



Topology Builder

Configuration Document

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1 Introduction

1.1 What is Topology?

Motadata shows the logical network topology diagram once you discover the networks and network devices. It helps you visualize the physical network connectivity in real time scenario and also the consequences when a device in the network fails. The topology purely relies on nodes connectivity and links in the network.

Motadata draws the Topology diagram for SNMP devices in the network. It uses different protocols to discover these devices. The SPM (Switch Port Mapper) protocol discover the switches (of all vendors). CDP and LLDP protocols discover SNMP of layer 2 and ISIS/OSPF discover devices of layer 3.

1.2 Key Benefits

- Get all the network devices into network Topology
- Provides the L2 and L3 layer network topology
- Detect the interface details
- Get device health information with the single click.
- See Topology in Infrastructure view and Tag view.
- Different link colours indicating the status of devices and links
- Solid line representation for L2 connectivity
- Dotted line representation for L3 connectivity

1.3 What do you need?

To see the topology, here are end-to-end steps:

- Create and run the Network builder job
- Create and run the Topology builder job
- (Optional) Manual link enable/disable
- After running the jobs, go to 'Topology > Infrastructure View' to see the topology.

1.4 Prerequisites

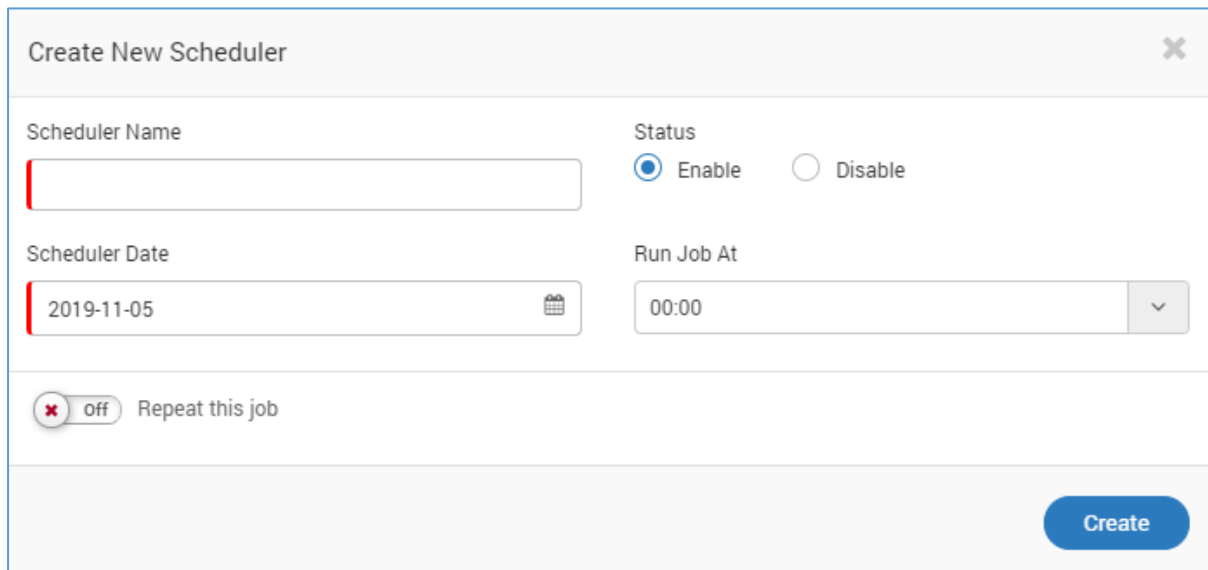
- SNMP devices should be present in network and discovered in Motadata.
- Following protocols should be enabled: SPM, CDP, LLDP, ISIS and OSPF. If you are an advanced user, you can choose to disable some protocols based on your requirements.

2 [Configure Network Builder Job](#)

Network builder job is the first step to create a topology. The job scans your network and identifies all the interfaces of the monitors in it. You should run this job only one time before creating the topology or adding a new device in the existing topology.

