

# NCM Configuration Configuration Document



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# **Document Summary**

Document Version	V 0.1
Release Date	April 4, 2019
Motadata Version	7.4.001
Created By	Shubham Singhal
Approved By	Pratik Patel
Target Audience	Motadata Team (All)



# 1 Introduction

Motadata Network Configuration Manager (NCM) offers a simple, comprehensive and elegant solution for an easy Network Change and Configuration Management (NCCM). Network Configuration Manager can manage network devices such as switches, routers, firewalls, wireless access points, integrated access devices etc. from multiple vendors.

### 1.1 What NCM Offers

- Create and manage your network devices that stores the network configuration
- Keep a track of all the NCM monitors
- Automatic and manual backup of the device configurations on a regular interval
- Manage start up and running configurations
- Create a baseline backup to revert the configuration if required
- Revert back the NCM changes in case of failure
- Line by line comparison of backup and new configuration on devices
- Upgrade configuration on multiple devices at same time through Motadata
- Working in the NCM monitor using Motadata remote.
- Journal entry of each activity someone do on network devices

#### 1.2 Prerequisites

- Plugins: SSH NCM Collector, Telnet NCM Collector
- NCM engine should be ON from the backend
- Monitor Discovery: NCM monitors should be discovered from admin section.
- NCM will discover only those SNMP devices that allow remote configuration
- In ncm-conf.yml (backend), provide your system IP.



# 2 Discover NCM Devices

Motadata scans your network to identify all the NCM devices and monitor them in its system. The discovery of devices is a four step process.

**Create Credentials Profile:** Here you will provide the access details of the NCM devices that you want to monitor. Motadata will use these credentials for authentication and fetching data from devices.

**Create Discovery Profile:** Here you will provide the IP address and other parameters to identify the NCM devices in the network. When devices are found, Motadata will use credential profile to authenticate those devices.

**Run Device Discovery**: Here Motadata actually scans your network and identify all the NCM devices using discovery and credentials profile. As a result, it will show you all the devices found by Motadata.

**Provision NCM Devices**: Here you select the devices that you want to manage using Motadata (from all the discovered devices). Motadata will take care of only the provisioned devices and ignore other non-useful devices.



We'll take the example of a Cisco switch and perform all available actions/operations on it.

### 2.1 Create NCM Credential Profile

The credential profile contains the security parameters to authenticate the access of Motadata to the device.

NCM Credential Profiles			+ New - 🖍
Q			100 🔻
Name	Departments	Туре	Used Count 🖒
42 ssh	Global	SSH NCM Collector	<b>0</b>
SSH 43	Global	SSH NCM Collector	1 🖋 🗄
Showing 1 to 2 of 2 entries			Previous 1 Next

- 1. Go to Admin > (Under NCM Discovery Settings) > NCM Credential Profiles.
- 2. Click on <u>+New</u> button to create a new profile or click on the "edit" to edit the existing profile. A popup will show to fill the required details.
- 3. Fill the form.
- 4. Click on Create button.



Note: Please type the credentials by hand. DO NOT Copy Paste.

Create Credential Profile		2	¢
Name		Туре	
172.15.10.42		SSH NCM Collector V	
Username		Password	
cisco			
Enable User Name		Enable Password	
		•••••	
Config Password			
12/1/027 225			
IP/HOST RPE		Port Test Credential	
Master RPE	Ŷ		
Departments			
Global 😢		\$	
		Create Reset	)

Fields	Description
Name	Type a name to identify the credential profile. (e.g. SSH 42)
Туре	Select the type: SSH or Telnet (e.g. SSH)
Username	Type the username of the NCM device (e.g. cisco)
Password	Type the password required for login. (e.g. cisco)
Enable Username	(If your device requires) Provide username for 'enable' command. (e.g. enable)
Enable Password	(If your device requires) Provide password for 'enable' command. (e.g. cisco)
Config Password	(If your device requires) Provide config password. (e.g. leave blank)



IP/HOST	Provide IP to test the credentials before creating the profile. (e.g. 172.16.10.42)
RPE	Select the RPE that should look into your device. (e.g. Master RPE)
Port	Select the port to test the device. (e.g. 22)
Test Credentials	Click on this button to test. Motadata will use username and password (required to login into NCM Device using IP and port your provided for testing.
Department	Select the department and people of that department can see/use this profile. (e.g. Global)

