Performing Tasks on the IR500

This chapter explains how to use the Device Manager to perform tasks on the Cisco 500 WPAN Industrial Router (IR500) and contains the following sections:

- Connecting to the IR500, page 5-1
- Viewing Settings and Status, page 5-4
- Viewing Interface Details, page 5-19
- Managing the Ethernet Interface, page 5-23
- Registering with CG-NMS, page 5-23
- Rebooting the IR500, page 5-23
- Changing the Configuration, page 5-23
- Updating the Firmware Image, page 5-29
- Testing Connectivity, page 5-31
- Disconnecting from the IR500, page 5-33

Connecting to the IR500

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 IR500. 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 an IR500 to view status.

Note When connecting to the IR500 without a work order, you cannot change the device configuration or send data to CG-NMS.

Note The laptop running Device Manager must be directly connected to the IR500.

This section covers the following topics:

- Connecting the Laptop to the IR500, page 5-2
- Connecting to the IR500 with a Work Order, page 5-3
- Manually Connecting to the IR500, page 5-4

Connecting the Laptop to the IR500

To connect the laptop to the IR500, first ensure that you meet these prerequisites:

- You have installed the Device Manager software as described in Chapter 2, “Installation.”
- You are familiar with the information in Chapter 3, “Managing Work Orders.”
- You have a valid work order if you plan on changing any IR500 settings.

To connect the laptop to the IR500:

Step 1 Attach a serial-to-USB adapter to a serial cable.

Note The serial-to-USB adapter and serial cable are not supplied with the IR500.

Figure 5-1 Serial-to-USB Adapter Cable

Step 2 Connect the serial cable to the IR500 console port.

Figure 5-2 IR500 Rear Panel

1	Console port

Step 3 Connect the serial-to-USB adapter to the Windows 7 USB port on the laptop.

Step 4 Launch CG-DM 4.1.0.

Step 5 Connect to the IR500 as described in Connecting to the IR500 with a Work Order, page 5-3 or Manually Connecting to the IR500, page 5-4.

For details about IR500 hardware, see the *Cisco IR 500 Series WPAN Gateway and Range Extender Installation and Configuration Guide*.

Connecting to the IR500 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 IR500

To connect to the IR500 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: **IR500**.

Step 3 Select the COM port or **Auto Detect**.

Step 4 Click **Connect**.

The Device Manager main page appears.

Viewing Settings and Status

You can view details about IR500 settings and status from the following subtabs of the Dashboard:

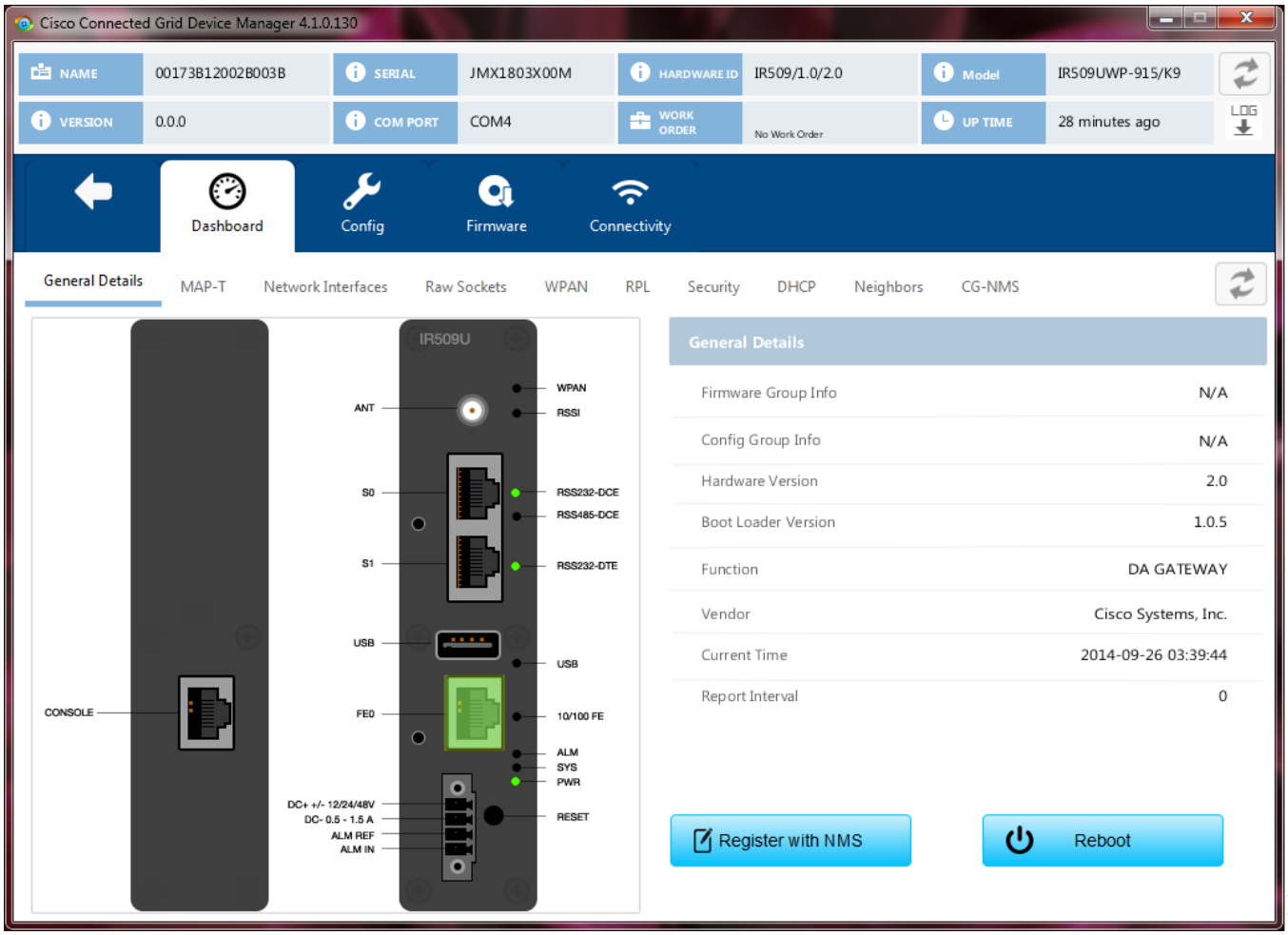
- General Details
- MAP-T
- Network Interfaces
- Raw Sockets
- WPAN

- RPL
- Security
- DHCP
- Neighbors
- CG-NMS

General Details

To view General Details:

Step 1 On the Device Manager main page (Dashboard), click the **General Details** sub-tab.



Step 2 View the General Details:

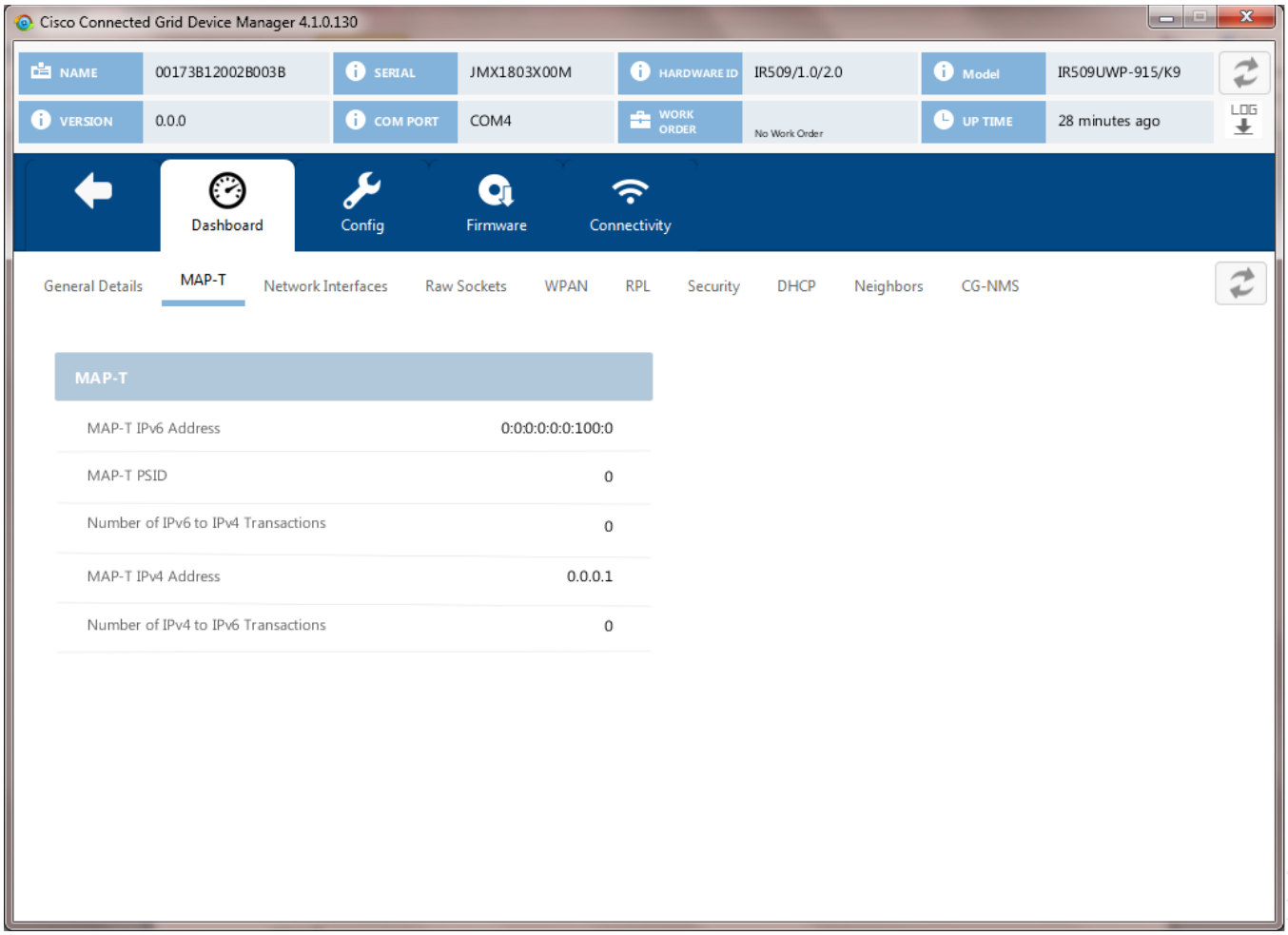
- Firmware Group Info: The name of the firmware group that CG-NMS uses to upload and install firmware images on member devices.
- Config Group Info: The configuration group that CG-NMS uses to manage devices in bulk. The default config group for the DA Gateway is **default-ir500**.

- Hardware Version: The hardware version of the device.
- Boot Loader Version: The boot loader image version.
- Function: The function of the device in the CG-Mesh network. The function of the IR500 is DA Gateway.
- Vendor: The manufacturer of this device.
- Current Time: The current date and time. The IR500 has a real-time clock that maintains the current time.
- Report Interval: The number of seconds between data updates. By default, Mesh Endpoints (MEs) send a new set of metrics to CG-NMS every 28,800 seconds (8 hours).

MAP-T

To view MAP-T information:

Step 1 On the Device Manager main page (Dashboard), click the **MAP-T** sub-tab.



