

# How to Use Cisco iNode Manager

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

- Logging into Cisco iNode Manager Application, on page 1
- Cisco iNode Manager Application, on page 2
- Operations Hub Metrics Dashboard, on page 30
- Using REST APIs, on page 33
- Update the Admin Password, on page 35
- Renewing the Cisco iNode Manager Certification, on page 36

# 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

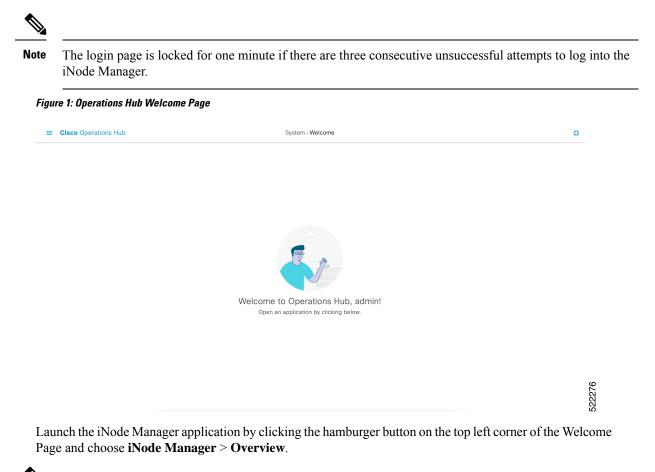
- For all-in-one (AIO) cluster, the ingress IP address is the management IP address of the ops node or VM.
- For multi node, the ingress IP address is the virtual IP address that is configured for the management network.
- With FQDN enabled:

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*.



Note

To logout from the iNode Manager application, click the hamburger button and select **Log out** at the bottom of the Operation Hubs Hamburger Menu.

# **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 **iNode Manager** page has five tabs:

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

### **Overview**

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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, assign tag, and bulk reboot

	iew Co	onfig Profiles 1	Node Config Alarms	System					
	2	451	4	5508	Connected Disconnected Unknown	394 24111	<ul> <li>● 02.02.05S</li> <li>● 03.00.99</li> <li>● 01.02.05S</li> <li>● 01.01.00S</li> </ul>	312	● Critical ● Major ● Minor
		Nodes		Connec	tivity Status	S	W Version	Alar	ms
nver							Num	Search	elected 0 / Total 24514 🔿 🌣
	Status	IPv4 Address	IPv6 Address	Name	iNode MAC Address	RPD MAC Address		lode Profile Model Number	Software Version
	~	-	2002::afaf:c927	iNodec927	02:42:af:af:c9:27	f4:db:e6:b4:ea:ae		GS7Ki-HSG-1.2G	
	~							G57KI-H5G-1.2G	01.02.05S
		-	2002::afaf:b2be	iNodeb2be	02:42:af:af:b2:be	f4:db:e6:b4:ea:ae	-	GS7KI-HSG-1.2G	01.02.055
	~	-	2002::afaf:b2be 2002::afaf:7899	iNodeb2be iNode7899	02:42:af:af:b2:be 02:42:af:af:78:99	f4:db:e6:b4:ea:ae f4:db:e6:b4:ea:ae	-		
	~ ×	-					-	GS7Ki-HSG-1.2G	01.02.058
		- - -	2002::afaf:7899	iNode7899	02:42:af:af:78:99	f4:db:e6:b4:ea:ae		GS7Ki-HSG-1.2G GS7Ki-HSG-1.2G	01.02.05S 01.02.05S
	×	- - - -	2002::afaf:7899 2002::afaf:5810	iNode7899 iNode5810	02:42:af:af:78:99 02:42:af:af:58:10	f4:db:e6:b4:ea:ae f4:db:e6:b4:ea:ae		GS7Ki-HSG-1.2G GS7Ki-HSG-1.2G GS7Ki-HSG-1.2G	01.02.05S 01.02.05S 01.02.05S
	× ~	- - - -	2002::afaf:7899 2002::afaf:5810 2002::afaf:9c59	iNode7899 iNode5810 iNode9c59	02:42:af:af:78:99 02:42:af:af:58:10 02:42:af:af:9c:59	f4:db:e6:b4:ea:ae f4:db:e6:b4:ea:ae f4:db:e6:b4:ea:ae		GS7Ki-HSG-1.2G GS7Ki-HSG-1.2G GS7Ki-HSG-1.2G GS7Ki-HSG-1.2G	01.02.055 01.02.055 01.02.055 01.02.055
	× ~ ×	- - - - - -	2002::afaf:7899 2002::afaf:5810 2002::afaf:9c59 2002::afaf:530d	iNode7899 iNode5810 iNode9c59 iNode530d	02:42:af:af:78:99 02:42:af:af:58:10 02:42:af:af:9e:59 02:42:af:af:53:0d	f4:db:e6:b4:ea:ae f4:db:e6:b4:ea:ae f4:db:e6:b4:ea:ae f4:db:e6:b4:ea:ae		657Ki-HSG-1.2G 657Ki-HSG-1.2G 657Ki-HSG-1.2G 657Ki-HSG-1.2G 657Ki-HSG-1.2G 657Ki-HSG-1.2G	01.02.05S 01.02.05S 01.02.05S 01.02.05S 01.02.05S

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.				

Name	Description						
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						
	<b>Note</b> The muted alarms are not counted in total alarms. Refer to Alarm Settings, on page 25 for more information.						
Inventory Table Fields							
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.						
≡	Hamburger button. Opens the hamburger menu.						
<b>+</b>	Adds an iNode to the inventory.						

Name	Description
0	Updates the iNode information.
0	Deletes iNodes from the inventory.
0	Exports iNode details to a CSV file.
	Downloads the iNode's logs.
	Perform bulk operations.
⇔	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, click the hamburger button and choose **iNode Manager** > **Overview**.

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**Step 2** Click the <sup>t</sup> icon to add a node to the Inventory.

The Add iNode pop-up window appears.

Add iNode	×
Node Name Host Name	
iNode IPv4 Address ** Connectivity IPv4	
iNode IPv6 Address ** Connectivity IPv6	
Associate Tags	
Choose a tag to Associate	~
Type the Tag Name and hit 'Enter' Key to add a new Tag .	
Save Cancel	
** Denotes one or the other field is required.	

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

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.

**Step 4** (Optional) Assign one or more tags to the iNode.

You can create a new tag by typing the name of the tag in the corresponding text box and clicking the Enter key. Or you can select the tags that were already created from the drop-down box.

