

NVIDIA UFM Enterprise Appliance Software User Manual v1.12.2

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Overview

NVIDIA® UFM® Enterprise Appliance is a powerful platform for managing InfiniBand scaleout computing environments. It is based on Ubuntu 18.04 OS, where the UFM Enterprise software is deployed and running as a Docker container. UFM enables data center operators to efficiently monitor and operate the entire fabric, boost application performance and maximize fabric resource utilization.

Software Download

To download the UFM software, please visit NVIDIA's Licensing Portal.

If you do not have a valid license, please fill out the <u>NVIDIA Enterprise Account</u> <u>Registration</u> form to get a UFM evaluation license.

Document Revision History

For the list of changes made to this document, refer to Document Revision History.

Technical Support

Customers who purchased NVIDIA products directly from NVIDIA are invited to contact us through the following methods:

- E-mail: Enterprisesupport@nvidia.com
- Enterprise Support page: <u>https://www.nvidia.com/en-us/support/enterprise</u>

Release Notes

NVIDIA UFM Enterprise Appliance is a powerful platform for managing InfiniBand scaleout computing environments. UFM enables data center operators to efficiently monitor and operate the entire fabric, boost application performance and maximize fabric resource utilization.

Changes and New Features

NOTE: ConnectX-7 adapters firmware (with a new GPIO configuration) improves long-term ConnectX-7 operation, and it is strongly desired that all customers upgrade to 28.39.2702 (or later).

Feature	Description
UFM Plugins	Updated the gNMI Telemetry Plugin to version 1.3.6-2 (resolved bug fixes).
UFM OS	Integrated with UFM OS version 25.04.18-1
UFM Package	Integrated with UFM Enterprise version 6.21.2
UFM HA	Integrated with UFM HA version 5.9.0
MFT Package	Integrated with MFT version mft- 4.32.0-120
MLNX_OFED	Integrated with MLNX_OFED version 23.10-4.0.9.1
Firmware	Integrated with firmware version XX.39.4082

For UFM Enterprise Changes and New Features, please refer to the <u>UFM Enterprise User</u> <u>Manual</u>.

Installation Notes

Supported Devices

Supported NVIDIA Externally Managed Switches

Туре	Model	Latest Tested Firmware Version
NDR switches	• MQM9790	31.2021.4036
HDR switches	• MQM8790	27.2012.4036
EDR switches	SB7790SB7890	15.2010.4402

Supported NVIDIA Internally Managed Switches

Туре	Model	Latest Tested OS Version
XDR switches	• Q3200_RA	NVOS-25.02.1002
NDR switches	• MQM9700	MLNX-OS 3.12.1002 NVOS 25.01.4000
HDR switches	 MQ8700 MCS8500 TQ8100-HS2F TQ8200-HS2F 	MLNX-OS 3.12.1002
EDR switches	 SB7700 SB7780 SB7800 CS7500 CS7510 CS7520 	MLNX-OS 3.10.4400

(i) Note

For supported HCAs per MLNX_OFED version, please refer to MLNX_OFED Release Notes.

UFM GUI Client Requirements

The platform and GUI requirements are detailed in the following tables:

Platform	Details
Browser	Edge, Internet Explorer, Firefox, Chrome, Opera or Safari
Memory	Minimum: 6 GBRecommended: 16 GB

UFM SM Version

Platform	Type and Version
SM	UFM package includes SM version 5.23.2

UFM NVIDIA SHARP Software Version

Platform	Type and Version
NVIDIA® Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)™	UFM package includes NVIDIA SHARP software version 3.11.0

Bug Fixes in This Release

Refer to UFM Enterprise v6.21.2 Release Notes for further <u>Bug Fixes</u>.

Refer to UFM High-Availability v5.9.0 Release Notes for further Bug Fixes.

Known Issues in This Release

Refer to UFM Enterprise Software Release Notes for further Known Issues.

Introduction

This manual is intended for system administrators responsible for the installation, configuration, management and maintenance of the software and hardware of UFM Enterprise Appliance. NVIDIA® UFM® Enterprise Appliance is a powerful platform for managing InfiniBand scale-out computing environments.

Key Features

UFM provides a central management console, including the following main features:

- Pluggable platform for advanced functionality and third-party plugins
- Fabric dashboard including congestion detection and analysis
- Advanced real-time health and performance monitoring
- Fabric health reports
- Threshold-based alerts
- Fabric segmentation/isolation
- Quality of Service (QoS)
- Routing optimizations
- Central device management
- Task automation
- Logging
- High availability
- Daily Report: Statistical information of the fabric during the last 24 hours
- Event management
- Client certificate authentication

• Chassis health monitoring

Getting Started

The procedures described on this section assume that you have already installed and powered on your UFM Enterprise appliance according to the instructions in the Hardware Installation Guide.

- Obtaining the License
- Activating the License
- Configuring the Appliance for the First Time
- <u>Starting UFM</u>

Obtaining the License

UFM Enterprise Appliance is licensed per managed servers according to the UFM license agreement.

When you purchase UFM Enterprise Appliance, you will receive an email with instructions on obtaining your product license. A valid license is a prerequisite for the installation and operation of UFM Enterprise Appliance.

UFM licenses are per managed node and are aggregative. If you install an additional license, the system adds the previous node number and the new node number and manages the sum of the nodes. For example, if you install a license for 10 managed nodes and an additional license for 15 nodes, UFM will be licensed for up to 25 managed nodes.

To obtain the license:

- 1. Go to NVIDIA's <u>Licensing and Download Portal</u> and log in as specified in the licensing email you received.
 - If you did not receive your NVIDIA Licensing and Download Portal login information, contact your product reseller.
- 2. If you purchased UFM directly from NVIDIA and you did not receive the login information, contact **enterprisesupport@nvidia.com.** Click on the Network

Entitlements tab. You'll see a list with the serial licenses of all your software products and software product license information and status.

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A NETWORK ENTITLEMENTS	PRODUCT FRAMELY; UPM	STATUS				
D WRTUAL GROUPS	∀ Search antillements				updated 🛞 12:39:14 PM 🏼 🌀 🍸	20
SOFTWARE DOWNLOADS	>	FRANKLY 🍸 🔿	name 🖓 🗘	EXPIRATION	PROVISIONED	
I INDATS	kvististbey-trithcybuid-cmithiuibuu	UPM	URM Enterprise Subs Licensing-1	jun 16. 2022 - jun 16. 2025	20	Actions
B SERVICE INSTANCES	mrttobicos-ndluctile?u-dkuipiopka	UNI	URM Telemetry Subs Licensing-1	jun 16. 2022 - jun 16. 2025	20	Actions
Q SUPPORT	hpago-paintopring/k-og/ditvr5	uhi	URM Cyber N Subs Licensing-1	jun 16. 2022 - jun 16. 2025	20	Actions
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- 3. Select the license you want to activate and click on the "Actions" button.
- 4. In the MAC Address field, enter the MAC address of the delegated license-registered host. If applicable, in the HA MAC Address field, enter your High Availability (HA) server MAC address. If you have more than one NIC installed on a UFM Server, use any of the MAC addresses.

Manage Make changes to th	License File e license allotment and ger	nerate a new file	×
ID	NAME	PROVISIONED	EXPIRATION
kvkdlxdbwy- tn0hcy2uud- cm0hiu4buu	UFM Enterprise Subs Licensing-1	20	Jun 16, 2022 - Jun 16, 2025
MAC Address	/kdlxdbwy-tn0hcy2uud-cm rated Jul 11, 2022 5:37 PM	Ohiu4buu-2022071114 上, last downloaded	43558.lic Jul 11, 2022 5:37 PM
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MAC Address (XX:	00:00:00:00:00:00 or 00-00-00	(-)()(-)()	
	GENERATE LIC	ENSE FILL 👱 DO	DWNLOAD LICENSE FILE

- 5. Click on Generate License File to create the license key file for the software.
- 6. Click on Download License File and save it on your local computer.

If you replace your NIC or UFM server, repeat the process of generating the license to set new MAC addresses. You can only regenerate a license two times. To regenerate the license after that, contact NVIDIA Sales Administration at **<u>enterprisesupport@nvidia.com</u>**.

Activating the License

Before starting the UFM software, copy your license file downloaded from NVIDIA's Licensing and Download Portal to the */opt/ufm/files/licenses* directory.

We recommend that you back up the license file.

Your software is now activated.

(i) Note

In a High Availability configuration, the license files are replicated to the standby machine automatically.

Configuring the Appliance for the First Time

The diagram below describes the connectivity scheme of the UFM High-Availability cluster.



The following are instructions on how to configure the management and fabric (InfiniBand) interfaces in the UFM cluster.

Configuring the Management Interface

The NVIDIA UFM Enterprise Appliance has multiple Ethernet management interfaces. The primary management interface is eno8303. The MAC address for eno8303 is available on the pull tab and can be configured in the DHCP server. To use the remote management controller with DHCP, the free-range IP allocation must be enabled on the DHCP server.

The appliance supports a direct connection via a serial port.

For instructions on how to configure the management interface, please refer to <u>Configuring the Appliance</u>.

Configuring the Back-to-Back Interface



This interface should be used as the primary interface when configuring HA.

When operating in HA configuration, directly connect (back-to-back - without a management switch in the middle) the Master node to the Standby node. To do so, utilize the Ethernet management interface eno8403, as shown in the above diagram.

For your convenience, you may use the CLI command <u>Interface</u> to set a static IP address for eno8403.

Example:

interface eno8403 ip address 11.0.0.11 /24

Configuring the Fabric Interface

i) Note

As of UFM Enterprise Appliance v1.3.0 (UFM Enterprise v6.12.0), configuring the fabric interface is optional.

The NVIDIA UFM Enterprise Appliance has multiple InfiniBand interfaces. The primary interface is ib0.

Configure a static IPoIB with Network service (create the file /etc/network/interfaces.d/ifcfg-ib0 and run ifup ib0).

Example of ifcfg-ib0 file definition:

auto ib0 iface ib0 inet static address 10.0.0.12 netmask 255.255.255.0 broadcast 10.0.0.255

For your convenience, you may use the CLI command <u>Interface</u> to set a static IP address for ib0.

Example:

interface ib0 ip address 192.168.1.11 /24

For more details on how to configure the UFM Enterprise, please refer to <u>UFM Enterprise</u> <u>Initial Configuration</u>.

Starting UFM

Starting UFM Procedure

1. Start the UFM Enterprise service. Run:

systemctl start ufm-enterprise.service

- 2. Wait 1 minute for the service to come up.
- 3. Ensure the service health. Run:

ufm_enterprise_sanity.sh
Checking Service...
Done

```
Checking Images...
Done
Checking Containers...
Done
Checking ufm REST server...
Done
Sanity tests completed successfully!
```

Logging Into UFM Web UI

To open UFM WEB UI, open the following URL in your browser: https://[SERVER_IP]/ufm/ and type the default credentials.

High Availability

UFM HA supports High-Availability on the host level for UFM Enterprise appliances. The solution is based on a pacemaker to monitor services, and on DRBD to sync file-system states.

The diagram below describes the connectivity scheme of the UFM High-Availability cluster.



High-Availability Configuration

UFM HA should be configured on two appliances, master and standby.



High-availability should be configured first on on the standby node. When completed, it should be configured on the master node.

Command Usage:

```
# ufm_ha_cluster config --help
Usage: ufm_ha_cluster config [<options>]
```

The config command configures ha add-on for ufm server.

Options:

Option	Description
-r role <node role=""></node>	Node role (master or standby) - Mandatory
-e peer-primary-ip <ip address=""></ip>	Peer node primary ip address - Mandatory
-l local-primary-ip <ip address=""></ip>	Local node primary ip address - Mandatory
-E peer-secondary-ip <ip address=""></ip>	Peer node secondary ip address - Mandatory
-L local-secondary-ip <ip address=""></ip>	Local node secondary ip address - Mandatory
-i virtual-ip <virtual-ip> OR -N no-vip</virtual-ip>	Cluster virtual IP <u>OR</u> Do not create virtual IP resource - Mutual exclusive with virtual-IP option One of the two options is mandatory
-p hacluster-pwd <pwd></pwd>	hacluster user password - Mandatory
-f ha-config-file <file path=""></file>	HA configuration file - The default is ufm-ha.conf

Configure HA with VIP (Virtual IP)

1. [On Standby Server] Run the following command to configure Standby Server:

```
ufm_ha_cluster config -r standby \
--local-primary-ip <local back-to-back IP> \
```

```
--peer-primary-ip <peer back-to-back IP> \
--local-secondary-ip <local management IP> \
--peer-secondary-ip <peer management IP> \
--virtual-ip <virtual management IP used for accessing the
master node> \
--hacluster-pwd <password>
```

2. [On Master Server] Run the following command to configure Master Server:

ufm_ha_cluster config -r master \ --local-primary-ip <local back-to-back IP> \ --peer-primary-ip <peer back-to-back IP> \ --local-secondary-ip <local management IP> \ --peer-secondary-ip <peer management IP> \ --virtual-ip <virtual management IP used for accessing the master node> \ --hacluster-pwd <password>

Alternatively, you can run the CLI command ufm ha configure.

Marning

You must wait until after configuration for DRBD sync to finish before starting the UFM cluster. To check the DRBD sync status, run:

ufm_ha_cluster status

Configure HA without VIP (on a Dual Subnet)





2. [On Master Server] Run the following command to configure Master Server:



Alternatively, you can run the CLI command ufm ha configure dual-subnet.



Yo sta	u must wait until after configuration for DRBD sync to finish before arting the UFM cluster. To check the DRBD sync status, run:
	ufm_ha_cluster status

High-Availability Cluster Management

• To manage the HA cluster, use the *ufm_ha_cluster* tool.

ufm_ha_cluster Usage

```
# ufm_ha_cluster --help
UFM-HA version: 5.3.0-17
------
Usage: ufm_ha_cluster [-h|--help] <command> [<options>]
This script manages UFM HA cluster.
```

Options:

OPTIONS: -h help	Show this message
COMMANDS:	
version	HA cluster version
config	Configure HA cluster
cleanup	Remove HA configurations
status	Check HA cluster status

	failover	Master node failover
	takeover	Standby node takeover
	start	Start HA services
	stop	Stop HA services
	detach	etach the standby from cluster
	attach	Attach a new standby to cluster
	enable-maintain	Enable maintenance to cluster
	disable-maintain	Disable maintenance to cluster
	reset	Reset DRBD connectivity from split-
bra	in	
	is-master	check if the current node is a master
	is-running	check if ufm services are running
	is-ha	Check if running in HA mode

• For further information on each command, run:

ufm_ha_cluster <command> --help

• To check UFM HA cluster status, run:

ufm_ha_cluster status

• To start the UFM HA cluster, run:

ufm_ha_cluster start

• To stop the UFM HA cluster, run:

ufm_ha_cluster stop

• Execute the failover command on the master appliance to become the standby appliance. Run:

```
ufm_ha_cluster failover
```

• Execute the takeover command on the standby machine to become the master appliance. Run:

ufm_ha_cluster takeover



For additional information on configuring UFM HA, please refer to <u>Installing UFM Server Software for High Availability</u>. Since the UFM HA package and related components (i.e. pacemaker and DRBD) are already deployed, follow instructions from step 6 (Configure HA from the main server) and onward.

Authentication, Authorization and Accounting - AAA

AAA is a term describing a framework for intelligently controlling access to computer resources, enforcing policies, auditing usage, and providing the information necessary to bill for services. These combined processes are considered important for effective network management and security. The AAA feature allows you to verify the identity of, grant access to, and track the actions of users managing the system. The UFM Enterprise Appliance switch supports Terminal Access Controller Access Control device Plus (TACACS+) protocol.

- Authentication authentication provides the initial method of identifying each individual user, typically by entering a valid username and password before access is granted. The AAA server compares a user's authentication credentials with the user credentials stored in a database. If the credentials match, the user is granted access to the network or devices. If the credentials do not match, authentication fails and network access is denied.
- Authorization following the authentication, a user must gain authorization for performing certain tasks. After logging into a system, for instance, the user may try to issue commands. The authorization process determines whether the user has the authority to issue such commands. Simply put, authorization is the process of enforcing policies: determining what types or qualities of activities, resources, or services a user is permitted. Usually, authorization occurs within the context of authentication. Once you have authenticated a user, they may be authorized for different types of access or activity.
- Accounting the last level is accounting, which measures the resources a user consumes during access. This includes the amount of system time or the amount of data a user has sent and/or received during a session. Accounting is carried out by logging of session statistics and usage information, and is used for authorization control, billing, trend analysis, resource utilization, and capacity planning activities.

Authentication, authorization, and accounting services are often provided by a dedicated AAA server, a program that performs these functions.

TACACS+

TACACS (Terminal Access Controller Access Control System), widely used in network environments, is a client/server protocol that enables remote access servers to communicate with a central server to authenticate dial-in users and authorize their access to the requested system or service. TACACS implements the TACACS Client and provides the AAA (Authentication, Authorization and Accounting) functionalities.

TACACS is used for several reasons:

- Facilitates centralized user administration
- Uses TCP for transport to ensure reliable delivery
- Supports inbound authentication, outbound authentication and change password request for the authentication service
- Provides some level of protection against an active attacker

For the list of TACACAS+ CLI commands, please refer to TACACAS+.

Configuring TACACS+ and Performing AAA

i) Note

Note: TACACS+ should be configured on two appliances, master and standby.

Configuring TACACS+ on UFM Servers

• Add TACACS server with a key. Run:

```
ufmapl (config) # tacacs-server host 10.209.102.86 key
testkey123
```

• [Optional] Review the added server configuration. Run:

```
ufmapl (config) # show tacacs
```

Example:

```
swx-ufm3-06 (config) # show tacacs
TACACS+ defaults:
  Timeout :1
TACACS+ servers:
  10.209.102.86:49:
   Key : ********
```

• Enable TACACS authentication. Run:

```
ufmapl (config) # aaa authentication login default local
tacacs+
```

• [Optional] Review the Authentication and Accounting methods. Run:

ufmapl (config) # show aaa

Example:

```
swx-ufm3-06 (config) # show aaa
AAA authorization:
    Map Order: remote-only
```

```
Authentication method(s)L
local
tacacs+
Accounting method(s)L
tacacs+
```

Adding TACACS Users on the Server Side

i Note

The predefined "root" and "admin" users are local users, therefore, they can not be defined as remote TACACS+ users.

A simple configuration file is provided below:

```
accounting file = /var/log/tac_plus.acct
key = testkey123
user = testuser1 {
    global = cleartext testpass1
    service = exec { priv-lvl=15 }
    cmd = help { permit .* }
    cmd = enable { permit .* }
    cmd = configure { permit terminal }
    cmd = show {
        permit ufm.*
        deny .*
    }
}
```

```
user = testuser2 {
        global = cleartext testpass2
        service = exec { priv-lvl=15 }
        cmd = help { permit .* }
        cmd = enable { permit .* }
        cmd = configure { permit terminal }
        cmd = ufm {
                 permit "logging.*"
                 deny .*
        }
        cmd = no {
                 permit "ufm logging .*"
                 deny .*
         }
        cmd = show { permit .* }
}
user = testuser3 {
        default service = permit
        global = cleartext testpass3
        service = exec { priv-lvl=15 }
}
```

From the above configuration example

- There are 3 TACACS users named testuser1, testuser2 and testuser3 with respective passwords of testuser1, testuser2 and testuser3.
- The secret of the TACACS server is testkey123, assuming that this server is running at an IP address of 10.209.102.86. This information is used to register a TACACS server using the tacacs-host command in UFM CLI.
- testuser1 can only execute the show ufm commands. Executing any other command is not allowed.

- testuser2 can execute all show commands and can configure only the [no] ufm logging commands.
- testuser3 can execute all commands since the default service is permit.

Command Line Interface

UFM Enterprise Appliance is equipped with an industry-standard command line interface (CLI). The CLI is accessed through SSH session or directly through the console port, following login with username (admin) and credentials (admin). Following the initial login, the user is asked to set a new password.

This section explains how to use the CLI of UFM Enterprise Appliance.



Ignored Commands

To support backward compatibility with automation for initial configuration, the following commands are being ignored (they do not output error):

- 1. cli default auto-logout 1
- 2. no cli default paging enable
- 3. no cli default progress enable
- 4. no cli default prompt confirm-reload
- 5. no telnet-server enable
- 6. no interface <ifname> dhcp
- 7. no interface <ifname> ipv6 enable
- 8. no interface <ifname> shutdown

9. write memory

CLI Modes

The CLI has the following modes, and each mode makes available a different set of commands for execution. The different CLI configuration modes are:

Mode/C ontext	Description		
standar d	When the CLI is launched, it begins in Standard mode. This is the most restrictive mode and only has commands to query a restricted set of state information. Users cannot take any actions that directly affect the system, nor can they change any configuration.		
enable	The "enable" command moves the user to Enable mode. This mode offers commands to view all state information and take actions like rebooting the system, but it does not allow any configuration to be changed. Its commands are a superset of those in Standard mode. To return to Standard mode, enter "exit".		
config	The "configure terminal" command moves the user from Enable mode to Config mode. This mode has a full unrestricted set of commands to view anything, take any action, or change any configuration. Its commands are a superset of those in Enable mode. To return to Enable mode, enter "exit". Not that moving directly from/to Standard mode to/from Config mode is impossible.		
config interfac e manage ment	Configuration mode for management interfaces		

Prompt and Response Conventions

The prompt always begins with the hostname of the system. What follows depends on what command mode the user is in. To demonstrate by example, assuming the machine name is "ufm-enterprise-app", the prompts for each of the modes are:

ufm-enterprise-app > (St ufm-enterprise-app # (En ufm-enterprise-app (config) # (Co

(Standard mode)
(Enable mode)
(Config mode)

The following session shows how to move between command modes:

```
ufm-enterprise-app >
                                                          (You
start in Standard mode)
ufm-enterprise-app > enable
(Move to Enable mode)
ufm-enterprise-app #
(You are in Enable mode)
ufm-enterprise-app # configure terminal
                                                 (Move to Config
mode)
ufm-enterprise-app (config) #
                                                          (You are
in Config mode)
ufm-enterprise-app (config) # exit
                                                          (Exit
Config mode)
ufm-enterprise-app #
(You are back in Enable mode)
ufm-enterprise-app # exit
                                                              (Exit
Enable mode)
ufm-enterprise-app >
(You are back in Standard mode)
```

Commands entered do not print any response and simply show the command prompt after you press <Enter>.

Using "no" Command Form

Several config commands feature a "no" form whose purpose is to reset a parameter value to its inherited or default value, or to disable a configuration.

Getting Help

Enter "help" to view a description of the interactive help system. Note that the CLI supports command and/or parameter tab-completions. Thus, to learn which commands start with the letter "c", type "c" and click twice on the Tab key to get the following:

ufm # u<tab> ufm username ufm # u

This signifies that there are two commands that start with the letter "u": "ufm", "username".

System Management

Network Interfaces

This section describes the commands that configure and monitor the network interface.

