



NetIron OS 6.3.00e for ExtremeRouting MLX Series Devices

Release Notes 1.0

9036123-04 Rev AA

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Document history

Version	Summary of changes	Publication date
1.0	Initial release	November 2021

Preface

Contacting Extreme Technical Support

As an Extreme customer, you can contact Extreme Technical Support using one of the following methods: 24x7 online or by telephone. OEM customers should contact their OEM/solution provider.

If you require assistance, contact Extreme Networks using one of the following methods:

- GTAC (Global Technical Assistance Center) for immediate support
- Phone: 1-800-998-2408 (toll-free in U.S. and Canada) or +1 408-579-2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact.
- Email: support@extremenetworks.com. To expedite your message, enter the product name or model number in the subject line.
- GTAC Knowledge - Get on-demand and tested resolutions from the GTAC Knowledgebase, or create a help case if you need more guidance.
- The Hub - A forum for Extreme customers to connect with one another, get questions answered, share ideas and feedback, and get problems solved. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.
- Support Portal - Manage cases, downloads, service contracts, product licensing, and training and certifications.

Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number and/or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any action(s) already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

Extreme resources

Visit the Extreme website to locate related documentation for your product and additional Extreme resources.

White papers, data sheets, and the most recent versions of Extreme software and hardware manuals are available at www.extremenetworks.com. Product documentation for all supported releases is available to registered users at <https://www.extremenetworks.com/support/documentation/>.

Document feedback

Quality is our first concern at Extreme, and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you.

You can provide feedback in two ways:

- Use our short online feedback form at <https://www.extremenetworks.com/documentation-feedback/>
- Email us at documentation@extremenetworks.com

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Overview

NetIron OS Release 6.3.00 enhances the capabilities of ExtremeRouting MLX Series, and ExtremeRouting CER 2000 Series in the following areas:

- * BGP services,
- * Network Packet Broker functionality

In addition, this release also has further enhancements to manageability and troubleshooting functions to enable efficient network operations.

With these features, the MLX Series Router continues as the leading platform for converged data center and service provider network services.

Behavior changes

Behavior changes in release NetIron 6.3.00e

There are no behavior changes in release NetIron 6.3.00e.

Behavior changes in release NetIron 6.3.00d

There are no behavior changes in release NetIron 6.3.00d.

Behavior changes in release NetIron 6.3.00c

There are no behavior changes in release NetIron 6.3.00c.

Behavior changes in release NetIron 6.3.00a1

There are no behavior changes in release NetIron 6.3.00a1.

Software Features

NOTE: The NetIron 6.3.00 release (the image files and the documentation) is no longer available from the Extreme Portal. New software features introduced in release 6.3.00 are included in release 6.3.00a.

New software features introduced in R6.3.00e

No new software features are introduced in NetIron 6.3.00e release.

New software features introduced in R6.3.00d

The following software features are introduced in NetIron 6.3.00d release.

Support was added for nested DHCPv6 headers.

New software features introduced in R6.3.00c

The following software features are introduced in NetIron 6.3.00c release.

Management features and enhancements

- **New CAM profiles:** This feature adds two new CAM profiles which is an extension from the existing profiles to increase the size of IP-VPN partition (Multiservice-7) and IPv4 (IPv4-extended).

Monitoring

- **CAM error monitoring and recovery:** This feature is an addition of NP memory registers CAM1 ERR STATUS1 REGISTER and CAM3 ERR STATUS1 REGISTER into CAM error monitoring and takes necessary recovery action.

New software features introduced in R6.3.00

The following software features are introduced in NetIron 6.3.00 release.

Management features and enhancements

- **SSH server management:** This feature configures the SSH server to allow incoming SSH connection requests from ports that belong to any VRF and from the out-of-band management port when the management VRF is configured.
- **Increase maximum telnet session number from 5 to 10:** The maximum telnet session is increased from 5 to 10.

Security

- **Regular expression support in RADIUS command authorization:** The Extreme-specific RADIUS attribute `foundry-command-string` now supports specifying a range of data for a CLI command.

IP Routing

- **BGP Large Communities:** RFC8092 BGP Large Communities attribute is supported. All routes with this attribute belong to the communities specified in the attribute.
- **Increase number of loopback interfaces in NetIron to 1024:** The number of supported loopback interfaces is increased to 1024.

Monitoring

- Beginning with Extreme NetIron Release 6.3.00a, the Network Processor (NP) error monitoring and recovery feature is supported on Extreme NetIron 8x10G, 2x100G, 20x10G, 2x100G-CFP2 and 4x10G-IPSEC line card modules for ExtremeRouting XMR/MLX Series.

Network Packet Broker

- The maximum TVF LAG FID group size (system-max tvf-lag-lb-fid-group) is increased to 32.

CLI commands

New CLI commands in NetIron R6.3.00e

- None

New CLI commands in NetIron R6.3.00d

- None

New CLI commands in NetIron R6.3.00c

- None

New CLI commands in NetIron R6.3.00

- ip large-community-list extended
- ip large-community-list standard
- ip ssh include-all-vrf
- match large-community-list
- set large-community
- set large-community-list
- system-max loopback-interface
- show default values
- show ip bgp routes large-community
- show ip bgp routes large-community-access-list
- show ip bgp routes large-community-regex
- show ip bgp routes detail large-community
- show ip bgp routes detail large-community-access-list
- show ip bgp routes detail large-community-regex

Modified CLI commands in NetIron R6.3.00d

- show ip bgp vrf vrf-all tags
- show ipv6 bgp vrf vrf-all tags

Modified commands

- ip ssh strict-management-vrf
- neighbor send-community
- show ip ssh config
- show who
- system-max tvf-lag-lb-fid-group

Deprecated commands in NetIron R6.3.00d

- None

Deprecated commands

There are no deprecated commands in this release.

Reinstated commands in NetIron R6.3.00e

The following LP debug commands are reinstated which were removed in NetIron R6.3.00d.

- access-list
- alarm-monitoring
- all
- arp-guard
- bfd
- cfm
- cluster
- destination
- dot1x-mka
- erp
- filters
- gtp-de-encapsulation
- gvrp
- HQOS
- lkev2
- lp
- lpsec
- lptunnel

- Ipv6
- LACP
- link-keepalive
- link-oam
- LLDP
- Loopdetect
- Mac
- Match-payload-len
- Mmrp
- Mport
- Mrp
- Mvrp
- Openflow
- packet-encap-proc
- packet-timestamp
- pos
- profile
- source-port-label
- statistics
- trace-l2
- tvf-domain
- Vlan
- Vlan-translation
- Vll
- Vpls
- Vsrp
- Y1731

MIBs and messages

MIBs

[New MIB Objects in 6.3.00e](#)

No MIB objects were introduced in release NetIron 6.3.00e

[New MIB Objects in 6.3.00d](#)

No MIB objects were introduced in release NetIron 6.3.00d

Modified MIBs in 6.3.00d

The following MIBs have been modified for this release:

Not Applicable

Deprecated MIBs in 6.3.00d

The following MIBs have been deprecated beginning with this release:

Not Applicable

New MIB Objects

No MIB objects were introduced in release NetIron 6.3.00c

Modified MIBs

The following MIBs have been modified for this release:

Not Applicable

Deprecated MIBs

The following MIBs have been deprecated beginning with this release:

Not Applicable

Messages

New Messages

The following messages are new in this release:

Not Applicable

Modified Messages

The following messages have been modified for this release:

Not Applicable

Deprecated Messages

The following messages have been deprecated beginning with this release:

- Not Applicable

RFCs and standards

The following new RFC is supported in this release.

- RFC8092 -- BGP Large Communities Attribute

Hardware support

Supported devices

The following devices are supported in this release:

NOTE: Beginning with NetIron OS 6.3.00a and later, the ExtremeSwitching CES 2000 Series devices are not supported. Refer to the [End of Sale and End of Support](#) page for additional information.

ExtremeRouting XMR Series	ExtremeRouting MLX Series	ExtremeRouting CER 2000 Series
XMR 4000	MLX-4	CER-RT 2024C-4X
XMR 8000	MLX-8	CER-RT 2024F-4X
XMR 16000	MLX-16	CER 2024C
XMR 32000	MLX-32	CER-RT 2024C
	MLXe-4	CER 2024F
	MLXe-8	CER-RT 2024F
	MLXe-16	CER 2048C
	MLXe-32	CER-RT 2048C
		CER 2048CX
		CER-RT 2048CX
		CER 2048F
		CER-RT 2048F
		CER 2048FX
		CER-RT 2048FX

Supported devices for Network Packet Broker R6.3.00a

XMR Series	MLX Series
XMR 4000	MLX-4
XMR 8000	MLX-8
XMR 16000	MLX-16
XMR 32000	MLX-32
	MLXe-4
	MLXe-8
	MLXe-16
	MLXe-32

Supported modules

The following interface modules are supported in this release:

Module	Description	Compatible devices		Generation
		MLXe with MLX or MR2-M mgmt. module	MLXe with XMR or MR2-X mgmt. module	
BR-MLX-10GX4-IPSEC-M	MLX 4-port 10 GbE/1 GbE combo and 4-port 1 GbE (-M) IPsec module with 512,000 IPv4 routes or 240,000 IPv6 routes in hardware	Yes	Yes	3
BR-MLX-10GX20-X2	MLX 20-port 10 GbE/1 GbE (X2) SFP+ and SFP combo module with extended route table support for up to 2.4 million IPv4 or 1.8 million IPv6 routes in hardware. Integrated hardware-enabled MACsec.	Yes	Yes	3
BR-MLX-10GX20-M	MLX 20-port 10 GbE/1 GbE (M) combo module. Supports SFP+ and SFP with up to 512,000 IPv4 routes or 240,000 IPv6 routes in FIB. Integrated hardware-enabled MACsec.	Yes	Yes	3
BR-MLX-1GCX24-X-ML	MLX 24-port (X) 10/100/1,000 copper (RJ-45) module with IPv4/IPv6/MPLS hardware support. Supports 512,000 IPv4 routes in FIB. License upgradable to "X" scalability (1 million IPv4 routes in hardware).	Yes	No	1.1

Module	Description	Compatible devices		Generation
		MLXe with MLX or MR2-M mgmt. module	MLXe with XMR or MR2-X mgmt. module	
BR-MLX-100GX2-CFP2-M	MLX 2-port 100 GbE (M) CFP2 module. Supports 512,000 IPv4 routes in FIB.	Yes	Yes	3
BR-MLX-100GX2-CFP2-X2	MLX 2-port 100 GbE (X2) CFP2 module with extended route table support for up to 2.4 million IPv4 or 1.8 million IPv6 routes in hardware.	Yes	Yes	3
BR-MLX-10GX8-X	MLX Series 8-port 10 GbE (X) module with IPv4/IPv6/MPLS hardware support—requires SFP optics. Supports up to 1 million IPv4 routes in FIB. Requires high-speed switch fabric modules.	Yes	Yes	2
BR-MLX-1GCX24-X	MLX 24-port (X) 10/100/1,000 copper (RJ-45) module with IPv4/IPv6/MPLS hardware support. Supports 1 million IPv4 routes in hardware.	Yes	Yes	1.1

Module	Description	Compatible devices		Generation
		MLXe with MLX or MR2-M mgmt. module	MLXe with XMR or MR2-X mgmt. module	
BR-MLX-40GX4-M	MLX Series 4-port 40 GbE (M) module with IPv4/IPv6/MPLS hardware support and support for QSFP+ optics, including both LR and SR versions. Supports up to 512,000 IPv4 routes or 128,000 IPv6 routes. Requires high-speed switch fabric modules.	Yes	Yes	3
BR-MLX-10GX4-X	MLX Series 4-port 10 GbE (X) module with IPv4/IPv6/MPLS hardware support—requires XFP optics. Supports 1 million IPv4 routes in hardware.	Yes	Yes	1.1
BR-MLX-10GX4-X-ML	MLX/MLXe 4-port 10 GbE (ML) module with IPv4/IPv6/MPLS hardware support—requires XFP optics. Supports 512,000 IPv4 routes in FIB. License upgradable to “X” scalability (1 million IPv4 routes in hardware).	Yes	No	1.1
NI-MLX-10GX8-M	MLX Series 8-port 10 GbE (M) module with IPv4/IPv6/MPLS hardware support and up to 512,000 IPv4 routes—requires SFP+ optics and high-speed switch fabric modules.	Yes	No	2

Module	Description	Compatible devices		Generation
		MLXe with MLX or MR2-M mgmt. module	MLXe with XMR or MR2-X mgmt. module	
BR-MLX-1GFX24-X	MLX Series 24-port FE/GbE (SFP) module, with IPv4/IPv6/MPLS hardware support. Supports 1 million IPv4 routes in hardware.	Yes	Yes	1.1
BR-MLX-1GFX24-X-ML	MLX Series 24-port FE/GbE (SFP) module, with IPv4/IPv6/MPLS hardware support. Supports 512,000 IPv4 routes in FIB. License upgradable to “X” scalability (1 million IPv4 routes in hardware).	Yes	No	1.1
BR-MLX-10GX24-DM	MLXe 24-port 10 GbE module with IPv4/IPv6/MPLS hardware support—requires SFP optics. Supports 256,000 IPv4 routes in FIB.	Yes	No	3a
NI-MLX-10GX8-D	MLX Series 8-port 10-GbE (D) module with IPv4/IPv6 hardware support - requires SFPP optics. Supports 256K IPv4 routes in FIB. Does not support MPLS. Requires high speed switch fabric modules.	Yes	No	2

Module	Description	Compatible devices		Generation
		MLXe with MLX or MR2-M mgmt. module	MLXe with XMR or MR2-X mgmt. module	
BR-MLX-10GX10-X2	MLX 10-port 10-Gbe/1Gbe (X2) SFP+ and SFP combo module with extended route table support up to 2M IPv4 and 800K IPv6 routes in hardware. MACsec enabled. Upgradeable to 20X10G-X2 using additional software license.	Yes	Yes	3
BR-MLX-1GX20-U10G-M	MLXe twenty (20)-port 1-GBE/1-GBE (M) module with IPv4/IPv6/MPLS hardware support. Requires SFP optics. Supports 512K IPv4 routes in FIB. Requires high speed switch fabric modules. Upgradeable to 10G, with BR-MLX-1GX20-U10G-MUPG license.	Yes	Yes	3

Module	Description	Compatible devices		Generation
		MLXe with MLX or MR2-M mgmt. module	MLXe with XMR or MR2-X mgmt. module	
BR-MLX-1GX20-U10G-X2	MLXe twenty (20)-port 1-GBE (X2) module with IPv4/IPv6/MPLS hardware support. Requires SFP optics. Supports simultaneous 2M IPv4 and 0.8M IPv6, or 1.5M IPv4 and 1M IPv6 routes in FIB. Requires hSFM. Upgradeable to 10G with extra license.	Yes	Yes	3

- Depending on your router model, you can install up to 32 single-slot interface modules, or 16 double-slot interface modules.
- Interface modules are hot-swappable. Interface modules can be removed and replaced without powering down the system.
- Gen 3 - X2 modules with an MR2-M module will only support 512M routes.

Supported power supplies

The following table lists the power supplies that are available for the devices supported in this release:

Part number	Description	Compatible devices
BR-MLXE-ACPWR-1800	1800W power supply.	16-, 8- and 4-slot MLXe and 16 and 8-Slot XMR/MLX AC
BR-MLXE-DCPWR-1800	1800W power supply.	16-, 8- and 4-slot MLXe and 16 and 8-Slot XMR/MLX DC
NI-X-ACPWR	1200W power supply.	16-, 8- and 4-slot MLXe and 16 and 8-Slot XMR/MLX AC
NI-X-DCPWR	1200W power supply.	16-, 8- and 4-slot MLXe and 16 and 8-Slot XMR/MLX DC
NI-X-ACPWR-A	1200W power supply.	4-Slot XMR/MLX AC
NI-X-DCPWR-A	1200W power supply.	4-Slot XMR/MLX DC
BR-MLXE-32-ACPWR-3000	AC 3000W power supply.	32-slot MLXe/XMR/MLX
BR-MLXE-32-DCPWR-3000	DC 3000W power supply.	32-slot MLXe/XMR/MLX
NIBI-32-ACPWR-A	AC 2400W power supply.	32-Slot MLXe/XMR/MLX
NIBI-32-DCPWR	2400W power supply.	32-Slot MLXe/XMR/MLX DC

Supported optics

Extreme-branded Top Level SKU	Description
10301	ASSY, SR SFP+ SHIPPING
10302	ASSY, LR SFP+ SHIPPING
10310	ZR SFP+ module
10051H	1000BASE-SX SFP, Hi
10052H	1000BASE-LX SFP, Hi
10056H	1000BASE-BX-D BiDi SFP, Hi
10057H	1000BASE-BX-U BiDi SFP, Hi
10070H	10/100/1000BASE-T SFP, Hi
100G-ADPT-CFP2-QSFP	100G CFP2 to QSFP28 adapter
100G-CWDM4-QSFP2KM	100G CWDM4 QSFP28 2km
100G-LR4-QSFP10KM	100G LR4 QSFP28 10km
100G-SR4-QSFP100M	100G SR4 QSFP28 100m
10G-ER-SFP40KM-ET	10G ER SFP+ 40km Ext.Temp
10G-LR-SFP10KM-ET	10G LR SFP+ 10km Ext.Temp
10G-SR-SFP300M-ET	10G SR SFP+ 300m Ext.Temp
10G-USR-SFP100M	10G USR SFP+ 100m Hight Rx Sens 8pack
40G-AOC-QSFP100M	40G AOC QSFP+ 100m
40G-AOC-QSFP10M	40G AOC QSFP+ 10m
40G-AOC-QSFP20M	40G AOC QSFP+ 20m
40G-AOC-QSFP5M	40G AOC QSFP+ 5m
40G-BDSR-QSFP150M	40G BiDi SR QSFP+ 150m
40G-DACA-QSFP1M	40G Active DAC QSFP+ 1m
40G-DACA-QSFP5M	40G Active DAC QSFP+ 5m
40G-DACP-QSFP1M	40G Passive DAC QSFP+ 1m
40G-DACP-QSFP3M	40G Passive DAC QSFP+ 3m
40G-DACP-QSFP5M	40G Passive DAC QSFP+ 5m
40G-DACP-QSFPZ5M	40G Passive DAC QSFP+ 0.5m
40G-ESR4-QSFP400M-NT	40G ESR4 QSFP+ 400m 10G-SR interop.
40G-LM4-QSFP160M	40G LM4 QSFP+ 160m 160m MMF. 1km SMF
40G-LR4-QSFP10KM	40G LR4 QSFP+ 10km
40G-SR4-QSFP150M	40G SR4 QSFP+ 150m
MGBIC-LC01-G	1GB SX MM, SFP, TAA

Software upgrade and downgrade

Image file names

Download the following images from www.extremenetworks.com.

