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Recipes@WatsonIoT

Gateway

Published on January 29, 2016 / Updated on May 18, 2017

Device

Type



12729



1


0

Add

Gateway

in

Watson

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Overview

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Beginner

Introduction The IBM Watson Internet of Things Platform is a fully managed, cloud-hosted service to derive value from Internet of Things (IoT) devices. When combined with the IBM Bluemix platform, the Watson IoT Platform provides simple, but powerful application access to IoT devices and data. You can rapidly build applications, visualization […]

Ingredients

Step-by-step

1 Introduction

The IBM Watson Internet of Things Platform is a fully managed, cloud-hosted service that provides value from Internet of Things (IoT) devices. When combined with the IBM Bluemix platform, it provides simple, but powerful application access to IoT devices and data. You can rapidly create applications, visualization dashboards, and mobile IoT apps. Create IoT applications that feed backend enterprise applications.

Gateways are a specialized class of devices in Watson IoT Platform which serve as access points to the Platform for other devices. Gateway devices have additional permission when compared to regular devices to perform the following functions:

- Register new devices to Watson IoT Platform
- Send and receive its own sensor data like a directly connected device,
- Send and receive data on behalf of the devices connected to it
- Run a device management agent, so that it can be managed, also manage the devices connected to it

Refer to the [documentation](#) for more information about the Gateway support in Watson IoT Platform.

This recipe shows how one can setup an Watson IoT Platform Organization and register Gateways. Once a Gateway or more devices can be connected to IBM Watson IoT Platform via the Gateway.

2 Create Watson IoT Organization

When you create a service “**Internet of Things Platform**” in IBM Bluemix, a new Organization is created. This Watson IoT organization is a space used for connecting and managing devices (and Gateways) to the Watson IoT Platform, so that your applications can access their live and historical data.

You can create an Watson IoT Platform organization by using IBM Bluemix. Follow the below

- Open your favorite browser and go to [Bluemix](#). If you are an existing Bluemix user, log in to Bluemix you can sign up for a free 30 day trial.
- Once you signed up to Bluemix, [click this link to create the Watson IoT Platform service](#)
- Type a name for your service and click Create button as shown below,

The screenshot shows the IBM Bluemix catalog page for the 'Internet of Things Foundation' service. The page has a dark blue header with the IBM Bluemix logo and navigation links: DASHBOARD, SOLUTIONS, CATALOG (highlighted), and PRICE. Below the header is a 'Back to All Categories' button. The main content area is divided into two columns. The left column features the service icon (a blue hexagon with a white gear and a blue dot), the service name 'Internet of Things Foundation', the provider 'IBM', the publish date '10/26/2015', the author 'IBM', the type 'Service', and the location 'US South'. The right column contains a description: 'The IBM Internet of Things service lets your apps communicate with and consume data collected by your connected devices, sensors, and gateways. Our recipes make it super easy to get devices connected to our Internet of Things cloud. Your apps can then use our real-time and REST APIs to communicate with your devices and consume the data you've set them up to collect.' Below the description are two bullet points: 'Connect your devices securely to the cloud' and 'Build an app that talks to your devices'. The 'How it works' section shows a diagram of a device connected to a gateway and then to the cloud. At the bottom, there are two screenshots: one of the 'Organization: (orggy) (Bluemix Free)' page and another of the 'Device Registration' page.

- Observe a Welcome page, click on **Launch** button to enter into the IBM Watson IoT Platform. The IoT organization is a space used for connecting and managing devices to the IBM Watson IoT Platform.

that your applications can access their live and historical data.