Interface

interface

	interface <eno8303 eno12399np0="" eno12409np1="" eno8403="" ib0="" ="" <br="">ib1 ib2 ib3> Enters a network interface context.</eno8303>		
Syntax Description	eno8303	Management port 0 (out of band)	
	eno8403	Management port 1 (out of band)	
	eno12399np0	Management port 2 (out of band)	
	eno12409np1	Management port 3 (out of band)	
	ib0	InfiniBand interface 0	
	ib1	InfiniBand interface 1	
	ib2	InfiniBand interface 2 (UFM 3.0 only)	
	Sib3	InfiniBand interface 3 (UFM 3.0 only)	
Default	N/A		
Configuration Mode	config		
History	1.3.0		

Example	ufmapl (config) # interface eno8303 ufmapl (config interface eno8303) #	
Related Commands	N/A	
Notes	N/A	

show interfaces

	show interfaces [eno8303 eno8403 eno12399np0 eno12409np1 ib0 ib1 ib2 ib3] Displays information about the network interfaces.		
	eno8303	Management port 0 (out of band)	
	eno8403	Management port 1 (out of band)	
	eno12399np0	Management port 2 (out of band)	
Syntax	eno12409np1	Management port 3 (out of band)	
Description	ibO	InfiniBand interface 0	
	ib1	InfiniBand interface 1	
	ib2	InfiniBand interface 2 (UFM 3.0 only)	
	ib3	InfiniBand interface 3 (UFM 3.0 only)	
Default	N/A		
Configuration Mode	enable		
	1.6.0	Updated example and added command syntax	
History	1.4.1	First release	
Example		·	
	swx-ufm3-06 # show interfaces eno8303		
	Interface eno8303 status:		
	Comment	:	
	Admin up	: yes	
	Link up	: yes	

```
DHCP running : yes
 IP address
                  : 10.209.36.101
                  : 255.255.252.0
 Netmask
 IPv6 enabled : yes
 Autoconf enabled : N/A
 Autoconf route : N/A
 Autoconf privacy : N/A
 DHCPv6 running : yes
 IPv6 addresses : 2
IPv6 address:
   fcfc:fcfc:209:36:b27b:25ff:fee9:30c8/64
   fe80::b27b:25ff:fee9:30c8/64
 Speed
                  : 1000Mb/s (auto)
 Duplex
                  : Full (auto)
 Interface type : ethernet
 Interface source : physical
 MTU
                 : 1500
 HW address
             : b0:7b:25:e9:30:c8
 Rx:
  6109552397 bytes
    45457113 packets
    36881549 mcast packets
         295 discards
           0 errors
           0 overruns
           0 frame
 Tx:
   242521186 bytes
     1211397 packets
           0 discards
           0 errors
         N/A overruns
           0 carrier
```
	1211397 collisions 1000 queue len
Related Commands	interface <ifname> ip address <ip address=""> <netmask></netmask></ip></ifname>
Notes	

ip address

	ip address <ip address=""> <netmask> Sets the IP address and netmask of this interface.</netmask></ip>			
Syntax Descripti on	IP address	IPv4 address		
	netmask	Subnet mask of IP address		
Default	N/A	N/A		
Configura tion Mode	config interface			
History	1.3.0			
Example	ufmapl (config interface eno8303) # ip address 10.10.10.10 255.255.25			
Related Comman ds	interface			
Notes	The command sequence is important. The ip address command should be used first during automation since it clears both default-gateway and name-server settings			

ipv6 address

ipv6 address <IPv6 address>/<netmask>

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	Configures static IPv6 address and netmask to this interface, static option is possible.		
Syntax Description	IPv6 address/netm ask	nfigures a static IPv6 address and netmask. Format Imple: 2001:db8:1234::5678/64.	
Default	N/A		
Configuratio n Mode	config interface management		
History	1.3.0		
Example	ufmapl (config interface eno8303)# ipv6 address fe80::202:c9ff:fe5e:a5d8/6		
Related Commands	N/A		
Notes	N/A		

Hostname

hostname

	hostname <hostname> Sets a static system hostname.</hostname>	
Syntax Description	hostname	String
Default		
Configuration Mode	config	
History	1.3.0	
Example	ufmapl(config) # hostname ufmapl-hostname	
Related Commands	N/A	

Notes	N/A

ip name-server

	ip name-server <no ip="" name-server=""> no ip name-server Configures DNS servers to be used. The no form of the command clears the name server.</no>		
Syntax	IPv4 address	IPv4 address	
on	IPv6 address	IPv6 address	
Default	No server name		
Configur ation Mode	config		
History	1.4.2	Updated command description and added the a no form of the command	
	1.3.0	First release	
Example	ufmapl (config)# ip name-server 9.9.9.9		
Related Comman ds	N/A		
Notes	The command sequence is important. The ip name-server command should be used during automation, after running the ip address and the ip default-gateway commands		

{ip | ipv6} host

	{ip ipv6} host <hostnar no {ip ipv6} host <host Sets the static domain r The no form of the com</host </hostnar 	{ip ipv6} host <hostname> <ip-address> no {ip ipv6} host <hostname> <ip-address> Sets the static domain name. The no form of the command clears the domain name.</ip-address></hostname></ip-address></hostname>		
Cuptor Description	hostname	String		
Syntax Description	ip-address	IPv4 or IPv6 address		

Default	N/A		
Configuration Mode	config		
History	1.5.0		
Example	ufmapl (config)# ip host test-host 1.2.3.4 ufmapl (config)# ipv6 host my-ipv6-host 2001::8f9		
Related Commands	show hosts		
Notes			

show hosts

	show hosts Displays hostname, DNS configuration, and static host mappings.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	Any configuration mode	
History	1.4.0	
Example	ufmapl (config) # show hosts Hostname: swx-ufm3-02	
	Name servers: 10.211.0.124 (on eno8303) 10.211.0.121 (on eno8303) 10.7.77.135 (on eno8303) Domain names:	

	mtr.labs.mlnx (on eno8303)
	Static IPv4 host mappings: 127.0.0.1> localhost
	<pre>Static IPv6 host mappings: ::1> localhost ::1> ip6-localhost ::1> ip6-loopback ff02:::1> ip6-allnodes ff02:::2> ip6-allrouters</pre>
Related Commands	N/A
Noes	N/A

Routing

ip default-gateway

	ip default-gateway <address> no ip default-gateway <address> Configures a static default route. The no form of the command removes the static route.</address></address>		
Syntax Descriptio n	address	gateway IPv4 or IPv6 address	
Default	N/A		
Configurat ion Mode	config		
History	1.4.2	Updated syntax description and added a no form of the command	
	1.3.0	First release	
Example	ufmapl (config)# ip default-gateway 10.209.36.1		

Related Command s	N/A
Notes	The command sequence is important. The ip default-gateway command should be used during automation, after running the ip address command as it requires a static IP setting

ipv6 default-gateway

	ipv6 default-gateway <address> no ipv6 default-gateway <address> Configures a static default route. The no form of the command removes the static route.</address></address>		
Syntax Descriptio n	address	gateway IPv6 address	
Default	N/A		
Configurat ion Mode	config		
History	1.4.2		
Example	ufmapl (config)# ip default-gateway ::1		
Related Command s	N/A		
Notes	The command sequence is important. The ip default-gateway command should be used during automation, after running the ip address command as it requires a static IP setting		

show {ip | ipv6} route

	show {ip ipv6} route [static] Displays the routing table in the system.	
Syntax Description	static	Filters the table with the static route entries

Default	N/A			
Configuration Mode	Enable			
History	1.6.0			
Example	ufmapl (config) # show ip route Destination Mask Gateway Interface Source default 0.0.0.0 10.209.36.1 eno8303 dhcp 10.209.36.0 255.255.252.0 0.0.0.0 eno8303 interface 10.209.36.1 255.255.255 0.0.0.0 eno8303 dhcp 169.254.1.0 255.255.255.0 0.0.0.0 idra interface 172.17.0.0 255.255.0.0 0.0.0.0	аC		
Related Commands	{ip ipv6} route			
Notes				

show {ip | ipv6} default-gateway

	show {ip ipv6} default-gateway [static] Displays the default gateway.	
Syntax Description	static Displays the static configuration of the default gateway	
Default	N/A	
Configuration Mode	Enable	
History	1.6.0	

Example	ufmapl (config) # show ip default-gateway Active default gateways: 10.209.36.1 (interface: eno8303)		
Related Commands	{ip ipv6} default-gateway		
Notes			

NTP

ntp enable

	ntp enable Enables NTP.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.3.0		
Example	ufmapl (config) # ntp enable		
Related Commands	N/A		
Notes	N/A		

ntp server

ntp server <address></address>
no ntp server <address></address>
Configures an NTP server
The no form of the command removes NTP server

Syntax Description	address	IPv4 or IPv6 address		
Default	N/A			
Configuration Mode	config	config		
History	1.4.2	Updated the command description and added a no form of the command		
	1.3.0	First release		
Example	xample ufmapl (config) # ntp server 10.10.10.10			
Related Commands N/A				
Notes N/A				

ntp peer

	ntp peer <ao no ntp peer Configures a The no form</ao 	ddress> <address> an NTP peer of the command removes the NTP peer</address>	
Syntax Description	address	IPv4 or IPv6 address	
Default	N/A		
Configuration Mode config			
Listory	1.4.2	Added the no form of the command	
	1.3.0	First release	
Example	ufmapl	(config) # ntp peer 11.11.11.11	
Related Commands	N/A		
Notes	N/A		

Software Management

image fetch

	image fetch <url> Downloads a system image from a remote host.</url>		
Syntax Description	URL	HTTPS, SCP and SFTP are supported Example: <u>scp://username[:password]@hostname/path/filename</u>	
Default	N/A		
Configurati on Mode	config		
History	1.5.0		
Example	ufmapl (config) # image fetch scp://root:123456@192.168.10.125/tmp/ufm-appliance- 1.5.0-6-omu.tar 100.0% [####################################		
Related Commands	show images		
Notes	 The image format must be as follows: ufm-appliance-<version>- omu.tar</version> Please delete the previously available image, prior to fetching the new image See section In-Service Upgrade at <u>UFM Enterprise Appliance Upgrad</u> 		

image install

image install <image-name></image-name>
Installs an image file.

Syntax Descripti on	image name Sp	ecifies the image name	
Default	N/A		
Configura tion Mode	config		
History	1.5.0		
Example	N/A config 1.5.0 ufmapl (config) # image install ufm-appliance-1.5.0-6: omu.tar Verifying image Extracting image Extracting image 20230809-07_24_52: UFM-OS UPGRADE to version 23.07.18: STARTED 20230809-07_24_52: UFM_OS_UPGRADE [STARTED] WARNING!!! /tmp/ufm_os_upgrade_ml2ah98f/ufm-appliance-1.5.0-4- omu/ufm-os-upgrade.sh will require a restart upon completion. OFED drivers, kernel and kernel models will not work properly until the server is rebooted!!! In case of a change to the secureboot certificate , a message will be prompted to the screen to indicate the an action is needed when restarting. 20230809-07_24_52: HighAvailability is detected, node role is: stand-by 20230809-07_24_53: Check if ufm-enterprise.service is running		

20230809-07_24_53: ufm-enterprise.service is not running, continue with the upgrade 20230809-07_24_53: Extracting ISO... 20230809-07_24_53: CERTIFICATE-VALIDATION [PASSED 1 20230809-07_24_54: HA-STANDBY-MODE-ACTIVATE [PASSED 1 20230809-07_24_54: Backup HA cluster config to /var/tmp/ufm_os_upgrade_23_07_18-3/pcs_config_backup_23.07.18-3.tar.bz2 20230809-07_24_55: HA-PREPARATION [PASSED] 20230809-07_24_55: A newer kernel version is detected: 4.15.0-213-generic, installing 20230809-07_25_22: KERNEL-UPGRADE [PASSED] 20230809-07_25_22: Preparing MOFED repo 20230809-07_25_24: MOFED-PREPARATION [PASSED] 20230809-07_25_24: Upgrading UFM-APPLIANCE SW 20230809-07_27_01: Upgrading UFM-APPLIANCE SW finished 20230809-07_27_01: APPLIANCE-UPGRADE [PASSED] 20230809-07_27_01: HA-PACKAGES-UPGRADE [SKIPPED 1 20230809-07_27_01: Upgrading telemetry packages... 20230809-07_27_01: TELEMETRY-REQUIREMENTS-UPGRADE [PASSED] 20230809-07_27_06: updating firmware 20230809-07_27_19: FW-UPGRADE 1 PASSED 20230809-07_27_19: Upgrading packages... 20230809-07_28_15: PACKAGES-UPGRADE [PASSED] 20230809-07_28_15: Upgrading collection tools... 20230809-07_28_15: Updating FW rules

	<pre>20230809-07_28_20: FIREWALL-PORTS [PASSED] 20230809-07_28_20: UFMCLI tar is copied to /opt/ufm-os- firstboot to run on next-boot. 20230809-07_28_20: UFMCLI-PREPERATION [PASSED] 20230809-07_28_20: HA-STANDBY-MODE-DEACTIVATE [PASSED] 20230809-07_28_20: UFM-OS-UPGRADE [PASSED] 20230809-07_28_20: UFM-OS-UPGRADE [PASSED] 20230809-07_28_20: UPGRADE finished, kernel modules, OFED and new kernel wont function properly until reboot is performed. 20230809-07_28_20: Please reboot the server. Please check log file for more details: /var/log/ufm_os_upgrade_23.07.18-3.log Upgrade steps status information: /var/log/ufm_os_upgrade_23.07.18-3_status.log.</pre>	
Related Comman ds	show images	
Notes	 The image should be installed on the standby node only. Installation on the master node is not allowed. Once the installation is complete, perform system reboot using the command: reload 	

image delete

image delete <image-name>

	Deletes the specified image file from the hard drive.			
Syntax Description	image-name	Specifies the image name		
Default	N/A	N/A		
Configuration Mode	config			
History	1.5.0			
Example	ufmapl (config) 1.5.0-6-omu.tar	# image delete ufm-appliance-		
Related Commands	show images			
Notes				

show images

	show image Displays information about the system images and boot parameters.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	Any configuration mode		
History	1.5.0		
Example	ufmapl (config) # show images Installed images: Partition 1: version: ufm_appliance UFMAPL_1.4.3.1_UFM_6.13.2.5 2023-06-13 08:42:27		
	x86_64 Images available to be installed:		

	1: Image : ufm-appliance-1.5.0-6-omu.tar
Related Commands	image delete image fetch image install
Notes	

Configuration Management

File System

debug generate dump

	debug generate dump Generates a debug dump.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	Any configuration mode	
Listory	1.12.0	Updated configuration mode
HISTOLY	1.9.0	First release
Example	ufmapl (config) # debug generate dump Generated dump sysdump-ufmapl-112104-201140526- 091707.tgz	
Related Commands	file debug-dump	
Notes	The dump can then be manipulated using the "file debug-dump" commands	

show files debug-dump

	show files debug-dump Displays a list of debug dump files.		
Syntax Descripti on	NA		
Default	N/A		
Configur ation Mode	Any configuration mode		
Lister	1.12.0 Removed the "filename" syntax		
HISTORY	1.9.0 First release		
Example	<pre>ufmapl (config) # show files debug-dump </pre>		

Related Comman ds	file debug-dump
Notes	

file debug-dump

	file debug-dump {delete { <filename> latest} } upload {{<filename> latest} <url>}} Manipulates debug dump files.</url></filename></filename>	
	filename	The specified file name
Svntax	latest	Delete, upload the latest debug dump file to a remote host
Description	URL	HTTP, HTTPS, FTP, TFTP, SCP and SFTP are supported Example: <u>scp://username[:password]@hostname/path/filename</u>
Default	N/A	
Configuration Mode	config	
Listory	1.12.0	Removed the email action
HISLOFY	1.9.0	First release
Example	ufmapl (config) # file debug-dump sysdump-ufmapl- 112104-20114052-091707.tgz	
Related Commands		
Notes		

Local and Remote Logging

show log

	show log [continuous files [<file-number>]] [[not] matching <reg-exp>] Displays the log file with optional filter criteria.</reg-exp></file-number>		
	continuous	Displays the last few lines of the current log file and then continues to display new lines as they come in until the user hits Ctrl+C, similar to LINUX "tail" utility	
	files	Displays the list of log files	
Description	file- number	Displays an archived log file, where the number may range from 1 up to the number of archived log files available	
	[not] matching <reg-exp></reg-exp>	The file is piped through a LINUX "grep" utility to only include lines either matching, or not matching, the provided regular expression	
Default	N/A		
Configurati on Mode	Any configuration mode		
History	1.12.0	Fixed typo in command syntax	
	1.9.0	First release	
Example	1.9.0 First release ufmapl (config) #show log matching INFO Feb 1 10:57:04 switch clusterd[2659]: [4.193] [clusterd.INFO]: master browse reply: add service 0x20000 mxyzzy0002c95ea5d8 _tms_clustertcp. local. Feb 1 10:57:04 switch clusterd[2659]: [4.199] [clusterd.INFO]: master resolve reply via browse: name mxyzzy0002c95ea5d8 type _tms_clustertcp. domain local. addr 172.30.2.2 port 60102 ifindex 1 31072 Feb 1 10:57:07 switch SX[2785]: TID 1208106288: [7.746] [hwd.INFO]: hwd_kernel_interrupt_sim: Entry Feb 1 10:57:07 switch SX[2785]: TID 1208106288: [7.747] [hwd.INFO]: hwd_kernel_interrupt_sim: err=0 Feb 1 10:57:07 switch mgmtd[2599]: [7.748] [mgmtd.INFO]: Handling EVENT request (session 26)		

	<pre>Feb 1 10:57:07 switch mgmtd[2599]: [7.749] [mgmtd.INFO]: EVENT: /system/chassis/events/hw-isr-event Feb 1 10:57:07 switch mgmtd[2599]: [7.750] [mgmtd.INFO]: EVENT: [0] mask = 0 (uint32) Feb 1 10:57:07 switch health[2900]: TID 1208104656: [7.751] [health.INFO]: Received ISR event with mask 0 Feb 1 10:57:07 switch mgmtd[2599]: [7.754] [mgmtd.INFO]: Sending externally: type event session 36 id 1732128 Feb 1 10:57:07 switch mgmtd[2599]: [7.755] [mgmtd.INFO]: Event sent by user i:2785-0-0 has been handled</pre>
Related Commands	
Notes	 For the following commands, to quit from the output view, use 'CTRL +C'. show log continuous matching <regex></regex> show log continuous not matching <regex></regex> Show log continuous not matching <regex></regex> For the following commands, to quit from the output view, press 'q'. show log show log matching <regex></regex> show log not matching <regex></regex> show log files <number></number> show log files <number> not matching <regex></regex></number> show log files <number> not matching <regex></regex></number>

logging

	logging no loggi Enables accordir The no t server.	[trap <log-level> port <log-level>] ng [trap <log-level> port <log-level>] sending logging messages, with ability to filter the logging messages ng to their classes. form of the command stops sending messages to the remote syslog</log-level></log-level></log-level></log-level>
Syntax Descri	log- level	 alert – alert notification, action must be taken immediately crit – critical condition

ption	 debug – debug level messages emerg – system is unusable (emergency) err – error condition info – informational condition none – disables the logging locally and remotely notice – normal, but significant condition warning – warning condition 		
Defaul t	Remote logging is disabled		
Config uratio n Mode	config		
Histor y	1.9.0		
Examp le	ufmapl (config) # logging local info		
	ufmapl [mgmt-sa] (config) # logging local info		
Relate d Comm ands	show logging logging local override		
Notes			

show logging

	show logging Displays the logging configurations.
Syntax Description	N/A
Default	N/A

Configuration Mode	Any configuration mode	
History	1.9.0	
Example	ufmapl (config) # show logging Local logging level: info Override for class mgmt-front: warning Default remote logging level: notice No remote syslog servers configured. Allow receiving of messages from remote hosts: no Number of archived log files to keep: 10 Log rotation size threshold: 5.000% of partition (43 megabytes) Log format: standard Subsecond timestamp field: enabled Subsecond timestamp precision: 1 whole digit; 3 fractional digits Levels at which messages are logged: CLI commands: info Audit messages: notic	
Related Commands	logging	
Notes		

User Management and AAA

User Accounts

username

username root disable no username root disable Disable logging into root account The no form of the command reenable login into root account

Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.4.1	
Example	ufmapl (config) # username root disable	
Related Commands	N/A	
Notes	N/A	

username root password

username root password<{password>

	username root password <password> Changes the root user password.</password>	
Syntax Description	password	Specifies a password for the user in string form.
Default N/A		
Configuration Mode	config	
Liston	1.8.0	Updated command name
	1.4.2	First release
Example	ufmapl (config) # username root password 123456	
Related Commands	N/A	
Notes	N/A	

AAA Methods

aaa authentication login default

	aaa authentication login default <auth method=""> [<auth method="">] Sets a sequence of authentication methods. Up to two methods can be configured.</auth></auth>		
Syntax Descripti on	auth-method	Possible values: • local • tacacs+	
Default	N/A		
Configur ation Mode	config		
History	1.6.0		
Example	ufmapl (config) # aaa authentication login default local tacacs+		
Related Comman ds	show aaa		
Notes	Setting tacacs+ as one of the authentication methods enables tacacs. Setting no taccas+ and only local in the authentication methods disables tacacs.		

show aaa

	show aaa Displays the AAA configuration.
Syntax Description	N/A
Default	N/A
Configuration Mode	Enable
History	1.6.0

Example	<pre>ufmapl [mgmt-sa] (config) # show aaa AAA authorization: Map Order: remote-only Authentication method(s): local tacacs+ Accounting method(s): tacacs+</pre>
Related Commands	aaa authentication login default
Notes	

TACACS+

tacacs-server

	tacacs-server {key <secret> timeout <seconds>} no tacacs-server {key timeout} Sets global TACACS+ server attributes. The no form of the command resets the attributes to default values.</seconds></secret>		
Syntax Description	key	Set a secret key (shared hidden text string) known to the system and to the TACACS+ server	
	timeo ut	Timeout in seconds (1-60)	
Default	1 second		
Configuration Mode	config		
History	1.6.0		

Example	ufmapl (config) # tacacs-server key testkey	
Related Commands	show tacacs tacacs-server host	
Notes	Each TACACS+ server can override the global secret parameter using the command "tacacs-server host"	

tacacs-server host

	tacacs-server host <ip-address> {auth-port <port> key <secret>} no tacacs-server host <ip-address> {auth-port <port>} Configures TACACS+ server attributes. The no form of the command removes the TACACS+ server.</port></ip-address></secret></port></ip-address>		
Syntax Descripti on	ip- address	TACACS+ server IP address	
	auth- port	TACACS+ server UDP port number	
	key	Set a secret key (shared hidden text string) known to the system and to the TACACS+ server	
Default	Default TC	CP port is 49	
Configur ation Mode	config		
History	1.6.0		
Example	ufmapl (config) # tacacs-server key testkey		
Related Comman ds	show tacacs tacacs-server		

Notes	 TACACS+ servers are tried in the order they are configured If the user does not specify a parameter for this configured TACACS+ server, the configuration will be taken from the global TACACS+ server
	configuration. Refer to "tacacs-server" command.

show tacacs

	show tacacs Displays TACACS+ configurations.
Syntax Description	N/A
Default	N/A
Configuration Mode	Enable
History	1.6.0
Example	<pre>ufmapl (config) # show tacacs TACACS+ defaults: Timeout : 1 TACACS+ servers: 10.209.36.156:49: Key : ******* 1.2.3.4:49: Key : *******</pre>
Related Commands	tacacs-server tacacs-server host
Notes	

Chassis Management

show resources

	show resources Displays system resources.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	Any configuration mode		
History	1.6.0		
Example	ufmapl (config) # show resources Total Used Free Physical 65400 MB 2719 MB 60585 MB Swap 16252 MB 0 MB 16252 MB Number of CPUs: 64 CPU load averages: 0.16 / 0.08 / 0.04 CPU 1 Utilization: 0% Peak Utilization Last Hour: 0% at 2023-11- 05 09:45:01 Avg. Utilization Last Hour: 0% CPU 2 Utilization: 5% Peak Utilization Last Hour: 19% at 2023-11- 05 09:45:01 Avg. Utilization Last Hour: 7% CPU 64 Utilization: 0%		

	Peak Utilization Last Hour: 1% at 2023-11- 05 09:45:01 Avg. Utilization Last Hour: 1%
Related Commands	
Notes	

show version

	show version Displays version information for the currently running system image.			
Syntax Description	N/A			
Default	N/A			
Configuration Mode	Any configurat	Any configuration mode		
	1.11.0	Updated command output, added UFM plugin information		
History	1.8.0	Updated command output, added system serial number and a note		
	1.4.2	Updated command output		
	1.4.0	First release		
Example	Instremeaseufmapl (config) # show versionProduct name:ufm_applianceProduct release:UFMAPL_1.11.0.5_UFM_6.20.0.5Build date:2025-01-3014:09:30Version summary:ufm_applianceUFMAPL_1.11.0.5_UFM_6.20.0.52025-01-3014:09:30x86_64UFM OS:25.01.18-1UFM HA:5.8.0-4			

	UFM CLI: GNMI PLUGIN: TOOLS PLUGIN:	1.9.0-5 1.2.12-8 2.0.0-4
	System serial num:	MT0006M7SMK3
	Uptime: CPU load averages: Number of CPUs: System memory: 64614 MB total Swap: 16252 MB total	4d 22h 58m 0.19 / 0.20 / 0.09 64 2655 MB used / 58799 MB free / 0 MB used / 16252 MB free /
Related Commands	N/A	
Notes	For devices with IDM v1.0.0, t on ODM SN since the NVIDIA	the serial number (SN) is generated based SN is not available

show files system

	show files system [detail] Displays usage information of the file systems on the system.		
Syntax Description	detail	Displays more detailed info	rmation on file-system
Default	N/A		
Configuration Mode	Any configuration mode		
History	1.6.0		
Example			
	ufr	mapl (config) # show f	iles system
	Sta	atistics for /var file	system:
	:	Space Total	1649517 MB
	:	Space Used	23438 MB
		Space Free	1626079 MB

	Space Available Space Percent Free Inodes Percent Free	1542216 MB 98% 99%
	Statistics for /opt/ufm	n/files filesystem:
	Space Total	150105 MB
	Space Used	294 MB
	Space Free	149811 MB
	Space Available	142116 MB
	Space Percent Free	99%
	Inodes Percent Free	99%
Related Commands		
Notes		

Operating System License

(i) Note

The following CLI commands relate to the operating system license. For UFM License CLI commands, please refer to <u>UFM License</u>.

license install

	license install <url> Installs a UFM appliance OS license file from a remote host.</url>		
Syntax Descripti on	url	Irl https, sftp are supported. Example: <u>sftp://username:password@hostname/path/filename</u>	
Default	N/A		
Configur ation	config		

Mode		
Listow	1.4.1	First release
HISLOFY	1.4.3	Added the first note in the "Notes" row.
Example	ufmapl (config) # license install sftp://root:root/tmp/nvidia-ufm-os-restricted- 3922145848058.lic	
Related Comman ds	In license delete show license	
Notes	• T ra • T • T • T • T	The license installation is used to access the SHELL in cases where the pot account is disabled. For UFM Enterprise license installation, please efer to <u>Activating the UFM Enterprise License</u> . The license format must be as follow: *.lic The license installation overrides the existing license, if present. To generate UFM appliance OS license, the management interface MAC ddress (eno8303) should be provided to NVIDIA by running the " show interfaces" command.

license delete

	license delete Deletes a UFM appliance OS license file from the hard drive.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.4.1	
Example	ufmapl (config) # license delete	
Related Commands	license install show license	

Notes	N/A

show license

	show license Displays UFM appliance OS license information.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.4.1	
Example	ufmapl (config) # show license Customer ID: NVIDIA RND TESTING SN: 194042963524002 Type: Subscription Status: Valid MAC address: b0:7b:25:e9:79:a2	
Related Commands	license install license delete	
Notes	N/A	

_shell

	_shell Runs a UNIX command shell such as bash. This shell command replaces the CLI; when the user exits the shell, they will be returned to the CLI.
Syntax Description	N/A
Default	N/A
Configurati	enable

on Mode		
History	1.8.0	Added a note
	1.4.1	First release
Example	ufmapl # _shell root@ufmapl:~#	
Related Commands	license install license delete show license	
Notes	The OS license check is disabled by default. To enable it, set: [security]:os-license = true in /opt/ufmcli/conf/ufmcli_cfg.yaml	

Docker Container

docker load <image name>

	docker load <image name=""/> Loads a docker image from a TAR archive.	
Syntax Description	image name	Name of the TAR image to be loaded
Default	N/A	
Configuration Mode	config	
History	1.7.0	
Example	ufm (config) # docker load ufm-plugin-ndt_1.1.1-17- docker.img.gz	

Related Commands	image fetch show docker images docker remove
Notes	The image should be downloaded into the UFM Enterprise appliance from a remote host

docker pull

	docker pull <image-name>[:<version>] Pulls a docker image from a docker repository.</version></image-name>	
Syntax Description	image-name [: <version>]</version>	Image name Format: Name:Version If only "Name" is provided, "version" defaults to latest
Default	N/A	
Configuration Mode	config	
History	1.7.0	
Example	ufm (config) # docker pull mellanox/ufm-plugin- ndt:1.1.1-17	
Related Commands	show docker images docker remove	
Notes		

docker remove image <image name> <image version>

	docker remove image <image-name> <image-version> Removes an image from the Linux docker service.</image-version></image-name>	
Syntax	image-name	Name of the image to be deleted
Description	image-version	Version of the image to be deleted
Default	N/A	
Configuration Mode	config	

History	1.7.0	
Example	ufm (config) # docker remove image mellanox/ufm- plugin-ndt 1.1.1-17	
Related Commands	show docker images docker remove	
Notes		

show docker images

	show docker images Displays docker images.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	enable		
History	1.7.0		
Example	ufm (config) # show docker images 		