### 2.2 Create NCM Device Discovery

							Search Monitor	Q 💼 😳 🌑 Hi, admin 🕑
*	A NCM Device Discovery Profiles	Create New NCM Devi	ce Discovery Profile				×	(+New)- /
Q	٩	Name	•		IP/Host     CSV Imp	oort 🔿 IP Range		1 10 •
<i>6</i> 26	Name	172.16.10.42		Types	172.16.10.42			→
	172.16.10.42	Master RPE	~	SSH NCM Collector	~	172.16.10.42		<b>*</b> ►® ⊞
<b>₽</b>	Showing 1 to 1 of 1 entries							Previous 1 Next
		SSH NCM Collector	Cisco Systems					
#		Device Type	Switch					
-05 - 4		Prompt	#					
/ #		Enable Prompt Protocol	TFTP					
2		Timeout (Milliseconds)	60000					
Ē							Create Reset	
*				_				

- 1. Go to NCM > Devices.
- 2. Click on the +Device button. A popup will open to create a new device discovery.
- 3. Provide the appropriate applicable details to discover an NCM device. The NCM device discovery option uses two methods: IP/HOST for single device, CSV Import for more than one devices and IP Range for a range of devices.

Fields	Description
Name	The name is used to identify the discovery profile
IP Host	Type the IP of the device [E.g.: 172.16.10.42]
IP Range	Type the IP range for multiple devices
CSV Import**	Import from CSV file
RPE	It is useful when system is deployed in distributed mode. Choose the RPE from which you want to discover and poll monitors. By default, 'Master RPE' is selected.



Types	Shows the list of NCM types supported in system. Currently 2 NCM types are supported: Telnet and SSH (e.g. SSH)
Credential Profiles	Select the credential profiles created in previous section. If not created, then create from here. See previous section for steps of creating a credential profile. (e.g. Select the credential profile: SSH 42)
Collector Parameters	Define the NCM collector settings. These settings are used to gain access of NCM terminal.

SSH NCM Collector Discovery Par	rameter	r Details	×
Vendor		Device Type	
Cisco Systems	~	Switch	~
Port		Prompt	
22		#	
Enable Prompt		Protocol	
enable		TFTP	~
Timeout (Milliseconds)			
60000			
			Update

Field Name	Description
Vendor	Provide the name of the NCM device vendor (e.g. Cisco)
Device Type	Select the type of device: • Router • Switch • Firewall • D Link • Cisco Switch • New Switch (e.g. Switch)
Port	Provide the port address of the NCM device (e.g. 22)
Prompt	Provide the type of prompt. It is generally either: '#' or '>' (e.g. #)
Enable Prompt	Provide the keyword to enable the prompt (e.g. enable)



Protocol	Select the communication protocol to communicate with device (e.g. TFTP)
Timeout (Milliseconds)	Select the numeric value for timeout. Default: 60000 MS

Once you complete creating the profile, Motadata will ask you if you want to run a discovery.

#### 2.3 Run Discovery Profile

Run the discovery profile to find all the NCM monitors based on the settings we created. To run a discovery profile:

- 1. Go to Admin > NCM Discovery Profiles.
- 2. On the right hand side of profile, click run. A dialog box will appear for confirmation, Select 'Yes'.

	Warning
	Are you sure you want to run discovery?
	Yes No
RPE	Run
/laster RPE	
/laster RPE	ar 🕨 🕐 🗎
	Previous 1 Next



Discovery Status	×
NCM Discovery Progress	
Ī00%	
Initiating discovery	
✓ Success Device 172.16.10.42 discovered using [172.16.10.42] successfully	×
	/iew Result

Click on 'View Result' to see all the discovered monitors. You can select the monitors from the list that you want to provision.





210001	vered Objects			
Q				10
~	Host	Credential Profile	Device Type	
/	172.16.10.42	172.16.10.42	SSH NCM Collector	
Showi	ng 1 to 1 of 1 entries			Previous 1 Next

#### 2.4 Device Provision

• Select the monitors you want to provision. Provisioning means Motadata will start polling the monitors to gather information. Provisioning a monitor consumes 1 unit of license.