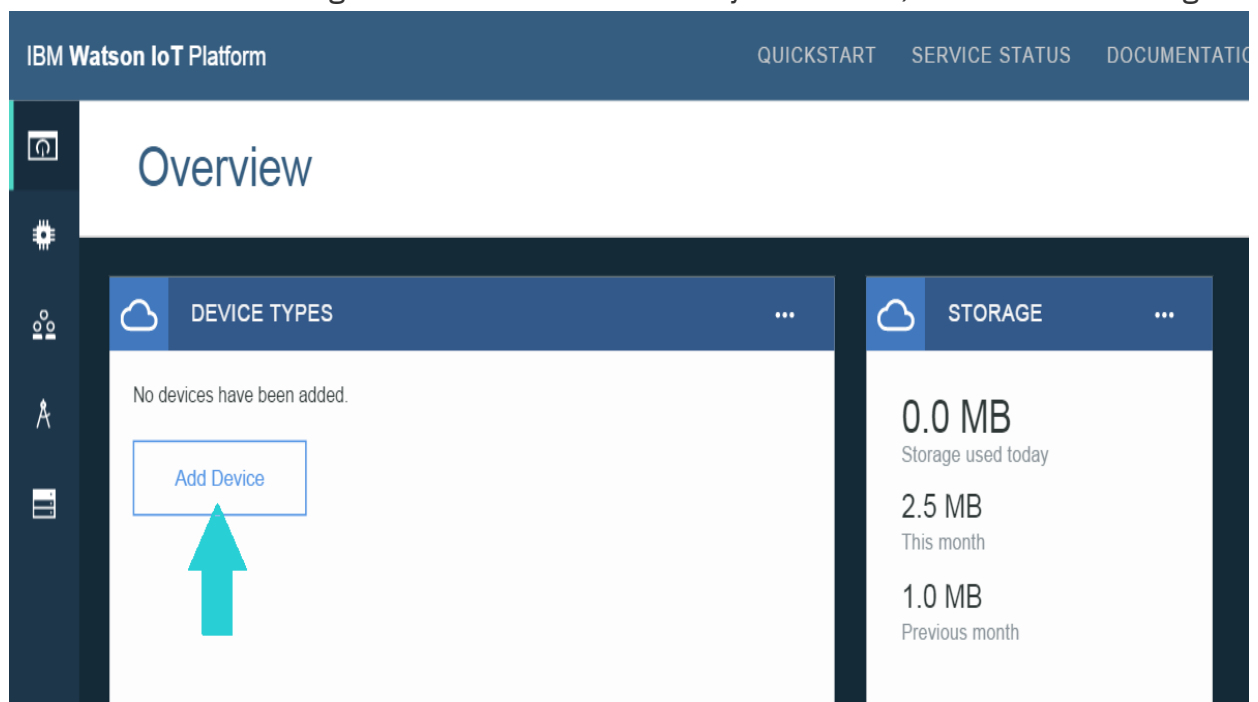


Welcome to Watson IoT Platform

Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.

[Launch](#)[Docs](#)

- Observe that a new Organization is created where you can add, connect and manage IoT devices.

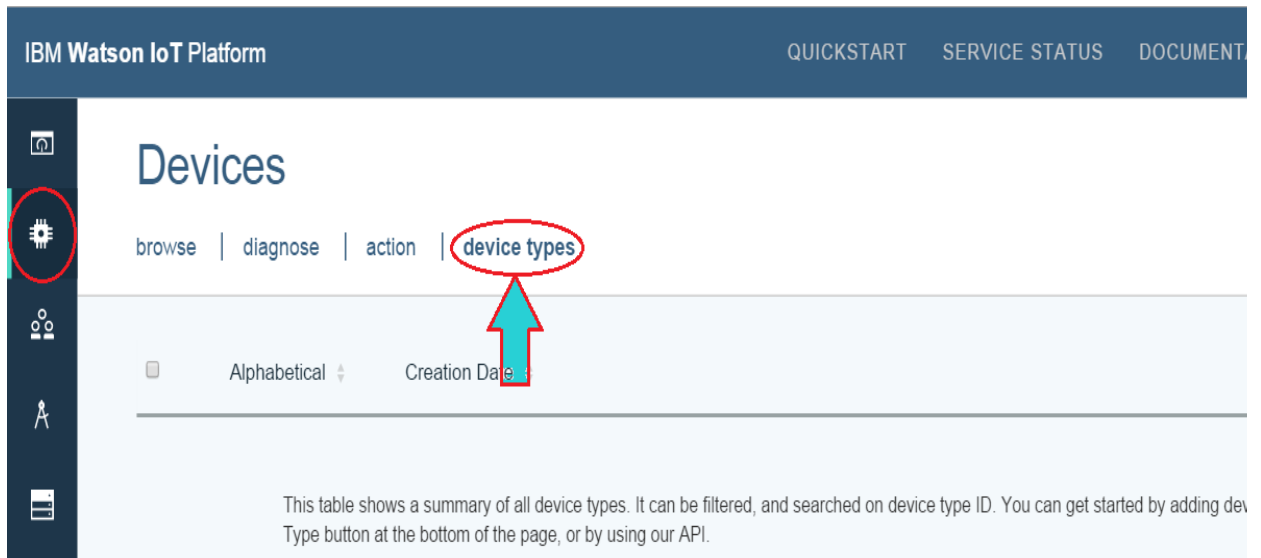


At this step, we have successfully created the Watson IoT organization.

