



Cisco Connected Grid Device Manager Installation and User Guide (Cisco IOS), Release 4.0

June 2014

Cisco Systems, Inc.
www.cisco.com

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco website at www.cisco.com/go/offices.

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

No combinations are authorized or intended under this document.

Any Internet Protocol (IP) addresses used in this document are not intended to be actual addresses. Any examples, command display output, and figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.

© 2014 Cisco Systems, Inc. All rights reserved.



CHAPTER 1**Overview of Cisco Connected Grid Device Manager 1-1**

- Application 1-1
 - Device Manager and CG-NMS 1-2
- User Interface 1-3
- Tasks 1-6
- Certificates 1-7
- Work Orders 1-7
- User Accounts 1-7
- Additional Information 1-8

CHAPTER 2**Installation 2-1**

- Required Expertise 2-1
- System Requirements 2-1
- Device Manager Installation 2-2
- Device Manager Removal 2-5

CHAPTER 3**Using the Device Manager 3-1**

- Importing Certificates 3-1
- Connecting to the CGR 1000 3-3
 - Setting Up the CG-NMS Connection 3-4
 - Synchronizing With CG-NMS 3-4
 - Manually Connecting to the Router 3-5
- Managing Work Orders 3-6
 - Downloading Work Orders 3-7
 - Updating Work Order Status 3-7
- Override Work Order 3-8
- Performing Tasks on the Router 3-8
 - Testing Connectivity 3-10
 - Adding a Device IP Address 3-11
 - Pinging a Device IP Address 3-11
 - Tracing the Route of a Device IP Address 3-12
 - Deleting or Editing a Device IP Address 3-13

Managing Interfaces	3-13
Resetting an Interface	3-14
Viewing Details for an Interface	3-15
Bringing Up an Interface	3-16
Shutting Down an Interface	3-16
Changing the Configuration	3-16
Adding a Configuration File	3-17
Downloading a Configuration File	3-18
Replacing a Configuration File	3-18
Removing a Configuration File	3-19
Updating the Firmware Image	3-19
Adding an Image	3-20
Uploading an Image to the Router	3-21
Installing an Image	3-22
Removing an Image	3-22
Retrieving Logs	3-22
Retrieving and Saving Logs	3-23
Managing Modules	3-24
Inserting a Module	3-25
Removing a Module	3-25
Executing Commands	3-26
Disconnecting from the CGR 1000	3-28



Overview of Cisco Connected Grid Device Manager

This chapter provides an overview of the Cisco Connected Grid Device Manager (Device Manager) for Cisco 1000 Series Connected Grid Routers (CGR 1000 or router) running Cisco IOS.

This chapter includes the following sections:

- [Application](#)
- [User Interface](#)
- [Tasks](#)
- [Certificates](#)
- [Work Orders](#)
- [User Accounts](#)
- [Additional Information](#)

Application

Device Manager is a Windows-based application that field technicians can use to manage the CGR 1000 over WiFi or Ethernet.

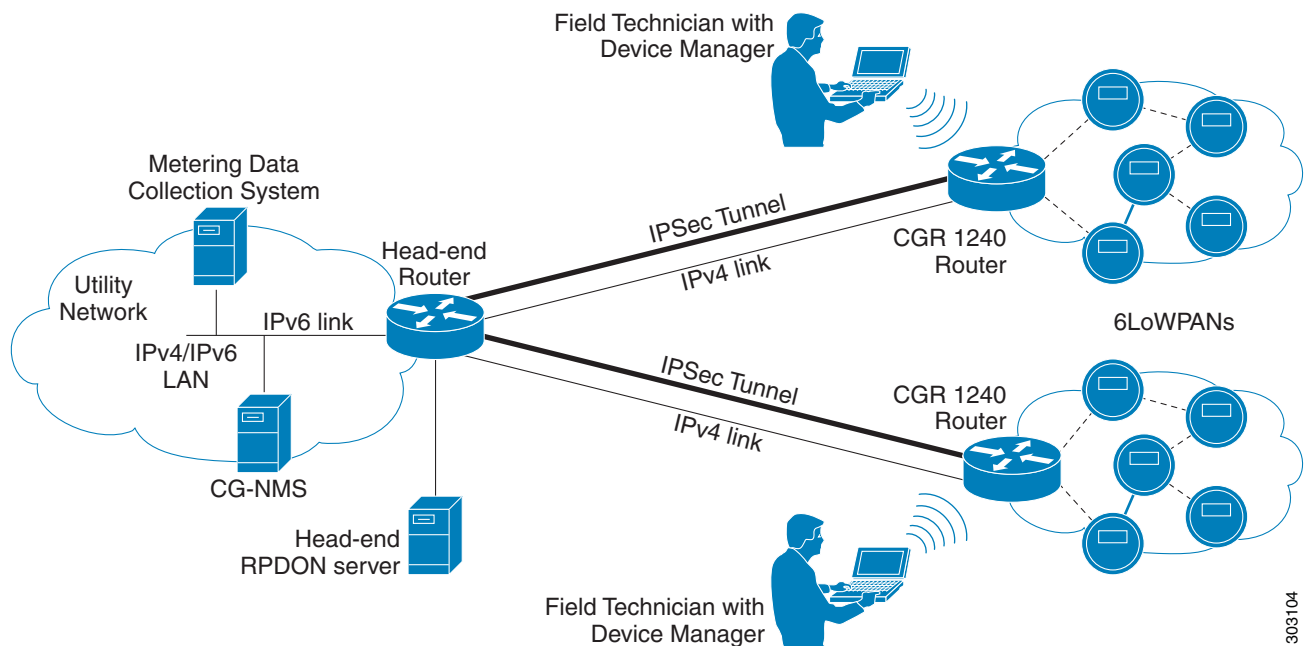
This version of Device Manager supports Connected Grid devices that run Cisco IOS. All the features supported in the previous version of Device Manager are also supported in this version. The previous version of Device Manager that runs on CG-OS based CGR 1000 routers continues to support those routers. Both versions of Device Manager can co-exist on the same laptop. In addition, this version includes several enhancements:

- Improved user interface (UI) design
- Intuitive tooltips
- Ability to view interface and module details in Dashboard (tooltips)
- Option to view the application log
- Troubleshooting wizard
- Command history in Advanced tab

CGR 1000 routers are multi-service communications platforms designed for use in field area networks. The portfolio consists of two models—CGR 1240 and CGR 1120—both ruggedized to varying degrees for outdoor and indoor deployments. Both models are modular and support a wide-range of communications interfaces such as 2G/3G, Ethernet, and WiFi.

Device Manager connects to the CGR 1000 by using a secure Ethernet or WiFi link. (See [Figure 1-1](#).)

Figure 1-1 Device Manager Application Within a Connected Grid Network



303104

Device Manager and CG-NMS

Cisco Connected Grid Network Management System (Cisco CG-NMS) manages multiple CGR 1000 routers, whereas the Device Manager connects and manages a single CGR 1000 at a time.

The Device Manager can operate in Connected Grid field deployments operating with or without CG-NMS.

- When operating with CG-NMS, a Device Manager user can retrieve work orders from the system as well as perform all supported tasks on the main page (see [Figure 1-2](#)) except as limited by the privilege level that the administrator configures on the router for that user.
- When operating without CG-NMS, the Device Manager user does not have access to work orders; however, the user can perform all supported tasks on the main page except as limited by the user's privilege level.

User Interface

When you first start Device Manager, it displays the Device Manager opening page with a list of work orders, if any are available. From this page, you can connect to the CGR 1000 either with or without a work order. (See [Connecting to the CGR 1000](#), page 3-3.)

After connecting to the router, Device Manager displays the Dashboard. On the left-hand side of the dashboard, you can view the router and any installed Connected Grid Modules. LEDs indicate the current state of the router and modules. You can also view the status of Ethernet Ports and modules while hovering over them.

On the right-hand side of the dashboard, you can view a graph of CPU and memory utilization. For the CGR 1240, you can view battery information.

At the top of the screen, a mini-dashboard provides additional details on the router as detailed in [Table 1-1](#).

For an overview of all the tasks that you can perform with the Device Manager, refer to [Table 1-2](#).

[Figure 1-2](#) shows the common page elements and controls for the Device Manager pages.

Figure 1-2 Device Manager Common Page Elements and Controls



391537

1	Mini-dashboard	8	Refresh button
2	Disconnect from device	9	CG-DM application log file
3	Menu tabs	10	Troubleshooting wizard
4	Power status (CGR 1240 only)	11	Battery information
5	Door status (CGR 1240 only)	12	Graph of CPU and memory utilization
6	Device temperature	13	View of device
7	Battery Information (CGR 1240 only)	14	Refresh button



Tip

Point to an active LED or module in the front or rear view of the device to display a tooltip. Items on the mini-dashboard also have tooltips.