NOTE: Beginning with NetIron OS 6.3.00a and later, the ExtremeSwitching CES 2000 Series devices are not supported. Refer to the [End of Sale and End of Support](#) page for additional information.

NOTE: Hitless upgrade is not supported from version 6.3.00a onwards.

MLX Series and NetIron XMR devices

NOTE: When upgrading MLX Series and XMR Series devices, follow the manifest upgrade to ensure all required files are upgraded. Boot upgrade is not part of the manifest upgrade. If the boot image is R05.6.00 or older, upgrade the boot image.

Required images for R6.3.00e MLX Series/XMR software upgrade

```
# Manifest File for XMR/MLX Release 06.3.00
```

```
-NETIRON_IRONWARE_VER XMR-MLXV6.3.00e
```

```
#=====
===
```

```
-DIRECTORY /Boot/InterfaceModule
```

```
xmlprm05900.bin
```

```
-DIRECTORY /Boot/ManagementModule
```

```
xmprm05900.bin
```

```
# Application Images
```

```
-DIRECTORY /Combined/FPGA
```


lpfpga06300e.bin

-DIRECTORY /Combined/Application

xm06300e.bin

-DIRECTORY /Monitor/InterfaceModule

xmlb06200.bin

-DIRECTORY /Monitor/ManagementModule

xmb06200.bin

-DIRECTORY /Application/ManagementModule

xmr06300e.bin

-DIRECTORY /Application/InterfaceModule

xmlp06300e.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40_06300e.bin 2.11

pbif8x10_06300e.bin 2.24

pbifmrj_06300e.bin 4.04

pbifsp2_06300e.bin 4.02

statsmrj_06300e.bin 0.09

xgmacsp2_06300e.bin 0.17

xpp2x100_06300e.bin 1.06

xpp4x40_06300e.bin 6.20

xpp4x10g3_06300e.bin 0.00

xpp8x10_06300e.bin 1.10

xppmrj_06300e.bin 1.03

xppsp2_06300e.bin 1.01

xppxsp2_06300e.bin 1.01

pbif-ber-g3_06300e.bin 2.11

xpp20x10g3_06300e.bin 0.00
xpp2x100g3_06300e.bin 0.00

-DIRECTORY /FPGA/ManagementModule

mbridge32_06300e.xsvf 36
mbridge_06300e.xsvf 37
sbridge_06300e.mcs 6
hsbridge_06300e.mcs 17

-END_OF_IMAGES

-DIRECTORY /Signatures

xmlprm05900.sig
xmprm05900.sig
xmlb06200.sig
xmb06200.sig
xmr06300e.sig
xmlp06300e.sig
lpfpga06300e.sig
hsbridge_06300e.sig
mbridge_06300e.sig
mbridge32_06300e.sig
sbridge_06300e.sig
pbif4x40_06300e.sig
pbif8x10_06300e.sig
pbifmrj_06300e.sig
pbifsp2_06300e.sig
pbif-ber-g3_06300e.sig
statsmrj_06300e.sig
xgmacsp2_06300e.sig
xpp2x100_06300e.sig
xpp20x10g3_06300e.sig
xpp2x100g3_06300e.sig
xpp4x40_06300e.sig
xpp4x10g3_06300e.sig
xpp8x10_06300e.sig
xppmrj_06300e.sig
xppsp2_06300e.sig
xppxsp2_06300e.sig
xmlprm05900.sha256
xmprm05900.sha256

xmlb06200.sha256
xmb06200.sha256
xmr06300e.sha256
xmlp06300e.sha256
lpfpga06300e.sha256
hsbridge_06300e.sha256
mbridge_06300e.sha256
mbridge32_06300e.sha256
sbridge_06300e.sha256
pbif4x40_06300e.sha256
pbif8x10_06300e.sha256
pbifmrj_06300e.sha256
pbifsp2_06300e.sha256
pbif-ber-g3_06300e.sha256
statsmrj_06300e.sha256
xgmacsp2_06300e.sha256
xpp2x100_06300e.sha256
xpp20x10g3_06300e.sha256
xpp2x100g3_06300e.sha256
xpp4x40_06300e.sha256
xpp4x10g3_06300e.sha256
xpp8x10_06300e.sha256
xppmrj_06300e.sha256
xppsp2_06300e.sha256
xppxsp2_06300e.sha256

MIBS:

-DIRECTORY /MIBS

xmr06300e.mib
xmr06300e_std.mib

-DIRECTORY /Yang

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang

```
netiron-statedata.yang
version-statedata.yang
vlan-config.yang
vlan-statedata.yang
```

```
-DIRECTORY /Tools
```

```
sbsupgrd.zip
```

```
-DIRECTORY
```

```
MLX06300e_Manifest.txt
MLX06300e_Manifest.sig
MLX06300e_Manifest.sha256
```

```
-DIRECTORY /Manuals
```

Required images for R6.3.00d MLX Series/XMR software upgrade

```
# Manifest File for XMR/MLX Release 06.3.00
```

```
-NETIRON_IRONWARE_VER XMR-MLXV6.3.00d
```

```
#=====
===
```

```
-DIRECTORY /Boot/InterfaceModule
```

```
xmlprm05900.bin
```

```
-DIRECTORY /Boot/ManagementModule
```

```
xmpm05900.bin
```

```
# Application Images
```

```
-DIRECTORY /Combined/FPGA
```

lpfpga06300d.bin

-DIRECTORY /Combined/Application

xm06300d.bin

-DIRECTORY /Monitor/InterfaceModule

xmlb06200.bin

-DIRECTORY /Monitor/ManagementModule

xmb06200.bin

-DIRECTORY /Application/ManagementModule

xmr06300d.bin

-DIRECTORY /Application/InterfaceModule

xmlp06300d.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40_06300d.bin 2.11

pbif8x10_06300d.bin 2.24

pbifmrj_06300d.bin 4.04

pbifsp2_06300d.bin 4.02

statsmrj_06300d.bin 0.09

xgmacsp2_06300d.bin 0.17

xpp2x100_06300d.bin 1.06

xpp4x40_06300d.bin 6.20

xpp4x10g3_06300d.bin 0.00

xpp8x10_06300d.bin 1.10

xppmrj_06300d.bin 1.03

xppsp2_06300d.bin 1.01

xppxsp2_06300d.bin 1.01

pbif-ber-g3_06300d.bin 2.11

xpp20x10g3_06300d.bin 0.00

xpp2x100g3_06300d.bin 0.00

-DIRECTORY /FPGA/ManagementModule

mbridge32_06300d.xsvf 36

mbridge_06300d.xsvf 37

sbridge_06300d.mcs 6

hsbridge_06300d.mcs 17

-END_OF_IMAGES

-DIRECTORY /Signatures

xmlprm05900.sig

xmprm05900.sig

xmlb06200.sig

xmb06200.sig

xmr06300d.sig

xmlp06300d.sig

lpfpga06300d.sig

hsbridge_06300d.sig

mbridge_06300d.sig

mbridge32_06300d.sig

sbridge_06300d.sig

pbif4x40_06300d.sig

pbif8x10_06300d.sig

pbifmrj_06300d.sig

pbifsp2_06300d.sig

pbif-ber-g3_06300d.sig

statsmrj_06300d.sig

xgmacsp2_06300d.sig

xpp2x100_06300d.sig

xpp20x10g3_06300d.sig

xpp2x100g3_06300d.sig

xpp4x40_06300d.sig

xpp4x10g3_06300d.sig

xpp8x10_06300d.sig

xppmrj_06300d.sig

xppsp2_06300d.sig

xppxsp2_06300d.sig

xmlprm05900.sha256

xmprm05900.sha256

xmlb06200.sha256

xmb06200.sha256
xmr06300d.sha256
xmlp06300d.sha256
lpfpga06300d.sha256
hsbridge_06300d.sha256
mbridge_06300d.sha256
mbridge32_06300d.sha256
sbridge_06300d.sha256
pbif4x40_06300d.sha256
pbif8x10_06300d.sha256
pbifmrj_06300d.sha256
pbifsp2_06300d.sha256
pbif-ber-g3_06300d.sha256
statsmrj_06300d.sha256
xgmacsp2_06300d.sha256
xpp2x100_06300d.sha256
xpp20x10g3_06300d.sha256
xpp2x100g3_06300d.sha256
xpp4x40_06300d.sha256
xpp4x10g3_06300d.sha256
xpp8x10_06300d.sha256
xppmrj_06300d.sha256
xppsp2_06300d.sha256
xppxsp2_06300d.sha256

MIBS:

-DIRECTORY /MIBS

xmr06300d.mib
xmr06300d_std.mib

-DIRECTORY /Yang

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang
netiron-statedata.yang

```
version-statedata.yang
vlan-config.yang
vlan-statedata.yang
```

```
-DIRECTORY /Tools
```

```
sbsupgrd.zip
```

```
-DIRECTORY
```

```
MLX06300d_Manifest.txt
MLX06300d_Manifest.sig
MLX06300d_Manifest.sha256
```

```
-DIRECTORY /Manuals
```

Required images for R6.3.00c MLX Series/XMR software upgrade

```
# Manifest File for XMR/MLX Release 06.3.00
```

```
-NETIRON_IRONWARE_VER XMR-MLXV6.3.00c
```

```
#=====
===
```

```
-DIRECTORY /Boot/InterfaceModule
```

```
xmlprm05900.bin
```

```
-DIRECTORY /Boot/ManagementModule
```

```
xmprm05900.bin
```

```
# Application Images
```

```
-DIRECTORY /Combined/FPGA
```

```
lpfpga06300c.bin
```



```
-DIRECTORY /Combined/Application

xm06300c.bin

-DIRECTORY /Monitor/InterfaceModule

xmlb06200.bin

-DIRECTORY /Monitor/ManagementModule

xmb06200.bin

-DIRECTORY /Application/ManagementModule

xmr06300c.bin

-DIRECTORY /Application/InterfaceModule

xmlp06300c.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40_06300c.bin 2.11
pbif8x10_06300c.bin 2.24
pbifmrj_06300c.bin 4.04
pbifsp2_06300c.bin 4.02
statsmrj_06300c.bin 0.09
xgmacsp2_06300c.bin 0.17
xpp2x100_06300c.bin 1.06
xpp4x40_06300c.bin 6.20
xpp4x10g3_06300c.bin 0.00
xpp8x10_06300c.bin 1.10
xppmrj_06300c.bin 1.03
xppsp2_06300c.bin 1.01
xppxsp2_06300c.bin 1.01
pbif-ber-g3_06300c.bin 2.11
xpp20x10g3_06300c.bin 0.00
xpp2x100g3_06300c.bin 0.00
```

-DIRECTORY /FPGA/ManagementModule

mbridge32_06300c.xsvf 36
mbridge_06300c.xsvf 37
sbridge_06300c.mcs 6
hsbridge_06300c.mcs 17

-END_OF_IMAGES

-DIRECTORY /Signatures

xmlprm05900.sig
xmprm05900.sig
xmlb06200.sig
xmb06200.sig
xmr06300c.sig
xmlp06300c.sig
lpfpga06300c.sig
hsbridge_06300c.sig
mbridge_06300c.sig
mbridge32_06300c.sig
sbridge_06300c.sig
pbif4x40_06300c.sig
pbif8x10_06300c.sig
pbifmrj_06300c.sig
pbifsp2_06300c.sig
pbif-ber-g3_06300c.sig
statsmrj_06300c.sig
xgmacsp2_06300c.sig
xpp2x100_06300c.sig
xpp20x10g3_06300c.sig
xpp2x100g3_06300c.sig
xpp4x40_06300c.sig
xpp4x10g3_06300c.sig
xpp8x10_06300c.sig
xppmrj_06300c.sig
xppsp2_06300c.sig
xppxsp2_06300c.sig
xmlprm05900.sha256
xmprm05900.sha256
xmlb06200.sha256
xmb06200.sha256

xmr06300c.sha256
xmlp06300c.sha256
lpfpga06300c.sha256
hsbridge_06300c.sha256
mbridge_06300c.sha256
mbridge32_06300c.sha256
sbridge_06300c.sha256
pbif4x40_06300c.sha256
pbif8x10_06300c.sha256
pbifmrj_06300c.sha256
pbifsp2_06300c.sha256
pbif-ber-g3_06300c.sha256
statsmrj_06300c.sha256
xgmacsp2_06300c.sha256
xpp2x100_06300c.sha256
xpp20x10g3_06300c.sha256
xpp2x100g3_06300c.sha256
xpp4x40_06300c.sha256
xpp4x10g3_06300c.sha256
xpp8x10_06300c.sha256
xppmrj_06300c.sha256
xppsp2_06300c.sha256
xppxsp2_06300c.sha256

MIBS:

-DIRECTORY /MIBS

xmr06300c.mib
xmr06300c_std.mib

-DIRECTORY /Yang

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang
netiron-statedata.yang
version-statedata.yang

```
vlan-config.yang
vlan-statedata.yang
```

```
-DIRECTORY /Tools
```

```
sbsupgrd.zip
```

```
-DIRECTORY
```

```
MLX06300c_Manifest.txt
MLX06300c_Manifest.sig
MLX06300c_Manifest.sha256
```

```
-DIRECTORY /Manuals
```

Required images for R6.3.00a1 MLX Series/XMR software upgrade

```
# Manifest File for XMR/MLX Release 06.3.00
```

```
-NETIRON_IRONWARE_VER XMR-MLXV6.3.00a1
```

```
#=====
```

```
-DIRECTORY /Boot/InterfaceModule
```

```
xmlprm05900.bin
```

```
-DIRECTORY /Boot/ManagementModule
```

```
xmprm05900.bin
```

```
# Application Images
```

```
-DIRECTORY /Combined/FPGA
```

```
lpfpga06300a1.bin
```

```
-DIRECTORY /Combined/Application
```

```
xm06300a1.bin
```

-DIRECTORY /Monitor/InterfaceModule
xmlb06200.bin

-DIRECTORY /Monitor/ManagementModule
xmb06200.bin

-DIRECTORY /Application/ManagementModule
xmr06300a1.bin

-DIRECTORY /Application/InterfaceModule
xmlp06300a1.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40_06300a1.bin 2.11

pbif8x10_06300a1.bin 2.24

pbifmrj_06300a1.bin 4.04

pbifsp2_06300a1.bin 4.02

statsmrj_06300a1.bin 0.09

xgmacsp2_06300a1.bin 0.17

xpp2x100_06300a1.bin 1.06

xpp4x40_06300a1.bin 6.20

xpp4x10g3_06300a1.bin 0.00

xpp8x10_06300a1.bin 1.10

xppmrj_06300a1.bin 1.03

xppsp2_06300a1.bin 1.01

xppxsp2_06300a1.bin 1.01

pbif-ber-g3_06300a1.bin 2.11

xpp20x10g3_06300a1.bin 0.00

xpp2x100g3_06300a1.bin 0.00

```
-DIRECTORY /FPGA/ManagementModule  
mbridge32_06300a1.xsvf 36  
mbridge_06300a1.xsvf 37  
sbridge_06300a1.mcs 6  
hsbridge_06300a1.mcs 17
```

```
-END_OF_IMAGES
```

```
-DIRECTORY /Signatures  
xmlprm05900.sig  
xmpprm05900.sig  
xmlb06200.sig  
xmb06200.sig  
xmr06300a1.sig  
xmlp06300a1.sig  
lpfpga06300a1.sig  
hsbridge_06300a1.sig  
mbridge_06300a1.sig  
mbridge32_06300a1.sig  
sbridge_06300a1.sig  
pbif4x40_06300a1.sig  
pbif8x10_06300a1.sig  
pbifmrj_06300a1.sig  
pbifsp2_06300a1.sig  
pbif-ber-g3_06300a1.sig  
statsmrj_06300a1.sig  
xgmacsp2_06300a1.sig  
xpp2x100_06300a1.sig  
xpp20x10g3_06300a1.sig  
xpp2x100g3_06300a1.sig  
xpp4x40_06300a1.sig
```

xpp4x10g3_06300a1.sig
xpp8x10_06300a1.sig
xppmrj_06300a1.sig
xppsp2_06300a1.sig
xppxsp2_06300a1.sig
xmlprm05900.sha256
xmprm05900.sha256
xmlb06200.sha256
xmb06200.sha256
xmr06300a1.sha256
xmlp06300a1.sha256
lpfpga06300a1.sha256
hsbridge_06300a1.sha256
mbridge_06300a1.sha256
mbridge32_06300a1.sha256
sbridge_06300a1.sha256
pbif4x40_06300a1.sha256
pbif8x10_06300a1.sha256
pbifmrj_06300a1.sha256
pbifsp2_06300a1.sha256
pbif-ber-g3_06300a1.sha256
statsmrj_06300a1.sha256
xgmacsp2_06300a1.sha256
xpp2x100_06300a1.sha256
xpp20x10g3_06300a1.sha256
xpp2x100g3_06300a1.sha256
xpp4x40_06300a1.sha256
xpp4x10g3_06300a1.sha256
xpp8x10_06300a1.sha256
xppmrj_06300a1.sha256
xppsp2_06300a1.sha256

xppxsp2_06300a1.sha256

MIBS:

-DIRECTORY /MIBS

xmr06300a1.mib

xmr06300a1_std.mib

-DIRECTORY /Yang

ExampleXML.txt

common-defs.yang

interface-config.yang

interface-statedata.yang

mpls-config.yang

mpls-statedata.yang

netiron-config.yang

netiron-statedata.yang

version-statedata.yang

vlan-config.yang

vlan-statedata.yang

-DIRECTORY /Tools

sbsupgrd.zip

-DIRECTORY

MLX06300a1_Manifest.txt

MLX06300a1_Manifest.sig

MLX06300a1_Manifest.sha256

-DIRECTORY /Manuals

FPGA file names and supported modules

File Name	Supported Modules
pbif4x40_06300a1.bin	4x40G modules
pbif8x10_06300a1.bin	8x10G modules
pbifmrj_06300a1.bin	24x1G and 48x1G modules
pbifsp2_06300a1.bin	2x10G, 4x10G, 4x10G-x and 20x1G modules
statsmrj_06300a1.bin	24x1G and 48x1G modules
xgmacsp2_06300a1.bin	2x10G, 4x10G-x and 4x10G modules
xpp2x100_06300a1.bin	2x100G modules (double-wide CFP-based module)
xpp4x40_06300a1.bin	4x40G modules
xpp4x10g3_06300a1.bin	4x10G modules
xpp8x10_06300a1.bin	8x10G modules
xppmrj_06300a1.bin	24x1G and 48x1G modules
xppsp2_06300a1.bin	2x10G, 4x10G, and 20x1G modules
xppxsp2_06300a1.bin	4x10G-x
pbif-ber-g3_06300a1.bin	20x10G and 2x100G modules (-M and -X2)
xpp20x10g3_06300a1.bin	20x10G modules
xpp2x100g3_06300a1.bin	2x100G modules (half-slot CFP2-based module)
mbridge32_06300a1.xsvf	MBRIDGE32
mbridge_06300a1.xsvf	MBRIDGE
sbridge_06300a1.mcs	Switch fabric modules
hsbridge_06300a1.mcs	High speed switch fabric modules

CER 2000 Series devices

When upgrading CER 2000 Series devices, follow the manifest upgrade to ensure all required files are upgraded. Boot upgrade is not part of the manifest upgrade. If the boot image is R05.5.00 or older, upgrade the boot image.

