CHAPTER **4**

Performing Tasks on the CGR 1000

The chapter explains how to use the Device Manager to perform tasks on the CGR 1000 and contains the following sections:

Connecting to the CGR 1000

You can use Device Manager in the following ways:

- Operating with CG-NMS——When you have CG-NMS operating in the network, you can connect to that system with Device Manager to download and update work orders. Work orders allow Device Manager to view status and perform tasks on the CGR 1000. To operate in conjunction with CG-NMS, follow the steps in Setting Up the CG-NMS Connection, page 3-5.

- Operating without CG-NMS—When you do not have CG-NMS operating in the network or do not want to connect to that system, use Device Manager to connect directly to a CGR 1000 by either WiFi (with valid SSID and passphrase) or Ethernet to view status and perform tasks on the CGR 1000.

Connecting to the Router with a Work Order

Before connecting to the router with a work order, you should be familiar with the information in Chapter 3, "Managing Work Orders."

To connect to the router with a work order, select a work order from the list on the Device Manager opening page and click **Connect**.

Manually Connecting to the Router

You can connect to a CGR 1000 by either Ethernet or WiFi. WiFi connectivity ensures WPA Layer 2 security on data traffic between Device Manager and the router, after association and the key handshake complete. The Ethernet connection is secured by HTTPS only.

Connect to the Device Manager by employing one of the following methods:

- Auto Discovered IPv6 address (preferred method for the field)
- IPv4 address (such as 128.128.128.128)
- IPv6 address (such as fe80::d81f:6402:2ae4:4ea8)

To connect to the Device Manager manually:

Step 1   On the Device Manager opening page, click **Connect Without Work Order**.

Step 2   In the Connect to Device dialog box, select the Device Type: **CGR1120** or **CGR1240**.

Step 3   Select the Connection Type: **Over WiFi**, **Over Ethernet**, or **Auto Detect**.

Step 4   Enter the router IP address and port, or select the check box to auto-discover the IP address.

✎

Note   To Auto Discover an IPv6 address, the laptop running Device Manager must be directly connected to the CGR 1000 via Ethernet or WiFi. By design, the Auto Discover function works when there is only one active router within the same network.

Step 5   (WiFi only) Enter the SSID and pass phrase.

Step 6   Enter the user name and password.

Step 7   Click **Connect**.

The Device Manager main page appears.

Testing Connectivity

You can confirm connectivity to a device from the CGR 1000 through the Connectivity page.

Before you can check a device connection or route to a CGR 1000, you must add the IPv4 or IPv6 address or hostname of the device (connection target) to Device Manager. All work orders have connection targets.


This section covers the following topics:

* Adding a Device IP Address
* Pinging a Device IP Address
* Tracing the Route of a Device IP Address
* Deleting or Editing a Device IP Address

Adding a Device IP Address

To add a device IP address:

Step 1 On the Device Manager main page, click the **Connectivity** tab.

Step 2 On the Connectivity page, click **Add Target** to create a new target.
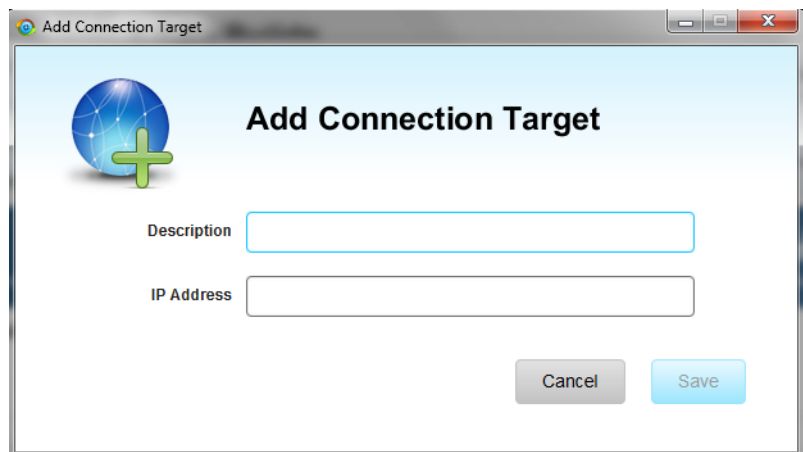
Step 3 In the Description field, enter a description for the device.