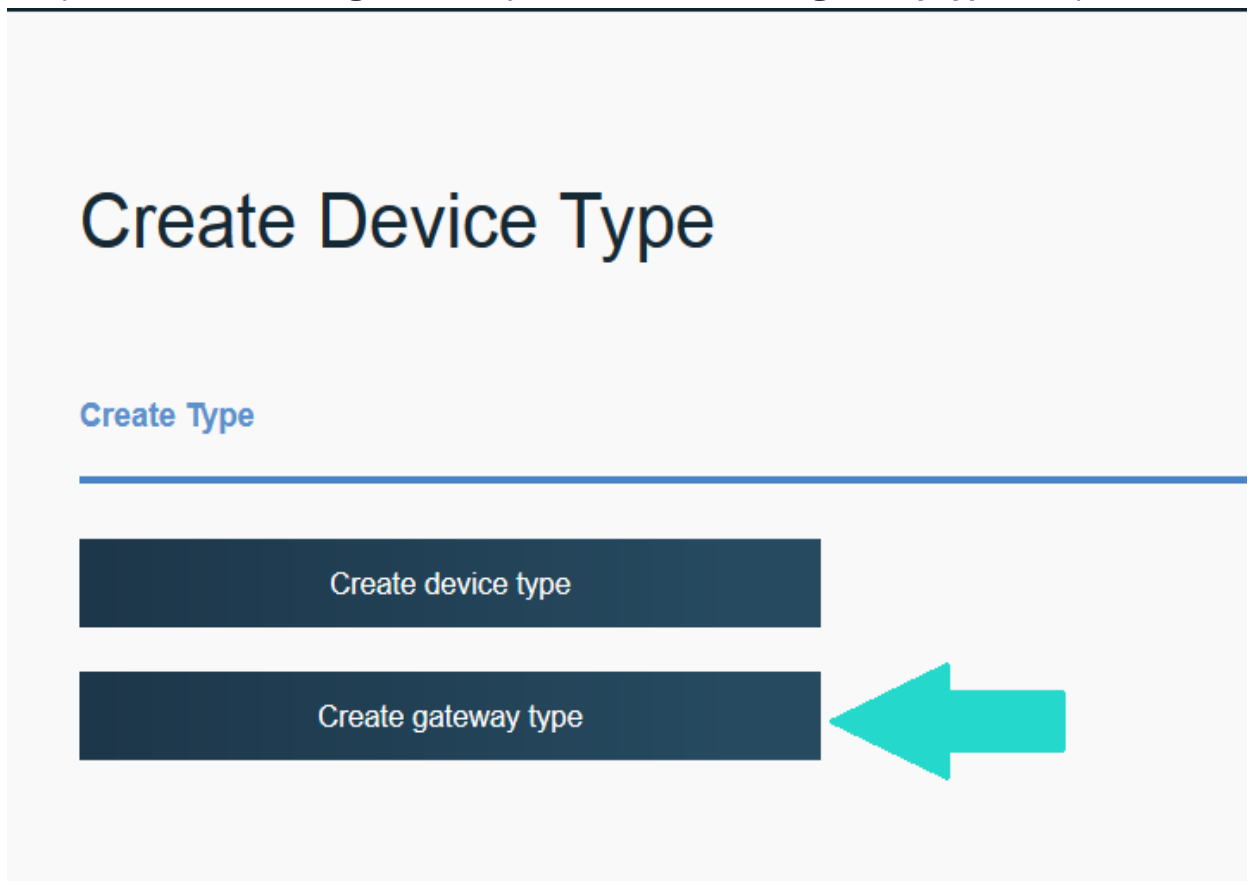
3 Create Gateway Device Type

Each Gateway device connected to the Watson IoT Platform is associated with a device type intended to be groups of devices which share common characteristics. So in order to add Gateway devices to the Watson IoT Platform, one needs to create a device type. Following are the instructions for creating a device type.

- Go back to the IBM Watson IoT Platform dashboard, click Devices tab, device types tab Type button as shown below,



- Observe that there are 2 options provided now, namely Create device type and Create gateway type recipe focuses on adding a Gateway device, click **Create gateway type** and proceed,



- Specify a name for the device type to be added and optionally a description as shown below.

- Observe that a template page is given where you can select and define one or more attributes that are optional. They will be used as a template for new Gateway devices that are of this type. Attributes that you do not define may still be edited individually later when you access the device.

define one or more attributes by selecting them and clicking **Next** as shown below,

Define Template

Use the options below to select attributes for the device type. All of these attributes are optional. They will be used as a template for new devices that are assigned this device type. Attributes you do not define may still be edited individually on devices that are assigned this device type.

<input type="checkbox"/> Serial Number ...	<input type="checkbox"/> Description ...
<input checked="" type="checkbox"/> Manufacturer ...	<input type="checkbox"/> Firmware Version ...
<input checked="" type="checkbox"/> Model ...	<input type="checkbox"/> Hardware Version ...
<input type="checkbox"/> Class ...	<input type="checkbox"/> Descriptive Location ...

- Define the selected attributes Manufacturer and Model as shown below, then click **next**

Create Gateway Type

Submit Information

You must now set values for the attributes you have selected for this device type. The values of these attributes will act as a template for new devices that are assigned this device type. You can override these values when adding individual devices.

Manufacturer	IBM
Model	B2

- Define optional Metadata in JSON format as shown below, you can choose not to set th then click **Create**,

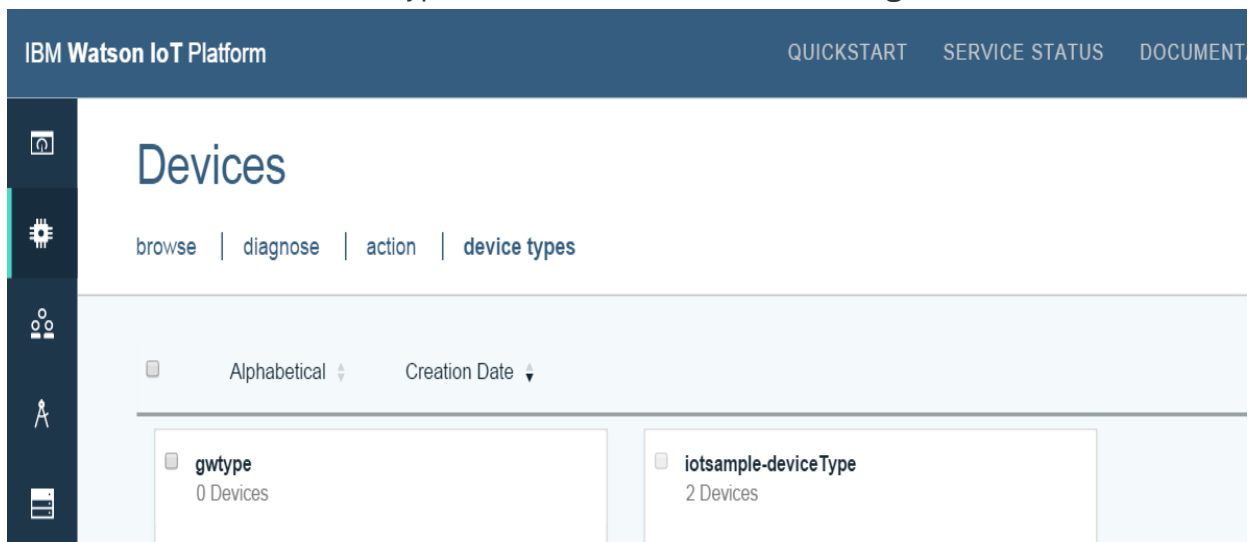
Create Gateway Type

Metadata (optional)