Required images for R6.3.00e CER 2000 software upgrade

-NETIRON_IRONWARE_VER CES-CERV6.3.00e

```
#=====
=====
```

-DIRECTORY /Boot

ceb06000.bin
-DIRECTORY /Application

ce06300e.bin
-DIRECTORY /FPGA

pbifmetro_06300e.bin
-END_OF_IMAGES
-DIRECTORY /Signatures

ceb06000.sig
ce06300e.sig
pbifmetro_06300e.sig
ceb06000.sha256
ce06300e.sha256
pbifmetro_06300e.sha256
-DIRECTORY /MIBS

ce06300e.mib
ce06300e_std.mib
-DIRECTORY /Yang

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang
netiron-statedata.yang
version-statedata.yang
vlan-config.yang
vlan-statedata.yang

-DIRECTORY

CES-CER06300e_Manifest.txt
CES-CER06300e_Manifest.sig
CES-CER06300e_Manifest.sha256

-DIRECTORY /Manuals

Required images for R6.3.00d CER 2000 software upgrade

-NETIRON_IRONWARE_VER CES-CERV6.3.00d

#=====

-DIRECTORY /Boot

ceb06000.bin

-DIRECTORY /Application

ce06300d.bin

-DIRECTORY /FPGA

pbifmetro_06300d.bin

-END_OF_IMAGES

-DIRECTORY /Signatures

ceb06000.sig
ce06300d.sig
pbifmetro_06300d.sig
ceb06000.sha256
ce06300d.sha256

pbifmetro_06300d.sha256

-DIRECTORY /MIBS

ce06300d.mib

ce06300d_std.mib

-DIRECTORY /Yang

ExampleXML.txt

common-defs.yang

interface-config.yang

interface-statedata.yang

mpls-config.yang

mpls-statedata.yang

netiron-config.yang

netiron-statedata.yang

version-statedata.yang

vlan-config.yang

vlan-statedata.yang

-DIRECTORY

CES-CER06300d_Manifest.txt

CES-CER06300d_Manifest.sig

CES-CER06300d_Manifest.sha256

-DIRECTORY /Manuals

Required images for R6.3.00c CER 2000 software upgrade

Manifest File for XMR/MLX Release 06.3.00

-NETIRON_IRONWARE_VER CES-CERV6.3.00c

#=====
=====

-DIRECTORY /Boot

ceb06000.bin
-DIRECTORY /Application

ce06300c.bin
-DIRECTORY /FPGA

pbifmetro_06300c.bin
-END_OF_IMAGES
-DIRECTORY /Signatures

ceb06000.sig
ce06300c.sig
pbifmetro_06300c.sig
ceb06000.sha256
ce06300c.sha256
pbifmetro_06300c.sha256
-DIRECTORY /MIBS

ce06300c.mib
ce06300c_std.mib
-DIRECTORY /Yang

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang
netiron-statedata.yang
version-statedata.yang
vlan-config.yang
vlan-statedata.yang

-DIRECTORY

CES-CER06300c_Manifest.txt
CES-CER06300c_Manifest.sig
CES-CER06300c_Manifest.sha256

-DIRECTORY /Manuals

Required images for R6.3.00a1 CER 2000 software upgrade

Manifest File for CER Release 06.3.00

-NETIRON_IRONWARE_VER CES-CERV6.3.00a1

#=====

-DIRECTORY /Boot

ceb06000.bin

-DIRECTORY /Application

ce06300a1.bin

-DIRECTORY /FPGA

pbifmetro_06300a1.bin

-END_OF_IMAGES

-DIRECTORY /Signatures

ceb06000.sig

ce06300a1.sig

pbifmetro_06300a1.sig

ceb06000.sha256

ce06300a1.sha256

pbifmetro_06300a1.sha256

```
-DIRECTORY /MIBS  
ce06300a1.mib  
ce06300a1_std.mib
```

```
-DIRECTORY /Yang  
ExampleXML.txt  
common-defs.yang  
interface-config.yang  
interface-statedata.yang  
mpls-config.yang  
mpls-statedata.yang  
netiron-config.yang  
netiron-statedata.yang  
version-statedata.yang  
vlan-config.yang  
vlan-statedata.yang
```

```
-DIRECTORY  
CES-CER06300a1_Manifest.txt  
CES-CER06300a1_Manifest.sig  
CES-CER06300a1_Manifest.sha256
```

```
-DIRECTORY /Manuals
```

Manifest for Network Packet Broker devices

NOTE: When upgrading MLX Series and XMR Series devices, follow the manifest upgrade to ensure all required files are upgraded. Boot upgrade is not part of the manifest upgrade. If the boot image is R05.6.00 or older, upgrade the boot image.

Required images for Network Packet Broker R6.3.00e software upgrade

```
# Manifest File for XMR/MLX Release 06.3.00
```

```
-NETIRON_IRONWARE_VER XMR-MLXV6.3.00e
```

```
#=====
==
```

```
-DIRECTORY /Boot/InterfaceModule
```

```
xmlprm05900.bin
```

```
-DIRECTORY /Boot/ManagementModule
```

```
xmprm05900.bin
```

```
# Application Images
```

```
-DIRECTORY /Combined/FPGA
```

```
lpfpga_npb_06300e.bin
```

```
-DIRECTORY /Combined/Application
```

```
xm06300e.bin
```

```
-DIRECTORY /Monitor/InterfaceModule
```

```
xmlb06200.bin
```

```
-DIRECTORY /Monitor/ManagementModule
```


xmb06200.bin

-DIRECTORY /Application/ManagementModule

xmr06300e.bin

-DIRECTORY /Application/InterfaceModule

xmlp06300e.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40_06300e.bin 2.11

pbif8x10_06300e.bin 2.24

pbifmrj_06300e.bin 4.04

pbifsp2_06300e.bin 4.02

statsmrj_06300e.bin 0.09

xgmacsp2_06300e.bin 0.17

xpp2x100_06300e.bin 1.06

xpp4x40_06300e.bin 6.20

xpp4x10g3_06300e.bin 0.00

xpp8x10_06300e.bin 1.10

xppmrj_06300e.bin 1.03

xppsp2_06300e.bin 1.01

xppxsp2_06300e.bin 1.01

pbif-ber-g3_06300e.bin 2.11

xpp20x10g3_npb_06300e.bin 0.10

xpp2x100g3_npb_06300e.bin 0.10

-DIRECTORY /FPGA/ManagementModule

mbridge32_06300e.xsvf 36

mbridge_06300e.xsvf 37

sbridge_06300e.mcs 6

hsbridge_06300e.mcs 17

-END_OF_IMAGES

-DIRECTORY /Signatures

xmlprm05900.sig
xmprm05900.sig
xmlb06200.sig
xmb06200.sig
xmr06300e.sig
xmlp06300e.sig
lpfpga_npb_06300e.sig
hsbridge_06300e.sig
mbridge_06300e.sig
mbridge32_06300e.sig
sbridge_06300e.sig
pbif4x40_06300e.sig
pbif8x10_06300e.sig
pbifmrj_06300e.sig
pbifsp2_06300e.sig
pbif-ber-g3_06300e.sig
statsmrj_06300e.sig
xgmacsp2_06300e.sig
xpp2x100_06300e.sig
xpp20x10g3_npb_06300e.sig
xpp2x100g3_npb_06300e.sig
xpp4x40_06300e.sig
xpp4x10g3_06300e.sig
xpp8x10_06300e.sig
xppmrj_06300e.sig
xppsp2_06300e.sig
xppxsp2_06300e.sig
xmlprm05900.sha256
xmprm05900.sha256
xmlb06200.sha256
xmb06200.sha256
xmr06300e.sha256
xmlp06300e.sha256
lpfpga_npb_06300e.sha256
hsbridge_06300e.sha256
mbridge_06300e.sha256
mbridge32_06300e.sha256
sbridge_06300e.sha256
pbif4x40_06300e.sha256
pbif8x10_06300e.sha256
pbifmrj_06300e.sha256
pbifsp2_06300e.sha256
pbif-ber-g3_06300e.sha256

statsmrj_06300e.sha256
xgmacsp2_06300e.sha256
xpp2x100_06300e.sha256
xpp20x10g3_npb_06300e.sha256
xpp2x100g3_npb_06300e.sha256
xpp4x40_06300e.sha256
xpp4x10g3_06300e.sha256
xpp8x10_06300e.sha256
xppmrj_06300e.sha256
xppsp2_06300e.sha256
xppxsp2_06300e.sha256

MIBS:

-DIRECTORY /MIBS

xmr06300e.mib
xmr06300e_std.mib

-DIRECTORY /Yang

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang
netiron-statedata.yang
version-statedata.yang
vlan-config.yang
vlan-statedata.yang

-DIRECTORY /Tools

sbsupgrd.zip

-DIRECTORY

MLX_npb_06300e_Manifest.txt

```
MLX_npb_06300e_Manifest.sig
MLX_npb_06300e_Manifest.sha256
```

```
-DIRECTORY /Manuals
```

Required images for Network Packet Broker R6.3.00d software upgrade

```
# Manifest File for XMR/MLX Release 06.3.00
```

```
-NETIRON_IRONWARE_VER XMR-MLXV6.3.00d
```

```
#=====
==
```

```
-DIRECTORY /Boot/InterfaceModule
```

```
xmlprm05900.bin
```

```
-DIRECTORY /Boot/ManagementModule
```

```
xmpprm05900.bin
```

```
# Application Images
```

```
-DIRECTORY /Combined/FPGA
```

```
lpfpga_npb_06300d.bin
```

```
-DIRECTORY /Combined/Application
```

```
xm06300d.bin
```

```
-DIRECTORY /Monitor/InterfaceModule
```

```
xmlb06200.bin
```

```
-DIRECTORY /Monitor/ManagementModule
```

```
xmb06200.bin

-DIRECTORY /Application/ManagementModule

xmr06300d.bin

-DIRECTORY /Application/InterfaceModule

xmlp06300d.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40_06300d.bin 2.11
pbif8x10_06300d.bin 2.24
pbifmrj_06300d.bin 4.04
pbifsp2_06300d.bin 4.02
statsmrj_06300d.bin 0.09
xgmacsp2_06300d.bin 0.17
xpp2x100_06300d.bin 1.06
xpp4x40_06300d.bin 6.20
xpp4x10g3_06300d.bin 0.00
xpp8x10_06300d.bin 1.10
xppmrj_06300d.bin 1.03
xppsp2_06300d.bin 1.01
xppxsp2_06300d.bin 1.01
pbif-ber-g3_06300d.bin 2.11
xpp20x10g3_npb_06300d.bin 0.10
xpp2x100g3_npb_06300d.bin 0.10

-DIRECTORY /FPGA/ManagementModule

mbridge32_06300d.xsvf 36
mbridge_06300d.xsvf 37
sbridge_06300d.mcs 6
hsbridge_06300d.mcs 17

-END_OF_IMAGES

-DIRECTORY /Signatures
```

xmlprm05900.sig
xmprm05900.sig
xmlb06200.sig
xmb06200.sig
xmr06300d.sig
xmlp06300d.sig
lpfpga_npb_06300d.sig
hsbridge_06300d.sig
mbridge_06300d.sig
mbridge32_06300d.sig
sbridge_06300d.sig
pbif4x40_06300d.sig
pbif8x10_06300d.sig
pbifmrj_06300d.sig
pbifsp2_06300d.sig
pbif-ber-g3_06300d.sig
statsmrj_06300d.sig
xgmacsp2_06300d.sig
xpp2x100_06300d.sig
xpp20x10g3_npb_06300d.sig
xpp2x100g3_npb_06300d.sig
xpp4x40_06300d.sig
xpp4x10g3_06300d.sig
xpp8x10_06300d.sig
xppmrj_06300d.sig
xppsp2_06300d.sig
xppxsp2_06300d.sig
xmlprm05900.sha256
xmprm05900.sha256
xmlb06200.sha256
xmb06200.sha256
xmr06300d.sha256
xmlp06300d.sha256
lpfpga_npb_06300d.sha256
hsbridge_06300d.sha256
mbridge_06300d.sha256
mbridge32_06300d.sha256
sbridge_06300d.sha256
pbif4x40_06300d.sha256
pbif8x10_06300d.sha256
pbifmrj_06300d.sha256
pbifsp2_06300d.sha256
pbif-ber-g3_06300d.sha256
statsmrj_06300d.sha256

xgmacsp2_06300d.sha256
xpp2x100_06300d.sha256
xpp20x10g3_npb_06300d.sha256
xpp2x100g3_npb_06300d.sha256
xpp4x40_06300d.sha256
xpp4x10g3_06300d.sha256
xpp8x10_06300d.sha256
xppmrj_06300d.sha256
xppsp2_06300d.sha256
xppxsp2_06300d.sha256

MIBS:

-DIRECTORY /MIBS

xmr06300d.mib
xmr06300d_std.mib

-DIRECTORY /Yang

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang
netiron-statedata.yang
version-statedata.yang
vlan-config.yang
vlan-statedata.yang

-DIRECTORY /Tools

sbsupgrd.zip

-DIRECTORY

MLX_npb_06300d_Manifest.txt
MLX_npb_06300d_Manifest.sig

MLX_npb_06300d_Manifest.sha256

-DIRECTORY /Manuals

Required images for Network Packet Broker R6.3.00c software upgrade

Manifest File for XMR/MLX Release 06.3.00

-NETIRON_IRONWARE_VER XMR-MLXV6.3.00c

#=====

-DIRECTORY /Boot/InterfaceModule

xmlprm05900.bin

-DIRECTORY /Boot/ManagementModule

xmpprm05900.bin

Application Images

-DIRECTORY /Combined/FPGA

lpfpga_npb_06300c.bin

-DIRECTORY /Combined/Application

xm06300c.bin

-DIRECTORY /Monitor/InterfaceModule

xmlb06200.bin

-DIRECTORY /Monitor/ManagementModule

xmb06200.bin

-DIRECTORY /Application/ManagementModule

xmr06300c.bin

-DIRECTORY /Application/InterfaceModule

xmlp06300c.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40_06300c.bin 2.11
pbif8x10_06300c.bin 2.24
pbifmrj_06300c.bin 4.04
pbifsp2_06300c.bin 4.02
statsmrj_06300c.bin 0.09
xgmacsp2_06300c.bin 0.17
xpp2x100_06300c.bin 1.06
xpp4x40_06300c.bin 6.20
xpp4x10g3_06300c.bin 0.00
xpp8x10_06300c.bin 1.10
xppmrj_06300c.bin 1.03
xppsp2_06300c.bin 1.01
xppxsp2_06300c.bin 1.01
pbif-ber-g3_06300c.bin 2.11
xpp20x10g3_npb_06300c.bin 0.10
xpp2x100g3_npb_06300c.bin 0.10

-DIRECTORY /FPGA/ManagementModule

mbridge32_06300c.xsvf 36
mbridge_06300c.xsvf 37
sbridge_06300c.mcs 6
hsbridge_06300c.mcs 17

-END_OF_IMAGES

-DIRECTORY /Signatures

xmlprm05900.sig
xmprm05900.sig
xmlb06200.sig
xmb06200.sig
xmr06300c.sig
xmlp06300c.sig
lpfpga_npb_06300c.sig
hsbridge_06300c.sig
mbridge_06300c.sig
mbridge32_06300c.sig
sbridge_06300c.sig
pbif4x40_06300c.sig
pbif8x10_06300c.sig
pbifmrj_06300c.sig
pbifsp2_06300c.sig
pbif-ber-g3_06300c.sig
statsmrj_06300c.sig
xgmacsp2_06300c.sig
xpp2x100_06300c.sig
xpp20x10g3_npb_06300c.sig
xpp2x100g3_npb_06300c.sig
xpp4x40_06300c.sig
xpp4x10g3_06300c.sig
xpp8x10_06300c.sig
xppmrj_06300c.sig
xppsp2_06300c.sig
xppxsp2_06300c.sig
xmlprm05900.sha256
xmprm05900.sha256
xmlb06200.sha256
xmb06200.sha256
xmr06300c.sha256
xmlp06300c.sha256
lpfpga_npb_06300c.sha256
hsbridge_06300c.sha256
mbridge_06300c.sha256
mbridge32_06300c.sha256
sbridge_06300c.sha256
pbif4x40_06300c.sha256
pbif8x10_06300c.sha256
pbifmrj_06300c.sha256
pbifsp2_06300c.sha256

pbif-ber-g3_06300c.sha256
statsmrj_06300c.sha256
xgmacsp2_06300c.sha256
xpp2x100_06300c.sha256
xpp20x10g3_npb_06300c.sha256
xpp2x100g3_npb_06300c.sha256
xpp4x40_06300c.sha256
xpp4x10g3_06300c.sha256
xpp8x10_06300c.sha256
xppmrj_06300c.sha256
xppsp2_06300c.sha256
xppxsp2_06300c.sha256

MIBS:

-DIRECTORY /MIBS

xmr06300c.mib
xmr06300c_std.mib

-DIRECTORY /Yang

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang
netiron-statedata.yang
version-statedata.yang
vlan-config.yang
vlan-statedata.yang

-DIRECTORY /Tools

sbsupgrd.zip

-DIRECTORY

```
MLX_npb_06300c_Manifest.txt
MLX_npb_06300c_Manifest.sig
MLX_npb_06300c_Manifest.sha256
```

```
-DIRECTORY /Manuals
```

Required images for Network Packet Broker R6.3.00a1 software upgrade

```
# Manifest File for XMR/MLX Release 06.3.00
```

```
-NETIRON_IRONWARE_VER XMR-MLXV6.3.00a1
```

```
#=====
```

```
-DIRECTORY /Boot/InterfaceModule
```

```
xmlprm05900.bin
```

```
-DIRECTORY /Boot/ManagementModule
```

```
xmprm05900.bin
```

```
# Application Images
```

```
-DIRECTORY /Combined/FPGA
```

```
lpfpga_npb_06300a1.bin
```

```
-DIRECTORY /Combined/Application
```

```
xm06300a1.bin
```

```
-DIRECTORY /Monitor/InterfaceModule
```

```
xmlb06200.bin
```

```
-DIRECTORY /Monitor/ManagementModule
```

```
xmb06200.bin
```