- **Note** It is not recommended to create one new tag per iNode. The main purpose of the tag is to group iNode. So that it is easier to filter and view the iNode in the inventory table and perform bulk operations.
- **Step 5** Click **Save** to add the node.

### Update the iNode Name

You can only update the name of an iNode.

- **Step 1** Log into the Cisco iNode Manager application, click the hamburger button and choose **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.

ode Name *	iNodec927	
lode IPv4 Add	dress Connectivity IPv4	
Vode IPv6 Add	dress 2002::afaf:c927	
AAC Address		
ssociate Ta		~
Associate Tag Choose a tag	ıgs	~
Associate Tag Choose a tag	ngs g to Associate Jame and hit 'Enter' Key to add a new Tag .	~
Associate Tag Choose a tag	igs g to Associate	~

- **Step 4** Update the node name.
- **Step 5** (Optional) Associate tags to the iNode, or remove tags from the iNode.

Step 6 Click Save.

### **Delete iNode from Inventory**

You can delete multiple iNodes from the Inventory.

Step 1 Log into the Cisco iNode Manager application, click the hamburger button and choose iNode Manager > Overview.

Step 2 Select the iNodes from the Inventory table and click the vicon.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, click the hamburger button and choose 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 click the click the click the inventory. A request message to allow downloads appears. This request appears only once for a user profile.
	riequest message to unow downloads appears. This request appears only once for a user prome.
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, click the hamburger button and choose **iNode Manager** > **Overview**.
- **Step 2** Check the check boxes for the iNodes of which you want to download the logs.
- **Step 3** Click the view the download options.

The Download Logs pop-up window appears.

### Download Logs

Latest Logs & Boot Params	<u>Historical Logs</u>				
Get Latest Logs	File Name	e File Size(MB)			
	messages	4.88			
O View / Download only the latest 130 KB of the iNode	messages.	.0 10.25			
logs	Messages.	.1 10.24			
Get Boot Parameters	messages.	.2 10.25			
View Boot parameters of iNode		Download Close			

**Step 4** Click the option based on your requirement.

Option	Description			
Get Latest Logs	View or download the latest logs. The <b>Latest Logs from iNode</b> 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:

#### Latest Logs from iNode

	Save	In	terval: 60	🔅 secol	nds Auto Refresh 🗌 🌘	Refresh				Select font c	olor: 💻	Font Size:	S M	Close
IP Ad	dress: 1	0.90.	149.108	MAC Ad	dress: 70:7d:b9:01:02:03									
					Dload Upload Tota	l Spent	Left Spe	eed						
0	0	0	0	0 0	0 0::-	::	::	0						
0	0	0	0	0 0	0 0::-	::	::	0						
8	Total	8	Received	1 % Xferd	Average Speed Time	Time	Time Cu:	rrent						
					Dload Upload Tota	Spent	Left Spe	eed						
0	0	0	0	0 0		:	::	0						
0				0 0		:		0						
8	Total	8	Received	i % Xferd	Average Speed Time		Time Cu:							
					Dload Upload Tota	l Spent	Left Spe	eed						
	0	0	0	0 0	0 0::-			0						
			0	0 0		::		0						
· ·	Total				Average Speed Time		 Time Cu:							
					Dload Upload Tota		Left Spe							
0	0	0	0	0 0	0 0::-	:	::	0						
0	0	0	0	0 0	0 0::-	:	::	0						
Oct	31 00	:42:13	2 imx6ulo	ib user.	notice RPDDEVICEPARAMS	Adding rpd-	device-pa	arams.	.sh CRON jo	ob with minut	te offset O			
Oct	31 00	:42:13	2 imx6ulo	ib cron.	info crontab[21939]: (	coot) LIST (r	oot)							
					info crontab[21938]: (									
					info crond[544]: (root		· 1							
					info CROND[21941]: (ro					ns.sh >> /me	edia/log/me:	ssages 2>&1)		
					notice RPDDEVICEPARAMS			param	ms					
					info crontab[21945]: (									
					notice RPDDEVICEPARAMS info crontab[21948]: (			CRON	JOD					
					info crontab[21948]: { info crontab[21950]: {									
	Total				Average Speed Time		(root) Time Cur	rrant						
È	rotar	0	Wecgived	Aleiu	Average opeed line	TTUG	TTIME CUI	LIGHU					-	 

• 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.

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• 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
ALLOW_FORCED_DOWNLOAD	yes
CURRENT_IMAGE_INDEX	1
CURRENT_SW_VERSION	02.00.08
IMAGE_2_VALID	yes
IPV6_TFTP_SVR	
SAFE_IMAGE_INDEX	2
SW_VERSION_1	02.00.08
SW_VERSION_2	02.00.08
TFTP_FILE	undefined
0 TFTP_SVR	0.0.0
11 U_BOOT_ENV_VERSION	0.1.3
12 U_BOOT_PKG_VER	02.00.08
13 altbootcmd	echo Failback to Booting Safe Imge; if test S(URRENT_JMAGE_INDEX) = q1; then echo Marking Image 1 as failagt: server MAGE_I_VALID no; else if test S(URRENT_JMAGE_INDEX) = q2; then echo Marking Image 2 as failed: sterver MMAGE_Z_VALID or; fir if test \$(SAFE_IMAGE_NDEX) = q1; then echo Booting to Safe Image - Image 1; if test \$(IMAGE_I_VALID) = no; then echo ERROR: Unable to boot Safe Image - Image 1 is invalid; else run bootimage1; fir, else if test \$(SAFE_IMAGE_NDEX) = q2; then echo Booting to Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; no; then echo BROR: Unable to boot Safe Image - Image 1; fir else of test \$(SAFE_IMAGE_NDEX) = q2; then echo Booting to Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo BROR: Unable to boot Safe Image - Image 2; then unbotimage2; fir, else echo ERROR: Unable to Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, echo ISNOR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_Z_VALID) or; fir, e
14 baudrate	115200
15 boot_fdt	try
16 boot_net	no
17 bootargs	console=ttymxc0,115200 root=/dev/mmcblk1p2 rootwait rw
18 bootcmd	mm dev S(mmcdev); mmc dev S(mmcdev); echo MMC selected = S(mmcdev); mmc idv; mmc dev; mmc part; echo Checking for U-Boot ENV version = 0.1.3; if test S(U_BOOT_ENV_VERSION) to 1.3; the rest Doddning U-Boot ENV from Version (0.1.3); mv default = -1; setenv U_BOOT_ENV_VERSION 1.3; saveenv; reset; else echo U-Boot ENV is at the correct version; fir un findft; if mm cesan; then if test Sboot_net = yes; then run netboot; des if run loadbootscript; then run bootscript; the save more to the save method: fir, fir, is else netboot; fir, fir, save fir, fir, and the save method: fir, fir, is else netboot; fir, fir, fir, save method: fir, fir, save fir, fir, save fir, sa
19 bootcmd mfg	run mfatool aros:bootz S(loadaddr) S(initrd addr) S(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
- Associate or diassociate tags

#### **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, click the hamburger button and choose **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 eicon.