		16.10.10			Search Monito	or Q 🖨 🗘 🖬 Hi, admin 🕑
NGM	Discovery Result - 172	.16.10.42				<b>●</b> New = 2
Dise	covered Objects					10 💌
Q					10 🔻	\$
	Host	*	Credential Profile	Device Type	۵	
	172.16.10.42		172.16.10.42	SSH NCM Collector		Previous 1 Next
2	wing 1 to 1 of 1 entries				Previous 1 Next	
					3 Provision Objects	

- Click Provision Objects.
- System will ask you for confirmation. Select Yes



NCM D	iscovery Result - 172.16.10	42			X Search Monitor
Disco	overed Objects				
Q					10 🔻
	Host	Credential Profile		Device Type	0
	172.16.10.42	172.16.10.42		SSH NCM Collector	
Bhro	ing 1 to 1 of 1 convex				erature 11 (Josef)
		NCM Discov	ery Provisior	ı	
		Would you like	e to provision ?		Provision Objects
					Yes No

Your devices are provisioned successfully.

_	Provisioning Status - 172.16.10.42	i	Provisioning Status 172.16.10.42 provisioning is completed.
	✓ Success 172.16.10.42 has been provisioned successfully	×	10 🔻
			÷
			<b>₽</b> ► ® 🛍
			Previous 1 Next

All your provisioned devices are available in the NCM menu.



# 3 NCM Devices

You will see all the provisioned NCM devices in NCM menu. To see devices go to **NCM** > **Devices** tab:

*	Backups	Devices	Action	Alerts			
Q		2					
<b>æ</b>	٩						
#		Dev	vice	IP/H	ost	Туре	Vendor
<b>P</b>	0	] 172	2.16.10.42	172	16.10.42	Switch	Cisco Syster
۴							, 제품 및 특별명
<b>Q</b> o							tha 193
\$	NCM						
4							
							: The Sta
Ðn							

#### 3.1 Edit NCM Device

Edit button is available as an individual action to change the SNMP device details. The option is available in right side of NCM device list.



				-
			Sort By	Actions -
Status	Last Backup	RPE	Error Message	
own		Master RPE		Ø = 💉 🖿
				Edit

Click on the edit button and you'll see a popup to update the details about the device. Here you can change the basic details, credential profile and NCM collector section.

Update device					×
Device Name				IP/Host	
172.16.10.42			14	172.16.10.42	
RPE				Departments	
Master RPE			~	Global 🕲	
Device Types				Credential Profiles	
SSH NCM Collector			~	172.16.10.42	~
SSH NCM Collector	ć	P.			
Vendor	Cisco Systems				
Device Type	Switch				
Port	22				
Prompt	#				
Enable Prompt	enable				
Protocol	TFTP				
Timeout (Milliseconds)	60000				
				Upda	te

You can also edit the device from admin section. Go to Admin > NCM Discovery Settings > NCM Discovery Profiles.

#### 3.2 Disable NCM Device

When you don't need to monitor/use the device, disable the device using disable button. Motadata will stop communicating with the NCM device. You can disable individual device or multiple devices also. To disable multiple devices, first select the devices using checkbox button (on left hand side) and disable from **Action** menu (top right corner)



PE Err	
	ror Message
ter RPE	Disable

### 3.3 Enable NCM Device

You can enable the disabled NCM devices using enable button. You can enable device or multiple devices also. To enable multiple devices, first tick checkbox of devices and then enable from **Action** menu.

		Sort By  Actions
RPE	Error Mes	C Enable
Master RPE		Ø Disable
		🖻 Delete

### 3.4 Delete NCM Device

You can delete the NCM devices using delete button. The devices once deleted cannot be restored. You require to add a new device. You can delete one device or multiple devices also.



		Sort By	Actions -
Last Backup	RPE	Error Message	
	Master RPE		0 a 🖍 🎰
			Delete

### 3.5 Open Terminal

You can connect to the NCM device's terminal from Motadata GUI and run the commands directly. This will remove the dependency of third-party tools to connect with your NCM device. The terminal has following properties:

- You need valid credentials to access the NCM device.
- When you refresh the page or close the terminal, the connection with NCM device is closed.
- There is no difference between using GUI based terminal and running the command directly on the NCM machine.