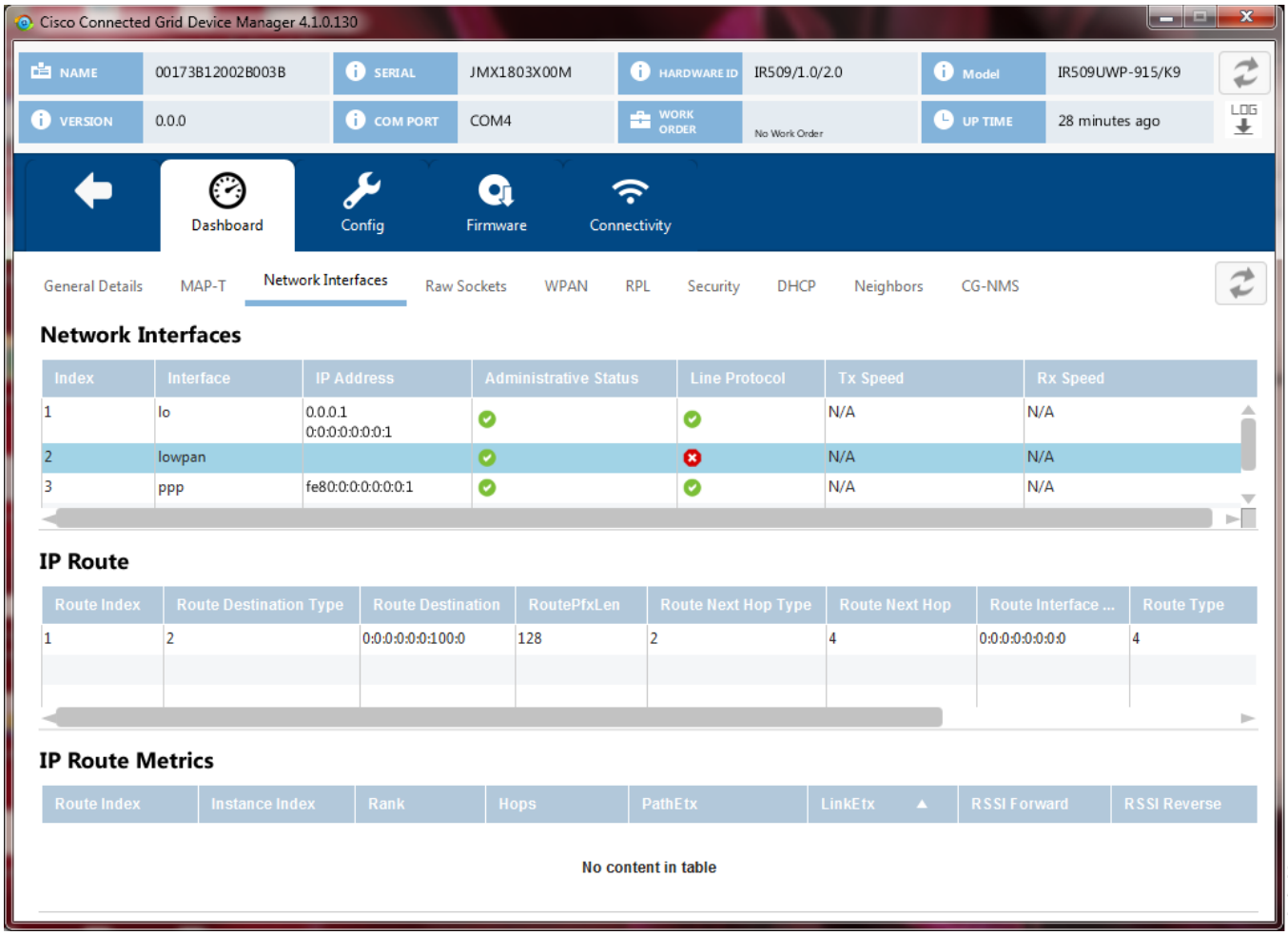
Step 2 View the MAP-T settings and statistics:

- MAP-T IPv6 Address: Contains the IPv4 address used by devices external to the MAP-T domain to communicate with the IR500 Raw Socket over Serial and Ethernet ports.
- MAP-T PSID: The port-set ID (PSID) that algorithmically identifies a set of ports exclusively assigned to the IR500.
- Number of IPv6 to IPv4 Transactions: The number of IPv6 to IPv4 address translations.
- MAP-T IPv4 Address: IPv4 address used by IPv4 devices and applications outside the MAP-T domain to communicate with Raw Socket over Serial and Ethernet attached devices.
- Number of IPv4 to IPv6 Transactions: The number of IPv4 to IPv6 address translations.

Network Interfaces

To view information for Network Interfaces:

Step 1 On the Device Manager main page (Dashboard), click the **Network Interfaces** sub-tab.



Step 2 In the Network Interfaces area, view the settings and status for the IR500 interfaces:

- Index: Identifies the interface.
- Interface: Name of the IR500 interface.
- IP Address: IP address assigned to the interface.
- Administrative Status: When the administrative status for an interface is administratively *up* ( ), the interface was brought up by the administrator. When the administrative status for an interface is *down* ( ), the interface was taken down by the administrator.
- Line Protocol: 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.
- Tx Speed: Transmit speed.
- Rx Speed: Receive speed.

Step 3 In the IP Route area, view the IP route information. This table describes a particular IP route (identified by the index) attached to an interface.

- Route Index
- Route Destination Type
- Route Destination
- Route PfxLen: Route Prefix Length
- Route Next Hop Type
- Route Next Hop
- Route Interface Index
- Route Type
- Route Proto
- Route Age

Step 4 In the IP Route Metrics area, view the IP Route IPv6 Routing Protocol for Low-Power and Lossy Networks (RPL) metrics. The Route Index corresponds to the same index in the IP Route table.

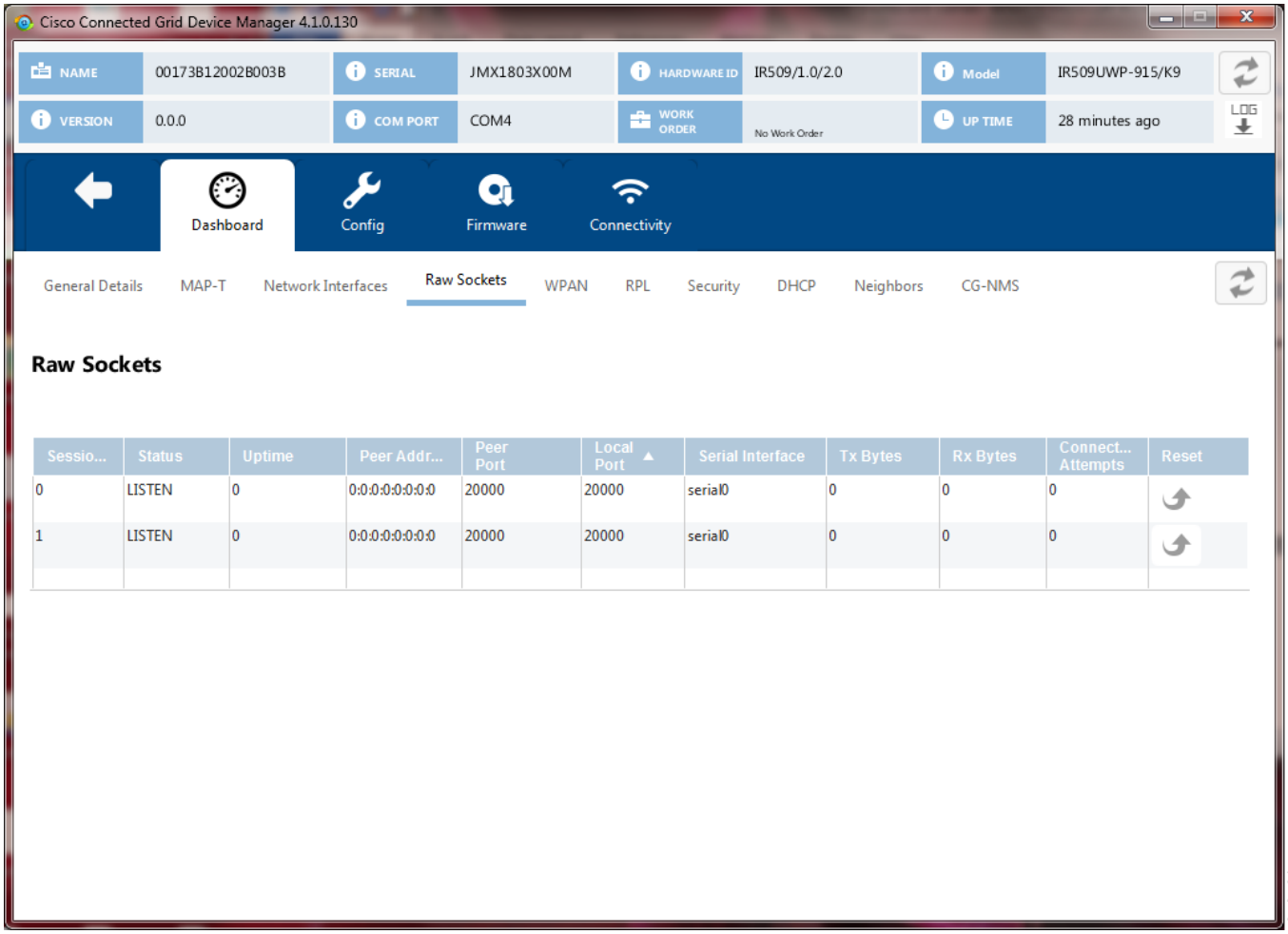
- Route Index: Identifies the route.
- Instance Index: Identifies the instance.
- Rank: The node's individual position relative to other nodes with respect to a DODAG root. Rank is computed based on the Objective Function (OF) of the Directed Acyclic Graph (DAG). The Rank may analogously track a simple topological distance, be calculated as a function of link metrics, and consider other properties such as constraints. [rfc6550]
- Hops: Hop count.
- PathEtx: Expected transmission count of the path. [rfc6550 and rfc6719]
- LinkEtx: Expected transmission count of the link. [rfc6550 and rfc6719]
- RSSI Forward: Forward Received Signal Strength Indicator (RSSI) value.
- RSSI Reverse: Reverse RSSI value.
- LQI Forward: Forward Link Quality Indicator (LQI) value.
- LQI Reverse: Reverse LQI value.
- Dag Size: Size of the DAG. [rfc6550]

- Phase: Electric power phase.

Raw Sockets

To view information about Raw Sockets:

Step 1 On the Device Manager main page (Dashboard), click the **Raw Sockets** sub-tab.



Step 2 View the raw socket settings and statistics:

- Session Index: Identifies the session.
- Status: The status of the raw socket connection.
- Uptime: The length of time that the connection has been up.
- Peer Address: IP address of the host connected to the device.
- Peer Port: The port number of the client/server connected to the device.
- Local Port: The port that either the server listens to for connections (in Server Socket Mode), or to which the client binds to initiate connections to the server (in Client Socket Mode).

