Cisco iNode Manager User Guide, Release 3.2.0

First Published: 2021-06-30

Last Modified: 2023-05-15

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

© 2021 Cisco Systems, Inc. All rights reserved.

CONTENTS

CHAPTER 1 **Cisco iNode Manager Application** 1

Cisco iNode Manager Application 1

Logging into Cisco iNode Manager Application 1

Cisco iNode Manager Dashboard 2

CHAPTER 2 **How to Use Cisco iNode Manager** 3

Cisco iNode Manager Application 3

Overview 3

Add an iNode to Inventory 6

Update the iNode Name 6

Delete iNode from Inventory 7

Export the Inventory 7

Download Logs 8

Bulk Operations on the iNodes 10

Assign Configuration Profile 10

Initial Setup on iNodes 11

Bulk Reboot of iNodes 11

Config Profiles 12

Create Node Profile 13

Create RF Profile 14

Assign Node Profile to iNodes 16

Node Config 16

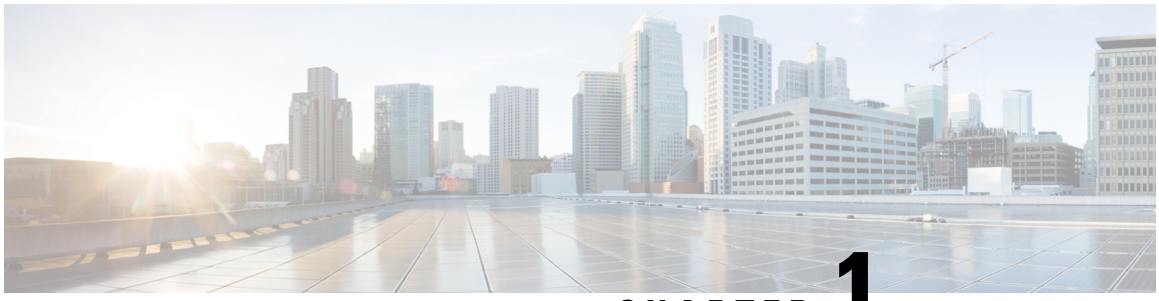
iNode Selection Box 17

Operational Data of the Selected iNode 17

Information About Sub Modules of the iNode 18

Settings 19

Spectrum Graph 20
Alarms 21
Maintenance 22
Alarms 23
Alarm Settings 24
System 24
Database Backup and Restore 25
Database Import Validation 25
Database Export Scheduling 26
Bulk Operation Status 27
Inventory Dashboard 29
Inventory 29
Credential Profiles 30



CHAPTER 1

Cisco iNode Manager Application

The Cisco Intelligent Node (iNode) Manager application enables you to provision and monitor the intelligent nodes in the network.

This *User Guide* provides information on the Cisco iNode Manager and how to use the application. For details of installing the application, see the Cisco iNode Manager Installation Guide

- Cisco iNode Manager Application, on page 1
- Logging into Cisco iNode Manager Application , on page 1
- Cisco iNode Manager Dashboard, on page 2

Cisco iNode Manager Application

The following are some of the features of the Cisco iNode Manager application:

- Intelligent Node Inventory: iNode inventory operations such as monitoring the status of iNodes, current software version of the iNodes, searching for iNodes based on specific criteria.
- Remote configuration of iNodes: RF port configuration and general configuration are available.
- Spectrum analysis: Forward path and Reverse path.
- Alarm monitoring
- Configuration profiles: iNode settings and the RF port settings profile.
- DB import and export. Option to set schedule for DB export.
- RPD information.
- Debugging the iNode: Viewing the latest logs and the boot parameters in the UI.

Logging into Cisco iNode Manager Application

Access the Cisco iNode Manager Web UI using the following URL:

- With FQDN disabled:

```
https://<ingress-ip>.nip.io
```

- For all-in-one (AIO) cluster, the ingress IP address is the management IP address of the `ops` node or VM.
- For multi node, the ingress IP address is the virtual IP address that is configured for the management network.

- With FQDN enabled:

  `https://<ingress-hostname>`

You can log into the Cisco iNode Manager application by entering the credentials that are provided for inode manager operations center while installing the Cisco iNode Manager. Currently, `admin` is the only user profile that is allowed.

Enter the password that you mentioned while creating the Cisco iNode Manager cluster.

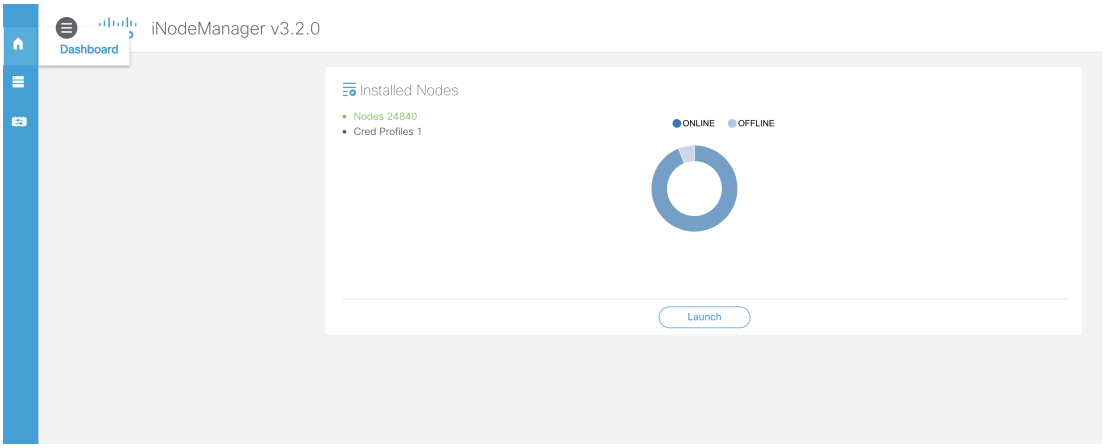
The LDAP user credentials can be entered if LDAP is configured in the Cisco iNode Manager cluster. For information on how to configure LDAP authentication in the Cisco iNode Manager, see the *Cisco iNode Manager Installation Guide, Release 3.2.0*.

Note The login page is locked for one minute if there are three consecutive unsuccessful attempts to log into the iNode Manager.

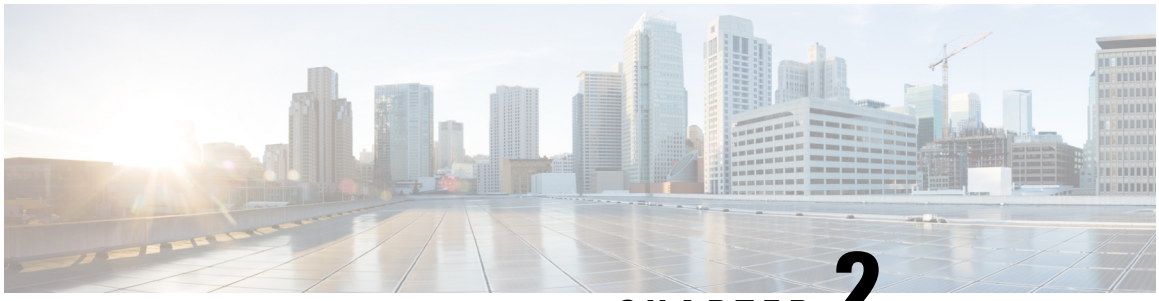
Note To logout from the iNode Manager application, click **Settings** icon > **Log out**.

Cisco iNode Manager Dashboard

The Cisco iNode Manager application **Dashboard** gives you a snapshot view of all nodes that are managed and monitored by the Cisco iNode Manager application.



Click the **Launch** button to open the Cisco iNode Manager application page.



CHAPTER 2

How to Use Cisco iNode Manager

This section describes how to use the Cisco iNode Manager application:

- Cisco iNode Manager Application , on page 3
- Overview, on page 3
- Config Profiles, on page 12
- Node Config, on page 16
- Alarms, on page 23
- System, on page 24
- Inventory Dashboard, on page 29

Cisco iNode Manager Application

The Cisco iNode Manager application page provides you options to add, organize, and update information about the iNodes in the network.

The **Cable iNode Manager** page has five tabs:

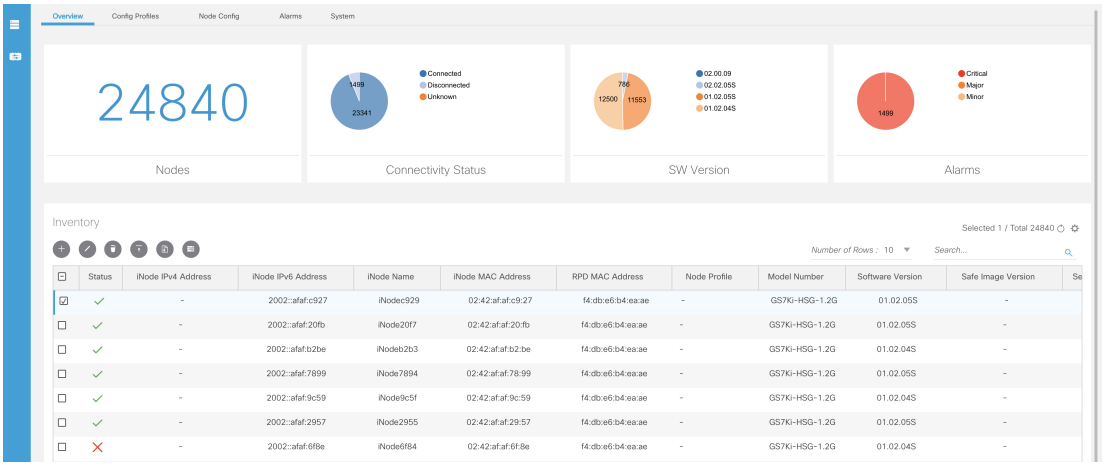
- **Overview**
- **Config Profiles**
- **Node Config**
- **Alarms**
- **System**

Overview

The **Overview** page provides the total number of iNodes, their connectivity status, software version running on them, and the number of active alarms. It also has an **Inventory** table which shows details of all iNodes in the network. You can perform the following tasks on this page:

- Add a new iNode to the inventory
- Update the name of the iNode in the inventory
- Delete iNodes from the inventory

- Export the iNode details from the inventory table in the CSV format
- Download log files that are in the iNode, view the latest logs, and the boot parameters of an iNode
- Perform bulk operations: Initial setup in bulk, assign configuration profiles, and bulk reboot



The following table contains the descriptions of the graphs on the **Overview** page and the fields in the inventory table:

Name	Description
Nodes	Total number of iNodes in the inventory.
Connectivity Status	Shows a pie chart of the connectivity status of the iNodes in the network. The following statuses are displayed: • Connected • Disconnected • Unknown
SW Version	Shows a pie chart of the number of iNodes running different software versions.
Alarms	Shows a pie chart of the number of active alarms in the iNodes in the network. The following categories are displayed: • Critical • Major • Minor **Note** The muted alarms are not counted in total alarms. Refer to Alarm Settings, on page 24 for more information.
Inventory Table Fields	

Name	Description
Status	Current Status of the iNode.
iNode IPv4 Address	IPv4 address of the iNode. A hyphen (-) indicates that the iNode does not have an IPv4 address.
iNode IPv6 Address	IPv6 Address of the iNode. A hyphen (-) indicates that the iNode does not have an IPv6 Address.
iNode Name	Name of the iNode.
iNode MAC Address	MAC address of the iNode.
RPD MAC Address	MAC address of the RPD that is connected to the iNode.
Node Profile	Name of the Configuration Profile that is assigned to the iNode.
Model Number	Model number of the iNode.
Software Version	Software version of the iNode.
Safe Image Version	Software version of the secondary image in the iNode.
Serial Number	Serial number of the iNode.
RPD IPv4 Address	IPv4 address of the RPD that is connected to the iNode.
RPD IPv6 Address	IPv6 address of the RPD that is connected to the iNode.
RPD Serial Number	Serial number of the RPD that is connected to the iNode.
RPD Software Version	Software version of the RPD that is connected to the iNode.
	Adds an iNode to the inventory.
	Updates the iNode information.
	Deletes iNodes from the inventory.
	Exports iNode details to a CSV file.
	Downloads the iNode’s logs.
	Perform bulk operations.