Step 4 In the IP Address field, enter the IP address (IPv4 or IPv6) of the device.

Step 5 Click **Save**.

You can now test the connectivity to the device you just added to the Device Manager.

Pinging a Device IP Address

The Ping feature allows you to verify connectivity to a device by querying the target IP address.

To test connectivity between the CGR 1000 and the device:

Step 1 On the Connectivity page, select the connection target and click **Ping**.

A dialog box appears indicating that the router is attempting to ping the target IP address.
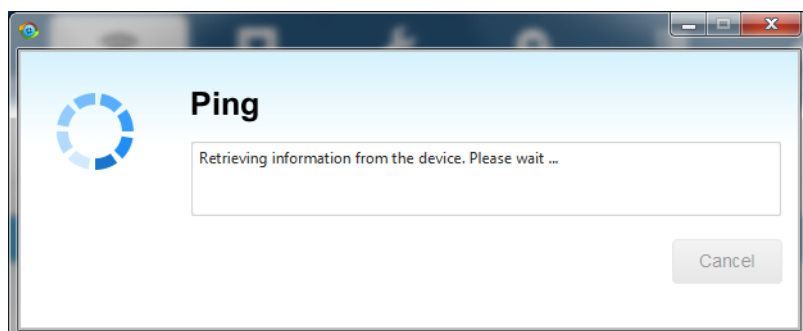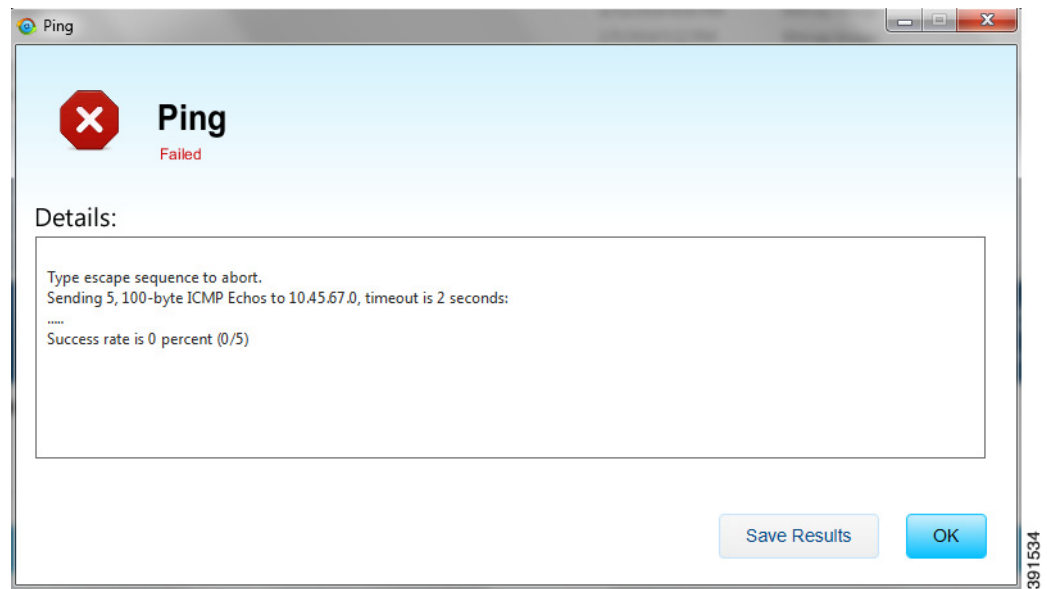
When the system successfully pings the device, a dialog box appears indicating that the ping was successful.

If the system does not successfully ping a device, refer to Failed Ping, page 4-5.

Step 2   Click **OK** to close the Ping dialog box.

Failed Ping

If the system does not successfully ping a device, a message appears showing the details of the failed ping attempt.

