'map',
    token: accessToken,
    tenantId: "spaces-tenant-id",
    locationId: "spaces-location-id",
    defaultFloor: <floorIndex>,
    initialPos: [<longitude>, <latitude>],
    initialZoom: 20,
    initialPitch: 65,
    initialBearing: 118,
    poiLegendHolder: 'poi-switch',
    hideNavigationControls: true
})
```

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API Reference

Parameters

Name	Description
`mapContainer`	The HTML element in which Spaces Rich Map will render the map or the element's string id. The specified element must have no children
`token`	A valid token belongs to a given tenant and building. Please see the below section for token generation
`tenantId`	The unique id of the tenant
`locationId`	The unique id of the location under the given tenant for which the map needs to be rendered
`defaultFloor`	The floor in the map needs to be displayed when the map finishes loading. If no value is passed, you need to call `changeFloor(floorIndex)` to explicitly load the map of a floor
`intialPos`	Center coordinate of the camera when the map loads
`intialZoom`	Initial zoom value
`initialPitch`	Initial pitch value
`initialBearing`	Initial bearing value
`poiLegendHolder`	The id of HTMLElement to which the POI switching buttons get added

Methods

Methods	Description
`setCenter(center)`	Move the camera to the given *center*, where the center should be in the format *[longitude, latitude]*
`setPitch(pitch)`	Setting the pitch of the map

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Methods	Description
`getCameraProperties()`	Return a JSON object with value for the current pitch, bearing, and zoom of the map
`reset()`	Reset the map to initial camera properties which are passed during the initialization of SDK
`getFloors()`	Returns the floor indices in an array. *Eg : [-1, 0, 1, 2, 3]*
`changeFloor(floorIndex)`	Change the map to the given *floorIndex*. The number passed should be in one of the available floor indices which you get using `getFloors()`
`getFloorBounds(floorIndex)`	Get the bounding edge coordinates for given `floorIndex`
`getFeaturesAtPoint(e, queryLayers)`	Returns the feature at a point in the given event `e`. By default, SDK will query meeting space as well as work-space features. However, you can supply an array of additional layers to query using *queryLayers*

`changeFeatureState(feature, state)`	To change the state of a feature. The *feature* object should contain at least the `source` and the `id` of the feature. You can pass the `state` object which is the state to set
	
	Supported values for `state`
	
	`FeatureStates.HOLD`
	`FeatureStates.OCCUPIED_BOOKED`
	`FeatureStates.OCCUPIED`
	`FeatureStates.AVAILABLE`
	`FeatureStates.BOOKED`
	`FeatureStates.UNKNOWN`
	`FeatureStates.SELECTED`

`getFeatures(featureId)`	Get features matching the given *featureId*
`showRoomLabels()`	To make all the labels visible on features, which have labels. Currently, labels are available only for Meeting Spaces (Workspace)
`hideRoomLabels()`	To hide all labels displayed on top of features.
`showPOIs()`	To highlight all POIs on the map
`hidePOIs()`	Remove the highlighting of POIs on the map

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Event Listeners

SDK has listeners which can be subscribed to notify you of events associated with the map. It can be implemented using the `listen` method as shown below.

