

This document will guide you through the process of configuring and installing the necessary components for the CAPM Weather-map application.

After completing the steps in this document you will have a fully functional Weather-map providing a logical view of key sites and connections between sites.

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## Create Interface custom attribute

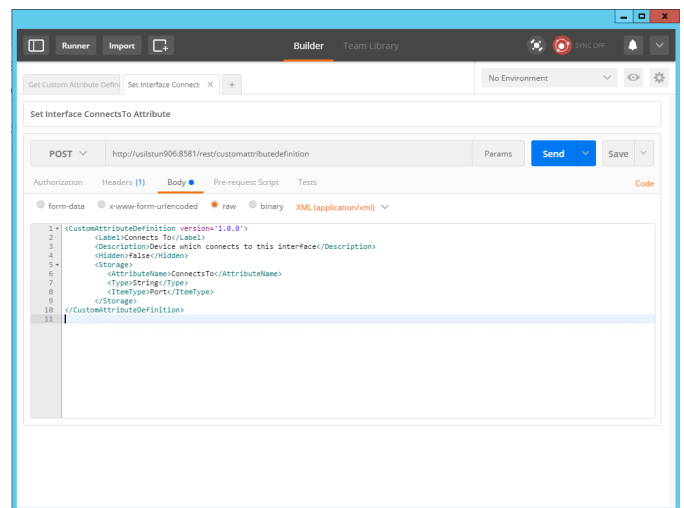
This section will provide steps to create a new custom attribute for Interface components which will allow the Weather-map to understand the logical topology as defined by the user

### Create Custom Attribute

This section will provide instructions to create a new Interface custom attribute which will be used to store the device logically connected to each interface in your Geo-Topology design

1. Launch the Chrome Postman REST client
2. Set the Request URL to: `http://<da_host>:8581/rest/customattributedefinition`
3. Add a content-type header: Content-Type `application/xml`
4. Set the request type to POST
5. Add the XML attribute definition below to the POST body
 

```
<CustomAttributeDefinition version='1.0.0'>
  <Label>Connects To</Label>
  <Description>Connects to Device</Description>
  <Hidden>false</Hidden>
  <Storage>
    <AttributeName>ConnectsTo</AttributeName>
    <Type>String</Type>
    <ItemType>Port</ItemType>
  </Storage>
</CustomAttributeDefinition>
```
6. Send the POST to the Data Aggregator
7. Verify '200 Ok' response



## Verify Custom Attribute

Now that we have created the custom attribute, we can issue a GET request to view the newly created attribute

1. Change the request type to “GET” and send the request
2. Verify the response contains the custom attribute as defined above

## Install OpenAPI Applications

This section will provide steps to install the Weather-map and associated Geo-location attribute definition Apps.

### Download CAPM OpenAPI Weather-Map applications

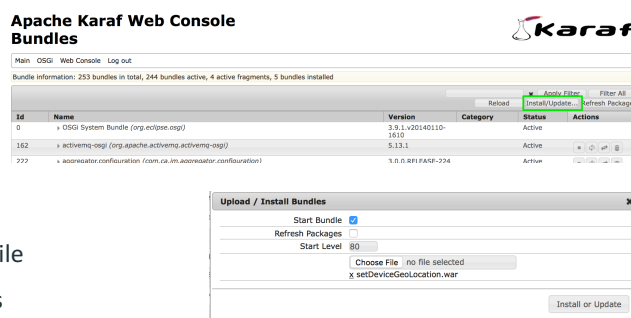
1. Access the CAPM Github Repository:
2. Download and extract the Weathermap Application

### Install setDeviceGeo Application

The setDeviceGeo application will allow you to easily define the Geo-location data of the devices to be included on your map. Using the Google Maps API, you can easily search for the desired location and the Longitude, Latitude, and Location Description attributes will be automatically defined based on the results from the Google Maps API search.