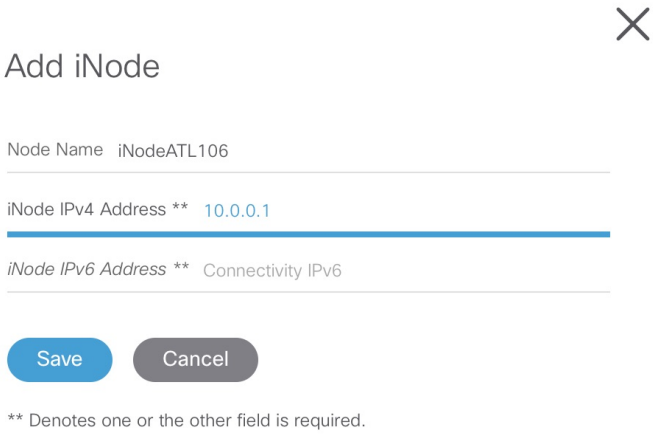
Name	Description
	Sets the columns in the inventory table.
Search	Allows you to search for iNodes based on the search criteria.

Add an iNode to Inventory

Step 1 Log into the Cisco iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Overview**.

Step 2 Click the icon to add a node to the Inventory.

The **Add iNode** pop-up window appears.



Step 3 Enter the IPv4 address or the IPv6 address of the iNode and click **Save**.

The Cisco iNode Manager retrieves the rest of the details of the iNode, such as the name, MAC address, software version, serial number, and so on from the iNode and stores it in the inventory.

Update the iNode Name

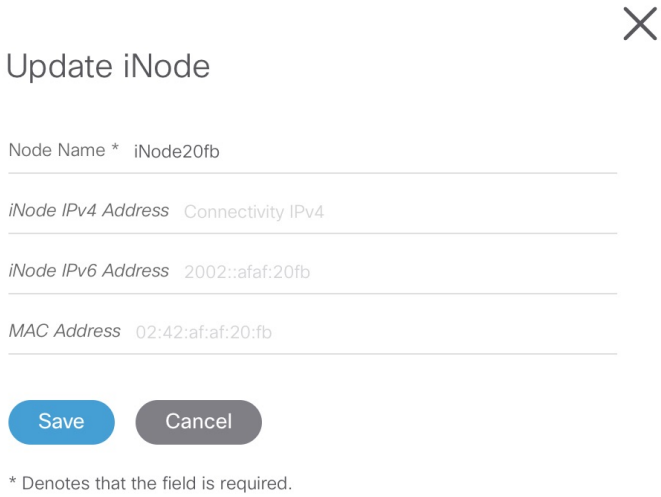
You can update only the name of an iNode.

Step 1 Log into the Cisco iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Overview**.

Step 2 In the **Inventory** table, check the check box of the iNode which you want to update.

Step 3 Click the icon to update the name of the iNode.

The **Update iNode** pop-up window appears.



Step 4 Update the node name and click **Save**.

Delete iNode from Inventory

You can delete multiple iNodes from the Inventory.

Step 1 Log into the Cisco iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Overview**.

Step 2 Select the iNodes from the **Inventory** table and click the icon.

A confirmation message appears.

Step 3 Click **Delete** to confirm.

Export the Inventory

You can export the details of all iNodes listed in the Inventory in the CSV format.

Step 1 Log into the iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Overview**.

Step 2 In the **Inventory** table, check the check boxes for the iNodes of which you want the details exported in a CSV file.

Step 3 Click the icon to export iNodes in the inventory.

A request message to allow downloads appears. This request appears only once for a user profile.

Step 4 Click **Allow**.

The CSV file is saved to your downloads location on your device. The file name is in the following format: `inodeInventoryData-yyyy-mm-dd.hhmmss`

Download Logs

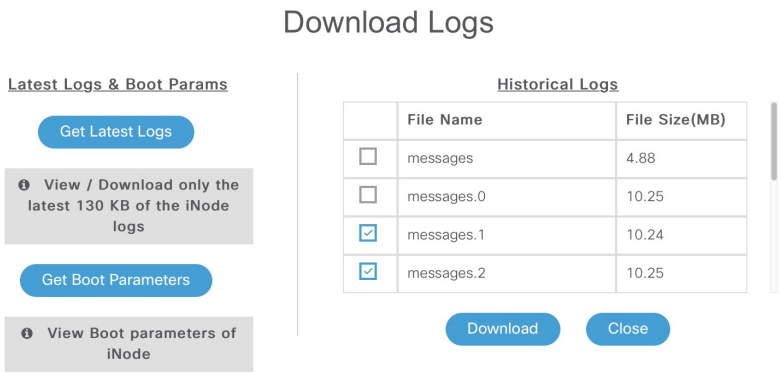
You can view and download the logs to your device.

Step 1 Log into the iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Overview**.

Step 2 Check the check boxes for the iNodes of which you want to download the logs.

Step 3 Click the icon to view the download options.

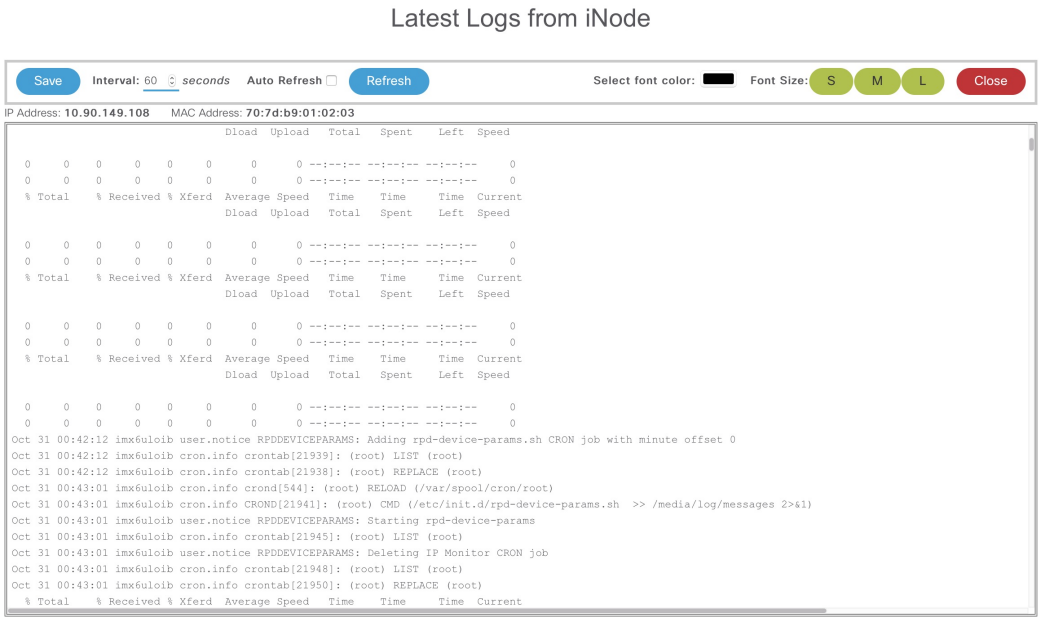
The **Download Logs** pop-up window appears.



Step 4 Click the option based on your requirement.

Option	Description
Get Latest Logs	View or download the latest logs. The **Latest Logs from iNode** window appears. The maximum size of the file is limited to 130 KB.
Get Boot Parameters	View and save the boot parameters.
Historical Logs	Download the entire log file. Downloading the file takes several minutes depending on the size of the log file. The progress bar indicates the current status of the log file download.

Get Latest Logs:



- **Auto Refresh**: Enable the **Auto Refresh** option in the **Latest Logs from iNode** window, to get the latest logs periodically. The available range of the auto refresh interval is 10–600 seconds. You can also click the **Refresh** button to manually get the latest logs.

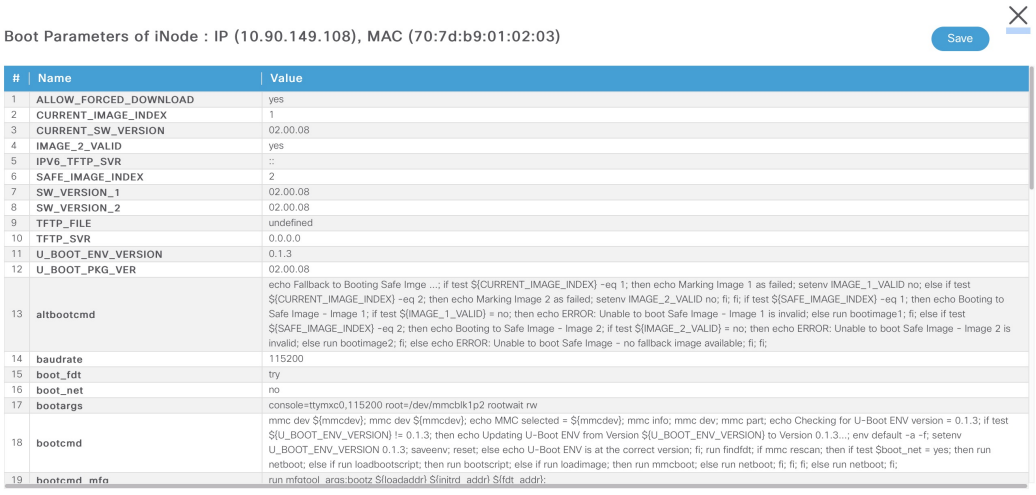
  The **Refresh** button is disabled when you enable the **Auto Refresh** option.

