Supplemental setup document of CE Connector for IoT

Download (https://jazz.net/downloads/ce4iot-connector/releases/0.9.0.1?p=allDownloads)
1. Just download only zip file (CE4IoTTechnicalPreview V0.9.0.1.zip).
   ● Note1: This document is for the specific version of CE Connector for IoT (V0.9). Whenever the version will be increased, the content of this document might not be applied any more.

Install (https://jazz.net/downloads/ce4iot-connector/releases/0.9.0.1?p=installationGuide)

1. Install CLM IoT(RTC+RQM+DNG+DM+RELM) v6.0.3
   ● Minimum applications are JTS and DM. But if you want to create links within IoT Platform artifacts and other application artifacts, such as RTC Workitems, RQM Test cases, etc, you need to install corresponding applications.
   ● There is no special and additional instruction for CLM IoT installation. However, when you will configure CE Connector for IoT, you need to create its configuration project area in DM. See Step 5 below.
2. Follow "Getting the installation package" in Installation Guide
   ● If you want to install Artifact Element (AE) for Rational Engineering Lifecycle Manager (RELM), you need to install and setup RELM with CE. This installation is optional.
3. Follow "Installing the domains and viewpoints" in Installation Guide
   ● There are no special instructions in these steps.
   ● If you want to install domains and viewpoints separately, you need to follow "Separate installations for the domains and viewpoint:". However, in most cases you don't have to install them separately.
4. Follow "Verifying the domains and viewpoint" in Installation Guide
   ● For example,
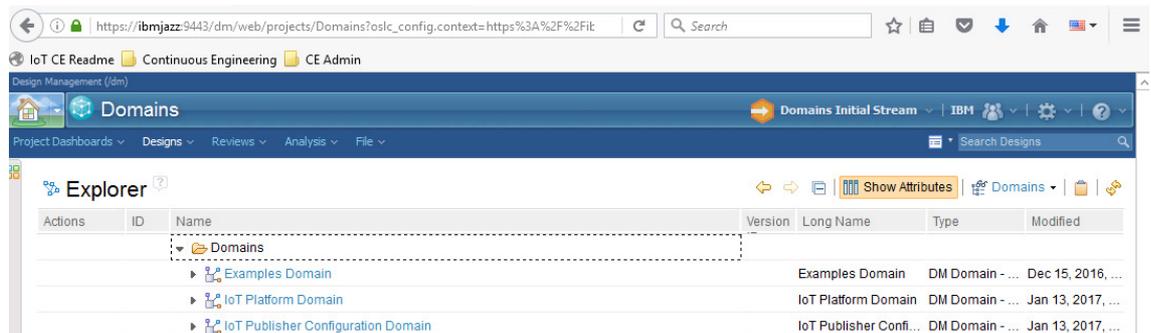
5. Follow "Creating and configuring the IoT Publisher Configuration project area" in Installation Guide
   - Version should be the latest version of IoT Publisher Configuration Domain. （As of Jan 17 2017, its version is V1.0 ）
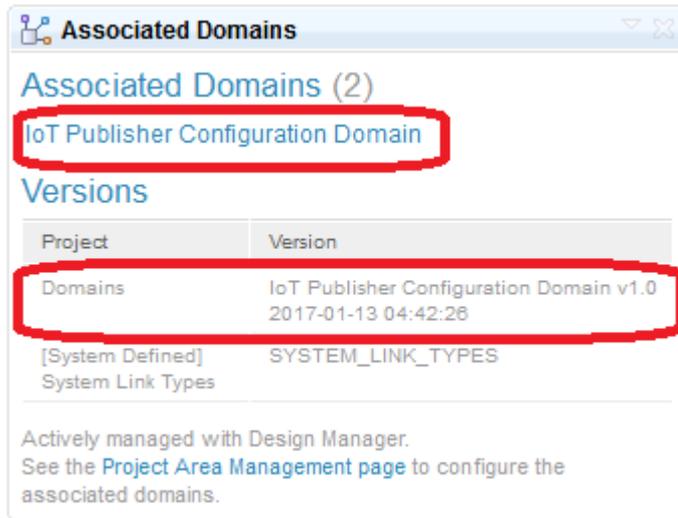
6. Option: Follow "Importing the IoT4CE custom artifact elements if using RELM views" in Installation Guide