2.1 [Steps](#)

1. Go to the Schedulers > Create new Scheduler.
2. In the Job Type, select 'Network Builder Job'.
3. Fill the fields and save the job.



- **Scheduler Name:** Type the name of the scheduler.
 - **Status:** Set the status of the scheduler.
 - **Scheduler Date:** Select the date on which scheduler will run.
 - **Run Job At:** Provide the time at which scheduler should run.
4. Run the job you created.

2.2 [Check Status](#)

To check the status of the job, connect the backend using SSH connection. The files are available at `/motadata/motadata/topology` location. Edit the file using any standard editor. Here, you can do the following things:

- Go to the 'Motadata Health' and see the status of the job.

Job Name	Job Status	More info
Auto Network Discovery Job	Available	i
Business SLA Report Job	Available	i
Log Export Job	Available	i
Monitor Maintenance Job	Available	i
Monitor Polling Issue Report Job	Available	i
Motadata Config Backup Job	Available	i
Motadata Data Retention Job	Available	i
Motadata FullText Data Retention Job	Available	i
NCM Device Backup Job	Available	i
NCM Report Job	Available	i
Network Builder Job	Available	i
Report Job	Available	i
Topology Builder Job	Available	i

- You can login into the backend of the motadata server and check the below file. Ideally, this file is empty before building the network. Hence, the quick guess can be the size of the file.
 - topology-interface.yml
 - The yml file stores the IP address of the two devices and interface name of connecting link in each line. The interface name is the name of the interface associated for IP1 device. The interface is connected with device of IP2.

```

root@ubuntu: /motadata/motadata/topology
motadata-WiFi_1@#|_192.168.2.1: 172.16.10.1
CPU_1@#|_172.16.10.47: 172.16.10.47
ScalabilitySNMP_1@#|_10.10.0.1: 172.16.10.1
port15_1@#|_192.168.3.1: 172.16.10.1
V11_1@#|_172.16.10.43: 172.16.10.43
V11_1@#|_172.16.10.42: 172.16.10.42
test-interface6_1@#|_50.30.0.1: 172.16.10.1
vlanMgmt_1@#|_172.16.10.45: 172.16.10.46
ngmt_1@#|_192.168.0.99: 172.16.10.1
V13_1@#|_20.20.20.2: 172.16.10.42
V12_1@#|_10.10.10.1: 172.16.10.42
wan2_1@#|_45.116.206.194: 172.16.10.1
motadata-LAN_1@#|_192.168.1.1: 172.16.10.1
wan1_1@#|_59.144.124.161: 172.16.10.1
motadata-DMZ_1@#|_172.16.10.1: 172.16.10.1

```

- arp-table.yml
 - The yml file stores the IP address and the MAC address of the devices taken from the network.


```

E8:04:62:B2:F9:0D: 172.16.10.43
E8:04:62:B2:F9:0E: 172.16.10.43
E8:04:62:B2:F9:0F: 172.16.10.43
E8:04:62:B2:F9:11: 172.16.10.43 → MAC
E8:04:62:B2:F9:12: 172.16.10.43      Address
E8:04:62:B2:F9:13: 172.16.10.43
E8:04:62:B2:F9:14: 172.16.10.43
E8:04:62:B2:F9:10: 172.16.10.43 → IP
E8:04:62:B2:F9:19: 172.16.10.43
00:1F:6C:D7:F4:14: 172.16.10.42
00:1F:6C:D7:F4:15: 172.16.10.42
00:1F:6C:D7:F4:12: 172.16.10.42
00:1F:6C:D7:F4:13: 172.16.10.42
"arp-table.yml" 189L, 6051C