- **Font color**: Click the color in the **Select font color** option to set the color of the font. You can also set the size of the font using the **Font Size** options.

Click **Save** to download the logs to your device. The log file name is in the following format: `inode-<IP address>-latest`

Get Boot Parameters:

Click **Save** to download the boot parameters.



#	Name	Value
1	ALLOW_FORCED_DOWNLOAD	yes
2	CURRENT_IMAGE_INDEX	1
3	CURRENT_SW_VERSION	02.00.08
4	IMAGE_2_VALID	yes
5	IPV6_TFTP_SVR	::
6	SAFE_IMAGE_INDEX	2
7	SW_VERSION_1	02.00.08
8	SW_VERSION_2	02.00.08
9	TFTP_FILE	undefined
10	TFTP_SVR	0.0.0.0
11	U_BOOT_ENV_VERSION	0.1.3
12	U_BOOT_PKG_VER	02.00.08
13	altbootcmd	echo Fallback to Booting Safe Imge ...; if test ${CURRENT_IMAGE_INDEX} -eq 1; then echo Marking Image 1 as failed; setenv IMAGE_1_VALID no; else if test ${CURRENT_IMAGE_INDEX} -eq 2; then echo Marking Image 2 as failed; setenv IMAGE_2_VALID no; fi; fi; if test ${SAFE_IMAGE_INDEX} -eq 1; then echo Booting to Safe Image - Image 1; if test ${IMAGE_1_VALID} = no; then echo ERROR: Unable to boot Safe Image - Image 1 is invalid; else run bootimage1; fi; else if test ${SAFE_IMAGE_INDEX} -eq 2; then echo Booting to Safe Image - Image 2; if test ${IMAGE_2_VALID} = no; then echo ERROR: Unable to boot Safe Image - Image 2 is invalid; else run bootimage2; fi; else echo ERROR: Unable to boot Safe Image - no fallback image available; fi; fi;
14	baudrate	115200
15	boot_fdt	try
16	boot_net	no
17	bootargs	console=ttymxc0,115200 root=/dev/mmcblk1p2 rootwait rw
18	bootcmd	mmc dev ${mmcdev}; mmc dev ${mmcdev}; echo MMC selected = ${mmcdev}; mmc info; mmc dev; mmc part; echo Checking for U-Boot ENV version = 0.1.3; if test ${U_BOOT_ENV_VERSION} != 0.1.3; then echo Updating U-Boot ENV from Version ${U_BOOT_ENV_VERSION} to Version 0.1.3...; env default -a -f; setenv U_BOOT_ENV_VERSION 0.1.3; saveenv; reset; else echo U-Boot ENV is at the correct version; fi; run findfdt; if mmc rescan; then if test $boot_net = yes; then run netboot; else if run loadbootscript; then run bootscript; else if run loadimage; then run mmcboot; else run netboot; fi; fi; fi; else run netboot; fi;
19	bootcmd_mfg	run mfgtool_args;bootz ${loadaddr} ${initrd_addr} ${fdt_addr};

Historical Logs: Check the check boxes for the files that you want to download and click **Download**. The log file is saved to the default download location on your device. the file name is in the following format: `inode-<IP address>-messages-complete`

Bulk Operations on the iNodes

You can do the following bulk operations on the iNodes that are selected in the inventory:

- Assign or clear the configuration profile
- Initial setup
- Reboot

Assign Configuration Profile

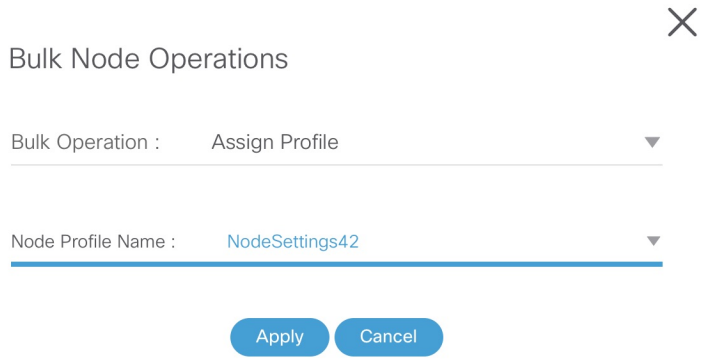
Caution If the iNodes are already associated with a configuration profile, this operation overwrites it.

Step 1 Log into the iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Overview**.

Step 2 Check the check boxes for the iNodes of which you want to assign the configuration profiles.

Step 3 Click the icon.

The **Bulk Node Operations** pop-up window appears.



Step 4 Choose the **Assign Profile** from the **Bulk Operation** drop-down list.

Step 5 Choose the profile name from the **Node Profile Name** drop-down list.

Clear Config Profile: If you choose **None** for **Node Profile Name**, the configuration profile is disassociated from the selected iNodes.

Step 6 Click **Apply**.

The node profile is assigned to the iNodes that are selected in the inventory. A warning message appears if the selected iNodes are already associated with different profiles.

You can see the status of this bulk operation in the **System** > **Bulk Operation Status** page.

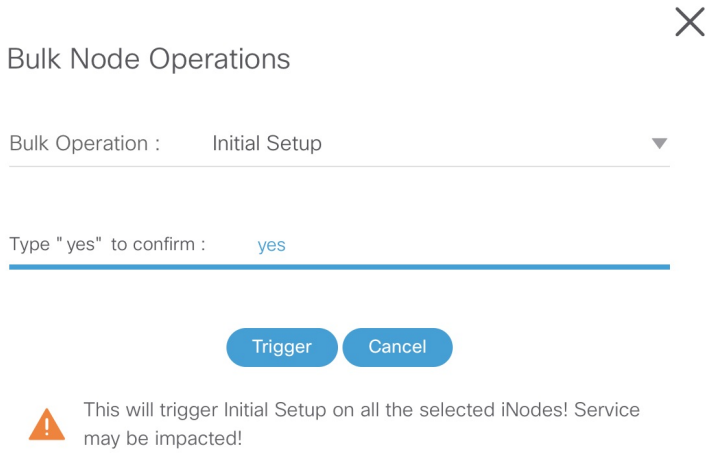
Initial Setup on iNodes

Step 1 Log into the iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Overview**.

Step 2 Check the check boxes of the iNodes for which you want to run the initial setup.

Step 3 Click the icon to view the bulk operations options.

The **Bulk Node Operations** pop-up window appears.



Step 4 Choose **Initial Setup** from the **Bulk Operation** drop-down list.

Step 5 Enter **yes** in the **Type "yes" to confirm** field.

Step 6 Click **Trigger**.

You can see the status of this bulk operation in the **System** > **Bulk Operation Status** page.

Bulk Reboot of iNodes

Note Use the bulk reboot operation cautiously. Rebooting several iNodes simultaneously may add load on the network components such as DHCP server and TFTP server.

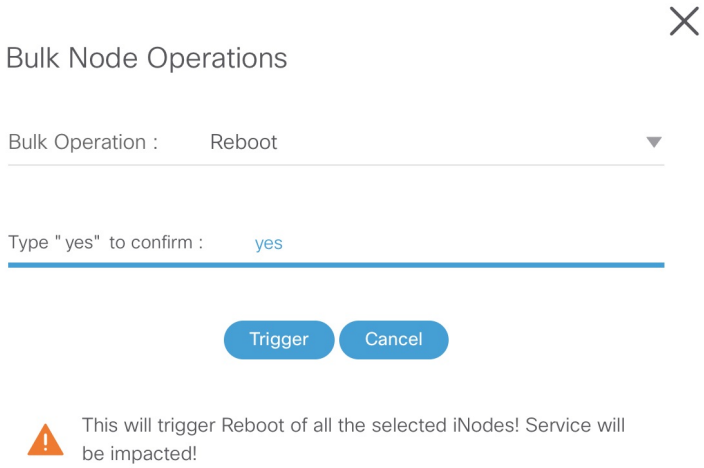
Step 1 Log into the iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Overview**.

Step 2 Check the check boxes for the iNodes of which you want to reboot the iNodes.

Note Before triggering the reboot of iNodes, ensure that you have not checked the check box in the header of the **Inventory** table. Check the check box in the header of the **Inventory** table only if you want to reboot all iNodes in your network. It affects the services until the iNodes are rebooted and active.

Step 3 Click the icon to view the bulk operations options.

The **Bulk Node Operations** pop-up window appears.



Step 4 Choose **Reboot** from the **Bulk Operation** drop-down list.

Step 5 Enter **yes** in the **Type "yes" to confirm** field.

Step 6 Click **Trigger**.

Reboot is triggered on the iNodes that are chosen in the Inventory.

View the status of the **Reboot** operation in the **System** > **Bulk Operation Status** page.

Config Profiles

You can apply the same node configuration to one or more iNodes in the inventory using the options available in the **Config Profiles** tab. The iNode Manager application provides two configuration profile options:

- **RF Profiles**: Contains RF port parameters such as the target frequency and amplitude, wink switch, wink attenuation (in dB, if the Wink Switch is set as variable), and the port status.

  The RF profiles are associated to a particular port in the node profile and node profiles are assigned to iNodes.

  You cannot apply RF Profiles directly to the iNodes.

- **Node Profiles**: Contains general node settings such as forward and reverse segmentation, power saving modes, OIB reverse attenuation (in dB), and the SNMP community string. In addition, the node profile also contains the RF port settings profiles which are assigned to the RF ports in the iNode.

  You can assign a Node Profile to one or more iNodes in the inventory.

Using the **Config Profiles** tab, you can do the following:

- Add new node and RF port configuration profiles
- Update the configuration profile

- Assign the node configuration profile to one or more iNodes in the inventory
- Clear the association of the node configuration profiles from one or more iNodes in the inventory
- View the list of configuration profiles
- Delete configuration profiles

Create Node Profile

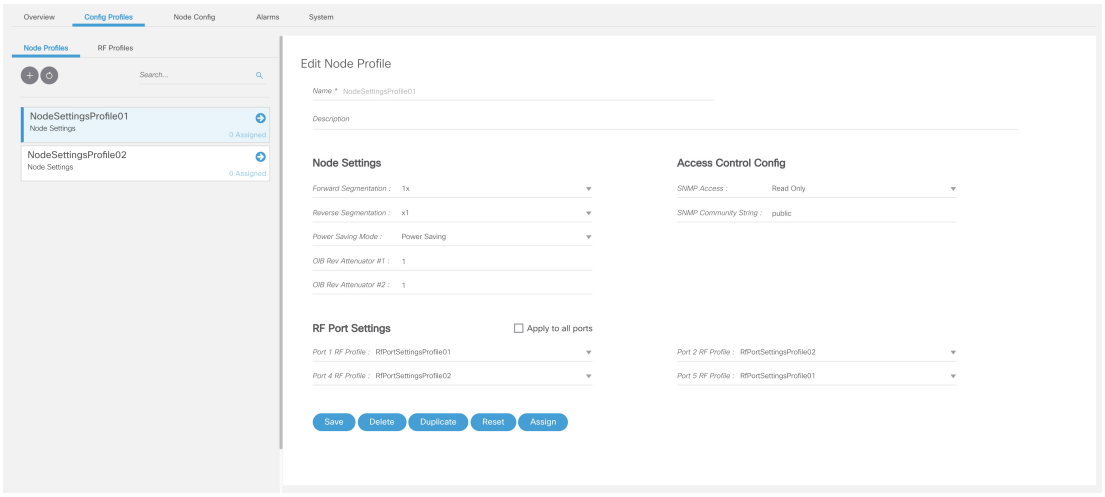
The **Node Profiles** tab lists the node settings profiles. Each profile in the list shows the number of iNodes to which the Node Profile is assigned to.