The Bulk Node Operations pop-up window appears.

Bulk Node Ope	erations	×
Bulk Operation :	Assign Profile	
Node Profile Name :	NodeSettings42	•
	Apply Cancel	

- **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, click the hamburger button and choose **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 <sup>III</sup> icon to view the bulk operations options.

The Bulk Node Operations pop-up window appears.

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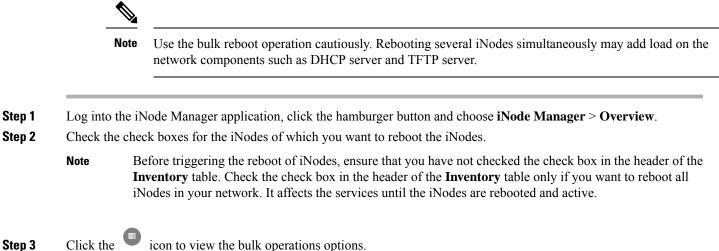
Bulk Node Operations	×
Bulk Operation : Initial Setup	
Type " yes" to confirm : yes	
Trigger Cancel	
This will trigger Initial Setup on all the selected iNodes! Service may be impacted!	
Choose Initial Setup from the Bulk Operation drop-down list.	
Enter yes in the Type ''yes'' to confirm field.	

Step 6 Click Trigger.

Step 4 Step 5

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

**Bulk Reboot of iNodes** 



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

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	Bulk Node Operations
	Bulk Operation : Reboot
	Type "yes" to confirm : yes
	Trigger Cancel
	This will trigger Reboot of all the selected iNodes! Service will be impacted!
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 <b>Reboot</b> operation in the <b>System</b> > <b>Bulk Operation Status</b> page.
Associat	e and Diassociate the Tags

Click the 🔍 icon.	
The <b>Bulk Node Operations</b> pop-up with	ndow appears.
	×
Bulk Node Operations	
Bulk Operation : Tags	<b>*</b>
0	
Associate Tags	
Choose a tag to Associate	~
Type the Tag name and hit 'Enter' Key to add a new Tag .	
Disassociate Tags	
Choose a tag to Disassociate	~

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

- Step 5 To associate or diassociate the tags on the selected iNode, choose the tags from the drop-down list, then click the Update Tags button. You can also create new tag by specifying the name of the tag in the corresponding text field and click the Enter key.
- **Step 6** To remove all the tags associated with the selected iNode, click the **Remove Tags** button.

The **Remove Tags** button is disabled if you choose any tags in Step 5.

**Note** You can manage the tags in the **System** > **Tag Management** 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, click the hamburger button and choose **iNode Manager** > **Overview**.

- **Step 2** Select **Config Profiles** tab from the top of the screen.
- **Step 3** Select the **Node Profiles** tab.

de Profiles RF Profiles	٩	Edit Node Profile			
odeSettingsProfile01 ode Settings	O Assigned	Description			
odeSettingsProfile02 de Settings	O Assigned	Node Settings		Access Control Config	
		Forward Segmentation : 1x	Ψ	SNMP Access : Read Only	Ŧ
		Reverse Segmentation : x1	Ψ.	SNMP Community String : public	
		Power Saving Mode : Power Saving	Ψ.		
		OIB Rev Attenuator #1 : 1			
		OIB Rev Attenuator #2 : 1			
		RF Port Settings	Apply to all ports		
		Port 1 RF Profile : RfPortSettingsProfile01	Ŧ	Port 2 RF Profile : RfPortSettingsProfile02	v
		Port 4 RF Profile : RfPortSettingsProfile02	v	Port 5 RF Profile : RtPortSettingsProfile01	*
		Save Delete Duplicate	Reset Assign		

Step 4

Click the ticon to create a node profile.

**Step 5** 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	1

Field	Description
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 6 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, click the hamburger button and choose **iNode Manager** > **Overview**.

- **Step 2** Select **Config Profiles** tab from the top of the screen.
- **Step 3** Select the **RF Profiles** tab.
- **Step 4** Click the ticon to create an RF port profile.

Co     Search	Create new RF Profile	3			
RfPortSettingsProfile01 RF Sattings	Description				
RfPortSettingsProfile01-02\$	RF Settings				
RfPortSettingsProfile02 RF Settings	Lower Target Center Frequency (MHz) :	111	٥	Wink Switch : MAX Wink Attenuation (dB): 16.0	*
RfPortSettingsProfile02-01#	Upper Target Center Frequency (MHz) :	891	٥	Port Status : Enabled	
	Lower Target Amplitude (dBmV)	): 36.9		Pon Status : Enabled	
	Upper Target Amplitude (dBmV,	2: 48.1			
	Calculated Tilt : 🜑	16.67			
	Target Power @1215MHz : 🌒	52.75			
	Savo				

**Step 5** 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:
	<pre>((UpperTargetAmplitude - LowerTargetAmplitude) * ((1215 - 54)) / (UpperTargetFrequency - LowerTargetFrequency)))</pre>
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.
Port Status	Click to disable the port. By default, the port status is enabled.