Setup Bluemix application

1. You can reuse the existing Node-RED application if it uses Internet Of Things Platform (IoTP) service. But the recommendation is to create a Node-RED application from the scratch. Easy way is to use Internet Of Things Platform Starter Boilerplate.
   (https://console.ng.bluemix.net/catalog/starters/internet-of-things-platform-starter The plan would look like SDK for Node.js: Default, Internet of Things Platform: Lite and Cloudant NoSQL DB: Lite. This document assumes that a brand new Node-RED application is created from its Boilerplate.) Open Node-RED flow editor. The initial Node-RED application flow would look like.
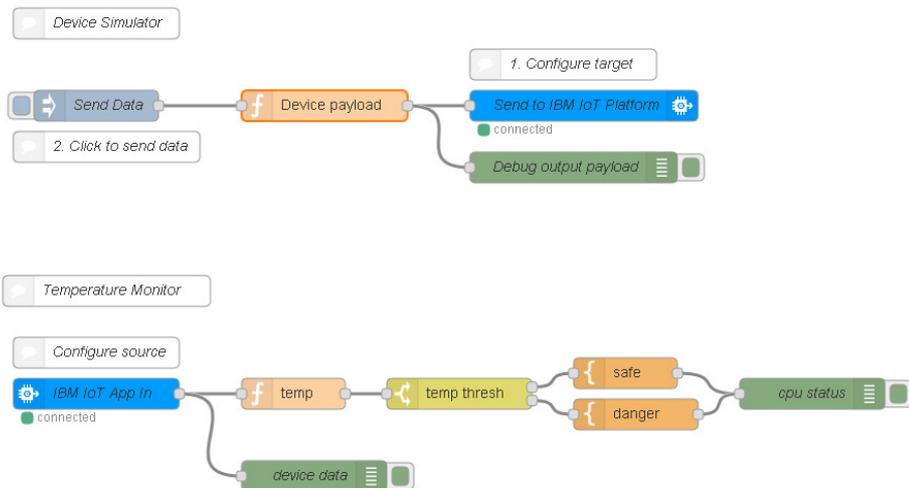
Keep this editor opened, and open another Browser tab and access your Bluemix dashboard.

2. Select "*your Node-RED application in your dashboard*", click "Connections" so that you will see the connected services, like:

Click IoTP service to open IoTP panel.

3. Click "Launch dashboard"
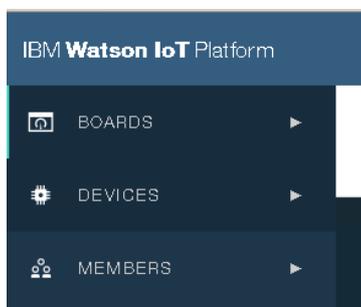
Connect your devices

Use our recipes to find out how to add your devices. We work with partners and have sample connection recipes for many devices.

Launch the Watson IoT Platform dashboard and add your devices by clicking the 'Add Device' button under the 'Devices' tab.

Launch dashboard

4.   Select "DEVICES"

5.   Click "Device Types" and click "+Create Type"

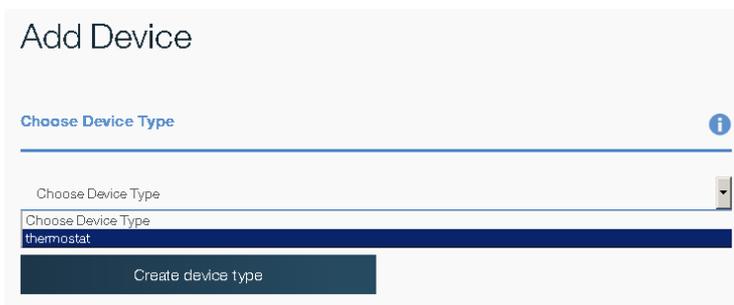6.   Click "Create device type" and type "thermostat" as the device type name.