```

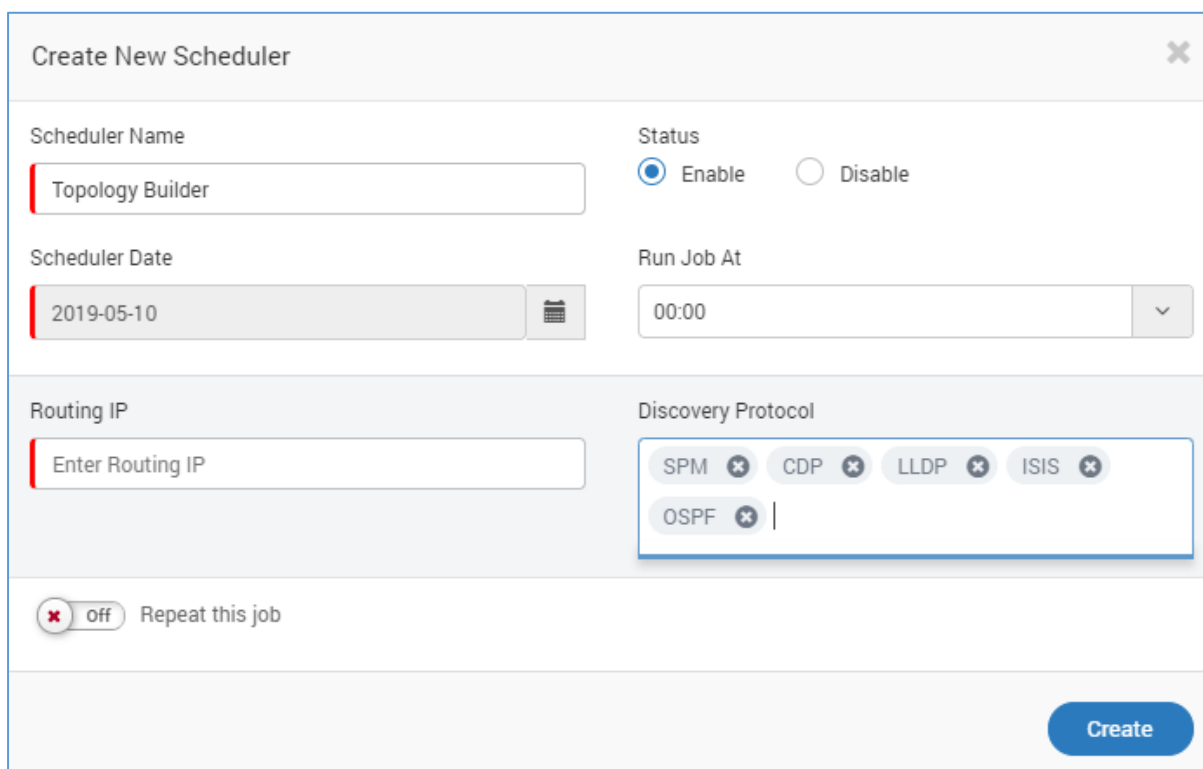
3 Configure Topology Builder Job

Topology builder job scraps the earlier topology diagram and creates a new one. This is useful when monitors in network are added/removed in random fashion. The topology diagram created by the job is out of any region/node. However, if any monitor is already assigned to a region/node, the new diagram will not affect it.

****Note:** Run this job only after 'Network Builder Job' is successful.

3.1 Steps

1. Go to the Schedulers > Create new Scheduler.
2. In the Job Type, select 'Topology Builder Job'.
3. Fill the fields and save the job.



The screenshot shows a 'Create New Scheduler' form with the following fields and options:

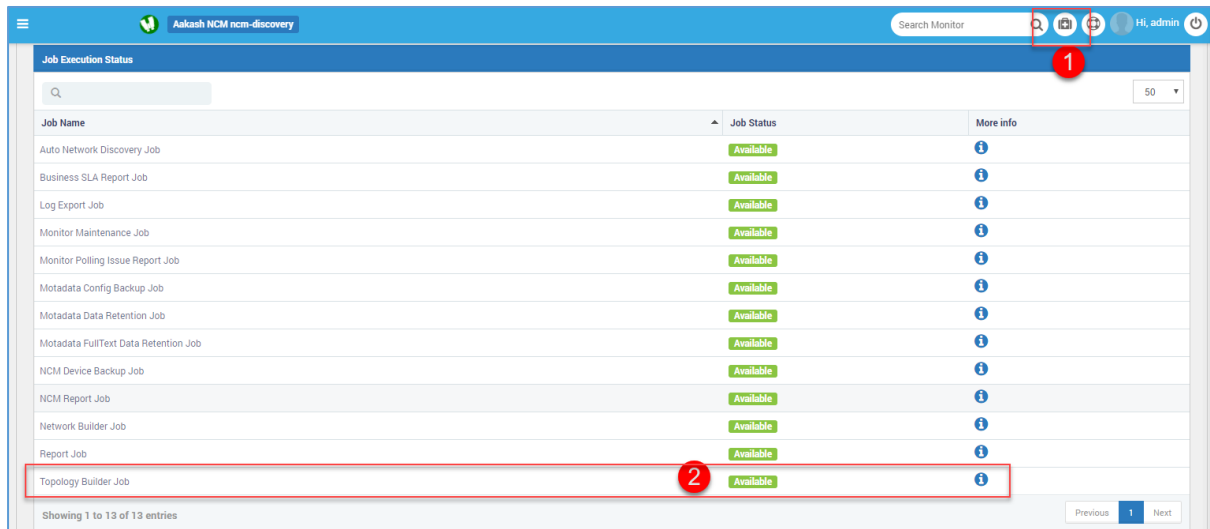
- Scheduler Name:** Text input field containing 'Topology Builder'.
- Status:** Radio buttons for 'Enable' (selected) and 'Disable'.
- Scheduler Date:** Date picker showing '2019-05-10'.
- Run Job At:** Time picker showing '00:00'.
- Routing IP:** Text input field with placeholder 'Enter Routing IP'.
- Discovery Protocol:** A list of protocols with checkboxes: SPM, CDP, LLDP, ISIS, and OSPF. All are currently checked.
- Repeat this job:** A toggle switch currently set to 'off'.
- Create:** A blue button at the bottom right to save the scheduler.

- **Scheduler Name:** Type the name of the scheduler.
 - **Status:** Set the status of the scheduler.
 - **Scheduler Date:** Select the date on which scheduler will run.
 - **Run Job At:** Provide the time at which scheduler should run.
 - **Routing IP:** Type the IP address using which Motadata should route the network.
 - **Discovery Protocols:** Select the discovery protocols applicable in your network. If you don't know about it, select all the protocols.
5. Run the job you created.

3.2 Check Status

To check the status of the job, connect the backend using SSH connection. The files are available at `/motadata/motadata/topology` location. Edit the file using any standard editor. Here, you can do the following things:

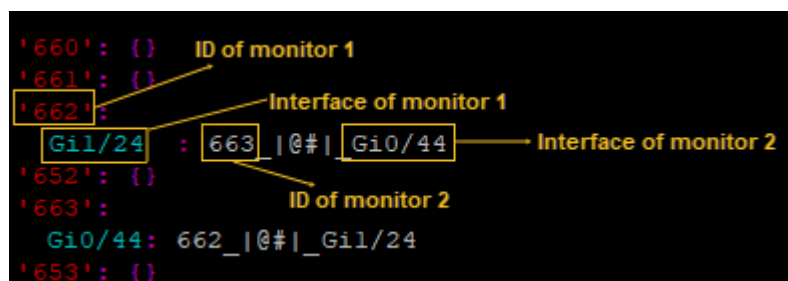
- Go to the 'Motadata Health' and see the status of the job.



- You can login into the backend of the motadata server and check the below file. Ideally, this file is empty before building the network. Hence, the quick guess can be the size of the file. The other files you'll see in the folder gets affected only when you make manual changes in Topology.

- topology.yml
 - The file stores the connection strings between two monitors based on the monitor ID. You'll see a lot of devices that are not connected with other devices. A device with connected interface should look like this.

For e.g. in below figure, the monitor 1 has ID = 662 has an interface (Gi1/24). The interface of monitor 1 is connected with monitor 2 (ID = 663) using interface of monitor 2 (Gi0/44).