### Step 6 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, click the hamburger button and choose **iNode Manager** > **Overview**.
- **Step 2** Select **Config Profiles** tab from the top of the screen.
- **Step 3** Select 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

de Profiles RF Profiles		Inver	ntory					Selected 3 / Total 999 Č
Search	۹	Ass	ign C	lear		Number of	Rows : 10 🔻 Search	
VPPowerSave6732	Ð	Ξ	Status	iNode IPv4 Address	iNode IPv6 Address	iNode Name	iNode MAC Address	RPD MAC Address
lode Settings	2 Assigned		$\checkmark$	-	2002::afaf:20fb	iNode20f9	02:42:af:af:20:fb	f4:db:e6:b4:ea:ae
			~	-	2002::afaf:21a5	iNode21a4	02:42:af:af:21:a5	f4:db:e6:b4:ea:ae
			~	-	2002::afaf:20bb	iNode20b1	02:42:af:af:20:bb	f4:db:e6:b4:ea:ae
		V	$\checkmark$	-	2002::afaf:1fef	iNode1fee	02:42:af:af:1f:ef	f4:db:e6:b4:ea:ae
			$\checkmark$	-	2002::afaf:207e	iNode2076	02:42:af:af:20:7e	f4:db:e6:b4:ea:ae
			~	-	2002::afaf:2154	iNode2152	02:42:af:af:21:54	f4:db:e6:b4:ea:ae
		V	$\checkmark$	-	2002::afaf:200a	iNode2007	02:42:af:af:20:0a	f4:db:e6:b4:ea:ae
			$\checkmark$	-	2002::afaf:1eed	iNode1eec	02:42:af:af:1e:ed	f4:db:e6:b4:ea:ae
			~	-	2002::afaf:1f6c	iNode1f64	02:42:af:af:1f:6c	f4:db:e6:b4:ea:ae
			$\checkmark$	-	2002::afaf:1ef4	iNode1ef1	02:42:af:af:1e:f4	f4:db:e6:b4:ea:ae

**Step 4** Check the check boxes of the iNodes to which you want to assign the profile.

#### Step 5 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 2: iNode Selection Box

iNode :	Please select the iNode	~	0
_	Q, Search iNode 108		
	iNode000108 - 175.175.0.108		
	iNode004108 - 175.175.4.108		
	iNode007108 - 175.175.7.108		
	iNodeATL108 - 10.90.149.108		
	iNode002108 - 175.175.2.108		
	iNode001083 - 175.175.1.83		
	iNode001081 - 175.175.1.81		
	iNode001084 - 175.175.1.84		
	iNode001088 - 175.175.1.88		
	iNode001082 - 175.175.1.82		

### **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**.

Node IPv4         -           Node IPv6         2002::afaf:20fb           RPD IPv4         10.78.220.22           RPD IPv6         2002::coaf:af74				01.02.05 GS7Ki-HSG		27.0 degrees C	
iNod	e and RPD IP Addresses			SW Version and	Model	OIB Temperature	
⊘		<b>O</b>		•		•	
Closed		Full Power		Normal		Normal	
Lid Status		Power Saving Mode		Spectrum Capture Device Status		Initial Setup Status	
⊘		⊘		⊘		•	
Normal		Normal		Normal		Normal	
Port 1 AGC Lock		Port 2 AGC Lock		Port 4 AGC Lock		Port 5 AGC Lock	
PS1 AC Input PS1 Plus24 Vdc Output PS1 Plus8 Vdc Output PS1 Plus8 Vdc Output PS1 Minus6 Vdc Output	58.4 V 24.9 V 8.7 V 6.2 V -6.1 V	PS2 AC Input PS2 Plus24 Vdc Output PS2 Plus8 Vdc Output PS2 Plus5 Vdc Output PS2 Minus6 Vdc Output		0.0 V 0.1 V 0.0 V 0.0 V 0.0 V	Receiver Input Power Transmitter1 Output Pow Transmitter2 Output Pow		-30.0 dBm 0.0 dBm 0.0 dBm
PS1 Power Supply		PS	2 Power Supply	ower Supply		Analog Optical Receiver and Transmitter	

Figure 3: 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 4: SubModules Pane of the Node Config Tab

7board					
bModules					
Description Serial Number Part Number Product Identifier Version	Cptical Interface Board abcdef01234 73-18300-02 GSTKI-HSG-1.2G 3.0	Description Serial Number Part Number Product Identifier Version	Ecrward amplifier board   2.0	Description Serial Number Part Number Product Identifier Version	Reverse amplifier board 
	OIB		Forward Amplifier		Reverse Amplifier

### **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 5: General Settings Tab

Settings					
Noc	de Settings RF Settings				
С	configured Profile : NPPowerSave6732				
	Node Configuration			Access Control Configuration	
	Forward Segmentation : 1x	v		SNMP Community String : public	<b>A</b>
	Reverse Segmentation : x2	~			
	Power Saving Mode : Power Saving	~			
			Reset Upda	te	

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 6: RF Settings Tab

Settings				
Node Settings RF Settin	gs			
Port1 / Port2 / Port4 / Port5			Configured RF Profile : RfPortSettingsProfile01-02\$	
Lower Target Center Frequency (MHz) :	111	۲	Wink Switch : MAX ¥	
Upper Target Center Frequency (MHz) :	891	0	Wink Attenuation (dB) : 16 OlB Revense Attenuation (dB) : 1.0	
Lower Target Amplitude (dBmV) :	36.9			
Upper Target Amplitude (dBmV) :	48.1		Port Status : Enabled	
Calculated Tilt : 0	16.67			
Target Power @1215MHz : 0	52.75			
		Reset	Update Apply Config to all ports	

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 iNode Manager, 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.

The table in the right part displays user-configured amplitude and actual level of the amplitude at the lower target and the upper target frequencies.



#### Figure 7: Forward Path Spectrum Graph

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 8: Reverse Path Spectrum Graph



#### **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 9: Active Alarms Pane

 Active Alarms Alarms History						
Active Alarms & ∓			Number of Rows :	: 10 🔻 S	learch Q	
Time Stamp	Severity	Alarm Message		Muted		
05/04/2021 3:30:16 PM UTC (GMT0:00)	Critical	iNode is not reachable		False		
1 to 1 of 1 << < Page 1 of 1 > >>						

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 <sup>T</sup> 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 10: Alarms History Pane

tive Alarms History					
Alarms History 🔿 ∓			Group Alarms	Search	م
Time Stamp	Alarm State	Alarm Message			
05/04/2021 3:45:55 PM UTC (GMT0:00)	🔺 SET	iNode is not reachable			
04/30/2021 10:15:18 AM UTC (GMT0:00)	CLEAR	Tamper			
04/30/2021 10:15:18 AM UTC (GMT0:00)	CLEAR	Spectrum analyzer status			
04/30/2021 10:15:18 AM UTC (GMT0:00)	CLEAR	Port 4 AGC lock			
04/30/2021 10:15:18 AM UTC (GMT0:00)	CLEAR	Port 2 AGC lock			
04/30/2021 10:15:18 AM UTC (GMT0:00)	CLEAR	Port 1 AGC lock			
04/30/2021 10:15:18 AM UTC (GMT0:00)	CLEAR	Auto setup status			
04/23/2021 6:55:16 AM UTC (GMT0:00)	A SET	Lid of the iNode is currently open.			
04/23/2021 6:55:16 AM UTC (GMT0:00)	A SET	Device used to capture the frequency spectrum is not functioning properly.			
04/23/2021 6:55:16 AM UTC (GMT0:00)	A SET	Port 5 AGC not lock			