Step 1   In the Ping error dialog box, review the reason for the error, then click **OK** or **Save Results** to save the output to a file on the laptop**.**

Step 2   Proceed to Tracing the Route of a Device IP Address, page 4-5.

Tracing the Route of a Device IP Address

When an IP address cannot be reached using Ping, you can use the Trace Route feature to check the route taken to reach the device IP address.

To trace the route of the IP address:

Step 1   On the Connectivity page, click **Trace Route** for the listed connection target.

Step 2   If the trace route is successful, review the details and click **Save Results** or **OK** in the Trace Route dialog box.

Step 3   If the trace route is unsuccessful, proceed to Deleting or Editing a Device IP Address, page 4-6.

Deleting or Editing a Device IP Address

After you have tested a target IP address and verified its connectivity, you can delete the device entry from the Device Manager. You can also delete or edit an IP address that the application identifies as incorrect during failed pings and trace route attempts.

To delete or edit a target IP address:

Step 1   On the Connectivity page, select the listed connection target, and click **Delete** to remove the device from the list.

Step 2   To edit the device's IP address, click **Modify Target**.

Step 3   In the Modify Connection Target dialog box, edit the IP address and click **Save**.

Managing Interfaces

You can bring up or shut down an interface on the Interfaces page. You can also reset an interface and view interface details.

- When the line protocol for an interface is *up* ( ), the line protocol is currently active. When the line protocol for an interface is *down* ( ), it means the line protocol is not active.

- When the administrative status for an interface is *up* ( ), the administrator brought up the interface. When the administrative status for an interface is *down* ( ), the administrator took down the interface.

All interfaces installed within the CGR 1000 display automatically.

This section covers the following topics:

- Resetting an Interface
- Viewing Details for an Interface
- Shutting Down an Interface
- Bringing Up an Interface

Resetting an Interface

Resetting an interface shuts it down and then brings it up. To reset an interface:

Step 1   On the Device Manager main page, click the **Interfaces** tab.

Step 2   On the Interfaces page, select an interface and click **Reset**.

Step 3   In the Reset Interface dialog box, click **Yes** to confirm the reset.

Viewing Details for an Interface

Select an interface and click View Details to display information including interface status, settings, and dynamic statistics. Information is updated every 5 seconds.

Note   In this release, details are available for the 3G (cellular*x*/1) and WiMAX (Dot16Radio*x*/1) interfaces only.

The following details are available for the cellular interface:

- Received Signal Strength Indicator (RSSI) (chart)
- Modem status
- Settings (IMSI, IMEI, Cell ID, and APN)

The following details are available for the WiMAX interface:

- RSSI (chart)
- Carrier to Interference-plus-Noise Ratio (CINR) (chart)
- Settings (Hardware Address, Hardware Version, Microcode Version, Firmware Version, Device Name, Link State, Frequency, and Bandwidth)

To view details for an interface:

Step 1   On the Device Manager main page, click the **Interfaces** tab.

Step 2   On the Interfaces page, select an interface and click **View Details**.

Bringing Up an Interface

When an interface is shut down for any reason, you can attempt to bring up the interface.

Step 1   On the Device Manager main page, click the **Interfaces** tab.

Step 2   On the Interfaces page, select an interface and click **Bring Up**.

Step 3   In the Bring Up interface dialog box, click **Yes** to confirm bringing up the interface.

Shutting Down an Interface

Note   You cannot shut down the interface on which the Device Manager communicates with the CGR 1000 because the connection would be lost.

To shut down an interface:

Step 1   On the Device Manager main page, click the **Interfaces** tab.

Step 2   On the Interfaces page, select an interface and click **Shut Down**.

Step 3   In the Shut Down interface dialog box, click **Yes** to confirm shutting down the interface.

Changing the Configuration

You can upload a router configuration file to the Device Manager and then use that file to replace the startup configuration or the express setup (factory configuration) of the CGR 1000. (For more information about the configuration file, see *Managing Configuration Files Configuration Guide, Cisco IOS Release 15M&T.*)

Note   In NMS mode, you can replace only the factory configuration. In non-NMS mode, you can replace both the startup and factory configuration.