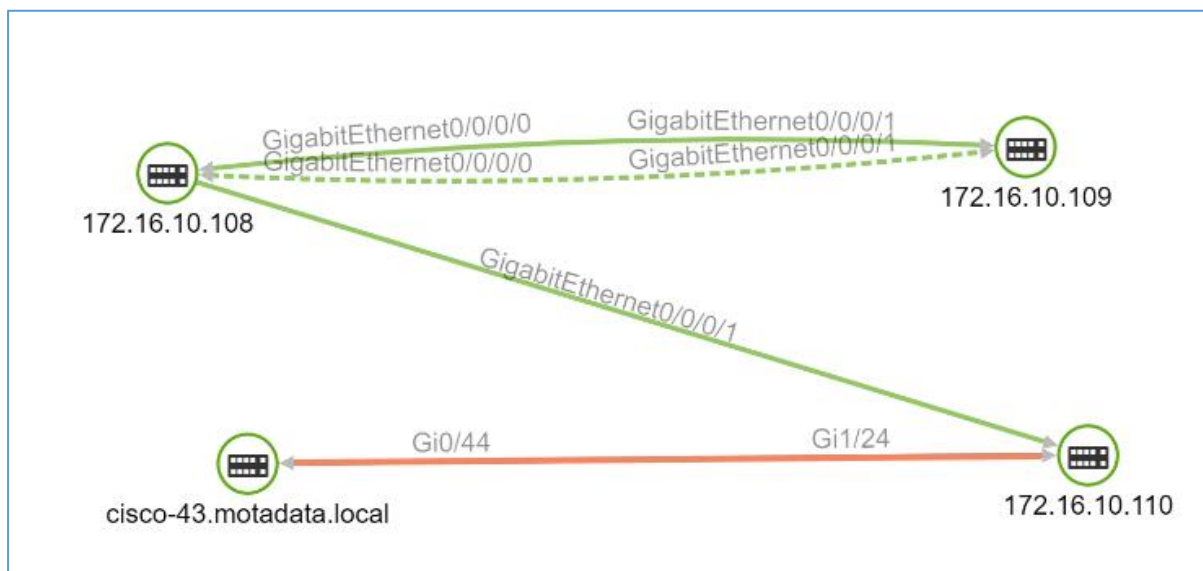
You can cross verify the topology by looking at monitor with ID = 663. Its interface (Gi0/44) is connected with monitor 1 using the interface (Gi1/24).

Similarly for L3 layer connectivity, the monitor with ID = 330 has the L3 interface (GigabitEthernet0/0/0/0) that is connected with monitor 2 (ID=331) using interface of monitor 2 (GigabitEthernet0/0/0/1)

```

seedIP: 328,329,330,331
'29': {}
'330':
  L3!!!GigabitEthernet0/0/0/0: 331 |@#| !!!GigabitEthernet0/0/0/1
'331':
  L3!!!GigabitEthernet0/0/0/1: 331 |@#| !!!GigabitEthernet0/0/0/0
'332': {}
'326': {}
'328':
  L3!!!GigabitEthernet0/0/0/0: 329_#@#_L3!!!GigabitEthernet0/0/0/0
'9': {}
'329':
  L3!!!GigabitEthernet0/0/0/0: 328_#@#_L3!!!GigabitEthernet0/0/0/0
'30': {}
'31': {}
'32': {}
~
~

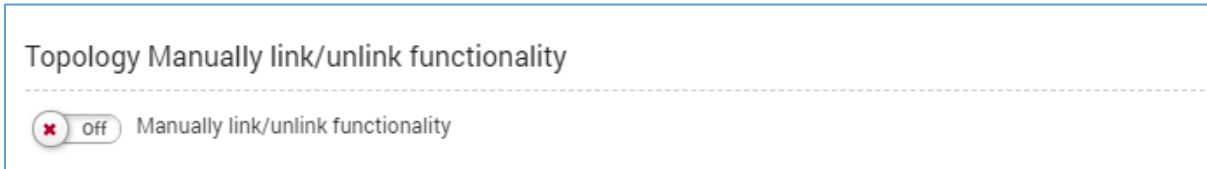
```