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 <sup>↑</sup> 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 11: Maintenance Pane

Node Operations	
Initial Setup	
	Start
Reboot iNode	Reboot

#### **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 12: Alarms Tab

<b>4</b> 1499		<b>×</b> 1499		<b>A</b>			<b>%</b> 3498	
1499		1499		0	0		3490	
Total Alarms		Critical		Major	Minor		Muted Alarms	
n Settings								~
0							0	
0						Number of Rows : 10 V	Search	٩
Time Stamp	IP Address	Node Name	Severity	Alarm Message				
4/2021 3:30:16 PM UTC (GMT0:00)	2002::afaf:6f8e	iNode6f84	Critical	iNode is not reachable				
04/2021 3:35:11 PM UTC (GMT0:00)	2002::afaf:6ed1	iNode6ed0	Critical	iNode is not reachable				
4/2021 3:20:14 AM UTC (GMT0:00)	2002::afaf:3550	iNode3558	Critical	iNode is not reachable				
4/2021 3:40:30 PM UTC (GMT0:00)	2002::afaf:71cc	iNode71c2	Critical	iNode is not reachable				
4/2021 3:45:28 PM UTC (GMT0:00)	2002::afaf:709c	iNode7092	Critical	Node is not reachable				
4/2021 3:40:33 PM UTC (GMT0:00)	2002::afaf:71eb	iNode71ed	Critical	iNode is not reachable				
4/2021 3:35:37 PM UTC (GMT0:00)	2002::afaf:6ef7	iNode6ef4	Critical	iNode is not reachable				
4/2021 3:30:14 PM UTC (GMT0:00)	2002::afaf:6f8b	iNode6f84	Critical	Node is not reachable				
14/2021 3:35:33 PM UTC (GMT0:00)	2002::afaf:6e87	iNode6e86	Critical	iNode is not reachable				
4/2021 3:40:12 PM UTC (GMT0:00)	2002::afaf:7189	iNode7181	Critical	iNode is not reachable				

### **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 13: Alarm Settings

arm Settings				
Auto setup status	PS 1 +12V (Volts DC)	PS 1 AC input (Volts AC)	PS 2 -6V (Volts DC)	Spectrum analyzer status
<ul> <li>Launch Amp temperature (degrees C)</li> </ul>	PS 1 +24V (Volts DC)	PS 2 +12V (Volts DC)	PS 2 AC input (Volts AC)	Tamper
Node temperature (degrees C)	PS 1 +34V (Volts DC)	PS 2 +24V (Volts DC)	Port 1 AGC lock	
<ul> <li>Optical RX 1 input power (dBm)</li> </ul>	PS 1 +5.5V (Volts DC)	PS 2 +34V (Volts DC)	Port 2 AGC lock	
<ul> <li>Optical TX 1 output power (dBm)</li> </ul>	PS 1 +8.5V (Volts DC)	PS 2 +5.5V (Volts DC)	Port 4 AGC lock	
<ul> <li>Optical TX 2 output power (dBm)</li> </ul>	PS 1 -6V (Volts DC)	PS 2 +8.5V (Volts DC)	Port 5 AGC lock	
		✓ PS 1	✓ PS 2	
		<b>• • • • • • • • • •</b>	102	Enable

### 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 14: Database Backup and Restore Pane

e Backup & Res	estore						
ver IP :							
r Name :							
sword :							
ctory :							
name (For Impo	ort Only *J :						
edule DB Expo	ort : None					T	
	Export	Import		Res	set		
tabase Ex	Export cport Schedule Server		Freq	Res	Time	Next schedule	Upload Directory
	port Schedule	•	Freq Weekly				Upload Directory //
ĩ	xport Schedule Server	O User inodemgruser		Every	Time 22:00	05/24/2021 10:00:00 PM	
tabase Ex	xport Schedule Server 10.78.229.203 xport/Import Str	O User incdemgruser	Weekly	Every Mon	Time 22:00 En	05/24/2021 10:00:00 PM	TC /home/inodemgruser/
tabase Ex	xport Schedule Server 10.78.229.203 xport/Import Sta Status	User incdemgruser atus Start Time	Weekly UTC (GMT0;	Every Mon 200) 05/1	Time 22:00 En 7/2021 10:0	05/24/2021 10:00:00 PM   d Time   20:14 PM UTC (GMT0:00)	Message

**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 15: Database Import Confirmation

Database import o	confirmation	×
Кеу	Value	
Profiles Count	7	
iNodes Count	23329	
Export Date	06/07/2021 06:15:52 AM UTC	
Export File	inodemgr_inode-manager-chn-mm1_backup_20210607_061552.tar.gz	
1 to 4 of 9 << Page 1	1 of 3 > >>	
Confirm Cancel		٩ţ

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.

No Metadata found. The file may be exported from old version of iNode manager.	
Import Cancel	521752

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 16: Database Export Scheduling

Server IP : 10.78.210.3	203					
User Name : cabuchn						
Password : ••••••						
Directory : /home/cabu	uchn/srkrish2/iN	lodeMgr				
Filename (For Import Or	nly *) :					
Schedule DB Export :	Daily					
Every	1 day(s)					
Export schedule time :	10:06 AM				G	)
Expor	rt	Imp	port		Reset	
one schedule can be	configured. To	o delete t	the schee	lule, cli	ck on the Delete 🛡 b	utton.
Server	User	Freq	Every	Time	Next schedule	Upload Directory