You can do the following with node profiles:

- Create a new node profile
- Edit the profile
- Search for profiles
- Delete the profile
- Duplicate the profile
- Assign the profile

Step 1 Log into the iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Config Profiles**.

Step 2 Click the **Node Profiles** tab.



Step 3 Click the icon to create a node profile.

Step 4 Enter the following details in the appropriate fields.

Field	Description
Name	Name of the node configuration profile.
Description	A short description of the node profile.
Node Settings	
Forward Segmentation	Number of forward paths to the headend. Intelligent Node supports only one forward path.
Reverse Segmentation	Number of reverse paths to the headend. Intelligent Node supports two reverse paths.
Power Saving Mode	Choose whether the node is in power saving mode or in full power.
OIB Rev Attenuator #1	The attenuation in the reverse transmitter #1.
OIB Rev Attenuator #2	The attenuation in the reverse transmitter #2.
Access Control Config	
SNMP Access	To toggle access of the iNode through SNMP.
SNMP Community String	The community string with which the iNode parameters can be viewed and set.
RF Port Settings	
Apply to all ports	Check the check box to apply the settings to all ports.
Port 1 RF Profile	Choose the RF profile from the drop-down list. You can choose profiles for 4 ports.

Step 5 Click **Save**.

The new node profile is listed on the left pane in the **Node Profiles** page.

Create RF Profile

The **RF Profiles** tab lists the RF port settings profiles which are already created. Each RF profile panel shows whether the RF profile is in use or not.

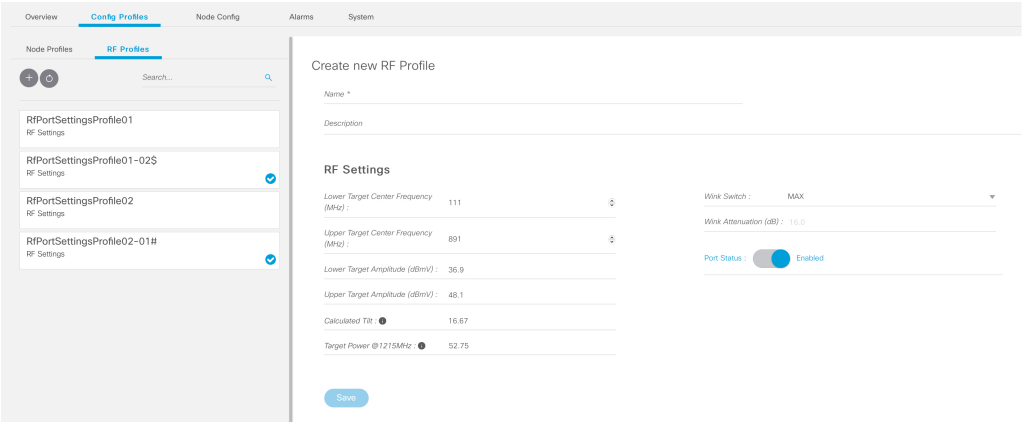
You can do the following with RF port profiles:

- Create a new RF port profile
- Edit the profile
- Search for profiles
- Delete the profile
- Duplicate the profile

Step 1 Log into the iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Config Profiles**.

Step 2 Click the **RF Profiles** tab.

Step 3 Click the icon to create an RF port profile.



Step 4 Enter the following details in the appropriate fields.

Field	Description
Name	Name of the RF port configuration profile.
Description	Short description of the port profile.
RF Settings	
Lower Target Center Frequency (MHz)	Lower end frequency of the RF port.
Upper Target Center Frequency (MHz)	Upper end frequency of the RF port.
Lower Target Amplitude (dBmV)	Lower level of output power of the RF port.
Upper Target Amplitude (dBmV)	Upper level of output power of the RF Port.
Calculated Tilt	Tilt is the difference in the signal level between the lower and upper end frequencies of the RF port. It is calculated using the following formula: `((UpperTargetAmplitude - LowerTargetAmplitude) * ((1215 - 54)) / (UpperTargetFrequency - LowerTargetFrequency)))`
Target Power @1215MHz	The power level at the highest frequency of the RF port. Formula: `(UpperTargetAmplitude + (tilt * (1215 - UpperTargetFrequency) / (1215 - 54)))`
Wink Switch	To toggle the addition of extra attenuation.
Wink Attenuation (dB)	Reduction in the amplitude of the RF.

Field	Description
Port Status	Click to disable the port. By default, the port status is enabled.

Step 5 Click **Save**.

The new RF profile is listed on the left pane in the **RF Profiles** page.

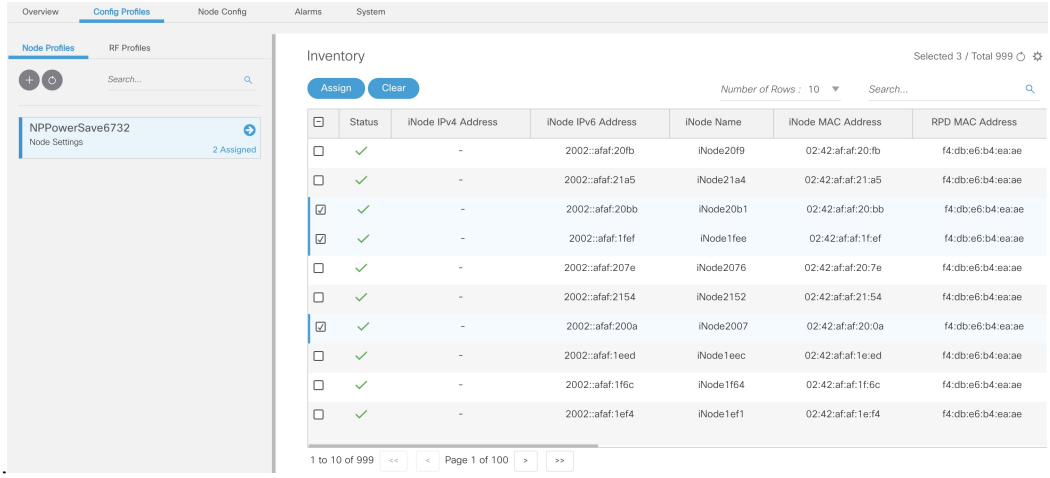
Assign Node Profile to iNodes

Step 1 Log into the iNode Manager application, and click **Dashboard** > **Launch** or choose **Cable iNode Manager** > **Config Profiles**.

Step 2 Click the **Node Profiles** tab and click the right arrow ( ) next to the profile name in the left pane.

The **Inventory** table appears with the **Assign** and **Clear** options.

Or click the profile that you want to assign and click **Assign** in the **Edit Node Profile** page



Step 3 Check the check boxes of the iNodes to which you want to assign the profile.

Step 4 Click **Assign**.

A message appears showing that assigning the profile is initiated.

View the status in the **System** > **Bulk Operation Status** page.

Node Config

The Node Config tab provides the following information:

- Displays operational data of the selected iNode, along with the information on its submodule.

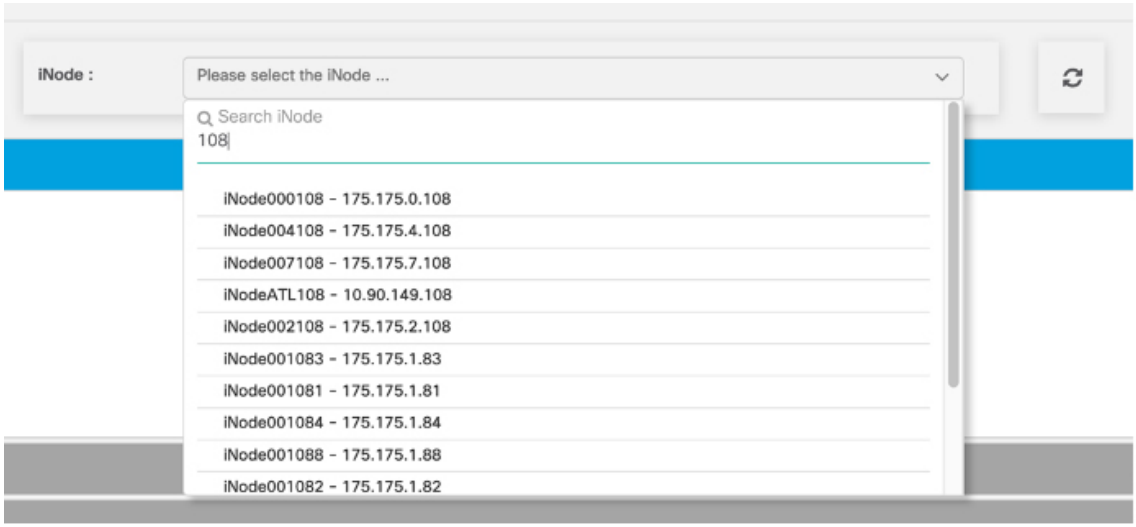
- Allows you to configure the general settings of the iNode, and the settings of each of the RF ports of the iNode.
- Allows you to query and view the forward and reverse path spectrum graphs (Amplitude (dBmV) versus frequency (MHz)) of each of the RF ports of the selected iNode.
- Displays active alarms on the iNode.
- Allows you to trigger the initial setup on the iNode, and then reboot the iNode.

iNode Selection Box

You can use the iNode selection box to list the names and IPv4/IPv6 address of the iNode's that are in inventory.

You can search for any substring in the name or the IP address of the iNode using the search bar. The filtered list that is based on the search query would be displayed in the drop-down box, and you can select the iNode from the list. After you select the iNode, the current operational data of the iNode is displayed.

