Topology Builder
Configuration Document

Table of Contents

Copyright Notice

The information contained in this document represents the views and opinions of Mindarray Systems Pvt. Ltd. on the issue as of the date of publication. Because of the dynamic nature of the IT Industry and the technology that is behind it, Mindarray Systems Pvt. Ltd. can make no warranty as to the long-term accuracy of the assessment. These materials are confidential and proprietary to Mindarray Systems Pvt. Ltd. and no part of these materials should be reproduced, published in any form by any means, electronic or mechanical including photocopy or any information storage or retrieval system, nor should the material be disclosed to third parties without the express written authorization of Mindarray Systems Pvt. Ltd. Information in this document is subject to change without notice and does not represent a commitment on the part of Mindarray Systems Pvt. Ltd.

Notices

PLEASE READ THIS SOFTWARE LICENSE AGREEMENT CAREFULLY BEFORE DOWNLOADING OR USING THE SOFTWARE. BY CLICKING ON THE "I ACCEPT THE TERMS OF THE LICENSE AGREEMENT" BUTTON, OPENING THE PACKAGE, DOWNLOADING THE PRODUCT, OR USING THIS PRODUCT, YOU ARE CONSENTING TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT AGREE WITH ALL OF THE TERMS OF THIS AGREEMENT, CLICK THE "I DO NOT ACCEPT THE TERMS OF THE LICENSE AGREEMENT" BUTTON AND THE INSTALLATION PROCESS WILL NOT CONTINUE. RETURN THE PRODUCT TO THE PLACE OF PURCHASE FOR A FULL REFUND, OR DO NOT DOWNLOAD THE PRODUCT. YOUR GENERAL TERMS OF BUSINESS DO NOT APPLY.

General
In this software license agreement:
a) "Mindarray" means Mindarray Systems Pvt Ltd., 14/3, Magnet Corporate Park. 100 Feet Road, S.G Highway, Near Sola Bridge Opp. Grand Cambay, Thaltej, Ahmedabad, Gujarat. India.
b) "Customer" means the individual(s), organization or business entity buying a license of the software from Mindarray or its distributors or its resellers.
c) "Software" means computer programs (and their storage medium) supplied by Mindarray and known collectively as "Mindarray IP Address Manager" in which Mindarray has propriety rights for its any user manuals, example code, operating instructions, brochures and all other documentation relating to the said computer programs (the expression "software" to include all or any part or any combination of software).

License Grant
This license grants you the following rights:
a) Software product: Mindarray grants to you an exclusive license to use the software for the sole purposes of designing, developing, and testing your software components or applications ("applications"). You may install the software on any computer in your organization.
b) Electronic documents: Solely with respect to electronic documents included with the software, you may make an unlimited number of copies (either in hardcopy or electronic form), provided that such copies shall be used only for internal purposes and are not republished or distributed to any third party.
c) License file: A file provided at the time of sale uniquely identifies each license. This license grant is contingent upon the purchase of a license file from Mindarray or one of Mindarray's resellers.
d) Sample code: Mindarray grants you the right to use and modify the source code parts of the software that are listed in the "projects" and "scripts" subdirectories (if available).
e) Redistribution: The software is made available for download solely for use by end users according to the license agreement. Any reproduction or redistribution of the software not in accordance with the license agreement is expressly prohibited.
f) Trial software: If the software is installed without a serial number then, notwithstanding other sections of this license, you may use the software for up to 30 days after installation.
g) Not for resale software: If the software is labeled as "not for resale " or "NFR" then, notwithstanding other sections of this license, you may not resell, or otherwise transfer the value of software, neither distribute any redistributables.
h) Reservation of rights: Mindarray reserves all rights not expressly granted to you in this license agreement. The license is granted to the customer on a non-exclusive-basis which means that Mindarray will grant the license also to their individuals, organizations and business entities.
i) This license agreement consists of no obligations for Mindarray to offer support (services), help (services) or maintenance (services) relating to the software. Obligations for Mindarray to offer maintenance (services) relating to the software can only arise from a maintenance agreement between Mindarray and customer. General terms of business of the customer do not apply.