7.   Click "Next" three times to reach to "Metadata(optional)" page. Click "Create"
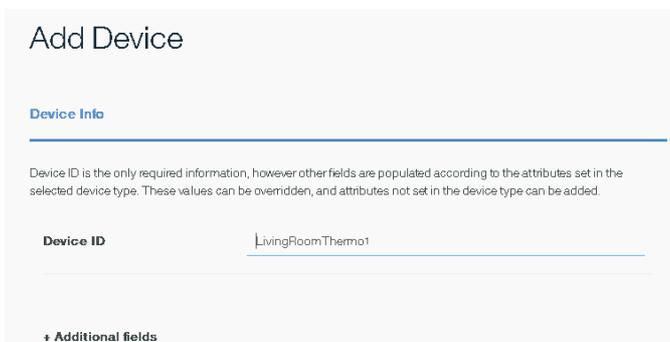
8. Click "Browse" and click "Add Device"
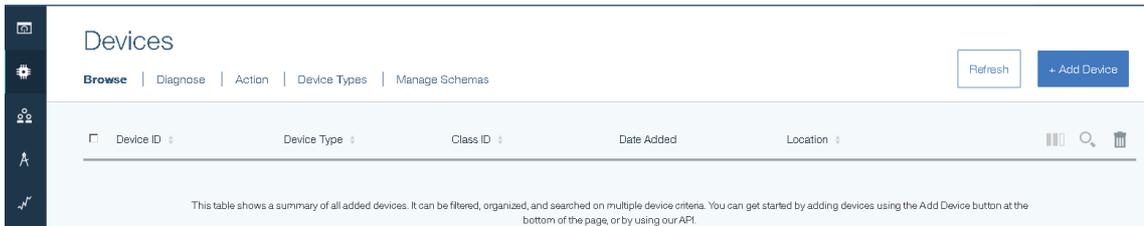
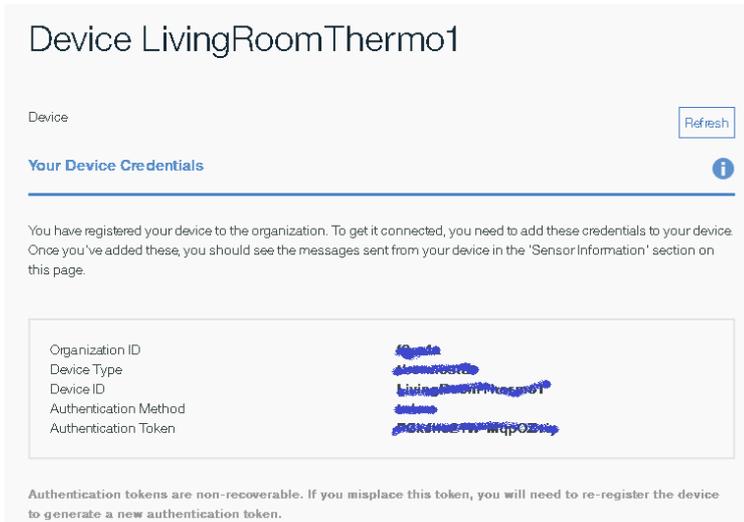9. Choose "thermostat" in "Choose Device Type" list box.

10. Click "Next" and type "LivingRoomThermo1" for "Device ID".

Click "Next" four times to reach to "Your Device Credential" page.

11. Option: Copy and paste this credential data to the text editor (for example, notepad) to keep them. However, these information won't be used in this scenario, this step is an
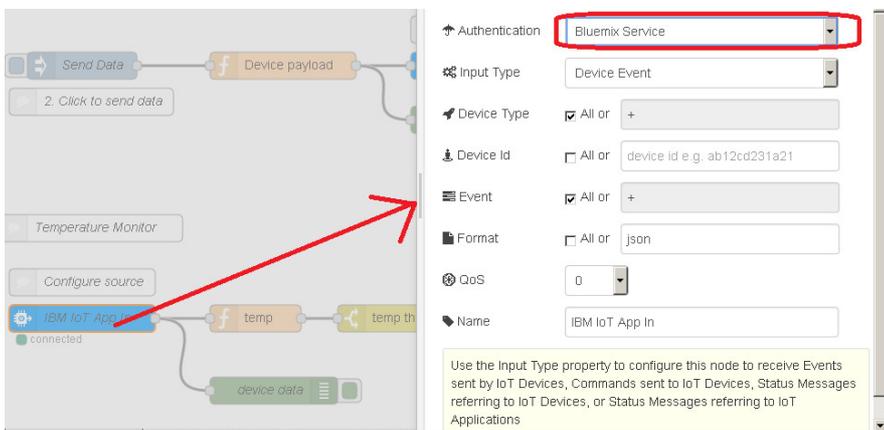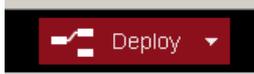
option.