```
richMap.listen(<eventName>, function(e) {

});
```

Event Name	Description
RichMapEvent.ON_LOAD	Triggered when the map is fully loaded.
RichMapEvent.FLOOR_CHANGED	Triggered when a change of floor completes
RichMapEvent.FLOOR_DATA_LOAD	Triggered when the floor information is ready. You can consider issuing `changeFloor()` inside the handler
RichMapEvent.ON_CLICK	Triggered when user's click on the map. This can be used to detect features, change the state of features etc.

Adding Markers

From v2.0, we can now add markers to the Spaces Rich Maps. See the below methods associated with adding and customizing markers

SpacesRichMap Methods	Description
addMarkerLayer(id)	Add a new marker layer on map **id** (String): The identifier for the marker layer Returns: **SpacesRichMap.MarkerLayer** instance.

SpacesRichMap.MarkerLayer Methods	Description
setIcon (url, imageOptions)	Sets the icon for the markers on the map. **Parameters** *url* (String): The URL of the icon image. *imageOptions* (Object): Optional image options for the icon. Read more about imageOptions in below link https://docs.mapbox.com/mapbox-gl-js/api/map/#map#addimage **Example 1:** Setting an icon with default options *setIcon ('https://example.com/icon.png')* **Example 2:** Setting an icon with custom options *setIcon ('https://example.com/icon.png', {pixelRatio: 2, sdf: true });*
`setMarkers(markers)`	Sets the markers on the map. **Parameters** *markers* (Array): An array of marker objects or coordinates. Each marker can be an array of coordinates [longitude, latitude] or an object with `coordinates` and `name` properties. **Example 1:** Setting markers with coordinates *setMarkers([* * [-122.38728110012187, 37.7703786952669],* * [-122.3875076296718, 37.77036141591536],* * [-122.38705902128031, 37.77038487536463]]);* **Example 2:** Setting markers with objects *setMarkers([* * { coordinates: [-122.38728110012187, 37.7703786952669], name: 'Marker 1' },*

	{ coordinates: [-122.3875076296718, 37.77036141591536], name: 'Marker 2' }, *{ coordinates: [-122.38705902128031, 37.77038487536463], name: 'Marker 3' }]);*

`setPaint(paint)`	Sets the paint properties for the markers on the map.
	
	paint (Object) – An object containing paint properties and their values. See the below link for more paint properties.
	
	https://docs.mapbox.com/style-spec/reference/layers/#symbol
	
	Example: Setting paint properties
	setPaint({
	  "text-color": "#ff0000",
	  "icon-opacity": 0.8
	});

`setLayout(layout)`	Sets the layout properties for the markers on the map. **Parameters** *layout* (Object): An object containing layout properties and their values. https://docs.mapbox.com/style-spec/reference/layers/#symbol **Example:** *Setting layout properties* *setLayout({* *"icon-size": 0.5* *});*
`show() / hide()`	Toggle visibility of all the markers added using *setMarkers()*

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Sample Code to add some markers with text

```
let labelMarkerLayer = richMap.addMarkerLayer("label-marker")
labelMarkerLayer.setIcon(
    `${window.location.protocol}//${window.location.host}/samples/partner-
sdk/images/label-marker.png`,
    {"pixelRatio":2, "stretchX" : [[40,60],[120,140]], "stretchY" : [[25,70]],
"content" : [40,25,140,70]}
)
labelMarkerLayer.setMarkers([
    {"coordinates" : [-121.91959840009883,37.41966314450835], "name" : "Label
Name"},
    {"coordinates" : [-121.91957417457962,37.41978275162883], "name" : "Long
Label Name"},
    {"coordinates" : [-121.91967768114962,37.41948290015303], "name" : "Very
Long Label Name"}
])
```

Token Generation

URL: GET /api/partners/v1/rms/oauth/token

Domain: partners.dnaspaces.io

Query Parameter	Description
locationId	Hashed Location Id [string]
partnerTenantId	Partner Tenant Id [string]

Note: This API requires authentication. Include the header `X-API-KEY` in the requests with a valid API Key

<u>Response Format</u>
```
{
  "accessToken": "<ACCESS_TOKEN>",
  "refreshToken": "<REFRESH_TOKEN>",
  "status": true/false
}
```

<u>Example</u>

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```
curl
https://partners.dnaspaces.io/api/partners/v1/rms/oauth/token?locationId=<hashedloc
ationId>&partnerTenantId=<partnerTenantId> -H "Content-Type: application/json" -H
"X-API-KEY: <API_KEY>"
```

How to get the API Key?