Figure 1: iNode Selection Box



Operational Data of the Selected iNode

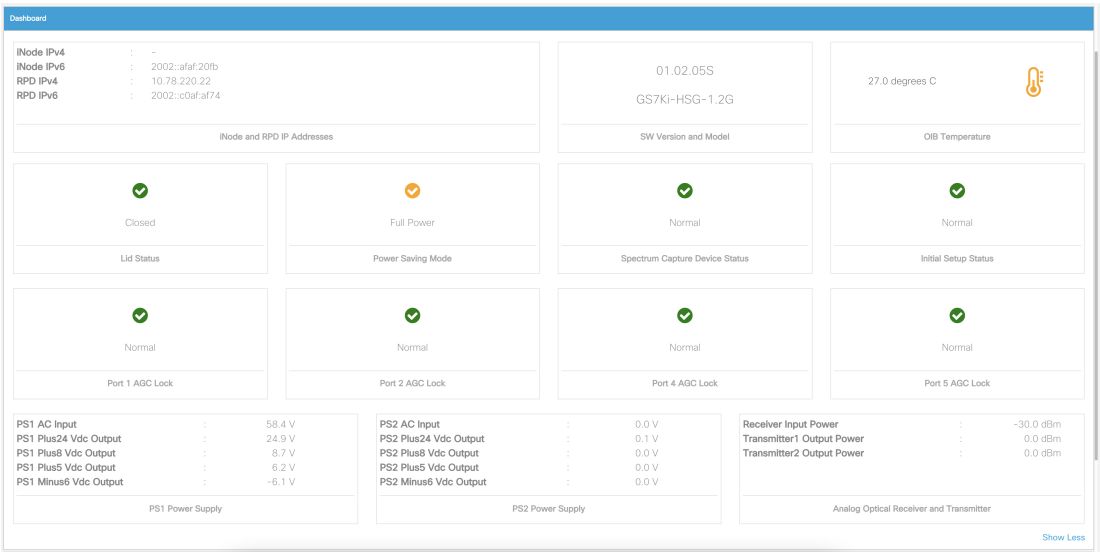
The operational data of the iNode is displayed in the form of scorecards. To view the operational data, complete the following steps:

1. On the iNodeManager, click **Node Config**.
2. Select an iNode from the drop-down list.
3. Click **Dashboard**. The following information is displayed by default:
   - iNode and RPD IP addresses
   - Software version and model information
   - OIB temperature

- Lid status
- Spectrum capture device status
- Initial setup status
- Power saving mode

To view all the operational data, click **More Details**. To view the default scorecards, click **Show Less**.

Figure 2: Dashboard Page with all Operational Data of the iNode



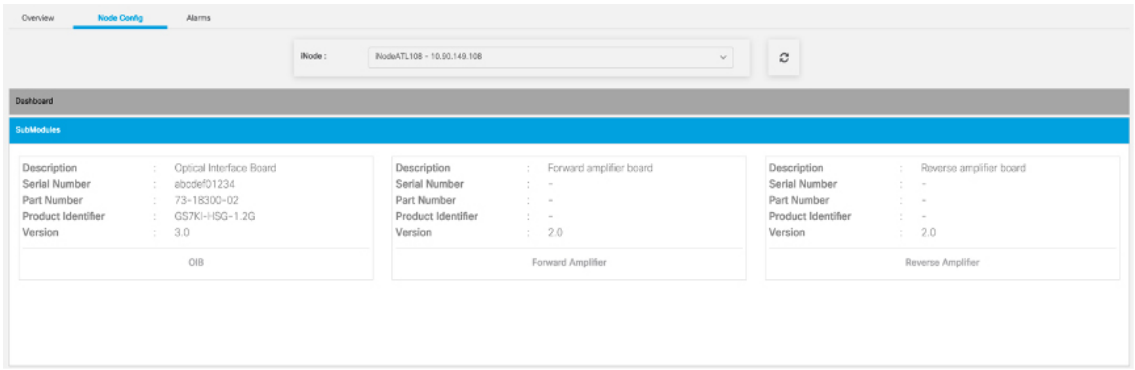
Information About Sub Modules of the iNode

The SubModules pane on the Node Config tab displays the description, serial number, part number, product identifier, and version of the sub-modules of the iNode.

You can view the SubModules pane by completing the following step:

1. On the iNodeManager, click the **Node Config** tab.
2. Select the iNode for which you want to view the settings from the drop-down list.
3. Click **SubModules**. Information on the following sub-modules is displayed:
   - OIB
   - Forward Amplifier
   - Reverse Amplifier

Figure 3: SubModules Pane of the Node Config Tab



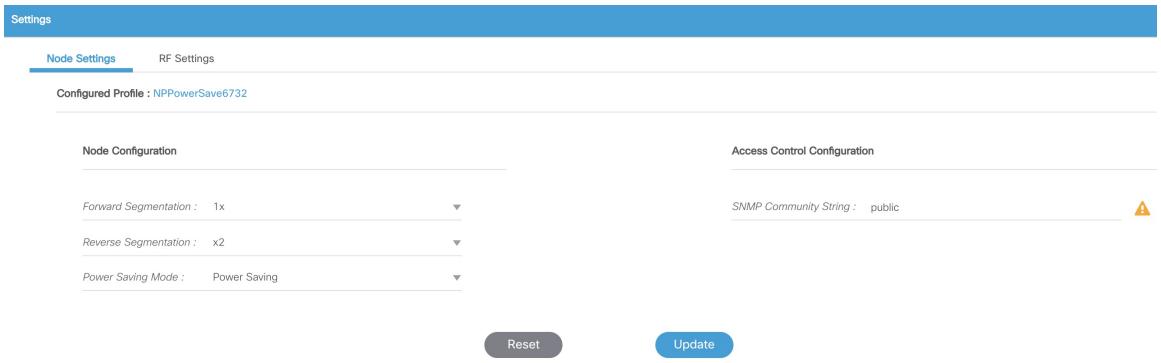
Settings

You can configure the forward segmentation, reverse segmentation, power-saving mode, and the SNMP community string on the Settings pane. You can also view and modify the general settings of the iNode and of each of the RF ports of the iNode using the Settings pane.

To view the Settings pane, complete the following steps:

1. On the iNodeManager, click the **Node Config** tab.
2. Select the iNode for which you want to view the settings from the drop-down list.
3. Click **Settings**.

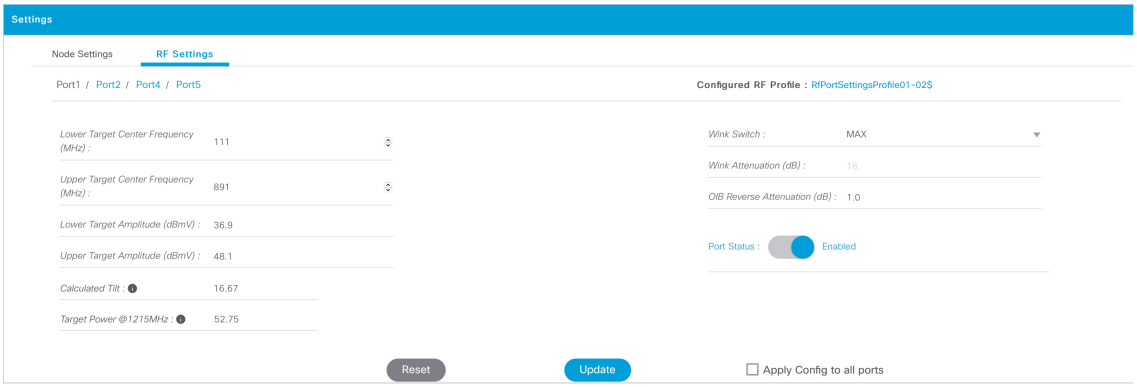
Figure 4: General Settings Tab



If you have assigned a Node Setting Configuration Profile to the iNode, the profile name and profile information is displayed when you click the profile name.

A warning icon is displayed against settings that are different in the iNode and Node Profile. Values present in the Configuration Profile are displayed when you point to the warning icon.

Figure 5: RF Settings Tab



You can choose to set the Lower Target Center Frequency and Amplitude, Upper Target Center Frequency and Amplitude, Wink Switch, Wink Attenuation (in dB, if the Wink Switch is set as variable), the OIB Reverse Attenuation (in dB), and enable/disable each of the RF Port on the Settings pane. You can also apply the settings that are configured on an RF Port to all the other ports of the iNode by selecting the **Apply Config to all ports** check box.

You can calculate the value of tilt using the following formula:

```
((UpperTargetAmplitude - LowerTargetAmplitude) * ((1215 - 54)) /
(UpperTargetFrequency - LowerTargetFrequency)))
```

Note You can set the RF parameters on the iNode only if the value of tilt is calculated to be 0–22 dBmV.

The target power at maximum frequency is also calculated, and the RF Port Config is allowed to be set on the iNode only if the target power is less than 58 dBmV.

You can calculate the target power at max frequency using the following formula:

```
(UpperTargetAmplitude + (tilt * (1215 - UpperTargetFrequency) / (1215 - 54)))
```

If you have assigned an RF Port Configuration Profile to the iNode, the profile name and profile information are displayed when the profile name is clicked.

A warning icon is displayed against settings that are different in the iNode and RF Port Profile. Values present in the Configuration Profile are displayed when you point to the warning icon.

Spectrum Graph

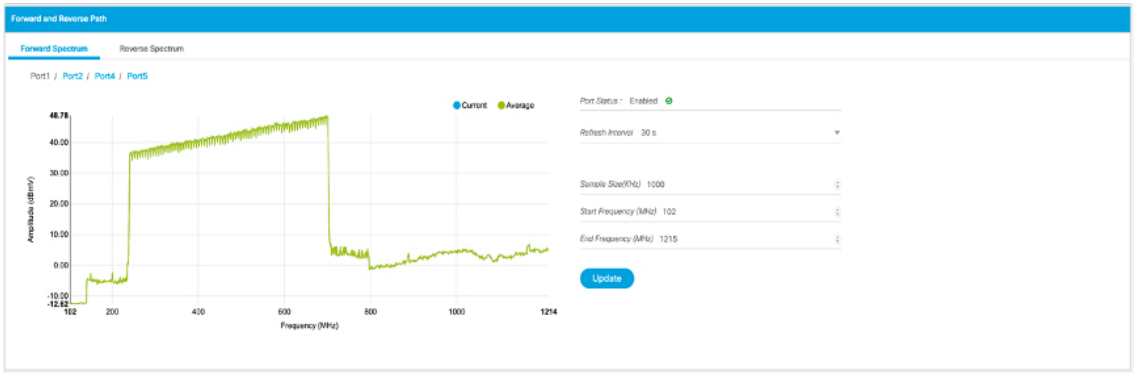
You can query and view the Forward Path and the Reverse Path Spectrum Graph (amplitude (in dBmV) and frequency (in MHz)) of each of the RF Ports on the Forward and Reverse Path pane.

To view the Spectrum Graphs, complete the following steps:

1. On the iNodeManager, click the **Node Config** tab.
2. Select the iNode for which you want to view the settings from the drop-down list.
3. Click **Forward and Reverse Path**.