Metadata must be added as JSON; plain text cannot be used.

```
1 {"sample-key": "sample-value"}
```

- Observe that a new device type is added in the Watson IoT Organization,

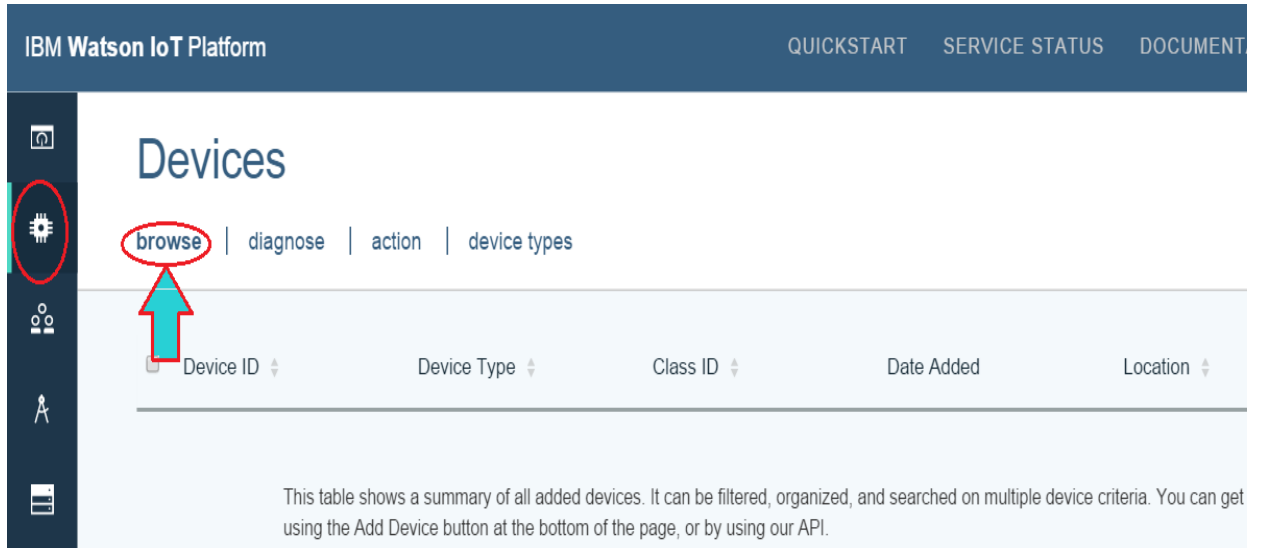


At this step, we have successfully created a device type in Watson IoT organization.