		85acd8fe788ef12 23f3c83bae3
Related Commands	sh do do do	ow docker ps cker remove cker pull cker load
Notes		

show docker ps

	show docker ps Displays docker containers.		
Syntax Description	N/A		
Default	N/A		
Configuratio n Mode	enable		
History	1.7.0		
Example	ufm (config) # show docker ps 		
Related Commands	show docker images docker remove docker pull docker load		
---------------------	---		
Notes			

docker exec

	docker exec <container-name> <program-executable> Executes a program within a running docker container.</program-executable></container-name>		
Syntax Description	container- name	Name of the running docker container	
	program- executable	Linux command	
Default	N/A		
Configuration Mode	config docker		
History	1.8.0		
Example	ufm (config) # docker exec ufm /bin/bash		
Related Commands	show docker images docker remove image		
Notes			

docker prune image

	docker prune image Removes all dangling docker prune images.
Syntax Description	N/A
Default	N/A

Configuration Mode	config docker		
History	1.8.0		
Example	ufm (config) # docker prune image		
Related Commands	show docker images docker remove image		
Notes			

UFM Commands

General

ufm start

	ufm start no ufm start Starts UFM. The no form of the command stops UFM.
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.4.1
Example	ufmapl (config) # ufm start
Related Commands	show ufm status
Notes	

show ufm status

	show ufm status Displays the status of UFM. The outcome of the command varies according to the working mode.		
Syntax Description	N/A		
Default	N/A	4	
Configuratio n Mode	CO	nfig	
l liste	1.4	l.2	Updated command output
HISTORY	1.4	I.O	First release
Example		<pre>config 1.4.2 Updated command output 1.4.0 First release ufmapl (config) # show ufm status Cluster name: ufmcluster WARNING: corosync and pacemaker node names do not match (IPs used in setup?) Stack: corosync Current DC: swx-ufm3-02 (version 1.1.18-2b07d5c5a9) - partition with quorum Last updated: Thu Jun 1 19:06:57 2023 Last change: Thu Jun 1 19:06:57 2023 Last change: Thu Jun 1 19:06:57 2023 Last change: Thu Jun 1 19:06:11 2023 by root via crm_resource on swx-ufm3-02 2 nodes configured 5 resources configured 5 resources configured 0nline: [swx-ufm3-01 swx-ufm3-02] Full list of resources: Master/Slave Set: ha_data_drbd_master [ha_data_drbd] Masters: [swx-ufm3-01] Slaves: [swx-ufm3-02]</pre>	
n Mode History Example	1.4	I.2 I.0 Ufmapl (Cluster I WARNING: match (I Stack: co Current I partition Last upda Last chan crm_reson 2 nodes of 5 resource Online: Full list Master/St Master/St Slat Resource	Updated command output First release config) # show ufm status name: ufmcluster corosync and pacemaker node names do not Ps used in setup?) orosync DC: swx-ufm3-02 (version 1.1.18-2b07d5c5a9) - n with quorum ated: Thu Jun 1 19:06:57 2023 nge: Thu Jun 1 19:06:57 2023 nge: Thu Jun 1 19:06:11 2023 by root via urce on swx-ufm3-02 configured ces configured [swx-ufm3-01 swx-ufm3-02] t of resources: lave Set: ha_data_drbd_master [ha_data_drbd ters: [swx-ufm3-01] ves: [swx-ufm3-02] Group: ufmcluster-grp

```
ha_data_file_system
(ocf::heartbeat:Filesystem): Started swx-ufm3-01
                     (systemd:ufm-ha-watcher):
    ufm-ha-watcher
Started swx-ufm3-01
                     (systemd:ufm-enterprise):
    ufm-enterprise
Started swx-ufm3-01
Daemon Status:
 corosync: active/enabled
 pacemaker: active/enabled
 pcsd: active/enabled
DRBD_RESOURCE :
                ha data
DRBD_CONNECTIVITY: Connected
DISK_STATE:
                UpToDate
                Primary
DRBD_ROLE:
PEER_DISK_STATE:
                UpToDate
PEER_DRBD_ROLE :
                Secondary
DRBD Sync Status:
version: 8.4.10 (api:1/proto:86-101)
srcversion: 7C5B8378BE913D722F67EFD
0: cs:Connected ro:Primary/Secondary
ds:UpToDate/UpToDate C r-----
   ns:9044 nr:159762612 dw:159771656 dr:2813 al:48 bm:0
lo:0 pe:0 ua:0 ap:0 ep:1 wo:d oos:0
______
______________________________
                               UFM Main
Processes
______
_____
ModelMain
                Process is : [ Running ]
                Process is : [ Running ]
Opensm
Unhealthy Ports
               Process is : [ Running ]
Daily Report
                Process is : [ Running ]
```

		UFM Health UFM Telemetry UFM	Process is : [Running] Process is : [Running] Running
		HA Summary	
		Local	
		Primary IP Secondary IP DRBD DRBD State DiskState = UpToDat	11.0.0.11 10.209.44.115 Running Primary ConnectionState = Connected - te
		Peer ===================================	
		Primary IP Secondary IP DRBD	11.0.0.12 10.209.44.116 Running Secondary
		DRBD State DiskState = UpToDat	ConnectionState = Connected -
		swx-ufm3-01 (config) #
Related Commands	N/#	4	
		The output example atIf working in HA mode,	oove is taken from a high-availability setup you will receive information on the HA status
Notes	Th	e process status can be o • Running – the process • Stopped – the process	ne of the below: is running is not running

UFM License

ufm license install

	ufm license install <url> Installs a UFM license file from a remote host.</url>			
Syntax Description	url	https, scp and sftp are supported. Example: <u>scp://username[:password]@hostname/path/filename,</u> <u>usb:/path/filename</u> .		
Default	N/A			
Configuratio n Mode	config			
History	1.6	1.6.0		
Example		ufmapl (config) # ufm license install scp://root:123456@10.209.1.21/tmp/volt-ufm-advanced.lic		
Related Commands	ufm license delete show ufm license			
Notes	 The license format must be as follow: volt-ufm-*.lic, mlnx-ufm-*.lic or nvidia-ufm-*.lic Duplicate license are not permitted. You must delete the previous license before installing the new one. 			

ufm license delete

	ufm license delete <filename> Deletes a UFM license file from the hard drive.</filename>	
Syntax Description	filename	UFM license filename
Default	N/A	
Configuration Mode	config	
History	1.6.0	

Example	ufmapl (config) # ufm license delete volt-ufm- advanced.lic	
Related Commands	ufm license install show ufm license	
Notes		

show ufm license

	show ufm license Displays UFM license information.		
Syntax Description	N/A		
Default	N/A		
Configuratio n Mode	Enable		
History	1.6.0		
Example	ufmapl (config) # show ufm license 		
Related Commands	ufm license install ufm license delete		

show files ufm-license

	show files ufm-license Displays a list of UFM license files		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	Enable		
History	1.6.0		
Example	ufmapl (config) # show files ufm-license nvidia-ufm-advanced.lic		
Related Commands	ufm license delete		
Notes			

UFM Configuration Management

ufm configuration delete

	ufm configuration delete <zip-file> Deletes a configuration zip file from the hard drive.</zip-file>		
Syntax Description	zip-file	Zip filename to delete	
Default	N/A		
Configuration Mode	config		
History	1.6.0		

Example	ufmapl (config) # ufm configuration delete ufm- config-20121128-180857.zip	
Related Commands	ufm configuration upload ufm configuration import ufm configuration export ufm configuration fetch	
Notes		

ufm configuration export

	ufm configuration export [<zip-file>] Exports UFM configuration to a file (a zip archive).</zip-file>		
Syntax Description	zip-file		UFM configuration of exporting the zip file
Default	N/A		
Configurati on Mode	config		
History	1.6.0		
Example	ufm	napl	(config) # ufm configuration export
Related Commands	ufm configuration upload ufm configuration import ufm configuration delete ufm configuration fetch		
Notes	If no zip file is provided, a zip archive is created with the name: ufm-config- <date>-<time>.zip (e.g. ufm-config-20130327-153314.zip)</time></date>		

ufm configuration fetch

	ufm configuration fetch <url> Downloads UFM configuration files from a remote host or a USB device.</url>		
Syntax Description	url	The URL path from where the configuration file can be downloaded. https, scp and sftp are supported. Example: <u>scp://username[:password]@hostname/path/filename</u>	
Default	N/A	N Contraction of the second seco	
Configuration Mode	config		
History	1.6.0		
Example		ufmapl (config) # ufm configuration fetch usb:/ufmapp/ufmconf1.zip	
Related Commands	ufm configuration upload ufm configuration import ufm configuration export ufm configuration delete		
Notes			

ufm configuration import

	ufm configuration import <zip-file> [upgrade] Imports UFM configuration from a file (a zip archive).</zip-file>		
Syntax Description	zip- file	Zip filename from which to import	
	upgra de	Imports UFM-SDN Appliance configuration from a previous version and upgrades it to the latest one	
Default	N/A		
Configuration Mode	config		
History	1.6.0		

Example	ufmapl (config) # ufm configuration import ufm-config- 20121128-180857.zip		
Related Commands	ufm configuration upload ufm configuration export ufm configuration delete ufm configuration fetch		
Notes			

ufm configuration upload

	ufm configuration upload <filename> <url> Uploads UFM configuration to a remote host or a USB device (a zip archive).</url></filename>			
Syntax Descripti on	filen ame	ilen Ime The UFM configuration of uploading the file name		
	url	The URL path from where the configuration file can be uploaded. Supported formats: https, scp and sftp. Example: scp://username[:password]@hostname/path/filename		
Default	N/A			
Configur ation Mode	config			
History	1.6.0			
Example	ufmapl (config) # ufm configuration upload ufm-config- 20121128-180857.zip scp://mlnx:123456@172.30.3.201/tmp			
Related Comman ds	ufm configuration export ufm configuration import ufm configuration delete			
Notes				

show files ufm-configuration

	show files ufm-configuration Displays a list of UFM configuration zip archives.
Syntax Description	N/A
Default	N/A
Configuration Mode	Enable
History	1.6.0
Example	ufmapl (config) # show files ufm-configuration ufm-config-20231105-102019.zip
Related Commands	
Notes	

Data Management

ufm data reset

	ufm data reset Resets the UFM data (both the configuration and the database data).			
Syntax Descriptio n	N/A			
Default	N/A			
Configura tion Mode	config			
History	1.5.0			
Example	ufmapl (config) # ufm data reset			

	This command resets UFM data (configuration and database) and consequently deletes installed web client related certificates. Are you sure you wish to proceed? [yes/no] yes UFM reset to factory defaults finished successfully.		
Related Comman ds	N/A		
Notes	This command is available in standalone mode only. For resetting UFM in HA mode, refer to <u>no ufm ha</u> .		

ufm data backup

	ufr Ba	n data backup [<b cks up UFM data f</b 	ackup-file>][with-telemetry] iles.
Suptax Decoription	ba	ckup file	Backup file name to be generated
Syntax Description	with-telemetry		Backup UFM historical telemetry
Default	N/A	4	
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (conf backup.zip		g) # ufm data backup ufm-
Related Commands			
Notes			

ufm data upload

	ufm data upload <zip file=""> <url> Uploads UFM data files to a remote host or a USB device.</url></zip>			
Syntax Descriptio n	UR L	Supported formats: http, https, ftp, tftp, scp, sftp and usb. (e.g., <u>scp://username[:password]@hostname/path/filename,</u> <u>usb:/path/filename</u>)		
Default	N/A			
Configurati on Mode	config			
History	1.9.0			
Example		ufmapl (config) # fm data upload ufm-backup-20210716- 130311.zip scp://mlnx:1234Kb@172.30.3.201/tmp		
Related Command s				
Notes				

ufm data fetch

	ufm data fetch <url> Deletes a UFM data archive from the hard drive.</url>		
Syntax Descriptio n	UR L	Supported formats: http, https, ftp, tftp, scp, sftp and usb. (e.g., <u>scp://username[:password]@hostname/path/filename</u> , <u>usb:/path/filename</u>)	
Default	N/A		
Configurati on Mode	config		
History	1.9.0		
Example		ufmapl (config) # ufm data fetch	

	scp://mlnx:1234Kb@172.30.3.201/tmp
Related Command s	
Notes	

ufm data restore

	ufm data restore <zip file=""> Restores UFM data files.</zip>		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) # ufm data restore ufm-backup- 20210716-122851.zip		
Related Commands			
Notes			

ufm data delete

	ufm data delete <zip file=""> Deletes a UFM data archive from the hard drive.</zip>
Syntax Description	N/A

Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) # ufm data delete ufm-backup- 20210716-122851.zip		
Related Commands			
Notes			

ufm migrate-ufm2-to-ufm3

	ufm migrate-ufm2-to-ufm3 Modifies UFM-SDN settings to fit the UFM Enterprise Appliance cluster		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.10.0		
Example	ufmapl (config) # ufm migrate-ufm2-to-ufm3		
Related Commands	ufm data backup ufm data restore		
Notes			

Management Interface Monitoring

ufm mgmt-interface monitor enable

	ufm mgmt-interface monitor enable no ufm mgmt-interface monitor enable Enables monitoring of the management interface. The no form of the command disables monitoring of the management interface.	
Syntax Description	N/A	
Default	Disabled	
Configuration Mode	config	
History	1.4.0	
Example	ufmapl (config) # ufm mgmt-interface monitor enable	
Related Commands	ufm mgmt-interface monitor interval ufm mgmt-interface show ufm mgmt-interface	
Notes		

ufm mgmt-interface monitor interval

	ufm mgmt-interface monitor interval <time> Configures the management interface monitoring interval.</time>	
Syntax Description	tim e	The management interface monitoring interval. Range: 5-180 seconds.
Default	10 seconds	
Configuration Mode	config	
History	1.4.0	

Example	ufmapl (config) # ufm mgmt-interface monitor interval 15	
Related Commands	ufm mgmt-interface monitor enable ufm mgmt-interface show ufm mgmt-interface	
Notes		

ufm mgmt-interface

	ufm mgmt-interface <interface> Configures the management interface to be monitored.</interface>		
Syntax Description	interfac e	Management interface to be monitored (e.g. eno8303, eno8403)	
Default	eno8303		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ufm mgmt-interface eth0		
Related Commands	ufm mgmt-interface monitor enable ufm mgmt-interface monitor interval show ufm mgmt-interface		
Notes	N/A		

show ufm mgmt-interface

show ufm mgmt-interface
Displays the management interface settings.

Syntax Description	N/A			
Default	N/A			
Configuration Mode	Enable			
History	1.4.0			
Example	ufmapl (config) # show ufm mgmt-interface Management interface monitoring: Interface name: eno8303 Enabled: Yes Monitoring interval: 10 seconds			
Related Commands	ufm mgmt-interface monitor enable ufm mgmt-interface monitor interval ufm mgmt-interface			
Notes				

UFM Logs

show ufm logging

	show ufm logging Displays logging configuration.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	Enable		
History	1.4.0		
Example	ufmapl (config) # show ufm logging Number of archived log files to keep: 15 Log rotation size threshold: 100M		

	Ufm-log level: Syslog:	WARNING
	Enabled: Server:	No Local
	Level: Ufm-log enabled: Ufm-events enabled: swx-ufm3-01 (config) #	WARNING No No
Related Commands		
Notes		

ufm logging syslog enable

	ufm logging syslog enable no ufm logging syslog enable Enable sending UFM logs to syslog. The no form of the command disables sending UFM logs to syslog.		
Syntax Description	N/A		
Default	Disabled		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ufm logging syslog enable		
Related Commands			
Notes	This change takes effect after UFM restart.		

ufm logging syslog

ufm logging syslog <host:port>

	no ufm logging syslog Sends UFM logs to a remote syslog server. The no form of the command sends UFM logs to the local syslog server.		
Syntax Description	port	Remote syslog hostname and port	
Default	N/A		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ufm logging syslog 172.30.36.120:514		
Related Commands			
Notes	This change takes effect after UFM restart.		

ufm logging syslog ufm-log enable

	ufm logging syslog ufm-log enable no ufm logging syslog ufm-log enable Send UFM log messages to a syslog server The no form of the command disables sending UFM log messages to a syslog server		
Syntax Description	N/A		
Default	Disabled		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ufm logging syslog enable		

Related Commands	
Notes	This change takes effect after UFM restart.

ufm logging syslog ufm-events enable

	ufm logging syslog ufm-events enable no ufm logging syslog ufm-events enable Send UFM event log messages to a syslog server. The no form disables the ability to log UFM event messages to syslog server		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ufm logging syslog ufm-events enable		
Related Commands			
Notes	This change takes effect after UFM restart.		

ufm logging syslog stream-log

ufm logging syslog stream-log <log-file> no ufm logging syslog stream-log <log-file></log-file></log-file>
Stream log messages to a remote syslog server.
The no form of the command disables streaming log messages to a
syslog server.

Syntax Description	<log-file></log-file>	Log file name to be streamed relative path to /opt/ufm/files/log	
Default	N/A		
Configuratio n Mode	config		
History	1.12.0	First release	
Example	ufmapl (config) # ufm logging syslog stream-log opensm.log		
Related Commands	ufm logging syslog enable, ufm logging syslog <host:port>, show ufm logging</host:port>		
Notes			

ufm logging level

	ufm logging level <log-level> Sets the severity level of certain log messages.</log-level>		
Syntax Description	log-level	 CRITICAL – critical conditions DEBUG – debug-level messages ERROR – error conditions INFO – informational messages WARNING – warning conditions 	
Default	WARNING		
Configuration Mode	config		
History	1.6		
Example	ufmapl (config) # ufm logging level WARNING		
Related Commands			
Notes			

show ufmhealth log

	show ufmhealth log [continuous files matching not]] Displays UFM health event log.				
continuo us		Displays new event log messages as they arrive. Press 'Ctrl+C' to quit from output view.			
Syntax	files	Displays archived log files			
Description	matching	Displays event logs that match a given regular expression			
	not	Displays event logs that do not meet certain criteria			
Default	N/A				
Configurati on Mode	Any configuration mode				
History	1.9.0				
Example	1.9.0 ufmapl (config) # show ufmhealth log 2013-09-03 14:36:30.423 ufm INIT Request Polling Delta Fabric 2013-09-03 14:37:00.426 ufm INIT Request Polling Delta Fabric 2013-09-03 14:37:30.428 ufm INIT Request Polling Delta Fabric 2013-09-03 14:38:00.431 ufm INIT Request Polling Delta Fabric 2013-09-03 14:38:02.175 ufm WARNING Failed to parse host response from host 172.30.105.153 message type 10 2013-09-03 14:38:02.193 ufm WARNING Failed to parse host response from host 172.30.11.161 message type 10				
Related Commands					
Notes	To quit from the output view, press 'q' .				

show ufmhealth log files

	show ufmhealth log files [number matching <regex> not]] Displays UFM health event log.</regex>		
	number	Displays new event log messages as they arrive	
Syntax Description	matchin g	Displays event logs that match a given regular expression	
	not	Displays event logs that do not meet certain criteria	
Default	N/A		
Configuration Mode	Any configuration mode		
History	1.9.0		
Example	ufmapl (config) # show ufmhealth log files		
Related Commands	ited Commands		
Notes			

show ufm event log

	show ufm event log [matching <regex> not matching <regex>] Displays current event log file in a scrollable pager.</regex></regex>	
Syntax Description	matching	Displays new event log messages that match a given regular expression
	not matching	Displays new event log messages that do not match a given regular expression
Default	N/A	
Configurati on Mode	Any configuration mode	
History	1.9.0	

Example	ufmapl (config) # show ufm event log matching INFO 2021-07-20 09:35:31.551 [1] [352] INFO [Logical_Model] Grid [Grid]: Network management is added 2021-07-20 09:35:34.454 [3] [604] INFO [Maintenance] Grid [Grid]: Fabric Analysis Report succeeded 2021-07-20 09:40:31.957 [5] [604] INFO [Maintenance] Grid [Grid]: Fabric Analysis Report succeeded 		
Related Commands			
Notes	To quit from the output view, press 'q' .		

show ufm event log continuous

	show ufm event log continuous [matching <regex> not matching <regex>] Displays new event log messages as they arrive.</regex></regex>		
Syntax Descri ption	matching	Displays new event log messages that match a given regular expression	
	not matching	Displays new event log messages that do not match a given regular expression	
Default	N/A		
Config uration Mode	Any configuration mode		
History	1.9.0		
Exampl e	ufmapl (config) # show ufm event log continuous not matching INFO 2021-07-20 09:38:33.192 [4] [406] WARNING [Communication_Error] Grid [Grid]: Failed to get sysinfo		

	<pre>for switch 0002c903005dd830 2021-07-20 09:40:33.825 [10] [394] CRITICAL [Module_Status] Switch [default(6) / Switch: switch- system / NA / NA] [dev_id: 0002c903005dd830]: Module PS 2 on switch-system(10.10.10.10) status is fatal 2021-07-20 10:36:23.961 [40] [518] CRITICAL [Maintenance] Grid [Grid]: Process periodic_report_runner is down.</pre>		
Related Comm ands	show ufm console event log		
Notes	To quit from the output view, press 'Ctrl+C' .		

show ufm event log files

	show ufm event log files [<file-number> [matching <regex> not matching <regex>]] Lists all archived log files available.</regex></regex></file-number>		
	file- number	Displays the selected archived event log file	
Syntax Description	matching Displays entries from the selected log file that mar		
	not matching	Displays entries from the selected log file that do not match a given regular expression	
Default	N/A		
Configuration Mode	Any configuration mode		
History	1.9.0		
Example	ufmapl (config) # show ufm event log files		
Related Commands	show ufm event log		

Notes	To quit from the output view, press 'q' .
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show ufm console log

	show ufm console log [matching <regex> not matching <regex>] Displays current console event log file in a scrollable pager.</regex></regex>			
Syntax Descript ion	matching	Displays new console log messages that match a given regular expression		
	not matching	Displays new console log messages that do not match a given regular expression		
Default	N/A			
Configur ation Mode	Any configuration mode			
History	1.9.0			
Example	<pre>ufmapl (config) # show ufm console log 2021-07-20 13:34:49.090 ufm INIT Prometheus Client: Request time = 0.005601406097412109, Total Processing time = 0.011138916015625 2021-07-20 13:34:49.092 ufm INIT handled device stats. (10) 3887.93 devices/sec. (18) 6998.28 ports/sec, queue: 9 2021-07-20 13:35:19.115 ufm INIT Telemetry packet: size: 0.043 MB, transfer rate: 7.684 MB/sec 2021-07-20 13:35:19.120 ufm INIT Prometheus Client: Request time = 0.0056459903717041016, Total Processing time = 0.010822296142578125 </pre>			
Related Comma nds				

show ufm console log continuous

	show ufm console log continuous [matching <regex> not matching <regex>] Displays new event log messages as they arrive.</regex></regex>			
Synta x	matching		Displays new console log messages that match a given regular expression	
Descri ption	not matching		Displays new console log messages that do not match a given regular expression	
Defaul t	N/A			
Config uratio n Mode	Any configuration mode			
Histor y	1.9.	1.9.0		
Examp le	<pre>ufmapl (config) # show ufm console log continuous matching CRITICAL 2021-07-20 09:40:33.825 eventlog CRITICAL 2021-07-20 09:40:33.825 [10] [394] CRITICAL [Module_Status] Switch [default(6) / Switch: switch-system / NA / NA] [dev_id: 0002c903005dd830]: Module PS 2 on switch- system(10.10.10.10) status is fatal 2021-07-20 10:36:23.962 eventlog CRITICAL 2021-07-20 10:36:23.961 [40] [518] CRITICAL [Maintenance] Grid [Grid]: Process periodic_report_runner is down</pre>			
Relate d Comm ands	show ufm console log			

show ufm console log files

	show ufm console log files [<file-number> [matching <regex> not matching <regex>]] Lists all archived log files available.</regex></regex></file-number>			
Syntax Descripti	file- number		Displays the selected archived event log file	
	matching		Displays entries from the selected log file that match a given regular expression	
	not matching		Displays entries from the selected log file that do not match a given regular expression	
Default	N/A			
Configura tion Mode	Any configuration mode			
History	1.9.0			
Example	<pre>1.9.0 ufmapl (config) # show ufm console log files 1 matching INF0 2021-07-20 11:47:43.231 rest_api INF0 user: ufmsystem, url: (http://11.1.1.11:8000/app/events/external_event), meth od: (POST) 2021-07-20 11:50:43.437 rest_api INF0 user: ufmsystem, url: (http://11.1.1.11:8000/app/events/external_event), meth od: (POST) 2021-07-20 11:53:43.642 rest_api INF0 user: ufmsystem, url: (http://11.1.1.11:8000/app/events/external_event), meth od: (POST)</pre>			

	2021-07-20 11:56:43.862 rest_api INFO user: ufmsystem, url: (http://11.1.1.11:8000/app/events/external_event), meth od: (POST) 	
Related Comman ds	show ufm console log	
Notes	To quit from the output view, press 'q' .	

UFM Web Client

ufm web-client mode

	ufm web-client mode <http https-client-authentication="" =""> Configures Access mode to the UFM web clients.</http>		
Syntax	https	HTTPS access	
Description	https-client-authentication	HTTPS access with client authentication	
Default	https		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # u client-authen	ıfm web-client mode https-	
Related Commands	show ufm web-client ufm web-client client-authentication ufm web-client associate-user		
Notes			

ufm web-client associate-user

	ufm web-client associate-user <san> <username> no ufm web-client associate-user <san> <username> Associates client certificate subject alternative name with a UFM user. The no form of the command disassociates client certificate subject alternative name from a UFM user.</username></san></username></san>		
Syntax	san	Client certificate subject alternative name	
Description	username	UFM username	
Default	N/A		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ufm web-client associate-user ufm.mellanoxhpc.net admin		
Related Commands	show ufm web-client ufm web-client mode ufm web-client client-authentication		
Notes			

show ufm web-client

	show ufm web-client Displays UFM web client settings.
Syntax Description	N/A
Default	N/A
Configuration Mode	enable
History	1.4.0

Example	<pre>ufmapl (config) # show ufm web-client Mode: HTTPS Client authentication: Yes Bootstrap certificate file: Present CA certificate file: Present Server certificate file: Present Server certificate hostname: ufm.mellanoxhpc.net User Associations: SAN: ufm.mellanoxhpc.net User: ufmsysadmin Certificate Auto-refresh: Enabled: Yes CA certificate URL: https://mellanox.com/cacert Server certificate URL: https://mellanox.com/servercerts Server certificate thumbprint: 2268BDD79DF7FD9C818EB97F315AE0F35D223A15 Last checked: 2019-04-20 20:57:21</pre>
Related Commands	ufm web-client mode ufm web-client client-authentication ufm web-client associate-user
Notes	

ufm web-client client-authentication cert-refresh enable

ufm web-client client-authentication cert-refresh enable no ufm web-client client-authentication cert-refresh enable Enables UFM web client certificates auto-refresh.