### **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 17: Bulk Operation Status

lk Operation Status	0						
peration Type	Status	Start Time	End Time	Total iNodes	Failed iNodes	Additional Info	
SSIGN_PROFILE	~	10/20/2020 9:07:27 AM UTC (GMT0:00)	10/20/2020 9:07:41 AM UTC (GMT0:00)	10	0	Profile Name: nodeSettingsProfile	
POST_PROFILE	×	10/20/2020 6:31:56 AM UTC (GMT0:00)	10/20/2020 6:38:49 AM UTC (GMT0:00)	8501	13	Profile Name: nodeSettingsProfile	
POST_PROFILE	×	10/20/2020 6:16:48 AM UTC (GMT0:00)	10/20/2020 6:23:16 AM UTC (GMT0:00)	8501	6	Profile Name: nodeSettingsProfile	
POST_PROFILE	×	10/20/2020 6:08:49 AM UTC (GMT0:00)	10/20/2020 6:16:06 AM UTC (GMT0:00)	8501	7	Profile Name: nodeSettingsProfile	
ASSIGN_PROFILE	~	10/20/2020 6:02:05 AM UTC (GMT0:00)	10/20/2020 6:06:54 AM UTC (GMT0:00)	8501	0	Profile Name: nodeSettingsProfile	
DELETE_INODE	~	10/19/2020 2:10:24 PM UTC (GMT0:00)	10/19/2020 2:11:06 PM UTC (GMT0:00)	4000	0	-	
ASSIGN_PROFILE	×	10/19/2020 1:21:35 PM UTC (GMT0:00)	10/19/2020 1:33:09 PM UTC (GMT0:00)	12500	15	Profile Name: test	
RETRACT_PROFILE	~	10/19/2020 1:14:02 PM UTC (GMT0:00)	10/19/2020 1:16:46 PM UTC (GMT0:00)	12500	0		
ASSIGN_PROFILE	×	10/19/2020 12:55:05 PM UTC (GMT0:00)	10/19/2020 1:06:24 PM UTC (GMT0:00)	12500	16	Profile Name: test	
RETRACT_PROFILE	~	10/19/2020 12:49:48 PM UTC (GMT0:00)	10/19/2020 12:52:25 PM UTC (GMT0:00)	12500	0	-	

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 18: Bulk Operation Details

ulk Operation	Details				×
MAC Address	∧ St	Error Type	Error Code	Error Message	
02:42:af:af:71:7c	×	SYSTEM	DEVICE_COMMUNICATION_ERROR	Error while setting the configuration of the ports.	٦
02:42:af:af:87:5d	×	SYSTEM	DEVICE_COMMUNICATION_ERROR	Error while setting the configuration of the ports.	
02:42:af:af:97:79	×	SYSTEM	DEVICE_COMMUNICATION_ERROR	Error while setting the configuration of the ports.	
02:42:af:af:c5:79	×	SYSTEM	DEVICE_COMMUNICATION_ERROR	Error while setting the configuration of the ports.	
02:42:af:af:73:37	×	SYSTEM	DEVICE_COMMUNICATION_ERROR	Error while setting the configuration of the ports.	
02:42:af:af:be:dc	X	SYSTEM	DEVICE_COMMUNICATION_ERROR	Error while setting the configuration of the ports.	
02:42:af:af:84:82	×	SYSTEM	DEVICE_COMMUNICATION_ERROR	Error while setting the configuration of the ports.	
02:42:af:af:6e:02	~				
02:42:af:af:6e:03	~				
02:42:af:af:6e:04	~				

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.

### **Tag Management**

Tag Management pane displays the information about the tags that were created by the user. Tag Management Status table lists the name of the tag, the number of iNode to which the tag is associated with, the name of the user who created the tag, and the time at which the tag was created.

#### Figure 19: Tag Management

rag M	agement lanagement Status O							
	•							
	D						Number of Rows : 10	 Q
1	Tag	∧ iNodes Associated	Created By	Creation Time				
	1234	0	admin	01/10/2022 11:49:15 AM UTC (GMT0:00)				
	CHN	0	admin	01/17/2022 5:51:53 AM UTC (GMT0:00)				
	CAPITAL_LETTERS	0	admin	01/10/2022 11:48:40 AM UTC (GMT0:00)				
	SG11011	0	admin	02/04/2022 5:21:19 AM UTC (GMT0:00)				
	of 4 << < Page 1 of	1.2 22						
	of 4 << < Page 1 of	>>						(
t0 4 (								
ou	can create	a new tag b	y clicking	; the 🛨 button. The t	igs that are	e not associa	ted with any iN	
ou				g the $$ button. The table, and then clicking	G	e not associa button.	ted with any iN	

# **Operations Hub Metrics Dashboard**

To open the Grafana Metrics Dashboard, click the hamburger button and choose Dashboards.

Figure 20: Operations Hub Metrics Dashboard

Q Search				Advanced V
<ul> <li>Source</li> <li>NodeManager Dashboard</li> <li>Operations Hub Dashboard</li> <li>User Created Dashboards</li> </ul>	¢⊐ SUGGESTED	O RECENTLY VIEWED		
NodeManager Dashboard				
Operations Hub Dashboard KUBERNETES Deployment Kubernetes Capacity Planning Kubernetes Cluster Health Kubernetes Cluster Status Kubernetes Resource Requests	OPEN SOURCE SW Cassandra Metrics ElasticSearch Metrics Etod Metrics Kafka Metrics PostgreSQL Overview Zookeeper Metrics	E INFRASTRUCTURE Node CPU, Memory and Disk Usage Nodes Operations Hub Characterization	는 KPI Alerts - Overview Container KPI Detail Container KPI Overview	
User Created Dashboards Infrastructure / Host Datalis Infrastructure / Host Summary Infrastructure / System Alering opshub-data / Dashboard Gallery				

This page displays the various statistics that are available both from the iNode Manager application and the underlying Kubenetes and infra.