-DIRECTORY /Application/ManagementModule
xmr06300a1.bin

-DIRECTORY /Application/InterfaceModule
xmlp06300a1.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40_06300a1.bin 2.11
pbif8x10_06300a1.bin 2.24
pbifmrj_06300a1.bin 4.04
pbifsp2_06300a1.bin 4.02
statsmrj_06300a1.bin 0.09
xgmacsp2_06300a1.bin 0.17
xpp2x100_06300a1.bin 1.06
xpp4x40_06300a1.bin 6.20
xpp4x10g3_06300a1.bin 0.00
xpp8x10_06300a1.bin 1.10
xppmrj_06300a1.bin 1.03
xppsp2_06300a1.bin 1.01
xppxsp2_06300a1.bin 1.01
pbif-ber-g3_06300a1.bin 2.11
xpp20x10g3_npb_06300a1.bin 0.10
xpp2x100g3_npb_06300a1.bin 0.10

-DIRECTORY /FPGA/ManagementModule

mbridge32_06300a1.xsvf 36
mbridge_06300a1.xsvf 37
sbridge_06300a1.mcs 6
hsbridge_06300a1.mcs 17

-END_OF_IMAGES

-DIRECTORY /Signatures
xmlprm05900.sig
xmprm05900.sig
xmlb06200.sig
xmb06200.sig
xmr06300a1.sig
xmlp06300a1.sig
lpfpga_npb_06300a1.sig
hsbridge_06300a1.sig
mbridge_06300a1.sig
mbridge32_06300a1.sig
sbridge_06300a1.sig
pbif4x40_06300a1.sig
pbif8x10_06300a1.sig
pbifmrj_06300a1.sig
pbifsp2_06300a1.sig
pbif-ber-g3_06300a1.sig
statsmrj_06300a1.sig
xgmacsp2_06300a1.sig
xpp2x100_06300a1.sig
xpp20x10g3_npb_06300a1.sig
xpp2x100g3_npb_06300a1.sig
xpp4x40_06300a1.sig
xpp4x10g3_06300a1.sig
xpp8x10_06300a1.sig
xppmrj_06300a1.sig
xppsp2_06300a1.sig
xppxsp2_06300a1.sig
xmlprm05900.sha256
xmprm05900.sha256
xmlb06200.sha256

xmb06200.sha256
xmr06300a1.sha256
xmlp06300a1.sha256
lpfpga_npb_06300a1.sha256
hsbridge_06300a1.sha256
mbridge_06300a1.sha256
mbridge32_06300a1.sha256
sbridge_06300a1.sha256
pbif4x40_06300a1.sha256
pbif8x10_06300a1.sha256
pbifmrj_06300a1.sha256
pbifsp2_06300a1.sha256
pbif-ber-g3_06300a1.sha256
statsmrj_06300a1.sha256
xgmacsp2_06300a1.sha256
xpp2x100_06300a1.sha256
xpp20x10g3_npb_06300a1.sha256
xpp2x100g3_npb_06300a1.sha256
xpp4x40_06300a1.sha256
xpp4x10g3_06300a1.sha256
xpp8x10_06300a1.sha256
xppmrj_06300a1.sha256
xppsp2_06300a1.sha256
xppxsp2_06300a1.sha256

MIBS:

-DIRECTORY /MIBS

xmr06300a1.mib

xmr06300a1_std.mib

-DIRECTORY /Yang

```

ExampleXML.txt
common-defs.yang
interface-config.yang
interface-statedata.yang
mpls-config.yang
mpls-statedata.yang
netiron-config.yang
netiron-statedata.yang
version-statedata.yang
vlan-config.yang
vlan-statedata.yang

-DIRECTORY /Tools
sbsupgrd.zip

-DIRECTORY
MLX_npb_06300a1_Manifest.txt
MLX_npb_06300a1_Manifest.sig
MLX_npb_06300a1_Manifest.sha256

-DIRECTORY /Manuals

```

FPGA file names for NPB and supported modules

File Name	Supported Modules
xpp20x10g3_npb_06300a1.bin	20x10G modules FPGA for NPB
xpp2x100g3_npb_06300a1.bin	2x100G modules (half-slot CFP2-based module) FPGA to NPB

Migration path

To establish an appropriate migration path from your current release of Extreme NetIron, consult your Extreme TAC representative (see the Preface of this document).

Upgrade and downgrade considerations

To upgrade to NetIron 6.3.00a1 and later releases, a multiple step upgrade process is required. The multiple step upgrade process is not required for CER or CES.

Scenario 1

Customers running releases 05.9.00a, 05.6.00ga, 05.6.00h, 05.8.00e, 05.7.00e or subsequent releases can directly upgrade to NetIron 6.3.00a1 and later releases.

NOTE: If you are not running one of the releases listed above, you CANNOT directly upgrade to 6.3.00a1 or later releases.

Scenario 2

To upgrade from 05.6.00c or any later release (other than the images mentioned in Scenario 1), a two-step approach is required.

1. Upgrade to 05.9.00a or any of the following releases: 05.6.00ga, 05.6.00h, 05.8.00e, 05.7.00e or subsequent patch releases and reload the device.
2. Upgrade to NetIron 6.3.00a1 (and later releases). Reload the device.

Scenario 3

To upgrade to NetIron 6.3.00a1 and later releases from releases prior to R05.6.00c, a multiple step approach is required.

1. Upgrade to 5.9.00a or any of the following releases: 05.6.00ga, 05.6.00h, 05.8.00e or 05.7.00e and reload the device.
2. Upgrade again to the same image which was used in step 1 and reload the device again. This ensures that the device will have the SHA256 signatures on the device if they are needed, for example for LP Auto-upgrade.
3. Upgrade to NetIron 6.3.00a1 or later releases and reload the device.

Scenario 4

Use Scenario 4 if you want to use the following features specific to the NPB FPGA.

- VxLAN header stripping
 - GTP de-encapsulation
 - Packet Timestamping
 - Source port labeling
 - NVGRE stripping
 - NetIron 6.3.00a1 UDA Enhancements
1. Upgrade to NetIron 6.3.00a1 and later releases using any of above scenarios based on the image from which the upgrade is being performed.
 2. Reload the device again and verify that the system is up with NetIron 6.3.00a1 or later releases.
 3. Configure the **fpga-mode-npb** command and save the configuration.
 4. Upgrade to the NetIron 6.3.00a1 or later NPB image using MLX_npb_06300a1_Manifest.txt and reload the device.
 5. Make sure BR-MLX-10Gx20 and BR-MLX-100Gx2-CFP2 have NPB XPP images.
 6. Verify the system. Check the output of the **show version** command and the **show flash** command to make sure the image versions are correct. Check the output of the **show module** command to make sure the line cards are not in Interactive state due to FPGA mismatch. Interactive state is an error state due to FPGA mismatch.

Show output examples

The following examples provide excerpts of the command output.

Output example for the show version command

```
NetIron MLX-8 Router#show version
System Mode: MLX
Chassis: MLXe 8-slot (Serial #: BGB2516H00Z, Part #: 40-1000362-03)
NI-X-HSF Switch Fabric Module 2 (Serial #: BEU0414H041, Part #: 60-1001588-14)
FE 1: Type fe600, Version 1
FE 3: Type fe600, Version 1
Switch Fabric Module 2 Up Time is 17 hours 6 minutes 48 seconds
=====
SL M1: BR-MLX-MR2-M Management Module Active (Serial #: BVP0431H004, Part #: 60-1002374-06):
Boot   : Version 5.9.0T165 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Mar 19 2015 at 03:16:46 labeled as xmpr05900
(521771 bytes) from boot flash
Monitor : Version 6.2.0T165 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Feb 11 2021 at 08:07:34 labeled as xmb06200
(547993 bytes) from code flash
IronWare : Version 6.3.0eT163 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Oct 29 2021 at 07:29:14 labeled as xmr06300e
```

(10706651 bytes) from Primary
Board ID : 00 MBRIDGE Revision : 37
1666 MHz Power PC processor 7448 (version 8004/0202) 166 MHz bus
512 KB Boot Flash (MX29LV040C), 128 MB Code Flash (MT28F256J3)
4096 MB DRAM INSTALLED
4096 MB DRAM ADDRESSABLE
Active Management uptime is 17 hours 6 minutes 48 seconds

=====
SL M2: BR-MLX-MR2-M Management Module Standby (Serial #: BVR2533K01J, Part #: 60-1002375-06):

Boot : Version 5.9.0T165 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Mar 19 2015 at 03:16:46 labeled as xmpr05900
(521771 bytes) from boot flash
Monitor : Version 6.2.0T165 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Feb 11 2021 at 08:07:34 labeled as xmb06200
(547993 bytes) from code flash
IronWare : Version 6.3.0eT163 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Oct 29 2021 at 07:29:14 labeled as xmr06300e

(10706651 bytes) from Primary
Board ID : 00 MBRIDGE Revision : 37
1666 MHz Power PC processor 7448 (version 8004/0202) 166 MHz bus
512 KB Boot Flash (MX29LV040C), 128 MB Code Flash (MT28F256J3)
4096 MB DRAM INSTALLED
4096 MB DRAM ADDRESSABLE
Standby Management uptime is 17 hours 6 minutes 0 seconds

=====
SL 1: BR-MLX-1Gx24-X 24-port 10/100/1000Base-T Copper Module (Serial #: BNA0440G018, Part #: 60-1001878-08)

License: MLX-1Gx24-X-Upgrade (LID: dpcFJFiFGN)
Boot : Version 5.6.0T175 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Sep 20 2013 at 16:43:00 labeled as xmlpr05600
(423373 bytes) from boot flash
Monitor : Version 6.2.0T175 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Feb 11 2021 at 08:11:50 labeled as xmlb06200
(574086 bytes) from code flash
IronWare : Version 6.3.0eT177 Copyright (c) 2017-2019 Extreme Networks, Inc.
Compiled on Oct 29 2021 at 07:40:12 labeled as xmlp06300e

(9588808 bytes) from Primary
FPGA versions:
Valid PBIF Version = 4.04, Build Time = 11/10/2014 22:10:00

Valid XPP Version = 1.03, Build Time = 6/30/2016 10:37:00

Valid STATS Version = 0.09, Build Time = 11/21/2010 14:52:00

BCM56512GMAC 0
BCM56512GMAC 1
666 MHz MPC MPC8541E (version 8020/0020) 333 MHz bus
512 KB Boot Flash (MX29LV040C), 16 MB Code Flash (MT28F128J3)

1024 MB DRAM, 8 KB SRAM
LP Slot 1 uptime is 17 hours 6 minutes 1 seconds

=====

All show version done

Output example for the show flash command

NetIron MLX-8 Router#show flash

~~~~~

Active Management Module (Left Slot)  
Code Flash - Type MT28F256J3, Size 128 MB

- o IronWare Image (Primary)  
Version 6.3.0eT163, Size 10706651 bytes, Check Sum 9ae6  
Compiled on Oct 29 2021 at 07:29:14 labeled as xmr06300e
- o LP Kernel Image (Monitor for LP Image Type 0)  
Version 6.2.0T175, Size 574086 bytes, Check Sum 57d3  
Compiled on Feb 11 2021 at 08:11:50 labeled as xmlb06200
- o LP IronWare Image (Primary for LP Image Type 0)  
Version 6.3.0eT177, Size 9588808 bytes, Check Sum 7126  
Compiled on Oct 29 2021 at 07:40:12 labeled as xmlp06300e
- o Monitor Image  
Version 6.2.0T165, Size 547993 bytes, Check Sum 1422  
Compiled on Feb 11 2021 at 08:07:34 labeled as xmb06200
- o Startup Configuration  
Size 488 bytes, Check Sum 9a9d  
Modified on 12:21:50 GMT+00 Wed Nov 10 2021

Boot Flash - Type MX29LV040C, Size 512 KB

- o Boot Image  
Version 5.9.0T165, Size 521771 bytes, Check Sum 4fb8  
Compiled on Mar 19 2015 at 03:16:46 labeled as xmprm05900

~~~~~

Standby Management Module (Right Slot)
Code Flash: Type MT28F256J3, Size 128 MB

- o IronWare Image (Primary)
Version 6.3.0eT163, Size 10706651 bytes, Check Sum 9ae6
Compiled on Oct 29 2021 at 07:29:14 labeled as xmr06300e
- o LP Kernel Image (Monitor for LP Image Type 0)
Version 6.2.0T175, Size 574086 bytes, Check Sum 57d3
Compiled on Feb 11 2021 at 08:11:50 labeled as xmlb06200
- o LP IronWare Image (Primary for LP Image Type 0)
Version 6.3.0eT177, Size 9588808 bytes, Check Sum 7126
Compiled on Oct 29 2021 at 07:40:12 labeled as xmlp06300e
- o Monitor Image
Version 6.2.0T165, Size 547993 bytes, Check Sum 1422
Compiled on Feb 11 2021 at 08:07:34 labeled as xmb06200
- o Startup Configuration
Size 488 bytes, Check Sum 9a9d
Modified on 12:21:51 GMT+00 Wed Nov 10 2021

Boot Flash: Type MX29LV040C, Size 512 KB
o Boot Image
Version 5.9.0T165, Size 521771 bytes, Check Sum 4fb8
Compiled on Mar 19 2015 at 03:16:46 labeled as xmprpm05900

Line Card Slot 1

Code Flash: Type MT28F128J3, Size 16 MB
o IronWare Image (Primary)
Version 6.3.0eT177, Size 9588808 bytes, Check Sum 7126
Compiled on Oct 29 2021 at 07:40:12 labeled as xmlp06300e
o Monitor Image
Version 6.2.0T175, Size 574086 bytes, Check Sum 57d3
Compiled on Feb 11 2021 at 08:11:50 labeled as xmlb06200

Boot Flash: Type MX29LV040C, Size 512 KB
o Boot Image
Version 5.6.0T175, Size 423373 bytes, Check Sum 4c2c
Compiled on Sep 20 2013 at 16:43:00 labeled as xmlprpm05600

FPGA Version (Stored In Flash):
PBIF Version = 4.04, Build Time = 11/10/2014 22:10:00

