SIEMENS

SIMATIC
Industrie-PC
SIMATIC IPC PX-39A: Getting Started Guide for AWS IoT Greengrass
Compact User Manual

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1 Overview

The SIMATIC IPC PX-39A is a fan-free embedded panel PC with powerful 11th generation Intel Core-i processor for complex visualization and control tasks.

The SIMATIC IPC PX-39A is a fan-free embedded panel PC for complex visualization and control tasks with multi-touch display. It is maintenance-free and can be configured, integrated, and commissioned flexibly and simply. With its rugged metal enclosure, it can withstand even severe mechanical stress.

In this Getting Started document, you will find information about how to setup AWS IoT Greengrass on an SIMATIC IPC PX-39A running Linux or Windows operating system.

1.1 About AWS IoT Greengrass

To learn more about AWS IoT Greengrass, see how it works (https://docs.aws.amazon.com/greengrass/v2/developerguide/how-it-works.html) and what´s new (https://docs.aws.amazon.com/greengrass/v2/developerguide/greengrass-v2-whats-new.html).

2 Hardware Description

2.1 DataSheet

Click on this link (https://support.industry.siemens.com/cs/ww/en/pv/6AV7242-.....-....) to view the datasheet of IPC PX-39A.

2.2 Additional Hardware References

You will find more information in the operating manual (https://support.industry.siemens.com/cs/ww/en/view/109814324).

3 Set up your Development Environment

3.1 Tools Installation (IDEs, Toolchains, SDKs)

AWS IoT Greengrass supports various operating systems (https://docs.aws.amazon.com/greengrass/v2/developerguide/operating-system-feature-support-matrix.html).
Please refer to chapter 9 below for more information about installation of AWS IoT Greengrass.

3.2 Prerequisites

It´s recommended to use

- Java Runtime Environment (JRE) version 8 or greater
- Java Development Kit (JDK) Amazon Corretto 11 (http://aws.amazon.com/corretto/) or OpenJDK 11 (https://openjdk.java.net/)
- GNU C Library (https://www.gnu.org/software/libc/) (glibc) version 2.25 or greater

4 Set up your hardware

Please refer to chapter 4 (https://support.industry.siemens.com/cs/ww/en/view/109749498) of Operating Instructions for installing Windows on IPCs. For running AWS IoT Greengrass on Linux please download (https://releases.ubuntu.com/22.04/) and install Ubuntu on IPC PX-39A.

5 Setup your AWS account and Permissions

Refer to the online AWS documentation at Set up your AWS Account (https://docs.aws.amazon.com/iot/latest/developerguide/setting-up.html). Follow the steps outlined in the sections below to create your account and a user and get started:

- Sign up for an AWS account (https://docs.aws.amazon.com/iot/latest/developerguide/setting-up.html#aws-registration) and
- Create a user and grant permissions (https://docs.aws.amazon.com/iot/latest/developerguide/setting-up.html#create-iam-user)
- Open the AWS IoT console (https://docs.aws.amazon.com/iot/latest/developerguide/setting-up.html#iot-console-signin)

Pay special attention to the Notes.

6 Create Resources in AWS IoT

Refer to the online AWS documentation at Create AWS IoT Resources (https://docs.aws.amazon.com/iot/latest/developerguide/create-iot-resources.html).
Follow the steps outlined in these sections to provision resources for your device:

- Create an AWS IoT Policy (https://docs.aws.amazon.com/iot/latest/developerguide/create-iot-resources.html#create-iot-policy)
- Create a thing object (https://docs.aws.amazon.com/iot/latest/developerguide/create-iot-resources.html#create-aws-thing)

Pay special attention to the Notes.

7 Install the AWS Command Line Interface

To install the AWS CLI on your host machine, refer to the instructions at Installing the AWS CLI v2 (https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2.html). Installing the CLI is needed to complete the instructions in this guide.

Once you have installed AWS CLI, configure it as per the instructions in this online guide (https://docs.aws.amazon.com/cli/latest/userguide/cli-configure-quickstart.html#cli-configure-quickstart-config). Set the appropriate values for Access key ID, Secret access key, and AWS Region. You can set Output format to "json" if you prefer.

8 Install AWS IoT Greengrass

8.1 Download the AWS IoT Greengrass Core software

You can download the latest Version of AWS IoT Greengrass Core software from this location:

https://d2s8p88vqu9w66.cloudfront.net/releases/greengrass-nucleus-latest.zip
(https://d2s8p88vqu9w66.cloudfront.net/releases/greengrass-nucleus-latest.zip)

8.2 Install the AWS IoT Greengrass Core software

Unzip the AWS IoT Greengrass Core software to a folder on your device. Replace "GGCoreInstall" with the folder that you want to use

```
unzip greengrass-nucleus-latest.zip -d GGCoreInstall
rm greengrass-nucleus-latest.zip
```

Verify the version of the AWS IoT Greengrass Core software:

```
java -jar ./GGCoreInstall/lib/Greengrass.jar --version
```

You will see the Greengrass version displayed - similar to:

```
AWS Greengrass v2.8.0
```

8.2.1 Provide your credentials

Run the following commands to provide the credentials to the AWS IoT Greengrass Core software.

```
export AWS_ACCESS_KEY_ID=<the access key id for your account>
export AWS_SECRET_ACCESS_KEY=<the secret access key for your account>
```

8.2.2 Run the installer

Run the installer as shown below. Modify the values as per your region, install directory and thing name.

Use the **--provision true** option to have the installer set up the "thing" and required policies for you. If you prefer to configure Greengrass manually, see the online guide (https://docs.aws.amazon.com/greengrass/v2/developerguide/manual-installation.html).

```
sudo -E java -Droot="/greengrass/v2" -Dlog.store=FILE \
-jar ./GGCoreInstall/lib/Greengrass.jar \
--aws-region us-west-2 \
--thing-name thing-name \
--tes-role-name GreengrassV2TokenExchangeRole \
--tes-role-alias-name GreengrassCoreTokenExchangeRoleAlias \
--component-default-user ggc_user:ggc_group \
--provision true \
--setup-system-service true \
--deploy-dev-tools true
```

If all goes well, you will see the following output on the device console:

```
Successfully configured Nucleus with provisioned resource details!
Configured Nucleus to deploy aws.greengrass.Cli component
Successfully set up Nucleus as a system service
```

The local development tools (specified by the --deploy-dev-tools option) take some time to deploy. The following command can be used to check the status of this deployment:

```
aws greengrassv2 list-effective-deployments --core-device-thing-name thing-name
```

When the status is SUCCEEDED, run the following command to verify that the Greengrass CLI is installed and runs on your device. Replace /greengrass/v2 with the path to the base folder on your device as needed.

```
/greengrass/v2/bin/greengrass-cli help
```

9 Create a Hello World component

In Greengrass v2, components can be created on the edge device and uploaded to the cloud, or vice versa.

9.1 Create the component on your edge device

Follow the instructions online under the section To create a Hello World component (https://docs.aws.amazon.com/greengrass/v2/developerguide/getting-started.html) to create, deploy, test, update and manage a simple component on your device.

9.2 Upload the Hello World component

Follow the instructions online at Upload your component (https://docs.aws.amazon.com/greengrass/v2/developerguide/getting-started.html) to upload your component to the cloud, where it can be deployed to other devices as needed.

10 Troubleshooting

Please refer to After Sales Information (https://support.industry.siemens.com/cs/ww/en/view/109782922) for technical support and more information about repairs and spare parts.

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