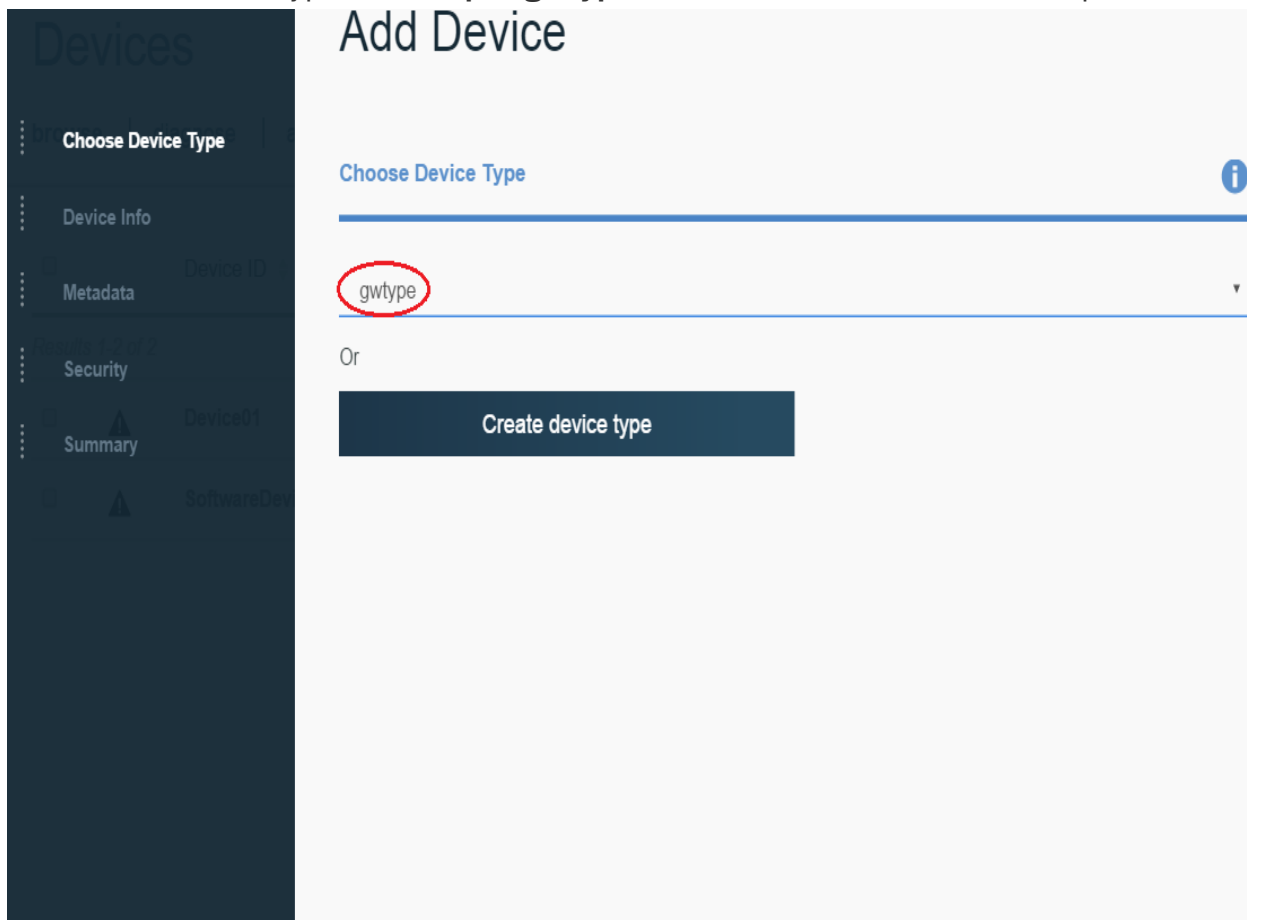
4 Add Gateway in Watson IoT Platform

Gateways are a specialized class of devices in the Watson IoT Platform. Gateway devices can connect to other devices and can send and receive data on behalf of devices connected to them. You need to add the Gateway to the Organization before connecting it. Carry out the following steps to add the Gateway in IBM Watson IoT Platform:

- In the Watson IoT Platform dashboard, click **Browse** tab and then **Add Device** button as follows:



- Choose the device type “**iot-sample-gwtype**” that we created in the last step, then click **Add Device** button as follows:



- Enter a unique device id, which will distinguish your Gateway from all other devices that the Watson IoT Platform (you can use 1 or something more sophisticated like your devices ID). **Next** as shown below. Also note that the values of “Manufacturer” and “Model” attributes are set to device type “iotsample-gwtype”. These values can be overridden, and attributes not set can be added as well.

Organization

✓ Choose Device Type

OVERVIEW DEVICES

Device Info

Metadata

Security

Summary This table shows the summary of devices using the Add Device form.

Add Device

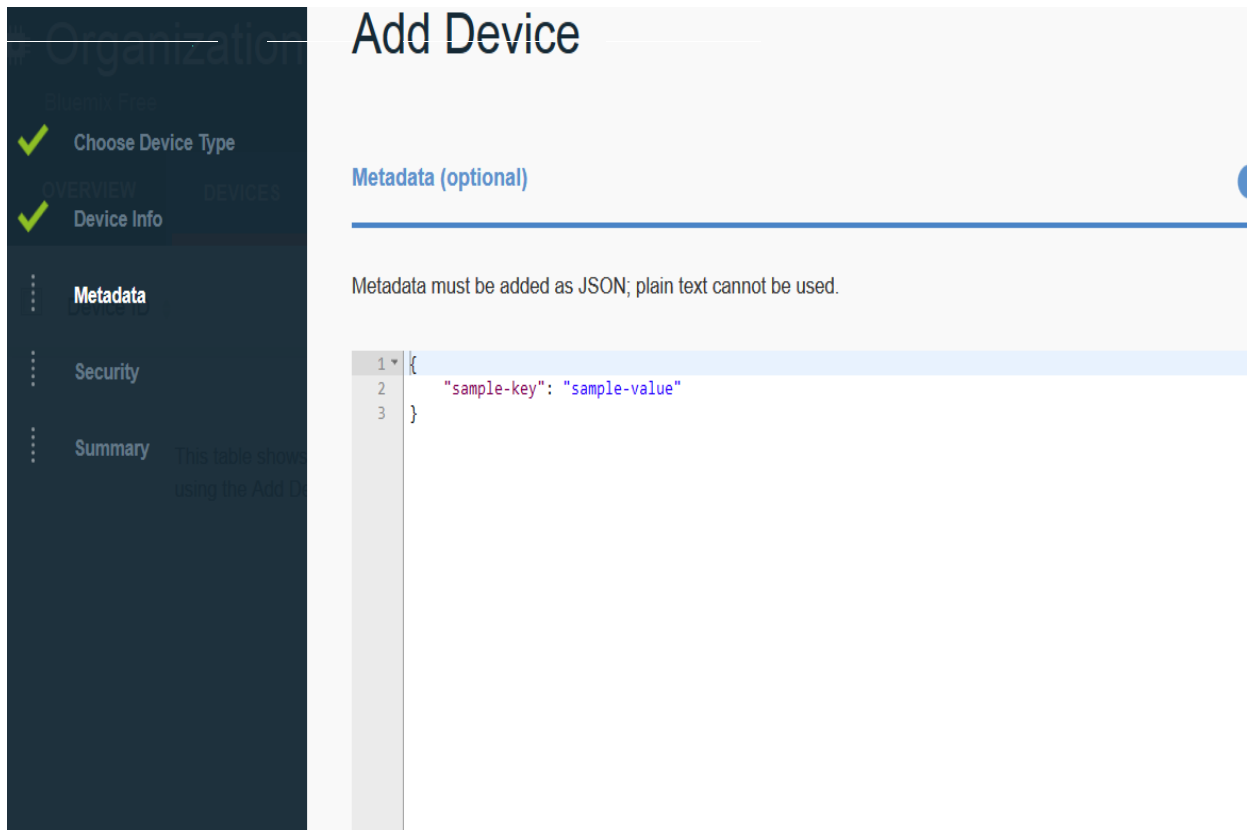
Device Info

Device ID is the only required information, however other fields are populated according to the attributes set in the selected device type. These values can be overridden, and attributes not set in the device type can be added.