The Forward Path Spectrum Graph displays the full range of frequencies (102–1214 MHz) by default and it refreshes every 30 seconds. You can change the refresh interval, select the sample size (in KHz), the range of frequencies, and refetch the data from the iNode. The current and the average amplitude at the frequency is displayed when you hover on the graph.

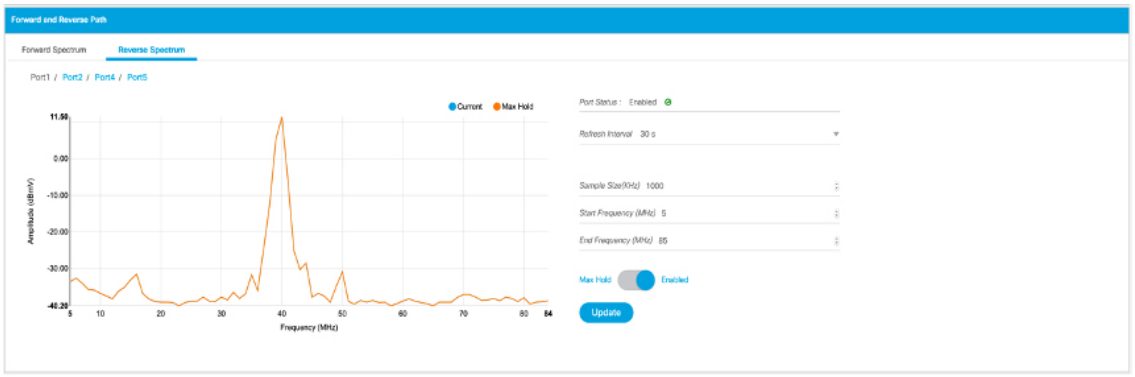
Figure 6: Forward Path Spectrum Graph



521264

The Reverse Path Spectrum Graph displays the full range of frequencies (5–85 MHz) by default and it would refresh every 30 seconds. You can choose to change the refresh interval, select the sample size, the range of frequencies and refetch the data from the iNode. The current and the Max Hold amplitude at the frequency is displayed when you hover on the graph.

Figure 7: Reverse Path Spectrum Graph



521265

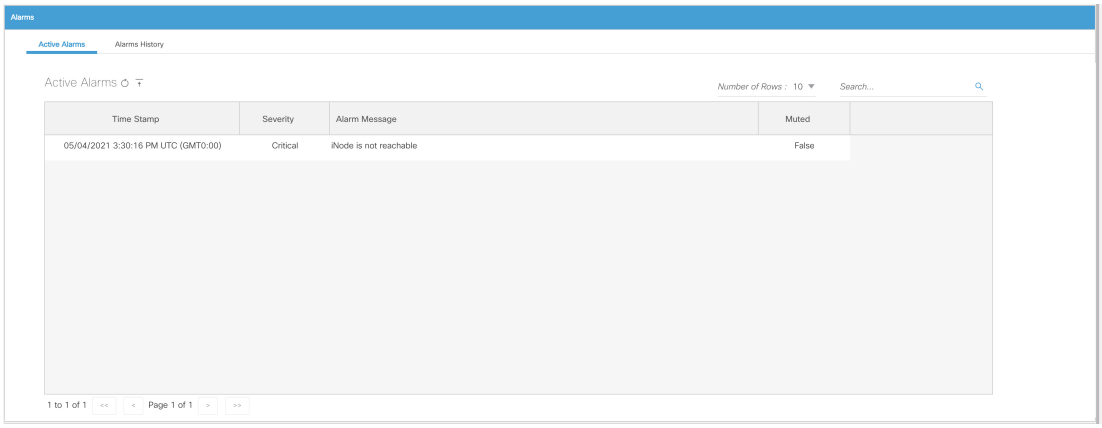
Alarms

You can view the list of active alarms, and also the history of alarms for the selected iNode by using the Alarms pane.

To view the Alarms, complete the following steps:

1. On the iNodeManager, click the **Node Config** tab.
2. Select the iNode for which you want to view the settings from the drop-down list.
3. Click **Alarms**.

Figure 8: Active Alarms Pane

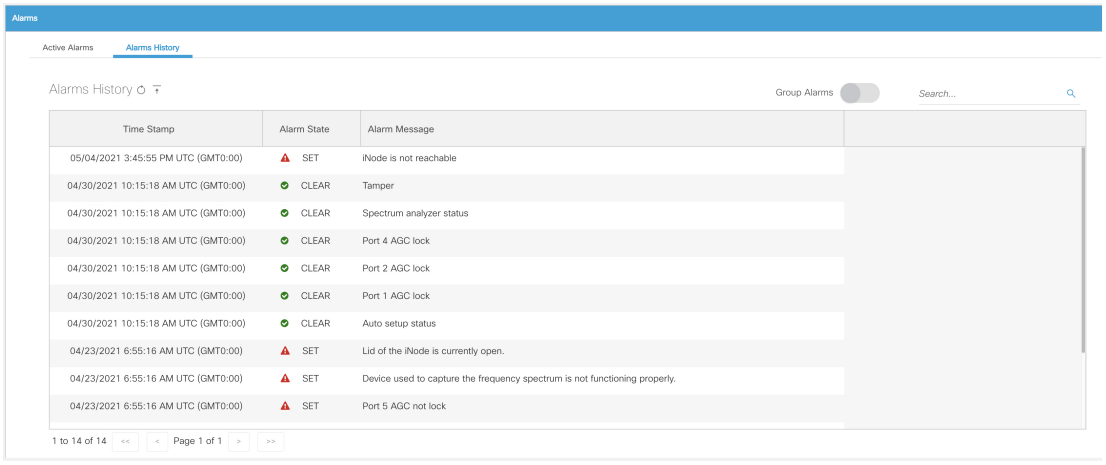


The **Muted** column indicates whether the alarm is muted by the user.

You can export the list of active alarms as a CSV file by clicking the Export CSV button.

The Alarms History table lists the timestamp at which the alarms were set and cleared on the iNode. The table lists the active alarms as *SET*.

Figure 9: Alarms History Pane



You can also choose to group the alarms based on the category, and then select each category to view the timestamps.

You can also export the alarm history as a CSV file by clicking the Export CSV button.

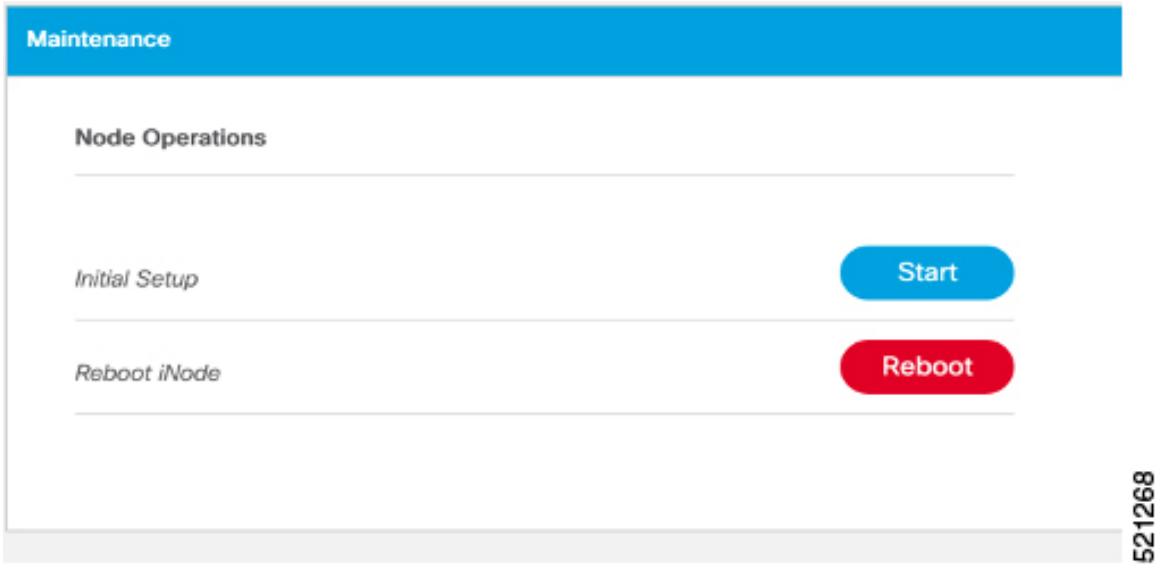
Maintenance

The Maintenance pane allows you to trigger the initial setup operation in the selected iNode, and allows you to reboot the selected iNode.

To view the Maintenance pane, complete the following steps:

1. On the iNodeManager, click the **Node Config** tab.
2. Choose the iNode for which you want to view the settings from the drop-down list.
3. Click **Maintenance**.

Figure 10: Maintenance Pane



Initial Setup

When initial-setup is triggered, the output level of the input source is measured and the attenuators on the OIB are adjusted to optimize the input level into the forward amplifier. After successful completion, the `Initial Setup Status` on the Dashboard turns green (status: Normal)

Note Before you click the **Start** button for the **Initial Setup**, set the port frequencies and levels, enable at least Port 1, and save the configuration on the RF configuration pages.

Perform the Initial Setup in the following scenarios:

- Replacing RPD or iNode
- Changing the RF band, especially when modifying high and low frequencies
- Modifying the power level from CCAP core

Alarms

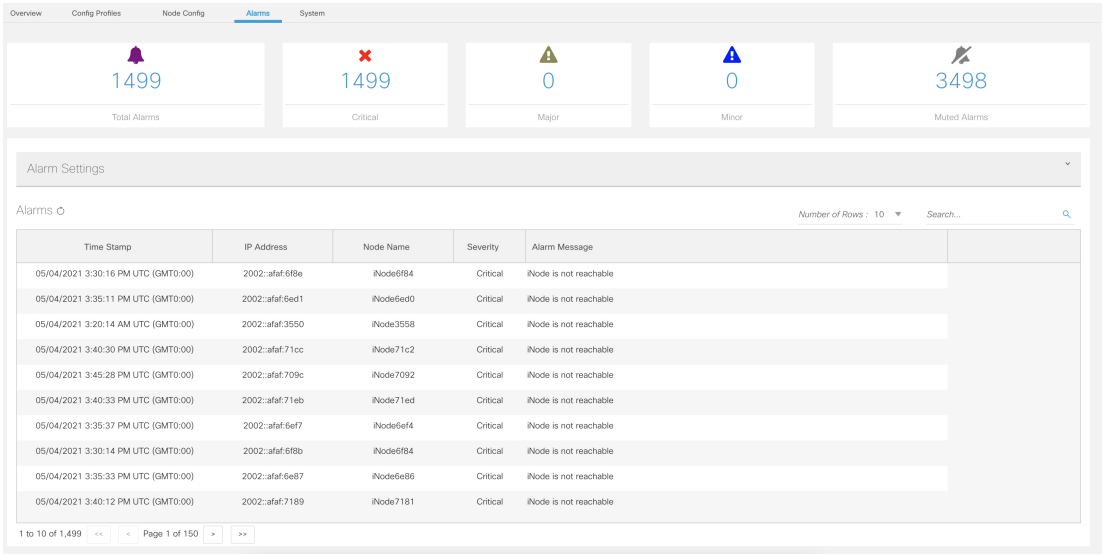
You can use the Alarms tab to list the total number of unmuted alarms in the iNode's, along with the number of unmuted alarms based on their severity in a table. You can select the number of rows to be displayed on page and can filter the alarms that are displayed by specifying a substring using the search. You can also filter the alarms based on severity by clicking the corresponding scorecard.

