<MA-S1xx series>

Getting Started Guide for AWS IoT Greengrass

Table of Contents

[1 Document information 2](#_Toc139372365)

[2 Overview 2](#_Toc139372366)

[3 Hardware description 2](#_Toc139372367)

[4 Set up your development environment 3](#_Toc139372368)

[5 Set up device hardware 4](#_Toc139372369)

[6 About AWS IoT Greengrass 4](#_Toc139372370)

[7 Greengrass prerequisites 5](#_Toc139372371)

[8 Install AWS IoT Greengrass 5](#_Toc139372372)

[9 Create a “Hello World” component 5](#_Toc139372373)

[10 Troubleshooting 5](#_Toc139372374)

# Document information

## Document revision history

|  |  |
| --- | --- |
| Date | Notes |
| 2023/7/5 | first edition |

## Applicable operating systems for this guide

Based on Ubuntu 22.04LTS

MA-S1xx series software can be downloaded from the following URL

[*https://ma-tech.centurysys.jp/doku.php?id=download\_software:mas1xx:start*](https://ma-tech.centurysys.jp/doku.php?id=download_software:mas1xx:start)

※AWS IoT Greengrass core software is not installed.

# Overview

The product overview is as follows

<https://www.centurysys.co.jp/products/linuxserver/mas120.html>

※Please check the English translation with your browser or other functions.

The MA-S1xx series is a data collection and processing with Linux platform and ARM-based hardware architecture, 4G LTE module, Ethernet, digital I/O, serial ports (RS-232, RS-485), SD card, and 5GByte memory, The MA-S1xx series offers convenient WebUI functionality supporting Ethernet, 4G LTE, static root, DHCP server, firewall, WireGuard, etc. The MA-S1xx series is available with optional The MA-X3xx series provides convenient WebUI functionality supporting Ethernet, 4G LTE, static root, DHCP server, firewall, WireGuard, etc. The MA-S1xx series also offers optional wireless LAN + BLE communication module and analog input to support a wide range of environments. The WebUI also allows for configuration management and syslogging. Configuration management and Syslog retrieval can also be performed via the Web UI, allowing customers to easily manage the MA-S1xx series themselves. The hardware supports fanless design, wide range of power input (9V to 36V), and operating temperature (-20°C to +60°C.) The MA-S1xx series is ideal for use as an IoT gateway to collect, integrate, and send data acquired from each interface to the cloud!

# Hardware description

## Datasheet

The Hardware datasheet is below.

[*https://www.centurysys.co.jp/downloads/linuxserver/mas120/index.html*](https://www.centurysys.co.jp/downloads/linuxserver/mas120/index.html)

Please also check our website.

（ハードウェア仕様）

[*https://www.centurysys.co.jp/products/linuxserver/mas120.html*](https://www.centurysys.co.jp/products/linuxserver/mas120.html)

The MA-S1xx series includes the following models

* MA-S120/L（EC25-J）
* MA-S120/LW（EC25-J）
* MA-S120/LA（EC25-J）
* MA-S120/GLA（EG25-G版）

The differences by model are as follows

※MA-S120 hardware is a model with a basic base interface.

※MA-S120/LW is a model that adds wireless LAN and Bluetooth modules to MA-S120/L.

※MA-S120/LA hardware is a model with an analog input interface added to the MA-S120/L.

※MA-S120/L and MA-S120/GLA have different LTE communication modules on board.

## Standard kit contents

Indicate contents of the standard shipping hardware package as indicated below:

* MA-S1xx main unit

Must be purchased separately

* AC adapter

[*https://www.centurysys.co.jp/products/option/as\_adapter/index.html*](https://www.centurysys.co.jp/products/option/as_adapter/index.html)

* LTE Antenna

[*https://www.centurysys.co.jp/products/option/antenna\_list.html*](https://www.centurysys.co.jp/products/option/antenna_list.html)

For MA-S1xx console connection

* Console Cable（USB micro B）

## User provided items

If necessary, the following cables

* Ethernet cable
* RS-232 cable
* Digital IO cable

## 3rd party purchasable items

Not Applicable

# Set up your development environment

## Tools installation (IDEs, Toolchains, SDKs)

No IDE.