The mini-dashboard (see Figure 1-2) appears at the top of every Device Manager page, and provides the information listed in Table 1-1.

Table 1-1 *Mini-dashboard information*

Field	Description
Name	Name of the router
Version	Cisco IOS version
Hypervisor Version	Hypervisor version
Model	Model number of the device
Serial	Serial number of the device
IP Address	Device IP address.
Connection	Connection method—Ethernet, WiFi, or Auto Detect.
Device User	User logged in to device.
Power status	AC ON or AC OFF (CGR 1240 only)
Temperature	Temperature of the router
Door	Displays whether door to router is open or not (CGR 1240 only).
Battery	Displays status of the optional Battery Backup Unit (BBU) when installed. (CGR 1240 only).
Storage	Amount of used and total space on the SD Flash Memory Module (hover the cursor over the Storage icon to view the amount of free space).
Up Time	Length of time that the device has been up.
Last Login	Time that the user last logged in to Device Manager.
Work Order	Work order number, work order name, and time remaining (shown if connected to the router using a work order).

Tasks

Device Manager displays the main page (see [Figure 1-2](#)) after securely connecting to the CGR 1000. From the Menu tabs on the main page, you can perform the following tasks as determined by your privilege level. (See [User Accounts](#) for more information about user accounts and privilege levels.) [Table 1-2](#) lists all the tasks that a user with privilege level 15 (default privileged EXEC mode) can perform with Device Manager and provides an example of when to perform each task.

Table 1-2 Device Manager Tasks

Task	When to Perform Task
<p>Use the Dashboard to check the status of router hardware, such as BBU (optional), power, and modules.</p> <p>(See Connecting to the CGR 1000.)</p>	<ul style="list-style-type: none"> Newly deployed CGR 1000s do not appear in the back-end system. Start the Device Manager and review the router graphic on the Dashboard. Check the installed modules and their LEDs to verify their operation. When the LEDs are not flashing, check the installation status of the modules. (CGR 1240 only) The door of the CGR 1240 is open. Start the Device Manager and check the status of the door (top of the main page). When the door status indicates a status of <i>System Casing Open</i>, you must physically access the CGR 1240 to verify the status of the door. After closing the door, click the Refresh icon (upper right) on the Device Manager and verify that the door status displays <i>System Casing Closed</i>.
<p>Verify access to a device (IP address) from the CGR 1000 by using ping to check link connectivity and quality, and initiate a traceroute for an inaccessible IP address.</p> <p>(See Testing Connectivity.)</p>	<ul style="list-style-type: none"> Devices connected to a CGR 1000 cannot be reached. Start the Device Manager, connect to the router, and then check connectivity to the device.
<p>Bring up or shut down a CGR 1000 interface and view details for an interface.</p> <p>(See Managing Interfaces.)</p>	<ul style="list-style-type: none"> When there are issues related to WiMAX connectivity, (for instance, after a storm, the WiMAX antenna may not be pointing in the right direction, which can cause RSSI/CINR values to drop), view details for the WiMAX module to help troubleshoot the issue. If the issue involves a directional antenna, you can change the direction of the antenna and watch RSSI/CINR values change accordingly.
<p>Update the CGR 1000 configuration with a provided configuration file, and then reboot the router with the new configuration.</p> <p>(See Changing the Configuration.)</p>	<ul style="list-style-type: none"> When the configuration information is incorrect, update the configuration by adding a configuration file to the Device Manager and then installing the configuration file on the CGR 1000. <p>After you install the configuration file, the router automatically reboots with the new configuration.</p>

Table 1-2 Device Manager Tasks (continued)

Task	When to Perform Task
Upload a copy of a software image onto the CGR 1000 for immediate installation or for a deferred update of the image. (See Updating the Firmware Image .)	<ul style="list-style-type: none"> A firmware image update must be uploaded and installed on the CGR 1000. Start the Device Manager, upload the new image file, and then update the router with the new image. The router automatically reboots after you update the software image.
Download and view the CGR 1000 system logs. (See Retrieving Logs .)	<ul style="list-style-type: none"> You need to review the CGR 1000 system logs to troubleshoot the CGR 1000. Start the Device Manager and click the Log tab.
Insert and Remove Modules from the CGR 1000 by employing a wizard that guides you through the process. (See Managing Modules .)	<ul style="list-style-type: none"> A WiMAX module is being added to a CGR 1240. Start the Device Manager and click the Modules tab.
Execute CLI commands using a console-like interface to view system information. Supported queries include verifying the system time, viewing the current router configuration, saving the current configuration, viewing the current file directory, rebooting the router, or saving the window output to a file. (See Executing Commands .)	<ul style="list-style-type: none"> You need to review the CGR 1000 configuration information to troubleshoot the CGR 1000. Start the Device Manager and click the Advanced tab.

Certificates

You can import certificates through the Device Manager opening page. (See [Importing Certificates](#).)

Work Orders

When you first start Device Manager, it displays the Device Manager opening page, which lists available work orders. On this page, you can view and select work orders for CGR 1000 routers and synchronize with Cisco CG-NMS to download work orders. (See [Managing Work Orders](#).) The Device Manager only needs to be connected to CG-NMS to download and update the work orders.

User Accounts

A user's privilege level configured on the CGR 1000 also controls the authorization to perform tasks on the CGR 1000 with Device Manager. The default configuration for Cisco IOS software-based networking devices uses privilege level 1 for user EXEC mode and privilege level 15 for privileged EXEC. The commands that can be run in user EXEC mode at privilege level 1 are a subset of the commands that can be run in privileged EXEC mode at privilege 15. (See [Configuring Security with Passwords Privileges and Logins](#) for more information.)

The following user accounts are provisioned at the factory:

- username cgdms-viewer-t privilege 2 token
- username cgdms-admin-t privilege 15 token
- username cgdms-viewer privilege 2
- username cgdms-admin privilege 15

Table 1-3 shows the required privilege level for the listed tasks.

Table 1-3 Privilege Levels for Device Manager Tasks

Task	Privilege Level
View interfaces, run ping/traceroute, view logs, view directory contents	2
Bring up or shut down an CGR 1000 interface, upload files, add or remove modules, execute commands	15

Additional Information

You can find configuration guides and release notes for Cisco 1000 Series Connected Grid products at:

www.cisco.com/go/cgr1000-docs



Installation

This chapter explains how to install the Device Manager software and contains the following topics:

- [Required Expertise, page 2-1](#)
- [System Requirements, page 2-1](#)
- [Device Manager Installation, page 2-2](#)
- [Device Manager Removal, page 2-5](#)

Required Expertise

This guide is intended for Field Technicians who have basic experience operating a computer laptop.

System Requirements

The Device Manager has the following system requirements for the laptop:

- Microsoft Windows 7 Enterprise
- 2 GHz or faster processor recommended
- 1 GB RAM minimum (for potential large log file processing)
- WiFi or Ethernet interface
- 4 GB disk storage space
- Windows login enabled
- Utility-signed Certificate Authority (CA) and Client Certificate for router authentication (obtained from your IT department)
- Customer-specific IT security hardening to keep the Device Manager laptop secure

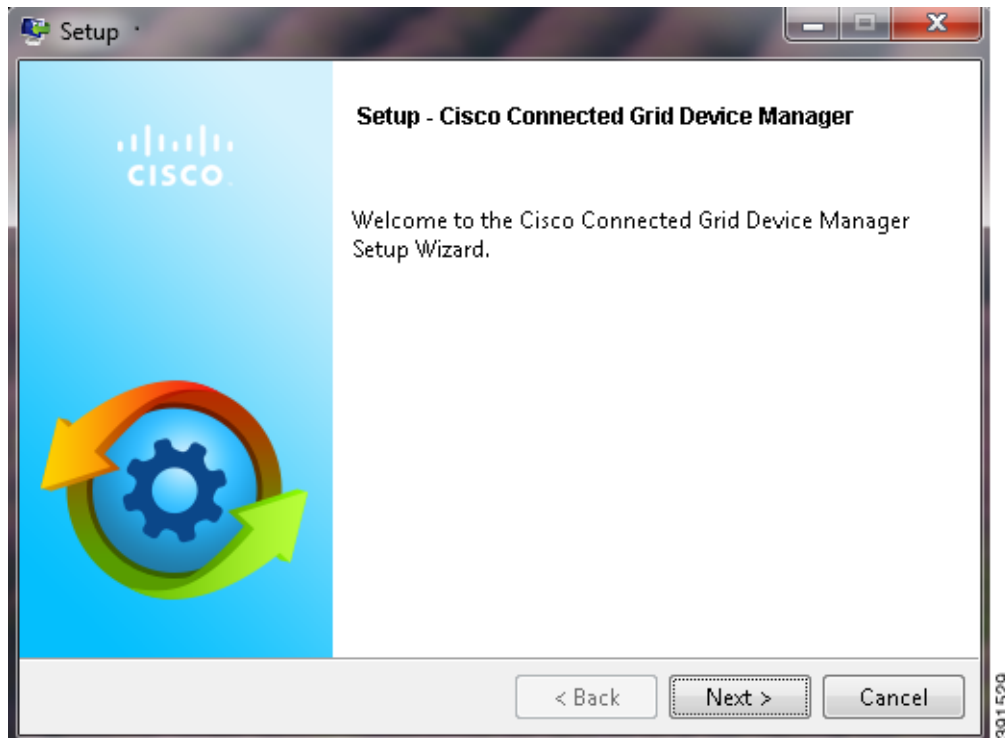
The Device Manager has the following system requirements for the CGR 1000:

- Minimum CGR version is 154-2.12.CG023
CG-DM may not work properly with older IOS versions.