You can also download the factory or startup configuration file from the router to your laptop.

This section covers the following topics:

- Adding a Configuration File
- Downloading a Configuration File
- Replacing a Configuration File
- Removing a Configuration File
- Removing a Configuration File

Adding a Configuration File

To add a configuration file to Device Manager:

Step 1   On the Device Manager main page, click the **Config** tab.

Step 2   Click **Add Configuration File**.
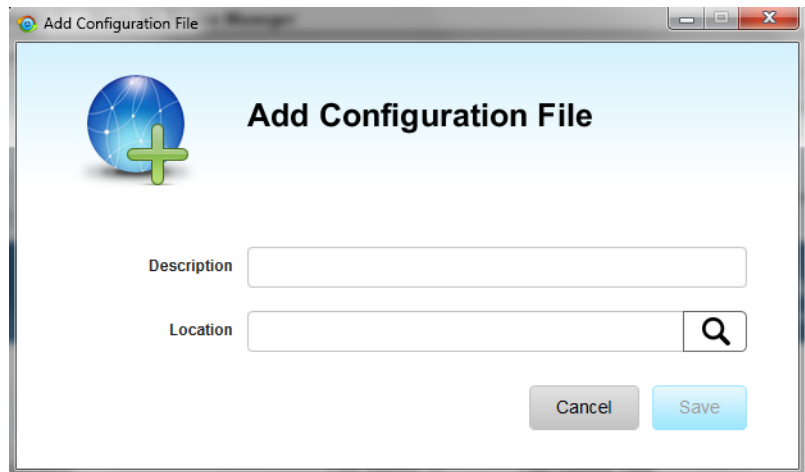
Step 3   In the Add Configuration File dialog box:

a.   Enter a description for the configuration file that you are going to upload.

b.   Click **Search** (🔍) to navigate to the configuration file location and select the file.

c.   Click **Save**.

The file you selected is listed on the Config page.

Downloading a Configuration File

To download the factory configuration file or the startup configuration file to the Device Manager laptop:

Step 1   On the Device Manager main page, click the **Config** tab.

Step 2   Click **Download Factory Configuration** or **Download Startup Configuration**.

Step 3   In the Save As dialog box, enter a file name and click **Save**.

A message appears indicating that the output was saved successfully.

Replacing a Configuration File

After you add a configuration file to Device Manager (see Adding a Configuration File), you can find the file name listed on the Config page. You can use the file to update the CGR 1000 startup configuration or the express setup (factory configuration).

⚠

Caution   Replacing the configuration file causes the router to reboot. All connections to the router are lost during the update. After this task starts, there is no way to cancel the event. Be careful when using this feature.

To replace the configuration file on the CGR 1000:

Step 1 On the Config page, select the configuration file that you want to install and click **Replace Startup Configuration** or **Replace Factory Configuration**.

Step 2 In the confirmation dialog box, click **Yes** to begin installing the router configuration file.

If an error message appears, the file did not upload to the CGR 1000. Proceed to Removing a Configuration File.