12. Click X icon on the top-right corner of this dialog

13. Click "LivingRoomThermo1" device

14. Don't close IoTP dashboard tab, and switch the browser to Node-RED flow editor tab.

15. Double click "IBM IoT App in" icon, and change "Authentication" to "Bluemix Service" and click "Done".
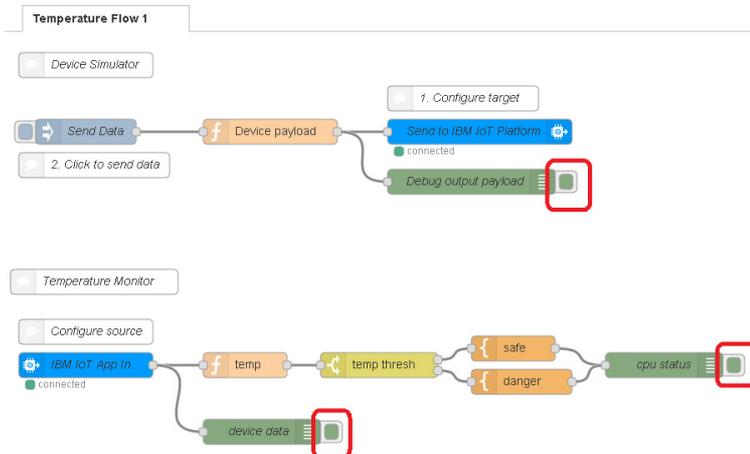
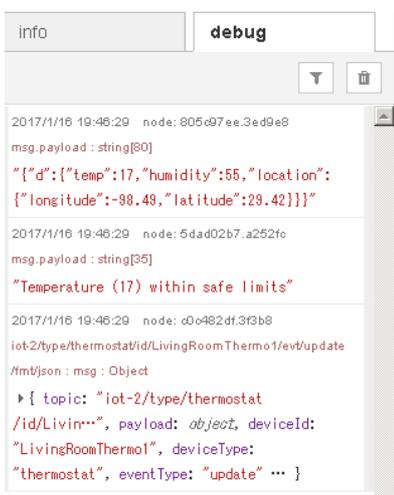16. Click "Deploy" icon

17. Click "Debug" tab

18. Make sure that three green Debug nodes are activated. (See the button at the right side of each Debug node.)

19. Click "Send Data" Injection node to start sending sensor data.

20. You will see messages are in the debug pane

Note: You can delete these messages from this pane by clicking "Trash" icon at the top-right corner of the debug pane.

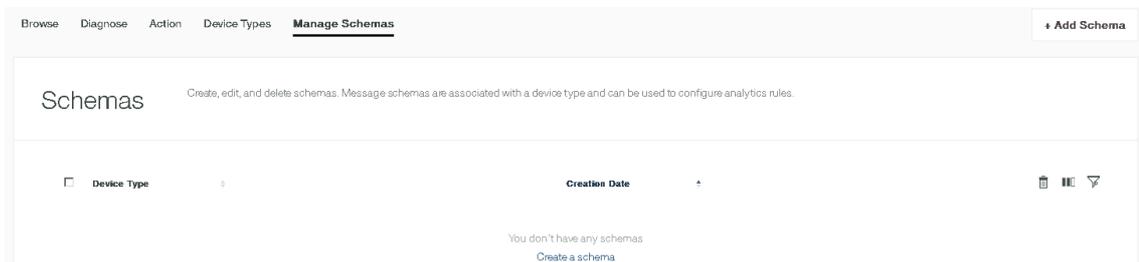21. Don't close Node-RED Editor tab, and switch the browser to IoTP dashboard tab. You will see some sensor data are coming.