XPP Version = 1.03, Build Time = 6/30/2016 10:37:00

STATS Version = 0.09, Build Time = 11/21/2010 14:52:00

~~~~~  
All show flash done

**Output example for the show module command**

DUT-5#show module  
\*\*\* NetIron CER 2024C \*\*\*

| Module                                | Status        | Ports | Starting MAC   |
|---------------------------------------|---------------|-------|----------------|
| S1: 24x1G Copper Ports Virtual Module | CARD_STATE_UP | 24    | 748e.f862.2fc1 |

DUT-5#show version  
System: NetIron CER (Serial #: K00509H0GV, Part #: 40-1000617-01)  
License: ADV\_SVCS\_PREM (LID: mFFKFOjFix)  
Boot : Version 6.0.0T185 Copyright (c) 2017-2019 Extreme Networks, Inc.  
Compiled on Jun 7 2016 at 16:10:10 labeled as ceb06000  
(465568 bytes) from boot flash  
Monitor : Version 6.0.0T185 Copyright (c) 2017-2019 Extreme Networks, Inc.  
Compiled on Jun 7 2016 at 16:10:10 labeled as ceb06000  
(465568 bytes) from code flash  
IronWare : Version 6.3.0eT183 Copyright (c) 2017-2019 Extreme Networks, Inc.  
Compiled on Oct 29 2021 at 08:03:36 labeled as ce06300e  
(18578158 bytes) from Primary  
CPLD Version: 0x00000010  
Micro-Controller Version: 0x0000000d  
PBIF Version: 0x0162  
800 MHz Power PC processor 8544 (version 8021/0023) 400 MHz bus

512 KB Boot Flash (MX29LV040C), 64 MB Code Flash (MT28F256J3)  
2048 MB DRAM  
System uptime is 2 minutes 22 seconds

### **OpenFlow upgrade and downgrade**

When downgrading the system from NetIron 6.3.00a1 (and later releases) to NetIron 05.8.00, if there are any VRF interfaces which are enabled with OpenFlow, some unexpected IFL entries will be seen after moving to R05.8.00. These unexpected IFL entries may affect the L3VPN/6VPE traffic.

Extreme recommends removing OpenFlow from the VRF interfaces before downgrading the router to R05.8.00. For upgrade and migration considerations, refer to the latest version of the Extreme NetIron Software Upgrade Guide.

### **Hitless upgrade support**

Hitless upgrade is not supported from version 6.3.00a onwards

# Limitations and restrictions

## Important notes

Hitless upgrade is not supported from version 6.3.00a onwards.

Saving system information to flash

- This feature is not supported on Gen1 LPs.

Support for Management IP as snmp trap-source

- IPV6 support is not present currently for trap source addresses.

ACL/PBR co-existence with Openflow on same port

- PBR/ACL is not supported on L23 openflow hybrid port.
- L2 PBR/ACL is not supported on L3 openflow hybrid port.
- L3 PBR/ACL is not supported on L2 openflow hybrid port.
- L2 ACL Deny logging is not supported openflow hybrid port.

RADIUS Over Transport Layer Security (TLS)

- Dot1x accounting is not supported over RADSEC/TLS.

IPv6 ACL based rate limit for CES/CER

- ACL based rate limit is supported only on physical interface.

SCP based simplified upgrade

- This is not supported on CES/CER devices.
- This feature is supported on MR2 management modules.
- Feature is supported from 5.7 and above version.
- The signature verification is performed when the firmware version is 6.1.
- Verification supported only when pre-upgrade version on device is NetIron 6.1 and above.

OpenFlow group table

- The only action allowed in action bucket is output port.
- Each action bucket can have only one output port.
- Maximum of 8 buckets are allowed in an OpenFlow group with logical ports.
- Group types All, Indirect and Fast-Failover are not supported for logical port groups. Only SELECT group type will be supported.
- Bucket statistics is not supported.
- Group cannot have physical port and logical port in the buckets. Either physical ports or logical ports should be present.
- Modification of a group with all physical ports to all logical ports in the buckets and vice versa are not supported.
- Generic OpenFlow rule with action logical port group is not supported.
- This feature is not supported in CES/R.

- Logical port group along with actions other than L2VPN/L3VPN label in flow action are not supported.

#### VLAN modification in MPLS egress

- Pop VLAN action is limited to OpenFlow hybrid ports as output in action.
- In a dual tagged packet, only modification of outer VLAN is supported and addition/deletion of outer VLAN the inner VLAN modification/addition/deletion are not supported.

#### SCP checksum, firmware integrity

- The signature verification is not performed for copying LP application, monitor to specific slot using TFTP , Slot1/Slot2 and LP boot using from Slot1/Slot2

IPv6 ACL Scaling 4k Enhancement is supported only on XMR /MLX Series.

#### LDP interface transport address

- LDP interface transport address should not be enabled when there are multiple parallel adjacencies (interfaces) present between the LDP routers. If user wishes to enable this feature then they should remove the additional adjacencies. If a user enables this feature with multiple adjacencies to a peer then it is possible that the interface transport address may not be used and/or the session would be torn down due to role conflict.
- Pre-requisites: Enabling LDP interface transport address feature on the interface (adjacency) will cause any existing session to flap and come back up with interface IP address as transport address (only in cases where there is a single adjacency between the peers). This can be service impacting and something the user should be well aware of before executing the command.



# Defects

## TSBs—Critical issues to consider prior to installing this release

Technical Support Bulletins (TSBs) provide detailed information about high priority defects or issues present in a release. The following sections specify all current TSBs that have been identified as being a risk to or resolved with this specific release. Please review carefully and refer to the complete TSB for relevant issues prior to migrating to this version of code. TSBs can be found at <https://extremeportal.force.com/> (note that TSBs are generated for all Extreme platforms and products, so not all TSBs apply to this release).

### TSB issues resolved in NI 6.3.00e

| TSB  | Summary |
|------|---------|
| None |         |

### TSB issues outstanding in NI 6.3.00e

| TSB  | Summary |
|------|---------|
| None |         |

## Closed with code changes NI6.3.00d

This section lists software defects with Critical, High, and Medium Technical Severity closed with a code change as of June 2021 in NetIron OS 6.3.00d.

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                          |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|
| <b>Parent Defect ID:</b> | NI-8524                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Issue ID:</b>            | NI-10818                 |
| <b>Severity:</b>         | S2 - High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                          |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Reported in Release:</b> | NI 06.0.00a              |
| <b>Technology Group:</b> | MPLS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Technology:</b>          | MPLS Traffic Engineering |
| <b>Symptom:</b>          | Device may reload unexpectedly with the following stack trace:-<br>Possible Stack Trace (function call return address list)<br>2159f290: rrr_pkt_edit_rcv(pc)<br>2159f260: rrr_pkt_edit_rcv(lr)<br>21d1adf8: rsvp_pkt_process<br>21d19b48: rrr_rcv_rsvp_message<br>21d8da74: rrr_rcv_sck_data_msg2<br>21d8d7a8: rrr_rcv_sck_data_msg<br>21d8a970: rrip_sock_to_rsvp_proc<br>21dae0ac: rri_receive_proc<br>214a1a7c: nbb_dispatch_process<br>214a0eb8: nbb_schedule_one<br>214a1370: nbb_scheduler<br>214af9d4: nbb_spin_start<br>214a49d8: nbs_spin_start<br>216aef54: mpls_rsvp_recive_data_itc_callback<br>20b8fe8c: itc_process_msgs_internal<br>20b90338: itc_process_msgs<br>2170a434: mpls_task<br>00005e18: sys_end_task |                             |                          |
| <b>Condition:</b>        | On reception of Malformed MPLS RSVP Hello packet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                          |

|                          |                                                                                                                                         |                             |                           |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------|
| <b>Parent Defect ID:</b> | NI-21470                                                                                                                                | <b>Issue ID:</b>            | NI-21518                  |
| <b>Severity:</b>         | S3 - Medium                                                                                                                             |                             |                           |
| <b>Product:</b>          | NetIron OS                                                                                                                              | <b>Reported in Release:</b> | NI 06.0.00ha              |
| <b>Technology Group:</b> | Traffic Management                                                                                                                      | <b>Technology:</b>          | Rate Limiting and Shaping |
| <b>Symptom:</b>          | Class-id 0 Re-mapping value may get corrupted in rate-limit table                                                                       |                             |                           |
| <b>Condition:</b>        | It is observed rarely after making changes/rebinding when both global and interface rate-limits are configured concurrently on a system |                             |                           |

|                          |                               |                             |                                     |
|--------------------------|-------------------------------|-----------------------------|-------------------------------------|
| <b>Parent Defect ID:</b> | NI-17605                      | <b>Issue ID:</b>            | NI-21530                            |
| <b>Severity:</b>         | S3 - Medium                   |                             |                                     |
| <b>Product:</b>          | NetIron OS                    | <b>Reported in Release:</b> | NI 06.0.00f                         |
| <b>Technology Group:</b> | Layer 3 Routing/Network Layer | <b>Technology:</b>          | BGP4 - IPv4 Border Gateway Protocol |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Symptom:</b>   | Management Module may unexpectedly reload with the following stack trace:<br>Exception Type 0000 (Soft Check), bgp Timeout (30s)<br>0000f030: msr<br>00000000: dar<br>00000000: dsisr<br>225f9ac8: memset(pc)<br>20fe76ac: bgp_best_route_selection_with_sorting(lr)<br>20fe7fc4: bgp_best_route_selection_and_change<br>20fb8724: bgp_check_and_update_bgp_route_in_ip_ta<br>20ff7320: bgp_clear_dampened_paths<br>21009088: bgp_clear_dampening_itc_request_callbac<br>20ba3ac0: itc_process_msgs_internal<br>20ba3f6c: itc_process_msgs<br>210275d8: bgp_task<br>00005e18: sys_end_task |
| <b>Condition:</b> | It is observed rarely while clearing dampening routes using clear command like below:<br><br>clear ip bgp dampening                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                          |                                                                                                                  |                             |                 |
|--------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------|
| <b>Parent Defect ID:</b> | NI-21141                                                                                                         | <b>Issue ID:</b>            | NI-21537        |
| <b>Severity:</b>         | S2 - High                                                                                                        |                             |                 |
| <b>Product:</b>          | NetIron OS                                                                                                       | <b>Reported in Release:</b> | NI 06.0.00h     |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                              | <b>Technology:</b>          | IPv6 Addressing |
| <b>Symptom:</b>          | Connectivity loss may be observed in IPv6 network                                                                |                             |                 |
| <b>Condition:</b>        | It is observed rarely on a MCT/ VEOVPLS configured device with MCT spoke connection in between the cluster peers |                             |                 |

|                          |                                                                                                                                                                                                                                                                                                      |                             |                          |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|
| <b>Parent Defect ID:</b> | NI-21431                                                                                                                                                                                                                                                                                             | <b>Issue ID:</b>            | NI-21558                 |
| <b>Severity:</b>         | S2 - High                                                                                                                                                                                                                                                                                            |                             |                          |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                                                           | <b>Reported in Release:</b> | NI 05.8.00h              |
| <b>Technology Group:</b> | Traffic Management                                                                                                                                                                                                                                                                                   | <b>Technology:</b>          | QoS - Quality of Service |
| <b>Symptom:</b>          | Packet priority may not be retained for control traffic                                                                                                                                                                                                                                              |                             |                          |
| <b>Condition:</b>        | It is seen rarely on a MLX device, when the priority (TOS/DSCP) of the control traffic is modified at user level.<br><br>Note: A New CLI (disable-ppgxt-prioritization) has been introduced to override the default behavior thereby retaining the actual priority value of control packets/traffic. |                             |                          |

|                          |             |                             |             |
|--------------------------|-------------|-----------------------------|-------------|
| <b>Parent Defect ID:</b> | NI-21149    | <b>Issue ID:</b>            | NI-21573    |
| <b>Severity:</b>         | S3 - Medium |                             |             |
| <b>Product:</b>          | NetIron OS  | <b>Reported in Release:</b> | NI 06.0.00c |

|                          |                                                                                                                                          |                    |                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|
| <b>Technology Group:</b> | Security                                                                                                                                 | <b>Technology:</b> | TACACS & TACACS+ |
| <b>Symptom:</b>          | Sometimes SSH session may fail to login on specific vty                                                                                  |                    |                  |
| <b>Condition:</b>        | 1.AAA authentication, authorization and accounting configured<br>2.Frequent creation and termination of SSH sessions with CLI's executed |                    |                  |

|                          |                                                                                               |                             |                                          |
|--------------------------|-----------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------|
| <b>Parent Defect ID:</b> | NI-21442                                                                                      | <b>Issue ID:</b>            | NI-21585                                 |
| <b>Severity:</b>         | S3 - Medium                                                                                   |                             |                                          |
| <b>Product:</b>          | NetIron OS                                                                                    | <b>Reported in Release:</b> | NI 06.2.00                               |
| <b>Technology Group:</b> | MPLS                                                                                          | <b>Technology:</b>          | MPLS VPLS - Virtual Private LAN Services |
| <b>Symptom:</b>          | VPLS index in 'show mpls vpls local' does not match with index in 'show logging' log message. |                             |                                          |
| <b>Condition:</b>        | Multiple VPLS instances with multiple VPLS peers are configured.                              |                             |                                          |

|                          |                                                                                               |                             |                                     |
|--------------------------|-----------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------|
| <b>Parent Defect ID:</b> | NI-21588                                                                                      | <b>Issue ID:</b>            | NI-21589                            |
| <b>Severity:</b>         | S3 - Medium                                                                                   |                             |                                     |
| <b>Product:</b>          | NetIron OS                                                                                    | <b>Reported in Release:</b> | NI 06.0.00ha                        |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                           | <b>Technology:</b>          | BGP4 - IPv4 Border Gateway Protocol |
| <b>Symptom:</b>          | BGP route updates may get stuck in ToSend queue                                               |                             |                                     |
| <b>Condition:</b>        | 1.Routes with a large amount of attributes set<br>2.Update message length more than 1400bytes |                             |                                     |

|                          |                                         |                             |                                       |
|--------------------------|-----------------------------------------|-----------------------------|---------------------------------------|
| <b>Parent Defect ID:</b> | NI-21631                                | <b>Issue ID:</b>            | NI-21632                              |
| <b>Severity:</b>         | S2 - High                               |                             |                                       |
| <b>Product:</b>          | NetIron OS                              | <b>Reported in Release:</b> | NI 06.0.00jc                          |
| <b>Technology Group:</b> | Monitoring                              | <b>Technology:</b>          | OAM - Operations, Admin & Maintenance |
| <b>Symptom:</b>          | 100G Links may observe sub second flaps |                             |                                       |
| <b>Condition:</b>        | Presence of Rev 2 CFP2 ER4 optic        |                             |                                       |

|                          |                                                                                                                                                                                                                                                                                 |                             |                                 |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------|
| <b>Parent Defect ID:</b> | NI-21641                                                                                                                                                                                                                                                                        | <b>Issue ID:</b>            | NI-21643                        |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                                                                                     |                             |                                 |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                                      | <b>Reported in Release:</b> | NI 06.2.00e                     |
| <b>Technology Group:</b> | Traffic Management                                                                                                                                                                                                                                                              | <b>Technology:</b>          | Traffic Queueing and Scheduling |
| <b>Symptom:</b>          | Packet drops seen before the TM-NIF errors reach the configured limit are not logged.                                                                                                                                                                                           |                             |                                 |
| <b>Condition:</b>        | Generally, there is a TM-NIF link monitoring every 1 min and if the errors reach configured limit there is a default action like shutdown the ports etc, but if before reaching the limit if there are drops, now addressed by a new action of snmp traps through this feature. |                             |                                 |

|                          |          |                  |          |
|--------------------------|----------|------------------|----------|
| <b>Parent Defect ID:</b> | NI-21674 | <b>Issue ID:</b> | NI-21675 |
|--------------------------|----------|------------------|----------|

|                          |                                                                                                                                                      |                             |                                        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------|
| <b>Severity:</b>         | S3 - Medium                                                                                                                                          |                             |                                        |
| <b>Product:</b>          | NetIron OS                                                                                                                                           | <b>Reported in Release:</b> | NI 06.0.00ha                           |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                                                                  | <b>Technology:</b>          | BGP4 - IPv4 Border<br>Gateway Protocol |
| <b>Symptom:</b>          | Rate Limit causing BGP session timing out                                                                                                            |                             |                                        |
| <b>Condition:</b>        | When 'ip rate-limit ttl-exceeded-to-cpu' and 'ipv6 rate-limit hoplimit-expired-to-cpu' are configured globally, it causes their BGP sessions to flap |                             |                                        |

|                          |                                                      |                             |                                             |
|--------------------------|------------------------------------------------------|-----------------------------|---------------------------------------------|
| <b>Parent Defect ID:</b> | NI-21712                                             | <b>Issue ID:</b>            | NI-21712                                    |
| <b>Severity:</b>         | S3 - Medium                                          |                             |                                             |
| <b>Product:</b>          | NetIron OS                                           | <b>Reported in Release:</b> | NI 06.0.00ha                                |
| <b>Technology Group:</b> | Monitoring                                           | <b>Technology:</b>          | OAM - Operations,<br>Admin &<br>Maintenance |
| <b>Symptom:</b>          | Port may not come up on 2x100G CFP2 Line card module |                             |                                             |
| <b>Condition:</b>        | In the presence of Finisar 100GE QSFP28-LR4 optic    |                             |                                             |

|                          |                                                                                                                                                                                                                 |                             |                                        |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------|
| <b>Parent Defect ID:</b> | NI-21756                                                                                                                                                                                                        | <b>Issue ID:</b>            | NI-21756                               |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                     |                             |                                        |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                      | <b>Reported in Release:</b> | NI 06.3.00a                            |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                                                                                                                             | <b>Technology:</b>          | BGP4 - IPv4 Border<br>Gateway Protocol |
| <b>Symptom:</b>          | default-originate command applied on the neighbor doesn't originate the default route to the neighbor                                                                                                           |                             |                                        |
| <b>Condition:</b>        | <ol style="list-style-type: none"> <li>1. BGP is configured on the router</li> <li>2. neighbor is configured with default-originate command with route-map</li> <li>3. The NULL route-map is applied</li> </ol> |                             |                                        |

|                          |                                                                                                                                            |                             |                                             |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------|
| <b>Parent Defect ID:</b> | NI-9765                                                                                                                                    | <b>Issue ID:</b>            | NI-21813                                    |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                |                             |                                             |
| <b>Product:</b>          | NetIron OS                                                                                                                                 | <b>Reported in Release:</b> | NI 06.0.00f                                 |
| <b>Technology Group:</b> | Monitoring                                                                                                                                 | <b>Technology:</b>          | OAM - Operations,<br>Admin &<br>Maintenance |
| <b>Symptom:</b>          | Link may stay down for 2x100G CFP2 Line card                                                                                               |                             |                                             |
| <b>Condition:</b>        | <p>In the presence of third party LR4 range of optics</p> <p>Note: Enabling 'fec' in CLI will now be allowed for LR4 to fix this issue</p> |                             |                                             |

|                          |             |                             |             |
|--------------------------|-------------|-----------------------------|-------------|
| <b>Parent Defect ID:</b> | NI-21803    | <b>Issue ID:</b>            | NI-21817    |
| <b>Severity:</b>         | S3 - Medium |                             |             |
| <b>Product:</b>          | NetIron OS  | <b>Reported in Release:</b> | NI 06.2.00d |

|                          |                                                                                                                                                                                                                                                                                                                 |                    |                              |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------|
| <b>Technology Group:</b> | Management                                                                                                                                                                                                                                                                                                      | <b>Technology:</b> | CLI - Command Line Interface |
| <b>Symptom:</b>          | CER/CES may reload unexpectedly with the following stack trace:-<br>Possible Stack Trace (function call return address list)<br>000c454c: tsec_mib_dump(pc)<br>000c4544: tsec_mib_dump(lr)<br>000c4e5c: tsec_show_cmd<br>0007b730: parser<br>0007c654: cmdloop<br>000468ec: root_task<br>00040158: sys_end_task |                    |                              |
| <b>Condition:</b>        | On execution of 'tsec 1 show' cli command from OS mode                                                                                                                                                                                                                                                          |                    |                              |

|                          |                                                                                                                                                                                                                         |                             |                                       |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------|
| <b>Parent Defect ID:</b> | NI-21825                                                                                                                                                                                                                | <b>Issue ID:</b>            | NI-21825                              |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                             |                             |                                       |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                              | <b>Reported in Release:</b> | NI 06.2.00e                           |
| <b>Technology Group:</b> | Monitoring                                                                                                                                                                                                              | <b>Technology:</b>          | OAM - Operations, Admin & Maintenance |
| <b>Symptom:</b>          | Latency/loss of frames are observed for Y.1731 (dot1ag) traffic.                                                                                                                                                        |                             |                                       |
| <b>Condition:</b>        | 1)MCT is configured with member VLAN's.<br>2)Dot1ag-transparent is configured and either LP power-cycle, LP reset or reload of the chassis is performed.<br>3)802.1ag frames are transmitted with different priorities. |                             |                                       |