See below for setting up the development environment.

<https://ma-tech.centurysys.jp/doku.php?id=mas1xx_devel:start>

Software development (MA-X3xx series)

* Setting up the development environment (self)
* Setting up the development environment (for cross, armhf)
* Emulator setup (QEMU)
* Preparing the kernel and various packages
* Preparing the root filesystem
* Customizing the root filesystem
* Create firmware

Firmware customization example

*<https://ma-tech.centurysys.jp/doku.php?id=max3xx_devel:customize_firmware:add_openjdk_jre:start>*

AWS IoT Greengrass V2 ready

*<https://ma-tech.centurysys.jp/doku.php?id=max3xx_devel:customize_firmware:add_aws_iot_greengrass_v2:start>*

# Set up device hardware

Product Page

<https://www.centurysys.co.jp/products/linuxserver/mas120.html>

Description of key components and external ports

* Serial Ports

<https://ma-tech.centurysys.jp/doku.php?id=mas1xx_ope:use_serialport:start>

* Digital I/O

<https://ma-tech.centurysys.jp/doku.php?id=mas1xx_ope:use_di_do:start>

Table showing LEDs on the device and the states indicated

<https://ma-tech.centurysys.jp/doku.php?id=mas1xx_ope:led_allocation:start>

# About AWS IoT Greengrass

To learn more about AWS IoT Greengrass, see [How AWS IoT Greengrass works](https://docs.aws.amazon.com/greengrass/v2/developerguide/how-it-works.html) and [What's new in AWS IoT Greengrass Version 2](https://docs.aws.amazon.com/greengrass/v2/developerguide/greengrass-v2-whats-new.html).

# Greengrass prerequisites

Refer to the online documentation detailing the [prerequisites](https://docs.aws.amazon.com/greengrass/v2/developerguide/getting-started-prerequisites.html) needed for AWS IoT Greengrass. Follow the instructions in the following sections:

[Step 1: Set up an AWS account](https://docs.aws.amazon.com/greengrass/v2/developerguide/getting-started-set-up-aws-account.html)

[Step 2: Set up your environment](https://docs.aws.amazon.com/greengrass/v2/developerguide/getting-started-set-up-environment.html)

# Install AWS IoT Greengrass

Follow the online guide to [*Install with automatic provisioning*](https://docs.aws.amazon.com/greengrass/v2/developerguide/quick-installation.html).  Refer to the instructions in the following steps:

* [Set up the device environment](https://docs.aws.amazon.com/greengrass/v2/developerguide/quick-installation.html#set-up-device-environment)
* [Provide AWS credentials to the device](https://docs.aws.amazon.com/greengrass/v2/developerguide/quick-installation.html#provide-installer-aws-credentials). 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](https://docs.aws.amazon.com/greengrass/v2/developerguide/quick-installation.html#download-greengrass-core-v2)
* [Install the AWS IoT Greengrass Core software](https://docs.aws.amazon.com/greengrass/v2/developerguide/quick-installation.html#run-greengrass-core-v2-installer)

# Create a “Hello World” component

## Create the component on your edge device

Follow the instructions online under the section [Develop and test a component on your device](https://docs.aws.amazon.com/greengrass/v2/developerguide/create-first-component.html) to create a simple component on your device.

## Upload the “Hello World” component

Follow the instructions online at [Create your component in the AWS IoT Greengrass service](https://docs.aws.amazon.com/greengrass/v2/developerguide/upload-first-component.html) to upload your component to the cloud, where it can be deployed to other devices as needed.

## Deploy your component

Follow the instructions online at [Deploy your component](https://docs.aws.amazon.com/greengrass/v2/developerguide/deploy-first-component.html) to deploy and verify that your component is running.

# Troubleshooting

For more information, refer to the online documentation [*Troubleshooting Greengrass v2*](https://docs.aws.amazon.com/greengrass/v2/developerguide/troubleshooting.html).

If you have any questions about MA-S1xx, please contact us by

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and New Year holidays.