Upgrades and Supplements
If the software is labeled as an upgrade, you must be properly licensed to use a product identified by Mindarray as being eligible for the upgrade in order to use the software. Software labeled as an upgrade replaces and/or supplements the product that formed the basis for your eligibility for the upgrade. You may use the resulting upgraded product only in accordance with the terms of this license unless we provide other terms along with the update or supplement. If the software is an upgrade of a component or a package or software programs that you licensed as a single product, the software may be used and transferred only as part of that single product package.

Limitation on Reverse Engineering, Decompilation, And Disassembly
Customer may not reverse engineer, decompile, or disassemble the software, except and only to the extent that it is expressly permitted by applicable law notwithstanding this limitation.

Termination
Without prejudice to any other rights, Mindarray may cancel or dissolve this license agreement if the customer does not abide by the terms and conditions of this license agreement, in which case customer must destroy all copies of the software and all of its component parts.

Limited Warranty
Mindarray warrants that for a period of ninety (90) days from the date of shipment from Mindarray. The media on which the software is furnished will be free of defects in materials and workmanship under normal use.

The software substantially conforms to its published specifications. Except for the foregoing, the software is provided as is. This limited warranty extends only to the customer as the original licensee. Customer's exclusive remedy and the entire liability of Mindarray and its suppliers under this limited warranty will be, at Mindarray or its service center's option, repair, replacement, or refund of the software if reported (or, upon request, returned) to the party supplying the software to the customer. In no event does Mindarray warrants that the software is error-free or that customer will be able to operate the software without problems or interruptions. The customer will safeguard Mindarray against any claim relating to the use of the software by the customer. This warranty does not apply if the software: (a) has been altered, except by Mindarray; (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Mindarray; (c) has been subjected to abnormal physical or electrical stress misuse, negligence, or accident; (d) is used in high-risk activities, including the operation of nuclear facilities, aircraft navigation, air traffic control, weapons systems, life support or medical applications for use in any circumstance in which the failure of the software could lead directly to death, personal injury or damage to properties or the environment.

Limitation of Liability and Remedies
NOTWITHSTANDING ANY DAMAGES THAT YOU MIGHT INCUR FOR ANY REASON WHATSOEVER (INCLUDING, WITHOUT LIMITATION ALL INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR MULTIPLE DAMAGES SUCH AS BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS, LOSS OF GOODWILL, WORKS TOP PAGE AND DATA LOSS), THE ENTIRE LIABILITY OF MINDARRAY AND ANY OF ITS SUPPLIERS UNDER ANY PROVISION OF THIS LICENSE AGREEMENT AND YOUR EXCLUSIVE REMEDY FOR ALL OF THE FOREGOING (EXCEPT FOR ANY REMEDY OF REPAIR OR REPLACEMENT ELECTED BY MINDARRAY WITH RESPECT TO ANY BREACH OF THE LIMITED WARRANTY) SHALL BE LIMITED TO THE AMOUNT ACTUALLY PAID BY YOU FOR THE SOFTWARE. MINDARRAY IS RELIEVED OF ANY OBLIGATION TO PAY DAMAGES IF THE CUSTOMER HAS NOT UPGRADED THE SOFTWARE WHEN POSSIBLE. THE FOREGOING LIMITATIONS, EXCLUSIONS, AND DISCLAIMERS (INCLUDING SECTIONS 4, 5 AND 6 ABOVE) SHALL APPLY TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EVEN IF ANY REMEDY FAILS ITS ESSENTIAL PURPOSE.

Entire Agreement
This license agreement (including any addendum or amendment to this license agreement which is included with the software) is the entire agreement between you and Mindarray relating to the software and the support services (if any) and they supersede all prior or contemporaneous oral or written communications, proposals and representations with respect to the software or any other subject matter covered by this license agreement. To the extent the terms of any Mindarray policies or programs for support services conflict with the terms of this license agreement, the terms of this license agreement shall control.
The customer is not allowed to alienate or transfer any rights relating to this license agreement without the written approval of Mindarray.
THIS AGREEMENT SHALL BE CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE INDIAN GOVERNMENT AND THE INDIAN COURTS SHALL HAVE SOLE JURISDICTION IN ANY DISPUTE RELATING TO THESE CONDITIONS. ALL DISPUTES HEREUNDER SHALL BE RESOLVED EXCLUSIVELY IN THE APPROPRIATE COURT IN THE CITY OF AHMEDABAD, INDIA. If any part of these conditions shall be or become invalid or unenforceable in any way and to any extent by any existing or future rule of law, order, statute or regulation applicable thereto, then the other conditions shall remain in full force and effect as all other provisions.
The conditions of this license agreement remain applicable after the termination of this license agreement if this results from the nature of the condition.