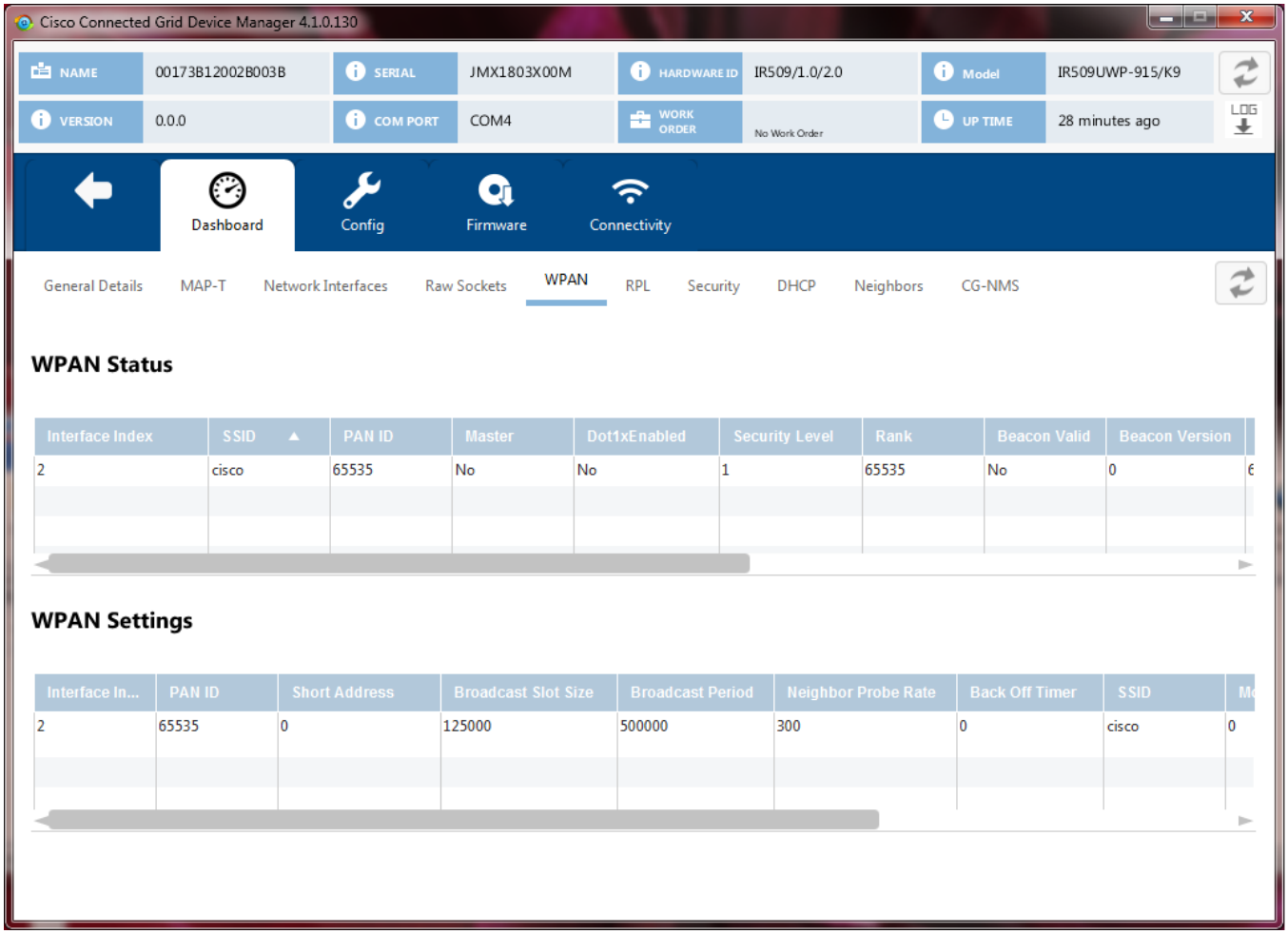
- Serial Interface: The name of the serial interface configured for raw socket encapsulation.
- Tx Bytes: Number of bytes sent over the raw socket connection.
- Rx Bytes: Number of bytes received over the raw socket connection.
- Connection Attempts: Number of times that a raw socket client attempted a connection.

Click **Reset** to reset counters to zero.

WPAN

To view information about WPAN:

Step 1 On the Device Manager main page (Dashboard), click the **WPAN** sub-tab.



Step 2 View the following information in the WPAN Status area:

- Interface Index: Identifies the WPAN interface.
- SSID: Service Set Identifier (SSID) used to differentiate networks.

- PAN ID: Personal Area Network Identifier (PAN ID) used to differentiate WPANs.
- Master: Whether the endpoint is master.
- Dot1xEnabled: Whether the 802.1x protocol is enabled.
- Security Level: Level of security corresponding to the protection offered.
- Rank: The node's individual position relative to other nodes with respect to a DODAG root. Rank is computed based on the DAG's Objective Function (OF). The Rank may analogously track a simple topological distance, be calculated as a function of link metrics, and consider other properties such as constraints. [rfc6550]
- Beacon Valid: The validity of the beacon according to the beacon's age.
- Beacon Version: The beacon's version from the FAR.
- Beacon Age: Parameter related to the time interval received beacon.
- Tx Power: The device current transmission power.
- Metric: The value calculated by rank / the weight value of the rank + size / the weight value of the PAN size.
- Last Changed: The time (in hundredths of a second) since the device changed the PAN.
- LastChangedReason: The reason that the device updated the PAN.
- Demo Mode Enabled: Whether enable demo mode is enabled.
- TxFec: Whether forward error correction (FEC) is enabled.

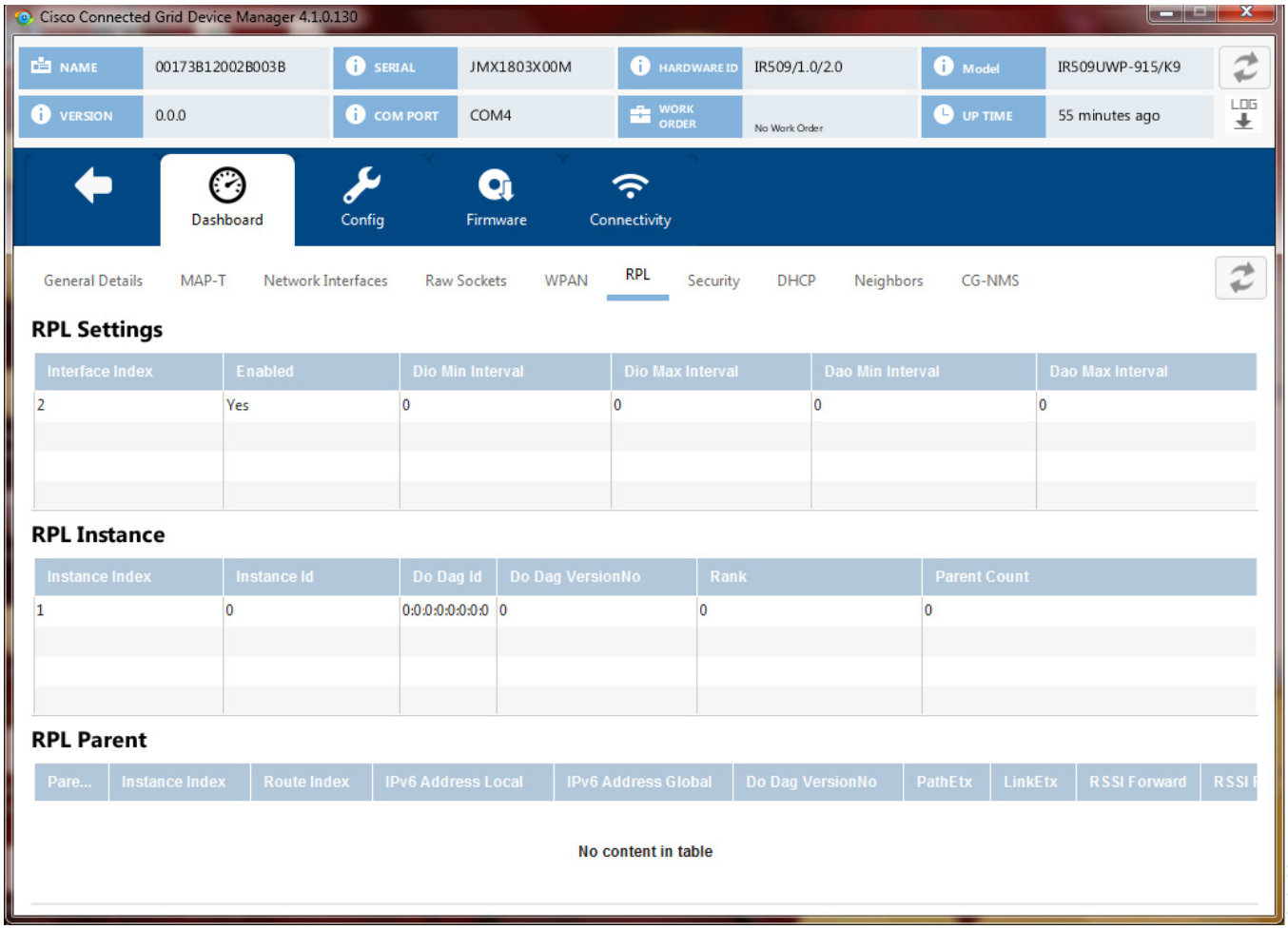
Step 3 View the following information in the WPAN Settings area:

- Interface Index: Identifies the WPAN interface.
- PAN ID: Personal Area Network Identifier (PAN ID) used to differentiate WPANs.
- Short Address: 16-bit node identifier.
- Broadcast Slot Size: Slot size of the broadcast.
- Broadcast Period: Period of the broadcast.
- Neighbor Probe Rate:
- Back Off Timer: Timer for back off algorithm.
- SSID: Service Set Identifier (SSID) used to differentiate networks.
- Mode:
- Dwell: Dwell window in IEEE802.15.4g protocol.
- Notch: List of disabled channels.

RPL

To view information about RPL:

Step 1 On the Device Manager main page (Dashboard), click the **RPL** sub-tab.



Step 2 View the following information in the RPL Settings area:

- Interface Index: Identifies the interface.
- Enabled: Whether the RPL protocol is enabled.
- Dio Min Interval: Minimum DODAG Information Object (DIO) interval in RPL protocol.
- Dio Max Interval: Maximum DIO interval in RPL protocol.
- Dao Min Interval: Minimum Destination Advertisement Object (DAO) interval in RPL protocol.
- Dao Max Interval: Maximum DAO interval in RPL protocol.

Step 3 View the following information in the RPL Instance area:

- Instance Index: Identifies the RPL instance.
- Instance Id: Identifies an RPL instance, which is a set of one or more DODAGS. [rfc6550]
- Dodag Id: Identifies the DODAG root. The DODAGID is unique within the scope of a RPL instance in the LLN.
- Dodag VersionNo: A sequential counter that is incremented by the root to form a new DODAG version.

- Rank: The node's individual position relative to other nodes with respect to a DODAG root. Rank is computed based on the DAG's Objective Function (OF). The Rank may analogously track a simple topological distance, be calculated as a function of link metrics, and consider other properties such as constraints. [rfc6550]
- Parent Count:

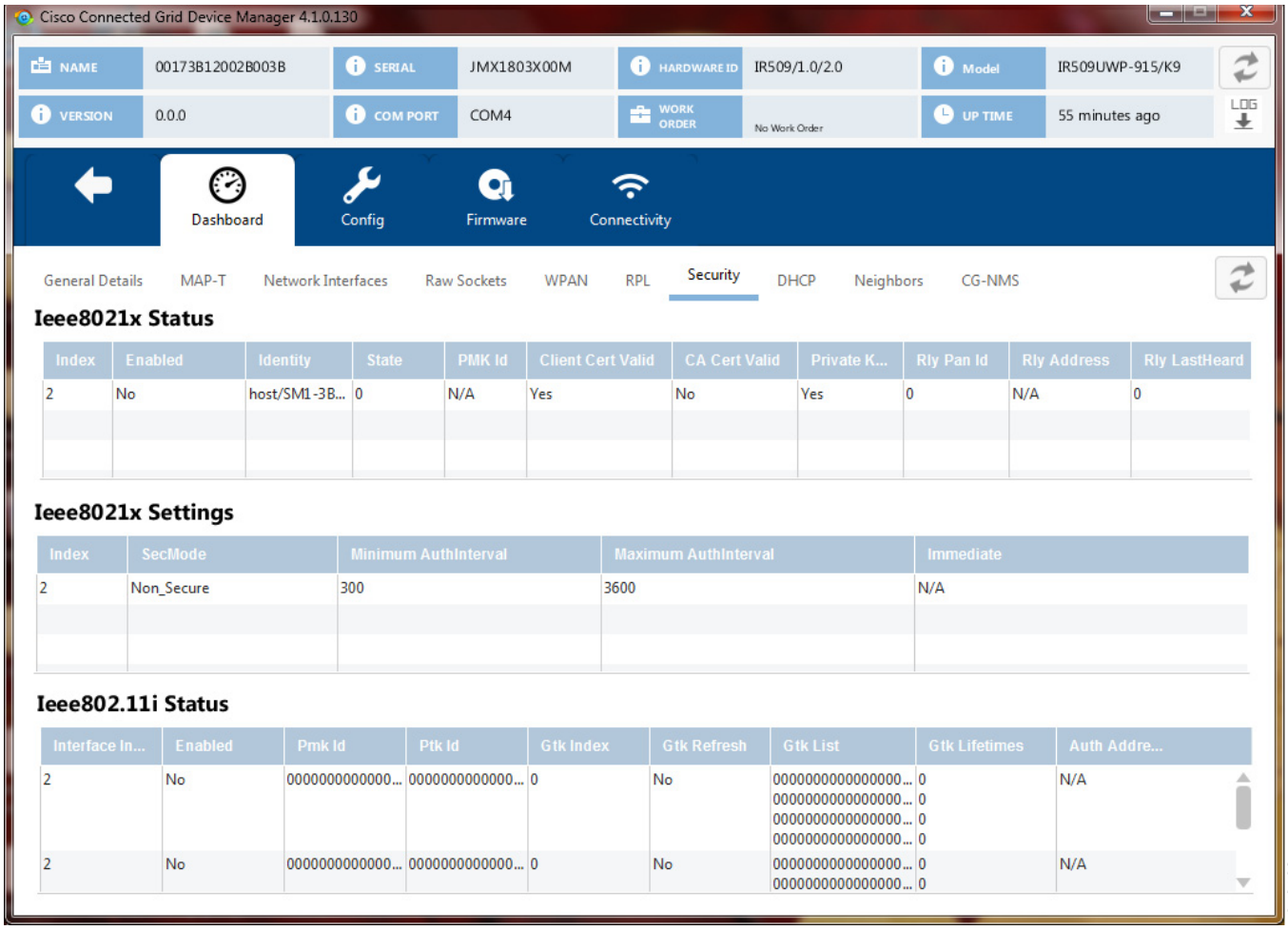
Step 4 View the following information in the RPL Parent area:

- Parent Index: Identifies the parent.
- Instance Index: Identifies the instance.
- Route Index: Identifies the route.
- IPv6 Address Local: Unique local IPv6 address of the parent.
- IPv6 Address Global: IPv6 global unicast address of the parent.
- Dodag VersionNo: A sequential counter that is incremented by the root to form a new DODAG version.
- PathEtx: Expected transmission count of the path. [rfc6550]
- LinkEtx: Expected transmission count of the link. [rfc6550]
- RSSI Forward: Forward Received Signal Strength Indicator (RSSI) value.
- RSSI Reverse: Reverse RSSI value.
- LQI Forward: Forward Link Quality Indicator (LQI) value.
- LQI Reverse: Reverse LQI value.
- Hops: Hop count.

Security

To view information about IEEE 802.1x for WPAN authentication and encryption:

Step 1 On the Device Manager main page (Dashboard), click the **Security** sub-tab.



Step 2 View the information in the Ieee8021x Status area:

- Index: Identifies the network.
- Enabled: Whether 802.1x authentication is enabled.
- Identity: Subject of the X.509 digital certificate.
- State: Current state of Transport Layer Security (TLS).
- PMK Id: Pairwise Master Key identifier.
- Client Certificate:
- CA Certificate: Certificate Authority (CA) certificate
- Private Key: Encryption/decryption key.
- Rly Pan Id: Reply PAN ID.
- Rly Address: Reply address.
- Rly Last Heard: Time of last heard reply.

Step 3 View the information in the Ieee8021x Settings area:

- Index: Identifies the network.
- SecMode: The security mode in use.

- Minimum Auth Interval: The minimum authentication interval.
- Maximum Auth Interval: The maximum authentication interval.
- Immediate: Request authentication immediately.

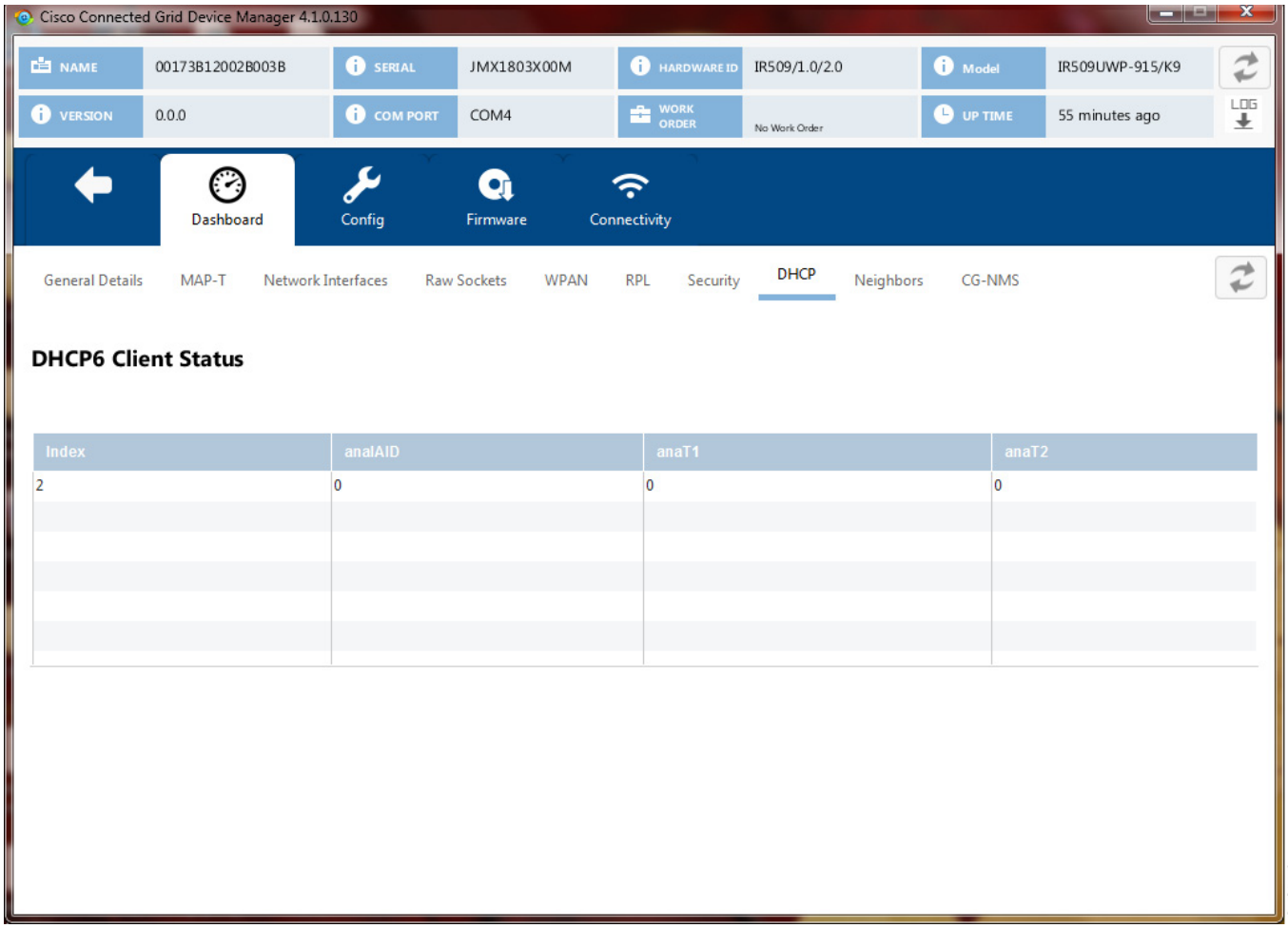
Step 4 View the information in the Ieee80211i Status area:

- Interface Index: Identifies the interface.
- Enabled: Whether the 80211i protocol is enabled.
- Pmk Id: Pairwise Master Key identifier.
- Ptk Id: Pairwise Transient Key identifier.
- Gtk Index: Identifies the Group Temporal Key.
- Gtk Refresh:
- Gtk List: Group Temporal Key list.
- Gtk Lifetimes:
- Auth Address: Authenticator server address.

DHCP

To view information about DHCPv6 for IPv6 address allocation:

Step 1 On the Device Manager main page (Dashboard), click the **DHCP** sub-tab.



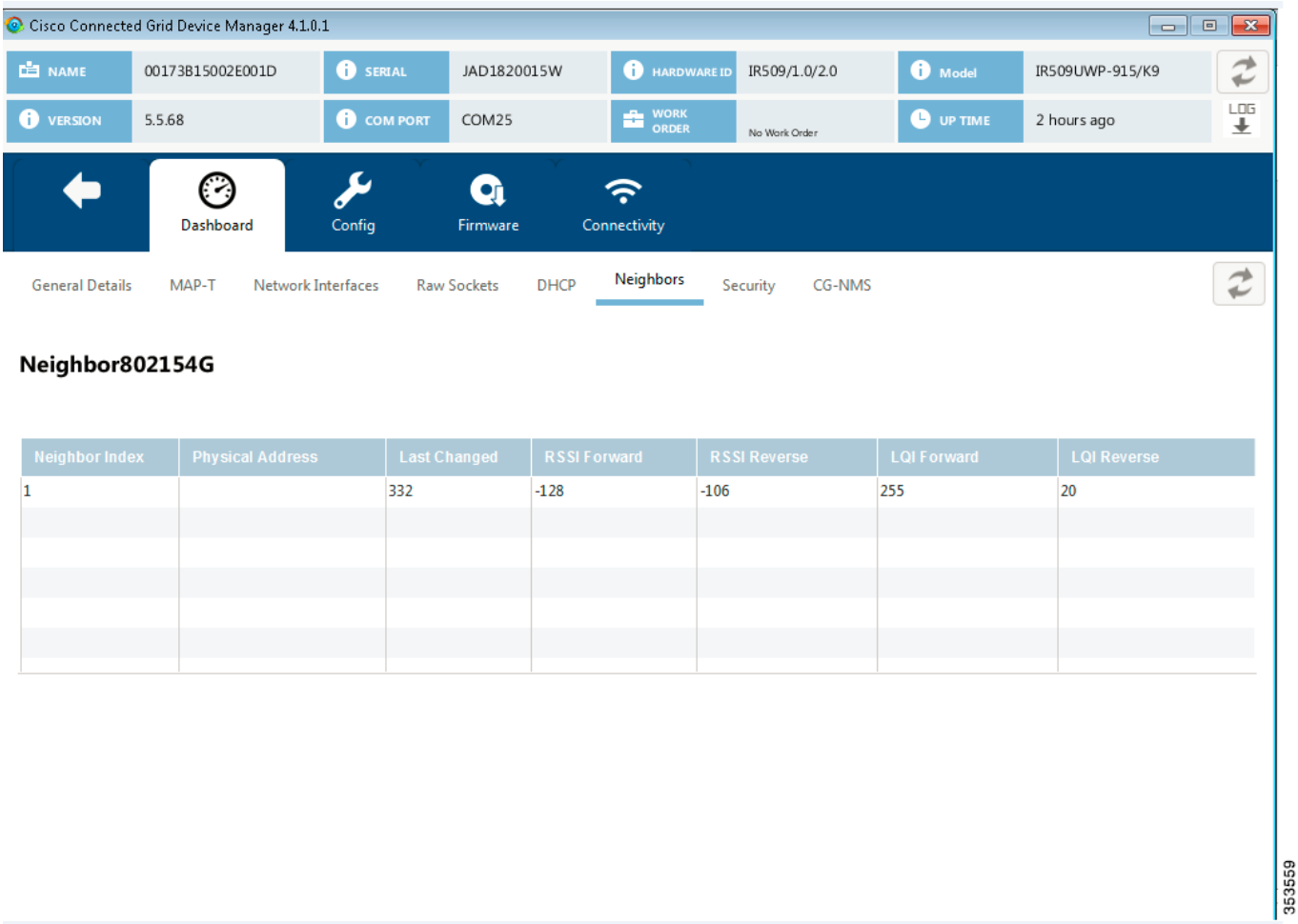
Step 2 View the DHCP Client Status:

- Index: Identifies the network.
- anaIAID: Interface Association Identifier.
- anaT1: Preferred-lifetime.
- anaT2: Valid-lifetime.