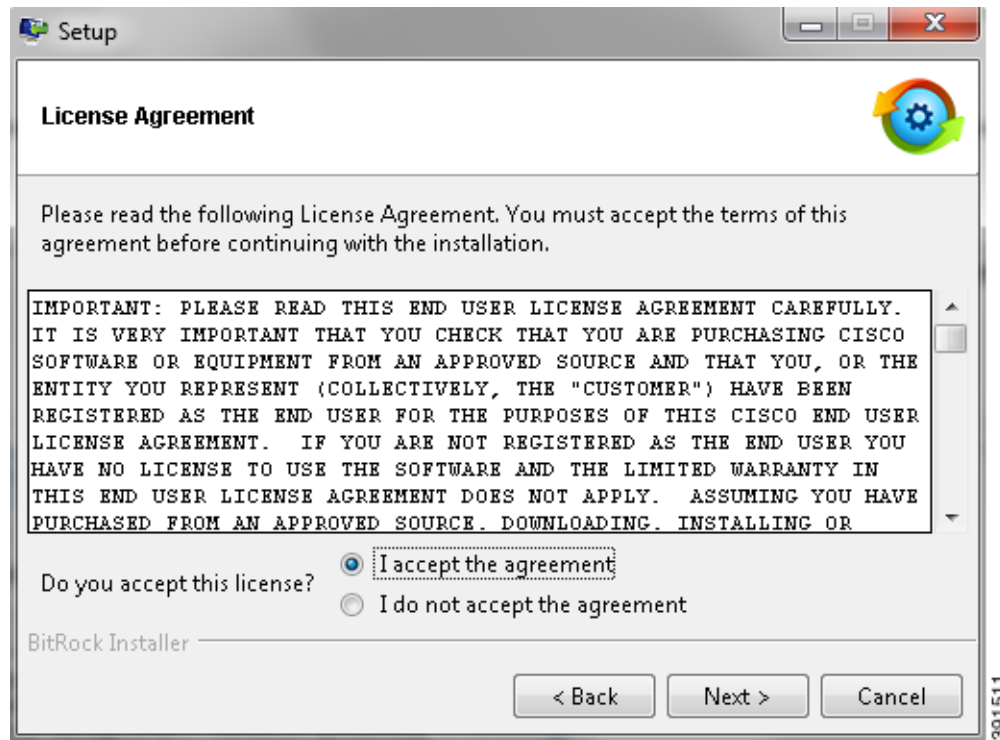
Device Manager Installation

To install the Device Manager:

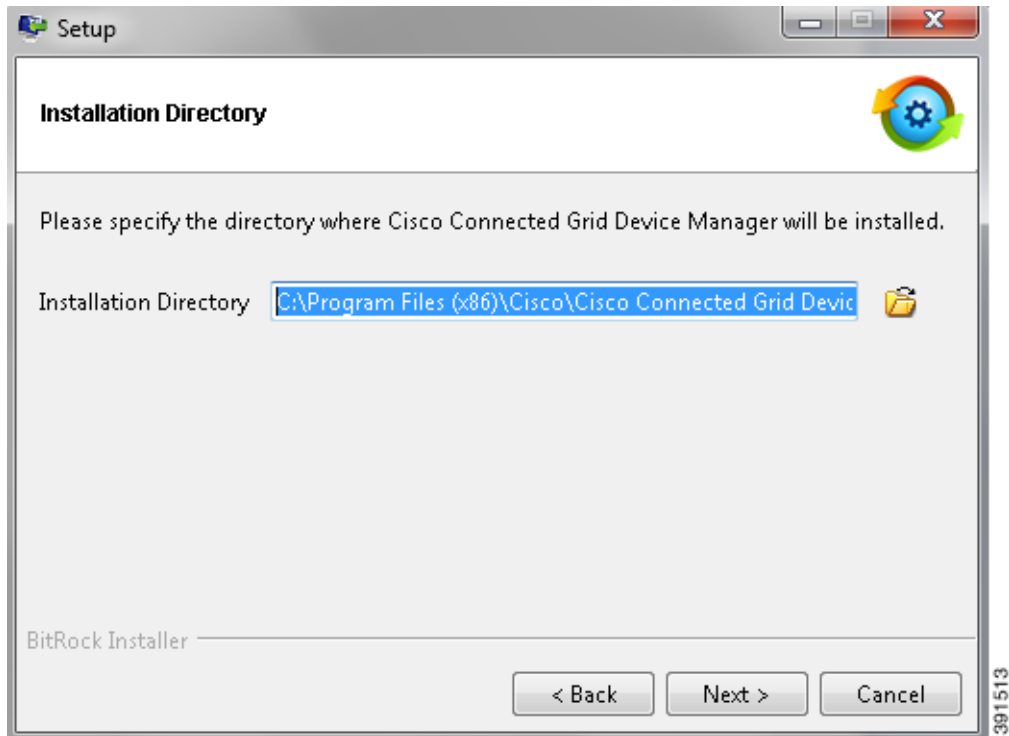
- Step 1** Double-click the Device Manager installer executable to start installation.
- Step 2** Click **Next**.



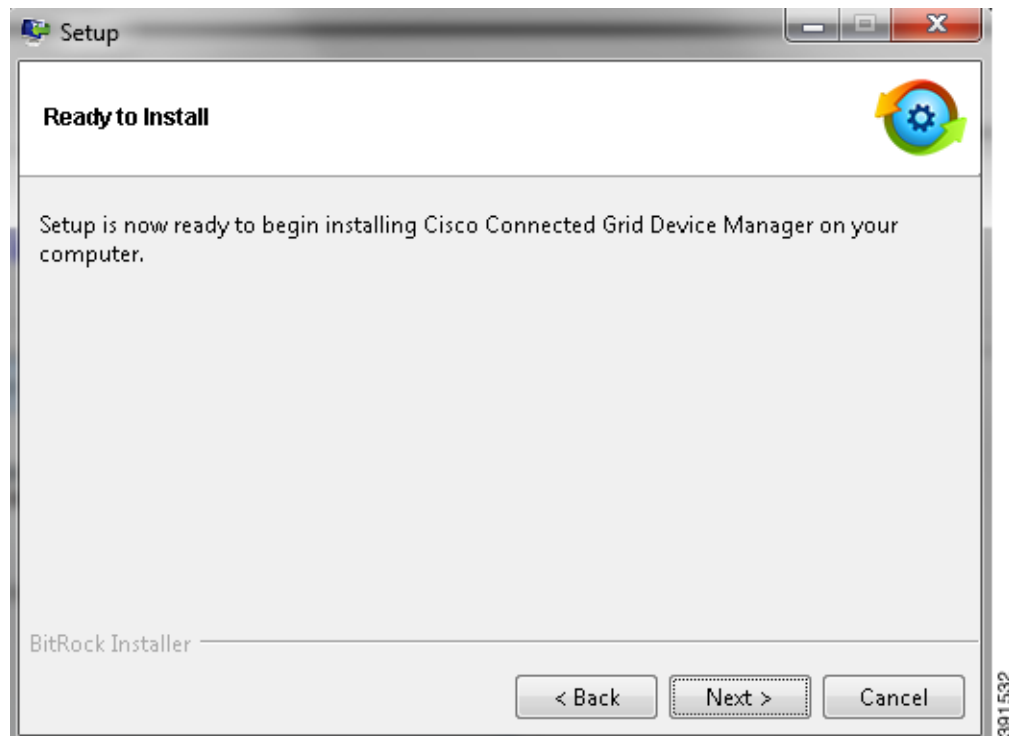
Step 3 Select the check box to accept the terms of the License Agreement, and then click **Next**.