	The no form of the command disables the feature.	
Syntax Description	N/A	
Default	Disabled	
Configuration Mode	config	
History	1.4.0	
Example	ufmapl (config) # ufm web-client client- authentication cert-refresh enable	
Related Commands	show ufm web-client	
Notes		

ufm web-client client-authentication cert-refresh ca-cert

	ufm web-client cli no ufm web-client url> Sets the download The no form of the refresh settings.	ent-authentication cert-refresh ca-cert <download-url> c client-authentication cert-refresh ca-cert <download- d URL for root/intermediate certificate. e command clears the root/intermediate certificate auto-</download- </download-url>
Syntax Descriptio n	download-url	Download URL for root/intermediate certificate
Default	N/A	
Configurati on Mode	config	
History	1.5	
Example	ufmapl (cor authenticat	nfig) # ufm web-client client- cion cert-refresh ca-cert

	"https://mellanox.com/cacerts"
Related Command s	show ufm web-client
Notes	

ufm web-client client-authentication cert-refresh servercert

	ufm web-client client-authentication cert-refresh server-cert <url> <thumbprint> no ufm web-client client-authentication cert-refresh server-cert <url> <thumbprint> Sets the download URL for server and bootstrap certificates. The no form of the command clears the server and bootstrap certificates auto-refresh settings.</thumbprint></url></thumbprint></url>		
Syntax	url	https and sftp are supported. Example: <u>sftp://username[:password]@hostname/path/filename.</u>	
ion	thumbpri nt	Server certificate thumbprint	
Default	N/A		
Configur ation Mode	r config		
History	1.4.0		
Example	ufmapl (config) # ufm web-client client-authentication cert-refresh server-cert "https://mellanox.com/servercerts" 2268BDD79DF7FD9C818EB97F315AE0F35D223A15		
Related Comma nds	show ufm web-client		

ufm web-client client-authentication cert-refresh runnow

	ufm web-client client-authentication cert-refresh run-now Refreshes the server and root/intermediate certificates manually.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.4.0	
Example	ufmapl (config) # ufm web-client client- authentication cert-refresh run-now	
Related Commands	show ufm web-client	
Notes		

UFM Audit

ufm track-conf-changes enable

	ufm track-conf-changes enable no ufm track-conf-changes enable Enables UFM configuration changes tracking The no form of the command disables UFM configuration changes tracking	
Syntax Description	N/A	
Default	Enabled	
-----------------------	---	--
Configuration Mode	config	
History	1.4.0	
Example	ufmapl (config) # ufm track-conf-changes enable	
Related Commands	show ufm track-conf-changes	
Notes		

show ufm track-conf-changes

	show ufm track-conf-changes Displays UFM configuration changes tracking settings	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.4.0	
Example	ufmapl (config) # show ufm Track UFM configuration changes: No	
Related Commands	ufm track-conf-changes enable no ufm track-conf-changes enable	
Notes		

High-Availability

ufm ha

	ufm ha [failover takeover] Performs High Availability failover/takeover operations.	
Syntax Description	failover	Failover can be performed only on master (active) machine
	takeove r	Takeover can be performed only on slave (standby) machine
Default	N/A	
Configuration Mode	config	
History	1.4.1	
Example	ufmapl (config) # ufm ha takeover	
Related Commands		
Notes		

ufm ha configure

	ufm ha configure <standby master> <local ip="" primary=""> <peer ip="" primary=""> <local ip="" secondary=""> <peer ip="" secondary=""> <virtual ip=""> <hacluster-pwd> no ufm ha Applies HA configuration. The no form of the command reverts the appliance to a standalone configuration.</hacluster-pwd></virtual></peer></local></peer></local></standby master>	
Syntax	node-role	Master or standby
Descriptio	local-primary-ip	Local node primary IP address
	peer-primary-ip	Peer node primary IP address
	local-secondary-ip	Local node secondary IP address
	peer-secondary-ip	Peer node secondary IP address

	virtual ip	Virtual IP used for accessing the active (master) machine
	hacluster-pwd	hacluster user password
Default	N/A	
Configurat ion Mode	config	
History	1.6.0	
Example	swx-ufm3-01 11.0.0.12 11 10.209.44.11	(config) # ufm ha configure standby .0.0.11 10.209.44.12 10.209.44.11 1 123456
Related Command s		
Notes	 The local and p back-to-back The command master node 	peer primary interfaces should be connected directly must be ran first on standby node and only then on the

ufm ha configure dual-subnet

	ufm ha configure dual-subnet <standby master> <local ip="" primary=""> <peer primary IP> <local ip="" secondary=""> <peer ip="" secondary=""> <hacluster-pwd> no ufm ha Applies HA configuration for dual-subnet. The no form of the command reverts the appliance to a standalone configuration.</hacluster-pwd></peer></local></peer </local></standby master>	
Syntax	node-role	Master or standby
Descriptio n	local-primary-ip	Local node primary IP address
	peer-primary-ip	Peer node primary IP address
	local-secondary-ip	Local node secondary IP address
	peer-secondary-ip	Peer node secondary IP address

	hacluster-pwd	hacluster user password
Default	N/A	
Configurat ion Mode	config	
History	1.4.0	
Example	swx-ufm3-01 (config standby 11.0.0.12 1 123456	g) # ufm ha configure dual-subnet 1.0.0.11 10.209.44.12 10.209.44.11
Related Command s		
Notes	 The local and peer primback-to-back The command must be master node 	nary interfaces should be connected directly e ran first on standby node and only then on the

ufm ha rename-node

	ufm ha rename-node {old-hostname} Renames current node hostname in HA configuration	
Syntax Description	{old-hostname}	The previous node hostname
Default	N/A	
Configuration Mode	config	
History	1.12.0	First release
Example	ufmapl (config) # ufm ha rename-	node ufm-node-01
Related	hostname, show ufm status	

Commands	
Notes	The command is available on standby node only and it should be executed after the hostname was changed. The "show ufm status" command will output the old hostname after the change.

UFM Multi-Port SM

ufm multi-port-sm

	ufm multi-port-sm enable ufm multi-port-sm ha-enable no ufm multi-port-sm enable Enables configuring OpenSM with multiple GUIDs. The no form of the command disables configuring OpenSM with multiple GUIDs.	
Syntax Description	enable – enables configuring OpenSM with multiple GUIDs ha-enable – enables multi-port SM with high availability	
Default	Disabled	
Configuration Mode	config	
History	1.6.0	
Example	ufm (config) # ufm multi-port-sm enable	
Related Commands	show ufm multi-port-sm	
Notes		

show ufm multi-port-sm

show ufm multi-port-sm

	Displays whether configuring OpenSM with multiple GUIDs is enabled.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.6.0	
Example	ufm (config) # show ufm multi-port-sm Enable	
Related Commands	ufm multi-port-sm enable	
Notes		

ufm additional-fabric-interfaces

	ufm additional-fabric-interfaces no ufm additional-fabric-interfaces Sets additional fabric interfaces for OpenSM. Clears the additional fabric interfaces list.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.6.0	
Example	ufm (config) #ufmapl (config) # ufm additional- fabric-interfaces ib1	
Related Commands	ufm multi-port-sm enable	

show ufm additional-fabric-interfaces

	show ufm additional-fabric-interfaces Displays the additional fabric interfaces list used by OpenSM.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.6.0		
Example	ufm (config) # show ufm additional-fabric- interfaces ib1		
Related Commands	ufm multi-port-sm enable		
Notes			

UFM Plugins

ufm plugin

	ufm plugin <plugin-name> {add [tag <plugin tag="">] [disable] enable remove upgrade tag <plugin tag=""> [force] } no ufm plugin <plugin-name> enable Manages the UFM plugin. The no form of the command disables the UFM plugin.</plugin-name></plugin></plugin></plugin-name>	
Syntax Description	add [tag <plugin tag="">]</plugin>	Adds UFM plugin with an optional plugin tag
	disable	Option for the "add" command

		Do not enable the UFM plugin when adding it
	enable	Enables UFM plugin
	remove	Removes UFM plugin
	upgrade tag <plugin tag=""></plugin>	Upgrades UFM plugin data
	force	Option for the "upgrade" command UFM plugin upgrade if it is running
Default	N/A	
Configuration Mode	config	
	1.12.0	Added the 'disable' option to the add command and the 'force' option to the upgrade command
History	1.11.0	Removed the [force] option from the UFM plugin upgrade command
	1.8.0	Added the upgrade tag <plugin tag> [force]</plugin
	1.7.0	First release
Example	ufm (config) # ufm plugin ndt add tag 1.1.1-17	
Related Commands	show ufm plugin	
Notes	 The plugin can be added, removed, enabled or disabled while UFM is running. Prior to the plugin upgrade, the plugin should be disabled. After the upgrade, it should be enabled. The plugin will be started upon UFM startup. Disabling the plugin will only stop it from its current UFM run and from any future runs. Removing the plugin also clears all its folders and files (including conflagration and logs). 	

show ufm plugin

	show ufm plugin Displays UFM plugin information		
Syntax Description	N/A		
Default	enabled		
Configuration Mode	config		
History	1.7.0		
Example	ufm (config) # show ufm plugin Plugin ndt: Enabled: Yes Plugin tag: 1.1.1-17 Shared volumes: /opt/ufm/files/log:/log,/dev:/host_dev HTTPD port: 8980 HTTPD file: Present State: running CPU limit: unlimited		
Related Commands	ufm plugin add, ufm plugin remove, ufm plugin enable, no ufm plugin enable		
Notes			

NVP

nvp set

	nvp set <nvp-file-name> <key> <value> [force] Changes the configuration of a file based on the key-value pair provided by the user</value></key></nvp-file-name>	
Syntax Description	nvp-file-name	Refers to the file name

	key	Refers to the key
	value	Refers to the value
	force	Allows the command to proceed even if the configuration does not currently exist
Default	N/A	
Configuration Mode	config	
History	1.10.0	Updated <file-name> to <nvp-file-name> Added the [force] flag</nvp-file-name></file-name>
	1.8.0	First release
Example	ufmapl (config) # nvp set opensm.conf qos TRUE	
Related Commands	nvp get	
Notes	 Force Option: If the force flag is included, it allows the command to proceed even if the configuration does not currently exist. For example, it can create a new section in INI files if needed. Without the force option, the command will only update existing entries. 	

nvp get

	nvp get <file_name> <key> Retrieve the configuration of file based on the key entered by the user</key></file_name>	
Syntax Description	file-name	Refers to the file name
	key	Refers to the key
Default	N/A	
Configuration Mode	config	

History	1.8.0		
Example	ufmapl (config) # nvp get opensm.conf qos		
Related Commands	nvp set		
Notes	Get can retrieve the configuration of only those files, that have been modified via the nvp set.		

nvp dump

	nvp dump Generates a JSON file containing the configuration of all the NVP- supported configuration files		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.8.0		
Example	ufmapl (config) # nvp dump Dump file created at /opt/ufm/files/conf/plugins/tools/nvp/nvp_dump.json		
Related Commands	nvp set nvp append		
Notes			

nvp append

	nvp append <file_name> <config_line> Adds any new configuration line as plain text to the configuration</config_line></file_name>	
Syntax	file-name	Refers to the file name
Description	config-line	Refers to the config line
Default	N/A	
Configuration Mode	config	
History	1.9.0	
Example	ufmapl (config) # nvp append root_guid.conf "root_switches"	
Related Commands	nvp reset	
Notes		

nvp reset

	nvp reset <file-name> Clears the configuration file that has a plain text format</file-name>	
Syntax Description	file_name Refers to the file name	
Default	N/A	
Configuration Mode	config	
History	1.9.0	
Example	ufmapl (config) # nvp reset root_guid.conf	
Related Commands	nvp append	
Notes		

nvp discard

	nvp discard [file-name] Removes configuration changes from the transaction folder in NVP.	
Syntax Description	file-name Refers to the file name	
Default	N/A	
Configuration Mode	config	
History	1.10.0	
Example	ufmapl (config) # nvp discard gv.cfg	
Related Commands	nvp set nvp append	
Notes		

nvp backup

	nvp backup [backup-name] Creates a backup archive of all NVP-supported configuration files.	
Syntax Description	backup- name	Name of the archive containing the backup configuration
Default	N/A	
Configuration Mode	config	
History	1.10.0	
Example	ufmapl (config) # nvp backup Backup 'nvp_backup_2024-10-31_09-12-59.tar.gz' created successfully.	

Related	nvp upload
Commands	nvp delete
Notes	

nvp delete

	nvp delete <backup-name> Removes a specified backup file created using the backup command.</backup-name>	
Syntax Description	backup- name	Name of the archive containing the backup configuration
Default	N/A	
Configuration Mode	config	
History	1.10.0	
Example	ufmapl (config) # nvp delete nvp_backup_2024-10- 31_09-12-59.tar.gz	
Related Commands	nvp backup	
Notes		

nvp fetch

	nvp fet Downlo	ch <url> bad an NVP backup archive file from a remote host.</url>
Syntax Description	url	The URL path from where the NVP archive file can be downloaded. https, scp and sftp are supported. Example: <u>scp://username[:password]@hostname/path/filename</u>
Default	N/A	

Configuration Mode	config	
History	1.10.0	
Example	ufmapl (config) # nvp fetch scp://root:123456@10.10.0.6/tmp/nvp_backup_2024-10-31_09-19-07.tar.gz	
Related Commands	nvp backup nvp upload	
Notes		

nvp upload

	nvp upload <backup-name> <url> Uploads an NVP backup archive file to a remote host.</url></backup-name>	
Syntax Description	backup- name	Name of the backup file
	url	The URL path where the NVP archive file can be uploaded to. Supported formats: https, scp and sftp. Example: scp://username[:password]@hostname/path/filename
Default	N/A	
Configuration Mode	config	
History	1.10.0	
Example	ufmapl (config) # nvp upload nvp_backup_2024-10- 31_09-19-07.tar.gz scp://root:123456@10.0.0.6/tmp	
Related Commands	nvp backup	
Notes		

nvp rollback

	nvp rollback <backup-name> [force] Restores a previous configuration from a specified backup file in NVP</backup-name>	
Syntax Descripti on	backup-name	Name of the archive file containing the backup configuration
Default	N/A	
Configur ation Mode	config	
History	1.10.0	
Example	ufmapl (co 31_09-19-0	onfig) # nvp rollback nvp_backup_2024-10- 7.tar.gz
Related Comman ds	nvp backup nvp apply	
Notes	If the force option is included, there will be no prompts. Since the Rollback action overwrites the transactional folder, users must subsequently call APPLY to implement the changes from the transactional folder to the UFM configuration.	

nvp apply

	nvp apply [force no-resta Moves all the files that hav commands to their origina changes to take effect.	art] ve been changed via the nvp set / append al location and restarts the UFM Server for
Syntax Descripti on	force	Performs nvp apply without any prompts
	no-restart	Apply the updated configuration without restarting UFM.

Configura tion Mode	config	
History	1.8.0	
Example	ufmapl (config) nvp apply force	
Related Comman ds	nvp set nvp append nvp reset nvp discard	
Notes		

UFM Process Commands

ufm process health start

	ufm process health start ufm process health restart no ufm process health start Starts/restarts the UFM health process. The no form of the command stops the UFM health process.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.7.0		
Example	ufmapl (config) # ufm process health start		
Related Commands	show ufm status		
Notes			

ufm process model start

	ufm process model start ufm process model restart no ufm process model start Starts/restarts the UFM ModelMain process. The no form of the command stops the UFM ModelMain process.		
Syntax Description	N/A		
Default	N/A		
Configuratio n Mode	config		
History	1.7.0		
Example	ufmapl (config) # ufm process model start		
Related Commands	show ufm status		
Notes	When stopping the UFM ModelMain process, the UFM health is also stopped in order not to start the UFM ModelMain process.		

ufm process telemetry start

	ufm process telemetry start ufm process telemetry restart no ufm process telemetry start Starts/restarts UFM telemetry process. The no form of the command stops UFM telemetry process.
Syntax Description	N/A
Default	N/A

Configuratio n Mode	config		
History	1.7.0		
Example	ufmapl (config) # ufm process telemetry start		
Related Commands	show ufm status		
Notes	When stopping the UFM telemetry process, the UFM health is also stopped in order not to start the UFM telemetry process.		

ufm process sharp start

	ufm process sharp start ufm process sharp restart no ufm process sharp start Starts/restarts the NVIDIA SHARP Aggregation Manager process. The no form of the command stops the NVIDIA SHARP Aggregation Manager process.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.7.0		
Example	ufmapl (config) # ufm process sharp start		
Related Commands	show ufm status		
Notes	When stopping the SHARP Aggregation Manager process, the UFM health is also stopped in order not to start the SHARP Aggregation Manager process.		

ufm process telemetry start

	ufm process telemetry start ufm process telemetry restart no ufm process telemetry start Starts/restarts the UFM Telemetry process. The no form of the command stops the UFM Telemetry process.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.7.0		
Example	ufmapl (config) # ufm process telemetry start		
Related Commands	show ufm status		
Notes	When stopping the UFM Telemetry process, the UFM health is also stopped in order not to start the UFM Telemetry process.		

ufm process sm start

ufm process sm start ufm process sm restart no ufm process sm start Starts/restarts the SM. The no form of the command stops the SM.	
Syntax Description	N/A
Default	N/A

Configuration Mode	config		
History	1.7.0		
Example	ufmapl (config) # ufm process sm start		
Related Commands	show ufm status		
Notes	When stopping the SM process, the UFM health is also stopped in order not to start the SM process.		

InfiniBand Commands

InfiniBand Utilities

ib ibdiagnet

	Dib ibdiagnet [<ibdiagnet-options>] Scans the fabric using directed route packets and extracts all the available information regarding its connectivity and devices.</ibdiagnet-options>		
Syntax Description	N/A		
Default	N/A		
Configuratio n Mode	config		
History	1.9.0		
Example	ufmapl (config) # ib ibdiagnet		
Related Commands			

 For further information on the command, please run "ib ibdiagnet help". Notes Running this command with the "upload" parameter uploads the last execution of the command.

ib ibaddr

	ib ibaddr <ibaddr options=""> Shows the LID range and default GID of the target.</ibaddr>		
Syntax Description	N/A		
Default	The local port.		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) # ib ibaddr GID fe80::c42:a103:74:f88e LID start 0x4 end 0x4		
Related Commands			
Notes	For further information on the command, please run "ib ibaddr help"		

ib ibhosts

	ib ibhosts [matching <expression> [count]] Scans the net or uses existing net topology file and lists all hosts.</expression>		
Syntax	matchi ng	A matching expression in a form of a string to ease the information search	
Description	count	The number of times the matching expression appears	

Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) #		
Related Commands			
Notes	For further information on the command, please run "ib ibhosts help"		

ib iblinkinfo

	ib iblinkinfo [<iblinkinfo-options>] [matching <expression>] [count] Reports link info for each port in an IB fabric, node by node. Optionally, iblinkinfo can do partial scans and limit its output to parts of a fabric.</expression></iblinkinfo-options>		
Syntax	matching	A matching expression in a form of a string to ease the information search	
Description	count	The number of times the matching expression appears	
Default	N/A		
Configurati on Mode	config		
History	1.9.0		
Example	ufmapl (config) #		
Related Commands			
Notes	For further information on the command, please run "ib iblinkinfohelp"		

ib ibnetdiscover

	ib ibnetdiscover [matching <expression> [count]] Assists to match more ibnetdiscover information.</expression>		
Syntax	matchi ng	A matching expression in a form of a string to ease the information search	
Description	count	The number of times the matching expression appears	
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) # ib ibnetdiscover		
Related Commands			
Notes	For further information on the command, please run "ib ibnetdiscover help".		

ib ibnodes

	ib ibnodes <ibnodes-options> Scans the net or uses existing net topology file and lists all nodes.</ibnodes-options>		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) #		

Related Commands	
Notes	For further information on the command, please run "ib ibnodes help"

ib ibping

	ib ibping <ibping options=""> Uses vendor MADs to validate connectivity between InfiniBand nodes. On exit, (IP) ping-like output is shown.</ibping>		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) # ib ibping -c 3 5 (Lid 5) ibping statistics 3 packets transmitted, 0 received, 100% packet loss, time 3000 ms rtt min/avg/max = 0.000/0.000/0.000 ms		
Related Commands			
Notes	For further information on the command, please run "ib ibpinghelp"		

ib ibportstate

ib ibportstate <ibportstate-options>

	Gets the logical and physical port states of an InfiniBand port or disables or enables the port (only on a switch).		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) #		
Related Commands			
Notes	For further information on the command, please run "ib ibportstate help".		

ib ibqueryerrors

	ib ibqueryerrors <ibqueryerrors-options> Queries and reports non-zero IB port counters.</ibqueryerrors-options>		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) #		
Related Commands			
Notes	For further information on the command, please run "ib ibqueryerrorshelp".		

ib ibroute

	ib ibroute <ibroute-options> Displays unicast and multicast forwarding tables of the switches.</ibroute-options>		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) #		
Related Commands			
Notes	For further information on the command, please run "ib ibroute help".		

ib ibrouters

	ib ibrouters <ibrouters-options> Shows InfiniBand router nodes in topology.</ibrouters-options>		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) # ib routers		

	Rt : 0xe41d2d030048dbf8 ports 3 "MF0;mlnx- switch15:MSB7780/RT" Rt : 0xe41d2d030048dc18 ports 3 "MF0;mlnx- switch18:MSB7780/RT"	
Related Commands		
Notes	For further information on the command, please run "ib ibrouters help".	

ib ibstat

	ib ibstat <ibstat options=""> Shows the host adapters status.</ibstat>		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) #		
Related Commands			
Notes	For further information on the command, please run "ib ibstat help"		

ib ibstatus

ib ibstatus <ibstatus-options> Queries basic status of InfiniBand device(s).</ibstatus-options>	
Syntax Description	N/A

Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) #		
Related Commands			
Notes	For further information on the command, please run "ib ibstatus help"		

ib ibswitches

	ib ibswitches [matching <expression> [count]] Scans the net or uses existing net topology file and lists all switches.</expression>			
Syntax Description	matchi ng	A matching expression in a form of a string to ease the information search		
	count	The number of times the matching expression appears		
Default	N/A	N/A		
Configuration Mode	config			
History	1.9.0			
Example	ufmapl (config) #			
Related Commands				
Notes	For further information on the command, please run "ib ibswitches help"			

ib ibsysstat

	ib ibsysstat <ibsysstat options=""> Obtains basic information for the specific node which may be remote. This information includes: hostname, CPUs, memory utilization.</ibsysstat>	
Syntax Description	N/A	
Default	N/A	
Configurati on Mode	config	
History	1.9.0	
Example	ufmapl (config) # ib ibsysstat 5 sysstat ping succeeded	
Related Commands		
Notes	For further information on the command, please run "ib ibsysstathelp"	

ib ibtracert

	ib ibtracert <ibtracert-options> Displays unicast or multicast route from source to destination.</ibtracert-options>	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.9.0	
Example	ufmapl (config) #	

Related Commands	
Notes	For further information on the command, please run "ib ibtracert help".

ib perfquery

	ib perfquery <perfquery-options> Dumps (and optionally clears) the performance counters of the destination port (including error counters).</perfquery-options>
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.9.0
Example	ufmapl (config) #
Related Commands	
Notes	For further information on the command, please run "ib perfquery help".

ib saquery

	ib saquery <saquery-options> Queries InfiniBand subnet administration attributes.</saquery-options>
Syntax Description	N/A
Default	N/A
Configuration Mode	config

History	1.9.0
Example	ufmapl (config) #
Related Commands	
Notes	For further information on the command, please run "ib saquery help"

ib sminfo

	ib sminfo <sminfo-options> Queries the SMInfo attribute on a node.</sminfo-options>
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.9.0
Example	ufmapl (config) #
Related Commands	
Notes	For further information on the command, please run "ib sminfo help".

ib smpdump

ib smpdump <smpdump-options> A general purpose SMP utility which gets SM attributes from a specified</smpdump-options>
SMA. The result is dumped in hex by default.