The following are a few snapshots of the statistics that are provided by the iNode Manager application:

Cisco Operations Hub	Dashb	oards · Gallery			¢
inode-manager-data / Spring Boot Statistics र्	0		shite 🖾 💿	🖵 🕐 Last 15 mir	nutes v Q Q v
Instance 192.168.12.246:30629 ~ Application None ~	HikariCP-Pool None - Memory Pool (heap)	ll ~ Memory Pool (nonheap) All ~			
Basic Statistics					
Uptime	Heap Used	Non-Heap Used		Process Open Files	
6.9 day			1		
0.0 day			0.5	No data	
Start time			-0.5		
2022-01-12 13:50:43	2.1%	6.0%	-1		
2022 01 12 10:00:40	-			11:36 11:38 11:40	11:42 11:44
CPU Usa	ge			11:36 11:38 11:40	11:42 11:44
CPU Usa	ge	30	11:32 11:34	11:36 11:38 11:40	11:42 11:44
6	ge	30	11:32 11:34	11:36 11:38 11:40	11:42 11:44
CPU Usa	ge		11:32 11:34	11:36 11:38 11:40	11:42 11:44
CPU Usa		20	11:32 11:34	11:36 11:38 11:40	11:42 11:44
CPU Usa	28 11.40 11.42 11.44 min max ang curre	20 10 0 11.32 11.34	11:32 11:34 Load Average	11:40 11:42 min	11:44 max avg current
CPU Usa System CPU Usape	38 11:40 11:42 11:44 min max arg curre 0.406 0.511 0.459 0.44	20 10 11.32 11.34 2 - Losd Average [1m]	11:32 11:34 Load Average	11:40 11:42 min 18:70	11:44 max avg current 26:36 23:29 22:83
CPU Usa 	38 11:40 11:42 11:44 min max arg curre 0.406 0.511 0.459 0.44	20 10 0 11.32 11.34	11:32 11:34 Load Average	11:40 11:42 min	11.44 max avg current 26.36 23.29 22.83 1.00 1.00 1.00
CPU Usa 	38 11:40 11:42 11:44 min max arg curre 0.406 0.511 0.459 0.44	20 10 11.32 11.34 2 - Losd Average [1m]	11:32 11:34 Load Average	11:40 11:42 min 18:70	11:44 max avg current 26:36 23:29 22:83 1.00 1.00 1.00
CPU Usa	38 11:40 11:42 11:44 min max arg curre 0.406 0.511 0.459 0.44	20 10 11.32 11.34 2 - Losd Average [1m]	11:32 11:34 Load Average	11:40 11:42 min 18:70	11.44 max avg current 26.36 23.29 22.83 1.00 1.00 1.00

#### Figure 21: Operations Hub Metrics – iNode Manager Application – Spring Boot – Basic Stats



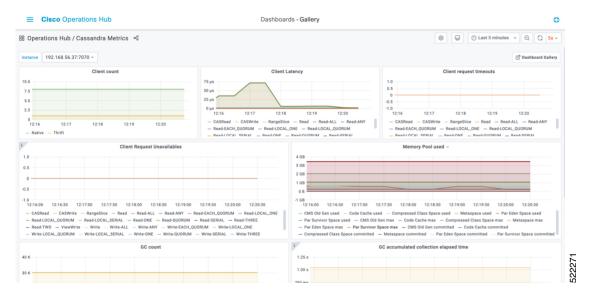


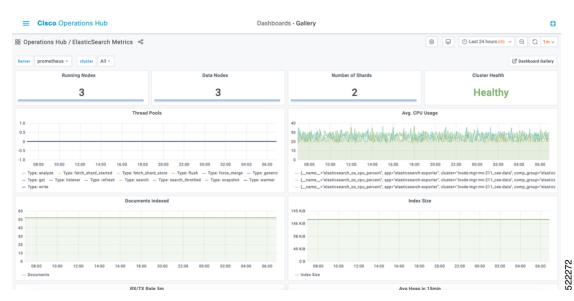
The following are a few snapshots of the statistics that are exposed by Kubernetes, and the infra pods:



#### Figure 23: Operations Hub Metrics – Node CPU, Memory and Disk Usage

#### Figure 24: Operations Hub Metrics – Cassandra Stats





#### Figure 25: Operations Hub Metrics – Elastic Search Stats

# **Using REST APIs**

#### **API Explorer**

To open the API Explorer Dashboard:

- 1. Click the hamburger button and select API Explorer.
- 2. Click iNode Service Manager under INODE MANAGER API to open the iNode Service Manager API Docs page.

The iNode Service Manager API Docs can also be launched directly by using the URL:

• With FQDN disabled:

https://<ingress-ip>.nip.io/home/inodemanager/api-explorer/inode-service-manager

- 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>/home/inodemanager/api-explorer/inode-service-manager

■ Cisco Operations H	ub API Explorer	
OPERATIONS HUB API	Swagger /inode-service-manager/V3/api-docs	Explore
User Management Tag Management	iNode Service Manager API Docs	
INODE MANAGER API	Node Service Manager REST API documentation	
	Servers https://10.78.229.201.ntp.lo v	
	inode-config-rest-controller	~
	PUT         /inode/rev-output-atten-config/	
	PUT /inode/port-config/	
	PUT /inode/general-config/	
	PATCH /inode/general-config/	
	CET /inode/general-config/overlay	
	PATCH /inode/general-config/overlay	
	GET /inode/port-config	
0	GET /inode/general-config	

#### Figure 26: API Explorer – iNode Service Manager API Docs

#### **API Authentication**

Use the following steps to add Authentication token in Operations Hub

1. Create a base64 encoded string of an Ops Hub user's username and password. For example:

```
echo -n 'admin:lab' | base64
YWRtaW46bGFi
```

In this example the user name is admin and password is lab.

2. Collect an access\_token by submitting the base64 encoded string using basic authentication to API: /api/auth/v1/token.

Note

The access\_token is valid for 12 hours. It can be refreshed by submitting both the *access\_token* and *refresh\_token* to API: /api/auth/v1/token/fresh. For more information, access API Explorer > Authentication, at the main menu in Operations Hub.

3. Use the *access\_token* collected in Step 2 to make subsequent REST API calls.

curl -X GET https://<cluster-mgmt-IP-address>/api/rbac/v1/identitymgmt/user -H "accept:

```
application/json" -H "Authorization: Bearer
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VybmFtZSI6ImFkbWluIi
wicm9sZSI6ImmpLWFkbWlufGFwaS12aWV3ZXJ8YXBpLWVkaXRvcnxhcGktYWRtaW4iLCJzYWx0IjoiZU9ZR0RtRFBsVFVwaEg1WCIsImV4c
CI6MTY4MTc3Nzg2NCwic3ViIjoiYWRtaW4ifQ.gYIFghIusN4uN6ok0Ey8sANPTqRw_VcWmvtqklzkNDU" -k
Response code: 201
Response body
"userDetailList": [
  {
   "groupList": [
    "admin",
    "api-admin",
    "api-editor",
    "api-viewer",
    "li-admin"
   ],
   "username": "admin",
   "passwordExpiryPeriod": "325"
  }
]
}
```

4. Before the access\_token expires, refresh the token by submitting both the access\_token and refresh\_token to API: /api/auth/v1/token/fresh. For more information, access API Explorer > Authentication, at the main menu in Operations Hub.