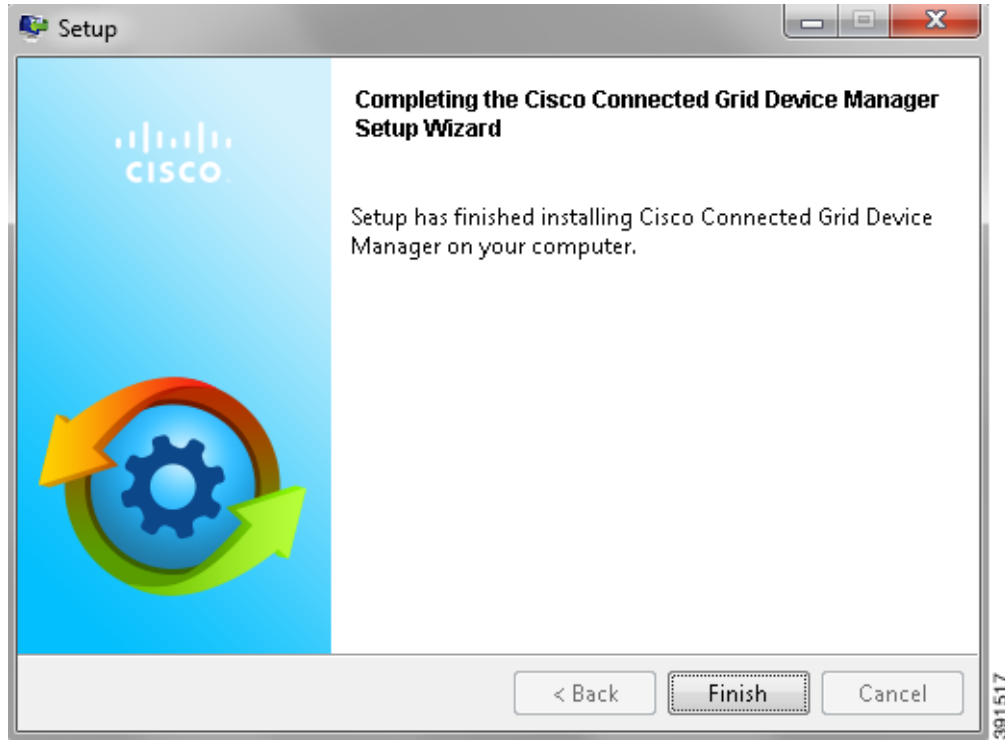
- Step 4** Select an installation directory by clicking the folder icon and browsing to a directory, or click **Next** to accept the default directory.



- Step 5** Click **Next** to begin the installation.



Step 6 Click **Finish** to exit the Setup Wizard and launch the Device Manager.



Device Manager Removal

To remove the Device Manager application, click **Start > All Programs > Cisco Connected Grid Device Manager > Uninstall Cisco Connected Grid Device Manager**, or use **Uninstall or change a program** from **Control Panel > Programs and Features**.



Using the Device Manager

The chapter explains how to use the Device Manager and contains the following sections:

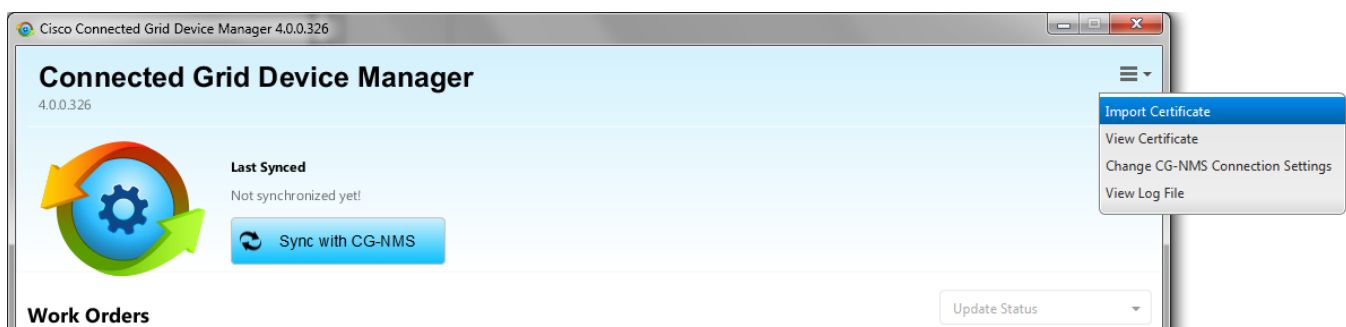
- [Importing Certificates](#), page 3-1
- [Connecting to the CGR 1000](#), page 3-3
- [Managing Work Orders](#), page 3-6
- [Override Work Order](#), page 3-8
- [Performing Tasks on the Router](#), page 3-8
- [Disconnecting from the CGR 1000](#), page 3-28

Importing Certificates

As admin, you can import certificates through the Device Manager opening page. You need to know the path to the certificate (.pfx) and the certificate password. The certificate password is created when the .pfx file is created. Generally, the admin downloads the .pfx file onto the Device Manager laptop.

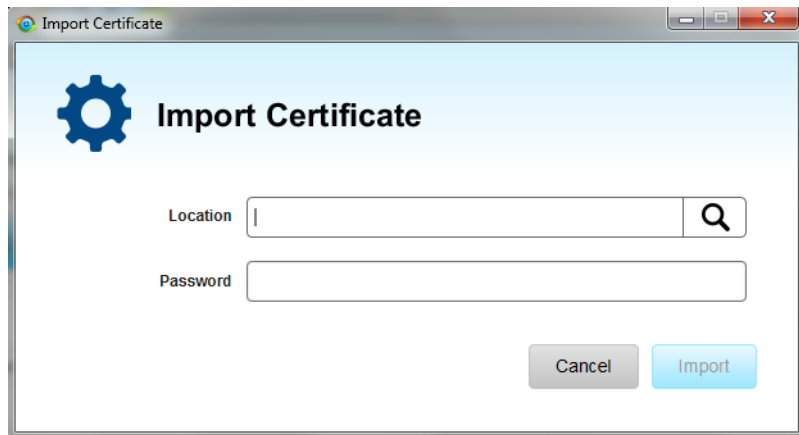
To import a certificate:

- Step 1** On the Device Manager opening page, select Import Certificate from the drop-down menu on the upper right.



391515

Step 2 In the Import Certificate dialog box, browse to the location of the certificate file (.pfx) on your laptop.

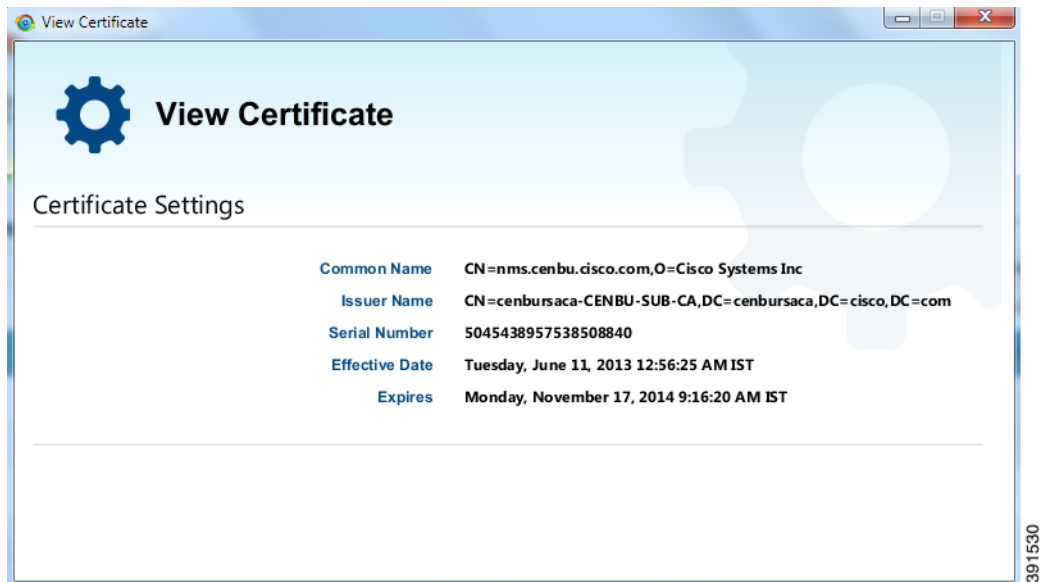


Step 3 Enter the certificate password and then click **Import**.