Syntax Description	N/A
Default	N/A
Configuratio n Mode	config
History	1.9.0
Example	ufmapl (config) #
Related Commands	
Notes	For further information on the command, please run "ib smpdumphelp".

ib saquery

	ib saquery <saquery-options> Queries InfiniBand subnet administration attributes.</saquery-options>
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.9.0
Example	ufmapl (config) #
Related Commands	
Notes	For further information on the command, please run "ib saquery help"

ib smparquery

	ib smparquery <smparquery options=""> Queries adaptive-routing related settings from a particular switch.</smparquery>
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.9.0
Example	ufmapl (config) # smparquery argrouptable 3 1
Related Commands	
Notes	For further information on the command, please run "ib smparquery help"

ib smpquery

	ib smpquery <smpquery-options> Enables a basic subset of standard SMP queries including the following: node info, node description, switch info, port info. Fields are displayed in human readable format.</smpquery-options>
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.9.0
Example	ufmapl (config) #

Related Commands	
Notes	For further information on the command, please run "ib smpquery help".

ib vendstat

	ib vendstat <vendstat-options> Uses vendor specific MADs to access beyond the IB spec vendor specific functionality.</vendstat-options>
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.9.0
Example	ufmapl (config) #
Related Commands	
Notes	For further information on the command, please run "ib vendstat help"

OpenSM

ib sm configuration import

	ib sm configuration import [partition-conf-user-ext] <url> Imports the Subnet Manager configuration.</url>
Syntax Description	N/A

Default	N/A
Configuration Mode	config
History	1.4.1
Example	ufmapl (config) # ib sm configuration import partition-config-user- ext sftp://admin:123456@192.168.1.12/tmp/partitions.c onf.user_ext
Related Commands	show ib sm configuration import
Notes	N/A

show ib sm allow-both-pkeys

	show ib sm allow-both-pkeys Displays if both full and limited memberships on the same partition are enabled or not.
Syntax Description	N/A
Default	N/A
Configuration Mode	Enable
History	1.4.0
Example	ufmapl (config) # show ib sm allow-both-pkeys disable
Related Commands	ib sm allow-both-pkeys
ib sm allow-both-pkeys

	ib sm allow-both-pkeys no ib sm allow-both-pkeys Enables having both a full and limited membership on the same partition. The no form of the command disables having both full and limited memberships on the same partition.		
Syntax Description	N/A		
Default	Disabled		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ib sm allow-both-pkeys		
Related Commands	show ib sm allow-both-pkey ib partition management defmember		
Notes	N/A		

show ib sm keep-pkey-indexes

	show ib sm keep-pkey-indexes Displays whether PKey indexes belonging to the historical PKeys configured on the port are preserved or not.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	Enable	

History	1.4.0		
Example	ufmapl (config) # show ib sm keep-pkey-indexes enable		
Related Commands	ib sm keep-pkey-indexes		
Notes	N/A		

ib sm keep-pkey-indexes

	ib sm keep-pkey-indexes no ib sm keep-pkey-indexes Preserves PKey indexes belonging to the historical PKeys configured on the port when generating PKey tables for a certain port. The no form of the command calculates PKey indexes belonging to the historical PKeys configured on the port.		
Syntax Description	N/A		
Default	Enabled		
Configurati on Mode	config		
History	1.4.0		
Example	ufmapl (config) # no ib sm keep-pkey-indexes		
Related Commands	show ib sm keep-pkey-indexes ib sm allow-both-pkeys		
Notes	N/A		

show ib sm virtualization

	show ib sm virtualization Displays virtualization support.
Syntax Description	N/A
Default	N/A
Configuration Mode	enable
History	1.4.0
Example	ufmapl (config) # show ib sm virtualization enable
Related Commands	ib sm virtualization enable ib sm virtualization ignore
Notes	N/A

ib sm virtualization enable

	ib sm virtualization enable no ib sm virtualization enable Enables virtualization on all supported ports (default). The no form of the command disables virtualization on all supporting ports.		
Syntax Description	N/A		
Default	Enabled		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ib sm virtualization enable		
Related Commands	show ib sm virtualization		

Notes	It is not possible to modify the virtualization support in case OpenSM
	or UFM are running.

ib sm virtualization ignore

	ib sm virtualization ignore No virtualization support.		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.4.0		
Example	ufmapl (config) # ib sm virtualization ignore		
Related Commands	show ib sm virtualization		
Notes	It is not possible to modify the virtualization support in case OpenSM or UFM are running.		

show ib sm root-guid

	show ib sm root-guid Displays all configured root GUIDs for the SM.
Syntax Description	N/A
Default	N/A
Configuration Mode	enable
History	1.4.0
Example	ufmapl (config) # show ib sm root-quid
	unnapi (coniig) # snow ib sni root-guid

	0x0002c903006ad830 0x0002c903006ae120 0x0002c903006af520
Related Commands	ib sm root-guid
Notes	N/A

ib sm root-guid

	ib sm root-guid <guid> no ib sm root-guid <guid> Adds a root GUID for the SM. The no form of the command removes the GUID from the SM.</guid></guid>	
Syntax Description	guid	The root GUID number in hexadecimal notation For example: 0x0002c903006ad830
Default	N/A	
Configuration Mode	config	
History	1.4.0	
Example	ufmapl (config) # ib sm root-guid 0x0002c903006ad830	
Related Commands	show ib sm root-guid	
Notes	The list of root GUIDs are relevant when the routing algorithm is up- down or fat-tree.	

show ib sm routing-engines

show ib sm routing-engines
Displays number of CPUs configured to use for parallel calculations.

Syntax Description	N/A	
Default	N/A	
Configuration Mode	enable	
History	1.4.0	
Example	ufmapl (config) # show ib sm routing-engines ar_updn	
Related Commands	ib sm routing-engines	
Notes	N/A	

ib sm routing-engines

	ib sm routing-engines <engine> Configures number of CPUs to use for parallel calculations.</engine>	
Syntax Descripti on	engi ne	Multiple routing engines can be specified separated by space. Supported engines: ar-dor, ar-ftree, ar-torus, ar-updn, chain, dfp, dfp2, dor, file, ftree, minhop, pqft, torus-2QoS, updn)
Default	1	
Configur ation Mode	config	
History	1.4.0	
Example	ufmapl (config) # ib sm routing-engines ar-updn	
Related Comman ds	show ib sm routing-engines	
Notes	N/A	

show ib sm ar-sl-mask

	show ib sm ar-sl-mask Displays the adaptive routing SL mask.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	enable	
History	1.4.0	
Example	ufmapl (config) # show ib sm ar-sl-mask Øxffff	
Related Commands	ib sm ar-sl-mask	
Notes	N/A	

ib sm ar-sl-mask

	ib sm ar-sl-mask <mask> no ib sm ar-sl-mask Configures the adaptive routing SL mask. The no form of the command rests the mask value to default.</mask>		
Syntax Description	mask	Range: 0x0000-0xffff	
Default	Oxffff		
Configuration Mode	config		
History	1.4.0	1.4.0	
Example	ufmapl (config) # ib sm ar-sl-mask 0xfffe		
Related Commands	show ib sm ar-sl-mask		

Notoc		
NOLES		

show ib sm configuration import

N/A

	show ib sm configuration import Displays imported subnet manager configuration files.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	enable	
History	1.4.0	
Example	ufmapl (config) # show ib sm configuration import partitions.conf.user_ext	
Related Commands	ib sm configuration import	
Notes	N/A	

ib sm partition-config-merge

	ib sm partition-config-merge Merges the partitions.conf.user_ext into the partitions.conf and starts the heavy sweep on the SM. To use after importing the specific file or importing all configuration files.
Syntax Descripti on	N/A
Default	N/A
Configura tion	config

Mode		
History	1.4.0	
Example	ufmapl (config) # ib sm partition-config-merge	
Related Comman ds	ib sm configuration import partition-config-user-ext	
Notes	The SM must be running for this command to work.	

ib sm sharp enable

	ib sm sharp enable no ib sm sharp enable Enables NVIDIA® Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)™ on all supporting switches. The no form disables NVIDIA SHARP on all supporting switches.	
Syntax Description	N/A	
Default	N/A	
Configuratio n Mode	config	
History	1.4.0	
Example	ufmapl (config) # ib sm sharp enable	
Related Commands	show ib sm sharp	
Notes	It is not possible to modify the NVIDIA SHARP support parameter in case OpenSM is running.	

ib sm sharp ignore

	ib sm sharp ignore No NVIDIA SHARP support. This command does not change the current switch configuration. If NVIDIA SHARP is enabled on the switch, it will remain enabled. If it is disabled on the switch, it will remain disabled.	
Syntax Descripti on	N/A	
Default	N/A	
Configur ation Mode	config	
History	1.4.0	
Example	ufmapl (config) # ib sm sharp ignore	
Related Comman ds	show ib sm sharp	
Notes	It is not possible to modify the NVIDIA SHARP support parameter in case OpenSM is running.	

show ib sm sharp

	show ib sm sharp Displays NVIDIA SHARP support.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	Enable	
History	1.4.0	
Example	ufmapl (config) # show ib sm sharp	

	ignore	
Related Commands	ib sm sharp enable ib sm sharp ignore	
Notes	N/A	

show ib sm log

	show ib s Displays i	show ib sm log [continuous files matching not] Displays ib sm log event.	
Syntax Description	continu ous	Displays new event log messages as they arrive. Press 'Ctrl+C' to quit from output view.	
	files	Displays archived log files	
	matchin g	Displays event logs that match a given regular expression	
	not	Displays event logs that do not meet certain criteria	
Default	N/A		
Configuration Mode	Any configuration mode		
History	1.9.0		
Example	ufmapl (config) # show ib sm log		
Related Commands			
Notes	To quit from the output view, press 'q' .		

HCA Commands

ib hca-vl15-window

	ib hca-vl15-win no ib hca-vl15- Sets the HCA V The no form of	dow <value> window /L15 port receive buffer size. the command resets this parameter to its default.</value>
Syntax Description	value	1,2,4,8,16,32,64,128
Default	1	
Configuration Mode	config	
History	1.6.0	
Example	UFM-APL	(config) # ib hca-vl15-window 6
Related Commands	show ib hca-vl1	5-window
Notes	UFM system m	ust be rebooted to apply the new configuration

show ib hca-vl15-window

	show ib hca-vl15-window Displays the configured HCA VL15 port receive buffer size.		
Syntax Description	N/A		
Default	N/A		
Configuratio n Mode	Enable		
History	1.6.0		
Example	ufmapl (config) # show ib hca-vl15-window /dev/mst/mt4123_pciconf0: Running configuration: default /dev/mst/mt4123_pciconf1:		

	Running configuration: default
Related Commands	ib hca-vl15-window
Notes	The example shows an instance where the system has not been rebooted after implementing new configuration

Partition

ib partition management defmember

	ib partition management defmember <type> no ib partition management defmember Sets the default membership for the management IB partition (default PKEY). The no form of the command resets the parameter to its default value.</type>		
Syntax Descriptio n	type	 full – full membership limited – limited membership 	
Default	Full membership		
Configurat ion Mode	config		
History	1.4.0		
Example	ufmapl (config) # ib partition management defmember limited		
Related Command s	show ib partition		
Notes	 The defmember setting controls the ability of end nodes to communicate over the management partition It is not possible to modify the defmember in case OpenSM or UFM are running 		

show ib partition

	show ib partition Displays partition information.		
Syntax Description	N/A		
Default	N/A		
Configuratio n Mode	enable		
History	1.4.0		
Example	ufmapl (config) # show ib partition management: Default membership: full		
Related Commands	ib partition management defmember		
Notes	N/A		

NVIDIA SHARP

ib sharp enable

	ib sharp enable no ib sharp enable Enables NVIDIA® Scalable Hierarchical Aggregation and Reduction Protocol (SHARP)™. The no form of the command disables NVIDIA SHARP.
Syntax Description	N/A

Default	N/A	
Configuration Mode	config	
History	1.4.0	
Example	ufmapl (config) # ib sharp enable	
Related Commands	show ib sharp	
Notes	N/A	

ib sharp allocation enable

	ib sharp allocation enable no ib sharp allocation enable Enables NVIDIA SHARP allocation reservation. The no form of the command disables NVIDIA SHARP allocation reservation.
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.6.0
Example	ufmapl (config) # ib sharp allocation enable
Related Commands	show ib sharp
Notes	

ib sharp smx-protocol

	ib sharp smx-protocol {sockets ucx} no ib sharp smx-protocol Configures network protocol to be used by SMX. The no form of the command restores the network protocol to default.
Syntax Description	N/A
Default	sockets
Configuration Mode	config
History	1.4.0
Example	ufmapl (config) # ib sharp smx-protocol ucx
Related Commands	show ib sharp
Notes	N/A

ib sharp topology-api enable

	ib sharp topology-api enable no ib sharp topology-api enable Enables the SHARP topology API. The no form of the command disables the SHARP topology API.
Syntax Description	N/A
Default	Disabled
Configuration Mode	config
History	1.4.0
Example	ufmapl (config) # ib sharp topology-api enable

Related Commands	show ib sharp
Notes	N/A

show ib sharp

	show ib sharp Displays the configuration of NVIDIA SHARP Aggregation Manager.			
Syntax Description	N/A			
Default	N/A			
Configuration Mode	config			
	1.9.0 Added a note			
History	1.6.0 Updated the output to reflect the new settings			
	1.4.0) First release		
Example	uf	<pre>mapl (config) # show ib s Enabled: Allocation: SMX protocol: Topology API: Dump files generation: Dynamic tree allocation: Dynamic tree algorithm: IB QPC SL: IB SAT QPC SL:</pre>	harp No No sockets No Yes No 0 1	
Related Commands	N/A			
Notes				

ib sharp dump-files-generation enable

ib sharp dump-files-generation enable

	no ib sharp dump-files-generation enable Enables dumping SHARP's internal state to files The no form of the command disables dumping SHARP's internal state to files		
Syntax Description	N/A		
Default	Disable		
Configuration Mode	config		
History	1.6.0		
Example	ufmapl (config) # ib sharp dump-files-generation enable		
Related Commands	show ib sharp		
Notes	N/A		

ib sharp dynamic-tree-allocation enable

	ib sharp dynamic-tree-allocation enable no ib sharp dynamic-tree-allocation enable Enables dynamically allocated trees for each SHARP job The no form of the command disables dynamically allocated trees for each SHARP job	
Syntax Description	N/A	
Default	Enable	
Configuration Mode	config	
History	1.6.0	
Example	ufmapl (config) # ib sharp dynamic-tree-	

	allocation enable
Related Commands	show ib sharp
Notes	N/A

ib sharp dynamic-tree-algorithm

	ib sharp dynamic-tree-algorithm <0-1> no ib sharp dynamic-tree-algorithm Sets which algorithm should be used by the dynamic tree mechanism The no form of the command restores the algorithm used by the dynamic tree mechanism to default		
Syntax Description	N/A		
Default	0		
Configuration Mode	config		
History	1.6.0		
Example	ufmapl (config) # ib sharp dynamic-tree-algorithm		
Related Commands	show ib sharp		
Notes	N/A		

ib sharp ib-qpc-sl <0-15>

ib sharp ib-qpc-sl <0-15>
no ib sharp ib-qpc-sl
Set the IB QP context SL for SHARP data path communication
The no form of the command restores the IB QP context SL for SHARP
data path communication to default

Syntax Description	N/A		
Default	0		
Configuration Mode	config		
History	1.6.0		
Example	ufmapl (config) # ib sharp ib-qpc-sl 1		
Related Commands	show ib sharp		
Notes	N/A		

ib sharp ib-sat-qpc-sl <0-15>

	ib sharp ib-sat-qpc-sl <0-15> no ib sharp ib-sat-qpc-sl Sets the IB QP context SL for SHARP streaming data path communication The no form of the command restores the IB QP context SL for SHARP streaming data path communication to default		
Syntax Description	N/A		
Default	1		
Configuratio n Mode	config		
History	1.6.0		
Example	ufmapl (config) # ib sharp ib-sat-qpc-sl 1		
Related Commands	show ib sharp		
Notes	N/A		

show ib sharp log

	show ib sharp log Displays NVIDIA SHARP log file in a scrollable pager.
Syntax Description	N/A
Default	N/A
Configuration Mode	config
History	1.9.0
Example	ufmapl (config) # show ib sharp log
Related Commands	
Notes	To quit from the output view, press 'q' .

show ib sharp log continuous

	show ib sharp log continuous Displays new NVIDIA SHARP log messages as they happen.	
Syntax Description	N/A	
Default	N/A	
Configuration Mode	config	
History	1.9.0	
Example	ufmapl (config) # show ib sharp log continuous	
Related Commands		
Notes	To quit from the output view, press 'Ctrl+C' .	

show ib sharp log files

	show ib sharp log files [number matching <regex> not]] Displays archived log files.</regex>	
Syntax Description	number	Displays new event log messages as they arrive
	matchin g	Displays event logs that match a given regular expression
	not	Displays event logs that do not meet certain criteria
Default	N/A	
Configuration Mode	config	
History	1.9.0	
Example	ufmapl (config) # show ib sharp log files	
Related Commands		
Notes		

show ib sharp log matching

	show ib sharp log matching <reg-exp> Display NVIDIA SHARP logs that match a given regular expression.</reg-exp>		
Syntax Description	N/A		
Default	N/A		
Configuration Mode	config		
History	1.9.0		
Example	ufmapl (config) # show ib sharp log matching error		

Related Commands	
Notes	To quit from the output view, press 'q' .

show ib sharp log not matching

	show ib sharp log not matching <reg-exp> Display NVIDIA SHARP logs that do not match a given regular expression.</reg-exp>			
Syntax Description	N/A			
Default	N/A			
Configuration Mode	config			
History	1.9.0			
Example	ufmapl (config) # show ib sharp log not matching error			
Related Commands				
Notes	To quit from the output view, press 'q' .			

UFM Enterprise Appliance Upgrade

) Note

Upgrading the UFM Enterprise Appliance is supported up to two previous GA software versions (GA -1 or GA -2).

For example, if you wish to upgrade to UFM Enterprise Appliance v1.8.0, it is possible to do so only from UFM Enterprise v1.7.0 or v1.6.1.

i) Note

This is the recommended upgrade procedure, which involves upgrading all UFM Enterprise appliance software components and operating system. For additional upgrade procedures of specific software components, please refer to <u>Appendix - Software</u> <u>Components Upgrade</u>.

As of UFM Enterprise Appliance version 1.5.0, upgrading the appliance on HA supports an in-service upgrade, meaning UFM can continue running during the steps of the upgrade, and there is no need to stop UFM before the upgrade.

(j) Note

As of version UFM Enterprise Appliance v1.10.0, some plugin images are available for deployment as part of the OMU image. Information

regarding the relevant plugins and their versions is available in the "show version" CLI command and in the /etc/ufm-release file.

The unique image name is "/var/opt/ufm/images/ufm-plugin-<**plugin name**>_from_release-docker.img.gz" to allow overriding previous plugin versions.

The upgrade is performed on both **Master** and **Standby** nodes.

To upgrade the UFM Enterprise Appliance software:

1. On the standby server, extract the OMU image to the /tmp folder:

tar -xzf ufm-appliance-<version>-omu.tar -C /tmp

2. On the standby server, access the installation folder and upgrade script:

standby# cd /tmp/ufm-appliance-<version>-omu

3. Run the UFM upgrade script on the standby server:

./ufm-os-upgrade.sh --yes --reboot

4. After the reboot procedure is complete, a systemd service (ufm-os-firstboot.service) runs the remainder of the upgrade procedure.

Once completed, a message is prompted to all open terminals including the status:

"UFM-OS-FIRSTBOOT-FAILURE" - if installation is failed.

"UFM-OS-FIRSTBOOT-SUCCESS" - if installation succeeded.

Example:

root@ufm-ai03:~# root@ufm-ai03:~#

3roadcast message from root@ufm-ai03 (somewhere) (Fri Dec 30 18:47:32 2022): JFM-05-FIR5TB00T-SUCCESS, installation succeeded additional info is available in /var/log/ufm-os-firstboot.log

To manually check the status, run

systemctl status ufm-os-firstboot.service. If it is already finished, an error message is prompted stating that there is no such service. In that case, the log /var/log/ufm-os-firstboot.log can be checked instead.

systemctl status ufm-os-firstboot.service

Example:

```
root@ufm-ai03:~# systemctl status ufm-os-firstboot
Unit ufm-os-firstboot.service could not be found.
root@ufm-ai03:~#
```

(i) Note

Do NOT proceed to the next step before ensuring that the systemctl status ufm-os-firstboot.service service has been completed.

5. After the completion of the upgrade script, the UFM code is upgraded, while the UFM data remains unchanged. The automatic upgrade of UFM data will take place during the next UFM startup. To initiate this process, execute a failover from the Master node (or perform a takeover from the Standby node).



6. Once UFM is operational on the upgraded node (formerly the standby node), proceed to replicate steps 1 to 3 on the non-upgraded node (previously the master node).

In-Service Upgrade via CLI

Alternatively, in-service upgrade can be performed via the CLI. The upgrade is performed on both **Master** and **Standby** nodes.

Follow the below instructions:

1. On the Standby node, fetch the new image from a remote server. Run:

ufmapl (config) # image fetch <download URL>

2. On the Standby node, install the new image. Run:

ufmapl (config) # image install <image name>

3. Reload the Standby UFM Enterprise Appliance. Run:

```
ufmapl (config) # reload
```

4. After the completion of the upgrade on the Standby node, the UFM code is upgraded, while the UFM data remains unchanged. The automatic upgrade of UFM data will take place during the next UFM startup. To initiate this process, execute a failover from the Master node. Once the Standby node is up and running, perform a failover on the **Master node**. Run:

```
ufmapl (config) # ufm ha failover
```

5. Once UFM is operational on the upgraded node (formerly the standby node), proceed to replicate steps 1 to 3 on the non-upgraded node (previously the Master node).

Split-Brain Recovery in HA Installation

The split-brain problem is a DRBD synchronization issue (HA status shows DUnknown in the DRBD disk state), which occurs when both HA nodes are rebooted. For example, in cases of electricity shut-down. To recover, please follow the below steps:

• Step 1: Run the following command to clear the cluster failure.

pcs resource cleanup

If the split-brain issue is not resolved, perform the below steps.

• Step 2: Manually choose a node where data modifications will be discarded.

It is called the split-brain victim. Choose wisely; all modifications will be lost! When in doubt, run a backup of the victim's data before you continue.

When running a Pacemaker cluster, you can enable maintenance mode. If the splitbrain victim is in the Primary role, bring down all applications using this resource. Now switch the victim to the Secondary role:

victim# drbdadm secondary ha_data

• Step 3: Disconnect the resource if it's in connection state WFConnection:

victim# drbdadm disconnect ha_data

• **Step 4:** Force discard of all modifications on the split-brain victim:

```
victim# drbdadm connect --discard-my-data ha_data
```

• **Step 5:** Resync starts automatically if the survivor is in a WFConnection network state. If the split-brain survivor is still in a Standalone connection state, reconnect it:

survivor# drbdadm connect ha_data

Now the resynchronization from the survivor (SyncSource) to the victim (SyncTarget) starts immediately. There is no full sync initiated, but all modifications on the victim will be overwritten by the survivor's data, and modifications on the survivor will be applied to the victim.

Appendixes

Appendix - Chassis Health Monitoring

Overview

Chassis Health Monitoring enables monitoring hardware alerts via rsyslog and generating external events in UFM. The alerts are written to /var/log/syslog.

Monitoring hardware health status is essential for failure prevention and maintenance. The Chassis Health Monitoring service is run as a Docker container.

Configuration

1. Generate UFM token authentication. Run:

POST https://<UFM server IP>/ufmRest/app/tokens

2. Set the UFM server hostname and authentication token in

```
/opt/ufm/chassis_health/chassis_health.conf:
```

```
[connection]
# UFM server hostname. In case of HA, it should be the VIP
hostname =
[authentication]
# UFM server user credentials
token =
```

3. Restart the Chassis Health Monitoring service for changes to take effect. Run:

systemctl restart ufm-chassis-health.service

Once the service runs, the status can be viewed via systemctl (systemctl status ufm-chassis-health.service) and /var/log/chassis_health_fluentd_console.log file.

Appendix - Secure Boot Activation and Deactivation

This section provides instructions on how to enable/disable the Secure Boot feature in UFM Enterprise Appliance.

Enabling Secure Boot

The NVIDIA public certificate needs to be imported to the Machine Owner Key DB (MOK DB) before enabling secure boot. To do so, follow the below steps:

Add NVIDIA Certificate to MOK DB

1. Download NVIDIA certificate <u>mlnx signing key pub.der</u> to a temporary folder.

checksums:

MD5: c3ce3dcad0f38b02a9cbb991ce1bc7f4

sha256: ff7fe8c650e936079a8add2900b190f9e7f3806e5ad42e48c2b88408a6ce70aa

cd /tmp
wget
http://www.mellanox.com/downloads/ofed/mlnx_signing_key_pub.de
ls -ltrh ./mlnx_signing_key_pub.der

Example:

root@ubuntu:/tmp# ls -ltrh mlnx_signing_key_pub.der -rw-r--r-- 1 root root 1.5K Feb 23 2017 mlnx_signing_key_pub.der

2. Import the mlnx_signing_key_pub.der to MOK DB using mok-util:

```
cd /tmp
mokutil --import ./mlnx_signing_key_pub.der --root-pw
```



The certificate is in the enrolled queue at this point. Upon the next server reboot, a 10 second prompt appears at the start of the boot process to confirm the certificate addition. It is important to confirm the certificate addition at this stage. Failure to do so requires you to repeat the procedure.

To be able to interact with the prompt, a console connection is needed either from the serial port or from the web console available via Remote Management.

Verify the certificate in the enrolled queue:

mokutil --list-new

images/download/attachments/3971653976/-1-version-1-modificationdate-1749062861557-api-v2.jpg

- 3. Login to Remote Management via https://<iDRAC-ip address>
- 4. To open the virtual web console, click on "Dashboard"→"Virtual Console"

Dashboa	rd								
Graceful Shute	down 🔹 🕷 LED On 👻 More Acti	ons -							C ^r Ref
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	SYSTEM HAS U	RITICALISSUES		Model	Not Available		No Pending Jobs		
System Health		Storage Health		Host Name					
Critical	Details		Details	Operating System			() In-Progress Jobs : 0		_
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Power Supplier	a			Service Tag	38VBMP3				
				BIOS Version					
				iORAC Firmware Version	5.00.10.20		Completed Jobs : 2		
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				IDRAC MAC Address	ec 2a 72:27:03 e6				
				License	Datacenter Edit		12		
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•	The power input for power supply 1 is k	st.			Sun 23 Oct 2022 10:02	135			
	The power input for power supply 1 is k	st.			Wed 19 Oct 2022 09:11	8.44			
•	System BIOS has halted.				Mon 29 Aug 2022 12:3	214			
	Power supply redundancy is lost.				Mon 29 Aug 2022 12:1	9:30			
•	The power input for power supply 1 is k	st.			Mon 29 Aug 2022 12:1	9:29			
•	The chassis is closed while the power is	off.			Mon 29 Aug 2022 12:1	9:23			
)) 1		off.			Mon 29 Aug 2022 12:1	9:19			
	The chassis is open while the power is				Mon 29 Aug 2022 12:0	7:02			
	The chassis is open while the power is o The power input for power supply 1 is k	st.			Sun 31 Jul 2022 14:46	:01		Start the Virtual Donsole	
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5. Power cycle the server (at boot startup a 10 second prompt appears to verify the certificate addition)

On the top menu, go to "Power" \rightarrow "Reset System (warm boot)"

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	Boot Power Chat Keyboard Screen Capture Refresh Full Screen Virtual Media D	Disconnect Viewer Console Controls
Ubuntu 18.04.6 LTS ubuntu	ttg1 Power Controls	
ubuntu login: root Passuord: Last login: Tue Jan 3 15 Welcome to Ubuntu 18.04.6 * Documentation: https:	S:19:24_UTC Graceful Shutdown D.TS GNU/ >Reset System (warm boot) >//help.ubu Power Cycle System (cold boot)	
* Management: https: * Support: https: Failed to connect to http	//landscap //ubuntu.c s://change Cancel or proxy settings	
root9ubunt:"I mokutil Issue: 0=1611aan Subject: 0=1611aan root8ubunt:"I mokutil NokDel is enpty root8ubunt:"I 11 /tnp total 56 druxrwxrut 14 root root 4 druxrwxrut 2 root root 4 druxrwxrut 2 root root 4 druxrwxrut 2 root root 4 drux 3 root root 4 druxrwxrut 2 root root 4 dr	<pre>list-emrol technologies, CM=Hellanov Technologies signing key/enallAddress-support and linov.con Technologies, CM=Hellanov Technologies signing key/enallAddress-support and linov.con tist-delet 096 Jan 3 15:53 // // Internity/ 096 Jan 3 15:46 // In</pre>	<pre>cm=00.0 mm=0001 mm=0000 mm=0000 mm=0000 mm=00000 mm=00000 mm=00000 mm=00000 mm=00000 mm=00000 mm=000000 mm=0000000 mm=00000000</pre>

The server will now reboot.