|                          |                                                                                                                                        |                             |                                   |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------|
| <b>Parent Defect ID:</b> | NI-21841                                                                                                                               | <b>Issue ID:</b>            | NI-21841                          |
| <b>Severity:</b>         | S3 - Medium                                                                                                                            |                             |                                   |
| <b>Product:</b>          | NetIron OS                                                                                                                             | <b>Reported in Release:</b> | NI 06.0.00j                       |
| <b>Technology Group:</b> | Layer 3 Routing/Network Layer                                                                                                          | <b>Technology:</b>          | ARP - Address Resolution Protocol |
| <b>Symptom:</b>          | After reload, ARP-Guard is applied to non-configured ports                                                                             |                             |                                   |
| <b>Condition:</b>        | 1. system has 100G card inserted in any slot<br>2. LAG is configured and applied ARP-Guard on the primary port<br>3. reload the system |                             |                                   |

|                          |                                                                 |                             |                                           |
|--------------------------|-----------------------------------------------------------------|-----------------------------|-------------------------------------------|
| <b>Parent Defect ID:</b> | NI-21784                                                        | <b>Issue ID:</b>            | NI-21846                                  |
| <b>Severity:</b>         | S3 - Medium                                                     |                             |                                           |
| <b>Product:</b>          | NetIron OS                                                      | <b>Reported in Release:</b> | NI 06.2.00d                               |
| <b>Technology Group:</b> | Management                                                      | <b>Technology:</b>          | SNMP - Simple Network Management Protocol |
| <b>Symptom:</b>          | SNMP bulk may not get proper value for optical monitoring table |                             |                                           |
| <b>Condition:</b>        | SNMP bulk get for the same slot<br><br>Example :-               |                             |                                           |

|  |                                                                                                                                                   |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------|
|  | snmpget -v 2c -c public 10.26.143.246<br>.1.3.6.1.4.1.1991.1.1.3.3.6.1.1.1 .1.3.6.1.4.1.1991.1.1.3.3.6.1.2.1<br>.1.3.6.1.4.1.1991.1.1.3.3.6.1.3.1 |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------|

|                          |                                                                                                                  |                             |                             |
|--------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------|
| <b>Parent Defect ID:</b> | NI-21847                                                                                                         | <b>Issue ID:</b>            | NI-21847                    |
| <b>Severity:</b>         | S3 - Medium                                                                                                      |                             |                             |
| <b>Product:</b>          | NetIron OS                                                                                                       | <b>Reported in Release:</b> | NI 06.0.00je                |
| <b>Technology Group:</b> | Management                                                                                                       | <b>Technology:</b>          | NTP - Network Time Protocol |
| <b>Symptom:</b>          | NTP symmetric passive association messages are seen in the log file without specifically configured for a server |                             |                             |
| <b>Condition:</b>        | Router listening on all IP's when NTP is disabled                                                                |                             |                             |

|                          |                                                                                                                                                       |                             |                                     |
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| <b>Parent Defect ID:</b> | NI-21752                                                                                                                                              | <b>Issue ID:</b>            | NI-21851                            |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                           |                             |                                     |
| <b>Product:</b>          | NetIron OS                                                                                                                                            | <b>Reported in Release:</b> | NI 06.0.00g                         |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                                                                   | <b>Technology:</b>          | BGP4 - IPv4 Border Gateway Protocol |
| <b>Symptom:</b>          | Some prefix in RTM is not updated with change in BGP route table                                                                                      |                             |                                     |
| <b>Condition:</b>        | When BGP maximum-path has been configured, routing table still show old multipath routes even though BGP table has been updated with new route paths. |                             |                                     |

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| <b>Parent Defect ID:</b> | NI-21809                                                                                                         | <b>Issue ID:</b>            | NI-21852                             |
| <b>Severity:</b>         | S2 - High                                                                                                        |                             |                                      |
| <b>Product:</b>          | NetIron OS                                                                                                       | <b>Reported in Release:</b> | NI 06.0.00f                          |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                              | <b>Technology:</b>          | OSPF - IPv4 Open Shortest Path First |
| <b>Symptom:</b>          | redistribute route learned through Type-7 LSA in NSSA area is not installed in the routing table                 |                             |                                      |
| <b>Condition:</b>        | 1. Two ABR exists in an NSSA area<br>2. static route is configured and advertised by ASBR through redistribution |                             |                                      |

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| <b>Parent Defect ID:</b> | NI-21855                                                  | <b>Issue ID:</b>            | NI-21855        |
| <b>Severity:</b>         | S2 - High                                                 |                             |                 |
| <b>Product:</b>          | NetIron OS                                                | <b>Reported in Release:</b> | NI 06.2.00ec    |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                       | <b>Technology:</b>          | IPv6 Addressing |
| <b>Symptom:</b>          | Intermittent packet loss may be observed for IPv6 network |                             |                 |
| <b>Condition:</b>        | It is observed rarely on a VEOVPLS configured device      |                             |                 |

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| <b>Parent Defect ID:</b> | NI-21857 | <b>Issue ID:</b> | NI-21857 |
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| <b>Severity:</b>         | S3 - Medium                                             |                             |                     |
| <b>Product:</b>          | NetIron OS                                              | <b>Reported in Release:</b> | NI 06.3.00a         |
| <b>Technology Group:</b> | Security                                                | <b>Technology:</b>          | IPsec - IP Security |
| <b>Symptom:</b>          | IPSEC tunnels dropped and did not recover               |                             |                     |
| <b>Condition:</b>        | When LP was reloaded which has IPSEC tunnels configured |                             |                     |

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| <b>Parent Defect ID:</b> | NI-21875                                                                                                                              | <b>Issue ID:</b>            | NI-21875                                            |
| <b>Severity:</b>         | S3 - Medium                                                                                                                           |                             |                                                     |
| <b>Product:</b>          | NetIron OS                                                                                                                            | <b>Reported in Release:</b> | NI 06.0.00f                                         |
| <b>Technology Group:</b> | Security                                                                                                                              | <b>Technology:</b>          | AAA - Authentication, Authorization, and Accounting |
| <b>Symptom:</b>          | May observe below error messages during AAA accounting:-<br>NOTE: AAA stopped paste as an invalid command is seen in the current mode |                             |                                                     |
| <b>Condition:</b>        | Configuring Ipv6 prefix list with prefix length more than 32<br><br>Example :-<br><br>ipv6 prefix-list test2 deny ::/0 le 33          |                             |                                                     |

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| <b>Parent Defect ID:</b> | NI-21877                                                                                                                                                                            | <b>Issue ID:</b>            | NI-21877                              |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                         |                             |                                       |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                          | <b>Reported in Release:</b> | NI 06.0.00j                           |
| <b>Technology Group:</b> | Monitoring                                                                                                                                                                          | <b>Technology:</b>          | OAM - Operations, Admin & Maintenance |
| <b>Symptom:</b>          | Link-OAM causing interface flap when another LP is power-cycled                                                                                                                     |                             |                                       |
| <b>Condition:</b>        | 1. Link-oam command is configured globally attaching ports from any specific LP for which timeout command should be configured less than 2 secs<br>2. Unrelated LP is power-cycled. |                             |                                       |

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| <b>Parent Defect ID:</b> | NI-21880                                                                                                                                                                                                                                                                                        | <b>Issue ID:</b>            | NI-21880                            |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                                                                                                     |                             |                                     |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                                                      | <b>Reported in Release:</b> | NI 06.2.00                          |
| <b>Technology Group:</b> | Layer 3 Routing/Network Layer                                                                                                                                                                                                                                                                   | <b>Technology:</b>          | GRE - Generic Routing Encapsulation |
| <b>Symptom:</b>          | Elevated CPU and Traffic Volume Due to GRE Configuration                                                                                                                                                                                                                                        |                             |                                     |
| <b>Condition:</b>        | 1. Two loopbacks (loopback system) are configured on the ingress physical port and another loopback configured on another physical port with PBR configuration.<br>2. On LB1, the nexthop is set as a specific vlan with out-going DA MAC<br>3. On LB2, next-hop-ip-tunnel is set to GRE tunnel |                             |                                     |

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| <b>Parent Defect ID:</b> | NI-17554 | <b>Issue ID:</b> | NI-21883 |
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| <b>Severity:</b>         | S3 - Medium                                                                       |                             |             |
| <b>Product:</b>          | NetIron OS                                                                        | <b>Reported in Release:</b> | NI 06.0.00g |
| <b>Technology Group:</b> | Monitoring                                                                        | <b>Technology:</b>          | Syslog      |
| <b>Symptom:</b>          | Latched Low, High Optical Monitoring Messages are observed in syslog periodically |                             |             |
| <b>Condition:</b>        | Even though values are normal from "show optic" command values                    |                             |             |

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| <b>Parent Defect ID:</b> | NI-21904                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Issue ID:</b>            | NI-21904        |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                 |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Reported in Release:</b> | NI 06.2.00e     |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Technology:</b>          | IPv6 Addressing |
| <b>Symptom:</b>          | Management Module may unexpectedly reload with the following stack trace:-<br>220e0e34: vpls_mac_find_entry_by_vpls_idx(pc)<br>2126937c: nd6_process_neighbor_advert_message(lr)<br>2126937c: nd6_process_neighbor_advert_message<br>2123a254: icmp6_packet_received<br>212634ec: ip6_pass_packet_to_upper_layer<br>21262dec: ip6_packet_received<br>20f64614: l3_receive_packet<br>20f6508c: sw_receive_packet<br>20f65508: mp_rx_main<br>00005e18: sys_end_task |                             |                 |
| <b>Condition:</b>        | It is observed rarely on a MLX/XMR device, with VEoVPLS configured                                                                                                                                                                                                                                                                                                                                                                                                |                             |                 |

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| <b>Parent Defect ID:</b> | NI-21907                                                                       | <b>Issue ID:</b>            | NI-21907                             |
| <b>Severity:</b>         | S2 - High                                                                      |                             |                                      |
| <b>Product:</b>          | NetIron OS                                                                     | <b>Reported in Release:</b> | NI 06.2.00b                          |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                            | <b>Technology:</b>          | OSPF - IPv4 Open Shortest Path First |
| <b>Symptom:</b>          | OSPF task may utilize around 31% of Management Module CPU                      |                             |                                      |
| <b>Condition:</b>        | On reception of larger LSA packet in the presence of standby Management Module |                             |                                      |

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| <b>Parent Defect ID:</b> | NI-21937                                                                                                                                              | <b>Issue ID:</b>            | NI-21937                            |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                           |                             |                                     |
| <b>Product:</b>          | NetIron OS                                                                                                                                            | <b>Reported in Release:</b> | NI 06.0.00jf                        |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                                                                   | <b>Technology:</b>          | BGP4 - IPv4 Border Gateway Protocol |
| <b>Symptom:</b>          | Some prefix in RTM is not updated with change in BGP route table                                                                                      |                             |                                     |
| <b>Condition:</b>        | When BGP maximum-path has been configured, routing table still show old multipath routes even though BGP table has been updated with new route paths. |                             |                                     |

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| <b>Parent Defect ID:</b> | NI-21198                                                                                                                                                                                                                                                                                                                                      | <b>Issue ID:</b>            | NI-21987                             |
| <b>Severity:</b>         | S2 - High                                                                                                                                                                                                                                                                                                                                     |                             |                                      |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                                                                                                    | <b>Reported in Release:</b> | NI 06.0.00                           |
| <b>Technology Group:</b> | IP Multicast                                                                                                                                                                                                                                                                                                                                  | <b>Technology:</b>          | PIM - Protocol-Independent Multicast |
| <b>Symptom:</b>          | Multicast video stream is not received on viewing stations in a SPT switchover environment                                                                                                                                                                                                                                                    |                             |                                      |
| <b>Condition:</b>        | <ol style="list-style-type: none"> <li>1. CER/MLX device is immediately connected to the source directly</li> <li>2. SLX device is connected as FHR running IGMP on one side and PIM on the other side towards the CER/MLX devices.</li> <li>3. All source/CER/SLX are in the same VLAN and the receivers are on a different VLANs</li> </ol> |                             |                                      |

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| <b>Parent Defect ID:</b> | NI-21996                                                                                                                                     | <b>Issue ID:</b>            | NI-21996                                  |
| <b>Severity:</b>         | S2 - High                                                                                                                                    |                             |                                           |
| <b>Product:</b>          | NetIron OS                                                                                                                                   | <b>Reported in Release:</b> | NI 06.0.00h                               |
| <b>Technology Group:</b> | Management                                                                                                                                   | <b>Technology:</b>          | SNMP - Simple Network Management Protocol |
| <b>Symptom:</b>          | Optic value shows up in cli output but shows not supported in SNMP client                                                                    |                             |                                           |
| <b>Condition:</b>        | 100G or 40G LP card is inserted in any of the slot and SNMP walk or get/get-next operation performed for the object optical lane monitoring. |                             |                                           |

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| <b>Parent Defect ID:</b> | NI-22003                                                                                            | <b>Issue ID:</b>            | NI-22003   |
| <b>Severity:</b>         | S3 - Medium                                                                                         |                             |            |
| <b>Product:</b>          | NetIron OS                                                                                          | <b>Reported in Release:</b> | NI 06.3.00 |
| <b>Technology Group:</b> | Layer 3 Routing/Network Layer                                                                       | <b>Technology:</b>          | Multi-VRF  |
| <b>Symptom:</b>          | In-label information was not seen when sh ip bgp vpnv4 tag command was issued.                      |                             |            |
| <b>Condition:</b>        | In-label for all VRFs were not seen when the label going to upstream BGP peer for incoming traffic. |                             |            |

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| <b>Parent Defect ID:</b> | NI-9412    | <b>Issue ID:</b>            | NI-22016                                  |
| <b>Severity:</b>         | S2 - High  |                             |                                           |
| <b>Product:</b>          | NetIron OS | <b>Reported in Release:</b> | NI 05.8.00fb                              |
| <b>Technology Group:</b> | Management | <b>Technology:</b>          | SNMP - Simple Network Management Protocol |

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| <b>Symptom:</b>   | The maximum response time for SNMP polling may go around 300msec |
| <b>Condition:</b> | SNMP walk for snIfOpticalMonitoringInfoTable                     |

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| <b>Parent Defect ID:</b> | NI-17641                                                                                                                                                                                                                                                         | <b>Issue ID:</b>            | NI-22019                                 |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                                                                      |                             |                                          |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                       | <b>Reported in Release:</b> | NI 06.2.00ca                             |
| <b>Technology Group:</b> | MPLS                                                                                                                                                                                                                                                             | <b>Technology:</b>          | MPLS VPLS - Virtual Private LAN Services |
| <b>Symptom:</b>          | With VPLS "rate-limit input unknown-unicast", "show rate-limit counters" can show 0 drops                                                                                                                                                                        |                             |                                          |
| <b>Condition:</b>        | <ol style="list-style-type: none"> <li>1. VPLS is configured with the command "rate-limit input unknown-unicast" under the vpls instance</li> <li>2. various traffic patterns is passed over this instance and this traffic is stopped for 30 seconds</li> </ol> |                             |                                          |

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| <b>Parent Defect ID:</b> | NI-21172                                                                                                                                  | <b>Issue ID:</b>            | NI-22031                                            |
| <b>Severity:</b>         | S3 - Medium                                                                                                                               |                             |                                                     |
| <b>Product:</b>          | NetIron OS                                                                                                                                | <b>Reported in Release:</b> | NI 06.0.00h                                         |
| <b>Technology Group:</b> | Monitoring                                                                                                                                | <b>Technology:</b>          | RAS - Reliability, Availability, and Serviceability |
| <b>Symptom:</b>          | Port may go down on 4x10G line card module                                                                                                |                             |                                                     |
| <b>Condition:</b>        | Presence of non-brocade TWINAX SFPP optic<br><br>Note: "phy disable-equalization" will be allowed for 4x10G as well in addition to 8x10G. |                             |                                                     |

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| <b>Parent Defect ID:</b> | NI-17614                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Issue ID:</b>            | NI-22033                            |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                                     |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Reported in Release:</b> | NI 06.0.00f                         |
| <b>Technology Group:</b> | Layer 3 Routing/Network Layer                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Technology:</b>          | BGP4 - IPv4 Border Gateway Protocol |
| <b>Symptom:</b>          | Active Management Module may reload with the following stack trace:-<br>Possible Stack Trace (function call return address list)<br>20f76924: bgp_check_for_fwd_address(pc)<br>20fb9534:<br>bgp_check_and_update_bgp_route_in_ip_table_as_necessary(lr)<br>20fb9534:<br>bgp_check_and_update_bgp_route_in_ip_table_as_necessary<br>20ff447c: bgp_route_damping_timer_event<br>20fd7478: bgp_timer<br>20fd2a68: bgp_timeout_func |                             |                                     |

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|                   | 20ba3ac0: itc_process_msgs_internal<br>20ba3f6c: itc_process_msgs<br>210275d8: bgp_task<br>00005e18: sys_end_task |
| <b>Condition:</b> | Frequent route flap and route churn with BGP dampening configured on the device                                   |

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| <b>Parent Defect ID:</b> | NI-14763                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Issue ID:</b>            | NI-22043                               |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                                        |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Reported in Release:</b> | NI 06.0.00f                            |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                                                                                                                                                                                                                                                                                                                          | <b>Technology:</b>          | BGP4 - IPv4 Border<br>Gateway Protocol |
| <b>Symptom:</b>          | Management Module may unexpectedly reload with the following stack trace:-<br>20ff5f58: bgp_print_flap_statistics_entry(pc)<br>20ff5f54: bgp_print_flap_statistics_entry(lr)<br>20ff6414: bgp_get_flap_statistics_page_itc_handler<br>2100b2c0: bgp_show_dampening_itc_request_callback<br>20ba3ac0: itc_process_msgs_internal<br>20ba3f6c: itc_process_msgs<br>210275d8: bgp_task<br>00005e18: sys_end_task |                             |                                        |
| <b>Condition:</b>        | It is observed rarely on a MLX/XMR device when,<br>1. "show ip bgp flap-statistics" is executed<br>2. Dampening events also occurs in parallel                                                                                                                                                                                                                                                               |                             |                                        |

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| <b>Parent Defect ID:</b> | NI-17369                                                                                                                                                                | <b>Issue ID:</b>            | NI-22044              |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                             |                             |                       |
| <b>Product:</b>          | NetIron OS                                                                                                                                                              | <b>Reported in Release:</b> | NI 05.8.00d           |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                                                                                     | <b>Technology:</b>          | Static Routing (IPv4) |
| <b>Symptom:</b>          | Unstable routes with continuous route updation observed in the MLX under specific condition                                                                             |                             |                       |
