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Cisco iNode Manager User Guide, Release 22.4

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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

• Introduction, on page 1

Introduction

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.
- User-defined tags to group the iNodes in the inventory.



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 3
- Cisco iNode Manager Application, on page 4
- Operations Hub Metrics Dashboard, on page 32
- Using REST APIs, on page 35
- Update the Admin Password, on page 37
- Renewing the Cisco iNode Manager Certification, on page 38

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

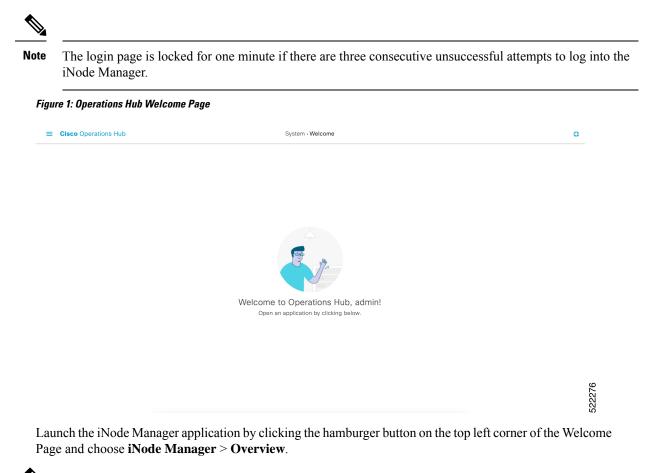
- For all-in-one (AIO) cluster, the ingress IP address is the management IP address of the ops node or VM.
- For multi node, the ingress IP address is the virtual IP address that is configured for the management network.
- With FQDN enabled:

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

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

Overvi	w Co	nfig Profiles	Node Config Alarms	a System						
	2	451	4	5508	Connected Disconnected Unknown	394 24111	02.02.05S 03.00.99 01.02.05S 01.01.00S		12	Critical Major Minor
		Nodes		Connec	tivity Status	s	SW Version		Alarr	ns
nver	Status	IPv4 Address	IPv6 Address	Name	iNode MAC Address	RPD MAC Address	Tags	Number of Rows : 10		ected 0 / Total 24514 🔿 🌣 Q Software Version
	~	-	2002::afaf:c927	iNodec927	02:42:af:af:c9:27	f4:db:e6:b4:ea:ae	1020	-	GS7Ki-HSG-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:7899	iNode7899	02:42:af:af:78:99	f4:db:e6:b4:ea:ae		-	GS7Ki-HSG-1.2G	01.02.055
	×	-	2002::afaf:5810	iNode5810	02:42:af:af:58:10	f4:db:e6:b4:ea:ae		-	GS7Ki-HSG-1.2G	01.02.055
	~	-	2002::afaf:9c59	iNode9c59	02:42:af:af:9c:59	f4:db:e6:b4:ea:ae		-	GS7Ki-HSG-1.2G	01.02.055
	×	-	2002::afaf:530d	iNode530d	02:42:af:af:53:0d	f4:db:e6:b4:ea:ae		-	GS7Ki-HSG-1.2G	01.02.055
					00.10.1.1.0.0	f4:db:e6:b4:ea:ae		-	GS7Ki-HSG-1.2G	01.02.05S
	~	-	2002::afaf:6f8e	iNode6f8e	02:42:af:af:6f:8e					
	~ ~	-	2002::afaf:6f8e 2002::afaf:73b5	iNode6f8e iNode73b5	02:42:af:af:73:b5	f4:db:e6:b4:ea:ae		-	GS7Ki-HSG-1.2G	01.02.058

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					
	Note The muted alarms are not counted in total alarms. Refer to Alarm Settings, on page 27 for more information.					
Inventory Table Fields	I					
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.					
+	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 ^t icon to add a node to the Inventory.

The Add iNode pop-up window appears.

Add iNode	X
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.	

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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**.