22. Close it by clicking X icon, and select "Manage Schemas"

23. Click "+ Add Schema".

24. Select "thermostat" for "Select type…"

25. Click "Next", click "Add a property".

26. Click "From Connected"
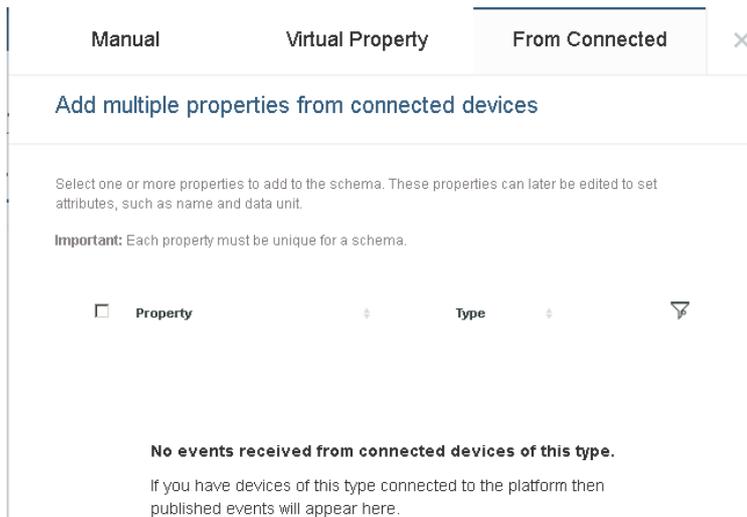
27. Don't close IoTP dashboard tab, and switch the browser to Node-RED tab and send the sensor data again like you did in the step 19

28. Don't close Node-RED tab, and go back to IoTP dashboard tab. You will see something like:
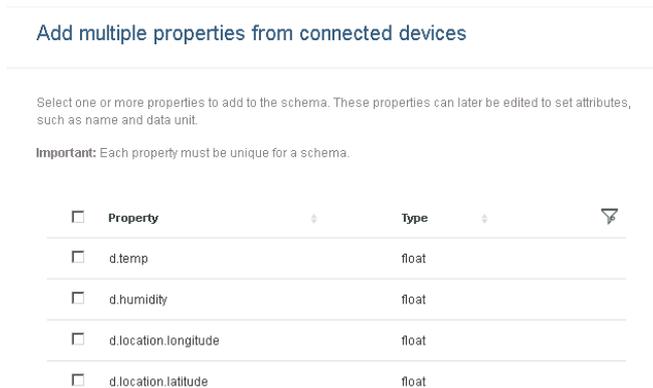
29. Check all properties.

30. Click "OK", and click "Finish"

31. Click "RULES"

IBM **Watson IoT** Platform

BOARDS ▶

DEVICES ▶

MEMBERS ▶

APPS ▶

USAGE ▶

RULES ▶

32. Click "Create Cloud Rule" at the top right corner

+ Create Cloud Rule
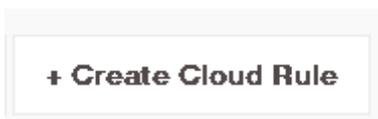
33. Type "Alert of a high Humidity" for "Name:" and select "thermostat" in "Applies to:"