A dialog box displays a success message and informs that you need to restart Device Manager.

Step 4 Restart Device Manager.

Step 5 To view the certificate details, select View Certificate from the Device Manager opening page drop-down menu on the upper right.

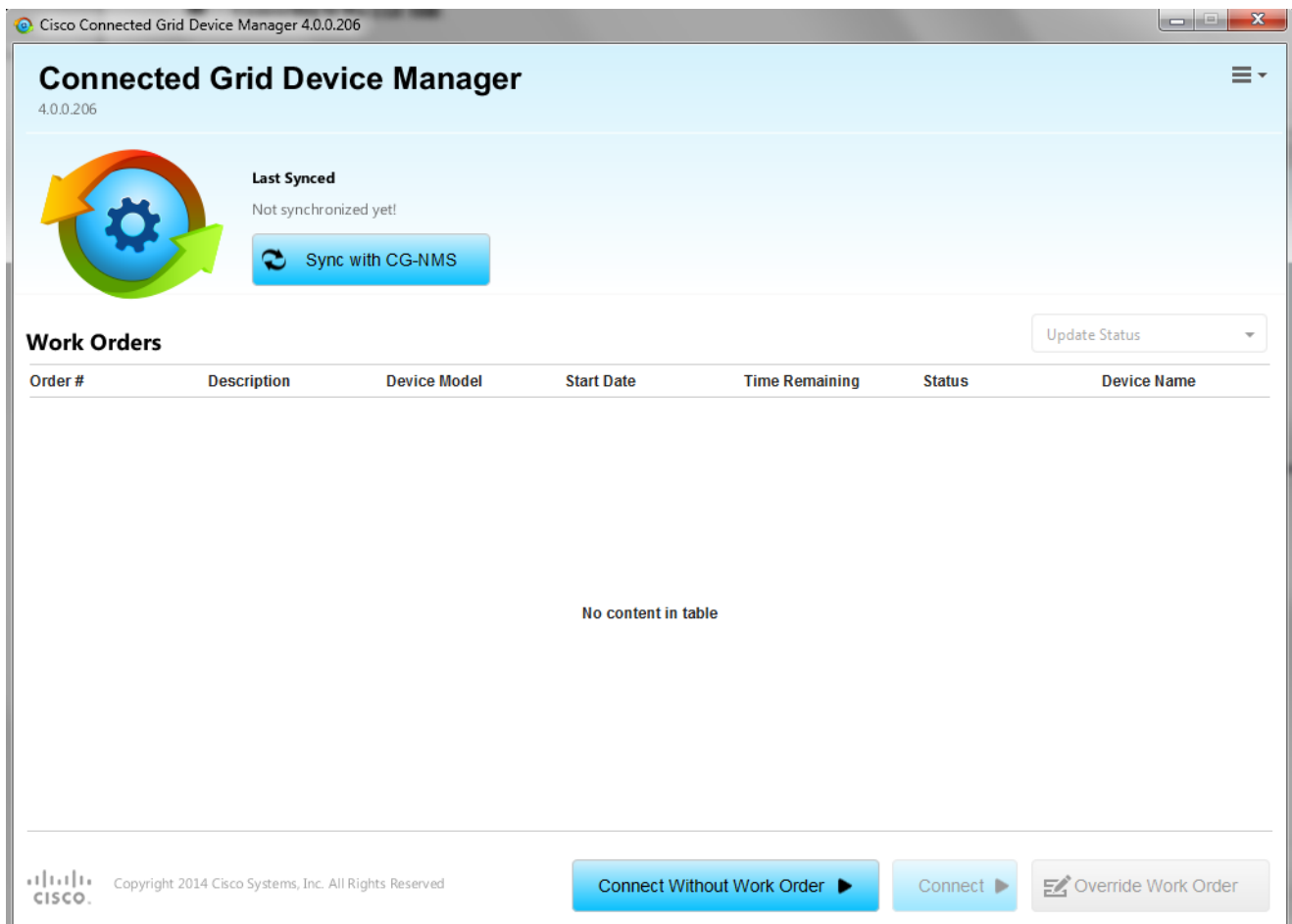


Connecting to the CGR 1000

You can use Device Manager in the following ways:

- Operating with CG-NMS—When you have a CG-NMS operating in the network, you can connect to that system with the Device Manager to download and update work orders. Work orders allow the Device Manager to view status and perform tasks on the CGR 1000. To operate in conjunction with a CG-NMS system, follow the steps in [Setting Up the CG-NMS Connection](#).
- Operating without CG-NMS—When you do not have a 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.

When you first start Device Manager, it displays the Device Manager opening page with a list of work orders, if any are available.



Setting Up the CG-NMS Connection

Before synchronizing with CG-NMS for the first time, configure Device Manager to connect to the CG-NMS application server.

-
- Step 1** On the Device Manager opening page, click **Sync with CG-NMS**, or select **Change CG-NMS Connection Settings** from the drop-down menu on the upper right of the page.
- Step 2** In the CG-NMS Connection Settings dialog box, enter the username, password, and IP address for connecting to the CG-NMS application server.

- Step 3** Confirm or change the server port number.
- Step 4** Click **Save**.
- Step 5** Click **Test Connectivity** to test connecting to the CG-NMS server.
-

Synchronizing With CG-NMS

Only assigned work orders can be downloaded from CG-NMS.



Note

Synchronizing with CG-NMS is a two-way operation. All the assigned work orders are downloaded from CG-NMS to CG-DM, and CG-DM updates CG-NMS with the status of complete and incomplete work orders.

To download the latest work orders from CG-NMS and upload new status of the work orders to CG-NMS:

-
- Step 1** On the Device Manager opening page, click **Sync with CG-NMS**.

Device Manager verifies the authorization for connecting to the CG-NMS application server. If the connection is successful, a dialog box displays the message *Sync Successful* and the number of downloaded work orders.

- Step 2** Click **Close** to close the dialog box and display the list of work orders.
Proceed to [Managing Work Orders](#).

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 the 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 checkbox 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. Proceed to [Performing Tasks on the Router](#).

Managing Work Orders

When you first start Device Manager, it displays the Device Manager opening page with a list of work orders, if any are available.

Whenever work or direct inspection of a CGR 1000 is necessary by a field technician, an administrator generates a work order on the CG-NMS. Work orders include encrypted WiFi credentials necessary for the technician to connect to the router.

The Device Manager must be synchronized with CG-NMS for you to download the latest work orders from CG-NMS and upload new status of the work orders to CG-NMS. See [Synchronizing With CG-NMS, page 3-4](#).

Each work order shows the following information:

- Work order number
- Description
- Device model
- Start date
- Time remaining on the work order



Note When there is no time remaining on the work order, Time Remaining displays “Expired”. If you attempt to connect to the router with an Expired work order, Device Manager displays an error message.

- Current status of the work order: New, In Service, Completed, or Incomplete
- Device name

Connected Grid Device Manager
4.0.0.206

Last Synced
Not synchronized yet!
Sync with CG-NMS

Work Orders Update Status

Order #	Description	Device Model	Start Date	Time Remaining	Status	Device Name
HLUSXRMZ	dev12	CGR1240	Thursday, March 27, 20...	Expired	New	CGR1240/K9+JAF1715B...
LQTNRSUF	temp11-new	CGR1240	Wednesday, March 19, ...	Expired	Completed	CGR1240/K9+JAF1715B...
SWIUNEMB	dev-1234	CGR1240	Tuesday, March 25, 201...	Expired	Incomplete	CGR1240/K9+JAF1715B...

Connect Without Work Order | Connect | Override Work Order

Copyright 2014 Cisco Systems, Inc. All Rights Reserved

391527

This section covers the following topics:

- [Downloading Work Orders](#)
- [Updating Work Order Status](#)



Tip

To perform additional tasks on the router, click **Connect to the Router** on the Device Manager opening page to launch the Device Manager main page. (See [Performing Tasks on the Router](#).)

Downloading Work Orders

To download the latest work orders from CG-NMS and upload new status of the work orders to CG-NMS, click **Sync with CG-NMS** on the Device Manager opening page.

Updating Work Order Status

The work order number on the left of the Device Manager opening page corresponds to an existing work order within a Utility management or operations system that the technician can access to get additional details on the work order.

Generally, a technician synchronizes with the CG-NMS at the beginning of the day to download work orders before heading to the field and then again at the end of the day when back at the office to update CG-NMS with the changes.

The work order status can be New, Complete, or Incomplete.