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- **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.

lode Name * iNodec927	
Node IPv4 Address Connectivity IPv4	
Node IPv6 Address 2002::afaf:c927	
MAC Address 02:42:af:af:c9:27	
170 7001000 UZ.4Z.dl.dl.UJ.Z/	
	~
Associate Tags Choose a tag to Associate	
Associate Tags	
Associate Tags Choose a tag to Associate	
Associate Tags Choose a tag to Associate	
Associate Tags Choose a tag to Associate Type the Tag Name and hit 'Enter' Key to add a new Ta	

- **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 contonic 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, 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	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			
O View Boot parameters of iNode	Dov	vnload Close			

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:

Latest Logs from iNode

	Save	In	terval: 60	🔅 secor	nds Auto Refresh	Refresh			Select f	font color:	Font Size:	S M	L	Close
IP Ad	dress: 1	0.90.	149.108	MAC Ad	dress: 70:7d:b9:01:0	2:03								
					Dload Upload	Total Spent	Left	Speed						
Ι.														
0			0	0 0		:::		0						
0	0 Total					::: Time Time								
8	Total	6	Received	% XIGLO	Average Speed Dload Upload		Left :	Current						
					Dioau opioau	iotai spent	TAIC	speed						
0	0	0	0	0 0	0 0:	:::	::	0						
0	0	0	0	0 0	0 0:	:::	:	0						
8	Total	8	Received	% Xferd	Average Speed	Time Time	Time	Current						
					Dload Upload	Total Spent	Left	Speed						
0			0	0 0		:		0						
0			0	0 0		:::								
	Total	die	Received	% Xferd	Average Speed			Current						
					Dload Upload	Total Spent	Left	Speed						
	0	0	0	0 0	0 0:			0						
				0 0										
					notice RPDDEVICEPA				sh CRON job with	minute offset 0				
					info crontab[21939			P a r anno						
					info crontab[21938)						
Oct	31 00	:43:03	1 imx6ulo	ib cron.	info crond[544]: (root) RELOAD (/var/spoo	l/cron/:	root)					
Oct	31 00	:43:0	l imx6ulo	ib cron.	info CROND[21941]:	(root) CMD (/	etc/init.	d/rpd-d	evice-params.sh >	> /media/log/mes	sages 2>&1)			
Oct	31 00	:43:0	l imx6ulo	ib user.	notice RPDDEVICEPA	RAMS: Starting	rpd-devi	ce-para	m.s					
Oct	31 00	:43:0	l imx6ulo	ib cron.	info crontab[21945]: (root) LIST	(root)							
Oct	31 00	:43:0	l imx6ulo	ib user.	notice RPDDEVICEPA	RAMS: Deleting	IP Monit	or CRON	job					
Oct	31 00	:43:0	l imx6ulc	ib cron.	info crontab[21948]: (root) LIST	(root)							
Oct	31 00	:43:0	l imx6ulo	ib cron.	info crontab[21950]: (root) REPL	ACE (root)						
- 8	Total	8	Received	% Xferd	Average Speed	Time Time	Time	Current						

• 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.

 \sim

• 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
1 U_BOOT_ENV_VERSION	0.1.3
2 U_BOOT_PKG_VER	02.00.08
3 altbootcmd	echo Faliback to Booting Safe Imge; if test \$(CURRENT_IMAGE_INDEX) =q 1; then echo Marking Image 1 as falled; setem VMAGE_1_VALD no; else if test \$(CURRENT_IMAGE_INDEX) =q1; then echo Marking Image 2 as falled; setem VMAGE_2_VALD on; f; f; if test \$(SKFE_INAGE_INDEX) =q 1; then echo Booting to Safe Image 1; if test \$(IMAGE_1_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 1 is Invalid; else run bootimage 1; f; else if test \$(SAFE_INAGE_INDEX) =q2; then echo Booting to Safe Image - Image 2; if test \$(IMAGE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 1; if set of test \$(SAFE_INAGE_INDEX) =q2; then echo Booting to Safe Image - Image 2; if test \$(IMAGE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_1NDEX) = q2; thest SAFE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_1NDEX) = q2; thest SAFE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_1NDEX) = q2; thest SAFE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test \$(IMAGE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 2; if test \$(IMAGE_1NDEX) = q2; thest SAFE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test \$(IMAGE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test \$(IMAGE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test SAFE_2_VALD) = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test SAFE_2_VALD = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test SAFE_2_VALD = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test SAFE_2_VALD = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test SAFE_2_VALD = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test SAFE_2_VALD = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test SAFE_2_VALD = no; then echo ERROR: Unable to boot Safe Image - Image 1; if test SAFE_2_VALD = no; then ec
4 baudrate	115200
5 boot_fdt	try
6 boot_net	no
7 bootargs	console=ttymxc0,115200 root=/dev/mmcblk1p2 rootwait rw
8 bootcmd	mmc dev S(Immodev); mmc dev S(mmodev); echo MMC selected = S(Immodev); mmc idev; mmc part; echo Checking for U-Boot ENV version = 0.1.3; if lest S(U_EOOT_ENV_VERSION) = 0.1.3; the echo Uodating U-Boot ENV from Version S(U_EOOT_ENV_VERSION) to Version 0.1.3; and vedual = -4; esterv U_BOOT_ENV_VERSION 0.1.3; saveaux; reset; else echo U-Boot ENV is at the correct version; fit run findft; if mm cestar; then it test Sboot_net = yes; then run resboot; else if run loadbootscript; then it run bootscript; else if run mortboot; fit is no metboot; fit fit is else no
9 bootcmd mfg	run mfatool aras: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 🔍 icon.

