Advantech ICAM-540 Getting Started Guide for AWS IoT Greengrass

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1 Document information

1.1 Document revision history

Date	Version	Description
2024/11/28	1	1st Version

1.2 Applicable operating systems for this guide

This guide is applied to the ICAM-540 and an operating system (Ubuntu 20.04) to run AWS Greengrass.

2 Overview

The Advantech ICAM-540 series is a highly integrated Industrial AI Camera equipped with programmable variable focus lenses, LED illumination, SONY industrial grade image sensor, multiple core ARM processors and NVIDIA AI system on module. Featuring CAMNavi SDK, Google Chromium web browser utility and NVIDIA Deepstream SDK, ICAM-540 series accelerates the development and deployment of cloud-to-edge vision AI applications. The CAMNavi SDK uses Python language by default and is better adapted to image acquisition and AI algorithm integration. Meanwhile the HTML 5 web based utility can be used to setup the cameras and network configuration to lower the installation effort. The preloaded, optimized Jetpack board support package seamlessly connects to AI cloud services. Advantech ICAM-540 series is an all-in-one, compact and rugged industrial AI camera, and is ideal for a variety of Edge AI vision applications.

3 Hardware description

3.1 Datasheet

ICAM-540 Datasheet (advantech.com)

3.2 Standard Package

- 1 x ICAM-540 system
- 1 x Connector

For more details, please visit: ICAM-540 - Industrial AI Camera equipped with NVIDIA Jetson Orin NX computing module and SONY industrial grade image sensor - Advantech

3.3 User provided items

- Power supply A/D 100-240V 65W 24V
- 3 m Power & DI/O cable with M12 male connector
- 3 m Ethernet cable with M12 male connector

4 Set up your development environment

4.1 Tools installation

The development environment chosen should be based on the device's intended end use.

5 Set up device hardware

Please refer to the ICAM-540 User Manual from the link below:
ICAM-540 User Manual (Advantech.com)

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

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

For further support of ICAM-540 please refer the link: Support

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