| <b>Condition:</b>        | When static route configured with next-hop-vrf as non-default VRF<br>Ex:<br>vrf vrf0X<br>rd a:b<br>address-family ipv4<br>ip route x.x.x.x/y next-hop-vrf vrf0Y z.z.z.z |                             |                       |

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| <b>Parent Defect ID:</b> | NI-17440           | <b>Issue ID:</b>            | NI-22046                     |
| <b>Severity:</b>         | S3 - Medium        |                             |                              |
| <b>Product:</b>          | NetIron OS         | <b>Reported in Release:</b> | NI 06.0.00c                  |
| <b>Technology Group:</b> | Traffic Management | <b>Technology:</b>          | Rate Limiting and<br>Shaping |

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| <b>Symptom:</b>   | High LP CPU may be observed on 20x10G and 2x100G CFP2 Line card module                            |
| <b>Condition:</b> | 1. Configure policy-map and apply ARP rate-limit globally<br>2. Received ARP traffic at high rate |

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| <b>Parent Defect ID:</b> | NI-22050                                                | <b>Issue ID:</b>            | NI-22050            |
| <b>Severity:</b>         | S2 - High                                               |                             |                     |
| <b>Product:</b>          | NetIron OS                                              | <b>Reported in Release:</b> | NI 06.2.00e         |
| <b>Technology Group:</b> | Security                                                | <b>Technology:</b>          | IPsec - IP Security |
| <b>Symptom:</b>          | IPSEC tunnels dropped and did not recover               |                             |                     |
| <b>Condition:</b>        | When LP was reloaded which has IPSEC tunnels configured |                             |                     |

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| <b>Parent Defect ID:</b> | NI-22053                                                                          | <b>Issue ID:</b>            | NI-22053    |
| <b>Severity:</b>         | S3 - Medium                                                                       |                             |             |
| <b>Product:</b>          | NetIron OS                                                                        | <b>Reported in Release:</b> | NI 06.2.00f |
| <b>Technology Group:</b> | Monitoring                                                                        | <b>Technology:</b>          | Sysmon      |
| <b>Symptom:</b>          | Latched Low, High Optical Monitoring Messages are observed in syslog periodically |                             |             |
| <b>Condition:</b>        | When False threshold alarms are raised                                            |                             |             |

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| <b>Parent Defect ID:</b> | NI-22066                                                                                                                                                                                                                                    | <b>Issue ID:</b>            | NI-22066                                         |
| <b>Severity:</b>         | S3 - Medium                                                                                                                                                                                                                                 |                             |                                                  |
| <b>Product:</b>          | NetIron OS                                                                                                                                                                                                                                  | <b>Reported in Release:</b> | NI 06.2.00d                                      |
| <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer                                                                                                                                                                                                         | <b>Technology:</b>          | DHCP - Dynamic Host<br>Configuration<br>Protocol |
| <b>Symptom:</b>          | DHCPv6 server RELAY replies are dropped after gateway due to nested DHCP headers are not properly handled by MLX                                                                                                                            |                             |                                                  |
| <b>Condition:</b>        | 1. There are atleast 2 intermediary dhcp relay-agents between dhcp client and server.<br>2. MLX is acting as relay-agent adjacent to DHCP server<br>3. client has LDRA configured and carries the corresponding options in the DHCP packet. |                             |                                                  |

## Closed with code changes NI6.3.00c

This section lists software defects with Critical, High, and Medium Technical Severity closed with a code change as of March 2020 in NetIron OS 6.3.00c.

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| <b>Parent Defect ID:</b>    | NI-14753    | <b>Issue ID:</b>         | NI-17685                               |
| <b>Severity:</b>            | S2 - High   |                          |                                        |
| <b>Product:</b>             | NetIron OS  | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer    |
| <b>Reported in Release:</b> | NI 05.8.00f | <b>Technology:</b>       | BGP4 - IPv4 Border<br>Gateway Protocol |

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| <b>Symptom:</b>   | MLX may send BGP update message with empty AS-SET Path attribute to BGP peer. The update messages would be dropped by peer due to incorrect or empty AS-SET path information. |
| <b>Condition:</b> | 1. When BGP neighbor is configured with "remove-private-as" command on MLX device<br>2. Private AS number is exist/connected in network                                       |

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| <b>Parent Defect ID:</b>    | NI-9350                                                                                                                                                                                                                    | <b>Issue ID:</b>         | NI-21189                                |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                |                          |                                         |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                 | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer     |
| <b>Reported in Release:</b> | NI 05.8.00g                                                                                                                                                                                                                | <b>Technology:</b>       | OSPF - IPv4 Open<br>Shortest Path First |
| <b>Symptom:</b>             | OSPF neighbors may show all ECMP paths after upgraded MLXe fails setting a forwarding address in AS External LSA.                                                                                                          |                          |                                         |
| <b>Condition:</b>           | It is rarely observed with the following steps:-(1) OSPFv2 is enabled on the device(2) static routes are configured with gateway, which is reachable and redistributed into OSPFv2(3) Repeated image upgrade and downgrade |                          |                                         |
| <b>Workaround:</b>          | NA                                                                                                                                                                                                                         |                          |                                         |

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| <b>Parent Defect ID:</b>    | NI-21238                                                               | <b>Issue ID:</b>         | NI-21306                            |
| <b>Severity:</b>            | S3 - Medium                                                            |                          |                                     |
| <b>Product:</b>             | NetIron OS                                                             | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer |
| <b>Reported in Release:</b> | NI 06.3.00b                                                            | <b>Technology:</b>       | Static Routing (IPv4)               |
| <b>Symptom:</b>             | Traffic may be forwarded by Line card CPU causing high CPU utilization |                          |                                     |
| <b>Condition:</b>           | Port is removed from GTP profile with PBR configured                   |                          |                                     |
| <b>Workaround:</b>          | Re-binding the IP/IPV6 PBR on the interface                            |                          |                                     |

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| <b>Parent Defect ID:</b>    | NI-21231                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Issue ID:</b>         | NI-21347                            |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |                                     |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer |
| <b>Reported in Release:</b> | NI 06.2.00a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Technology:</b>       | IPv6 Addressing                     |
| <b>Symptom:</b>             | Line card may reload with the following stack trace :-<br>Possible Stack Trace (function call return address list)<br>21685920: memset(pc)<br>20c09860: generic_get_mem_from_pool(lr)<br>20fcd940: ip6_get_free_cache_entry<br>20faf9fc: ip6_process_route_loookup<br>20faa738: ipv6_fwd_unicast_packet<br>20fac984: ipv6_packet_receive<br>20f350e0: rx_pkt_processing<br>20d8b720: lp_pkt_receive<br>20a1deb4: ppcr_recieve_packet<br>207f3360: lp_pbif_packet_task<br>00040158: sys_end_task |                          |                                     |
| <b>Condition:</b>           | Processing large number of ICMPv6 echo request packets for unknown destination hosts with 'ipv6 max-host-drop-cam' configured                                                                                                                                                                                                                                                                                                                                                                   |                          |                                     |
| <b>Workaround:</b>          | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                                     |

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| <b>Parent Defect ID:</b>    | NI-21312                                                                        | <b>Issue ID:</b>         | NI-21359                                |
| <b>Severity:</b>            | S3 - Medium                                                                     |                          |                                         |
| <b>Product:</b>             | NetIron OS                                                                      | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer     |
| <b>Reported in Release:</b> | NI 05.8.00f                                                                     | <b>Technology:</b>       | OSPF - IPv4 Open<br>Shortest Path First |
| <b>Symptom:</b>             | Router ID may not displayed correctly in 'show ip ospf' config output           |                          |                                         |
| <b>Condition:</b>           | 1. OSPF is configured on the device<br>2. router-id is configured on a loopback |                          |                                         |

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| <b>Parent Defect ID:</b>    | NI-21371                                                                                                                        | <b>Issue ID:</b>         | NI-21385                                    |
| <b>Severity:</b>            | S3 - Medium                                                                                                                     |                          |                                             |
| <b>Product:</b>             | NetIron OS                                                                                                                      | <b>Technology Group:</b> | Monitoring                                  |
| <b>Reported in Release:</b> | NI 06.3.00b                                                                                                                     | <b>Technology:</b>       | OAM - Operations,<br>Admin &<br>Maintenance |
| <b>Symptom:</b>             | Port may not go down on 2x100G CFP2 Line card module                                                                            |                          |                                             |
| <b>Condition:</b>           | When "loopback system" configuration is removed from an interface having QSFP28-SR4 optic installed with no physical connection |                          |                                             |

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| <b>Parent Defect ID:</b>    | NI-14775                                                                                                                                                                                                                                   | <b>Issue ID:</b>         | NI-21409                                       |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                                  |                          |                                                |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                 | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer            |
| <b>Reported in Release:</b> | NI 06.3.00a                                                                                                                                                                                                                                | <b>Technology:</b>       | ICMP - Internet<br>Control Message<br>Protocol |
| <b>Symptom:</b>             | Host may fail to ping directly connected virtual interface and packets may get dropped in NP as Routed Packet drops                                                                                                                        |                          |                                                |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. when a port is configured as untagged port in default VLAN and associated with virtual interface</li> <li>2. Rarely observed during repeated disconnection of directly connected host</li> </ol> |                          |                                                |
| <b>Workaround:</b>          | NA                                                                                                                                                                                                                                         |                          |                                                |

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| <b>Parent Defect ID:</b>    | NI-21340                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Issue ID:</b>         | NI-21461                            |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                          |                                     |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer |
| <b>Reported in Release:</b> | NI 06.2.00c                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Technology:</b>       | IPv6 Addressing                     |
| <b>Symptom:</b>             | <p>Line card may reload unexpectedly with the following stack trace :-<br/>Possible Stack Trace (function call return address list)</p> <pre> 20e112dc: debug_assert(pc) 20fcdcb0: ip6_remove_cache_from_LinkList(lr) 20fce940: ip6_delete_host_cache_entry 20d1fda8: ipv6_cam_ageout_handler 20aef974: xpp80ge_age_rc2 20aefd0c: xpp80ge_age_rc 20a05d60: ppcr_rc_aging_poll 20005a74: perform_callback 2000647c: timer_timeout 00040160: sys_end_entry 0005e4a0: suspend 0005cf78: dev_sleep 00005024: xsyscall 207f18b0: main 00040158: sys_end_task </pre> |                          |                                     |
| <b>Condition:</b>           | Processing large number of ICMPv6 echo request packets for unknown destination hosts with 'ipv6 max-host-drop-cam' configured                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |                                     |



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| <b>Parent Defect ID:</b>    | NI-21465                                                                                                                           | <b>Issue ID:</b>         | NI-21481                                  |
| <b>Severity:</b>            | S3 - Medium                                                                                                                        |                          |                                           |
| <b>Product:</b>             | NetIron OS                                                                                                                         | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer       |
| <b>Reported in Release:</b> | NI 06.3.00b                                                                                                                        | <b>Technology:</b>       | GRE - Generic<br>Routing<br>Encapsulation |
| <b>Symptom:</b>             | High LP CPU utilization may be observed                                                                                            |                          |                                           |
| <b>Condition:</b>           | Existence of tunnel interface with tunnel mode as gre ip without any tunnels established and receiving unknown GRE packets/traffic |                          |                                           |

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| <b>Parent Defect ID:</b>    | NI-21477                                                                                                                                                                                                                                                                            | <b>Issue ID:</b>         | NI-21485                                |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                                                                           |                          |                                         |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                          | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer     |
| <b>Reported in Release:</b> | NI 05.8.00h                                                                                                                                                                                                                                                                         | <b>Technology:</b>       | OSPF - IPv4 Open<br>Shortest Path First |
| <b>Symptom:</b>             | The routes learnt over sham-link are treated as O2 (external routes)                                                                                                                                                                                                                |                          |                                         |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. In the OSPF network, there are 2 PE devices, between which sham-link is brought UP and 2 CE devices connect to each of the two PE devices.</li> <li>2. A static route is configured on one of the PE devices and redistributed</li> </ol> |                          |                                         |

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| <b>Parent Defect ID:</b>    | NI-9349                                                         | <b>Issue ID:</b>         | NI-21490                                |
| <b>Severity:</b>            | S3 - Medium                                                     |                          |                                         |
| <b>Product:</b>             | NetIron OS                                                      | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer     |
| <b>Reported in Release:</b> | NI 05.8.00g                                                     | <b>Technology:</b>       | OSPF - IPv4 Open<br>Shortest Path First |
| <b>Symptom:</b>             | Inconsistent behavior may be observed between OSPFV2 and OSPFV3 |                          |                                         |
| <b>Condition:</b>           | Configuration of 'max-metric' command                           |                          |                                         |

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| <b>Parent Defect ID:</b>    | NI-21468                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Issue ID:</b>         | NI-21492                     |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                              |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Technology Group:</b> | Management                   |
| <b>Reported in Release:</b> | NI 06.0.00f                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Technology:</b>       | CLI - Command Line Interface |
| <b>Symptom:</b>             | Management Module may reload unexpectedly with the following stack trace:-<br>Possible Stack Trace (function call return address list)<br>203c0e40: uprintf(pc)<br>203c0e40: uprintf(lr)<br>20025b3c: copy_runConfig_startConfig<br>202eff7c: call_action_func<br>202f0a74: parse_node<br>202f04f0: parse_node_recurse<br>202f0d48: parse_node<br>2036485c: parse_input<br>2042a90c: cli_aaa_accounting_callback<br>2079f3bc: aaa_accounting_start<br>2042a160: cli_request_command_accounting<br>202f0964: parse_node<br>2036485c: parse_input<br>2042ab9c: cli_aaa_authorization_callback<br>2079f450: aaa_authorization_start<br>20429780: cli_request_command_authorization<br>202f0954: parse_node<br>202eefb8: parser<br>20364838: parse_input<br>20aa4e48: ssh_event_handler<br>20ab80a0: ProcessChannelData<br>20ab56bc: ShProcessMessage<br>20abea5c: ProcessClientInputData<br>20abe1f4: ShFiniteStateMachine<br>209c06ec: HandleProtocolAction<br>209c04cc: HandleConnectionTask<br>20aa3a18: ssh_connection_task<br>20aa4164: ssh_socket_control<br>20aa6e00: ssh_receive_data_ready<br>20aa6e44: ssh_tcp_receive_data_ready_callback<br>20ba3ac0: itc_process_msgs_internal<br>20ba3f6c: itc_process_msgs<br>20a9f0d4: ssh_in_task<br>00005e18: sys_end_task |                          |                              |
| <b>Condition:</b>           | killing the SSH session while 'write mem' with large size running configuration is being performed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                          |                              |

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| <b>Parent Defect ID:</b>    | NI-21400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Issue ID:</b>         | NI-21494                                |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                         |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer     |
| <b>Reported in Release:</b> | NI 06.2.00b                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Technology:</b>       | OSPF - IPv4 Open<br>Shortest Path First |
| <b>Symptom:</b>             | <p>MLX/CER router may reload unexpectedly with the following stack trace:-</p> <p>Possible Stack Trace (function call return address list)</p> <p>20fdfea0: calculate_routes_to_a_single_external_destination(pc)</p> <p>20fdfe54: calculate_routes_to_a_single_external_destination(lr)</p> <p>20fdf80c: ospf_recalc_type5_route_chunk</p> <p>20fbb610: ospf_construct_routing_table</p> <p>20fca9b0: ospf_route_calculation_process</p> <p>20fa02f4: ospf_route_calc_task</p> <p>00040158: sys_end_task</p> |                          |                                         |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. OSPF is enabled on the device</li> <li>2. OSPF has learnt external LSAs with forwarding address, which is not reachable</li> </ol>                                                                                                                                                                                                                                                                                                                                  |                          |                                         |

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| <b>Parent Defect ID:</b>    | NI-21440                                                                                                                                                                                                 | <b>Issue ID:</b>         | NI-21499         |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                              |                          |                  |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                               | <b>Technology Group:</b> | Security         |
| <b>Reported in Release:</b> | NI 06.0.00h                                                                                                                                                                                              | <b>Technology:</b>       | TACACS & TACACS+ |
| <b>Symptom:</b>             | <p>The below authentication logs will be observed for every successful TACACS login.</p> <p>Aug 14 04:19:04:l:Tacplus service for Authentication session gave response=ACCEPT from server_ip=a.b.c.d</p> |                          |                  |
| <b>Condition:</b>           | TACACS authentication is Enabled.                                                                                                                                                                        |                          |                  |

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| <b>Parent Defect ID:</b>    | NI-21401                                                                            | <b>Issue ID:</b>         | NI-21503                                                  |
| <b>Severity:</b>            | S3 - Medium                                                                         |                          |                                                           |
| <b>Product:</b>             | NetIron OS                                                                          | <b>Technology Group:</b> | Monitoring                                                |
| <b>Reported in Release:</b> | NI 06.0.00d                                                                         | <b>Technology:</b>       | RAS - Reliability,<br>Availability, and<br>Serviceability |
| <b>Symptom:</b>             | Timestamp of error messages in "show sysmon log" and "show logging" does not match. |                          |                                                           |
| <b>Condition:</b>           | Errors detected by sysmon monitoring                                                |                          |                                                           |

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| <b>Parent Defect ID:</b>    | NI-21427                                                                               | <b>Issue ID:</b>         | NI-21516                                            |
| <b>Severity:</b>            | S3 - Medium                                                                            |                          |                                                     |
| <b>Product:</b>             | NetIron OS                                                                             | <b>Technology Group:</b> | Monitoring                                          |
| <b>Reported in Release:</b> | NI 06.0.00j                                                                            | <b>Technology:</b>       | RAS - Reliability, Availability, and Serviceability |
| <b>Symptom:</b>             | In show optic command output, Tx power levels will not be displayed for QSFP28 optics. |                          |                                                     |
| <b>Condition:</b>           | QSFP28 optical connector connected to the device.                                      |                          |                                                     |

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| <b>Parent Defect ID:</b>    | NI-8943                                                                                                                       | <b>Issue ID:</b>         | NI-21525 |
| <b>Severity:</b>            | S3 - Medium                                                                                                                   |                          |          |
| <b>Product:</b>             | NetIron OS                                                                                                                    | <b>Technology Group:</b> | SDN      |
| <b>Reported in Release:</b> | NI 05.8.00e                                                                                                                   | <b>Technology:</b>       | OpenFlow |
| <b>Symptom:</b>             | Traffic may not be forwarded properly on an Open Flow enabled port                                                            |                          |          |
| <b>Condition:</b>           | Observed when the same Open Flow rules are pushed through Lumina controller by Rest API repeatedly with different priorities. |                          |          |

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| <b>Parent Defect ID:</b>    | NI-9125                                                                                                     | <b>Issue ID:</b>         | NI-21527          |
| <b>Severity:</b>            | S3 - Medium                                                                                                 |                          |                   |
| <b>Product:</b>             | NetIron OS                                                                                                  | <b>Technology Group:</b> | Layer 2 Switching |
| <b>Reported in Release:</b> | NI 05.8.00f                                                                                                 | <b>Technology:</b>       | QnQ - IEEE 802.1Q |
| <b>Symptom:</b>             | Double tagged packets with both inner and outer tag-type as 8100 may get dropped on 20X10G Line card module |                          |                   |
| <b>Condition:</b>           | Ingress port is configured as tagged with tag-type 8100                                                     |                          |                   |

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| <b>Parent Defect ID:</b>    | NI-21135                                                                                                                                                                      | <b>Issue ID:</b>         | NI-21532                      |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                   |                          |                               |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                    | <b>Technology Group:</b> | Layer 3 Routing/Network Layer |
| <b>Reported in Release:</b> | NI 06.0.00f                                                                                                                                                                   | <b>Technology:</b>       | Static Routing (IPv6)         |
| <b>Symptom:</b>             | May observe duplicate route entry messages on LP console like below:-<br>kbp_duplicate_entry_IPV6[0] idx : 0x0033a932 tbl_id : 144 pfx :00000000:00000000:00000000:00000000/0 |                          |                               |
| <b>Condition:</b>           | 1.Addition and removal of IPv6 static default NULL0 route<br>2.IPv6 is disabled on interface                                                                                  |                          |                               |