To update the status of a work order:

-
- Step 1** Using the Work Number that appears on the left of the Device Manager opening page, locate the specific work details from the appropriate system and then do one of the following:
- When you complete the work order, select **Complete** from the Status drop-down menu.
 - If you are not able to complete the work order, select **Incomplete** from the Status drop-down menu.
- The work order reflects the status change.
- Step 2** Click **Sync with CG-NMS** to update CG-NMS.
- After synchronization with CG-NMS, all Complete, Incomplete, and Expired work orders are removed from the Device Manager display.
-

Override Work Order

You use the Override Work Order option only when you need to use different login information than that provided in the work order.

For example, the SSID or passphrase for a WiFi connection might have changed since the work order was first created, but a new work order was not issued. In this case, the field technician might call the administrator for that information and use Override Work Order to enter that new information to log in to the router.

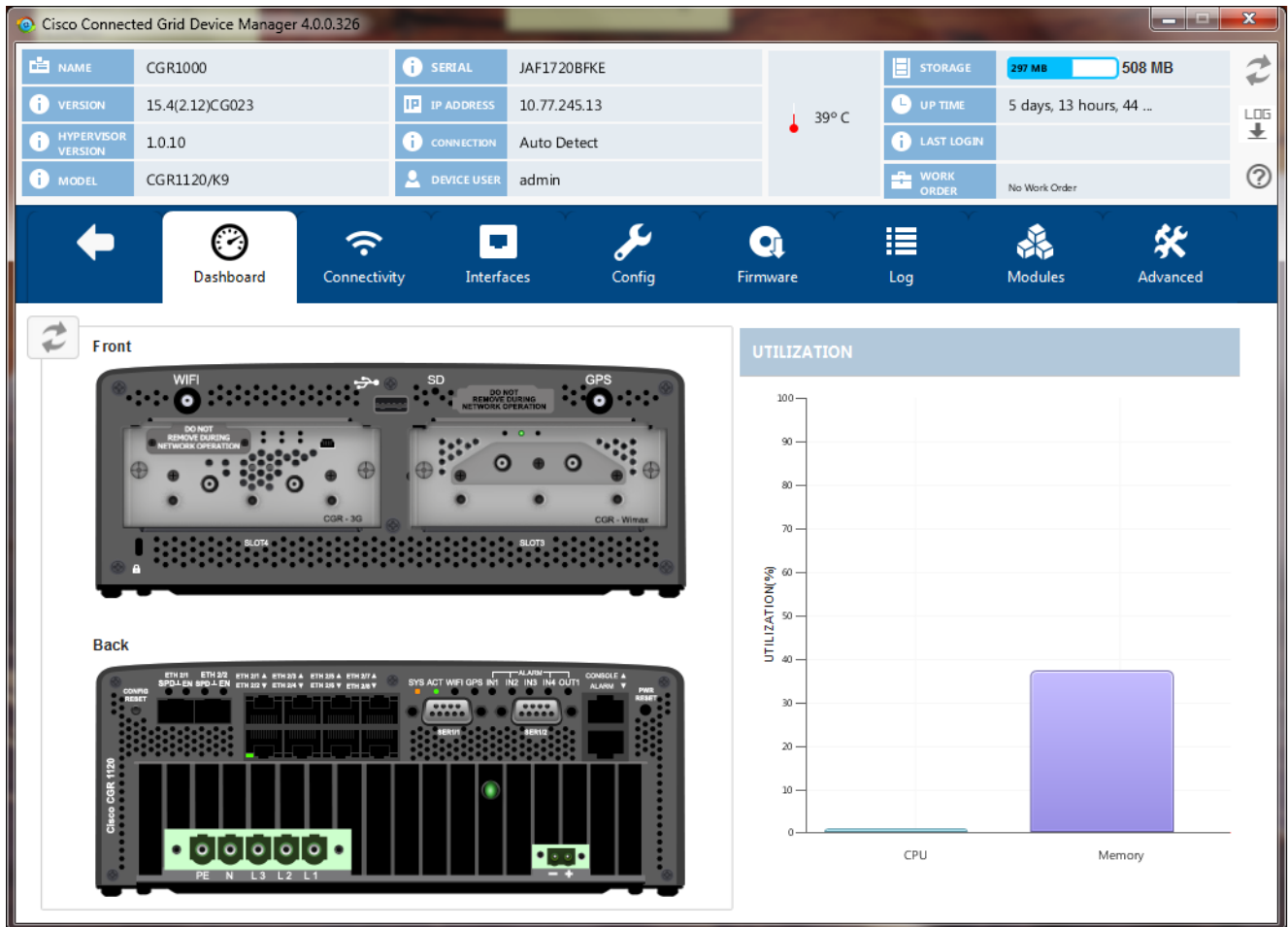
Optionally, the field technician can directly connect to the router over Ethernet with the Auto Discover IP address option.

To change the login information:

-
- Step 1** On the Device Manager opening page, click **Override Work Order**.
- Step 2** In the Connect to Device dialog box, select the device type and connection type. Enter the IP address and port or SSID and passphrase, and user name and password as described in [Manually Connecting to the Router, page 3-5](#).
- Step 3** Click **Connect**.
-

Performing Tasks on the Router

The Device Manager main page appears after you click **Connect Without Work Order** or **Connect** from the Device Manager opening page.



391570

Listed below are all the possible tasks that a user can perform. However, your privilege level that the administrator configures on the router determines the tasks you can access. The Device Manager displays or restricts tasks based on your privilege level. The Device Manager main page above represents privileged EXEC mode.

- Troubleshoot connectivity between a CGR 1000 and the devices connected to the router. (See [Testing Connectivity](#), page 3-10.)
- Bring up or shut down a CGR 1000 interface. (See [Managing Interfaces](#), page 3-13.)
- View interface activity. (See [Viewing Details for an Interface](#), page 3-15.)
- Check and update the current CGR 1000 configuration. (See [Changing the Configuration](#), page 3-16 and [Executing Commands](#), page 3-26.)
- Upload and/or update the CGR 1000 image and reboot the router. (See [Updating the Firmware Image](#), page 3-19.)
- View real-time CGR 1000 configuration log for troubleshooting. (See [Retrieving Logs](#), page 3-22.)
- Insert and Remove Modules from the CGR 1000 by employing a wizard that guides you through the process. (See [Managing Modules](#), page 3-24.)
- Use advanced commands to troubleshoot the CGR 1000. (See [Executing Commands](#), page 3-26.)

**Note**

See [User Interface, page 1-3](#) for a description of the common Device Manager page controls.

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 the Device Manager. Connection targets are available for all work orders.

The screenshot shows the Cisco Connected Grid Device Manager interface for device CGR1000. The top navigation bar includes Dashboard, Connectivity (selected), Interfaces, Config, Firmware, Log, Modules, and Advanced. The main content area shows a table of connection targets:

Description	IP Address
CG-NMS	10.45.67.0

At the bottom of the table, there are four action buttons: Remove Target, Modify Target, Traceroute, and Ping.

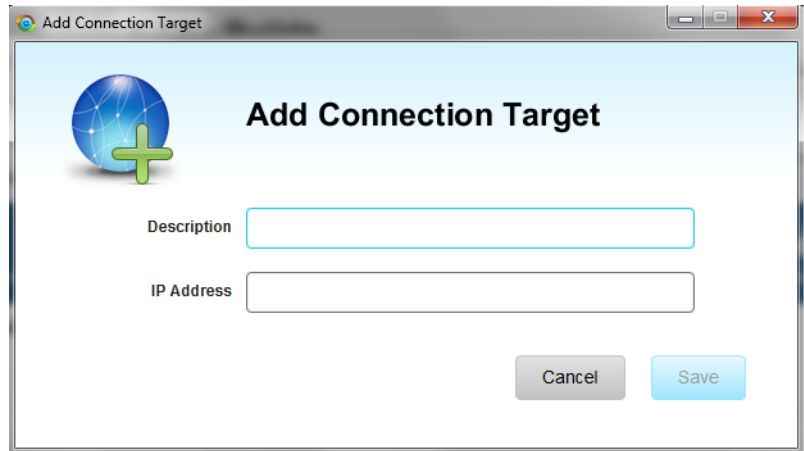
This section covers the following topics:

- [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.

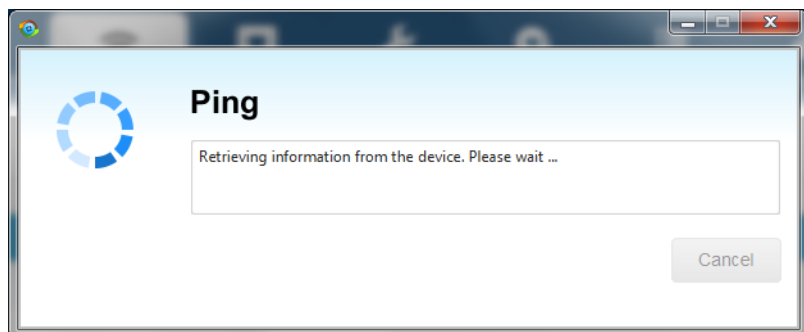


- Step 3** In the Description field, enter a description for the device.
 - Step 4** In the IP Address field, enter the IP address (IPv4 or IPv6) of the device.
 - Step 5** Click **Save**.
- You can now test the connectivity to the device you just added to the Device Manager.