6. At boot startup, a confirmation prompt appears to verify certificate addition. The prompt closes after 10 seconds, so if missed, the certificate addition procedure needs to be done again.



When the prompt appears, press any key to interact.

7. Navigate to "Delete MOK"



8. View the certificate to be enrolled. To verify, press "View key0".

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	Boot Power Chat Keyboard Screen Capture Refresh Full Screen Virtual Media Disconnect View	wer Console Controls
	(Enroll MOK)	
	Continue	


Press "Enter" to exit the view.

9. Select "Continue" from the menu and press Enter.

idrac-5M7SMK3, UFM3, User: root, FPS: 1.6 — Mozilla Firefox	
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Boot Power Chat Keyboard Screen Capture Refresh Full S	Screen Virtual Media Disconnect Viewer Console Controls
Emroll MOKI	

10. Select "Yes" from the menu, and press Enter.

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									Boo	Po	wer	Chat	Keyboard	Screen Cap	ture	Refresh	Full Screen	Virtual Media	Disconnec	t Viewer	Console Co	ontrols
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											No Yes]										

11. A password prompt appears, then, enter the OS Root user credentials.

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				Boot Power Chat Keyboard	Screen Capture Refresh Full S	creen Virtual Media Disconnect	Viewer Console Controls
				Delete the key(s)?			
				Password :			

12. Select "Reboot" and press Enter. After the reboot is completed, the certificate is removed.



Enable Secure Boot

- 1. Login to Remote Management available via https://<iDRAC-ip address>
- 2. Navigate to "Configuration" \rightarrow "BIOS Settings" \rightarrow "System Security" and press the drop down menu (arrow).

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iDRAC9 Datacenter		Open Application	n Menu
💼 Dashboard 🖩 System	1 🗸 🛢 Storage 🗸 👯 Configuration 🗸 🖾 Maintenance 🗸 🔍 iDRAC Settings 🗸	Enable Group Manager	*
Configuration	I		
Power Management Virt	ual Console Virtual Media Licenses System Settings Asset Tracking Storage Configuration BIOS Settings Server Configuration Profile	C* Refre	resh
Note: The information on this p	sage is pulled directly from the BIOS settings and is available in English only.		
To change the settings, select t • If you change a setting a • If you change the setting • If you select At Next Ret > System Information	the desired value, and click Apply. The new value is displayed under Pending Value. To apply the changes and reboot the server immediately, click Apply and Reboot at the bottom of the page. T and have not clicked Apply, click Discard to revert to the previous settings. g and click Apply and then want to discard if the changes, click Discard Al Pending boot, the change job gets added to the job queue. If you want to discard the changes after you click At Next Reboot, go to Job Queue and delete the queued job for BIOS configuration.	o apply the settings at next rebost, click At Next Reboot.	
> Memory Settings			
> Processor Settings			-
> SATA Settings			~
> NVMe Settings			
> Boot Settings			
> Network Settings			
> Integrated Devices			
> Serial Communication	n		
> System Profile Setting	gs		
stem Security		(0
	Current Value Pending Value		
CPU AES-NI	Enabled		
System Password			
Confirm Sustam Daasua	and the second se		

3. Scroll down to "Secure Boot" and select "Enabled" from the drop menu. Click the "Apply" button.

· → C @	O 🔒 🛋 https	://swx-ufm3-03-ilo/rest	tgui/index.html?7bc9ab	olcf0b5e36799c8f3f2a5d49e8d#/	☆	
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UEFI Variable Access			Standard 👻			2
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Secure Boot Policy			Standard 🛩			
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Authorize Device Firmware			Disabled			
			Apply Disca	rd		
				_		

4. Scroll to the bottom of the page and click on "Apply And Reboot" button, this will reboot the server and perform the configuration

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Authorize Device Firmware			Disabled					
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edundant OS Control								
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bly And Reboot At Next Rebo	Discard All Pe	nding						

5. An Information Popup is prompted. Click on the "Job Queue" button (can also be navigated from "Maintenance" \rightarrow "Job Queue").



6. Wait for the Jobs to finish and reach 100%

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			Scheduled Start Time Actual Start Time Expiration Time Actual Completion Time Message	2023-01-03T16-39:56 2023-01-03T16-40:01 Not Applicable 2023-01-03T16-40:12 RED030 Reboot is complete.		
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			Scheduled Start Time Actual Start Time Expiration Time Actual Completion Time Message	2023 01 -03T 6:09:56 2023 01 -03T 6:42:25 Not Applicable 2023 -01 -03T 6:42:25 PFI 19: -04 completed successfully.		
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	+		JID_703615455555	Configure: Import Server Configuration Profile	Completed (100%)	
	+		JID_703615396967	Firmware Update: OEM ID Module	Completed (100%)	
	+		RID_625592058437	Reboot: Graceful OS shutdown with powercycle on timeout	Reboot Completed (100%)	
	+		JID_625592057947	Configure: BIOS.Setup.1-1	Completed (100%)	
2	+		JID_612763094152	Firmware Update: OEM ID Module	Completed (100%)	
	+		RID_612740933938	Reboot: Graceful OS shutdown with powercycle on timeout	Reboot Completed (100%)	
6	+		JID_612740933147	Configure: BIOS Setup.1-1	Completed (100%)	
3	+		JID_606568609010	Export: Server Configuration Profile	Completed (100%)	
2	+		IID 606546489301	Configure Import Server Configuration Profile	Failed (100%)	

7. Validate that secure boot is enabled and active (from the terminal).

```
mokutil --sb-state
mokutil --sb-state
secureBoot enabled
mokutil --list-enrolled | grep -i mellanox

root@ubuntu:~# mokutil --list-enrolled | grep -i mellanox

root@ubuntu:~# mokutil --list-enrolled | grep -i mellanox
```

Disable Secure Boot



Disabling secure boot is not recommended and may cause security issues.

Secure Boot needs to be disabled prior to removing the NVIDIA public certificate.

The removal of the certificate is optional and can be skipped if secure boot should be reenabled at some point in the future.

Disable Secure Boot in the BIOS

- 1. Login to Remote Management (https://<iDRAC-ip address>
- 2. Navigate to "Configuration" \rightarrow "BIOS Settings" \rightarrow "System Security" and press the drop menu (arrow).

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iDRAC9 Datacenter		Search Open Application Menu
🗌 Dashboard 🛛 🗐 System 🗸	r 🛢 Storage 🗸 👯 Configuration 🗸 🗟 Maintenance 🗸 🗣 iDRAC Settings 🗸	Enable Group Manager 💉
Configuration	I	
Power Management Virtua	I Console Virtual Media Licenses System Settings Asset Tracking Storage Configuration BIOS Settings Server Configuration Profile	C ^e Refresh
Note: The information on this pag	ie is pulled directly from the BIOS settings and is available in English only.	
To change the settings, select the • If you change a setting and • If you change the settings • If you select At Next Rebor > System Information	desired value, and click Apply. The new value is displayed under Pending Value. To apply the changes and reboot the server immediately, click Apply and Reboot at the bottom of the page. To ap have not clicked Apply, click Discard to revert to the previous settings. and click Apply and the wark to discard all the changes (click Discard All Pending 3t, the change job gets added to the job queue. If you want to discard the changes after you click At Next Reboot, go to Job Queue and delete the queued job for BIOS configuration.	ply the settings at next reboot, click At Next Reboot.
> Memory Settings		
> Processor Settings		
> SATA Settings		U.
> NVMe Settings		
> Boot Settings		
> Network Settings		
> Integrated Devices		
> Serial Communication		
> System Profile Settings		
System Security		Ø
	Current Value Pending Value	
CPU AES-NI	Enabled	
System Password		
Confirm Sustam Decement		

3. Scroll down to "Secure Boot" and select "Disabled" from the drop menu, and click the "Apply" button.



4. Scroll to the bottom of the page and click on the "Apply And Reboot" button; this will reboot the server and perform the configuration.

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5. An Information Popup is prompted. Click on the "Job Queue" button (can also be navigated from "Maintenance" \rightarrow "Job Queue").



6. Wait for the completion of the jobs (reach 100%).

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- D RID_727855969221	Reboot: Graceful OS shutdown with powercycle on timeout	Reboot Completed (100%)
Scheduled Start Time Actual Start Time Expiration Time Actual Completion Time Message	2023 01 03T 6.09 56 2023-01-03T 16:40:01 Not Applicable 2023-01-03T 16:40:12 RED030 Reboot is complete.	
- 🔲 JID_727855968621	Configure: BIOS.Setup.1-1	Completed (100%)
Scheduled Start Time Actual Start Time Expiration Time Actual Completion Time Message	2023-01-03T16-09-56 2023-01-03T16-42-25 Not Applicable 2023-01-03T16-45-21 PR19-046 completed successfully.	
+ 🔲 JID_714091551187	Export: Server Configuration Profile	Completed (100%)
+ 🔲 JID_703615455555	Configure: Import Server Configuration Profile	Completed (100%)
+ 🔲 JID_703615396967	Firmware Update: OEM ID Module	Completed (100%)
+ 🗆 RID_625592058437	Reboot: Graceful OS shutdown with powercycle on timeout	Reboot Completed (100%)
+ 🔲 JID_625592057947	Configure: BIOS.Setup.1-1	Completed (100%)
+ 🔲 JID_612763094152	Firmware Update: OEM ID Module	Completed (100%)
+ 🗆 RID_612740933938	Reboot: Graceful OS shutdown with powercycle on timeout	Reboot Completed (100%)
+ 🗆 JID_612740933147	Configure: BIOS.Setup.1-1	Completed (100%)
+ 🔲 JID_606568609010	Export: Server Configuration Profile	Completed (100%)
+ D IID 606546489301	Configurer Import Server Configuration Profile	Failed (100%)

7. Validate that secure boot is Disabled (from the terminal).



Remove the NVIDIA Certificate from MOK db

Perform this step if you want to entirely remove NVIDIA's certificate from MOK DB. This step is optional and is not required to disable secure boot. Skip this if you wish to enable secure boot at a later time.

- 1. Login as root to the UFM server.
- 2. Check current enrolled certificates.

```
mokutil --list-enrolled
```

Search for "Issuer: O=Mellanox Technologies.." and note the key ID above the start of this certificate:

```
root@ubuntu:~# mokutil —sb-state
SecureBoot enabled
```

3. Download the <u>mlnx_signing_key_pub.der</u> to a temporary folder (the DER certificate file must be present to be deleted). If the certificate is not available, it can be exported.

ct /tmp
wget
http://www.mellanox.com/downloads/ofed/mlnx_signing_key_pub.de

Or export from current keys (all the keys are named MOK-000X.der) and search the NVIDIA certificate.

```
cd /tmp
mokutil --export
grep "Mellanox" MOK-0*
```

root@ubuntu:~# mokutil --list-enrolled | grep -i mellanox Issuer: 0=Mellanox Technologies, CN=Mellanox Technologies signing key/emailAddress=support@mellanox.com Subject<u>:</u> 0=Mellanox Technologies, CN=Mellanox Technologies signing key/emailAddress=support@mellanox.com

Validate the certificate:

```
openssl x509 -inform der -in MOK-0002.der -noout -issuer
```

root@ubuntu:/tmp# openssl x509 -inform der -in MOK-0002.der -noout -issuer issuer=0 = Mellanox Technologies, CN = Mellanox Technologies signing key, emailAddress = support@mellanox.com

4. Remove the certificate from the MOK db. The below example lists MOK-0002.der, the naming convention might be different.

```
mokutil --delete ./MOK-0002.der --root-pw
```

The above can be validated by running

```
mokutil --list-delete

coot@ubuntu:/tmp# mokutil --list-delete
key 1]
HAI Fingerprint: dc:cd:44:95:92:2f:95:9f:28:49:7b:64:94:41:d8:bd:64:60:6d:69
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number:
            ba:b0:f5:cd:23:24:a0:ed
        Signature Algorithm: sha256WithRSAEncryption
        Issuer: 0-Mellanox Technologies signing key/emailAddress=support@mellanox.com
        Validity
```



The certificate is in the enrolled queue at this point. Upon the next server reboot, a 10 second prompt appears at the start of the boot process to confirm the certificate addition. It is important to confirm the certificate addition at this stage. Failure to do so requires you to repeat the procedure.

To be able to interact with the prompt, a console connection is needed either from the serial port or from the web console available via Remote Management.

- 5. Login to Remote Management (https://<iDRAC-ip address>
- 6. click on "Dashboard" \rightarrow "Virtual Console" to open the virtual web console.

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7. Power cycle the server (at boot startup, a 10 second prompt appears to verify the certificate deletion).

On the top menu: "Power" \rightarrow "Reset System (warm boot)".

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The server now performs reboot.

8. Once the startup procedure begins, a confirmation prompt appears to verify certificate deletion. The prompt closes after 10 seconds, if missed, the certificate deletion procedure needs to be repeated.

Once the prompt appears, press any key to interact.

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9. Navigate to "Delete MOK".



10. View the certificate to be deleted. To verify, press "View key0".



Press "Enter" to exit the view.

11. Select "Continue" from the menu and press the Enter key.

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	Boot Power Chat Keyboard Screen Capture Refrest full Screen Virtual Media Disconnect Viewer [Delete MOK]	Console Controls
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12. Select "Yes" from the menu and press the Enter key.

			idrac-5M7SMK3, U	FM3, User: root, FPS: 2	.2 — Mozilla Firefox				S S S
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				Boot Power Chat	Keyboard Screen Capture	Refresh Full Se	creen Virtual Media	Disconnect Viewer	Console Controls
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				No					
				Yes					

13. Once a password prompt appears, enter the OS root user credential.

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14. Select "Reboot" from the menu and press Enter. Upon reboot completion, the certificate is removed.

🔿 🔒 🚭 https:// swx-ufm3-03-ilo /restgui/vconsolo	;/index.html?ip=swx-ufm3-03-ilo&kvmport=443&title=&ST1=&ST2=&F1=1&vm=1&chat=1&custom=0&nopop=1&VCSID=252147116087(숯
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Appendix - Deploying UFM Appliance from an ISO File

This section provides a step-by-step guide for deploying UFM Enterprise Appliance from an ISO file.

The ISO installation is set to use interface "eno8303" via a DHCP as default; if DHCP is unavailable, the installer will request manual intervention to set the IP address manually on "eno8303" or to skip the IP settings altogether.

If IP settings are skipped, they can be set manually after the installation. Refer to <u>Getting</u> <u>Started</u>.

If a different interface should be used, skip the IP settings when prompted.

Deploying UFM Appliance from an ISO File

Extract the ufm-appliance-<version>-omu.tar to a temporary directory.

```
tar xzf /path/to/tar.tar -C /tmp
```

An ISO file and an upgrade script will be present inside the directory.

```
ls -ltrh /tmp/ufm-appliance-<version>/
```

Follow the following steps based on the desired method of installation.

Virtual Media via Management Port

- 1. Open a web browser and navigate to https://<IDRAC-ILO-address>
- 2. On the Dashboard pane, click on the virtual console icon on the bottom right corner of the screen.

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Image: The changes is goen while the power is off. Sun 31 Jul 2022 14.401 Image: The changes is goen while the power is off. Vere all + add note		The chassis is closed while the power	is off.			Sun 31 Jul 2022 14:46:01			Start the Virtual Console	
Image: Notes view all + add note	0	The chassis is open while the power is	i off.			Sun 31 Jul 2022 14:44:01				
Data soft Tima Description	Notes						view all + add note			
Value of the Value	Date and Time				Description					
There are no work notes to be displayed.					There are no work notes to be displayed.					

3. A new virtual console window will pop out, on the top right corner, click on the virtual media.



A new console window will appear

4. Click on the "Connect Media" button.

🛃 idrac-38VBMP3, Us	ser: root, FPS: 5 - Work -	Microsoft Edge				- 0	×
\Lambda Not secure	https://swx-ufm3-0	08-ilo/restgui/vconsc	ole/index.ht	tml?ip=swx-u	fm3-08-ilo&kv	/mport=4	4 A ^N
Boot Pow	ver Chat Keyboa	rd Screen Capture	Refresh	Full Screen	Virtual Media	Disconn	ect Viewer
	Virtual Media						e Controls
Ubuntu 18.04.6 LTS sı sux-ufn3-08 login: ^	Connect Virtual Media Statistics Create Image	Virtual Media Virtual Media is	Status disconnec	ted	Connect Virtual Med	fia	
					Q	Close	

5. Under the "Map CD/DVD" section, click on "Choose file" and select the ufm-appliance-<version>.iso file extracted from the tar archive previously extracted and click on the "Map Device" button. Then, "Close".

🛃 idrac-38VBMP3, User: root,	r, FPS: 5 - Work - Microsoft Edge	- 0	×
\Lambda Not secure 🕴 https	s:// swx-ufm3-08-ilo /restgui/vconsole/index.html?ip=swx-ufm3-08-ilo&kvmport=443&title=&ST1=&ST2=&F1=1&vm=1&chat=		
Virtual Media is connected	Boot Power Chat Keyboard Screen Capture Refresh Full Screen Virtual Media Disconne	ect Viewer Console C	ontrols
Ubuntu 18.4	Connect Virtual Media Virtual Media Status Virtual Media Statistics Virtual Media is connected Disconnect Virtual Media Create Image Map CD/DVD Image File Image File Map Removable Disk Image File Choose File No file chosen Map Device Map External Device Map External Device Using a Java Client (Choose File No file chosen Map Device Map External Device Map External Device Using a Java Client (Choose File No file chosen Launch Reset USB Reset USB State for redetection Reset USB		
	Close		

6. Click on the "Boot" menu button on the top left, on the opened menu choose "Virtual CD/DVD/ISO".

🛃 idrac-38VBMP3, User: root, FPS: 4.8 - Work - Microsoft E	idge		0	×
▲ Not secure https://swx-ufm3-08-ilo/restg	ui/vconsole/index.html?ip=swx-ufm3-08-ilo&kvmport=443&title=&ST1=&ST2=&F1=1&vm			
	Boot Power Chat Keyboard Screen Capture Refresh Full Screen Virtual Media	Disconnect Viewer	Console Co	ontrols
■ Virtual Media is ■ Devices Mappe connected	Boot Controls			
Ubuntu 18.04.6 LTS swx-ufm3-08 swx-ufm3-08 login: ^[1^[1]	 ✓ Normal Boot PXE BIOS Setup Local Floppy/Primary Removable Media Local CD/DVD Hard Disk Drive Virtual Floppy ✓ Virtual Floppy ✓ Virtual CD/DVD/ISO Local SD Card Lifecycle Controller BIOS Boot Manager UEFI Device Path UEFI HTTP 			

7. Click on the "Power" menu button and select "Reset System (warm boot)" entry.



8. At this point an automatic installation should start.

🛃 idrac-5M7	SMK3, UFM3, U	ser: root, FPS: 1 - Work - Microsoft Edge			o x
🛕 Not se	cure http:	s://swx-ufm3-03-ilo/restgui/vcons	ole/index.html?ip=swx-ufm3-03-ilo&kvmport=443&title=&ST1=&ST2=&F1=1&vm=1&chat=1&cu	istom=0&noi	
		Boot	Power Chat Keyboard Screen Capture Refresh Full Screen Virtual Media Disconnect V	liewer Cons	sole Controls
Virtual M	1edia is	Devices Mapped:1	ufm-appliance-1.2.1-2.iso is mapped to CD/DVD drive.(Read Only)		
connected	ł				
			GNU GRUB version 2.04		
	*UFM-APF	PLIANCE-INSTALL			
	lice	the f and I keys to calent	which entry is highlighted		
	Pres	ss enter to boot the selecte	which entry is highlighted. d OS, `e' to edit the commands before booting or `c' for a command-line. ESC to		
	reti	arn previous menu.			
3					

Installation will auto start after 30 seconds, press the enter key to start it immediately.

9. Proceed to <u>Finalizing the Installation</u>.

Physical USB

Burn ISO to USB

Windows

- 1. Download and open Rufus (Rufus).
- 2. Select the USB device from the drop down menu under "Devices".

Click on "SELECT" and select ufm-appliance-<version>.iso

Validate that the "Partition Scheme" is MBR and "Target System" is "BIOS or UEFI", as seen in the screenshot below.

Click "START".

sandisk (D:) [16 GB]				~	G
Boot selection			0		-
ufm-appliance-99.99.99-99.iso		~	⊘ (SELECT	-
Persistent partition size					-
			0 (No p	ersistence)	
Partition scheme		Target syste	m		
MBR	~	BIOS or UE	FI		
		oxoo (Derai	aic)		
Format Options -					
Format Options – Volume label					
Format Options – Volume label UFM3-APPLIANCE-INSTALL					
Format Options — Volume label UFM3-APPLIANCE-INSTALL File system		Cluster size			
Format Options — Volume label UFM3-APPLIANCE-INSTALL File system FAT32 (Default)	~	Cluster size 8192 bytes	(Default)		
Format Options — Volume label UFM3-APPLIANCE-INSTALL File system FAT32 (Default) A Hide advanced format optio Quick format Create extended label and icc	∼ ns on files	Cluster size 8192 bytes	(Default)		Ň
Format Options — Volume label UFM3-APPLIANCE-INSTALL File system FAT32 (Default) A Hide advanced format optio Quick format Create extended label and icc Check device for bad blocks	ns on files	Cluster size 8192 bytes 1 pass	(Default)		~
Format Options — Volume label UFM3-APPLIANCE-INSTALL File system FAT32 (Default) A Hide advanced format option Quick format Create extended label and icco Check device for bad blocks Status —	→ ns on files	Cluster size 8192 bytes 1 pass	(Default)		N

3. An "ISOHybrid image detected" prompt will pop up, choose "Write in DD mode" and click "OK".



4. Another message will appear stating that all data on the USB device will be lost, click "OK and continue".



5. Wait for Rufus to finish.

Linux

1. Identify the USB drive:



```
root@ubuntu18:~#ls-ltrh/dev/disk/by-id/usb*
lrwxrwxrwx 1 root root 9 Jan 2 13:44 /dev/disk/by-id/usb-
SanDisk_Cruzer_Glide_3.0_4C53000040724111091-0:0 ->
../../sdb
lrwxrwxrwx 1 root root 10 Jan 2 13:44 /dev/disk/by-id/usb-
SanDisk_Cruzer_Glide_3.0_4C53000040724111091-0:0-part1 ->
../../sdb1
```

2. Copy the ufm-appliance-<version>.iso to the USB using the following dd command:



Do NOT run the following commands on a hard drive device but only on the USB. The USB drive in the below command is mapped to /dev/sdb.

dd if=/path/to/ufm-appliance-<version>.iso of=/dev/sdb bs=4M
status=progress oflag=sync

3. Verify that the USB is bootable:

```
root@ubuntu18:~#fdisk-l/dev/sdb
Disk /dev/sdb: 14.9 GiB, 16005464064 bytes, 31260672 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x594ec03e
```

```
DeviceBoot StartEndSectorsSize IdType/dev/sdb1*6415679439156793767.5G17HiddenHPFS/NTFS
```

4. Unplug the USB.

Manufacture UFM Appliance via the USB

- 1. Plugin the USB device to the back panel (Front panel USB is disabled).
- 2. Open a web browser and navigate to https://<IDRAC-ILO-address>.
- 3. Navigate to "Configuration" \rightarrow "BIOS Settings" \rightarrow "Boot Settings" and set "Generic USB boot" option to enabled.

		Saarb	0 2 4 0
Configuration	All Maintenance V K IUHAC Settings V		Enable uroup wareger
			C* Befre
Note: The information on this name is nulled directly from the RIOS settions and is av	ven serungs Asser hacking Storage comigatation www.servings Server comigatation Profile		
To change the settings, select the desired value, and click Apply. The new value is dis If you change a setting and have not clicked Apply, click Descent do reverts to the If you change the settings and click Apply, and then want to discard all the cha- If you select At Next Reboot, the change job gets added to the job queue. If you	layed under Pending Value . To apply the changes and reboot the server immediately, click Apply and Reboot at the bottom of the pa previous Betting. In click Diaceal All Pending unset to decard the changes after you click AL Next Reboot , go to Job Dueue and decise the queued yob for BIOD configuration.	ge. To apply the settings at resit relocit, click At Next Reboot.	
> System Information			
> Memory Settings			
> Processor Settings			
> SATA Settings			
NVMe Settings			
< Boot Settings			
	Current Value	Pending Value	
Boot Mode	UBN ¥		
Boot Sequence Retry	Enabled ¥		
Hard-Disk Fallover	Disabled		
Generic USB Boot	Enabled > 4		
Hard-disk Drive Placeholder	Disabled 🗸		
Clean all Sysprep order and variables	None 💌		
Set Boot Order Enable	RAID.SL.3-1.NIC.PxeDevic		
Set Boot Order Disabled			
> UEFI Boot Settings			
Set Boot Order Fgdd1			
Set Boot Order Fqdd2			
Set Boot Order Fodd3			
Set Boot Order Fgdd4			
Set Boot Order Fqdd5			
Set Boot Order Foddb			
Set Boot Order Figdd7			
Set Boot Order Fqdd8			
Set Boot Order Fodd9			

4. On the same pane, scroll down to "One-Time Boot" \rightarrow "One-Tome Boot Device List" select "UEFI Boot Sequence Device".

In "UEFI Boot Sequence Device", select the connected USB device and click apply.

On the bottom of the page click on "Apply And Reboot" button.