Neighbors

To view 802.15.4g neighbor information:

Step 1 On the Device Manager main page (Dashboard), click the **Neighbors** sub-tab.



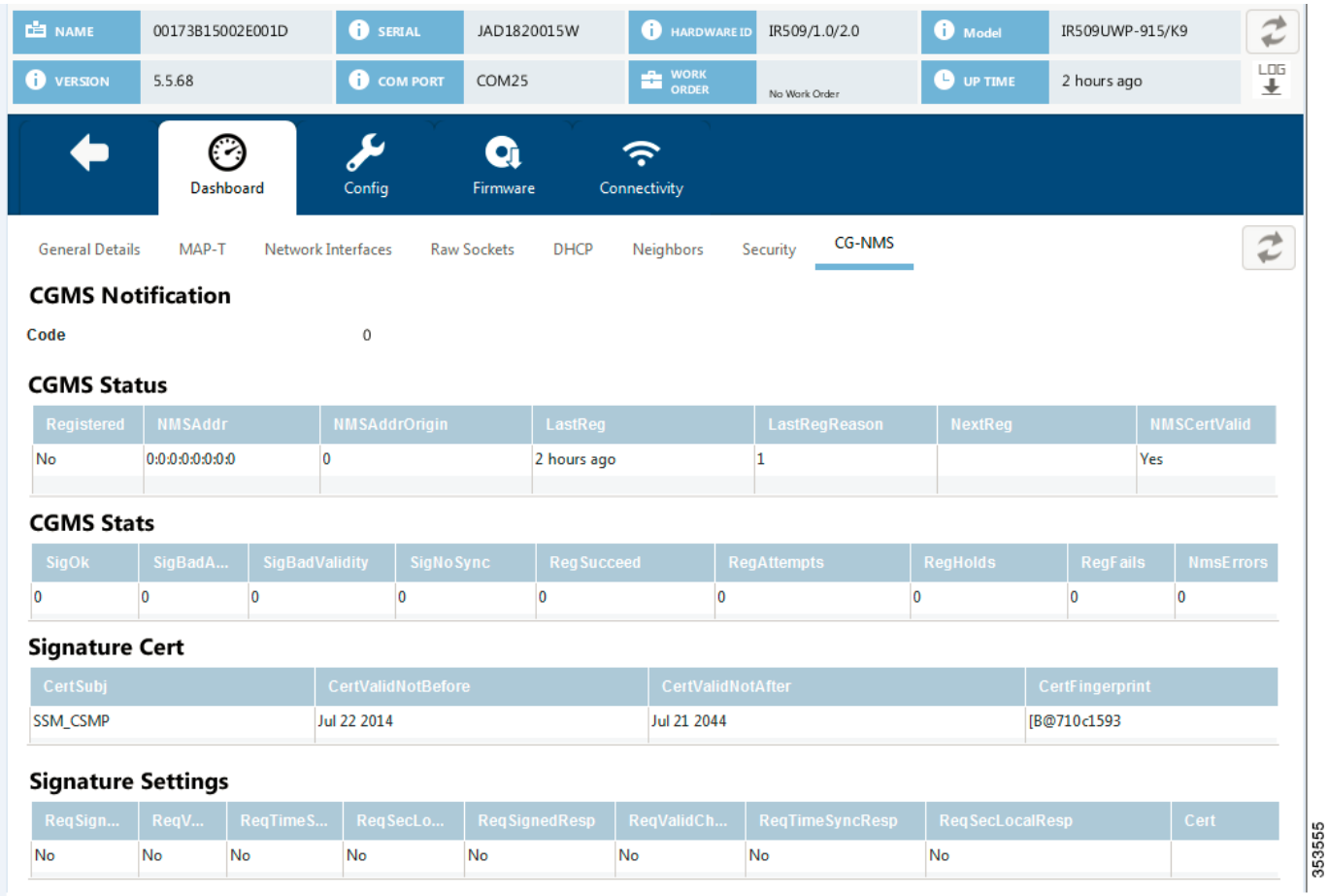
Step 2 View the neighbors settings and statistics:

- Neighbor Index: Identifies the neighbor
- Physical Address: The 64-bit Extended Unique Identifier (EUI-64) of the device.
- Last Changed: The time (in hundredths of a second) since hearing from the neighbor.
- RSSI Forward: Forward Received Signal Strength Indicator (RSSI) value.
- RSSI Reverse: Reverse RSSI value.
- LQI Forward: Forward Link Quality Indicator (LQI) value.
- LQI Reverse: Reverse LQI value.

CG-NMS

To view information about CG-NMS:

Step 1 On the Device Manager main page (Dashboard), click the **CG-NMS** sub-tab.



Step 2 View the information in the CGMS notification area:

Code Values:

1 = COAP Error

2 = Signature Error

3 = Registration Processing Error

Step 3 View CGMS Status information:

- Registered: Whether the end point is registered with NMS.
- NMSAddr: Address of NMS.
- NMSAddrOrigin: Origin of NMS address.
- LastReg: Last registration time.
- LastRegReason: Reason for last registration.
- NextReg: Time of next registration.
- NMSCertValid: Whether the certificate is valid.

Step 4 View CGMS Stats:

- SigOk: Count of verified signatures.
- SigBadAuth: Count of bad authorized signatures.

- SigBadValidity: Count of bad validity signatures.
- SigNoSync: Count of signatures that are not synchronized.
- RegSucceed: Count of successful registrations.
- RegAttempts: Count of registration attempts.
- RegHolds: Count of registration holds.
- RegFails: Count of registration failures.
- NmsErrors: Count of NMS errors.

Step 5 View Signature Cert information:

- CertSubj: Certificate subject.
- CertValidNotBefore: Certificate valid.
- CertValidNotAfter: Certificate not valid.
- CertFingerprint: Fingerprint of the certificate.

Step 6 View the Signature Settings information:

- ReqSignedPost: Whether request signed post.
- ReqValidCheckPost: Whether request valid check post.
- ReqTimeSyncPost: Whether request time synchronization post.
- ReqSecLocalPost: Whether request security local post.
- ReqSignedResp: Whether request signed response.
- ReqValidCheckResp: Whether valid check response.
- ReqTimeSyncResp: Whether time synchronization response.
- ReqSecLocalResp: Whether request security local response.

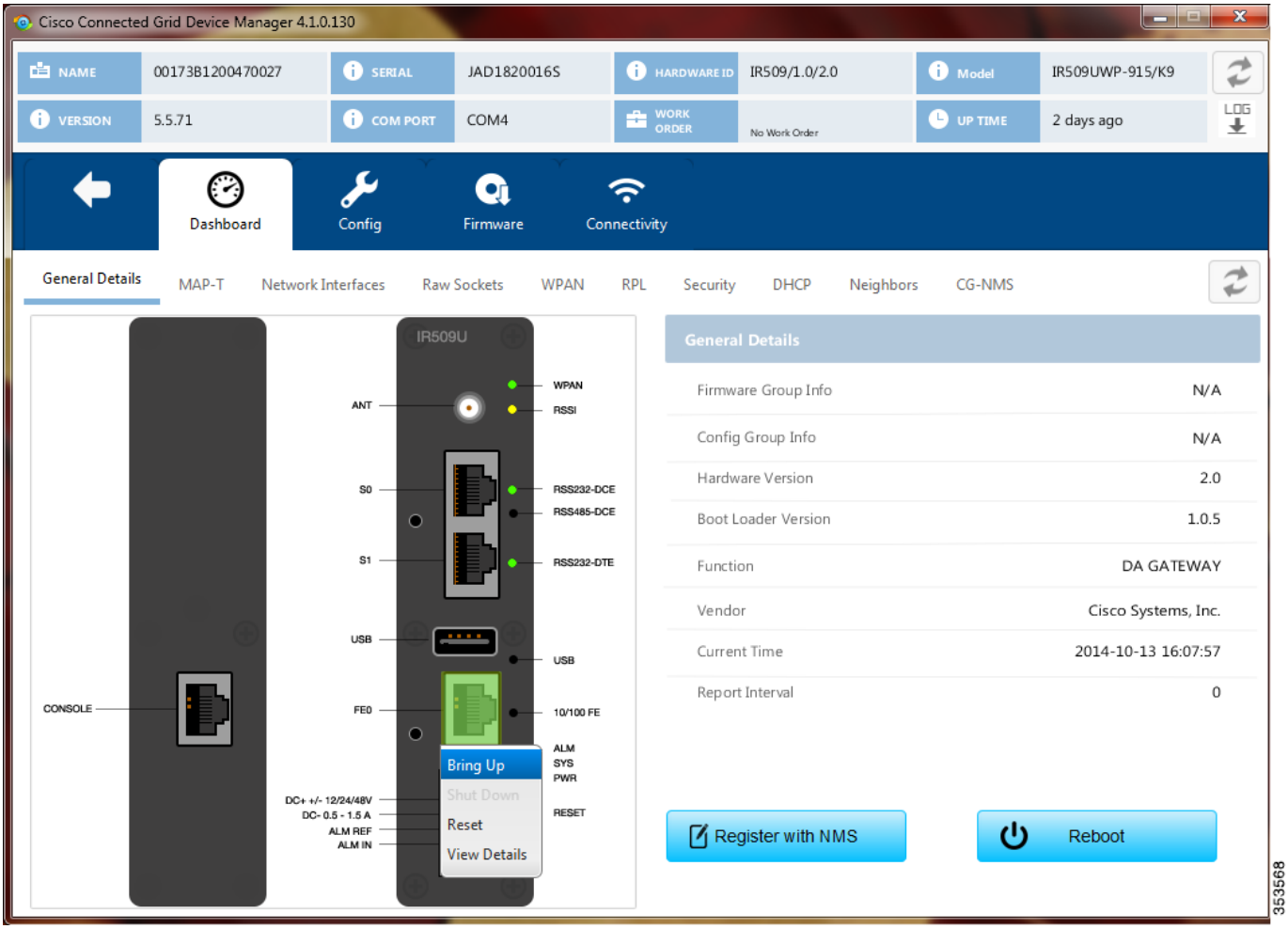
Viewing Interface Details

You can view details for the Ethernet and the two serial interfaces from the Device Manager main page (Dashboard).

Ethernet Interface Details

To view details for the Ethernet interface:

Step 1 On the On the Device Manager main page, click the Ethernet port to display the popup menu and select **View Details**.