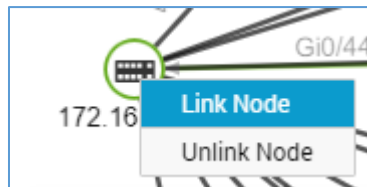
4 Link/Unlink Topology Manually

You can enable and disable the rights to change the topology manually. When turned on, people can manually link/unlink the nodes in **Topology** menu.

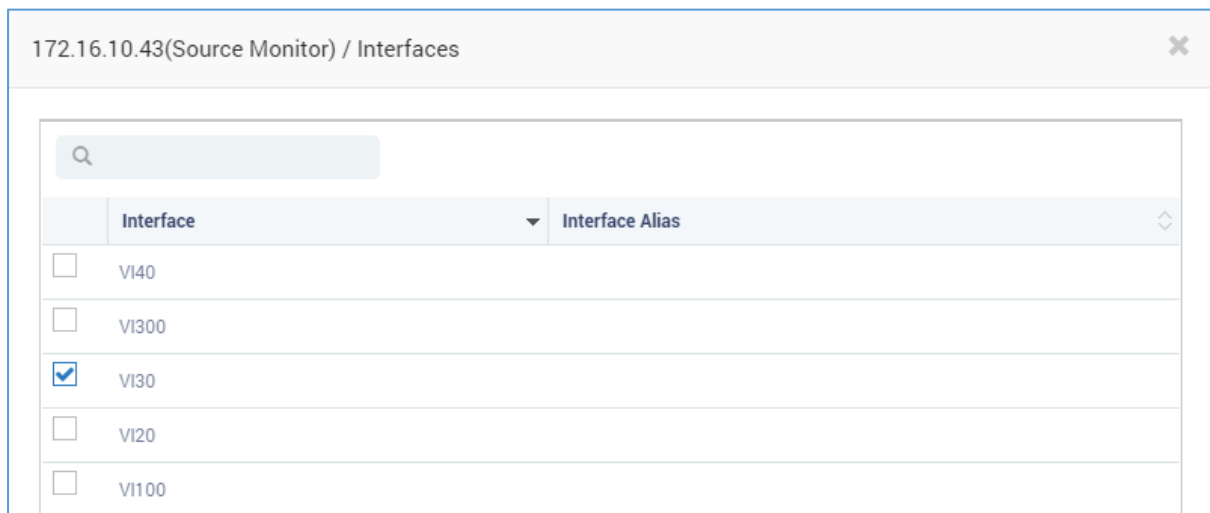
- Go to Admin > Global Settings.
- Turn On/Off the setting (By default the setting is Off).



In Topology > Infrastructure view, you can add the topology manually. Right click on the node to which you want to add topology. Click on the 'Link Node'.



System will ask you to select the interface by which you want to connect other nodes. You can select only one interface at a time.



Click on the 'Next' button. Now select the monitors you want to add with the node.