To view the Alarms, complete the following step:

1. On the iNodeManager, click the **Alarms** tab.

To view the muted alarms, click the **Muted Alarms** scorecard.

Figure 11: Alarms Tab



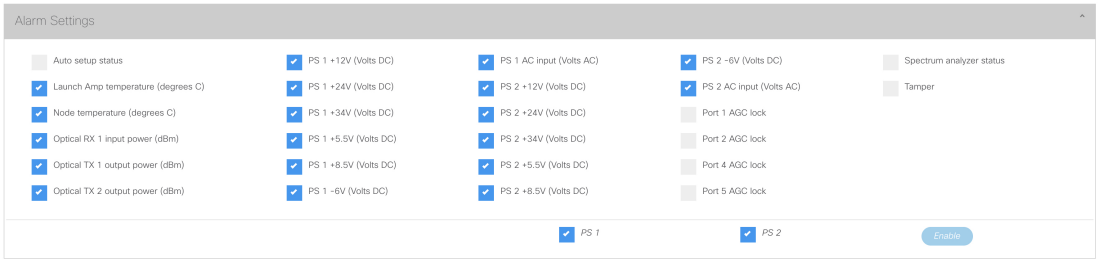
521745

Alarm Settings

In Alarm Settings section, all alarm categories are enabled by default. You can uncheck the box corresponding to the alarm category to mute that category of alarms. The muted alarms are not displayed in the Alarms table, and they are not counted as part of the alarm statistics.

All Power Supply related alarms can be muted by checking the corresponding PS (Power Supply) checkbox at the bottom of the section. After making the change, click the **Enable** button to update the Alarm Settings.

Figure 12: Alarm Settings



521738

System

You can choose to take backup of the database, import a database file into the iNode Manager, and to view the results of the bulk operations using the System tab.

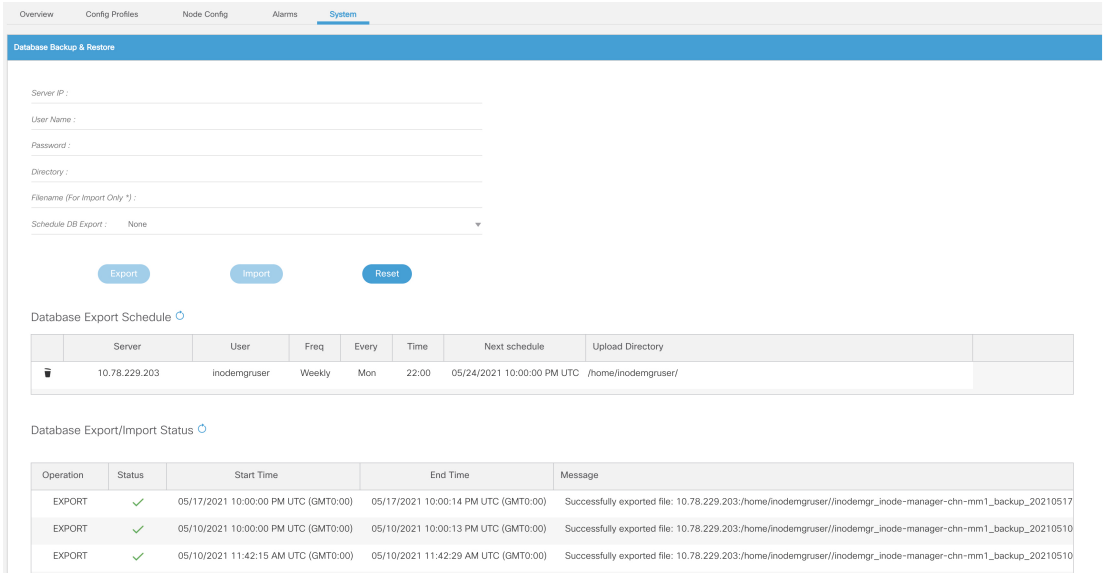
Database Backup and Restore

You can create a backup of the database, and also restore the iNode Manager to an earlier state by importing a database file by using the Database Backup and Restore pane. You can also view the results and status of the backup and restore operations that were performed earlier.

To view the Database Backup and Restore pane, complete the following steps:

1. On the iNodeManager, click the **System** tab.
2. Click **Database Backup and Restore**.

Figure 13: Database Backup and Restore Pane

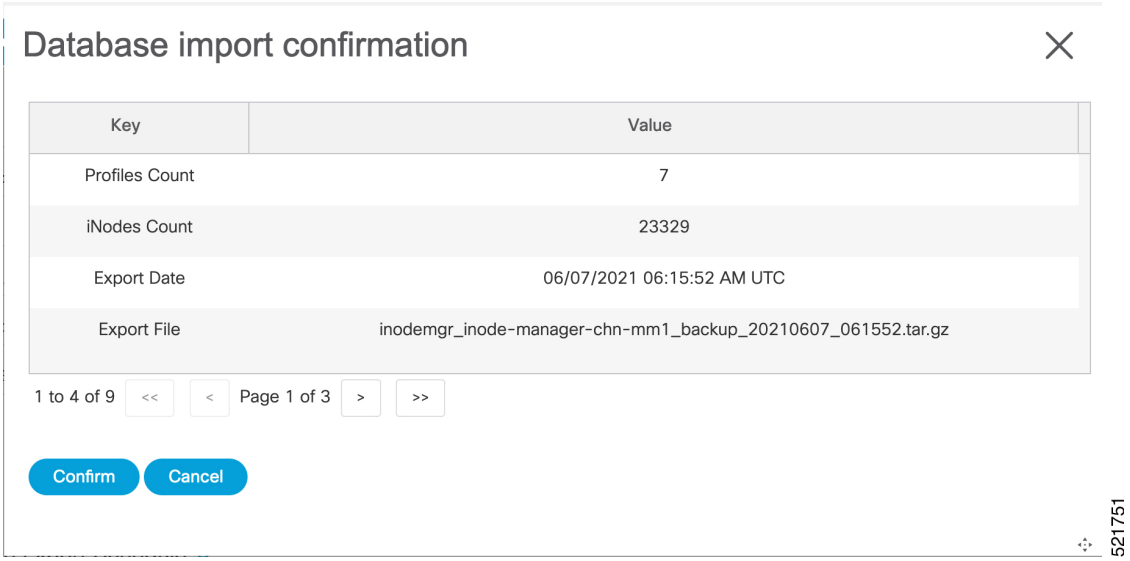


Note The Database Import operation is possible only if the iNode Manager does not have any data. Ensure that the iNode Manager does not have any iNode, configuration profile, and the DB export schedule.

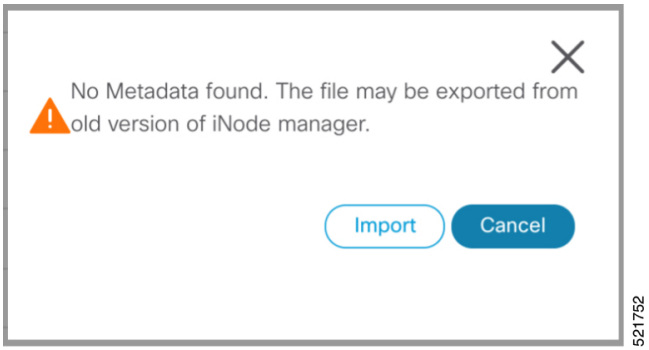
Database Import Validation

Starting from Cisco iNode Manager release 3.2.0, the exported database file contains important metadata and the checksum. The checksum is used to validate the database file during the import operation. The metadata in the database file is displayed to the user during the import operation. The user can confirm/cancel the database import operation after checking the metadata.

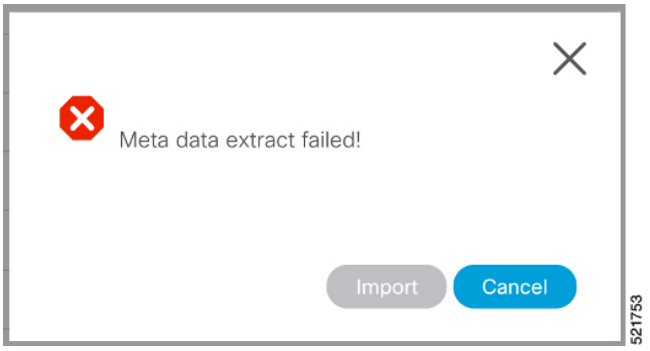
Figure 14: Database Import Confirmation



If you try to import a database file that was exported from the iNode Manager prior to release 3.2.0, you can see the following warning message and confirm/cancel the database import.



If the database file is found to be corrupt while importing, the database import will stop and you will see the following message.