Device ID	Gateway01
Manufacturer	IBM
Model	B2

+ Additional fields

- Add a Metadata and click **next**, (you can choose not to add Metadata as its optional),



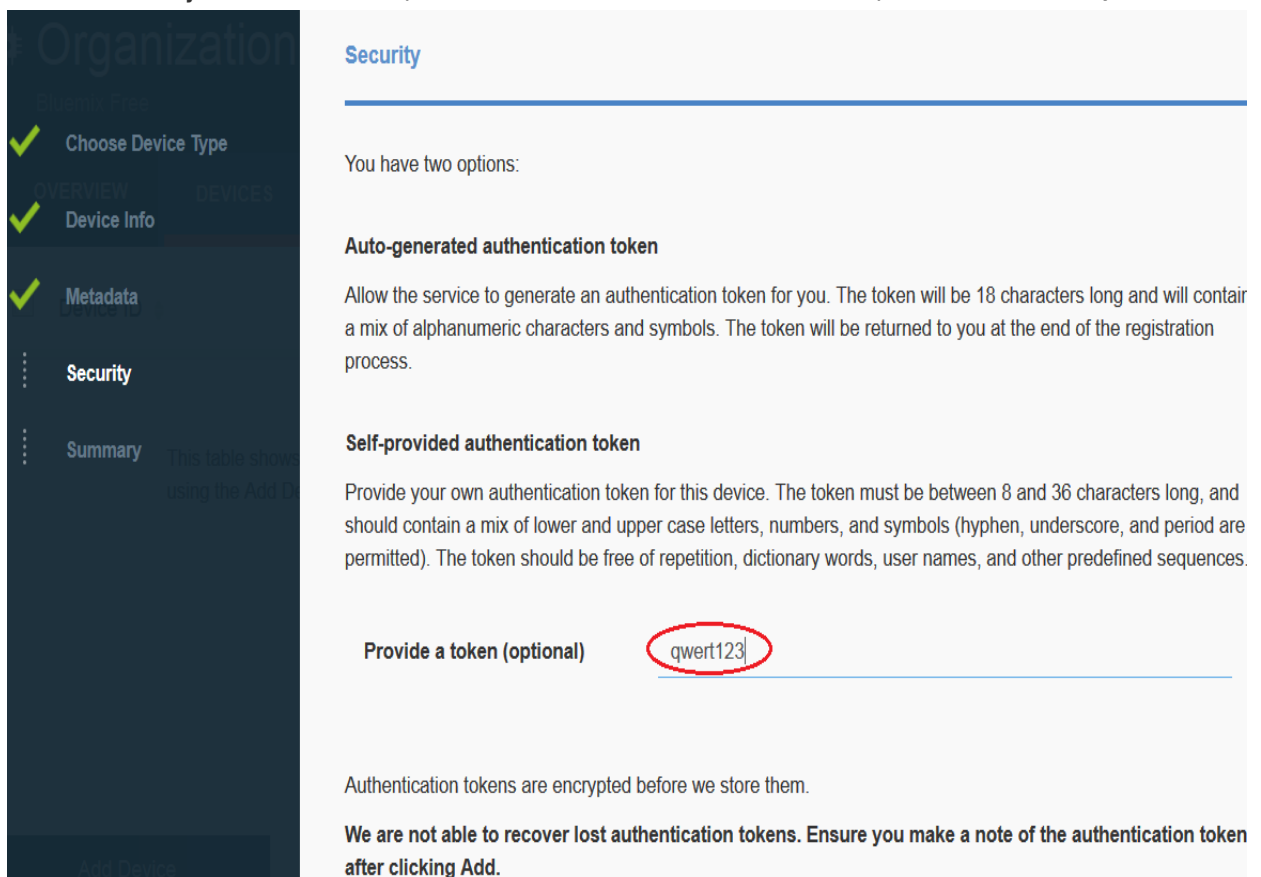
Add Device

Metadata (optional)

Metadata must be added as JSON; plain text cannot be used.

```
1 {  
2   "sample-key": "sample-value"  
3 }
```

- In the next page, you can either add your own authentication token, or allow the IoT Platform to generate one for you. The IoT Platform generated token will be 18 characters long and will contain a mix of alphanumeric characters and symbols. The token will be returned to you at the end of the registration process. If you want to add your own token, enter the token as shown below, then click **Next**,



Security

You have two options:

Auto-generated authentication token

Allow the service to generate an authentication token for you. The token will be 18 characters long and will contain a mix of alphanumeric characters and symbols. The token will be returned to you at the end of the registration process.