172.16.10.43 / VI30
✕

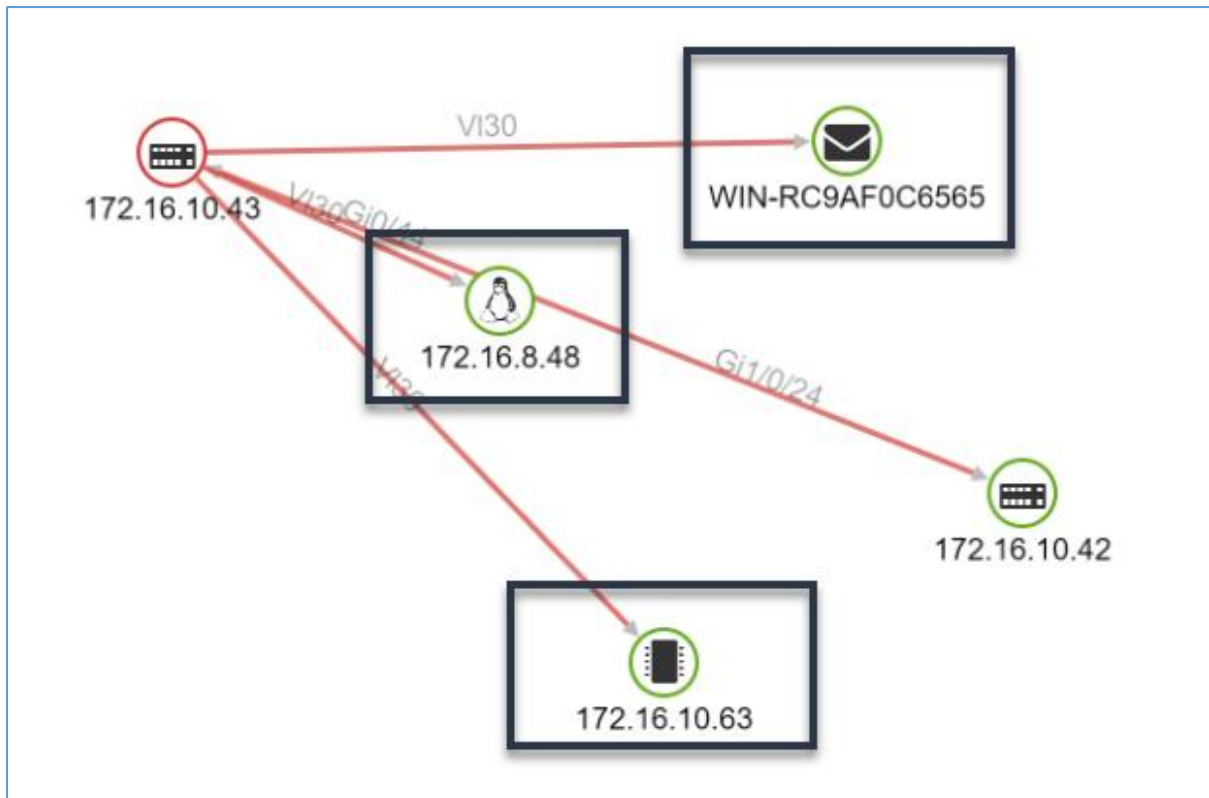
	Monitor	Type
<input checked="" type="checkbox"/>	WIN-RC9AF0C6565	Exchange Mailbox
<input checked="" type="checkbox"/>	172.16.8.48	Linux
<input checked="" type="checkbox"/>	172.16.10.63	Hardware Sensors
<input type="checkbox"/>	172.16.10.206	Hardware Sensors
<input type="checkbox"/>	172.16.10.205	Hardware Sensors
<input type="checkbox"/>	172.16.10.180	MSSQL Session
<input type="checkbox"/>	172.16.10.113	SNMP Device
<input type="checkbox"/>	172.16.10.112	SNMP Device
<input type="checkbox"/>	172.16.10.111	SNMP Device
<input type="checkbox"/>	172.16.10.10	SNMP Device
<input type="checkbox"/>	172.16.10.1	Firewall
<input type="checkbox"/>	172.16.10.1	Firewall