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 ^{III} icon to view the bulk operations options.

The Bulk Node Operations pop-up window appears.

L

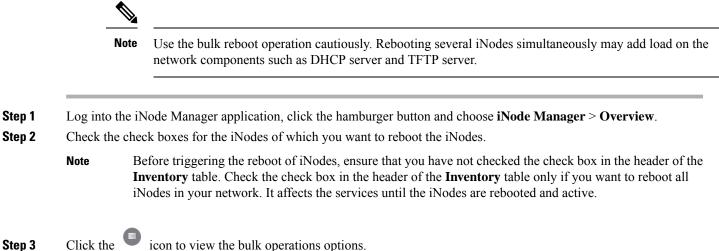
Bulk Node Operations	×
Bulk Operation : Initial Setup	
Type "yes" to confirm : yes	_
Trigger Cancel	
This will trigger Initial Setup on all the selected iNodes! Service may be impacted!	
Choose Initial Setup from the Bulk Operation drop-down lis Enter yes in the Type ''yes'' to confirm field.	st.
Click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

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.

I

Bulk N	lode Op	erations		×
Bulk Ope	eration :	Reboot		▼
Type " ye	s" to confirr	n: yes		
		Trigger Car	ncel	_
	This will trig be impacted	•	lected iNodes! Service will	
Choose R	Reboot fro	om the Bulk Opera	tion drop-down list.	
Enter yes	in the Ty	pe "yes" to confir	m field.	
Click Tri	gger.			
Dahaatia	triggered	l on the iNodes that	are chosen in the Inver	ntory.
Reboot is				

Associate and Diassociate the Tags

Step 4 Step 5 Step 6

Click the 🔍 icon.	
The Bulk Node Operations pop-up	vindow appears.
	×
Bulk Node Operations	
Bulk Operation : Tags	~
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	v

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	

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.

Node Profiles	٩	Create new RF Profile				
RfPortSettingsProfile01 RF Settings		Description				
RfPortSettingsProfile01-02\$ RF Settings	•	RF Settings				
RfPortSettingsProfile02 RF Settings		Lower Target Center Frequency (MHz) :	111	٢	Wink Switch : MAX Wink Attenuation (aB): 16.0	*
RfPortSettingsProfile02-01# RF Settings		Upper Target Center Frequency (MHz) :	891	٥	Port Status : Enabled	
	•	Lower Target Amplitude (dBmV) :	36.9		Pon Status : Enabled	
		Upper Target Amplitude (dBmV) :	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:
	((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.
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
Node Settings 2 Assigned	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		
⊘		O		•		•		
Closed	Full Power		Normal		Normal			
Lid Status	Power Saving Mode		Spectrum Capture D	evice Status	Initial Setup Status			
⊘		⊘		⊘		•		
Normal		Normal		Normal		Normal		
Port 1 AGC Lock		Port 2 AGC Lock		Port 4 AGC L	Lock	Port 5 AGC Lock		
PS1 AC Input : 58.4 V PS1 Plus24 Vdc Output : 24.9 V PS1 Plus5 Vdc Output : 8.7 V PS1 Plus5 Vdc Output : 6.2 V PS1 Minus6 Vdc Output : -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	lutput Power : 0.0 dBm		
PS1 Power Supply	PS	PS2 Power 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

				0	
board					
Modules					
Description Serial Number Part Number Product Identifier Version	: Optical Interface Board elocdef01234 : 73-18300-02 : GS7KI-HSG-1.2G : 3.0	Description Serial Number Part Number Product Identifier Version	: Forward amplifier board : - : - : 2.0	Description Serial Number Part Number Product Identifier Version	Reverse amplifier board - - - 2.0
	OIB		Forward Amplifier		Reverse Amplifier

521261

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					
No	de Settings RF Settings				
C	Configured Profile : NPPowerSave6732				
	Node Configuration			Access Control Configuration	
	Forward Segmentation : 1x	v		SNMP Community String : public	A
	Reverse Segmentation : x2	$\overline{\mathbf{v}}$			
	Power Saving Mode : Power Saving	~			
			Reset Update		

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.