To find the API Key, login to the respective partner dashboard (https://partners.dnaspaces.io/partner or https://partners.dnaspaces.eu/partner), select your partner application. Under the Integration Details tab, you can find the API Keys for different environments (refer the image below)

App Center	Use Cases	App Tile	Behaviors	Events	**Integration Details**

API Credentails for Pull Channels

Use these channels to power your apps. As a security measure we suggest renewing your key every 90 days

Environment	API Key
Sandbox Created on 22nd Apr 2024 Recommended renewal - 89 days	F6B************************770
Pre Production Created on 22nd Apr 2024 Recommended renewal - 89 days	AB7************************825
Production Created on 22nd Apr 2024 Recommended renewal - 89 days	75F************************870

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Where can I find Partner Tenant ID?

Make a curl request as shown below and use the value of `partnerTenantId` available in the response (highlighted in the sample below).

```
curl --location --request GET
'https://partners.dnaspaces.io/api/partners/v1/firehose/health' --header 'x-api-
key: <API-KEY>'
```

Sample Response

```
{
  "timestamp": 1713781390226,
  "protocolVersion": "v0.0.15",
  "appActivations": [
    {
      "spacesTenantName": "xxx-xxxx",
      "spacesTenantId": "spaces-tenant-5*****c",
      "partnerTenantId": "****5D7B******58B4******0596****",
      "name": "Demo Activation",
      "referenceId": "*****************************",
      "instanceName": ""
    }
  ]
}
```

Where can I find Hashed Location ID?

Hashed location id will be present in the firehose events. To find the location id execute the below curl command and get the hashed location id from the response (highlighted below). Please note, the location change events will be sent when you activate the app for a particular location or make changes to the location.

```
curl --location --request GET
'https://partners.dnaspaces.io/api/partners/v1/firehose/events --header 'x-api-key:
<API-KEY>'
```

```
{
  "recordUid": "event-******",
  "recordTimestamp": 1713783929196,
  "spacesTenantId": "spaces-tenant-5*****c",
  "spacesTenantName": "xxx-xxxx",
  "partnerTenantId": ""****5D7B******58B4******0596****",
  "eventType": "LOCATION_CHANGE",
  "locationHierarchyChange": {
    "changeType": "ADD",
    "location": {
      "locationId": "location-5******7",
      "name": "XXXX Building",
```

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```
      "inferredLocationTypes": [
        "NETWORK"
      ],
      "parent": {
        "locationId": "location-d******b",
        "name": "xxx-xxxx",
        "inferredLocationTypes": [
          "ROOT"
        ],
        "sourceLocationId": "",
        "apCount": 0
      },
      "sourceLocationId": "",
      "apCount": 0
    }
  }
}
```

Example

```
<!DOCTYPE html>
<html>
    <head>
        <script src="https://maps.ciscospaces.io/js/spaces-rich-maps-2.0-
beta.min.js"></script>
    </head>
    <body>
        <div id='map' style='width: 100%; height: 100%;'></div>
        <div id='poi-switch'>
            <p>On this floor</p>
        </div>
        <script>
            const map = new SpacesRichMap({
                mapContainer: 'map',
                token: <your-spaces-rich-map-access-token>,
                tenantId: "<spaces-tenant-id>",
                locationId: "<hashed-location-id>",
                defaultFloor: <floorIndex>,
                initialPos: [<longitude>, <latitude>],
                initialZoom: 20,
                initialPitch: 65,
                initialBearing: 118,
                poiLegendHolder: 'poi-switch',
                hideNavigationControls: true
            });

            map.listen(RichMapEvent.ON_LOAD, function() {
                //query features / change state of rooms etc.
            });
        </script>
    </body>
</html>
```

Where can I find Spaces Tenant ID?

To find the spaces tenant id, execute the below curl command and get the spaces tenant id from the response (highlighted below).

```
curl --location --request GET
'https://partners.dnaspaces.io/api/partners/v1/firehose/health' --header 'x-api-
key: <API-KEY>'
```

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```
{
  "timestamp": 1713781390226,
  "protocolVersion": "v0.0.15",
  "appActivations": [
    {
      "spacesTenantName": "xxx-xxxx",
      "spacesTenantId": "spaces-tenant-5*****c",
      "partnerTenantId": "****5D7B******58B4******0596****",
      "name": "Demo Activation",
      "referenceId": "*****************************",
      "instanceName": ""
    }
  ]
}
```

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