



# About Connected Grid Modules

This section describes the installation information for the Cisco Connected Grid modules supported by the Cisco 1120 Connected Grid Router.

The router supports up to two Cisco Connected Grid modules to enable network connections from the router to field devices, such as smart meters, and from the router to the utility or data management center.

Depending on the configuration, your router could arrive in the shipping container with all required modules already installed. However, you might need to:

- Add a module to your current installation.
- Replace a faulty module.

These topics are discussed:

- [Installing and Removing Modules, page 65](#)
- [Where to Find Additional Module Information, page 70](#)

## Installing and Removing Modules

This section provides general instructions for installing modules in the router. For information specific to a particular module, refer to the module installation and configuration guides on Cisco.com, at: [www.cisco.com/go/cg-modules](http://www.cisco.com/go/cg-modules).

This section contains the following topics:

- [Preparing to Install Modules, page 65](#)
- [Installation Warning Statements, page 66](#)
- [Module Installation Locations, page 66](#)
- [Installing a Module, page 66](#)
- [Removing a Module, page 68](#)

## Preparing to Install Modules

Before installing modules in the router, verify the following guidelines have been met:

**Note:** The CGR 1120 router supports online insertion and removal (OIR) of modules. For more information see [Installing a Module, page 66](#) and [Removing a Module, page 68](#).

- Verify that there is adequate airflow around the module slots and through the router vents. For more information, see [Installation Safety and Site Preparation, page 5](#).
- The ambient installation environment temperature must not exceed 140° F (60° C). If the module is installed in a closed or multi-rack assembly, the temperature around it might be higher than normal room temperature.
- The installation environment humidity must not exceed 95% (non-condensing).

- The installation site altitude must be no higher than 10,000 feet.
- After replacing or installing a module in the router, you must update the label (on the router exterior) that lists the module types contained in the router. The label must list the FCC ID number and the IC Certification number for each module installed in the router.

## Installation Warning Statements

This section includes the installation warning statements. Translations of these warning statements appear in the *Regulatory Compliance and Safety Information for Cisco Connected Grid Router 1000 Series Routers* documents on Cisco.com, at: [www.cisco.com/go/cgr1000-docs](http://www.cisco.com/go/cgr1000-docs).

**Warning** Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

**Warning** To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 140°F (60°C) Statement 1047

**Warning** To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 1.75 in. (4.4 cm) Statement 1076

## Module Installation Locations

There are two module slots and these are numbered 3 and 4. Connected Grid modules can be installed in either module slot, regardless of module type. Empty module slots must be covered with a blank faceplate.

## Installing a Module

A module can be installed in a router in an offline or online state. Installing a module in an online router involves using the CLI or CG-DM application. The instructions for removing a module can vary based on the router operating system—Connected Grid operating system (CG-OS) or Cisco IOS operating system.

**Note:** The CGR 1120 router supports online insertion and removal (OIR) of modules. To install a module by OIR, there are two options:

- Power down the module slot using the command line interface (CLI) prior to installing the module.
- Use the CG-DM application to remove the module.

**Tip:** This section provides general module installation steps. For detailed steps for the module type that you are installing, see the installation and configuration guide for your module at: [www.cisco.com/go/cgr1000-docs](http://www.cisco.com/go/cgr1000-docs).

To install a module, choose from the following options:

- [Installing a Module in an Offline Router, page 66](#)
- [Installing a Module in an Online Router using the CLI, page 67](#)
- [Installing a Module using Connected Grid Device Manager, page 68](#)

