**Add an Azure IoT Edge device to Azure IoT Central application**

1) **Create device template**

1.1)**Import manifest to create template**

To create a device template from an IoT Edge manifest:

1. In your IoT Central application, navigate to **Device templates** and select **+ New**.
2. On the **Select template type** page, select the **Azure IoT Edge** tile. Then select **Next: Customize**.
3. On the **Upload an Azure IoT Edge deployment manifest** page, enter *Environmental Sensor Edge Device* as the device template name. Then select **Browse** to upload the **EnvironmentalSensorManifest.json**. Then select **Next: Review**.
4. **EnvironmentalSensorManifest.json:**

{

"modulesContent": {

"$edgeAgent": {

"properties.desired": {

"schemaVersion": "1.0",

"runtime": {

"type": "docker",

"settings": {

"minDockerVersion": "v1.25",

"loggingOptions": "",

"registryCredentials": {}

}

},

"systemModules": {

"edgeAgent": {

"type": "docker",

"settings": {

"image": "mcr.microsoft.com/azureiotedge-agent:1.0",

"createOptions": "{}"

}

},

"edgeHub": {

"type": "docker",

"status": "running",

"restartPolicy": "always",

"settings": {

"image": "mcr.microsoft.com/azureiotedge-hub:1.0",

"createOptions": "{}"

}

}

},

"modules": {

"SimulatedTemperatureSensor": {

"version": "1.0",

"type": "docker",

"status": "running",

"restartPolicy": "always",

"settings": {

"image": "mcr.microsoft.com/azureiotedge-simulated-temperature-sensor:1.0",

"createOptions": "{}"

}

}

}

}

},

"$edgeHub": {

"properties.desired": {

"schemaVersion": "1.0",

"routes": {

"route": "FROM /\* INTO $upstream"

},

"storeAndForwardConfiguration": {

"timeToLiveSecs": 7200

}

}

},

"SimulatedTemperatureSensor": {

"properties.desired": {

"SendData": true,

"SendInterval": 10

}

}

}

}

1. On the Review page, select Create.
2. Select the Manage interface in the SimulatedTemperatureSensor module to view the two properties defined in the manifest:

**2)** **Add telemetry to manifest**

Add the telemetry definitions to the device template in IoT Central. The **SimulatedTemperatureSensor** module sends telemetry messages that look like the following JSON:

{

"machine": {

"temperature": 75.0,

"pressure": 40.2

},

"ambient": {

"temperature": 23.0,

"humidity": 30.0

},

"timeCreated": ""

}

To add the telemetry definitions to the device template:

1. Select the **Manage** interface in the **Environmental Sensor Edge Device** template.
2. Select **+ Add capability**. Enter *machine* as the **Display name** and make sure that the **Capability type** is **Telemetry**.
3. Select **Object** as the schema type, and then select **Define**. On the object definition page, add *temperature* and *pressure* as attributes of type **Double** and then select **Apply**.
4. Select **+ Add capability**. Enter *ambient* as the **Display name** and make sure that the **Capability type** is **Telemetry**.
5. Select **Object** as the schema type, and then select **Define**. On the object definition page, add *temperature* and *humidity* as attributes of type **Double** and then select **Apply**.
6. Select **+ Add capability**. Enter *timeCreated* as the **Display name** and make sure that the **Capability type** is **Telemetry**.
7. Select **DateTime** as the schema type.
8. Select **Save** to update the template.

**3)** **Add views to template**

The device template doesn't yet have a view that lets an operator see the telemetry from the IoT Edge device. To add a view to the device template:

1. Select Views in the Environmental Sensor Edge Device template.
2. On the Select to add a new view page, select the Visualizing the device tile.
3. Change the view name to *View IoT Edge device telemetry*.
4. Select the ambient and machine telemetry types. Then select Add tile.
5. Select Save to save the View IoT Edge device telemetry view.

**4)** **Publish the template**

Before you can add a device that uses the Environmental Sensor Edge Device template, you must publish the template.

Navigate to the Environmental Sensor Edge Device template and select Publish. On the Publish this device template to the application panel, select Publish to publish the template.

**5)** **Add IoT Edge device**

Now you've published the Environmental Sensor Edge Device template, you can add a device to your IoT Central application:

1. In your IoT Central application, navigate to the Devices page and select Environmental Sensor Edge Device in the list of available templates.
2. Select + New to add a new device from the template. On the Create new device page, select Create.

You now have a new device with the status Registered.

**7) Get the device credentials**

When you deploy the IoT Edge device you need the credentials that allow the device to connect to your IoT Central application. The get the device credentials:

1. On the Device page, select the device you created.
2. Select Connect.
3. On the Device connection page, make a note of the ID Scope, the Device ID, and the Primary Key. You use these values later.
4. Select Close.

You've now finished configuring your IoT Central application to enable an IoT Edge device to connect.

**8)** **Deploy an IoT Edge device**

1. Create a ubuntu Vm.
2. Enable IoT Edge on it.

**9)** **Configure the IoT Edge VM**

To configure IoT Edge in the VM to use DPS to register and connect to your IoT Central application:

(i) Run the following command to check the IoT Edge runtime version.

sudo iotedge –version

(ii)Use the nano editor to open the IoT Edge config.yaml file:

sudo nano /etc/iotedge/config.yaml

(iii)Scroll down until you see **# Manual provisioning configuration**. Comment out the next three lines as shown in the following snippet:

# Manual provisioning configuration

#provisioning:

# source: "manual"

# device\_connection\_string: "temp"

(iv)Scroll down until you see **# DPS symmetric key provisioning configuration**. Uncomment the next eight lines as shown in the following snippet:

# DPS symmetric key provisioning configuration

provisioning:

source: "dps"

global\_endpoint: "https://global.azure-devices-provisioning.net"

scope\_id: "{scope\_id}"

attestation:

method: "symmetric\_key"

registration\_id: "{registration\_id}"

symmetric\_key: "{symmetric\_key}"

(v) Replace {scope\_id} with the **ID Scope** you made a note of previously.

(vi) Replace {registration\_id} with the **Device ID** you made a note of previously.

(vii)Replace {symmetric\_key} with the **Primary key** you made a note of previously.

(viii)Save the changes (**Ctrl-O**) and exit (**Ctrl-X**) the nano editor.

(ix)Run the following command to restart the IoT Edge daemon:

sudo systemctl restart iotedge

(x)To check the status of the IoT Edge modules, run the following command

iotedge list

**10)** **View the telemetry**

* The simulated IoT Edge device is now running in the VM. In the IoT Central application, the device status is now **Provisioned** on the **Devices** page.
* You can see the telemetry from the device on the **View IoT Edge device telemetry** page.
* The **Modules** page shows the status of the IoT Edge modules on the device.