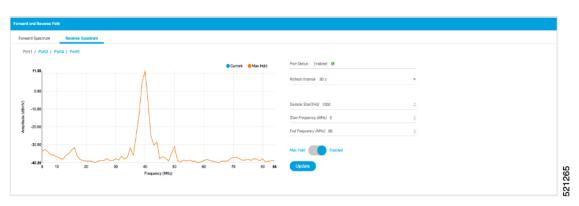


Figure 7: Forward Path Spectrum Graph

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 ^T 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*.

L

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 [↑] 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

1499		× 1499		▲ 0			% 3498	
Total Alarms		Critical		Major	Minor		Muted Alarms	
n Settings								~
Ů Time Stamp	IP Address	Node Name	Severity	Alarm Message		Number of Rows : 10 V	Search	٩
4/2021 3:30:16 PM UTC (GMT0:00)	2002::afaf:6f8e	iNode6f84	Critical	iNode is not reachable				
4/2021 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	iNode 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				
	2002::afaf:6f8b	iNode6f84	Critical	iNode is not reachable				
4/2021 3:30:14 PM UTC (GMT0:00)		iNode6e86	Critical	iNode is not reachable				
14/2021 3:30:14 PM LITC (GMT0:00)	2002.000.000							

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	
Zaunch Amp temperature (degrees C)	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		
 Optical RX 1 input power (dBm) 	PS 1 +5.5V (Volts DC)	PS 2 +34V (Volts DC)	Port 2 AGC lock		
 Optical TX 1 output power (dBm) 	PS 1 +8.5V (Volts DC)	PS 2 +5.5V (Volts DC)	Port 4 AGC lock		
 Optical TX 2 output power (dBm) 	PS 1 -6V (Volts DC)	 PS 2 +8.5V (Volts DC) 	Port 5 AGC lock		
		✓ PS 1	✓ PS 2		
				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	store							
ver IP :								
r Name :								
sword :								
ctory :								
name (For Impo	ort Only *J :							
edule DB Expor	vt : None					~		
	Export	Import		Res	et			
	Export	Import		Res	et			
tabase Exp	Export port Schedule			Res	et			
tabase Exp			Freq	Res	et Time	Next schedule	Upload Directory	
	port Schedule	• 0	Freq Weekly			Next schedule 05/24/2021 10:00:00 PM		
	port Schedule Server	e Ö User		Every	Time			
•	port Schedule Server 10.78.229.203	User inodemgruser		Every	Time			
i ·	port Schedule Server	User inodemgruser		Every	Time			
tabase Ex	port Schedule Server 10.78.229.203	User inodemgruser		Every	Time 22:00	05/24/2021 10:00:00 PM		
i ·	port Schedule Server 10.78.229.203 port/Import St	User incdemgruser	Weekly	Every Mon	Time 22:00 En	05/24/2021 10:00:00 PM	TC /home/incdemgruser/	up_20210517
tabase Exp	port Schedule Server 10.78.229.203 port/Import St Status	User inodemgruser tatus O Start Time	Weekly UTC (GMT0:C	Every Mon 10) 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)	lessage	

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

atabase import o	confirmation	\times
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	
o 4 of 9 << Page 1 Confirm Cancel	of 3 >> >>	

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 old version of iNode manager.	/ be exported from
Impo	Cancel

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 : 10.78.210.2	03					
User Name : cabuchn						
Password : ••••••						
Directory : /home/cabu	chn/srkrish2/iN	odeMgr				
Filename (For Import On	y*):					
Schedule DB Export :	Daily				,	
Every	1 day(s)				,	~
Export schedule time :	10:06 AM				G)
Expor		Imp	port		Reset	
one schedule can be c	opfigurad To	, dalata t	the cohe	dula ali	ak on the Delete V h	outton.
	onnguieu. re	i delete t	Ine senee	ulle, cli	ck on the Delete – t	utton.
base Export Schedule 🔿	User	Free	Fuerr	Time	Next schodule	Upland Directory
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

Retry				
AC 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.
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	×	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

ag Management St	tatus O						
0						Number of Rows : 10	v
						Search	٩
Tag	 Nodes 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_LETTE	ERS 0	admin	01/10/2022 11:48:40 AM UTC (GMT0:00)				
0 4 of 4 << <	Page 1 of 1 > >>						
ou can cr	eate a new tag b	by clicking	g the 🕂 button. Th	e tags that a	re not associa	ated with any iN	lode car
				6			