DRAC9 Datacenter		Search C	0. <u>1 1 0</u>
🛊 Dashboard 🗏 System 🗸 🛢 Storage 🗸 👯 C	onfiguration V 🐵 Maintenance V 🗣 iDRAC Settings V	Enabl	le Group Meneger 💉
Set Legacy Hdd Order Fiqdd2			
Set Legacy Hdd Order Fqdd3			
Set Legacy Hdd Order Fodd4			
Set Legacy Hdd Order Fqdd5			
Set Legacy Hdd Order Fqdd6			
Set Legacy Hdd Order Fgdd7			
Set Legacy Hdd Order FqddB			
Set Legacy Hdd Order Fqdd9			
Set Legacy Hdd Order Fqdd10			
Set Legacy Hdd Order Fqdd11			
Set Legacy Hdd Order Fqdd12			
Set Legacy Hdd Order Fqdd13			
Set Legacy Hdd Order Fodd14			
Set Legacy Hdd Order Fodd16			
Set Legacy Hdd Order Fqdd16			
>> One-Time Boot			
	Current Value	Pending Value	
One-Time Boot Device List	LEFI Boot Sequence Device V		
UEFI Boot Sequence Device	S→ Calicontected base Uses 1. Cuter Glie 30 V Y→2 Tkg0/ Diseas		
Network Settings			
Integrated Devices			
 Serial Communication 			
System Profile Settings			
System Security			
Redundant OS Control			
Miscellaneous Settings			
Apply And Reboot At Next Reboot Discard All Pending			

5. A popup message will appear click on "Job Queue" button.

iDRAC9 Datacenter	4		Search Q 🐿 🛎 🛛
▲ Dashboard III System > ■ Storage > III Configuration > III Maintenance > 1	9, iDRAC Settings ∽	Information	Enable Group Manager 💉
Set Legacy Hdd Order Fiqdd2		RAC0603: Updating Job Queue: Status of the update jobs can be viewed and managed	
Set Legacy Hdd Order Fodd3		Click Job Queue button to view the status of the update jobs.	
Set Legacy Hdd Order Fgdd4			
Set Legacy Hod Order Fodd5		Job Dueve CK	
Set Legacy Hdd Order Fgdd5			
Set Legiscy Had Order Fodd7			
Set Legacy Hdd Order Fodd8			
Set Legacy Hdd Order Fodd9			
Set Legacy Hdd Order Fgdd10			
Set Legacy Hdd Order Fgdd11			
Set Legacy Hdd Order Fodd12			
Set Legacy Hdd Order Fodd13			
Set Legacy Hdd Order Fodd14			
Set Legacy Hdd Order Egdd15			
Set Legacy Hdd Order Fgdd18			
✓ One-T me Boot			
	Current Value	Pending Value	
One-Time Boot Device List	Disabled	V UEFI Boot Sequence	Device .
UEFI Boot Sequence Device		ck USB 1. Cruzer Gilde 3.0 💌	
> Network Settings			
> Integrated Devices			
> Serial Communication			
> System Profile Settings			
> System Security			
> Redundant OS Control			
> Miscellaneous Settings			
Apply And Reboot At Next Reboot Discard All Pending			

6. A "Job Queue" pane will open to monitor the progress of the created job.

100	idrac9	Datacenter			Search Q 🔒	0
	R Dashbo	ard ≣ System ∽ 🛢 Storage ∽ 141 Configuration ∽	S Maintenance ∨ 9, iDRAC Settings ∨		Eneble Group Meneo	1
	Maint	enance				-
	Lifecycle	Log Job Queue System Update System Event Log	Troubleshooting Diagnostics SupportAssist		C	Refresh
	Job Queu					
	T coloro					
				0		
		U ~		Status		
~>	- 0	HD_/32948320726	Heodot: Urabenu los enucación with powercycle on timeout	Heboot Completed (100%)		
		Actual Start Time 2	222001-0011-8011-12 0229-01-0011407115			
		Expration Time Actual Completion Time 2	M AppleBole 023-01-00T14-07-25			
	1.0	Message P	ED030. Reboot is complete.	and the second second		
	T U .	JD_732948319828	Compute Bild Setup (-)	Scheduled (UN)		
	+ 0	HD_732440274331	Heodot: Laracetal Los sinuadoum with powercycle on timeout	Report Completed (100%)		
	+ 0	JD_732940273786	compute Bios secup 1-1	Completed (100%)		
	T U	HID_12/8/0904961	Headat shaceful us shutaaliim wan powertyche an ameaux	Reboot Completed (100%)		
	+ 0	310_727870904414	Computer sick setup 1-1	Completed (100%)		<u> </u>
	+ 0	HID_727855969221	Neodol: Gradeful OS Bhulddown with powercycle on timeout	Reboot Completed (100%)		×.
	+ U .	JD_/27856008021	Compute alus setup (-)	Completed (TUD%)		
	+ 0	JD_/14091661187	Export Server computation Prome	Completed (100%)		
	+ 0	JD_703615455555	Contigure: Import Server Contiguration Profile	Completed (100%)		
	+ 0	JID_703615396967	Firmware Update: DBM ID Module	Completed (100%)		
	+ 0	HID_626692068437	Heddott Gradetu US shutdown with powercycle on timeout	Hebbot Completed (100%)		
	+ 0	JD_626592067947	Contigure BIOS Setup 1-1	Completed (100%)		
	+ 0	JD_612763094152	Firmware Update: DBM ID Module	Completed (100%)		
	+ 0	MID_612740933938	Heodoll Graceful US shutdown with powercycle on timeout	Reboot Completed (100%)		
	+ 0	JID_612740933147	Contigure BIOS Setup 1-1	Completed (100%)		
	+ 0	JID_606568609010	Export: Server Configuration Profile	Completed (100%)		
	+ 0	JD_606646489301	Configure: Import Server Configuration Profile	Failed (100%)		
	+ 0	JID_606545887056	Preview Configuration	Failed (100%)		
	+ 0	JID_606635210430	Export: Server Configuration Profile	Completed (100%)		
	+ 0	JID_606678493382	Export: Server Configuration Profile	Completed (100%)		
	+ 0	RID_587024658547	Reboot: Graceful DS shutdown with powercycle on timeout	Reboot Completed (100%)		
	+ 0	JID_587024657855	Configure: BIOS Setup, 1-1	Completed (100%)		
	+ 0	RID_540402738184	Reboot: Graceful DS shutdown with powercycle on timeout	Reboot Completed (100%)		

7. Navigate to the Dashboard pane, click on the virtual console icon on the bottom right corner of the screen.

iDRAC9 Data	center								Search	Q 🚡 🕹 🕹
M Dashboard	🖩 System 🗸 🛢 Storage 🗸 👫 Co	nfiguration \vee 🛛 🖾 Ma	aintenance 🗸 🛛 💁 iDRAC Set	tings 🗠						Enable Group Manager 💉
Dashboa	rd									
() Graceful Shutde	own 🔹 🗯 LED On 👻 More Actions	s -								C' Refresh
Health Inform	nation			System Information				🗒 Task Summary		View All Jobs
				Power State	ON			E Pending Jobs : 0		
	STSTEM HAS CHI	ITICAL ISSUES		Model	Not Available			No Pending Jobs		
System Health	s	Storage Health		Host Name						
Critical	Details	Healthy	Details	Operating System				③ In-Progress Jobs : 0		
Miscellaneous				Operating System Version				No In-Progress Jobs		
Power Supplies				Service Tag	38VBMP3					
				BIOS Version				Occession laber 2		
				IDRAD Firmware Version	5.00.10.20			0 with Errors		
				IP Address(es)	10.209.224.16			0 Failed		
				IDRAC MAC Address	ec:22:72:27:03:e6					
				License	Datacenter Edit					()
= Recent Logs							view all	Virtual Console		Settings
Severity	Description					Date and Time \vee		Beerla 10.04.6 173 sec-afe3-00 tig1 exc-afe3-00 login: "f1"f1_c		
0	The power input for power supply 1 is lost.					Sun 23 Oct 2022 10:02:35				
0	The power input for power supply 1 is lost.					Wed 19 Oct 2022 09:18:44				
0	System BIOS has halted.					Mon 29 Aug 2022 12:32:14				
0	Power supply redundancy is lost.					Mon 29 Aug 2022 12:19:30				
0	The power input for power supply 1 is lost.					Mon 29 Aug 2022 12:19:29				
	The chassis is closed while the power is of	Υ.				Mon 29 Aug 2022 12:19:23				
0	The chassis is open while the power is off.					Mon 29 Aug 2022 12:19:19				
•	The power input for power supply 1 is lost					Mon 29 Aug 2022 12:07:02				
•	The chassis is closed while the power is on					Sun 31 Jul 2022 14:46:01			Start the Virtual Donsole	
•	The chassis is open while the power is off.					501 51 JUI 2022 14:44:01				
Notes						viev	v all + add note			
Date and Time				Description						
			-	here are no work notes to be displayed.						

A new console window will appear that shows the progress of restarting the node to USB.

Note					
BIOS Configuration (J BIOS Configuration (JID_732948319828) Current Status Task in Progress Task Time Limit 10 mins Elapsed Time 00:10 Image: Task Time Limit 1 of 1 Total Elapsed Time 00:00:10 Image: Task as a running normality. Image: Task as a running normality. Image: Task as a running normality. Image: Task as a running normality. Image: Task as a running normality. Image: Task as a running normality. Image: Task as a running normality. Image: Task as a running normality. Image: Task as a running normality. Image: Task as a running normality.	1011111-343-01113-03-1000041ppr(-44300002-0311-03	n e-cent-i terrini-i techali-i tecdaterini-centepopi-i terresito-i sazeoso		Power Chat Keyboard Screen Capture Refresh Full Screen Virts	al Media Disconnect Viewer
BIOS Configuration (J.I. BIOS Configuration (J.ID_732948319828) Current Status Task in Progress Task Time Limit 10 mins Elapsed Time 00:10 Image: Configuration (J.ID_732948319828) Task Time Limit 10 mins Elapsed Time 00:10 Image: Configuration (J.ID_732948319828) Image: Configuration (J.ID_732948319828) Image: Configuration (J.ID_732948319828) Image: Configuration (J.ID_732948319828) Image: Configuration (J.ID_732948319828) Image: Configuration (J.ID_732948319828)	Automated Task Application			Help About	
BIOS Configuration (JID_732948319828) Current Status Task in Progress Task Time Limit 10 mins Elapsed Time 00:10 Task 1 of 1 Task 1 of 1 Task 1 of 1 Task Elapsed Time 00:00:10 Task are running normally. Tasks are running normally. Tasks are running normally. D not restart, press CTRL+ALT+DEL, or turn off the server. The system will restart automatically if required.	_				
Current Status Task in Progress Task Time Limit 0 mins Elapsed Time 00:10 Image: Task Time Limit 0 of 1 Task 1 of 1 Table Elapsed Time 00:00:10 Provide Time Time Time Time Time Time Time Tim	BIOS Configuration (J	BIOS Configuration (JID_732948	3319828)		
Task Time Limit 0 mins Elapsed Time 00.10 Task 1 of 1 Total Elapsed Time 00.00.10 Image: Control Contro Control Control Control Con		Current Status	Task in Progress		
Elapsed Time 00:10 Task 1 of 1 Total Elapsed Time 00:00:10 Image: Comparison of the server of the serve		Task Time Limit	10 mins		
Task 1 of 1 Total Elapsed Time 00:00:10 Image: Tasks are running normally.		Elapsed Time	00:10		
Task 1 of 1 Total Elapsed Time 00:00:10 Image: Start and the server of the server of the server of the server of the server. The system will restart automatically if required. UFM3 Service Tag : SMTSMK3		1			
Task 1 of 1 Total Elapsed Time 00:00:10 Image: Task are running normally. Image: Task are running normaly. <td< td=""><td></td><td></td><td></td><td></td><td></td></td<>					
Total Elapsed Time 00.00.10 Image: Contract of the server of the server of the server. The system will restart automatically if required.		Task	1 of 1		
FM3 er/Mo refM3		Total Elapsed Time	00:00:10		
UFMS Service Tag : 5M7SMK3					
Image: Tasks are running normally. Image: Do not restart, press CTRL+ALT+DEL, or turn off the server. The system will restart automatically if required. UPRMS Sorvice Tag: SM7SMK3					
Image: WJ7SNK3					
UFM3 Service Tag : SM7SMK3					
Image: With the server is a server in the server. The system will restart automatically if required. UFM3 Service Tag:: SM7SMK3					
UFM3 Service Tag : 5M7SMK3					
UFM3 Service Tag : 5M7SMK3		Tasks are running normally.			
UFMS Service Tag : 5M7SMK3					
UFM3 Service Tag : 5M7SMK3					
UFM3 Service Tag : 5M75MK3		Do not restart, press CTRL+AL	.T+DEL, or turn off the server. The system will restart automatically	y if required.	
UFM3 Service Tag : SM7SMK3					
Service Tag : 5M7SMK3	UFM3				
	Service Tag : 5M7SMK3				

8. At this point an automatic installation should start.

🛃 idrac-5M7SMK3, U	JFM3, User: root, FPS: 1 - Work - Microsoft Edge -		D	×
▲ Not secure	https://swx-ufm3-03-ilo/restgui/vconsole/index.html?ip=swx-ufm3-03-ilo&kvmport=443&title=&ST1=&ST2=&F1=1&vm=1&chat=1&custom=			
	Boot Power Chat Keyboard Screen Capture Refresh Full Screen Virtual Media Disconnect Viewer	Cons	ole Con	trols
■ Virtual Media is connected	Devices Mapped:1 ufm-appliance-1.2.1-2.iso is mapped to CD/DVD drive.(Read Only)			
	GNU GRUB version 2.04			
*U	FM-APPLIANCE-INSTALL			
-				
	Use the ↑ and ↓ keys to select which entry is highlighted. Press enter to boot the selected OS, `e' to edit the commands before booting or `c' for a command-line. ESC to return previous menu.			
3				

The installation will auto start after 30 seconds, press the enter key to start it immediately.

9. Proceed to the following section to proceed with the installation.

Finalizing the Installation

Installation may take 20-90 minutes and depends on the chosen media; with USB it takes around 20 minutes and via the virtual media take around 90 minutes (this may vary and depends on network speed).

1. Installation should start automatically, and the progress is presented on the screen.



2. In case a DHCP is not available or not configured, a prompt will pop up with notification stating that DHCP cannot be set.



3. Press "Enter" to continue, a sub menu will appear.


You can choose the preferred option and follow the instructions on the screen by configuring it manually, or skip network configuration and add them at a later point.

4. The installation procedure should continue.



(i) Note

The installer may seem stuck when the status bar gets to "Running preseed" (14-16 %) - it takes a while to pass this, the script runs in the background and the progress can be seen by switching to tty4 (optional) by opening the virtual keyboard.

Marning

This should be done on the virtual keyboard, otherwise it will close the installation window. The installation window can be opened by pressing "ALT+F4" on the virtual keyboard.

Virtual Media is connected	Devices Mapped:1	Boot Power Chail Cyboard Screen Capare Refeath Full Screen Vistual Media Disconnect Viewer Console Control ufm-appliance-12.5-4.iso is mapped to CD/DVD drive.(Read Only)
Ru Ru	nning preseed	# 1 1 X English # 1 1 X ESC F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 Nun / * - 1 2 3 4 5 6 7 8 9 0 Bksp 7 8 9 + Tab q w e r t y u 1 0 p [1] \ 4 5 6 Scroll Caps a 5 d f g h j k l : / Enter 1 2 3 Prit Scrn Shift z x c y b n m , . / / Shift 0 . Enter
Ru	nning preseed	cups is in g in j k t i. / Shift 0. Enter Ctrl Win Alt Alt Ctrl

tty4 will open and the install log will show current status.

0.0	-							
O A ≅ https://swx-ufm3	-03-ilo/restgui/vconsole/index.htm	?ip=swx-ufm3-03-ilo&kvmp	oort=443&title=&ST1:	=&ST2=8	%F1=1&vm=	1&chat=1&cu	stom=0&nopop=1&VCSID=2	2521471160870 ☆ =
		В	oot Power Chat	Keyboard	Screen Capture	Refresh Fu	Il Screen Virtual Media Disconr	nect Viewer Console Controls
Virtual Media is connected	Devices Mapped:1	ufm-appliance-1.2.5-4.is	so is mapped to CD/DVI	drive.(Re	ad Only)			
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Jan	3 11:47:45 in-target: Insta	ling librdmacm1-56mlnx4	10					
Jan	3 11:47:45 in-target: Insta	ling rdmacm-utils-56mln	nx40					
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Jan	3 11:47:46 in-target: Insta	ling ibdump-6.0.0						
Jan	3 11:47:46 in-targe English	Ling is stand - Southerst	les.			# # 1 X		
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Jan	3 11:47:46 in-targe ESC FI	F2 F3 F4 F5 F6 F7 F8	8 F9 F10 F11 F12	NUM	/ *	-		
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Jan	3 11:47:47 in-targe Shift	z x c v b n m	/ Shift	θ	. Enter			
Jan	3 11:47:50 in-targe Ctrl	Vin Alt	Alt Ctrl					
Jan	3 11:47:51 in-target. matt	AND DEFICATE AUG.	Acc cere					
Jan	3 11:47:51 in-target: Insta	ling ibutils2-2.1.1						
Jan	3 11:47:51 in-target: Insta	ling dump-pr-1.0						
Jan	3 11:47:51 in-target: Insta	ling ibsim-0.10						
Jan	3 11:47:52 in-target: Insta	ling ucx-1.14.0						
Jan	3 11:47:52 in-target: Insta	ling sharp-3.0.0.MLNX20	0220713.ea604271					
Jan	3 11:47:52 in-target: Insta	ling hcol1-4.8.3217						
Jan	3 11:47:52 in-target: Insta	ling openmpi-4.1.5a1						
Jan	3 11:47:54 in-target: Insta	ling pritests-3.2.20.	1 90m lov 1					
Jan	3 11:47:55 in-target: Insta	ling libdap12-2.1.10.1.	mlnx					
Jan	3 11:47:55 in-target: Insta	ling dap12-utils-2.1.10	0.1.mlnx					
Jan	3 11:47:55 in-target: Insta	ling libdapl-dev-2.1.10	0.1.mlnx					
Jan	3 11:47:55 in-target: Insta	ling dpcp-1.1.29						
Jan	3 11:47:55 in-target: Insta 3 11:47:55 in-target: Insta	ling sprools-56minx40						
Jan	3 11:47:55 in-target: Insta	ling mlnx-iproute2-5.18	3.0					
Jan	3 11:47:56 in-target: Insta	ling rshim-2.0.6						
Jan	3 11:47:56 in-target: Insta	ling neohost-backend-1.	.5.0					

To return to the progress screen, click on "ALT+F1" on the virtual keyboard.

- 5. The server will automatically reboot when the installation procedure is completed.
- 6. At this point, the login screen will appear



The installation procedure is not finished yet. At this point, an automatic service will install additional SW (including the UFM Enterprise Appliance).

Upon installation completion, a message will appear on any attached terminal stating UFM-OS-FISTBOOT-SUCESS for successful installation, or UFM-OS-FISTBOOT-FAILED for failed installation.

A log can be checked in /var/log/ufm-os-firstboot.log.

The below is an example from an attached ssh session:



Example from the console web screen:



To manually check if the installation procedure has completed or is still running:

systemctl status ufm-os-firstboot.service

If the installation is still running, the below status will be presented:



If the installation is completed, an error message stating that

ufm-os-firstboot.service does not exist (as it is deleted when the installation is finished).



7. The installation is now finished and the UFM Enterprise Appliance can be started. If the network configuration step is skipped in previous steps, it can now be

configured.

Appendix - UFM Factory Reset

This section provides a comprehensive guide on resetting UFM to its original factory settings.



WARNING!!! this operation will remove all user data and configuration and will restore UFM to its factory defaults.

(i) Note

The UFM Factory-Reset will exclusively revert UFM to its original factory settings, leaving HA configurations unaffected. To remove HA, it is essential to execute ufm_ha_cluster cleanup before initiating the factory reset.

UFM Docker Container Factory Reset

To reset UFM to its factory defaults when using UFM on a Docker container, follow these steps.

1. Ensure that UFM is not up and running. If UFM is running, stop it.

For Stand-alone (SA) installations:

systemctl stop ufm-enterprise
validate that ufm is not running

systemctl status ufm-enterprise

For High-Availability setups (perform the following on the master node only):

ufm_ha_cluster stop
validate that ufm is not running
ufm_ha_cluster status

2. Run mellanox/ufm-enterprise Docker Container with the following flags:

(i) Note

WARNING: This operation will erase all user data and configurations, resetting UFM to its factory defaults.

CAUTION: This step does not require user confirmation, meaning UFM will be restored to factory defaults immediately once initiated.

Flag	Туре	Description
name=ufm_installer	Mand atory	The container name must be called ufm_installer.
-v /var/run/docker.sock :/var/run/docker.soc k	Mand atory	The docker socket must be mounted on the docker container.
-v /tmp:/tmp	Optio nal	Logs of the operation can be viewed in /tmp on the host in case it is mounted.
-v /opt/ufm/files/:/opt /ufm/shared_config_u fm/	Mand atory	For the factory reset to persist, it is essential to have the /opt/ufm/files directory mounted from the host. TBD: eylon - naming convention of the /opt/ufm/files/
mellanox/ufm- enterprise:latest	Mand atory	The docker image name.
factory-reset	Mand atory	This action will signal the UFM container to initiate the factory reset process.

UFM Factory Reset via CLI

UFM Factory Reset in HA Configuration

(i) Note

The UFM Factory-Reset will exclusively revert UFM to its original factory settings, including the HA configurations.

1. On the **Master** node, stop the UFM cluster. Run:

ufmapl (config) # no ufm start

2. On both **Master and Standby** nodes, reset the UFM cluster configuration to factory settings. Run:

ufmapl (config) # no ufm ha

i Note

After the factory reset procedure is completed, both UFM nodes are configured as Standalone mode.

UFM Factory Reset in Standalone Configuration

i) Note

The UFM Factory-Reset will exclusively revert UFM to its original factory settings.

1. Stop the UFM service. Run:

ufmapl (config) # no ufm start

2. Reset the UFM data to factory settings. Run:

ufmapl (config) # ufm data reset

Appendix - Software Components Upgrade

<u>/ Warning</u>

It is recommended to upgrade all UFM Enterprise appliance software components as listed in <u>UFM Enterprise Appliance Upgrade</u>.

This section includes optional instructions on how to upgrade <u>specific</u> software components.

- <u>Upgrading UFM Enterprise Appliance Operating System</u>: Involves UFM Enterprise appliance <u>operating system upgrade only</u>.
- <u>Upgrading All UFM-Related Software Components</u>: Involves <u>all</u> <u>UFM-related software components</u>, including UFM Enterprise, Docker Container and UFM HA. The upgrade is done on all software components at once.
- <u>Upgrading Specific UFM-Related Software Component</u>: Involves upgrading <u>specific UFM-related software components</u> separately.

Upgrading UFM Enterprise Appliance Operating System

This section provides a step-by-step guide for UFM Enterprise Appliance Operating System upgrade.

Each UFM Enterprise Appliance software has an additional tar file with a <u>-omu.tar</u> suffix (OMU stands for OS Manufacture and Upgrade). This tar file can be used to remanufacture the server and to upgrade the operating system/software on the server.

Extracting the Software

1. Copy the OMU tar file to a temporary directory on the server.

UFM-APPLIANCE - ufm-appliance<version>-<revision>-omu.tar

2. Extract the contents of the tar file to /tmp.

tar vxf ./ufm-appliance-<version>-<revision>-omu.tar -C /tmp/

3. Change to the extracted directory.

```
cd /tmp/ufm-appliance-<version>-<revision>-omu
```

4. An upgrade script and an ISO file are included in the extracted directory.

```
ls -1 ./#ls-1./
./ufm-os-upgrade.sh
ufm-appliance-<version>-<revision>.iso
```

The following flags are available in the upgrade script help.

```
# ufm-os-upgrade.sh --help
ufm-os-upgrade.sh will upgrade and install OS packages.
IMPORTANT!!! a reboot is mandatory after the finalization of
this script,
kernel and kernel models will not work properly until the
server is rebooted.
Additional SW installations will be automatically invoked
after reboot,
```

```
a message will pop on all open terminals with the
installation status:
"UFM-OS-FIRSTBOOT-FAILURE" - if installation is failed.
"UFM-OS-FIRSTBOOT-SUCCESS" - if installation succeeded.
```

```
Additional info will be available in "/var/log/ufm_os_upgrade_@@UFM-OS-
VERSION@@.log" log file.
Upgrade steps status information can be viewed
in "/var/log/ufm_os_upgrade_@@UFM-OS-VERSION@@_status.log" log file.
```

Syntax: ufm-os-upgrade.sh [options]

```
options
-d,--debug debug info will be visible on the
screen.
```

```
-r,--reboot Automatically reboot the server when upgrade is finished.
```

```
P.S. if secure boot is enabled and a new certificate is enrolled
```

the server will not automatically reboot even if this flag is set.

-y,--yes Will not prompt for user acknowledgements, use with CAUTION user prompts will be assumed as answered yes.

-h,--help print this help message.

A Warning

IMPORTANT!!! System reboot is mandatory once the upgrade procedure is completed. The **-r** flag can be used to automatically reboot the server at the end of the upgrade. Note

that some kernel modules may not work properly until server reboot is performed.

Standalone Mode Upgrade

1. Stop UFM service by running the following command:

systemctl stop ufm-enterprise.service

2. Run the upgrade script.

i) Note

System reboot is mandatory once the upgrade procedure is completed. The -r flag can be used to automatically reboot the server.

The <u>--appliance-sw-upgrade</u> flag CAN NOT !!! be supplied to upgrade the UFM Enterprise Appliance SW.

The -y flag can be supplied to skip user questions (the flag does not automatically reboot the server on its own. For auto reboot, combine with the -r flag)

Once a secure boot certificate is updated/installed, the script will not auto reboot even if -y and -r flags are provided. That is because the addition of certificates require manual user intervention at boot (after the upgrade).

There is a 10 seconds window to press any button when prompted during the boot procedure and insert the server root password in order to import the certificate. Further details are available in <u>Appendix - Secure Boot Activation and Deactivation</u>.

In the following example the server will auto reboot when upgrade is finished.

```
./ufm-os-upgrade.sh -y -r
```

3. In case a secure-boot certificate is installed/upgraded, the following warning is presented:



In that case the server does not reboot automatically, a manual configuration is required at boot (a 10 second prompt appears during the boot. For more information, refer to <u>Appendix - Secure Boot Activation and Deactivation</u>.

To continue with the upgrade procedure, manually reboot the server from as instructed in <u>Appendix - Secure Boot Activation and Deactivation</u>.

4. After the reboot procedure is complete, a systemd service (

ufm-os-firstboot.service) runs the remainder of the upgrade procedure. Once completed, a message is prompted to all open terminals including the status:

" UFM-OS-FIRSTBOOT-FAILURE " - if installation is failed.

"UFM-OS-FIRSTBOOT-SUCCESS" - if installation succeeded.