Showing 1 to 12 of 12 entries

Previous
1
Next

Link

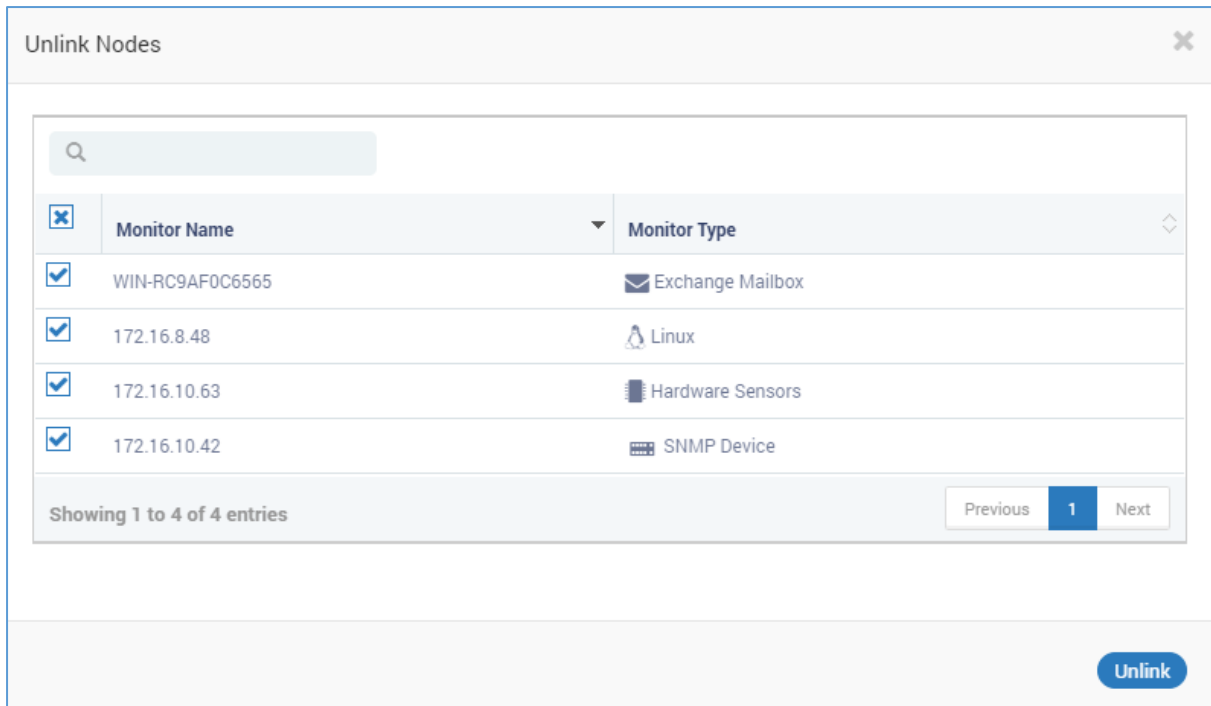
Click on the 'Link' button. You'll see the selected nodes connected with the monitor.



To unlink the associated nodes, right click on the node and select 'Unlink Node'.



A popup will show the linked nodes. Select the nodes you want to unlink and click on 'Unlink'.



4.1 [Linked YML File](#)

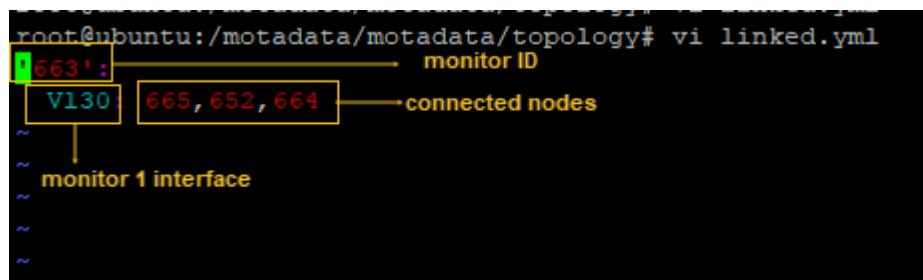
When the manual topology is turned on, the changes are reflected in “linked.yml”.

- You can login into the backend of the motadata server and check the below file. Ideally, this file is empty before building the network. Hence, the quick guess can be the size of the file.
- The yml file stores the ID of the primary node by which you have linked other nodes. Also, it shows the interface of the primary node and monitor ID of all the devices associated with it.

```

root@ubuntu:/motadata/motadata/topology# vi linked.yml
663':
V130: 665, 652, 664
monitor 1 interface

```



- When the monitor is connected with 'null' interface, the file will show only 1 entry of the primary node. Else, you'll see entries of both the monitors.

Keep in touch

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