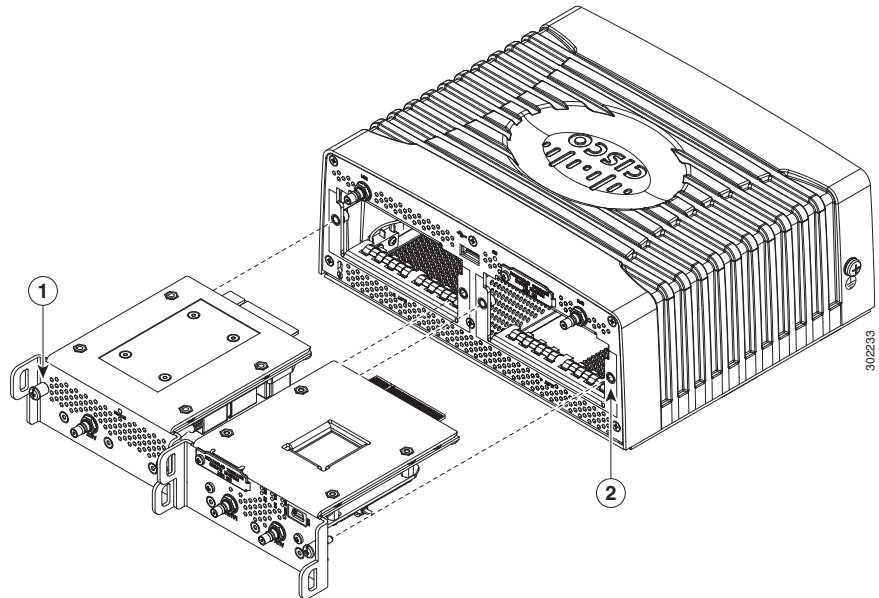
## Installing a Module in an Offline Router

To install a module in an offline router:

1. Identify the slot the module is to be installed in (3 or 4).
2. Disconnect the router from AC power.

3. Insert the module in the slot as shown in [Figure 1 on page 67](#).

**Figure 1** Inserting a Module in to the Router



- 1 Module captive screws, 2 per module
- 2 Router captive screw connectors (4)

4. Use a screwdriver to tighten the module captive screws (two per module) into the connectors on the router front panel to 10–12 in-lb (1.13–1.36 N-m).
5. Attach any required cables to the module. This step is specific to the module type.

## Installing a Module in an Online Router using the CLI

To install a module in an online router using the CLI:

1. Identify the slot where the module is to be installed (3 or 4).
2. Start a terminal session to access the command line interface (CLI) by following the instructions in [Starting a Router Terminal Session, page 91](#).
3. Power down the slot (number 3 or 4) by issuing the appropriate command at the (CLI):

- For a router using Cisco CG-OS, use the following command:

```
router(config)# poweroff module slot
```

**Note:** To power down a module slot use the **poweroff module slot** command in global configuration mode. The *slot* is the slot number of the module (3 or 4). To power the slot again, use the **no** form of the command.

- For a router using Cisco IOS, use the following command:

```
router(config)# hw-module poweroff slot
```

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**Note:** To power down a module slot use the **hw-module poweroff slot** command in global configuration mode. The *slot* is the slot number of the module (3 or 4). To power the slot again, use the **no** form of the command.

4. Insert the module in the slot as shown in [Figure 1 on page 67](#).
5. Use a screwdriver to tighten the module captive screws (two per module) into the connectors on the router front panel to 10–12 in-lb (1.13–1.36 N-m).

## Installing a Module using Connected Grid Device Manager

**Note:** There are different versions of the CG-DM application for routers using the Cisco CG-OS and Cisco IOS operating systems. Verify that you have the correct version installed before proceeding.

To install a module using CG-DM:

1. Identify the slot the module is to be installed in (3 or 4).
2. For CG-DM instructions on how to install a module:
  - If the router is using Cisco CG-OS, see the “Add a Module” section of the “Using the Device Manager” chapter of the *Cisco Connected Grid Device Manager Installation and User Guide* on Cisco.com.
  - If the router is using Cisco IOS, see the “Inserting a Module” section of the “Using the Device Manager” chapter of the *Cisco Connected Grid Device Manager Installation and User Guide (Cisco IOS)* on Cisco.com.
3. Use a screwdriver to tighten the module captive screws (two per module) into the connectors on the router front panel to 10–12 in-lb (1.13–1.36 N-m).

## Removing a Module

A module can be removed from a router in an offline or online state. Removing a module from an online router involves using the CLI or CG-DM application. The instructions for removing a module can vary based on the router operating system—Connected Grid operating system (CG-OS) or Cisco IOS operating system.

**Note:** The CGR 1120 router supports online insertion and removal (OIR) of modules. To remove a module by OIR, there are two options:

- Power down the module slot using the command line interface (CLI) prior to removing the module.
- Use the CG-DM application to remove the module.

