Advantech ECU-150 Getting Started Guide for AWS IoT Greengrass

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1 Document information

1.1 Document revision history

DATE	VERSION	DESCRIPTION
2024/7/8	1.0	Initial draft

1.2 Applicable operating systems for this guide
This guide is based on Ubuntu 20.04.

2 Overview

The ECU-150 is an IoT gateway built on the i.MX8M platform, featuring a high-performance Quad Core processor. With open platform design, it offers exceptional flexibility. The gateway includes two RS-232/485 isolated serial ports, two 10/100/1000 Ethernet ports, and a USB 3.0 port, ensuring seamless connectivity. It operates reliably in extreme temperatures ranging from -40°C to 70°C. Equipped with Mini-PCIe and M.2 slots, the ECU-150 allows easy integration of Wi-Fi/4G/5G modules. The gateway supports Linux operating system and is bundled with the user-friendly EdgeLink configuration tool, empowering system integrators to develop precise applications for solar and electricity generation, and factory automation, which often demand extensive data collection, cloud-based solutions, and video monitoring capabilities.

3 Hardware description

3.1 Datasheet
https://www.advantech.com.cn/zh-cn/search/?q=ECU-150&st=support&sst=Datasheet

3.2 Standard kit contents
The standard shipping hardware package include ECU-150 hardware configuration. Advantech also offers optional accessories to choose from, including WIFI module, LTE module and antenna. Please refers to the Datasheet for more detail offerings:
https://www.advantech.com.cn/zh-cn/search/?q=ECU-150&st=support&sst=Datasheet

3.3 Additional hardware references
As the standard shipping hardware package do not offer power supply, a 24VDC power supply is necessary. And customer also need to prepare a LAN cable to connect to device to deploy Greengrass's environment.

3.4 3rd party purchasable items
Not Applicable

4   Set up your development environment

4.1   Tools installation (IDEs, Toolchains, SDKs)

Please refer to the related document for setting up development environment.
https://www.advantech.com.cn/zh-cn/search/?q=ECU-150&st=support&sst=Software%20API

5   Set up device hardware

This section provides instructions for setting up the platform's hardware. The link is to the user manual of ECU-150, https://www.advantech.com.cn/zh-cn/search/?q=ECU-150&st=support&sst=Manual, which includes the following information:

- Overview
  - Safety precaution
  - Hardware specification
  - Dimensions
  - Packing list

- Hardware functionality
  - LED Status Indicators
  - Wiring and
  - Switch and Jumper Setting
  - Installation

6   About AWS IoT Greengrass

To learn more about AWS IoT Greengrass, see How AWS IoT Greengrass works and What's new in AWS IoT Greengrass Version 2.

7   Greengrass prerequisites

Refer to the online documentation detailing the prerequisites needed for AWS IoT Greengrass. Follow the instructions in the following sections:

Step 1: Set up an AWS account
Step 2: Set up your environment

7.1   Fix image name with AWS IoT Greengrass prerequisites

As the device's OS name of "EdgeLinux" is not within the supported range of GreenGrass. Please change OS name from "EdgeLinux" to "Ubuntu" before deploy Greengrass's environment in order to find the corresponding installation package when running "apt" command.

```
# cat /usr/lib/os-release
PRETTY_NAME="EdgeLinux LTS"
NAME="EdgeLinux"
VERSION_ID="1.0.0"
VERSION="1.0.0 LTS"
ID=EdgeLinux
VERSION_CODENAME=jammy

# sed -i "s@EdgeLinux@Ubuntu@g" /usr/lib/os-release
# cat /usr/lib/os-release
PRETTY_NAME="Ubuntu LTS"
NAME="Ubuntu"
VERSION_ID="1.0.0"
VERSION="1.0.0 LTS"
ID=Ubuntu
VERSION_CODENAME=jammy
```

8   Install AWS IoT Greengrass

Follow the online guide to *Install with automatic provisioning*. Refer to the instructions in the following steps:

- Set up the device environment
- Provide AWS credentials to the device. For development environments, you can use the option "Use long-term credentials from an IAM User". An example of how to do this is shown below:
  ```
  export AWS_ACCESS_KEY_ID=<the access key id for your user>
  export AWS_SECRET_ACCESS_KEY=<the secret access key for your user>
  ```
- Download the AWS IoT Greengrass Core software
- Install the AWS IoT Greengrass Core software

9   Create a "Hello World" component

9.1   Create the component on your edge device

Follow the instructions online under the section Develop and test a component on your device to create a simple component on your device.

9.2   Upload the "Hello World" component

Follow the instructions online at Create your component in the AWS IoT Greengrass service to upload your component to the cloud, where it can be deployed to other devices as needed.

9.3　Deploy your component

Follow the instructions online at [Deploy your component](#) to deploy and verify that your component is running.

10 Troubleshooting

Please visit Advantech official website for FAQs or GSGs

https://www.advantech.com.cn/zh-cn/products/7332cf9e-bf70-4a79-b0b6-fd8a2182cd72/ecu-150/mod_7af3b0b8-4e52-4ed2-bbdc-22ad3222def0

For more information, refer to the online documentation *Troubleshooting Greengrass v2*.