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.



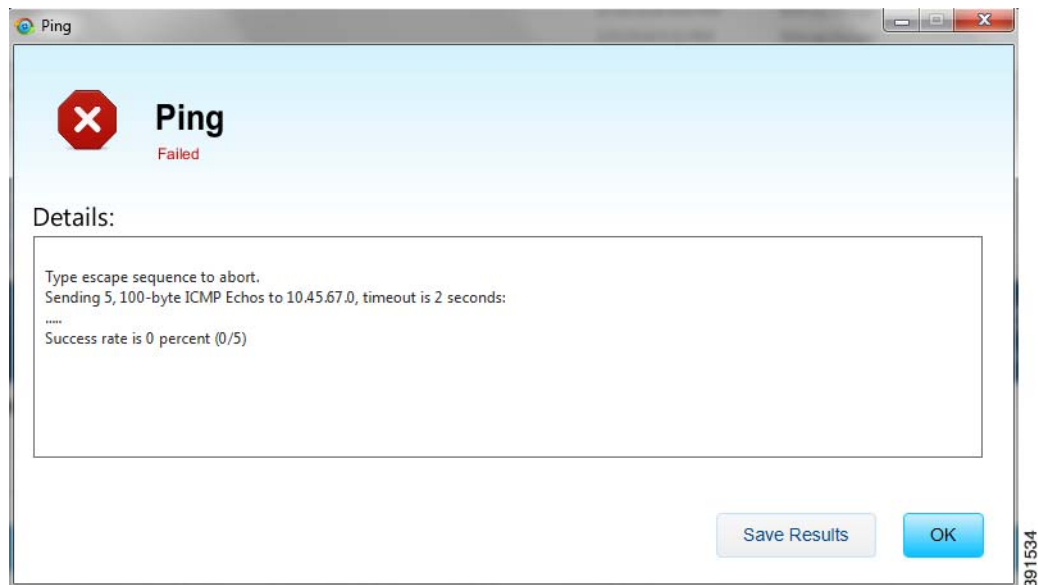
When the system successfully pings the device, a dialog box appears indicating that the Ping was successful.

If the system does not successfully ping a device, refer to [Failed Ping, page 3-12](#).

- 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 **Save Results** or **OK**.
- Step 2** Proceed to [Tracing the Route of a Device IP Address, page 3-12](#).
-

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 3-13](#).
-

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* (appears as ) , the line protocol is currently active. When the line protocol for an interface is *down* (appears as ) , it means the line protocol is not active.
- When the administrative status for an interface is administratively *up* (appears as ) , the interface was brought up by the administrator. When the administrative status for an interface is *down* (appears as ) , the interface was taken down by the administrator.

All interfaces installed within the CGR 1000 display automatically.

Interface	Description	IP Address	Line Protocol	Administrative Status
Async1/1	async 1-1		✗	✓
Async1/2			✗	✓
Cellular3/1			✗	✗
Dot11Radio2/1		FE80::46A7:CFFF:FED2:F4AE/64	✗	✗
Dot16Radio3/1			✗	✗
FastEthernet2/3			✗	✗
FastEthernet2/4			✗	✗
FastEthernet2/5			✗	✗
FastEthernet2/6			✗	✗
FastEthernet2/7			✗	✗

391512

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

The View Details feature allows you to display information for the selected interface and related module, including interface status, settings, and dynamic statistics. The information is updated every 5 seconds.



Note

In this release, details are available for the 3G (cellularx/1) and WiMAX (Dot16Radiox/1) interfaces only.

The following details are available for the cellular interface:

- RSSI (chart)
- Modem status
- Settings (IMSI, IMEI, Cell ID, and APN)

The following details are available for the WiMAX interface:

- RSSI (chart)
- 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**.



391528

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.

NAME	CGR1000	SERIAL	JAF1720BFKE
VERSION	15.4(2.12)CG023	IP ADDRESS	10.77.245.13
HYPERVISOR VERSION	1.0.10	CONNECTION	Auto Detect
MODEL	CGR1120/K9	DEVICE USER	admin

Description	Location	Details of Last Action
test	C:\test	None

391521

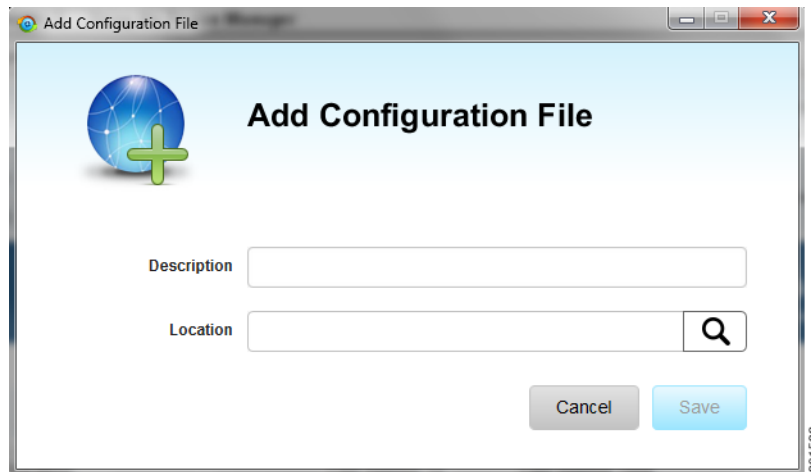
This section covers the following topics:


- [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 the 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:
- Enter a description for the configuration file that you are going to upload.
 - Click **Search** () to navigate to the configuration file location and select the file.
 - 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>

Cisco Connected Grid Device Manager 4.0.0.326

NAME	CGR1000	SERIAL	JAF1720BFKE	STORAGE	297 MB / 508 MB
VERSION	15.4(2.12)CG023	IP ADDRESS	10.77.245.13	UP TIME	5 days, 13 hours, 44 ...
HYPERVISOR VERSION	1.0.10	CONNECTION	Auto Detect	LAST LOGIN	
MODEL	CGR1120/K9	DEVICE USER	admin	WORK ORDER	No Work Order

39° C

Dashboard Connectivity Interfaces Config **Firmware** Log Modules Advanced

Add Image

Description	Location	Details of Last Action
No content in table		

Remove Image Upload to Device Install on Device

391516

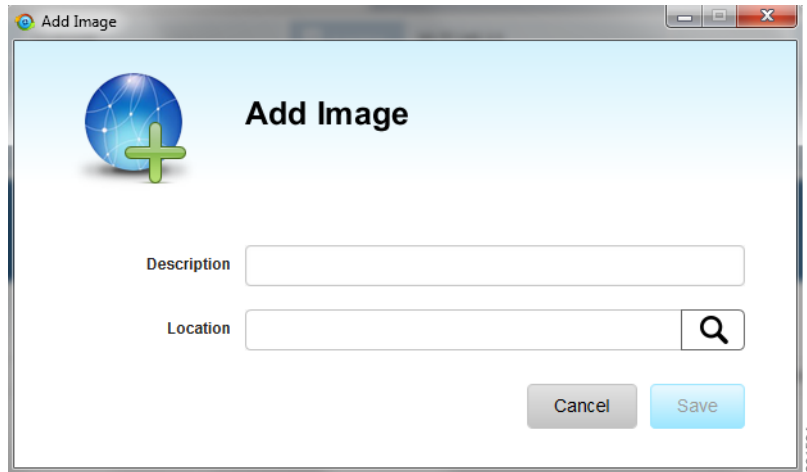
This section covers the following topics:


- [Adding an Image](#)
- [Uploading an Image to the Router](#)
- [Installing an Image](#)
- [Removing an Image](#)

Adding an Image

To add an image file to the 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:
- Enter a description for the image that you are going to upload.
 - Click **Search** () to navigate to the image file location and select the file.
 - 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 task 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 will be unavailable during the image update.

To install an image:

-
- Step 1** On the Firmware page, select the image file that you uploaded to the CGR 1000 and that you want to install, and click **Install on Device**.
 - Step 2** In the dialog box that appears, click **Yes** to exclude GuestOS from the installation.
If you click **Yes**, GuestOS will not be upgraded.
If the CGR 1000 firmware image already exists in the router, you will be prompted again 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 you added mistakenly.