The options for removing a module are:

- [Removing a Module from an Offline Router, page 68](#)
- [Removing a Module from an Online Router using the CLI, page 69](#)
- [Removing a Module using Connected Grid Device Manager, page 69](#)

## Removing a Module from an Offline Router

To remove a module from an offline router:

1. Identify the slot from where the module is to be removed (3 or 4).
2. Disconnect the router from AC power.
3. Use a screwdriver to unscrew the module captive screws (two per module) from the connectors on the router front panel.

4. Pull the module gently from the router.
5. If the module slot is being left empty, cover the slot with a blank faceplate.

## Removing a Module from an Online Router using the CLI

To remove a module from an online router using the CLI:

1. Identify the slot from where the module is to be removed (3 or 4).
2. Start a terminal session to access the command line interface (CLI) by following the instructions in [Starting a Router Terminal Session, page 91](#).
3. Power down the slot (number 3 or 4) by issuing the appropriate command at the (CLI):
  - For a router using Cisco CG-OS, use the following command:

```
router(config)# poweroff module slot
```

**Note:** To power down a module slot use the **poweroff module slot** command in global configuration mode. The *slot* is the slot number of the module (3 or 4). To power the slot again, use the **no** form of the command.

- For a router using Cisco IOS, use the following command:

```
router(config)# hw-module poweroff slot
```

**Note:** To power down a module slot use the **hw-module poweroff slot** command in global configuration mode. The *slot* is the slot number of the module (3 or 4). To power the slot again, use the **no** form of the command.

4. Use a screwdriver to unscrew the module captive screws (two per module) from the connectors on the router front panel.
5. Pull the module gently from the router.
6. If the module slot is being left empty, cover the slot with a blank faceplate.

## Removing a Module using Connected Grid Device Manager

**Note:** The CG-DM application for routers using Cisco CG-OS and Cisco IOS is different. Verify that you have the correct version installed before proceeding.

To remove a module using CG-DM:

1. Identify the slot the module is to be installed in (3 or 4).
2. For CG-DM instructions on how to remove a module:
  - If the router is using Cisco CG-OS, see the “Remove a Module” section of the “Using the Device Manager” chapter of the *Cisco Connected Grid Device Manager Installation and User Guide* on Cisco.com.
  - If the router is using Cisco IOS, see the “Removing a Module” section of the “Using the Device Manager” chapter of the *Cisco Connected Grid Device Manager Installation and User Guide (Cisco IOS)* on Cisco.com.
3. If the module slot is being left empty, cover the slot with a blank faceplate.

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## Where to Find Additional Module Information

For instructions on how to install, replace, and configure the modules, see these installation and configuration guides on Cisco.com, at: [www.cisco.com/go/cg-modules](http://www.cisco.com/go/cg-modules)

**Table 1 Connected Grid Modules for CGR 1000 Series Routers Documentation**

Connected Grid Module	Related Documentation
Cisco Connected Grid Modules for CGR 1000 Series - Cellular 3G CDMA (Cisco IOS)	Connected Grid 3G CDMA Module for CGR 1000 Series Installation and Configuration Guide (Cisco IOS)
Cisco Connected Grid Modules for CGR 1000 Series - Cellular 3G GSM (Cisco IOS)	Cisco Connected Grid 3G GSM Module for CGR 1000 Series Installation and Configuration Guide (Cisco IOS)
Cisco Connected Grid Modules for CGR 1000 Series - Cellular 3G CDMA/GSM	Cisco Connected Grid Cellular 3G Module for CGR 1000 Series Installation and Configuration Guide
Cisco Connected Grid Modules for CGR 1000 Series - Cellular 4G LTE (Cisco IOS)	Cisco Connected Grid 4G LTE Module Installation and Configuration Guide
Cisco Connected Grid Modules for CGR 1000 Series -WiFi	Cisco Connected Grid Routers WiFi Software Configuration Guide
Cisco Connected Grid Modules for CGR 1000 Series - WiMAX	Cisco Connected Grid WiMAX Module for CGR 1000 Series Installation and Configuration Guide
Cisco Connected Grid Modules for CGR 1000 Series - WPAN/CG-Mesh	Cisco Connected Grid WPAN Module for CGR1000 Series Installation and CG-Mesh Configuration Guide (Cisco IOS)
Cisco Connected Grid Modules for CGR 1000 Series - WPAN/RFLAN	Cisco Connected Grid Cellular WPAN Module for CGR 1000 Series Installation and RFLAN Configuration Guide