Add New Cloud Rule   x

* **Name:**   Alert of a high Humidity

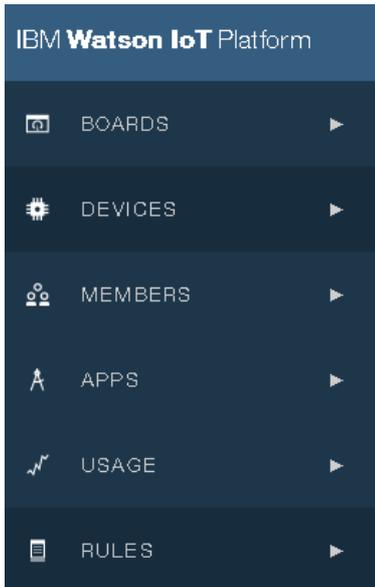**Description:**   Enter a description

* **Applies to:** ⓘ

                          thermostat

                                            Cancel   Next

34. Click "Next".

35. Click "New condition"

New condition
Click to edit   — AND ➕
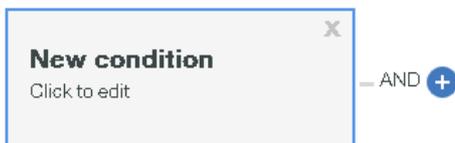
36. Select "humidity" for "Property:", select ">" for "Operator:", check "Static value" for "Compare with:" and type "50" for "Value:". Click "OK"

37. Click "New action"
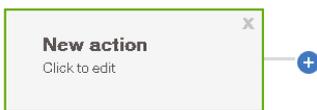
38. Click "Add action"

39. Type "Alert for a high Humidity" for "Name" and select "Send email" for "Select type…"

40. Click "Next", check "Just me" for "To" and "No one" for "CC" and turn on "Include Data".

41. Click "Finish", click "OK". Then click "Save" and click "Activate" buttons.

42. Change "Alert Priority" to "High",
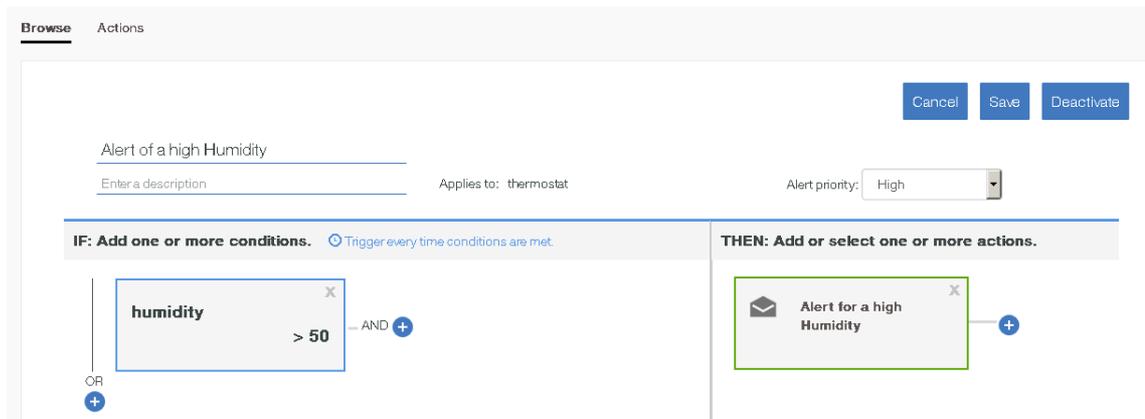
43. Click "Close"

44. Send the sensor data again (see the step19) to make sure that you will receive the e-mail something like below when the humidity is over 50.

From: "IBM Watson IoT Platform" <noreply.iotrtinsights@bluemix.net>

To: foo@example.com

Date: 2017/01/16 20:18

Subject: IBM Watson IoT Alert: Alert for a　high Humidity

Rule: Alert of a high Humidity

Device: f3cr1a:thermostat:LivingRoomThermo1

Date: 2017-01-16T11:17:32.894Z

Condition:

thermostat.d.humidity>50

Incoming Message:

{"d":{"temp":17,"humidity":55,"location":{"longitude":-98.49,"latitude":29.42}},"ruleContent":{"jobID":"QAbtMy

0a","contextSchemas":[],"ruleDescription":"","severity":2,"messageSchemas":["thermostat"],"disabled":false,"r

uleCondition":"thermostat.d.humidity>50","transforms":[],"name":"Alert　　　　of　　　　a　　　　high

Humidity","actions":["Wbr7YtOo"],"id":"ebUGSwnB","updated":"16　Jan　2017　11:15:47　GMT","created":"16

Jan 2017 11:14:32 GMT","version":2}}

This is an automatically generated email. Do not reply. For questions regarding this alert, contact your

system administrator.