Copyright
The software is protected by copyright and other intellectual property laws and treaties. Mindarray or its suppliers own the title, copyright, and other intellectual property rights in the software. The granting of a license does not constitute a transfer of any intellectual property right. The software is licensed, not sold.

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.
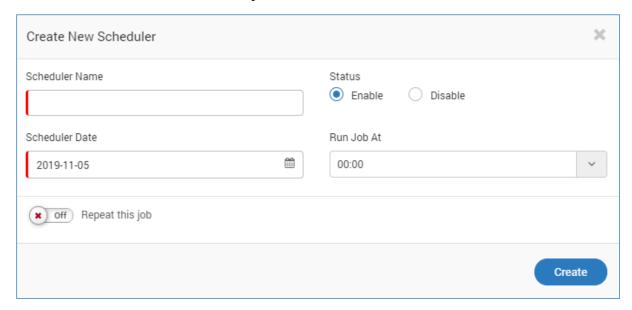
2 Configure Network Builder Job

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'.
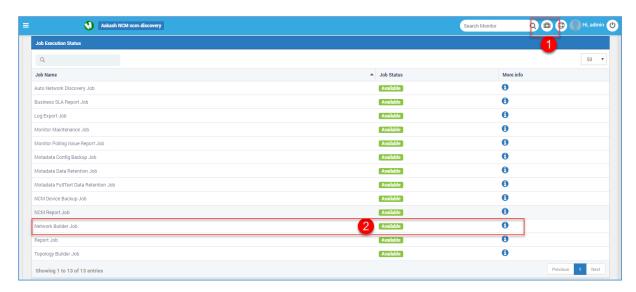3. Fill the fields and save the job.

- **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.

- 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.

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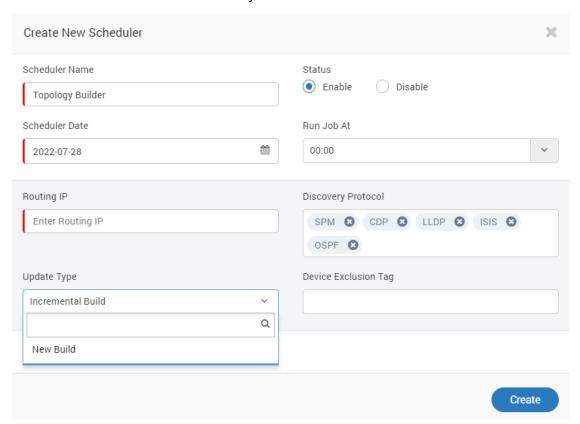   - The yml file stores the IP address and the MAC address of the devices taken from the network.

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.

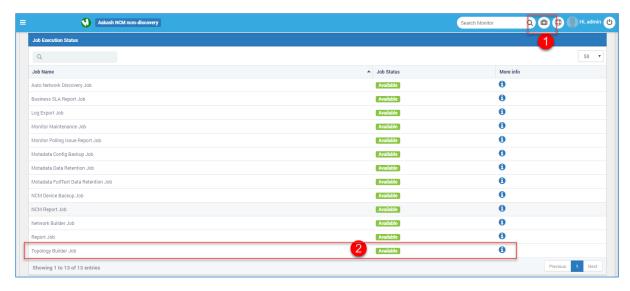- **Scheduler Name**: Type the name of the scheduler.
- **Status**: Set the status of the scheduler.
- **Scheduler Date**: Select the date on which scheduler will run.
- **Run Job At**: Provide the time at which scheduler should run.
- **Routing IP**: Type the IP address using which Motadata should route the network.
- **Discovery Protocols**: Select the discovery protocols applicable in your network. If you don't know about it, select all the protocols.
- **Update Type**: Select the necessary Updation type. When the option New Build will be selected, the job will be run at the initial stage of topology building, whereas when Incremental Build will be selected, the job will be run for building the topology for newly added as well as deleted devices.

www.motadata.com | info@motadata.com

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.