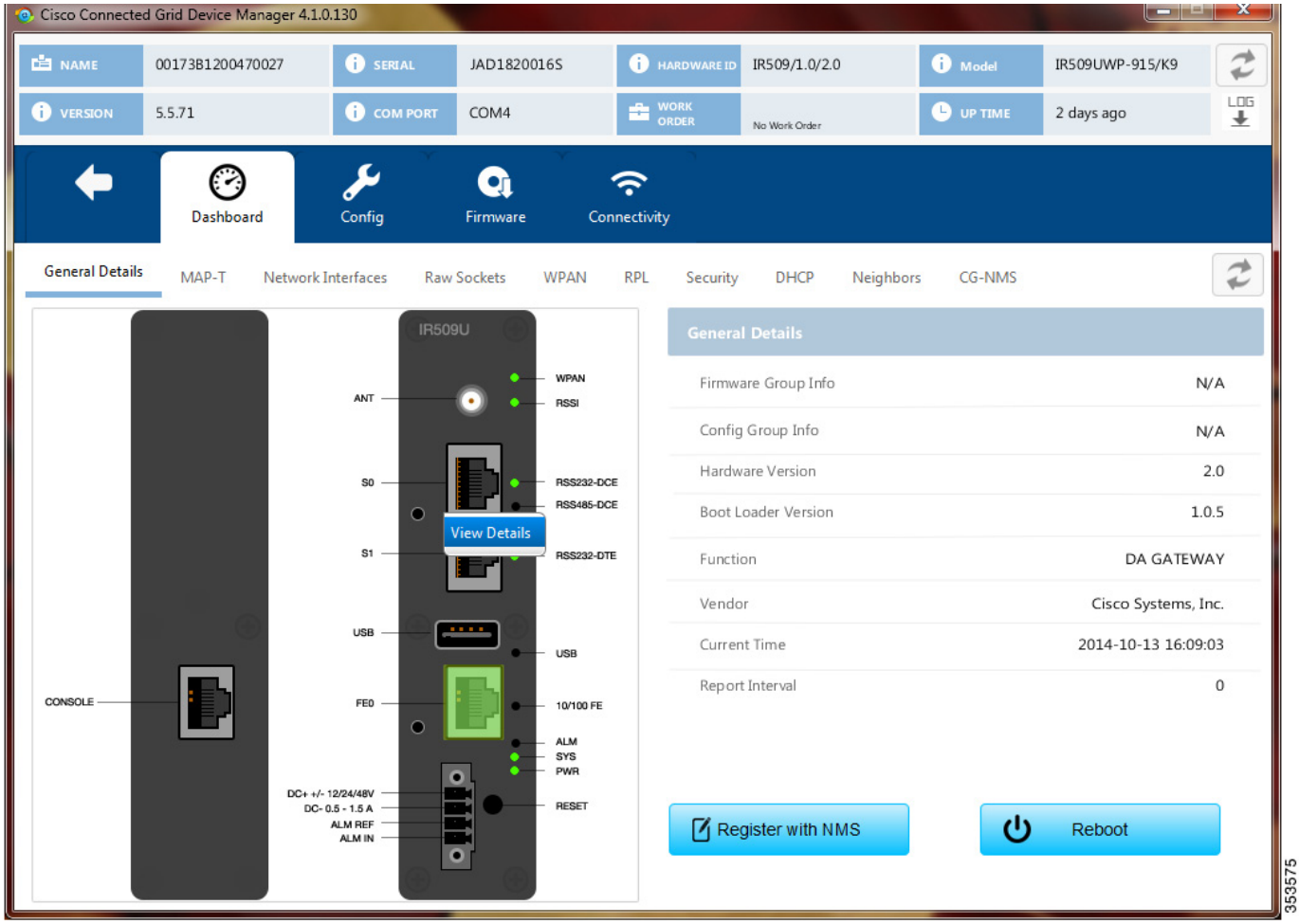
The View Details window displays the Ethernet metrics.

Step 2 To refresh the display, click the refresh icon in the upper right corner of the View Details window.

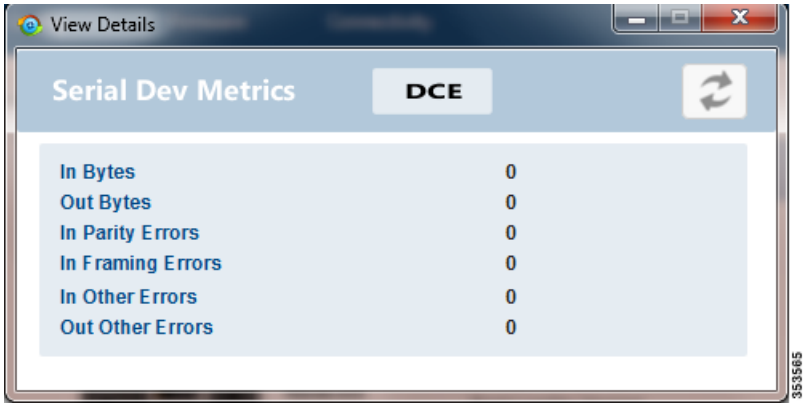
Serial Interface Details

To view details for serial interface 0 (DCE) or serial interface 1 (DTE):

Step 1 On the On the Device Manager main page, click a serial port to display the popup menu and select **View Details**.



The View Details window displays the DCE or DTE metrics.



Step 2 To refresh the display, click the refresh icon in the upper right corner of the View Details window.

Managing the Ethernet Interface

To bring up, shut down, or reset the Ethernet interface:

Step 1 On the Device Manager main page, click the Ethernet port to display the popup menu and select the operation you want to perform on the interface: **Bring Up**, **Shut Down**, or **Reset**.

Step 2 In the confirmation dialog box that appears, click **Yes** to continue the operation.

Registering with CG-NMS

When you connect to the IR500 with a work order, the IR500 registers with CG-NMS. Registration notifies CG-NMS that the device is on the network and provides a mechanism for pushing management configuration information to the device.

You can also manually cause the IR500 to re-register with CG-NMS for load balancing or delegation to specific sites. In this case, CG-NMS redirects the IR500 to re-register with an alternate CG-NMS.

To register with CG-NMS, on the Device Manager main page (Dashboard), click **Register with NMS**. Device Manager displays messages to inform you of the redirection status.

Rebooting the IR500

To immediately reboot the IR500, on the Device Manager main page (Dashboard), click **Reboot**. Device Manager displays messages to inform you of the reboot status.

Changing the Configuration

You can view or change the following IR500 settings from the Config page:

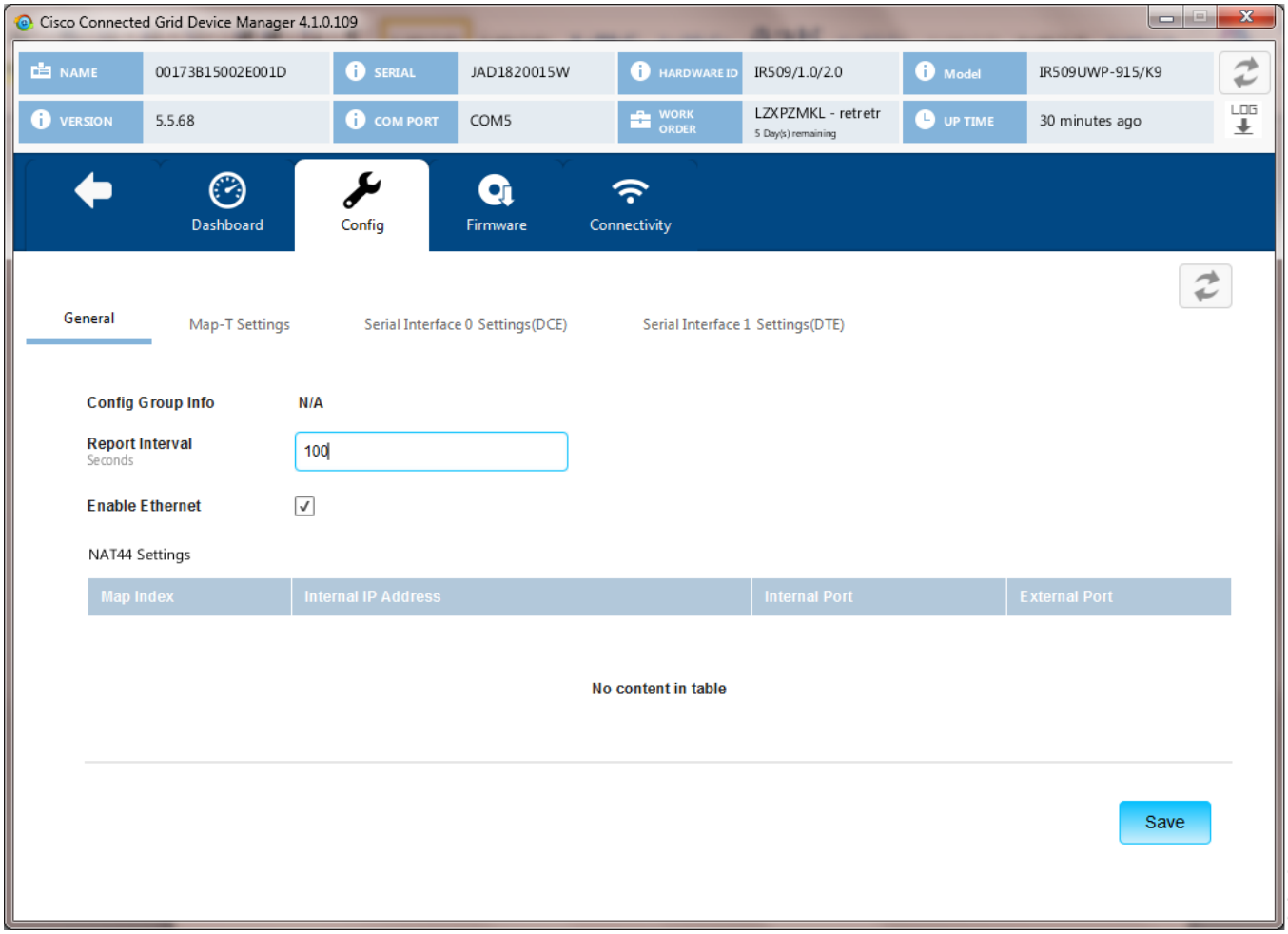
- General Settings such as Report interval, Config Group Info and NAT44 settings
- MAP-T settings
- Serial Interface 0 settings (DCE)
- Serial Interface 1 settings (DTE)

Note For detailed information about IR500 operation and configuration, including Raw Socket and MAP-T information, refer to the *Cisco IR 500 Series WPAN Gateway and Range Extender Installation and Configuration Guide*.

Changing General Settings

To view or change general IR500 configuration settings:

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



Step 2 View or modify General settings:

- **Config Group Info**: The configuration group that CG-NMS uses to manage devices in bulk. The default config group for the DA Gateway is **default-ir500**.
- **Report Interval**: The number of seconds between data updates. By default, Mesh Endpoints (MEs) send a new set of metrics to CG-NMS every 28,800 seconds (8 hours).
- **Enable Ethernet**: Select this check box for IPv4 connectivity to devices and to enable NAT44 configuration.
- **NAT44 Settings**:
  - Map Index: Identifies the map.
  - Internal IP Address: The internal address of the NAT 44 configured device.
  - Internal Port: The internal port number of the NAT 44 configured device.