Setup of CE Connector for IoT

(https://jazz.net/downloads/ce4iot-connector/releases/0.9.0.1?p=userGuide)

1. Read "Introduction to the IoT Platform Domain" in UserGuide to understand what

IoTP artifacts are published to DM.

- The following picture in this section tells us what DM artifacts are created from IoTP artifacts.
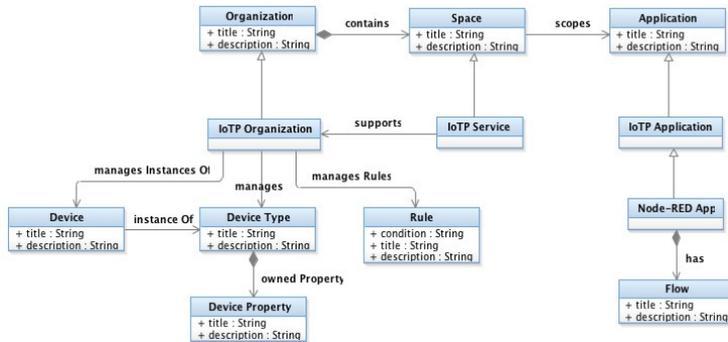
- Also the following picture (DM IoT Platform Domain Explorer) shows the actual DM artifacts which are published from IoTP.
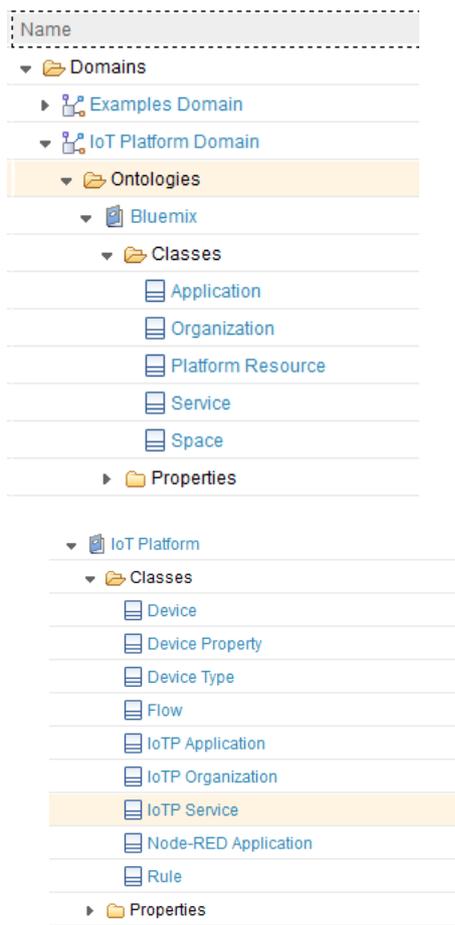
Note: The nested device properties aren't supported by CE4IoT Tech Preview.

2. Follow "Preparing to Use CE4IoT" in UserGuide.

- There are no special instructions in these steps.

- Note: Version should be the latest version of IoT Platform Domain. （As of Jan 17 2017, its version is V1.0）For example,
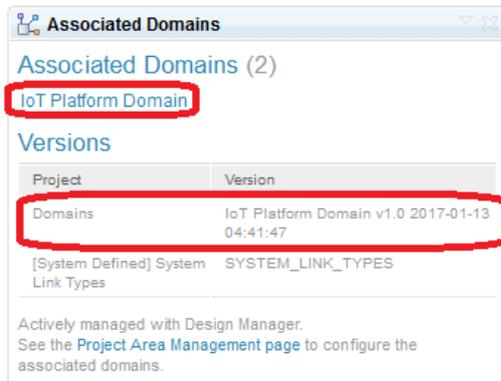