The setDeviceGeo Application needs to reside on the Data Aggregator due to the cross-domain data restrictions previously discussed and therefore we will need to leverage the Data Aggregators OSGI framework to publish the Application for access in CAPC

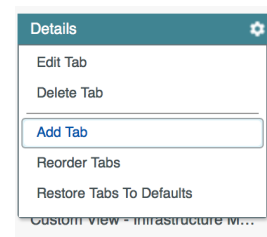
1. Launch a Web Browser and navigate to the DA Apache Karaf Web Console
2. [http://<da\\_host>:8581/system/console/bundles](http://<da_host>:8581/system/console/bundles)
3. Authenticate user: karaf
4. Password: karaf
5. Select the “Install/Update” option
6. Check the option to “Start Bundle”
7. In the file selection UI, select the setDeviceGeoLocation.war file
8. Select “Install or Update” and verify the bundle is listed and is active



### Add to Device/Router/Switch Context Page

We will now add the newly published App to the Router context page to allow easy setting of device Geo-location data

1. Launch CAPC and navigate to the Inventory->Devices view
2. Find a Router in the list (tip: look at the Type column) and select to launch the Router Context page
3. Select the “Gear” icon next to the Details section label and choose “Add Tab”
4. Set the Tab Title to: “Set Device Geo-Location”
5. In the “Add Context Tab” UI that appears, expand the “External Links” section and drag a “Browser View” into the Layout widget



6. Select the Gear icon in the newly added “Browser View” and edit the view as follows:
  7. Title: Device Geo-Location
  8. URL: `http://{ServerNameDA}:{ServerPortDA}/setAttr/index.html?deviceID={ItemIdDA}`
  9. Height: 500
10. Save the Browser view and Context page tab

## Install setInterfaceConnections Application

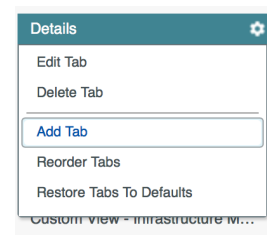
The setInterfaceConnections Application is also required to be hosted on the Data Aggregator for the same reason as the setDeviceLocation app.

1. Complete steps 1-7 from the previous section
2. When the file selection UI appears, this time select the ‘setInterfaceConnection.war’ file
3. Select “Install or Update” and verify the bundle is listed and is active

### Add to Interface Context Page

We will host the setInterfaceConnections app on the Interface context page to simplify the creation of the logical connections used in our Weather-map

1. Launch the CAPC -> Inventory -> Interfaces view
2. Select any interface from the list to launch to the context page
3. Select the “Gear” icon next to the Details section label and choose “Add Tab”
4. Set the Tab Title to: “Set Interface Connection”
5. In the “Add Context Tab” UI that appears, expand the “External Links” section and drag a “Browser View” into the Layout widget
6. Select the Gear icon in the newly added “Browser View” and edit the view as follows:
  - a. Title: Interface Connection
  - b. URL: `http://{ServerNameDA}:{ServerPortDA}/setConnection/index.html?interfaceID={ItemIdDA}`
  - c. Height: 400
7. Save the view
8. Save the context tab



## Install Weather-map Application

We will now install our Weather-map Application into a Dashboard we will create to allow easy navigation to our Weather-map and allow the group tree to control the geography viewed by a particular map using Site groups

### Create new Weather-map Dashboard and add Application

1. Add a new Dashboard to CAPC
2. Add a Browser view to the Dashboard
3. Set the parameters as follows:
  - a. Name: OpenAPI Weather-map
  - b. URL:  
`/pc/apps/user/Weathermap_075/index.html?id={ItemIdDA}&startTime={TimeStartUTC}&endTime={TimeEndUTC}`
  - c. Height:
4. Save view and Dashboard

## Create Geo-Topology Design

- Use the table below in the next two steps to create your basic Geo-topology (full-mesh example)

*TIP: Start small! Start with 2 or 3 sites and connections before creating more complex diagrams*

Device Name	Location (City, State)	Interface Name	ConnectsTo
PHNXAZ-ISR4431	Phoenix, AZ	GigabitEthernet0/1	ATLNGA-ISR4431
		GigabitEthernet0/101	STTLWA-ISR4431
ATLNGA-ISR4431	Atlanta, GA	GigabitEthernet0/2	PHNXAZ-ISR4431
		GigabitEthernet0/102	STTLWA-ISR4431
STTLWA-ISR4431	Seattle, WA	GigabitEthernet0/3	PHNXAZ-ISR4431
		GigabitEthernet0/103	ATLNGA-ISR4431