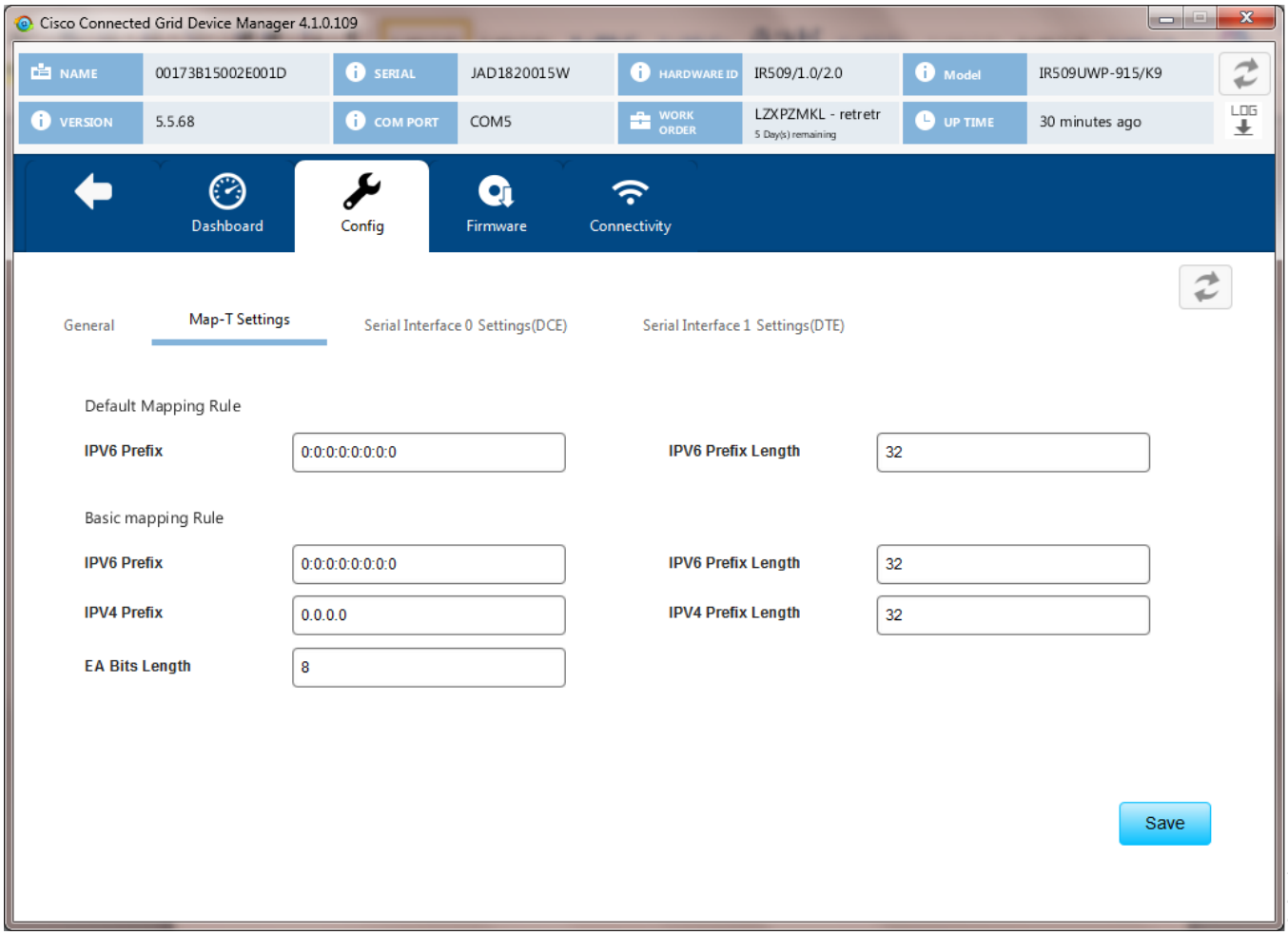
– External Port: The external port number of the NAT 44 configured device.

Step 3 Click **Save**.

Changing MAP-T Settings

To view or change MAP-T configuration settings:

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



Step 2 Click **MAP-T Settings** and view or modify these settings:

- Default Mapping Rule: These fields specify an IPv6 prefix used to address all destinations outside the MAP-T domain.
  - **IPV6 Prefix**: IPv6 prefix used to embed any IPv4 addresses outside the MAP-T domain.
  - **IPV6 Prefix Length**: Length of the IPv6 prefix used to embed any IPv4 addresses outside the MAP-T domain.

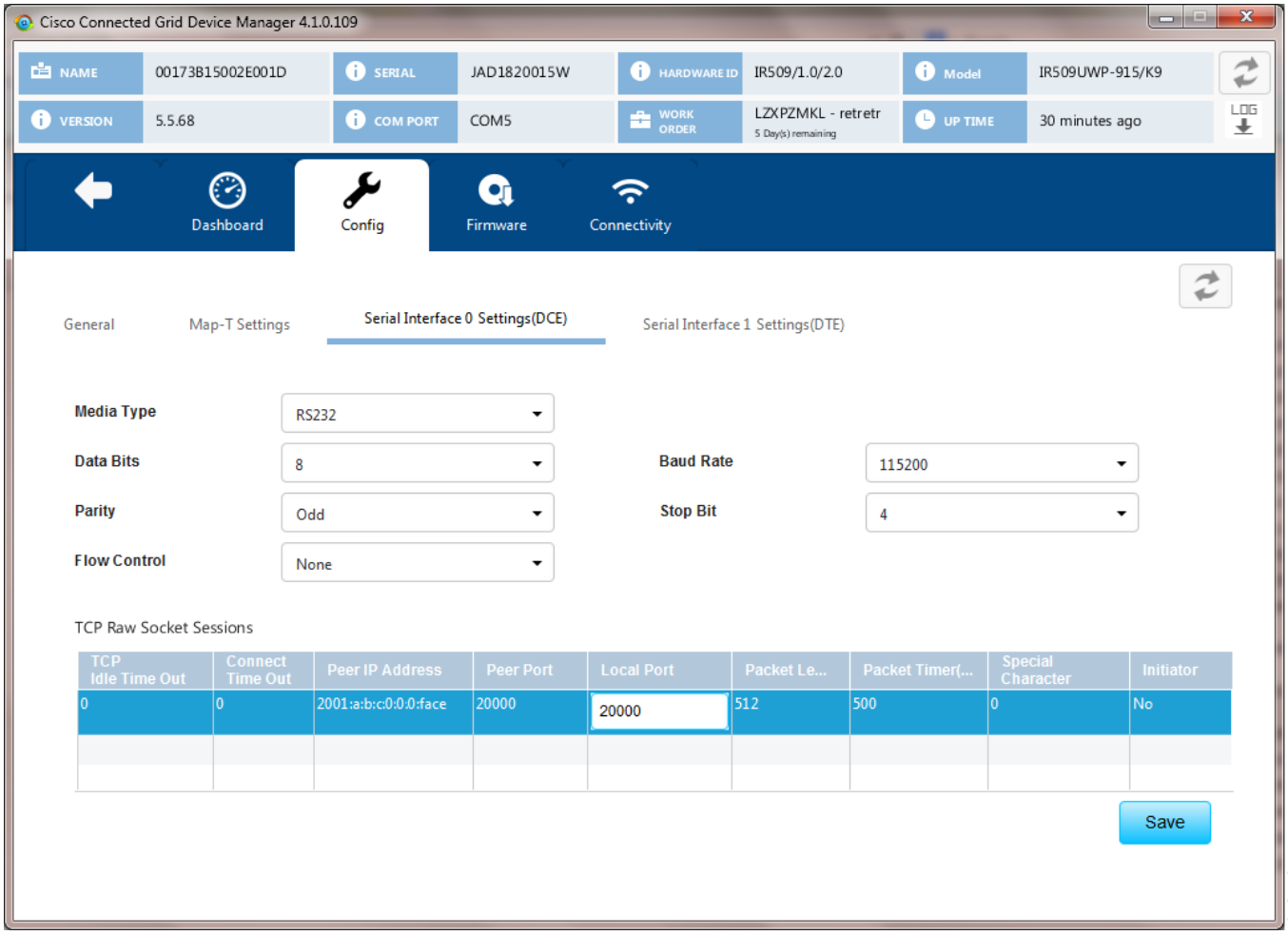
- Basic Mapping Rule: These fields specify the IPv6 and IPv4 prefixes used to address MAP-T nodes inside the MAP-T domain.
  - **IPV6 Prefix**: MAP-T IPv6 End-user prefix, which contains the MAP-T Basic Mapping Rule or MAP-T IPv6 prefix + the IPv4 suffix of the assigned IPv4 address.
  - **IPV4 Prefix**: IPv4 prefix that specifies the IPv4 subnet selected to address all IPv4 nodes in a MAP-T domain.
  - **EA Bits Length**: Length of the IPv4 Embedded Address (EA) bits that indicates the length of the IPv4 suffix embedded in the MAP-T IPv6 End-user IPv6 prefix.
  - **IPV6 Prefix Length**: Length of the IPv6 prefix used to embed the IPv4 address of nodes inside the MAP-T domain.
  - **IPV4 Prefix Length**: Length of the IPv4 prefix that specifies the IPv4 subnet selected to address all IPv4 nodes in a MAP-T domain.

Step 3 Click **Save**.

Changing Serial Interface 0 Settings (DCE)

To view or change the configuration for Serial Interface 0 (DCE):

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



Step 2 Click **Serial Interface 0 Settings (DCE)** and view or modify these settings:

- **Media Type**: The serial interface type.
  - Disable
  - LoopBack
  - RS232
  - RS485 Full Duplex
  - RS485 Half Duplex
- **Data Bits**: Number of data bits per character. Default value is 8.
- **Parity**: Odd or even parity for error detection. Default value is None.
- **Flow Control**: The use of flow control on the line. Default value is None.
- **Baud Rate**: Data transmission rate in bits per second. Default value is 115200.
- **Stop Bit**: The asynchronous line stop bit. Default value is 1.

Step 3 View or modify settings for TCP Raw Socket Sessions:

- **TCP Idle Time Out**: The time to maintain an idle connection.
- **Connect Time Out**: TCP client connect timeout for Initiator DA Gateway devices.

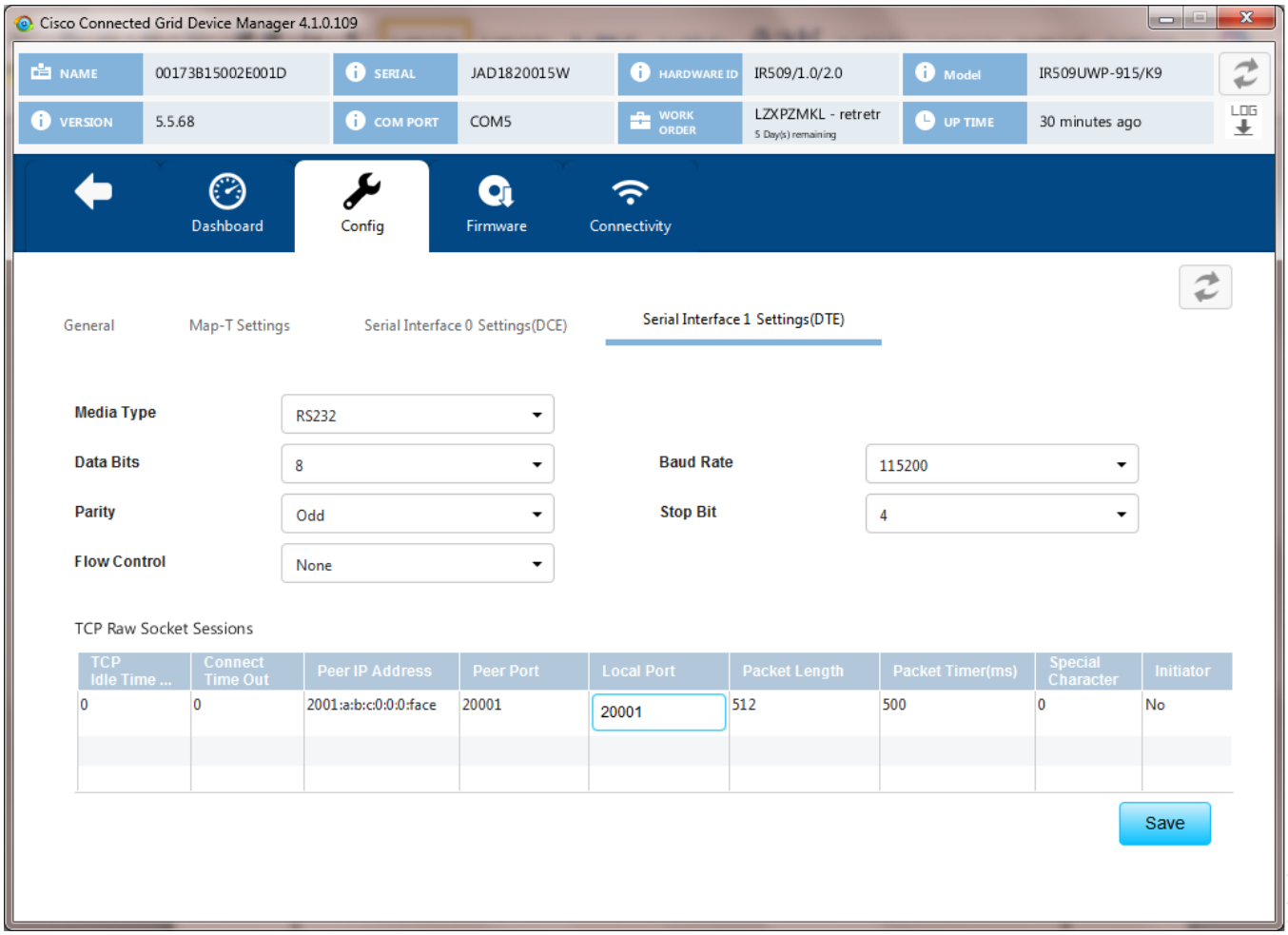
- **Peer IP Address**: IP address of the host connected to the device.
- **Peer Port**: Port number of the client/server connected to the device.
- **Local Port**: Port number of the device.
- **Packet Length**: Maximum length of serial data to convert into the TCP packet.
- **Packet Timer (ms)**: The time interval between each TCP packet creation.
- **Special Character**: The delimiter for TCP packet creation.
- **Initiator**: Designates the device as the client/server.