NCM Terminal C	redentials 172.16.10.42	×
Username	Password	
	Reset Connect	
Username	Username to access the terminal	
Password	Password to access the terminal	



# 4 Backup NCM Devices

After adding devices, the first operation that should be performed is backing up the device configuration. You can create backup of devices using backup button. You can take backup of an individual monitor or a group of monitors. Select the devices for which you want to create a backup and select 'Backup' from 'Action' menu.

Note that during backup if the configuration settings in device is exactly same as the last backup, motadata will not create another backup. It will simply update the timestamp of existing backup. But if the configuration do not match with the backup, motadata will create a new version of backup.

	Sort By  Actions
RPE	Error Message
Master RPE	Backup

### 4.1 Take Manual Backup

You'll see a menu to configure the backup schedule.

Backup startup and running configuration for	172.16.10.42 View Action Logs	×
NCM Devices	Email Actions + New	*
	Execute Action Schedule Action	$\supset$

Select the NCM device and choose either of two options: **Execute Action** or **Schedule Action** 

- **Execute Action:** Click the Execute Action button to run the backup instantaneously.
- Schedule Action: Click the Schedule Action button to schedule the backups.



Backup startup and running o	configuration f	or 172.16.10.42	View Action Logs 🗙
o ha h ha Nama	~	Free 1 Anti-	
Scheduler Name	$\sim$	Email Actions	<b>^</b> ♀
	No data av	ailable in table	
Showing 0 to 0 of 0 entries			Previous Next
Scheduler Name 172.16.10.42			
Scheduler Date		Run Job At	
2019-03-07	<b></b>	00:00	~
× off Repeat this job			
		Save	Reset Cancel

- Provide the name of the scheduler.
- Select time of the schedule.
- For scheduling job at specific time, turn on 'Repeat this job' and configure the repeat schedule.

#### 4.2 Compare backup

When you are taking backup of device, two backups are generated for each device. The backups are visible in Backup tab under NCM menu.

Backups Devices Action Ale	erts			
٩				
Device	IP/Host	File Type	Version	Backup Time
172.16.10.42	172.16.10.42	Running	1.0	07 Mar, 2019 06:53:34 PM
172.16.10.42	172.16.10.42	Startup	1.0	07 Mar, 2019 06:53:34 PM

The configuration difference is depicted side-by-side showing the changed lines in yellow, added lines in green and deleted lines in red. Configurations are versioned and stored in the database and the Network Configuration Manager GUI provides



option to select and view any particular configuration version. From the historical information, administrators can choose any to configuration versions and compare.

ackup Comparison View			
172.16.10.42 IP/Host: 172.16.10.42 Total Deleted Lines 0 Total Inserted Lines 23 Created 07 Mar, 2019 06:53:34 PM Modified	1.0 Version Running File Type admin Changed By	172.16.10.42 IP/Host: 172.16.10.42 Total Deleted Lines 0 Total Inserted Lines 0 Total Modified Lines 1 Created 07 Mar, 2019 06:53:34 PM Modified	1.0 Version Startup File Type admin Changed By
			♠ ♦ Modified Added Delet
Search		Search	
Base Text		New Text	
1		1	
2 !		2 !	
3 version 12.2		3 version 12.2	
4 no service pad		4 no service pad	
5 service timestamps debug uptime		5 service timestamps debug uptime	
6 service timestamps log uptime		6 service timestamps log uptime	
7 no service password-encryption		7 no service password-encryption	
8 !		8 !	
9 hostname cisco-42		9 hostname cisco-42	
10 !		10 !	
11 enable password cisco		11 enable password cisco	
12 !		12 !	
13 username cisco password 0 cisco		13 username cisco password 0 cisco	

#### 4.3 Restore Backup

Click on the restore backup to restore the backup from baseline backup. System will show a popup with all the NCM devices available in the system. Select the devices on which you want to restore the backup.