Self-provided authentication token

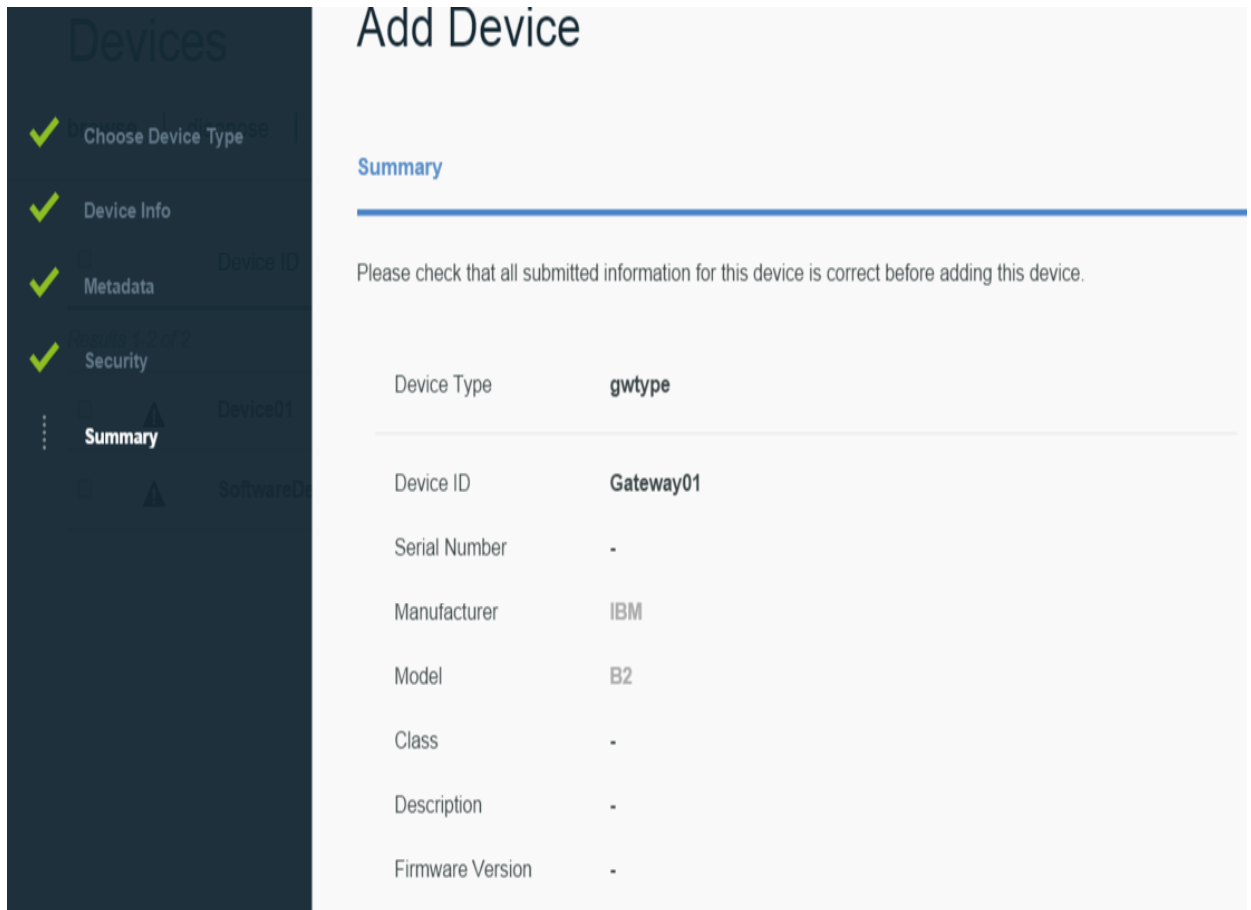
Provide your own authentication token for this device. The token must be between 8 and 36 characters long, and should contain a mix of lower and upper case letters, numbers, and symbols (hyphen, underscore, and period are permitted). The token should be free of repetition, dictionary words, user names, and other predefined sequences.

Provide a token (optional)

Authentication tokens are encrypted before we store them.

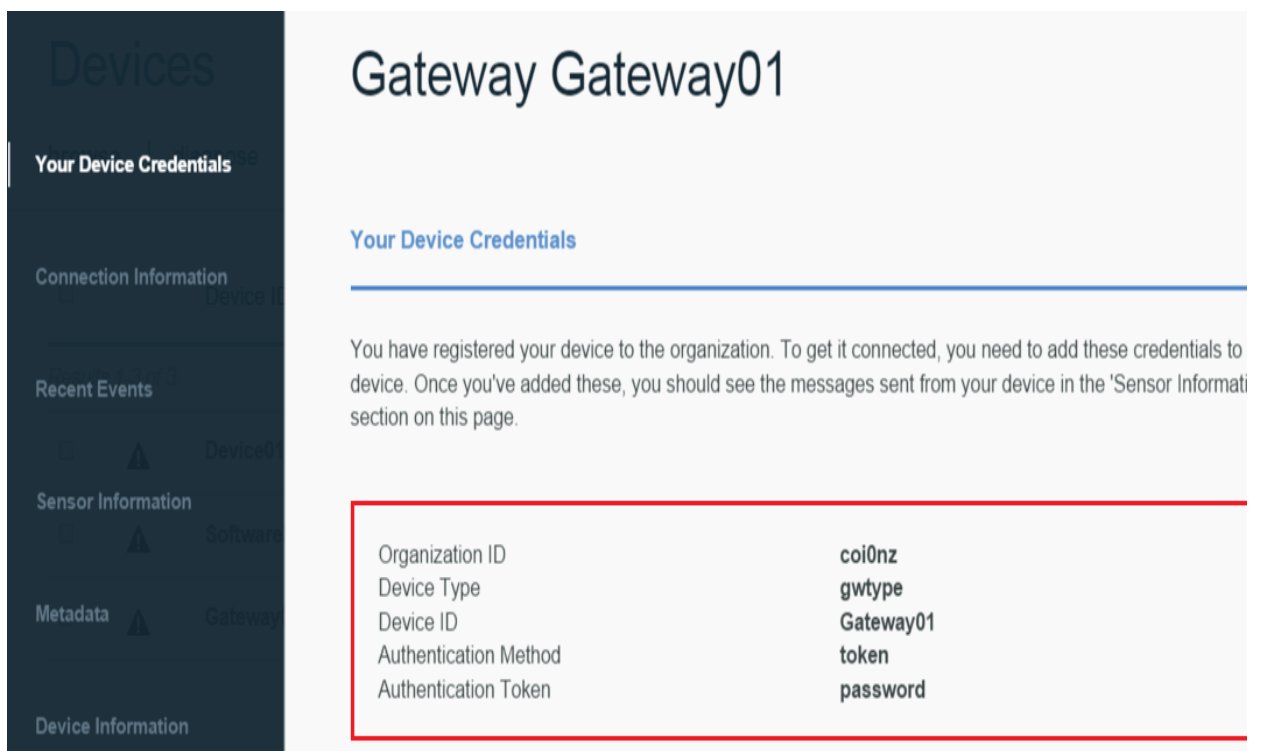
We are not able to recover lost authentication tokens. Ensure you make a note of the authentication token after clicking Add.