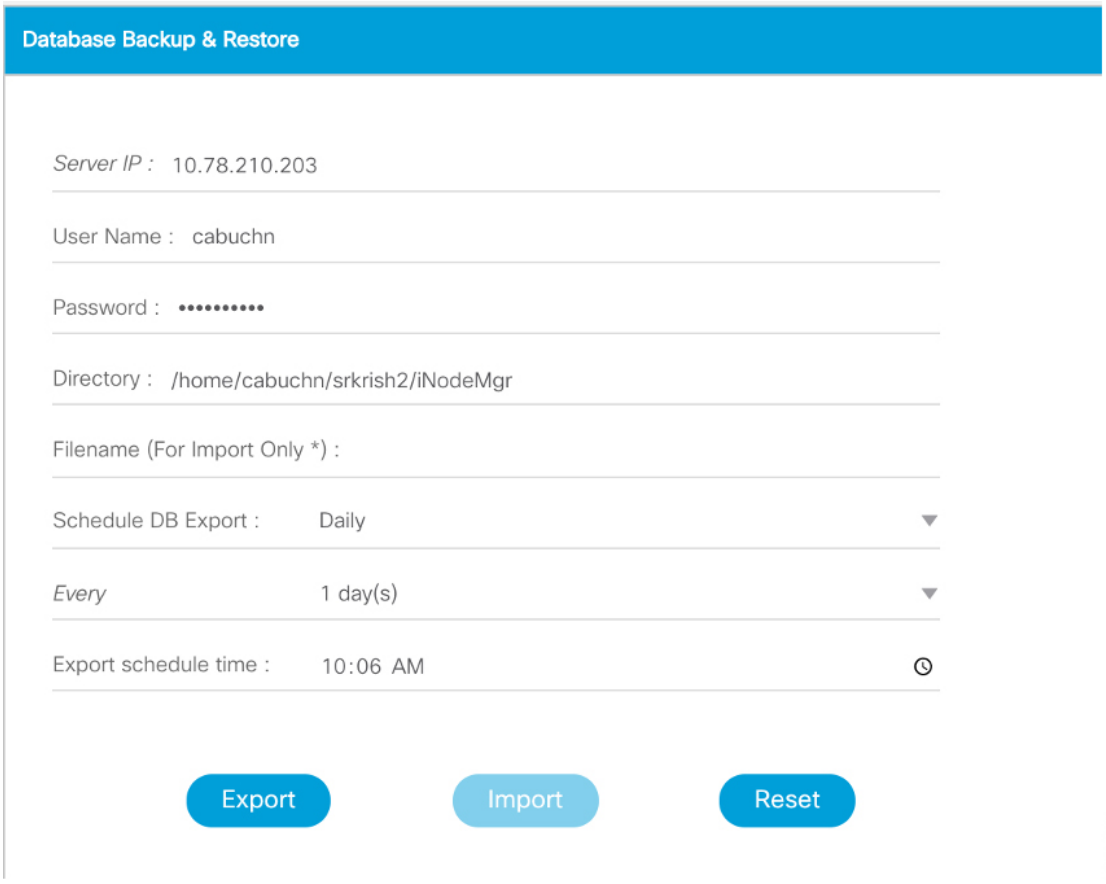


Database Export Scheduling

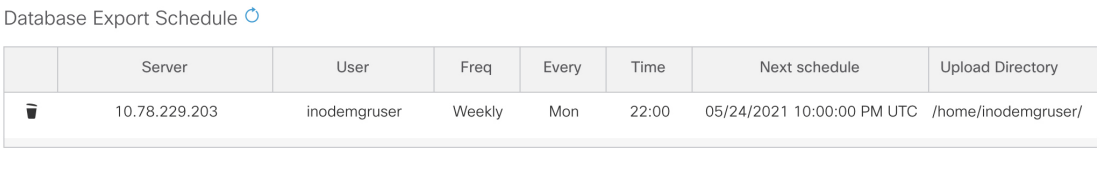
You can schedule the database export at the following intervals:

- every 1 to 6 days
- every week
- every month

Figure 15: Database Export Scheduling



Only one schedule can be configured. To delete the schedule, click on the Delete button.



Bulk Operation Status

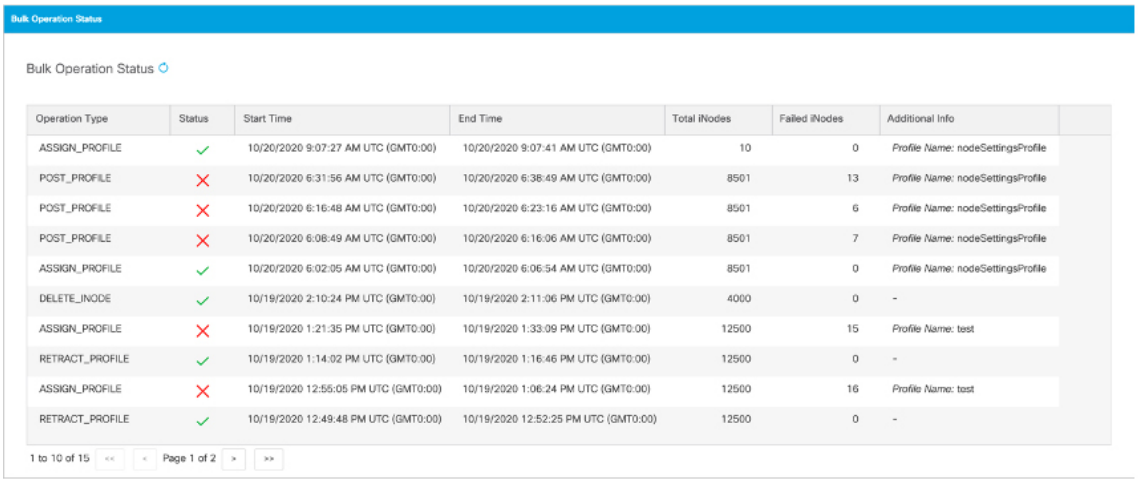
You can view the status of the bulk operations using the Bulk Operation Status pane.

To view the Bulk Operation Status, complete the following steps:

1. On the iNodeManager, click the **System** tab.

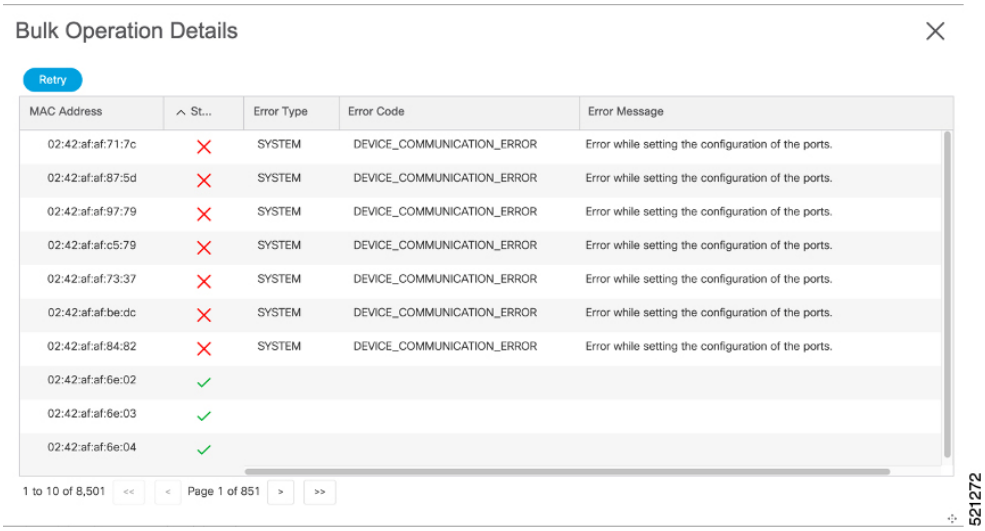
2. Click the **Bulk Operation Status** pane.

Figure 16: Bulk Operation Status



For Bulk Configuration Profile operations such as *Post Profile* and *Assign Profile*, the configuration profile name is listed in *Additional Info*. The table displays the status of the last 15 bulk operations carried out. The status of the operation on each iNode can be viewed by clicking the corresponding record on the table.

Figure 17: Bulk Operation Details



Click **Retry** to reattempt the bulk operation on the failed iNodes. The corresponding records related to the bulk operation would be updated with the *retry* status.

For bulk operations that might be *In Progress* for a long time, you can choose to click the **Abort** button.

Inventory Dashboard

The Inventory dashboard provides you utilities to add, organize, and update information about the network devices. The Inventory dashboard also allows you to create credential profiles that applies credential settings consistently across devices.

Inventory

You can use the **Inventory** tab to add, organize, and update information about the network devices. This includes non cable devices too, and hence the information to be provided is more exhaustive than in the iNode Manager's view of the inventory.

A new iNode can be added in the inventory table or via the iNode Manager **Dashboard**.

Table 1: Descriptions of the Inventory Table

Name	Description
Status	Shows a graphical pie chart of all devices in the network, which is categorized by status: • Online • Offline
Type	Shows a graphical pie chart of the type of devices in the network
Manufacturer	Shows a graphical pie chart of manufacturer of the devices in the network
Status	Current Status of the device
Hostname	Hostname of the device
Key Type	MAC ADDRESS / IP ADDRESS
IP Address	IP Address of the device
MAC Address	MAC Address of the device
UUID	Universally Unique Identifier of the device
Product Type	Product Type of the device
Credential Profile	Credential Profile Name
Latitude	Latitude of the device
Longitude	Longitude of the device
Location	Location of the device
Description	Description of the device

Name	Description
Software Version	Software Version of the device
Model Number	Model Number of the device
	Adds a device to existing inventory.
	Deletes a device from inventory.
	Exports device information to a CSV file.
	Imports devices by using a CSV file.
Details	Displays a dialog box with the history of the connectivity status of the selected device.
	Sets the columns in the device table.
Search	Allows you to search for and filter the network devices.

Credential Profiles

Credential profiles are collections of device credentials for SNMP, and Telnet/SSH to network devices. Using credential profiles allows you to apply credential settings consistently across devices. When you add or import devices, you can specify the credential profile that the devices should use. If you must make credential changes, such as changing a device password, you can edit the profile to update the settings across all devices that use that profile.

Note The Credential Profile is not applicable for iNode's.

To create a Credential Profile, complete the following steps:

1. On the iNodeManager, click **Inventory** > **Credential Profiles**.
2. Click **Create New**.
3. Provide a profile name, username and other credentials for the profile.

   We recommend that you provide the profile with a detailed description, as it will be displayed on the Credential Profiles panel. Note that when a device is added or updated using this profile, the content you specify here is applied to the device.
4. Click **Save**.

Figure 18: Creating a New Credential Profile

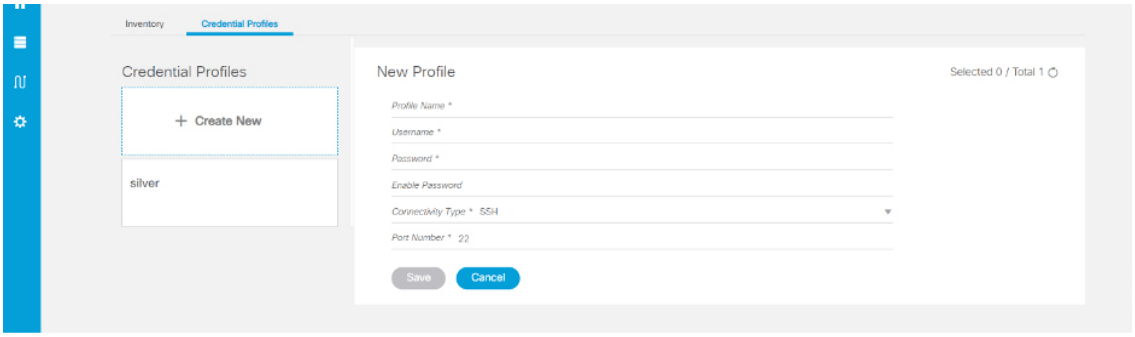


Table 2: Descriptions of the Credential Profiles Form

Name	Description
Create New	Allows you to add or edit a credential profile. Note: Mandatory fields are marked with an asterisk.
Profile Name	Name of the profile
Username	Username of the device
Password	Password of the device
Connectivity Type	Choose to use either an SSH or a Telnet connection type
Port Number	Port number of the router