# **Update the Admin Password**

The admin user can update the password by clicking on the **admin** username at the bottom of the Operation Hubs Hamburger Menu.



Figure 27: Operations Hub Hamburger Menu

Update the password in the Update Password pane of the My Account page. Make sure to follow the password requirements in the pane.

Figure 28: Update Password

■ Cisco Operations Hub	My Account	٥
My Account Your account information is below. You can change your password	admin Update Password	×
Usemame admin Role Admin Password Update Password	Current Pessword*         Nex contain at least 8 characters         New Password*         Mast contain at least 8 characters         Confirm New Password*         Mast contain at least 8 characters         PASSWORD REQUIREMENTS         © Contains a lower letter         © Contains a number         © Contains a pocula letter         © Contains a special character         - 1 @ # 5 % - % - () + + [[1]) 1; ** < > / ?	
	Cancel	lpdate CCC

A message displays when the password expires in less than 30 days. You can change the password by clicking the **Reset your password** link.

Figure 29: Password Expiry Reminder

=	E Cisco Operations Hub	System · Welcome	
	i Your password will expire in 19 days. Reset your password		73
			52227

# **Renewing the Cisco iNode Manager Certification**

Cisco iNode Manager utilizes an X.509 certificate to secure the communications channel between it and the Cisco GS7000 Intelligent Nodes it manages. The certificate validity period is 11 months from the date the iNode Manager software was installed. if the certificate expires, you lose the ability to remotely manage your GS7000 Intelligent Nodes. In iNodeManager 24.1 an the certificate is automatically renewed after 300 days (approximately 10 months) while for all the previous releases the certificate is automatically renewed after 270 days. The validity of certificate is 11 from the date of renewal. User can also renew the certificate manually as follows.

## AIO

For AIO, login to the cluster and use the following steps to restart the inode-service-manager pod:

**Step 1** Identify the **inode-service-manager**.

#### **Example:**

inodemgruser@cicd-aio-229-control-plane:~\$ kubectl get pods -A   grep inode-manager-data				
inode-manager-data	diskutil-9ltzz	1/1	Running	
2 26d				
inode-manager-data	documentation-79cf864479-w22dp	1/1	Running	
2 26d				
inode-manager-data	inode-registry-service-8495f69bdb-wvfp6	1/1	Running	
4 23d				
inode-manager-data	inode-service-manager-b7bdcf769-k71pd	1/1	Running	
3 26d				
inode-manager-data	inodemanager-grafana-dashboard-metrics-7754fc5589-vstnv	1/1	Running	
2 26d				
inode-manager-data	ops-center-inode-manager-data-ops-center-7b64855f7c-dk82g	5/5	Running	
10 26d				
inode-manager-data	robot-ui-74b86b4979-txgwr	2/2	Running	
4 26d				
inode-manager-data	smart-agent-inode-manager-data-ops-center-b9867c68-8c7rv	1/1	Running	
5 26d				

#### Step 2 Delete the inode-service-manager.

#### **Example:**

inodemgruser@cicd-aio-229-control-plane:~\$ kubectl delete pod -name inode-service-manager-b7bdcf769-k7lpd -n inode-manager-data pod "inode-service-manager-b7bdcf769-k7lpd" deleted

#### The inode-service-manager restarts automatically.

**Step 3** Ensure that **inode-service-manager** pod restarts with a different ID appended at the end.

#### Example:

inodemgruser@cicd-aio-229-control-plane:~\$ kubectl get pods -A   grep inode-manager-data					
inode-manager-data	diskutil-91tzz	1/1	Running		
2 26d					
inode-manager-data	documentation-79cf864479-w22dp	1/1	Running		
2 26d					
inode-manager-data	inode-registry-service-8495f69bdb-wvfp6	1/1	Running		
4 23d					
inode-manager-data	inode-service-manager-b7bdcf769-rhlxk	1/1	Running		
0 46s					
inode-manager-data	inodemanager-grafana-dashboard-metrics-7754fc5589-vstnv	1/1	Running		
2 26d					
inode-manager-data	ops-center-inode-manager-data-ops-center-7b64855f7c-dk82g	5/5	Running		
10 26d					
inode-manager-data	robot-ui-74b86b4979-txgwr	2/2	Running		
4 26d					
inode-manager-data	smart-agent-inode-manager-data-ops-center-b9867c68-8c7rv	1/1	Running		
5 26d					

# **Multinode Setup**

For Multinode setup, login into the control plane and execute the **kubectl get pods** command.

#### Step 1 Example:

```
inodemgruser@cicd-multi-node-211-control-plane-1:~$ kubectl get pods -A | grep inode-manager-data
inode-manager-data diskutil-8jwst 1/1 Running
2 25d
```

inode-manager-data	diskutil-gcdhm	1/1	Running
2 25d			
inode-manager-data	diskutil-ldvxn	1/1	Running
2 25d			
inode-manager-data	documentation-556f96574-pn6lx	1/1	Running
1 11d			
inode-manager-data	inode-registry-service-74bddb657f-khtnz	1/1	Running
2 25d			
inode-manager-data	inode-registry-service-74bddb657f-smr4g	1/1	Running
1 11d			
inode-manager-data	inode-registry-service-74bddb657f-vhrpt	1/1	Running
2 25d			
inode-manager-data	inode-service-manager-6b5f8694b4-jf5kz	1/1	Running
0 9d			
inode-manager-data	inode-service-manager-6b5f8694b4-kmj66	1/1	Running
0 9d			
inode-manager-data	inode-service-manager-6b5f8694b4-vs2p7	1/1	Running
0 9d			
inode-manager-data	inodemanager-grafana-dashboard-metrics-b794f6ccf-5b7h7	1/1	Running
2 25d			-
inode-manager-data	ops-center-inode-manager-data-ops-center-69ff64db6-vg7xl	5/5	Running
0 9d			-
inode-manager-data	robot-ui-7bd88c77cb-jckxd	2/2	Running
2 11d	2		2
inode-manager-data	smart-agent-inode-manager-data-ops-center-557c6cc9b8-55t7h	1/1	Running
6 25d			2

It shows three ISM pods running in three VMs.

**Step 2** Delete the three ISM pods and ensure that ISM pods restart as mentioned in the preceding AIO setup.