		Search Monitor	Q 🖨 🖨 📗 Hi, admin 🕑
Backups Devices Action	Restore Backup	×	
٩	٩		Sort By-
Device	Device Name         Device Host         Departments         Ri	PE	Modified By
172.16.10.42	IT2.16.10.42 172.16.10.42 Global Mast	er RPE	*=000
172.16.10.42	Showing-to 1 of 1 entries Previo	ous 1 Next	1:000
		3 Restore	

### 4.4 View Backup

Click on the view backup to see the backup files.



×

Backup - 172.16.10.43 - 1.0

..... version 12.2 no service pad service timestamps debug uptime service timestamps log datetime localtime no service password-encryption service sequence-numbers hostname MSPL\_SWT\_002 boot-start-marker boot-end-marker L logging buffered 10000 enable secret 5 \$1\$dF9G\$bwQbTTIIrpWa4On1e5jjx0 enable password Mind@#123 L username admin password 0 Mind@12 username viral privilege 3 password 0 viral123 no aaa new-model clock timezone IST 5 30 system mtu routing 1500 ip subnet-zero no ip domain-lookup ip name-server 192.168.1.2 ip name-server 192.168.1.1 Ŧ in sla responder

### 4.5 Delete Backup

Select the delete button to delete the backup. This will permanently remove the entry from the system.



# 5 NCM Configuration Actions

Actions in the NCM devices are nothing but the set of commands by which you update their configuration. For cisco devices, Motadata gives you some common commands that you can directly use and run in devices. For other devices, you can either create a new action (set of commands) or import from outside.

**Important!!** A wrong action/command can lead to the network failure. Please use this menu under expert supervision only.

#### 5.1 Execute Action on NCM Device

- 1. Click on the **play** button to run an action. A slider will open with all the list of commands to execute the action.
- 2. Change the commands/values as required.

		Change Interface Description	View Action Logs 🗙			
Showi	ing 9 Actions	Interface Name Example: eth0	Interface Description Example: This is interface description			
	Action Name					
	Interface Enable	Action Command				
	Change Interface Description	interface \$interface\$ description \$interface-description\$				
	Change Enable Password	end write				
	Disable SNMP Service	-				
	Configure SNMP Service					
	Add Trap Forwarding Host	NCM Devices	Email Actions + New			
	Enable Trap Forwarding	All selected	NCM mail to Shubham			
	Disable Trap Forwarding	٩)				
	change description	<ul> <li>[Select all]</li> <li>172.16.10.42</li> </ul>	Execute Action Schedule Action			
Showir	ng 1 to 9 of 9 entries					

- 3. Select the NCM devices on which the command should be executed.
- 4. Click on Execute Action or Schedule Action
  - Execute Action: Click the Execute Action button to run the backup instantaneously.
  - Schedule Action: Click the Schedule Action button to schedule the backups.

#### 5.2 Benefits of this Feature

- You don't need to login into each device and do any action.
- All your action commands are safe and secured in Motadata.
- You can change configuration of more than one devices in single go.
- Motadata automatically takes a backup before and after doing any action.
- Simple hierarchical structure to store and manage your actions.



Backups Devices Action Alerts		
Device Types +	Showing 9 Actions	New Import
Q Search Device	Q	10 *
– Firewall	Action Name	0
- Router	Interface Enable	►
- Switch	Change Interface Description	►
Cisco Systems	Change Enable Password	►
	Disable SNMP Service	►
	Configure SNMP Service	Þ
	Add Trap Forwarding Host	Þ
	Enable Trap Forwarding	Þ
	Disable Trap Forwarding	Þ
	change description	A 🎽 🖻
	Showing 1 to 9 of 9 entries	Previous 1 Next

# 5.3 Default Actions

Showi	ng 9 Actions
Q	
	Action Name
	Interface Enable
	Change Interface Description
	Change Enable Password
	Disable SNMP Service
	Configure SNMP Service
	Add Trap Forwarding Host
	Enable Trap Forwarding
	Disable Trap Forwarding

Motadata gives you some actions as default for the cisco switch. You'll need to put only necessary configuration values to change the configuration.

### 5.4 New Actions

Click on the 'New' button to create a new action. A popup will open for you to fill details. Upon completion, the action will be visible in actions list of selected device type.



