

# Hello IoT! Connect a device to Watson IoT Platform and write an app to read and display data

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Josef Reisinger: Hello, and welcome to this video tutorial on how to connect a device to IBM Watson IoT platform. Build your apps your way. That's the promise and that's what I want to show you in this video tutorial.

At the end of this will tutorial, you will be able to use your Raspberry and a Mosquitto and QTT library to send commands from your Raspberry into IBM Watson IoT platform.

Here we are now going to add an IoT device to the platform. The IoT platform is the endpoint where the devices send data to and your application can send commands to devices. We start with the catalog. The catalog lists a lot of services so we can use the search function to find IoT platform.

If you click on IoT platform, you'll see on the left side a docs button. Clicking this button brings you an awful lot of document about the platform.

We'll go ahead and create a new instance of the platform. And if you wish, you might change the name before that.

It might take a few minutes to create [INAUDIBLE], so be patient. If this page appears, your IoT service is ready. Don't miss the available documentation if you don't want more.

But for now, press the launch button. Locate and press the button to create a new device.

You need to define a device type. A device type is kind of group functions to group devices together with similar characteristics. We need to device type [INAUDIBLE] the communication between an application and the IoT platform. The device ID is usually a serial number, but any string is good enough for now.

At this point, we let Bluemix determine the device token. To let a device send data to the platform, it needs to authenticate itself. This is the reason for the authentication token. Be prepared that this token is only shown once during the configuration. If you lose it later, you can't recreate it from the [desktop] and you have to reregister the device.

The slide behind me shows how the configured data are used to create the device identification or client ID [INAUDIBLE] and the host then to connect to to send and receive data from the IoT platform.

With the knowledge of device type, device ID, and a [INAUDIBLE] has been displayed on the web page, we can now start to send some test data from a device into the platform. I'm using a Fedora distribution on my Raspberry Pi. But any other distribution is okay too. Most of the distributions, if not all, are contained in Mosquitto library which you can install using the platform's install tools like DNF on newer Fedora distributions or APT get on Ubuntu-like distributions.

You may use a command line tool from Mosquitto to send test data to the platform. And if you switch to the dashboard, you see this data arriving there. So, that's good.

We have done the left side. You might wonder what I mean with the left side and where's the right side.

On the left side in the diagram behind me, you'll see the devices. The devices need to authenticate themselves to be able to send data to the platform. It makes sense. Otherwise, you would get garbage data into your database.

On the right side, you'll see the applications. Applications consume the data which are provided by the devices. You might imagine that the applications need to authenticate themselves by an API key which is seen being created in the screen behind me.

Take this note serious. The authentication token is only shown once. You may want to take a note or keep this web page open for later use.

We have now nearly all elements together to write in a simple application. In this video, we will use Node-Red and create a simple hello world application.

Scroll down and press the big red button to start the Node-Red workspace. Once you have opened up the Node-Red editor, you drag an IBM IoT node in the workspace. You need to click on the node to configure it and part of the configuration is your authentication token.

You hopefully have made a copy of it.

We select all the check boxes to receive any kind of message coming into IoT platform. To see the messages on the debug tab to the far right, we drag a debug node into the workspace and [Y] add it to the IBM IoT input node.

On our Raspberry Pi, we create a simple command which sends data [INAUDIBLE] once a second and an MQTT message in IBM Watson IoT platform.

With this simple application, you see date and time now arriving at the debug tab.

From now on, your imagination is your only limit to create something useful with what you have started here. You may want to have a look at developerWorks. In developerWorks, you find endless [INAUDIBLE], tips, tricks, and even tutorials for further application using this principle.

You may want to look at this URL where you find an article how to connect a car to a smart home so that this car is able to switch on and off appliances as it comes close to your home using the principles you have seen in this video.

Thank you very much for your attention.