3. Follow "Obtaining the required RTI and Watson IoT Platform API keys and tokens" in UserGuide.
   - For IoT API key, you can generate it from IoTP dashboard.
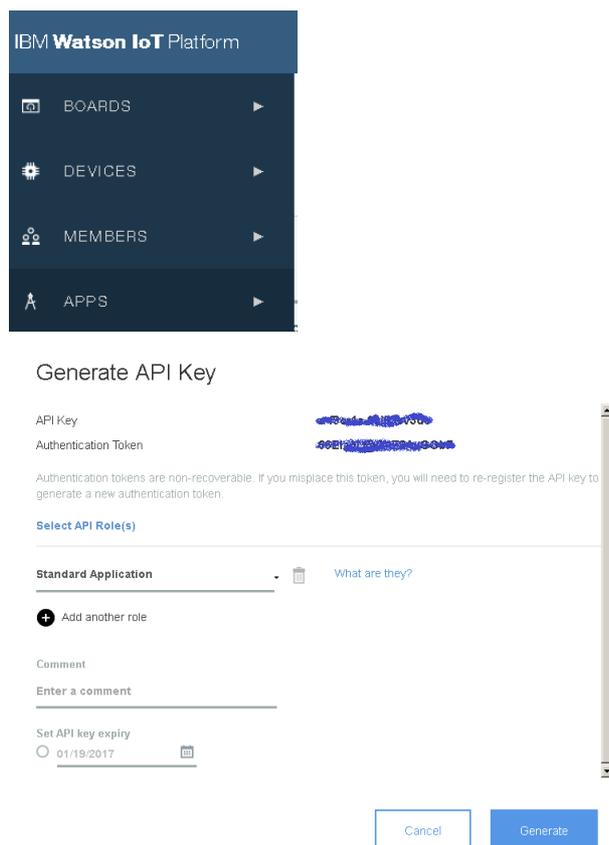
   - For RTI API key, UserGuide tells us "*To request RTI keys contact your IBM representative (you will need to specify your Watson IoT Platform organization ID).*" you need to ask Connector development team.
4. Follow "Entering the configuration data" in UserGuide.

- There are no special instructions in these steps.
- Note1: "target Configuration" needs to be a blank（Note that we assume that you don't use GC, or use only default stream.）
- Note2: Make sure that "is URI" checkbox is unchecked whenever URL is typed.
- Note3: When you will add one or more Node-RED apps, you need to check "New Node-RED app", and leave a blank for bmxAPIKey and bmxAPIToken.

- Note4: When you will add one or more Watson IoT Platform organizations, you need to check "New IoT Platform Organization".

As for orgId, you can find it in IoTP dashboard SETTINGS page.

As for RTI key and token, you can use what Connector development team tells you.

5. Follow "Running the IoTPPublisher" in UserGuide.
- There are no special instructions in these steps. Recommendation is to use a batch file to start IoTPPublisher. For example:

```
setlocal
set JAVA_HOME=c:¥ibm¥JazzTeamServer¥server¥jre
```

```
set PATH=%JAVA_HOME%¥bin;%PATH%


java -jar IoTPPublisher-jar-with-dependencies.jar --dmServer https://ibmjazz:9443/dm --user ibm
--password ibm --dmConfigProject IoTPubConfig
endlocal
```

- Note1: Make sure that there are no ERROR messages in the command prompt window. Error message would look like :

  [Thread-6] ERROR com.ibm.iotpce.dmsync.IoTPPublisher - GET http://iotCEAdapter.mybluemix.net/oslc/allResources/f3cr1a?apiKey=a-f3cr1a-9zi83sv3dc&apiToken=66ElagL%40O4E3AvGObF&rtiKey=a-f3cr1a-9zi83sv3dc&rtiToken=66ElagL%40O4E3AvGObF failed, (code 401)

  [Thread-6] ERROR com.ibm.iotpce.dmsync.IoTPPublisher - Method failed: on:

  <http://iotCEAdapter.mybluemix.net/oslc/allResources/f3cr1a?apiKey=a-f3cr1a-9zi83sv3dc&apiToken=66ElagL%40O4E3AvGObF&rtiKey=a-f3cr1a-9zi83sv3dc&rtiToken=66ElagL%40O4E3AvGObF> HTTP/1.1 401 Unauthorized

  [Thread-6] ERROR com.ibm.iotpce.dmsync.IoTPPublisher - Failed getting resources - skipping updating Design Manager

  so you can find "ERROR" in the messages.