    o 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': {}
~
~
~
```
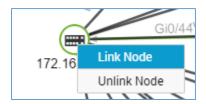
4 Link/Unlink Topology Manually

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'.
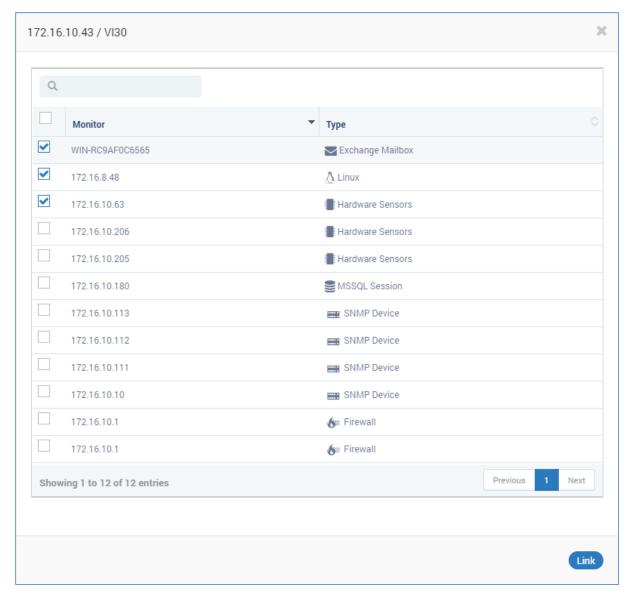

System will ask you to select the interface by which you want to connect other nodes. You can select only one interface at a time.
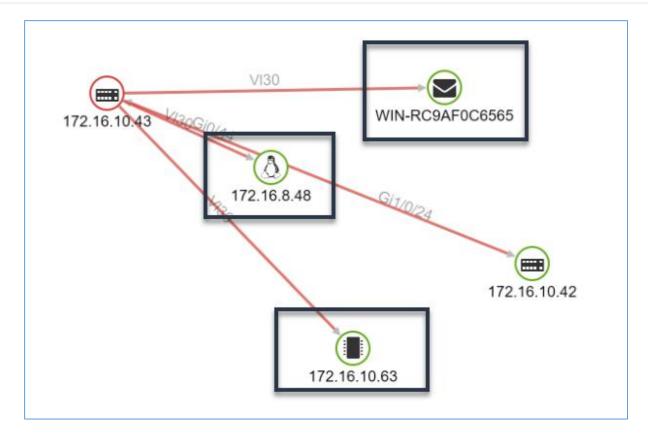

Click on the 'Next' button. Now select the monitors you want to add with the node.

172.16.10.43 / VI30

	Monitor ▼	Type ⬍
☑	WIN-RC9AF0C6565	✉ Exchange Mailbox
☑	172.16.8.48	🐧 Linux
☑	172.16.10.63	Hardware Sensors
☐	172.16.10.206	Hardware Sensors
☐	172.16.10.205	Hardware Sensors
☐	172.16.10.180	MSSQL Session
☐	172.16.10.113	SNMP Device
☐	172.16.10.112	SNMP Device
☐	172.16.10.111	SNMP Device
☐	172.16.10.10	SNMP Device
☐	172.16.10.1	Firewall
☐	172.16.10.1	Firewall

Showing 1 to 12 of 12 entries
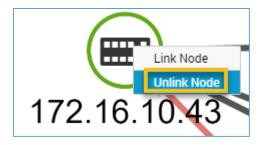
Previous | **1** | Next

Link

Click on the 'Link' button. You'll see the selected nodes connected with the monitor.
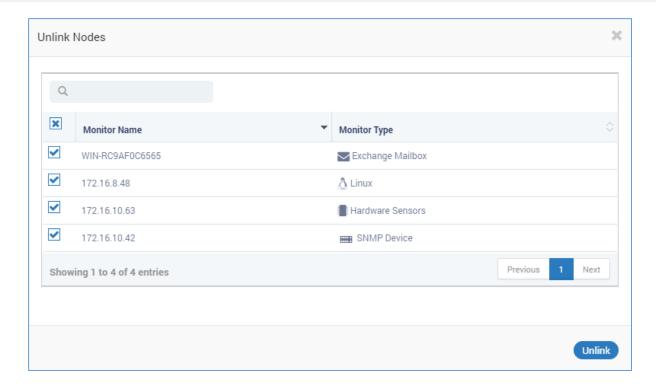
To unlink the associated nodes, right click on the node and select 'Unlink Node'.

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.

- 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

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.

motadata