Example:

root@ufm-ai03:~# root@ufm-ai03:~# Broadcast message from root@ufm-ai03 (somewhere) (Fri Dec 30 18:47:32 2022): UFM-OS-FIRSTBOOT-SUCCESS, installation <mark>succeeded</mark> additional info is available in /var/log/ufm-os-firstboot.log

To manually check the status, run

systemctl status ufm-os-firstboot.service. If it is already finished, an error message is prompted stating that there is no such service. In that case, the log /var/log/ufm-os-firstboot.log can be checked instead.

systemctl status ufm-os-firstboot.service

Example:

root@ufm-ai03:~# systemctl status ufm-os-firstboot Unit ufm-os-firstboot.service could not be found. root@ufm-ai03:~#

High-Availability Mode Upgrade

Upgrade on HA should be done first on the stand-by node and after that on the master node, each node upgrade is similar to the SA instructions.

In case the Standby node is unavailable, the upgrade can be run on the Master node only, however, some additional steps will be required after the appliance is upgraded.



In case a secure boot certificate needs to be updated/installed, the script will stop execution and request the user to install the secureboot certificate, secure-boot does not have to be active (although it is highly recommended), but the certificate must be installed/updated by the user before proceeding to the upgrade.

The upgrade script will verify that the certificate is up to date and will stop execution if it needs to be installed/updated (this happens at the start of the script)

- 1. [On the stand-by Node]: Copy and extract the OMU tar file to a temporary directory.
- 2. [On the stand-by Node]: Run the upgrade script.

(j)	Note
	System reboot is mandatory once the upgrade procedure is completed. The -r flag can be used to automatically reboot the server.

The flag CAN NOT !!! be supplied to upgrade the UFM Enterprise Appliance SW.

The -y flag can be supplied to skip user questions (the flag does not automatically reboot the server on its own. For auto reboot, combine with the -r flag).

In the following example the server auto reboots once the upgrade procedure is completed:

```
cd /tmp/ufm-appliance-<version>-<revision>-omu
./ufm-os-upgrade.sh -y -r
```

3. If -r flag was not provided reboot the server when the script will finish (a question will show on the screen that will ask to reboot if No was answered a manual reboot is required)

to manually reboot the server:

reboot now

4. After the reboot procedure is complete, a systemd service (

ufm-os-firstboot.service) runs the remainder of the upgrade procedure. Once completed, a message is prompted to all open terminals including the status:

"UFM-OS-FIRSTBOOT-FAILURE" - if installation is failed.

"UFM-OS-FIRSTBOOT-SUCCESS" - if installation succeeded.

Example:



To manually check the status, run

systemctl status ufm-os-firstboot.service. If it is already finished, an error message is prompted stating that there is no such service. In that case, the log /var/log/ufm-os-firstboot.log can be checked instead.

systemctl status ufm-os-firstboot.service

Example:

root@ufm-ai03:~# systemctl status ufm-os-firstboot
Unit ufm-os-firstboot.service could not be found.
root@ufm-ai03:~#

5. After the stand-by node have finished the upgrade check the HA cluster status

ufm_ha_cluster status
root@swx-ufm3-11:~# ufm_ha_cluster status Cluster name: ufmcluster WARNING: corosync and pacemaker node names do not match (IPs used in setup?) Stack: corosync Current DC: swx-ufm3-11 (version 1.1.18-2b07d5c5a9) - partition with quorum Last updated: Thu Mar 16 18:45:19 2023 Last change: Mon Feb 27 12:40:22 2023 by root via crm_resource on swx-ufm3-11
2 nodes configured 5 resources configured
Online: [swx-ufm3-09 swx-ufm3-11]
Full list of resources:
Master/Slave Set: ha_data_drbd_master [ha_data_drbd] Masters: [swx-ufm3-09] Slaves: [swx-ufm3-11] Resource Group: ufmcluster-grp ha_data_file_system (ocf::heartbeat:Filesystem): Started swx-ufm3-09 ufm-ha-watcher (systemd:ufm-ha-watcher): Started swx-ufm3-09 ufm-enterprise (systemd:ufm-enterprise):
Daemon Status: corosync: active/enabled pcsd: active/enabled DRBD_RESOURCE: ha_data DRBD_CONNECTIVITY: Connected DISK_STATE: UpToDate DRBD_ROLE: Secondary PEER_DISK_STATE: UpToDate PEERORDB_ROLE: Primary

All the nodes in the cluster should be online and the current node should remain a stand-by (Secondary in DRBD_ROLE)

6. [On the Master Node]: Fail-over the UFM to the stand-by node (upgraded node will become master and current node will become stand-by).

ufm_ha_cluster failover

wait for all the resource of UFM are up and running on the upgraded node.

7. repeat the procedure on the un-upgraded node (which is now acting as stand-by).

Upgrading All UFM-Related Software Components

The installation process consists of replacing the containers/packages with the new version and upgrading the UFM data.

- 1. Copy the tarball file of UFM Enterprise Appliance software to the /tmp folder.
- 2. Connect to the UFM Enterprise Appliance via SSH.
- 3. Stop the UFM service/cluster before upgrading.

In SA mode, run:

#systemctl stop ufm-enterprise.service

In HA mode, run:

ufm_ha_cluster stop

4. Extract the tarball file and run the installer for the upgrade. Run:

```
# cd /tmp
# tar xvf ufm-appliance-sw-<version>.tar
# cd ufm-appliance-sw-<version>
```

```
# ./install.sh
```

Installer Options:

-q|--quiet Upgrade UFM without prompt

i Note

In HA mode, this step should be performed on both servers.

5. After the upgrade, start the UFM service/cluster.

In SA mode, run:

systemctl start ufm-enterprise.service

In HA mode, run:

ufm_ha_cluster start

- 6. Wait one minute for the service to come up.
- 7. Ensure the service health. Run:

```
# ufm_enterprise_sanity.sh
Checking Service...
Done
Checking Images...
```

Done Checking Containers... Done Checking ufm REST server... Done Sanity tests completed successfully!

Upgrading Specific UFM-Related Software Component

Upgrading UFM Docker in SA Mode

For detailed information on upgrading the UFM docker in standalone mode, please refer to <u>Upgrading UFM on Docker Container</u>.

Upgrading UFM Docker in HA Mode

For detailed information on upgrading the UFM docker in high availability mode, please refer to <u>Upgrading UFM Container in High Availability Mode</u>.

Upgrading UFM HA Package

1. Stop the UFM cluster before upgrading. Run:

ufm_ha_cluster stop

2. Download the UFM-HA package on both servers using the following command:

wget https://www.mellanox.com/downloads/UFM/ufm_ha_5.6.0-4.tgz

For Sha256:

wget https://download.nvidia.com/ufm/ufm_ha/5.6.0/ufm_ha_5.6.0-4.sha256

- 3. On both servers, extract the downloaded UFM-HA package under /tmp/
- 4. On both servers, go to the extracted directory /tmp/ufm_ha_XXX and run the installation script:

./install.sh --upgrade

5. After the upgrade, start the UFM HA Cluster. Run:

ufm_ha_cluster start

Upgrading UFM Enterprise Appliance CLI Package

- 1. Copy the tarball of the UFM CLI package to the /tmp folder.
- 2. Extract the tarball file and run the installer. Example:

```
# cd /tmp
# tar xvf ufmcli_<version>.tgz
# cd ufmcli_<version>
# ./install.sh
Creating the UFM3 CLI repository file
/etc/apt/sources.list.d/ufmcli.list
Refreshing the UFM3 CLI packages information...
Installing the UFM3 CLI package...
Removing the UFM3 CLI local repository
/etc/apt/sources.list.d/ufmcli.list
```

Done.

3. Once the upgrade procedure is completed, connect to the UFM Enterprise Appliance via SSH with admin. Run:

ssh admin@<hostname>

Appendix - Deploy and Run UFM Plugins

Overview

UFM plugins are service programs that can be dynamically loaded to extend the functionality of UFM Enterprise.

The plugins are Docker containers, and their life cycle is being managed by UFM.

Functions commonly added by optional UFM plugins include:

- gNMI (gnmi_t elemetry)
- Tools (tools)

Lifecycle

The UFM plugin lifecycle is managed by UFM. It is the user's responsibility to pull/load the plugin Docker container image on both master and standby nodes.

- Add The plugin's data is copied to the host. In case UFM is running, it will be started.
- Disable The plugin is stopped immediately if UFM is running, and it will not start upon UFM start. However, its data is still accessible via the host.

- Enable The plugin is re-started immediately if UFM running or on the next UFM start.
- Remove The plugin is stopped, and all its data is removed.
- Upgrade The plugin data may be upgraded. The new version is set in the plugin's configuration file upon upgrade completion.

i Note

The plugin's Docker container is started/stopped upon UFM start/stop. In case UFM is already running when the plugin is added/enabled, it will be started. While in case it is disabled/removed, it will be stopped.

) Note

The plugin to be disabled prior to upgrade. After the upgrade completion, it should be re-enabled.

Configuration

• Pull the UFM plugin image. Run:

```
ufmapl (config) # docker pull mellanox/ufm-plugin-ndt:1.1.1-
17
```

• Alternatively, load the UFM plugin image. Run:

ufmapl (config) # image fetch sftp://root:123456@192.168.1.10/tmp/ufmplugin-ndt_1.1.1-17-docker.img.gz

```
ufmapl (config) # docker load ufm-plugin-ndt_1.1.1-17-
docker.img.gz
```

• Review the plugin image.

```
ufmapl (config) # show docker images
------
Image Version Created Size
Digest
------
mellanox/ufm-plugin-ndt 1.1.1-17 2 months ago 1.59GB
<none>
```

• Deploy the plugin. Run:

ufmapl (config) # ufm plugin ndt add tag 1.1.1-17

• Review the plugin settings. Run:

```
ufmapl (config) # show ufm plugin

Plugin ndt:

Enabled: Yes

Plugin tag: 1.1.1-17

Shared volumes:

/opt/ufm/files/log:/log,/dev:/host_dev

HTTPD port: 8980

HTTPD file: Present

State: running
```

For the relevant CLI commands, refer to <u>UFM Plugins</u> and <u>Docker Container</u>.

Appendix - NVP

The NVP is designed to help customers change, retrieve, and apply the configuration to UFM parameters of config files. NVP aims to eliminate the need to edit the config files manually. It is important to note that, NVP follows a transactional model approach. The NVP changes the configuration on temporary files. The changed configuration is reflected in the actual configuration only when `APPLY` is performed. The tool supports 4 standard file types mentioned below:

1. flat config: Refers to files that only have key-value pairs

2. ini : Refers to files that have sections associated with key-value pairs

- 3. xml : Refers to XML formatted files
- 4. plain text: Refers to files that contain plain text-like format

In addition to the above formats, NVP supports custom config of pgrp_policy_config to support pgrp_policy.conf file.

The tool is provided as a plugin and can be operated either as a standalone application using Docker commands or invoked through CLI commands. All the examples provided below illustrate the usage of NVP via CLI commands.

The tool supports the following functionalities:

1.	set
2.	get
З.	dump
4.	appen
5.	reset

- 6. discard
- 7. backup
- 8. rollback
- 9. apply
- 10. reset
- 11. help



NVP operates on a transactional model; therefore, it is recommended that it is avoided alongside manual configuration edits. Doing so may result in the loss of manually made changes when NVP applies its configurations to the relevant files. Users can manually edit the configuration and then use NVP or vice versa, however it is not advisable to use them simultaneously.

Please note that the tool's plugin operates without a running daemon. Upon adding the plugin via the plugin infrastructure, its status remains "stopped" signifying its inactive state without a daemon. However, when a user initiates NVP (either through standalone Docker usage or via the CLI commands), the image activates, executes the command, performs the necessary operations, and then exits.

To add tools/NVP plugin, perform the following:

• Add the tools plugin with the "2.0.0-4" tag:

ufm plugin tools add tag 2.0.0-4

• It is recommended to disable the plugin as it is not necessary for UFM to monitor the tools plugin. When the tools plugin invokes NVP Apply, it triggers a restart of

UFM and all the plugins it monitors. To prevent this, disable the Tools/NVP plugin by running:

```
no ufm plugin tools enable
```

(i) Note

As of NVP 2.0.0 and UFM Enterprise v6.19.0, users no longer need to disable the plugin manually. By default, UFM will not monitor the tools plugin.

NVP Set

The Set API is designed to change a file's configuration based on the user's key-value pair. It updates the specified key with a new value. The NVP tool generates an error indicating 'key not found' if the given key is not found'. Additionally, NVP refrains from making any changes if the new value for the key is identical to the old one. It is important to note that both the key and value are case-sensitive.

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

```
Example of the nvp set command that changes qos value to TRUE for opensm.conf(flat config):
```

nvp set opensm.conf qos TRUE

Similarly, for INI:

nvp set gv.cfg GarbageCollector.enable false

For XML files, a valid XPath must be provided. See below examples of the nvp set command for an XML config:

i) Note

The XPath must be enclosed in double quotes for NVP to function.

nvp set UFMHealthConfiguration.xml

"./TestsSchedule/Test[@Name='CheckMgmtInterface']/Frequency/Value" 20

nvp set UFMHealthConfiguration.xml

"./SupportedTests/Test[@Name='CpuUsageTest']/TestOperation[@Name='CPUTest']/Parameters/Parameter[@

i Note

Note that there may be instances where files share identical names but are located in different directories. In such scenarios, NVP requires the file name to include its parent directory. For example, consider the file launch_ibdiagnet_config.ini, which exists in both secondary_telemetry_defaults and telemetry_defaults directories. If a user intends to modify the file within secondary_telemetry_defaults, the command should resemble the following:

nvp set
secondary_telemetry_defaults/launch_ibdiagnet_config.ini
<key> <val>

To assign an empty value using the "nvp set" command, pass an empty string as the value. For example:

nvp set gv.cfg Multisubnet.multisubnet_role ""

NVP Set with Force Flag

As of version 2.0.0, NVP supports the SET command with a force flag. This feature is helpful when a configuration does not exist and the user wants to add it to a file. The force option is available only for flat config and ini files. For INI files, the force flag first checks for a matching section. If the section is not found, NVP will create it and then add the key-value pair to the newly created section. If the section exists but the key does not, NVP will add the new key-value pair to the existing section.

The command follows this syntax:

nvp set <file_name> <key> <value> force

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Get

The purpose of the "nvp get" command is to retrieve the configuration from a file based on the key provided by the user. If NVP cannot locate the specified key, it raises an error indicating 'key not found'. It is important to note that the "nvp get" retrieves values from the transactional configuration. This means that only files whose configurations have been modified by the user using the "nvp get" command will be accessible to it. Please note that the key is case-sensitive.

Refer to <u>nvp get</u> for command syntax.

An example of "nvp get" command that would retrieve QoS from opensm.conf(flat config):

nvp get opensm.conf qos

Similarly, for INI:

nvp get gv.cfg GarbageCollector.enable

For XML files, a valid XPath must be provided. Here are a few examples of GET commands for XML configurations:

nvp get UFMHealthConfiguration.xml
"./TestsSchedule/Test[@Name='CheckMgmtInterface']/Frequency/Value"
nvp get UFMHealthConfiguration.xml
"./SupportedTests/Test[@Name='CpuUsageTest']/TestOperation[@Name='CPUTest']/Parameters/Parameter[@

NVP Dump

The nvp dump command produces a unified JSON file. This JSON file contains the configurations of all the NVP-supported configuration files represented as JSON objects, consolidated into a single JSON structure. Each file's content or configuration is appended to create an aggregated JSON structure. The sequence of the JSON dump corresponds to the original configuration file's order.

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Append

The nvp append is provided to support plain text file format, making it useful for users who need to add any new configuration line as text to the configuration. Notably, the reset action follows a transactional model approach similar to the SET action (i.e Append copies the file and operates on the copy, the changes take effect once nvp apply is called).

The Append Action expects the below syntax:

```
nvp append <file_name> <config_line>
```

An example of Nvp Append that would add root_switches config to the root_guid.conf file is as follows:

nvp append root_guid.conf "root_switches"

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Reset

The nvp reset is provided to support plain text file format, making it useful for users to clear/empty the configuration. Notably, the reset action follows a transactional model approach similar to the SET action.

The Reset Action expects the below syntax:

nvp reset <file_name>

An example of NVP Reset API to reset/empty the root_guid.conf file is as follows:

nvp reset root_guid.conf

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Discard

The NVP Discard feature allows users to discard any configuration changes made. This action deleted the specified file from the transaction folder, resulting in the loss of all changes made by the user. NVP Discard can be performed on each file by specifying the

file name as an argument. If no argument is provided, the entire transaction folder will be deleted, discarding changes for all NVP-supported files.

The Discard action expects the below syntax, with the file name being optional:

```
nvp discard <file_name>
```

For example, to discard changes to the gv.cfg file, use the command:

nvp discard gv.cfg

To discard all files, use the command:

nvp discard

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Backup

The NVP Backup feature creates backups of all NVP-supported files in the form of a tarball. Users can specify a name for the tarball; if none is provided, NVP generates a backup name based on the current timestamp. The created backup tarball can later be applied using the ROLLBACK API. By default, the maximum number of backups is set to 10, but this limit can be adjusted by modifying the backup limit configuration parameter in the nvp.cfg file.

Note: Backups should only be performed when there are no pending changes to apply and there are no files in the transaction folder. If this condition is not met, the backup action will result in an error.

The Backup action expects the below syntax, with the backup name being optional:

```
nvp backup <backup_name>
```

For example, to create a backup with a specified name, use:

nvp backup nvp_backup_initial_configuration

If the backup name is not specified, NVP generates a tarball named in the format nvp_backup_<TS>.tar.gz. For instance, the command below creates a tarball named nvp_backup_2024-10-10_09-40-48.tar.gz:

nvp backup

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Backup Management

To assist users in managing backups, utility functions such as Delete, Fetch, and Upload are available. These APIs are implemented at the CLI level and are not part of the NVP Image.

• The **Delete** command removes the specified backup file created using the BACKUP command. The syntax for this command is:

nvp delete <backup_name>

Refer to <u>nvp delete</u> for command syntax.

• The **Fetch** command downloads the NVP backup configuration from a remote host. The syntax for this command is:

```
nvp fetch <url>
```

Refer to <u>nvp fetch</u> for command syntax.

• The **Upload** command uploads the NVP backup configuration to a remote host. The syntax for this command is:

```
nvp upload <backup_name> <url>
```

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Rollback

The NVP Rollback action restores the contents of the specified tarball (a backup configuration created using the BACKUP action) to the transactional folder, overwriting its current contents.

Note: Since the Rollback action overwrites the transactional folder, users must subsequently call APPLY to implement the changes from the transactional folder to the UFM configuration.

The Rollback action expects the below syntax, where backup_tar is the name of the tarball:

nvp rollback <backup_tar>

For example, to apply the configuration from backup_1.tar.gz, the command would be:

```
nvp rollback nvp_backup_initial_configuration.tar.gz
```

To bypass prompts, users can utilize the force option.

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Apply

The nvp apply command involves a two-step process. First, the nvp apply command moves all files that have been changed through the nvp set command to their original positions. The second step involves restarting the UFM Server to implement the new changes. The relocation of modified files from the transaction folder to their actual locations occurs independently of whether the UFM server is offline or if any errors arise during the UFM server restart process. Notably, NVP does not support rollback functionality in the event of an unsuccessful UFM server restart. Therefore, the first step of the nvp apply command operates irrespective of the outcome of the second step (UFM restart success/failure). However, if an error occurs during the first step, the function will prompt an appropriate error message and exit without attempting to restart the UFM.

i) Note

Please note that a confirmation prompt is presented to the user before proceeding with this action, as the command restarts the UFM.

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Apply Force

To bypass prompts, users can utilize the force option. This will initiate the UFM restart without any user interaction.

Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

NVP Apply No Restart

In situations where users want to apply the changed configuration and do not wish to restart the UFM, `no-restart` can be used.
Refer NVIDIA UFM-SDN Appliance Command Reference Guide command syntax.

Appendix - Migrating UFM-SDN Appliance Data to UFM Enterprise Appliance

This procedure is based on the UFM data backup/restore mechanism and will be performed via CLI commands.

Please refer for the command syntax.

Prerequisites

- Minimum UFM Enterprise Appliance version: 1.9.0
- Minimum UFM tools plugin version: 1.0.0-6

Configuration

Follow the instructions to backup UFM data on UFM-SDN Appliance:

1. [On Master] Backup the UFM data to a ZIP file. Run:

ufm data backup ufm2-backup-<site name>.zip

2. [On Master] Upload the UFM Data (ZIP file) to a remote server

ufm data upload ufm2-backup-<site name>.zip
scp://username:password@hostname/path

Pre-Restore UFM Data on UFM Enterprise Appliance

The following actions need to be performed prior to UFM data restoration,

- 1. Connect the appliances to the fabric and set initial network configuration (e.g., IP addresses, default gateway, hostname, DNS, NTP, etc...) via a serial console or a remote console.
- 2. Configure the appliances to run in HA (High-Availability) mode.
- 3. Load any UFM plugin Docker image that was deployed on the UFM-SDN Appliance cluster. The UFM plugins' configuration will be restored as part of the UFM data restore.
- 1.
- 1. [On Master and Standby] Fetch the image from a remote server

image fetch scp://username:password@hostname/path/to/image

1.

1. [On Master and Standby] Load the Docker image

docker load <ufm plugin image>

Restore UFM Data on UFM Enterprise Appliance

1. [On Master] Fetch the UFM Data backup (ZIP file) from the remote server:

ufm data fetch scp://username:password@hostname/path/to/ufm2-backup-<site name>.zip

2. [On Mater] Restore the UFM Data from the ZIP file:

ufm data restore ufm2-backup-<site name>.zip [with-upgrade]



Post-Restore UFM Data on UFM Enterprise Appliance

Once UFM data migration is completed successfully, some settings need to be modified via the NVP tool, to align with the UFM Enterprise Appliance. Then, stop the UFM-SDN Appliance cluster and start the UFM Enterprise Appliance cluster.

1. [On UFM Enterprise Appliance Master] Modify UFM settings to fit the UFM3 cluster:

ufm migrate-ufm2-to-ufm3

For more information, refer to <u>ufm migrate-ufm2-to-ufm3</u>

2. [On UFM Enterprise Appliance Master] Set the UFM3 HA nodes :

ufm ha-nodes <master hostname> <standby hostname>

3. [On UFM-SDN Appliance Master] Stop UFM:

no ufm start

4. [On UFM Enterprise Appliance Master] Start UFM:

ufm start

5. [On UFM Enterprise Appliance Master] Verify that UFM is up and running:

show ufm status

6. [On UFM Enterprise Appliance Master and Standby] collect a system dump and upload it to a remote server:

debug generate dump
file debug-dump upload latest scp://username:password@hostname/path

Appendix - GRUB and Kernel Behavior

This configuration aims to improve system reliability by ensuring quick recovery from critical errors while preserving valuable diagnostic data for troubleshooting.

The system is configured to treat certain critical Kernel events as panics, ensuring a timely and automated response. In the event of a Kernel panic, the system automatically reboots, preserving crash data for analysis.

Key Changes

- 1. Kernel Oops Behavior:
 - Any Kernel oops is treated as a Kernel panic.
- 2. CPU Soft Lockup:
 - Any CPU soft lockup is treated as a Kernel panic.
- 3. CPU Hard Lockup:
 - Any CPU hard lockup is treated as a Kernel panic.

4. Automatic Reboot on Kernel Panic:

- On any **kernel panic**, the system is configured to **automatically reboot after 10 seconds**.
- A kernel dump is generated and saved in /var/crash.

5. Kernel Crash Dump Management:

- The system retains a maximum of **5 Kernel crash dumps** in /var/crash.
- If more than 5 crash dumps are generated, the oldest dump is automatically deleted to ensure only the five most recent dumps are kept.

Additional Notes

- The Kernel crash dumps stored in /var/crash can be analyzed to diagnose the cause of the panic. It is recommended to review these dumps after a system reboot following a Kernel panic.
- The reboot delay of ten seconds allows time for crash dump generation and any additional logging.

Documentation History

- Document Revision History
- <u>Release Notes History</u>

Document Revision History

Revision	Description
	Updated:
1.12.1	 <u>Changes and New Features</u> <u>Installation Notes</u>
1.12.0	Documentation History UFM Enterprise Appliance v1.12.0
1.11.2	Documentation History UFM Enterprise Appliance v1.11.2
1.11.1	Documentation History UFM Enterprise Appliance v1.11.1
1.11.0	Documentation History UFM Enterprise Appliance v1.11.0
1.10.1	Documentation History UFM Enterprise Appliance v1.10.1
1.10.0	Documentation History UFM Enterprise Appliance v1.10.0
1.9.2	Documentation History UFM Enterprise Appliance v1.9.2
1.9.0	Documentation History UFM Enterprise Appliance v1.9.0
1.8.2	Documentation History UFM Enterprise Appliance v1.8.2

Release Notes History

- Changes and New Features History
- <u>Bug Fixes History</u>
- Known Issue History

Changes and New Features History

Revision	Description
1.12.1	Changes and New Features History in v1.12.1
1.12.0	Changes and New Features History in v1.12.0
1.11.2	Changes and New Features History in v1.11.2
1.11.1	Changes and New Features History in v1.11.1
1.11.0	Changes and New Features History in v1.11.0
1.10.1	Changes and New Features History in v1.10.1
1.10.0	Changes and New Features History in v1.10.0
1.9.2	Changes and New Features History in v1.9.2
1.9.0	Changes and New Features History in v1.9.0
1.8.2	Changes and New Features History in v1.8.2

Bug Fixes History

Version	Link
1.12.1	Bug Fixes History in v1.12.1
1.12.0	Bug Fixes History in v1.12.0
1.11.2	Bug Fixes History in v1.11.2
1.11.1	Bug Fixes History in v1.11.1
1.11.0	Bug Fixes History in v1.11.0
1.10.1	Bug Fixes History in v1.10.1
1.10.0	Bug Fixes History in v1.10.0
1.9.2	Bug Fixes History in v1.9.2
1.9.0	Bug Fixes History in v1.9.0
1.8.2	Bug Fixes History in v1.8.2

Known Issue History

Version	Link
1.12.1	Known Issues History in v1.12.1
1.12.0	Known Issues History in v1.12.0
1.11.2	Known Issues History in v1.11.2
1.11.1	Known Issues History in v1.11.1
1.11.0	Known Issues History in v1.11.0
1.10.1	Known Issues History in v1.10.1
1.10.0	Known issues History in v1.10.0
1.9.2	Known Issues History in v1.9.2
1.9.0	Known Issues History in v1.9.0
1.8.2	Known Issues History in v1.8.2

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