Removing a Configuration File

After you update the CGR 1000 with the new configuration file, you can remove the file from Device Manager. You can also use this function to remove unwanted or duplicate configuration files.
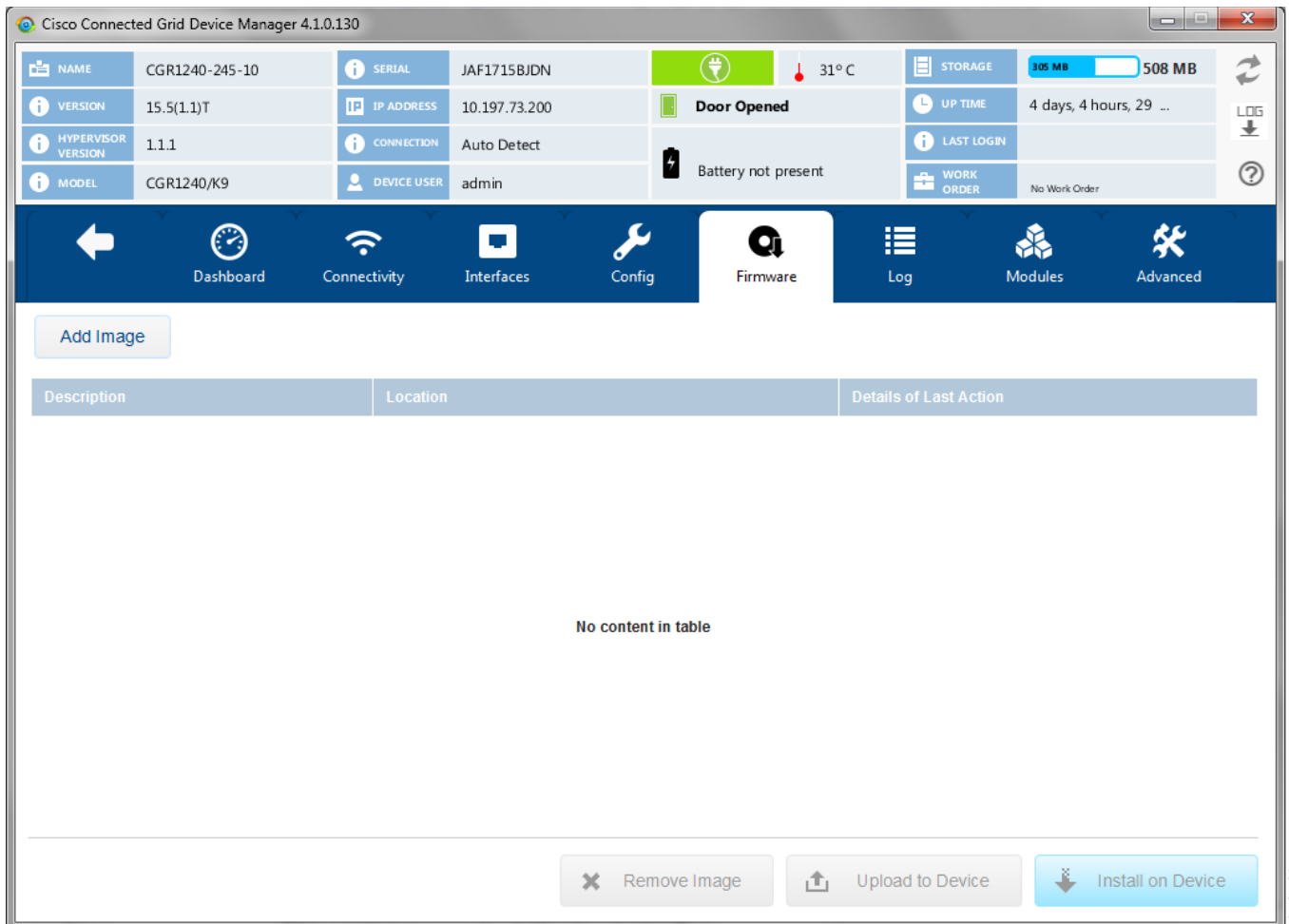
To remove a configuration file:

Step 1 On the Config page, select the configuration file you want to remove from the list.

Step 2 Click **Remove Configuration File**.

Step 3 In the dialog box that appears, click **Yes** to remove the file.

Updating the Firmware Image

The CGR 1000 image bundle contains information that the router uses when starting up and operating. The information in the image contains information on FPGA, 3G, wireless drivers, and so on. The only acceptable file format for the Cisco CGR 1000 image file is a zip bundle, which contains a manifest file with information on versioning and files. Any missing files in the zip bundle cancels the update. You can find the official Cisco CGR 1000 zip bundle on Cisco.com:

http://www.cisco.com/c/en/us/support/routers/1000-series-connected-grid-routers/tsd-products-support-general-information.html
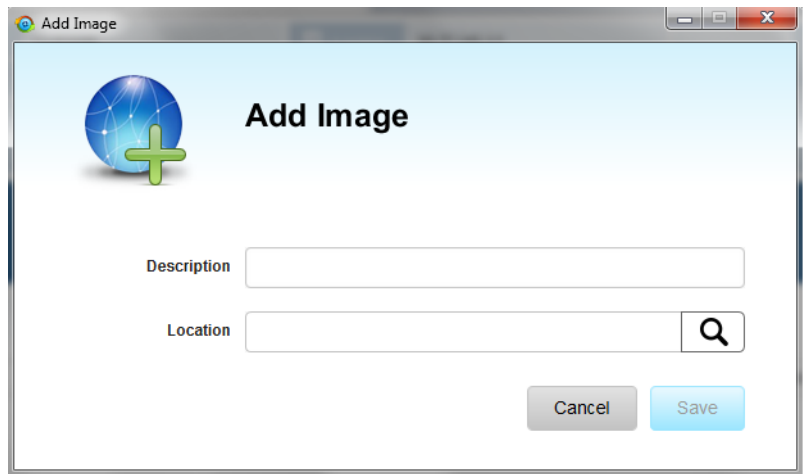
This section covers the following topics:

- Adding an Image
- Uploading an Image to the Router
- Installing an Image
- Removing an Image

Adding an Image

To add an image file to Device Manager:

Step 1   On the Device Manager main page, click the **Firmware** tab.

Step 2   Click **Add Image**.

Step 3   In the Add Image dialog box:

    a. Enter a description for the image that you are going to upload.

    b. Click **Search** (🔍) to navigate to the image file location and select the file.

    c. Click **Save**.

    The file you select appears on the Firmware page.

Uploading an Image to the Router

The **Upload to Device** option allows you to upload and store a copy of a firmware image on the CGR 1000 without initiating an immediate image install. This capability allows operations personnel to use CG-NMS or a utility management tool to install and reboot the CGR 1000 when network conditions allow.

To upload an image to the router:

Step 1   On the Device Manager main page, click the **Firmware** tab.

Step 2   If the firmware image that you want to install on the CGR 1000 is not listed on the Firmware page, add the image (see Adding an Image).

Step 3   On the Firmware page, select the CGR 1000 firmware image that you want to upload and click **Upload to Device**.

The new image is stored on the CGR 1000 router until you are ready to install the image on the router. (See Installing an Image.)

Installing an Image

⚠

Caution   Be careful when using this feature. After this tasks starts, there is no way to cancel the event. Updating the CGR 1000 firmware image might take awhile to complete and requires a reboot. All connections to the router are unavailable during the image update.

To install an image:

Step 1   On the Firmware page, select the image file to install and click **Install on Device**.

Step 2   In the dialog box that appears, click **Yes** to exclude Guest OS from the installation.

If you click **Yes**, Guest OS will not be upgraded.

If the CGR 1000 firmware image already exists in the router, you are prompted to confirm reinstalling the same image.

Step 3   In the confirmation dialog box, click **Yes** to begin the install process.

After the router firmware update completes, the router reboots.

Removing an Image

After you install an image, you can remove the image file from the Device Manager. You can also use the Remove image option to remove an image file.

To remove an image file:

Step 1   On the Update Image page, select a CGR 1000 image.

Step 2   Click **Remove Image**.

Step 3   In the dialog box that appears, click **Yes** to remove the image.

A message warns you if the image has not yet been installed on the router.

Retrieving Logs

You can retrieve real-time log events from the CGR 1000 and view them on the Log page or save the information to a file.

You can specify either the system log or the tech support log for retrieval.

Retrieving and Saving Logs

To retrieve real-time log events from the CGR 1000:

Step 1   On the Device Manager main page, click the **Log** tab.

Step 2   On the Log page, select the report retrieval task from the Select Task drop-down menu:

- Fetch Log–Retrieves the output from the **show logging** command.
- Fetch Tech-Support–Retrieves the output from the **show tech-support** command.

Step 3   To save a copy of the retrieved log events displayed on the page, click Save (💾).

Step 4   In the Save As dialog box, enter a file name and click **Save**.

A message appears indicating that the output was saved successfully.

Step 5   To clear the output, click (✖).

Managing Modules

The Modules page guides you through the process of inserting or removing modules on the CGR 1000.