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 🗸
SOURCE NodeManager Dashboard Operations Hub Dashboard User Created Dashboards	င္ရာ SUGGESTED	O RECENTLY VIEWED		
IodeManager Dashboard @ OPEN SOURCE SW Spring Boot Statistics				
perations Hub Dashboard KUBERNETES Deployment Kubernetes Capacity Planning Kubernetes Cluster Health Kubernetes Cluster Status Kubernetes Resource Requests	OPEN SOURCE SW Cassandra Metrics ElasticSearch Metrics Etcd Metrics Kaltas Metrics PostgreSQL Overview Zookeper Metrics	INFRASTRUCTURE Node CPU, Memory and Disk Usage Nodes Operations Hub Characterization	比 KPI Aletts - Overview Contailiner KPI Detail Contailiner KPI Overview	
ser Created Dashboards Infrastructure / Host Details Infrastructure / Host Summary Infrastructure / System Alerting opshub-date / 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:

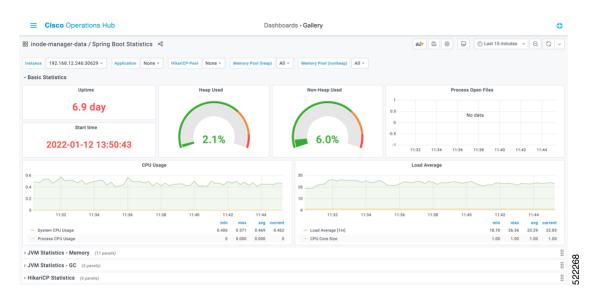


Figure 21: Operations Hub Metrics – iNode Manager Application – Spring Boot – Basic Stats



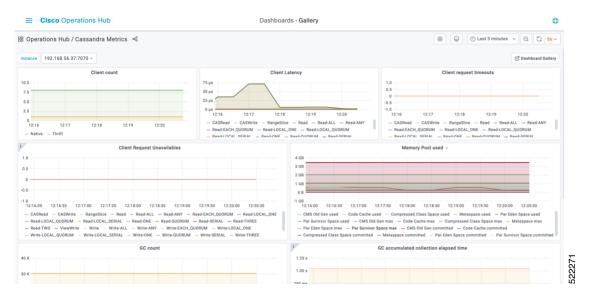


The following are a few snapshots of the statistics that are exposed by Kubernetes, and the infra pods:



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

Figure 24: Operations Hub Metrics – Cassandra Stats



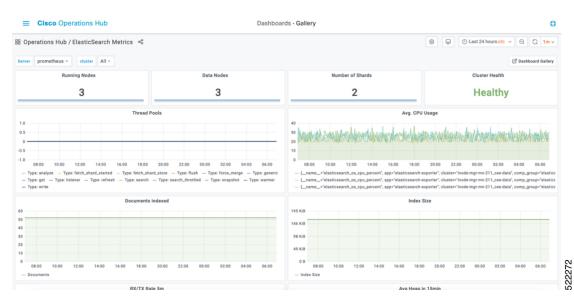


Figure 25: Operations Hub Metrics – Elastic Search Stats

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 I	Hub API Explorer		٥
OPERATIONS HUB API Authentication User Management Tag Management	Node-service-manager/kd/api-docs iNode Service Manager API Docs	Explore	
INODE MANAGER API INode Service Manager	Anode-service managerhöligt doos Biolode Service Manager REST API documentation		
	Servers https://10.78.229.201.nip.io v		
	inode-config-rest-controller PUT /inode/rev-output-atten-config/	~	
	PUT /inode/port-config/		
	PATCH /inode/general-config/ GET /inode/general-config/overlay		
	PATCH /inode/general-config/overlay GET /inode/port-config		
D	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	Φ
My Account Your account information is below. You can change your password		admin ×
Usemame admin Role Admin Password Update Password		Current Password* Mact contain at least 8 characters Mact contain at least 8 characters Mact contain at least 8 characters Contain as awaword* Mact contain at least 8 characters Mact Contains a spearcease letter Mact Contains a spearcease letter Mact Contains a spearcease letter Mact Contains a spearcease letter Mact Contains a spearce l
		Cancel Update

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
() Your password will expire in 19 days. Reset your password	3
	5222

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. Should the certificate expire, you lose the ability to remotely manage your GS7000 Intelligent Nodes. We recommend you renew this certificate no later than nine months after its creation date.

Use the following tasks to renew the certificate validity.

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-k7lpd	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-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-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.