
platform: {Windows10}
device: {DFA1163}
language: {C#}

Connect DFA1163 device to your Azure IoT services

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Introduction

About this document

This document describes how to connect DFA1163 to Azure IoT Hub using the Azure IoT Explorer with certified device application and device models.

IoT Plug and Play certified device simplifies the process of building devices without custom device code. Using Solution builders can integrated quickly using the certified IoT Plug and Play enabled device based on Azure IoT Central as well as third-party solutions.

This getting started guide provides step by step instruction on getting the device provisioned to Azure IoT Hub using Device Provisioning Service (DPS) and using Azure IoT Explorer to interact with device's capabilities.

DFA1163 Key Features:

- Intel Atom® processor C3000R
- 2 x DDR4 ECC RDIMM/UDIMM
- 1 x 10GbE SFP+ port
- 12 x RJ45 ports (with optional PoE+ support)
- Supports Wi-Fi 6
- Supports 4G LTE and 5G FR1 SA/NSA modes
- Supports 5G FR2 NSA mode (DFA 1163M only)
- Supports TSN (DFA 1163M only)

Prerequisites

You should have the following items ready before beginning the process:

For Azure IoT Central

- [Azure Account](#)
- [Azure IoT Central application](#)

For Azure IoT Hub

- [Azure IoT Hub Instance](#)
- [Azure IoT Hub Device Provisioning Service](#)
- [Azure IoT Public Model Repository](#)

Prepare the Device.

Hardware Environmental setup

- Prepare DFA1163, and install Win10 IoT Enterprise.
- Power on the DFA1163.
- Connect to the network.

Software Environmental setup

- Download the source code from this GitHub and check the [“PNP_Xcare_DFA1163”](#) folder
- Install Visual Studio.
- Open the project

Prepare IoT Hub and DPS configuration

Please refer to this tutorial to complete the following procedures :

1. Use Azure commands or Azure portal to create a Resource Group which include IoT Hub and a Device Provisioning Service
2. To link the DPS instance to your IoT hub
3. To create your device by individual device enrollment in your DPS instance.
4. Make a note of the DPS information (DPS endpoint/Registration ID/ID Scope/Symmetric key).

Run the sample

Under the “PNP_Xcare_DFA1163” folder, open the project and set debug parameter:

"(-s dps -i {scopeId} -d {deviceId} -k {primaryKey} -e {endpoint})"

Connect to Azure IoT Central

1. Create an application
Please refer to this [tutorial](#) to create a “Custom application” template.
2. Create a device template from the device catalog
Please refer to this tutorial to create the [DFA1163](#) device template.
3. Add a device
Add a new device under DFA1163 device template. Make a note of the device ID.
4. Get connection information
 - ID scope : In your IoT Central application, navigate to Administration > Device Connection. Make a note of the ID scope value.
 - Group primary key : In your IoT Central application, navigate to Administration > Device Connection > SAS-IoT-Devices. Make a note of the shared access signature Primary key value.

The screenshot displays the Azure IoT Central Administration console. The left sidebar shows the navigation menu with 'Administration' selected. The main content area is divided into two panels. The top panel, titled 'Device connection', shows the 'ID scope' field with a red box highlighting its value. Below this, the 'Auto-approve new devices' toggle is set to 'On'. A table lists enrollment groups, with 'SAS-IoT-Devices' highlighted by a red box. The bottom panel, also titled 'Device connection', shows the 'Name' field set to 'SAS-IoT-Devices'. The 'Automatically connect devices in this group' toggle is set to 'On'. The 'Group type' is set to 'IoT devices'. The 'Attestation type' is set to 'Shared access signature (SAS)'. The 'Shared access signature (SAS)' section shows the 'Primary key' field with a red box highlighting its value.

Administration

Your application

Users

Roles

Pricing

Device connection

Device file upload

API tokens

Customize your application

Customize help

Application template export

Device connection

We use the Azure IoT Hub Device Provisioning Service (DPS) to register and connect devices. [Learn](#)

ID scope ^①

Auto-approve new devices ^①

On

Enrollment groups

+ Create enrollment group

Name	Attestation type
SAS-IoT-Edge-Devices	Shared access signature (SAS)
SAS-IoT-Devices	Shared access signature (SAS)

Save Delete

Name *

SAS-IoT-Devices

Automatically connect devices in this group ^①

On

Group type ^①

☒ IoT devices

☐ IoT Edge devices

Attestation type ^①

Shared access signature (SAS)

Shared access signature (SAS)

Devices use Shared Access Signature (SAS) security tokens to connect to IoT Central. Use the group-level SAS keys that will appear below to generate keys for your individual device(s). [Learn more](#)

Primary key ^①

Use the Cloud Shell to generate a device specific key from the group SAS key you just retrieved using the Azure CLI

```
az extension add --name azure-iot
az iot central device compute-device-key --device-id sample-device-01 --pk <the group SAS primary key value>
```

Make a note of the generated device key, and the ID scope for this application and flash it on the device

Integration with Azure IoT Explorer (Advanced)

This section is optional for Advanced setup

- Include the steps on how to connect the IoT Plug and Play Device to Azure IoT Explorer
- Include screenshots and comments on how IoT Explorer shows/visualize telemetry , commands and properties coming from your IoT Plug and Play device.
- Include the steps on how to interact with devices (telemetry, commands properties)
- Ensure to attach the screenshot on consuming the device models available in public repository (not local folder) when using Azure IoT Explorer

Additional information

Put any additional information here such as alternative paths to deploy device application etc.

Additional Links

Please refer to the below link for additional information for Plug and Play

- [Manage cloud device messaging with Azure-IoT-Explorer](#)
- [Import the Plug and Play model](#)
- [Configure to connect to IoT Hub](#)
- [How to use IoT Explorer to interact with the device](#)