- As shown below, you will be given a summary page to verify the details before adding the device to the Platform. Verify and click **Add**,



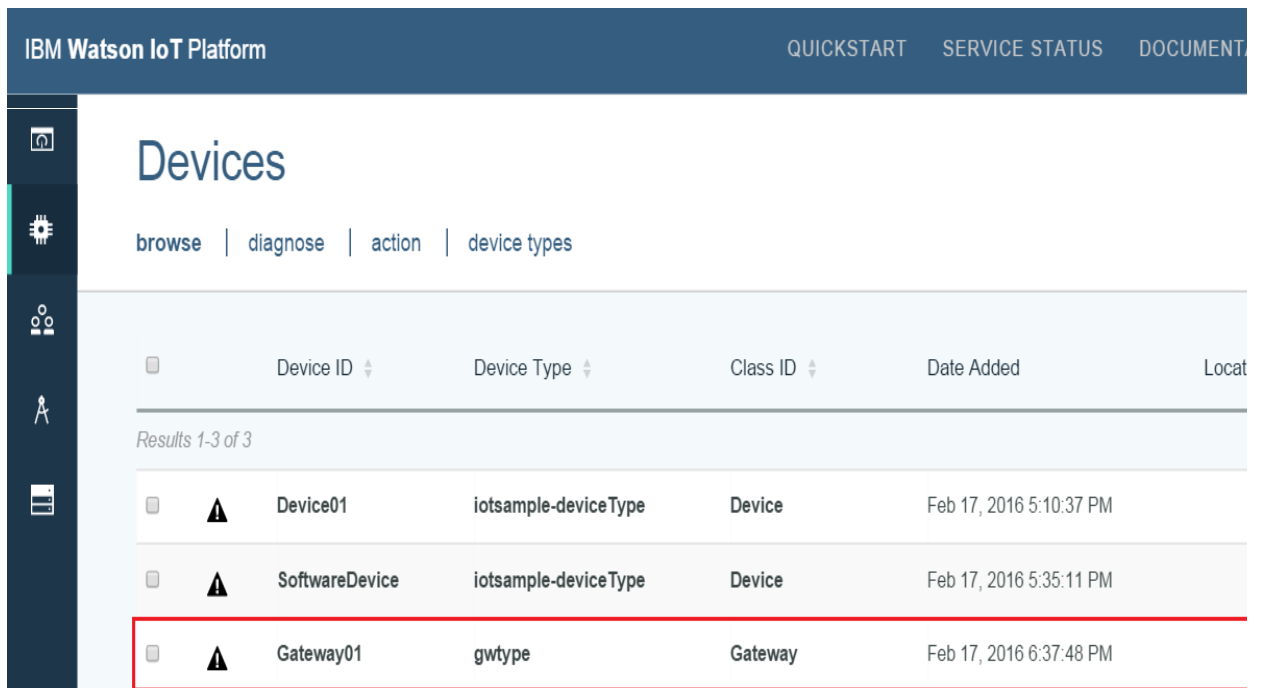
Device Type	gwtype
Device ID	Gateway01
Serial Number	-
Manufacturer	IBM
Model	B2
Class	-
Description	-
Firmware Version	-




- At this step, the Gateway is registered to your Organization and you will be provided with the credentials as marked below. To get your Gateway connected, you need to add the credentials to your configuration and note of them.



Organization ID	coi0nz
Device Type	gwtype
Device ID	Gateway01
Authentication Method	token
Authentication Token	password

- Click the cross button to get back to the main dashboard and observe that the Gateway is now listed in the Organization,



		Device ID	Device Type	Class ID	Date Added	Location
Results 1-3 of 3						
<input type="checkbox"/>		Device01	iotsample-deviceType	Device	Feb 17, 2016 5:10:37 PM	
<input type="checkbox"/>		SoftwareDevice	iotsample-deviceType	Device	Feb 17, 2016 5:35:11 PM	
<input type="checkbox"/>		Gateway01	gwtype	Gateway	Feb 17, 2016 6:37:48 PM	

So, now we have successfully added a Gateway in the Watson IoT organization.

5 Conclusion

In this recipe we demonstrated how to setup an Watson IoT Platform Organization, create a device type and register a Gateway device using the dashboard. Also, you can use the [IBM Watson IoT Client Libraries](#) to create the Gateway Device Type and register Gateways in Watson IoT Platform.

6 Where to go from here?

Go through [Connect Raspberry Pi as Gateway to Watson IoT Platform recipe](#) to develop your application and connect to IBM Watson IoT Platform.

TAGS API, APPLICATION, CLOUD, DEVICE, GATEWAY, IBM, IBM IOT FOUNDATION, IBM WATSON IOT PLATFORM, IBM IOT, QUICKSTART

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