Create Action	×
Action Name	
Change Description	4
Action Command config terminal interface \$interface\$ description \$interface-description\$ end write	
Description	
To change the description when a new device is added	•
Create	et

#### 5.5 Import Actions

To import an action from your local machine, click on the import button. A popup will appear for you to import the files. Here you **should** import the YML files. System will read the files to create 'Action Command' from YML. The maximum file size you can upload is 100 MB. The imported file will appear in actions list of selected device type.

		Search Monitor	Q 💼 😨 🌗 Hi, admin 🕑
	Import Device Type File		
Showin	Browse Import Device Type File Browse		New Import
Q	Import		10 🔻
	Action name		

### 5.6 Device Types

Device type is the category under which actions on the right side are displayed.



Device Types	+ <	Showing 9 Actions
Q Search Device		Q
– Firewall		Action Name
– Router		Interface Enable
– Switch		Change Interface Description
Cisco Systems		Change Enable Password
		Disable SNMP Service
		Configure SNMP Service
		Add Trap Forwarding Host
		Enable Trap Forwarding
		Disable Trap Forwarding
		change description
		Showing 1 to 9 of 9 entries

You can also create new device types for your network devices. Click on the + button. A popup will open to fill the details.

Create New Device Type	×
Device Type	
New Device Type	æ
Description	
New Device Type Description	۶
	)
	Create



Change Interface Description	View Action Logs 🗙
Scheduler Name Email Actions	<
No data available in table	
Showing 0 to 0 of 0 entries	Previous Next
Scheduler Name NCM scheduler to add interface name in description	
Scheduler Date Run Job At	
2019-01-21	~
Image: September       Image: Daily       Image: Date         Image	
1 😒 January 😒 February 😒 March	🖸 April 🔇 May 🕄
Save	Reset Cancel

- Provide the name of the scheduler.
- Select time of the schedule.
- For scheduling job at specific time, turn on 'Repeat this job' and configure the repeat schedule.

**Note:** The scheduler name and email at the top shows the list of existing schedulers for this action. For a new scheduler it is blank. But if there are existing schedulers running for the action, you'll see it there.



# 6 Alert (Journal Entry)

The page shows the alerts/logs of the NCM devices for each operation. You can also search logs, filters alerts based on operation type and audit status. The operations include:

- When a new backup is taken
- When an action is performed on the monitor
- When a backup is restored

Backups Devices Action Alerts				
NCM Alerts				Actions
Operation Type     Audit Status       All     ✓       Q_     Audit Status				
Operation Type	Message	Time	User	Status
NCM Remove From Baseline Backup	172.16.10.43 backup version [2.0] removed from baseline	23 Nov, 2018 06:18:45 PM	admin	Success
NCM Set As Baseline Backup	172.16.10.43 backup version [2.0] set as baseline	23 Nov, 2018 06:18:45 PM	admin	Success

#### **Column Description**

Operation Type	Name of the activity type. There are total _ types of activities available.
Message	Information of the activity in NCM devices
Time	Date time stamp of the activity
User	Name of the user who performed the activity
Status	Status of the activity (Success/Fail)

#### 6.1 Actions

From the actions you can:

- Change the time span. Available time spans are: Last hour, This hour, Last 6 hours, Last 12 hours, Last 24 hours (default), Today, This week, This month, This year, Last Day, Last week, Last month, Last year, Previous hour, Previous day, Previous week, Previous month, Previous year
- Export the alerts to an excel file.



# **Keep in touch**

www.motadata.com, sales@motadata.com,

India: +91 79-2680-0900, USA: +1 408-418-5229

#### About Motadata

Mindarray Systems Pvt. Ltd. a global IT product company, offers state of the art affordable yet powerful product suite - Motadata consisting of Network Management & Monitoring, Log & Flow Management, and IT Service Management Platforms. The platform empowers both IT administrators and CXOs to analyze, track & resolve IT operational issues by effectively monitoring various systems and devices from multiple vendors through a unified and centralized dashboard.

Motadata is industry's first IT ops solution that truly correlates the metric, flow and log events and turns them into actionable insights. Our global customers from Telecom, Government and Enterprise domain, rely on Motadata for proactively monitor their network infrastructure.

For more information, visit www.motadata.com.

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