To remove an image:

-
- 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.

The screenshot shows the Cisco Connected Grid Device Manager 4.0.0.326 interface. At the top, there is a header with navigation icons for Dashboard, Connectivity, Interfaces, Config, Firmware, Log, Modules, and Advanced. Below the header, there is a table of device information for CGR1000. The table includes fields for Name, Version, Hypervisor Version, Model, Serial, IP Address, Connection, Device User, Storage, Up Time, Last Login, and Work Order. The Log tab is selected, and the 'Fetch Log' task is chosen in the 'Select Task' dropdown. The log output shows various system messages, including 'no ssid configured' errors and 'RADIO_RESET' messages.

NAME	CGR1000	SERIAL	JAF1720BFKE	STORAGE	297 MB / 508 MB
VERSION	15.4(2.12)CG023	IP ADDRESS	10.77.245.13	UP TIME	5 days, 13 hours, 44 ...
HYPERVISOR VERSION	1.0.10	CONNECTION	Auto Detect	LAST LOGIN	
MODEL	CGR1120/K9	DEVICE USER	admin	WORK ORDER	No Work Order

Select Task: Fetch Log [Go] [X] [Save]



```

Syslog logging: enabled (0 messages dropped, 3 messages rate-limited, 0 flushes, 0 overruns, xml disabled, filtering disabled)
No Active Message Discriminator.
No Inactive Message Discriminator.
Console logging: disabled
Monitor logging: disabled
Buffer logging: level debugging, 6775 messages logged, xml disabled, filtering disabled
Exception Logging: size (8192 bytes)
Count and timestamp logging messages: disabled
Persistent logging: disabled
Trap logging: level informational, 6777 message lines logged
Logging Source-Interface: VRF Name:
Log Buffer (8192 bytes):
IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 09:58:48.064 IST: %CGR1K_DOT11-3-RADIO_RESET: DOT11 radio hard reset
May 24 09:59:15.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 09:59:25.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 09:59:35.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 09:59:45.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 09:59:55.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 10:00:05.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 10:00:15.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 10:00:25.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 10:00:35.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
May 24 10:00:45.032 IST: %CGR1K_DOT11-3-SSID_ERROR: no ssid configured
  
```

391510

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.

The screenshot shows the Cisco Connected Grid Device Manager 4.0.0.326 interface. The top navigation bar includes icons for Dashboard, Connectivity, Interfaces, Config, Firmware, Log, Modules, and Advanced. The Modules page displays a 3D view of the CGR1000 router. Two modules are shown: a 3G module in Slot 4 and a WIMAX module in Slot 3. A tooltip for the WIMAX module indicates 'CGM-WIMAX-1.4GHZ Status: ok'. The top status bar provides details for the device, including Name (CGR1000), Version (15.4(2.12)CG023), Hypervisor Version (1.0.10), Model (CGR1120/K9), Serial (JAF1720BFKE), IP Address (10.77.245.13), Connection (Auto Detect), Device User (admin), Storage (297 MB / 508 MB), Up Time (5 days, 13 hours, 44 ...), Last Login, and Work Order (No Work Order).

391536

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* at: www.cisco.com/go/cgr1000-docs
- For details on installing a specific module, refer to the Installation and Configuration Guide for that module at: www.cisco.com/go/cgr1000-docs

Inserting a Module

To insert a module:

- Step 1** On the Modules page, click on a module slot that corresponds to the location of the module that you want to insert. 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.

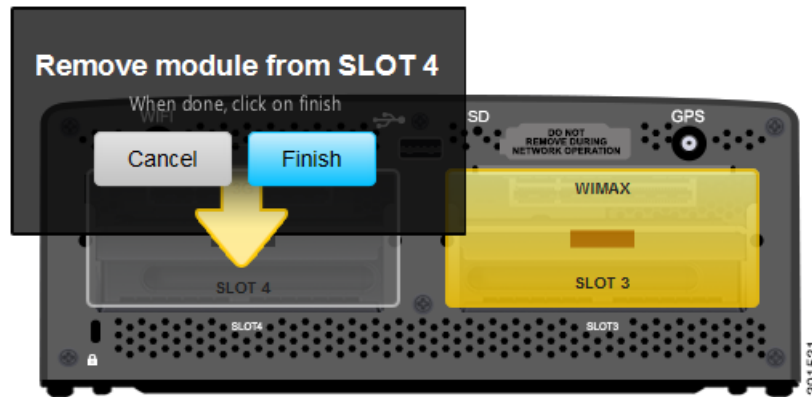
To remove a module:

Step 1 On the Modules page, click on a module slot that corresponds to the location of the module that you want to remove. 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.

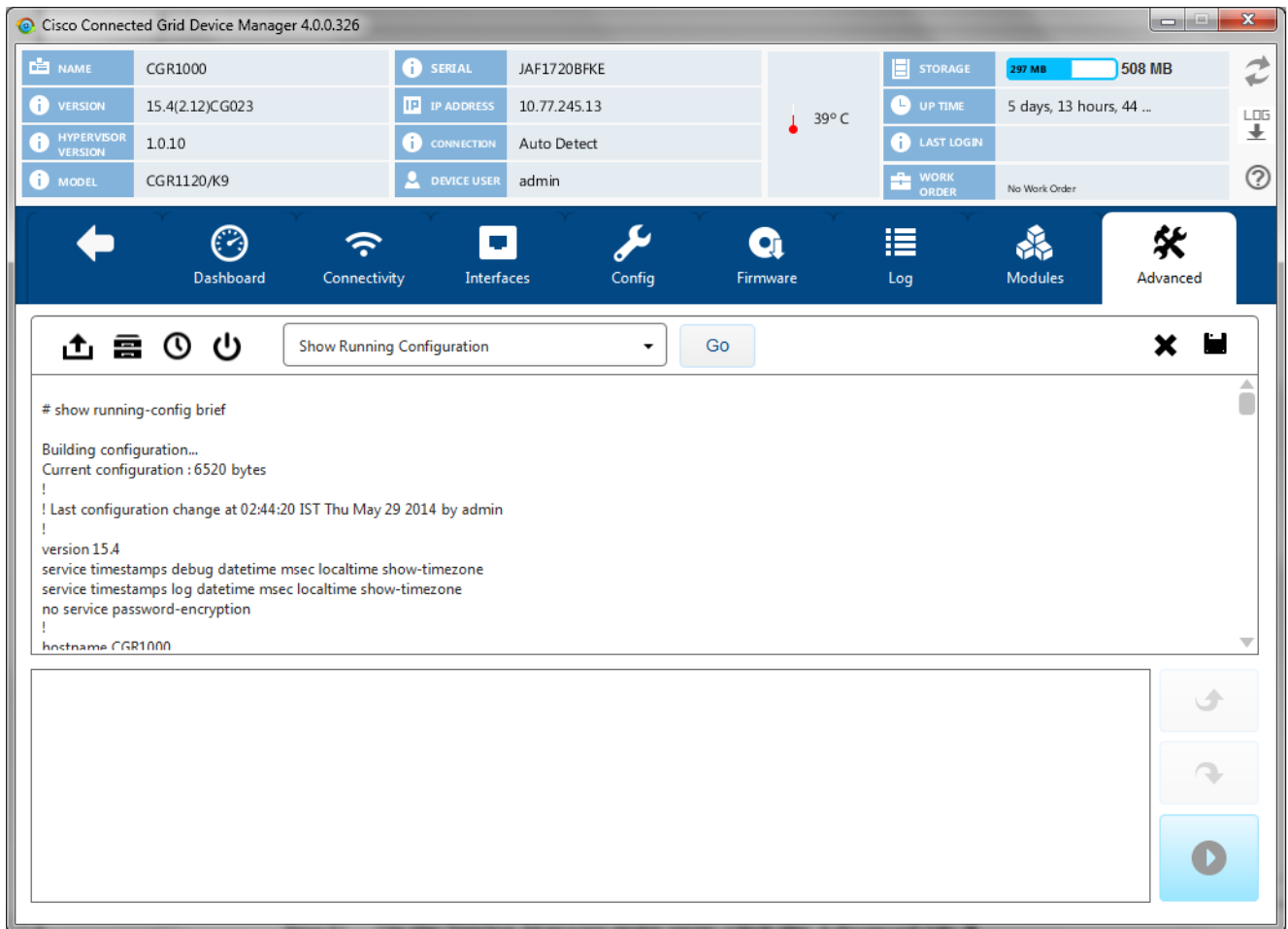
Step 4 Click **Finish**.

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







391522

- 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:

```
conf 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** In addition to entering commands, you can click on the buttons for the following commonly-executed 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 the 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.