You can determine the slot availability as follows:

- A green module with the plus sign (+) indicates an available slot.
- A yellow module with the minus sign (-) indicates an occupied slot.
- A gray module with the minus sign (-) indicates that module status is not OK.

Tip   Hover the pointer over an occupied slot to display module details.

This section covers the following topics:

- Inserting a Module
- Removing a Module

Tip
- For details on opening the chassis door of the CGR 1240, please refer to the "Opening the Router Chassis" chapter in the *Cisco 1240 Connected Grid Router Hardware Installation Guide*.
- For details on installing a specific module, refer to the Installation and Configuration Guide for that module at: http://www.cisco.com/go/cgr1000-docs.

Inserting a Module

To insert a module:

Step 1   On the Modules page, click the module slot corresponding to the location of the module that you want to insert.

Note   Empty slots are in green and display a plus sign.

Step 2   To continue inserting the module, click **Yes** in the Insert Module confirmation dialog box.

Step 3   When the *Insert module into SLOT* message appears, insert the module in the physical slot of the router.

Step 4   Click **Finish**.

Step 5   In the Insert Module dialog box, click **Save Results** or **OK**.

The slot where you physically inserted the module appears in yellow with a minus (-) sign, indicating an occupied slot.

Removing a Module

Note   Before starting the removal process, ensure that no traffic is active or destined for the module. You cannot run any other operations when removing a module.

To remove a module:

Step 1   On the Modules page, click the module slot corresponding to the location of the module that you want to remove.
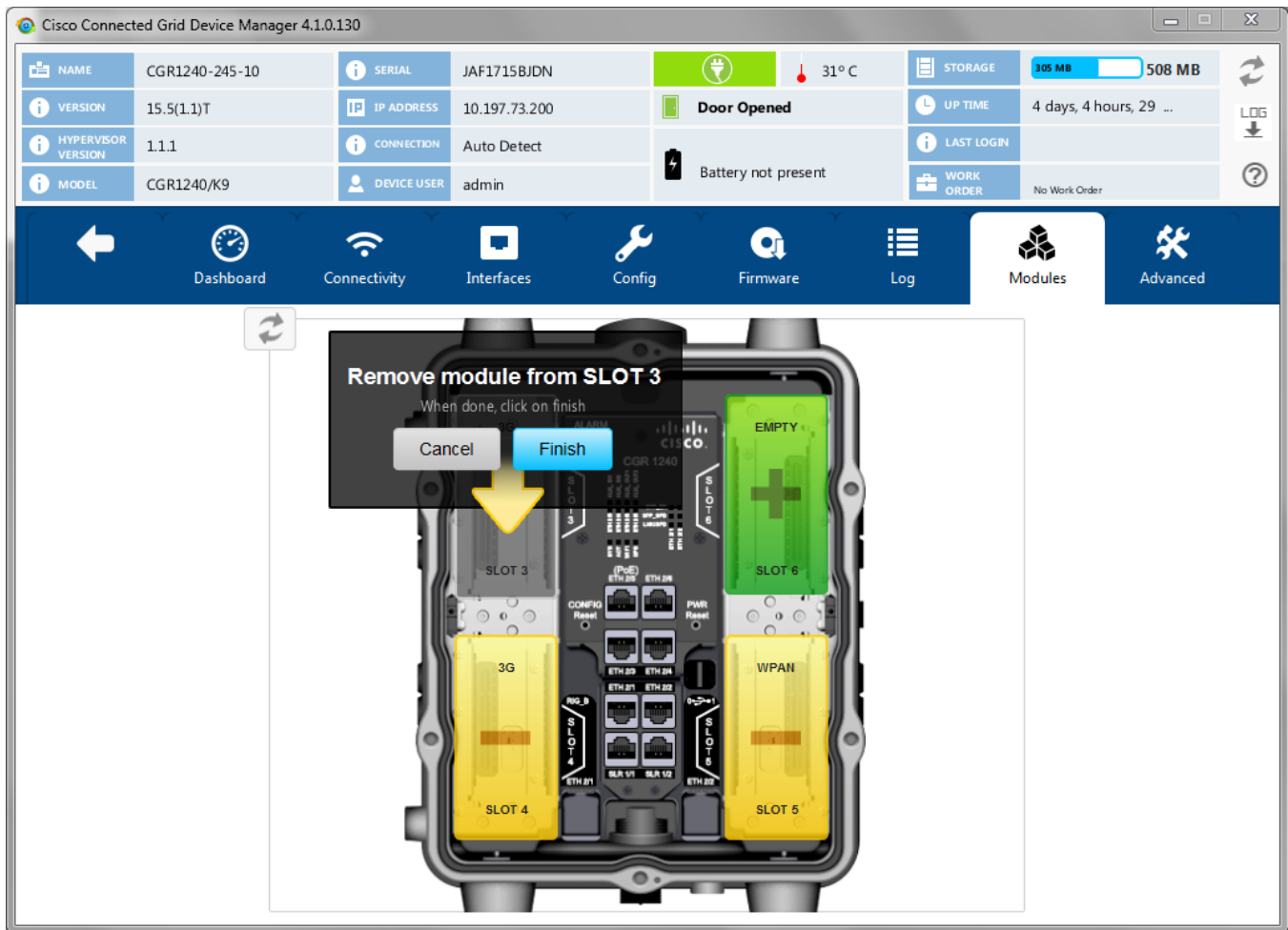
Note   Populated slots are in yellow and display a minus sign.