## Set Device Geo-Location Attributes

This section will provide steps to define the device Geo-location attributes which will be used by the Weather-map OpenAPI app

### Use the setDeviceGeo Application for each device in your design to set the Geo-location attributes

1. Navigate to the Inventory -> Devices view in CAPC
2. For each device in your Geo-Topology design:
  - a. Find the device in the inventory list
  - b. Select the device to navigate to the Context Page
  - c. Select the “Set Geo-Location Data” tab to access the app installed previously
  - d. Enter the lookup name for the desired location and press “Search Google”
  - e. Verify the location returned in the mini-map and Geo-location values
  - f. Make any desired changes
  - g. Select ‘Save Device Location’ to commit the changes



## Set Interface Connection Information

This section will provide steps to define the logical topology information using the custom 'ConnectsTo' attribute which will be used by the OpenAPI Weather-map app

### Use the `setInterfaceConnections` Application for each interface to the logically connected device

1. Navigate to the Inventory -> Interfaces view in CAPC
2. For each interface (connection) in your Geo-Topology design:
  - a. Find the interface (associated to the source device) in the inventory list
  - b. Select the interface to navigate to the Context Page
  - c. Select the "Set Interface Connection" tab to access the app installed previously
  - d. Search for the destination device as listed in your Geo-Topology design table
  - e. Select the "Save Connection Info" to commit the changes

## Launch Weather-map

Now that we have configured all of the device geo-location and interface connection information, our Weather-map application is ready for use!

### View Weather-map

1. In your browser navigate to CAPC and open Dashboards -> Weathermap
2. Open the Browser view options and modify the URL
  - a. From: `/pc/apps/user/Weathermap_075/index.html?demo=1&connect=half`
  - b. To: `/pc/apps/user/Weathermap_075/index.html?id={ItemIdDA}&startTime={TimeStartUTC}&endTime={TimeEndUTC}`
3. Save the browser view and Dashboard settings
4. Set the Dashboard context to the 'Weather-map' group and choose a time-frame > 1 hour
  - a. The current Weather-map uses hourly data resolution so the time-range needs to exceed 1 hour
5. Select a Site (via the circle or via the Site table) to view the connections between that site and others
6. Hover-over a link to view information about that connection including KPI data for the duration selected in the Dashboard options.

### Set Map Options

The Weather-map has several out of the box options which can be specified as URL parameters within the Weather-map browser view. These settings allow you to control key aspects of the visualization including:

1. `demo [true]`: When set, will generate the map using an included sample data set (useful for debugging map issues)
2. `connect [full | half]`: Specifies whether the connections should include a full arc for both inbound and outbound connections or a single connection which meets at the middle
3. `scope [usa | europe | world]`: Controls the default map view to allow focus on specific geographies
4. `theme [light | dark]`: Allows the selection of a dark theme or a light them depending on your preference

## Troubleshooting

### Sites do not appear on map

1. Verify the Group context for the Dashboard is correct
2. Verify the Browser view URL includes the id={ItemIdDA} parameter
3. View the Device Geo-location information in QueryBuilder to validate the correct longitude and latitude information is present and values fall within correct boundaries

### Sites appear in the wrong location

1. View the Device Geo-location information in QueryBuilder to validate the correct longitude and latitude information is present and values fall within correct boundaries

### Connections do not appear on map

1. Verify you have selected a site (connections do not appear until site is selected)
2. Verify interface ConnectsTo parameter is set to a device which has valid longitude and latitude coordinates defined

### Map does not load

1. Verify Application URL includes all correct parameters
2. Verify Dashboard Group context is correct
3. Add the demo=1 parameter to the URL to verify Map loads with demo data

### JavaScript Errors

1. Add the demo=1 parameter to the URL to verify Map loads with demo data
2. Review the errors in the Browser console log