Step 4 Click **Save**.

Changing Serial Interface 1 Settings (DTE)

To view or change the configuration for Serial Interface 1 (DTE):

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



Step 2 Click **Serial Interface 1 Settings (DTE)** and view or modify these settings:

- **Medial Type**: The serial interface type.
  - Disable
  - LoopBack
  - RS232
  - RS485 Full Duplex
  - RS485 Half Duplex
- **Data bits**: The number of data bits per character. Default value is 8.
- **Parity**: Odd or even parity for error detection. Default value is None.
- **Flow Control**: The use of flow control on the line. Default value is None.
- **Baud Rate**: The data transmission rate in bits per second. Default value is 115200.
- **Stop Bit**: The asynchronous line stop bit. Default value is 1.

Step 3 View or modify settings for TCP Raw Socket Sessions.

- **TCP Idle Time Out**: The time to maintain an idle connection.
- **Connect Time Out**: TCP client connect timeout for Initiator DA Gateway devices.
- **Peer IP Address**: IP address of the host connected to the device.
- **Peer Port**: Port number of the client/server connected to the device.
- **Local Port**: Port number of the device.
- **Packet Length**: Maximum length of serial data to convert into the TCP packet.
- **Packet Timer (ms)**: The time interval between each TCP packet creation.
- **Special Character**: The delimiter for TCP packet creation.
- **Initiator**: Designates the device as the client/server.

Step 4 Click **Save**.

Updating the Firmware Image

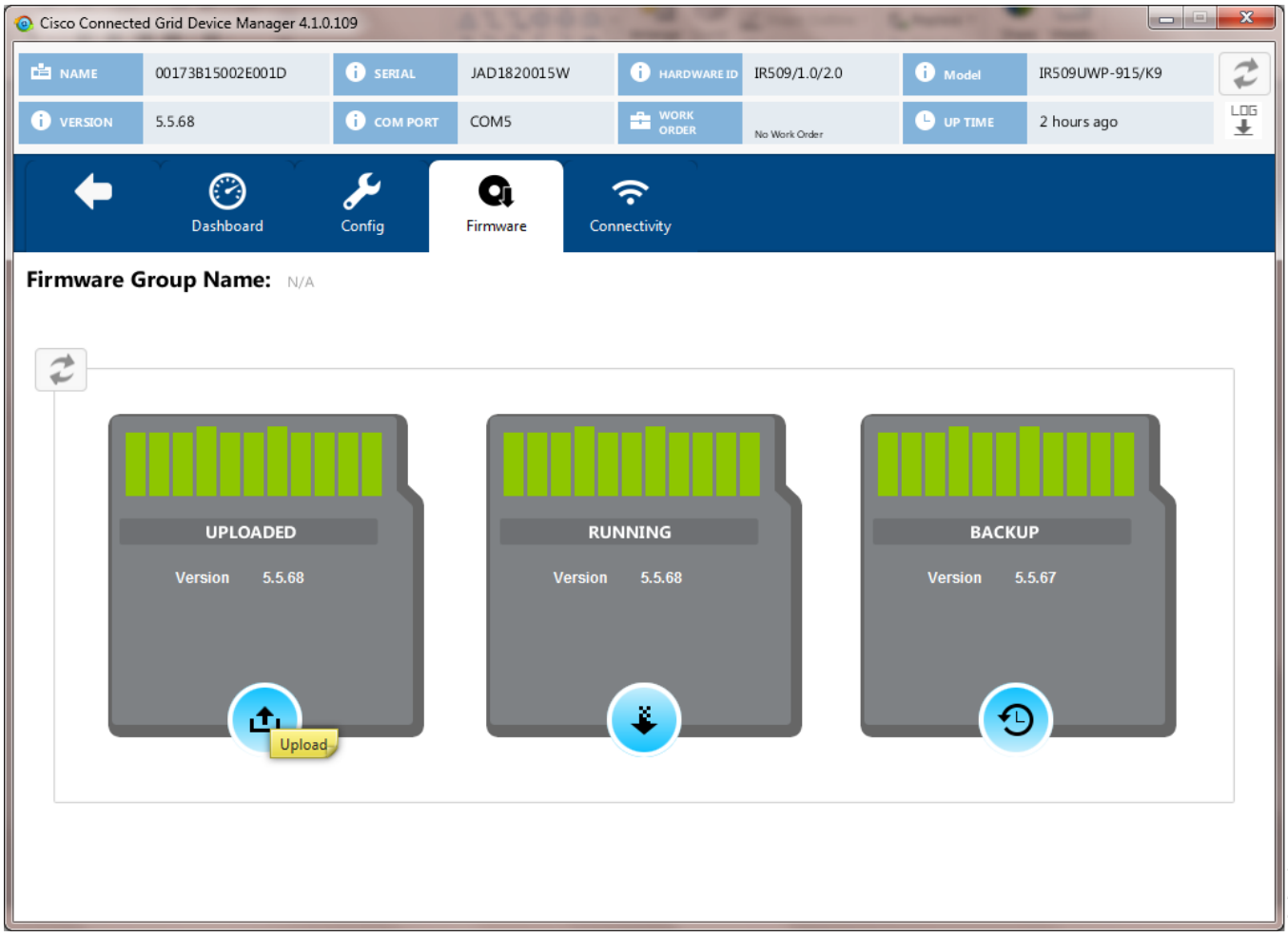
Use the Firmware page to perform these tasks:

- Uploading an Image, page 5-29
- Installing an Image, page 5-30
- Setting the Backup, page 5-31

Uploading an Image

To upload an image to the IR500:

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



Step 2 On the left of the Firmware page, click the Upload icon and select an image to upload.

The new image is stored on the IR500 until you are ready to install the image on the IR500. (See Installing an Image.)

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

Installing an Image

To install an uploaded image on the IR500:

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

Step 2 In the middle of the Firmware page, click the Install icon.

Step 3 In the dialog box that appears, click **Yes** to install the image on the IR500.

If you did not previously upload an image to install, Device Manager displays the Upload to Device dialog box for you to upload an image.

After you confirm the installation, the image installs automatically on the device. No manual reboot is required.

Step 4 In the dialog box that appears after the installation is completed, click **Save Results** or **OK**.

Setting the Backup

To set the running image as the backup image:

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

Step 2 On the right of the Firmware page, click the Set Backup icon.

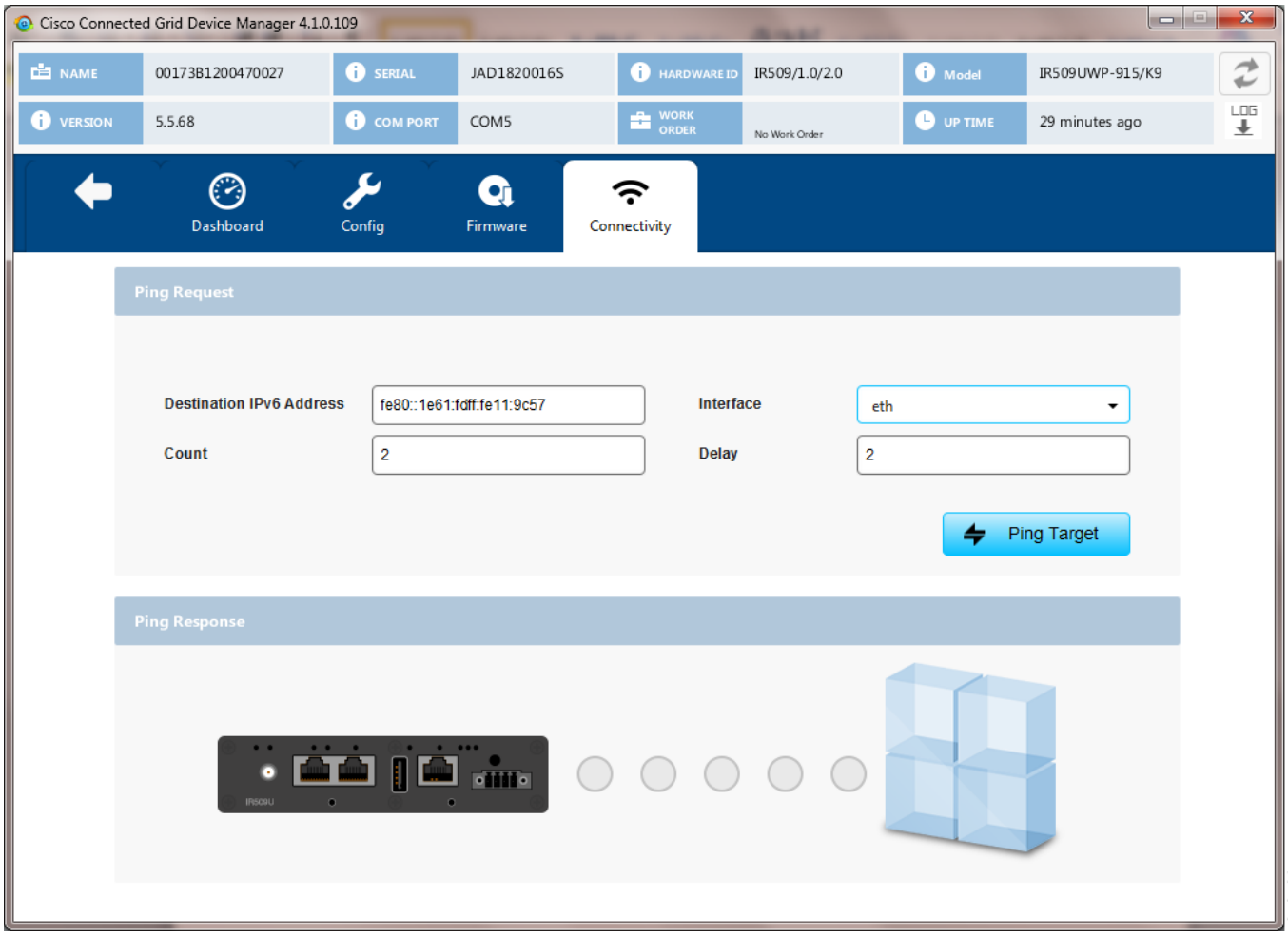
Step 3 In the dialog box that appears, click **Yes**.

Testing Connectivity

Use the Connectivity page to test connectivity to a target with an IPv6 address. You can test connectivity of the Ethernet or 6LoWPAN interface.

To test connectivity:

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



Step 2 Configure the Ping Request settings:

- **Destination IPv6 Address:** IPv6 address of the ping target
- **Interface**:
  - **eth**: Ethernet.
  - **lowpan:** 6LoWPAN.
- **Count**: Number of ping requests to send (0 to 9).
- **Delay**: Number of seconds to wait between sending each request (0 to 9).

Step 3 Click **Ping Target**.

A dialog box appears indicating that the IR500 is attempting to ping the target IPv6 address. When the IR500 successfully pings the target, the Ping Response area of the Connectivity page displays a green check mark. If the ping is unsuccessful, the response area displays a red X.

To see the contents of the ping response message as a tooltip, hover over the icon for the target device.

Disconnecting from the IR500

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 IR500. Click **Yes** to confirm that you want to disconnect from the device. Device Manager disconnects and displays the Device Manager opening page.