Step 2   To continue the removal, click **Yes** in the Remove Module confirmation dialog box.

Caution   Do not physically remove the module until a message prompts you to do so.

Step 3   When the *Remove module from SLOT* message appears, remove the module from the physical slot of the router.

Step 4   Click **Finish**.

Step 5   Click **Save Results** or **OK** in the Remove Module dialog box.

The slot where you physically removed the module appears in green with a plus (+) sign, indicating an empty slot.

Executing Commands

The Advanced page provides access to the CGR 1000 CLI to fine-tune or troubleshoot the router. You must have admin privilege and be familiar with Cisco IOS commands. For details on supported commands, refer to the CGR 1000 software configuration guides at: www.cisco.com/go/cgr1000-docs

Step 1   On the Device Manager main page, click the **Advanced** tab.

Step 2   Enter Cisco IOS commands in the text input area at the bottom of the page as follows:

- To execute an exec command (for example, **show version**), type the command and click the execute button (▶).

- To execute multiple exec commands, type one command per line and click the execute button.

- Use the up arrow (↰) to display the previous command.

- Use the down arrow (↱)to display the next command.

- To execute config commands, enclose all of the config commands between **configure terminal** and **end** commands, and click the execute button, for example:

```
configure terminal
interface gigabitethernet 2/1
description management interface
interface gigabitethernet 2/2
description not used
end
```

Command output appears in the output area above the text input area.

Step 3   Use the buttons above the output area for the following common commands:

- **Upload File (⬆)**—Upload a new image file to the router.

- **File Directory (▤)**—Display the router file directory.
- **System Time (◷)**—Display the current setting of the system clock for the router.
- **Reboot (⏻)**—Reboot the router.

You can also select a command from the **More Actions** drop-down menu, then click **Go**. The following commands are available:

- Show Running Configuration
- Show Startup Configuration
- Save Running to Startup
- Reset to Factory Configuration
- Show Factory Configuration
- Show Before Tunnel Configuration
- Show Before Registration Configuration
- Show All CGNA Profiles
- Trigger Registration Request to CG-NMS
- Trigger Tunnel Provisioning Request to CG-NMS

Step 4   To save a copy of the output, click Save (💾).

Step 5   In the Save As dialog box, enter a file name and click **Save**.

A message appears indicating that the output was saved successfully.

Step 6   To clear the output, click (✖).

Disconnecting from the CGR 1000

After finishing your work on the CGR 1000, click [←] on the left side of the menu tabs area on the main page to disconnect Device Manager from the router. Click **Yes** to confirm that you want to disconnect from the device. Device Manager disconnects and displays the Device Manager opening page.