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| <b>Parent Defect ID:</b>    | NI-17565                                                                                                                                                                                                                      | <b>Issue ID:</b>         | NI-21533                  |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                   |                          |                           |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                    | <b>Technology Group:</b> | Traffic Management        |
| <b>Reported in Release:</b> | NI 06.0.00g                                                                                                                                                                                                                   | <b>Technology:</b>       | Rate Limiting and Shaping |
| <b>Symptom:</b>             | Traffic may be dropped with the packet size larger than 1100 bytes                                                                                                                                                            |                          |                           |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. Port speed configured as 100M full duplex</li> <li>2. Rate-limit configured with cbs greater than 54000(256000/125000)bytes</li> <li>3. In the presence of burst traffic</li> </ol> |                          |                           |

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| <b>Parent Defect ID:</b>    | NI-17589                                                                 | <b>Issue ID:</b>         | NI-21535                                 |
| <b>Severity:</b>            | S3 - Medium                                                              |                          |                                          |
| <b>Product:</b>             | NetIron OS                                                               | <b>Technology Group:</b> | MPLS                                     |
| <b>Reported in Release:</b> | NI 06.2.00b                                                              | <b>Technology:</b>       | MPLS VPLS - Virtual Private LAN Services |
| <b>Symptom:</b>             | MCT Local VPLS switchover may take up to 15sec                           |                          |                                          |
| <b>Condition:</b>           | One of the MCT peer goes Down with 3.5k VPLS instances configured on MCT |                          |                                          |

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| <b>Parent Defect ID:</b>    | NI-17613                                                         | <b>Issue ID:</b>         | NI-21536                     |
| <b>Severity:</b>            | S3 - Medium                                                      |                          |                              |
| <b>Product:</b>             | NetIron OS                                                       | <b>Technology Group:</b> | Management                   |
| <b>Reported in Release:</b> | NI 05.4.00ea                                                     | <b>Technology:</b>       | CLI - Command Line Interface |
| <b>Symptom:</b>             | LP module uptime may show incorrect value                        |                          |                              |
| <b>Condition:</b>           | Observed after LP reload with MP running for more than 1500 days |                          |                              |

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| <b>Parent Defect ID:</b>    | NI-21210                                                                                                                             | <b>Issue ID:</b>         | NI-21538                     |
| <b>Severity:</b>            | S3 - Medium                                                                                                                          |                          |                              |
| <b>Product:</b>             | NetIron OS                                                                                                                           | <b>Technology Group:</b> | Management                   |
| <b>Reported in Release:</b> | NI 06.3.00b                                                                                                                          | <b>Technology:</b>       | CLI - Command Line Interface |
| <b>Symptom:</b>             | Incorrect media and optical information observed                                                                                     |                          |                              |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1.On 100G module with QSFP28 optic</li> <li>2.Port configured with loopback system</li> </ol> |                          |                              |

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| <b>Parent Defect ID:</b>    | NI-21353                                                                                                                                                                                                                               | <b>Issue ID:</b>         | NI-21539                  |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                              |                          |                           |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                             | <b>Technology Group:</b> | Traffic Management        |
| <b>Reported in Release:</b> | NI 06.2.00c                                                                                                                                                                                                                            | <b>Technology:</b>       | Rate Limiting and Shaping |
| <b>Symptom:</b>             | Traffic may not be rate-limited as configured                                                                                                                                                                                          |                          |                           |
| <b>Condition:</b>           | When ACL based rate-limit configuration with different queue priority is modified multiple times<br>ex:<br>rate-limit output access-group xxx priority q2 policy-map xyzMbps<br>rate-limit output access-group xxx priority q0 xyz abc |                          |                           |

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| <b>Parent Defect ID:</b>    | NI-21164                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Issue ID:</b>         | NI-21544                         |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                                  |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Technology Group:</b> | Management                       |
| <b>Reported in Release:</b> | NI 05.6.00j                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Technology:</b>       | FDP - Foundry Discovery Protocol |
| <b>Symptom:</b>             | Management Module may unexpectedly reload with the following stack trace:-<br>Possible Stack Trace (function call return address list)<br>0002b1d0: free_memory_pool(pc)<br>0002b1c8: free_memory_pool(lr)<br>0002b800: free_memory<br>00027e3c: dev_free_memory<br>00005024: xsyscall<br>202ad558: os_free<br>206a5528: fdp_reallocate_cache_entry_data<br>206a56c8: fdp_reallocate_cache_entry<br>206a5778: fdp_release_one_fdp_cache_entry<br>206a6058: fdp_process_one_incoming_message<br>206a6284: fdp_process_fdp_cdp_pdu<br>20a1fa90: itc_process_msgs_internal<br>20a1fdd0: itc_process_msgs<br>206ae930: snms_task<br>00005e18: sys_end_task |                          |                                  |
| <b>Condition:</b>           | It is rarely observed when copying LP FPGA image with FDP/CDP enabled on a cluster configured MLX device                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                          |                                  |

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| <b>Parent Defect ID:</b>    | NI-21219                                                                                                                                                                                                                                                                                                               | <b>Issue ID:</b>         | NI-21546                               |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                                                                                                            |                          |                                        |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                             | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer    |
| <b>Reported in Release:</b> | NI 06.0.00g                                                                                                                                                                                                                                                                                                            | <b>Technology:</b>       | BGP4 - IPv4 Border<br>Gateway Protocol |
| <b>Symptom:</b>             | The BGP default route originated and advertised to the peer, will not have the AS_PATH prepended as per the route-map applied                                                                                                                                                                                          |                          |                                        |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. BGP is enabled on the device</li> <li>2. There is a BGP peering exists with the neighbor</li> <li>3. A route-map "xxxx" is defined to prepend the AS_PATH to the default route</li> <li>3. "default-originate route-map xxxx" command configured for the neighbor</li> </ol> |                          |                                        |

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| <b>Parent Defect ID:</b>    | NI-21223                                                                                                                                                  | <b>Issue ID:</b>         | NI-21547                                    |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                               |                          |                                             |
| <b>Product:</b>             | NetIron OS                                                                                                                                                | <b>Technology Group:</b> | Monitoring                                  |
| <b>Reported in Release:</b> | NI 06.3.00b                                                                                                                                               | <b>Technology:</b>       | OAM - Operations,<br>Admin &<br>Maintenance |
| <b>Symptom:</b>             | 10G port is initialized as 1G port speed                                                                                                                  |                          |                                             |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. Any port in 20x10G module with no optic installed</li> <li>2. Loopback system configured on the port</li> </ol> |                          |                                             |
| <b>Workaround:</b>          | Configure the port speed manually                                                                                                                         |                          |                                             |

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| <b>Parent Defect ID:</b>    | NI-21317                                                                                                                                                          | <b>Issue ID:</b>         | NI-21548                            |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                       |                          |                                     |
| <b>Product:</b>             | NetIron OS                                                                                                                                                        | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer |
| <b>Reported in Release:</b> | NI 06.0.00f                                                                                                                                                       | <b>Technology:</b>       | Static Routing (IPv4)               |
| <b>Symptom:</b>             | <p>May observe duplicate route entry messages on LP console like below:-</p> <pre> kbp_duplicate_entry_IP[0] idx : 0x0019ddbc tbl_id : 128 pfx : 0.0.0.0/0 </pre> |                          |                                     |
| <b>Condition:</b>           | Frequent route update and live traffic on device with IPv4 static default NULL0 route configured                                                                  |                          |                                     |

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| <b>Parent Defect ID:</b>    | NI-21313                                | <b>Issue ID:</b>         | NI-21549                                    |
| <b>Severity:</b>            | S2 - High                               |                          |                                             |
| <b>Product:</b>             | NetIron OS                              | <b>Technology Group:</b> | Monitoring                                  |
| <b>Reported in Release:</b> | NI 06.0.00d                             | <b>Technology:</b>       | OAM - Operations,<br>Admin &<br>Maintenance |
| <b>Symptom:</b>             | 100G Links may observe sub second flaps |                          |                                             |
| <b>Condition:</b>           | Presence of Rev 2 CFP2 ER4 optic        |                          |                                             |

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| <b>Parent Defect ID:</b>    | NI-21357                                                                                                                                                                       | <b>Issue ID:</b>         | NI-21550            |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                      |                          |                     |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                     | <b>Technology Group:</b> | Security            |
| <b>Reported in Release:</b> | NI 06.0.00j                                                                                                                                                                    | <b>Technology:</b>       | IPsec - IP Security |
| <b>Symptom:</b>             | High LP CPU may be observed with IPSEC data traffic                                                                                                                            |                          |                     |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. Route to tunnel destination changes</li> <li>2. IPSEC data traffic received with MTU size greater than default value 1431</li> </ol> |                          |                     |

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| <b>Parent Defect ID:</b>    | NI-21370                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Issue ID:</b>         | NI-21551                                    |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                          |                                             |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Technology Group:</b> | Monitoring                                  |
| <b>Reported in Release:</b> | NI 05.8.00ec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Technology:</b>       | OAM - Operations,<br>Admin &<br>Maintenance |
| <b>Symptom:</b>             | <p>Management Module may unexpectedly reload with the following stack trace:</p> <p>Possible Stack Trace (function call return address list)</p> <p>0002e2cc: assert_double_free_small_memory(pc)<br/> 0002e2c4: assert_double_free_small_memory(lr)<br/> 0002e4cc: free_memory_pool<br/> 0002eafc: free_memory<br/> 0002b0e0: dev_free_global<br/> 00005024: xsyscall<br/> 20a87fc0: FreeEvent<br/> 20ae7304: scp_event_callback<br/> 20b148d0: itc_process_msgs_internal<br/> 20b14a24: itc_process_msgs<br/> 20adf8a0: scp_task<br/> 00005e18: sys_end_task</p> |                          |                                             |
| <b>Condition:</b>           | It is observed rarely on a MLX device, during removal of delay-link-event configuration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |                                             |



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| <b>Parent Defect ID:</b>    | NI-21436                                                                                             | <b>Issue ID:</b>         | NI-21554                                    |
| <b>Severity:</b>            | S3 - Medium                                                                                          |                          |                                             |
| <b>Product:</b>             | NetIron OS                                                                                           | <b>Technology Group:</b> | Monitoring                                  |
| <b>Reported in Release:</b> | NI 06.3.00ba                                                                                         | <b>Technology:</b>       | OAM - Operations,<br>Admin &<br>Maintenance |
| <b>Symptom:</b>             | 10G port may come as 1G                                                                              |                          |                                             |
| <b>Condition:</b>           | 1. On 20x10G module with no optic installed<br>2. Loopback system configured on a disabled interface |                          |                                             |
| <b>Workaround:</b>          | have the interface enabled before applying loopback system configuration                             |                          |                                             |

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| <b>Parent Defect ID:</b>    | NI-21581                                                                                    | <b>Issue ID:</b>         | NI-21582                            |
| <b>Severity:</b>            | S2 - High                                                                                   |                          |                                     |
| <b>Product:</b>             | NetIron OS                                                                                  | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer |
| <b>Reported in Release:</b> | NI 06.2.00d                                                                                 | <b>Technology:</b>       | IPv6 Addressing                     |
| <b>Symptom:</b>             | Intermittent traffic drop may be observed sometimes                                         |                          |                                     |
| <b>Condition:</b>           | Removing and reconfiguring IPV6 address on a VE interface that receives continuous traffic. |                          |                                     |

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| <b>Parent Defect ID:</b>    | NI-21352                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Issue ID:</b>         | NI-21586                               |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |                                        |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer    |
| <b>Reported in Release:</b> | NI 06.0.00f                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Technology:</b>       | BGP4 - IPv4 Border<br>Gateway Protocol |
| <b>Symptom:</b>             | Management Module may unexpectedly reload with the following stack trace:-<br>20f6c5a0: bgp_clear_out_policy_soft_outbound_callback(pc)<br>21044e2c: bgp_tree_partial_traverse(lr)<br>21044e2c: bgp_tree_partial_traverse<br>20f6cad0: bgp_clear_out_policy_soft_outbound<br>20f6c400: bgp_clear_one_neighbor_number_soft_outbound<br>20fd34c0: bgp_timer<br>20fd2aa0: bgp_timeout_func<br>20ba3ac0: itc_process_msgs_internal<br>20ba3f6c: itc_process_msgs<br>210275d8: bgp_task<br>00005e18: sys_end_task |                          |                                        |
| <b>Condition:</b>           | It is observed rarely while adding new BGP peers to the router and executing the BGP soft clear command like below:-<br><br>clear ip bgp neighbor x.x.x.x soft-outbound                                                                                                                                                                                                                                                                                                                                      |                          |                                        |

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| <b>Parent Defect ID:</b>    | NI-19279                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Issue ID:</b>         | NI-21587                                  |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                          |                                           |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer       |
| <b>Reported in Release:</b> | NI 05.7.00e                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Technology:</b>       | OSPFv3 - IPv6 Open<br>Shortest Path First |
| <b>Symptom:</b>             | Management Module may unexpectedly reload with the following stack trace:-<br>21112da8: ospf6_listnode_delete_count(pc)<br>21112f40: ospf6_lsdb_remove(lr)<br>21112f40: ospf6_lsdb_remove<br>21113644: ospf6_lsdb_install<br>2111f0f4: ospf6_dbex_receive_lsa<br>2111f80c: ospf6_ls_upd<br>2112069c: ospf6_message_process<br>21104644: ospf6_router_receive_packet_callback<br>20a55c34: itc_process_msgs_internal<br>20a55f6c: itc_process_msgs<br>21103e0c: ospf6_task<br>00005e18: sys_end_task |                          |                                           |
| <b>Condition:</b>           | OSPFv3 Cost changes on a scaled network                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                                           |

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| <b>Parent Defect ID:</b>    | NI-17371                                                                                                                        | <b>Issue ID:</b>         | NI-21600                            |
| <b>Severity:</b>            | S3 - Medium                                                                                                                     |                          |                                     |
| <b>Product:</b>             | NetIron OS                                                                                                                      | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer |
| <b>Reported in Release:</b> | NI 06.0.00f                                                                                                                     | <b>Technology:</b>       | IPv6 Addressing                     |
| <b>Symptom:</b>             | IPv6 neighborship may not be established                                                                                        |                          |                                     |
| <b>Condition:</b>           | When IPv6 neighbor solicitation request is received from the peer with source address same as configured interface IPV6 address |                          |                                     |

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| <b>Parent Defect ID:</b>    | NI-9624                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Issue ID:</b>         | NI-21601                                |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                                         |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer     |
| <b>Reported in Release:</b> | NI 06.0.00e                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Technology:</b>       | OSPF - IPv4 Open<br>Shortest Path First |
| <b>Symptom:</b>             | Management Module may unexpectedly reload with the following stack trace:-<br>210ea558: ospf_free_route_entry(pc)<br>210e97c4: ospf_delete_dspt_asbr_entry_callback(lr)<br>210e97c4: ospf_delete_dspt_asbr_entry_callback<br>2033fff4: ip4_delete_entire_trie<br>210e9830: ospf_clear_dspt_asbr_routing_table<br>210e52d8: ospf_dspt_clear_whole_table<br>22077304: ospf_lsp_shortcut_destroy<br>2109ccc8: ospf_disable_operation_of_ospf_protocol<br>210fbaf8: restart_ospf<br>210fbb58: clear_ospf_all<br>210c36fc: cu_clear_ospf_all_callback<br>20ba069c: itc_process_msgs_internal<br>20ba0b48: itc_process_msgs<br>210ba678: ospf_task<br>00005e18: sys_end_task |                          |                                         |
| <b>Condition:</b>           | It is observed rarely on a MLX/XMR device,<br>1. With high scale of routes in a MCT, VRF and OSPF configured device<br>2. On restarting the OSPF process<br><br>ex: clear ip ospf vrf vrf-name all                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                         |

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| <b>Parent Defect ID:</b>    | NI-21614                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Issue ID:</b>         | NI-21615                               |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |                                        |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer    |
| <b>Reported in Release:</b> | NI 06.0.00hb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Technology:</b>       | BGP4 - IPv4 Border<br>Gateway Protocol |
| <b>Symptom:</b>             | Line card module may reload unexpectedly with the following stack trace:<br>20ed7218: ip_check_if_all_children_keys_are_in_cam(pc)<br>20f30418: ip_add_entry_in_routing_table_trie(lr)<br>20f2fe68: ip_add_entry_in_routing_table_trie<br>20f32f90: ip_search_and_traverse_trie<br>20f335d4: ip4_search_and_traverse_trie<br>20e0a708: ip_route_checksum<br>20ed0900: tree_veri_func<br>20ed1838: tree_veri_func_unicast<br>20bd61b4: process_dy_veri_packet<br>20c1ce8c: ipc_multi_module_handler<br>20c1f400: ipc_process_messages<br>20c1fbdc: ipc_receive_packet<br>20036ee8: ge_process_ipc_data_msg<br>207f528c: lp_ipc_task<br>00040158: sys_end_task |                          |                                        |
| <b>Condition:</b>           | It is observed rarely on a MLX device during route sync-up in the presence of VRF routes with BGP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          |                                        |

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| <b>Parent Defect ID:</b>    | NI-21619                                                                                    | <b>Issue ID:</b>         | NI-21620                               |
| <b>Severity:</b>            | S3 - Medium                                                                                 |                          |                                        |
| <b>Product:</b>             | NetIron OS                                                                                  | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer    |
| <b>Reported in Release:</b> | NI 06.3.00                                                                                  | <b>Technology:</b>       | BGP4 - IPv4 Border<br>Gateway Protocol |
| <b>Symptom:</b>             | unreachable BGP route count may not be correct in show CLI output.                          |                          |                                        |
| <b>Condition:</b>           | In the presence of BGP filtered route (denying via prefix-list) with unresolvable Next Hop. |                          |                                        |

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| <b>Parent Defect ID:</b>    | NI-8935                                                                                                                                                        | <b>Issue ID:</b>         | NI-21671 |
| <b>Severity:</b>            | S2 - High                                                                                                                                                      |                          |          |
| <b>Product:</b>             | NetIron OS                                                                                                                                                     | <b>Technology Group:</b> | SDN      |
| <b>Reported in Release:</b> | NI 05.8.00e                                                                                                                                                    | <b>Technology:</b>       | OpenFlow |
| <b>Symptom:</b>             | Sometimes Open flow rules may not get installed                                                                                                                |                          |          |
| <b>Condition:</b>           | On receiving the update action within a second, while processing the same Open flow rule with same priority and priority should be less than the existing flow |                          |          |
| <b>Workaround:</b>          | NA                                                                                                                                                             |                          |          |

## Closed with code changes NI6.3.00a1

This section lists software defects with Critical, High, and Medium Technical Severity closed with a code change as of August 2019 in NetIron OS 6.3.00a1.

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| <b>Parent Defect ID:</b>    | NI-21342                                                                                                                    | <b>Issue ID:</b>         | NI-21342            |
| <b>Severity:</b>            | S2 - High                                                                                                                   |                          |                     |
| <b>Product:</b>             | NetIron OS                                                                                                                  | <b>Technology Group:</b> | Security            |
| <b>Reported in Release:</b> | NI 06.3.00a1                                                                                                                | <b>Technology:</b>       | IPsec - IP Security |
| <b>Symptom:</b>             | The certificate signing request (CSR) generated by MLXe has digest calculated using SHA1 instead of using SHA256 or SHA384. |                          |                     |
| <b>Condition:</b>           | When user issue pki enroll command to enroll for X509v3 certificate.                                                        |                          |                     |

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| <b>Parent Defect ID:</b>    | NI-21405                                                                                                                                                        | <b>Issue ID:</b>         | NI-21405            |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                     |                          |                     |
| <b>Product:</b>             | NetIron OS                                                                                                                                                      | <b>Technology Group:</b> | Security            |
| <b>Reported in Release:</b> | NI 06.3.00a1                                                                                                                                                    | <b>Technology:</b>       | IPsec - IP Security |
| <b>Symptom:</b>             | Sometime when MLXe is configured as a Responder only for IKEv2, IPsec tunnel will not be established when X509v3 certificates are used for peer authentication. |                          |                     |
| <b>Condition:</b>           | MLXe configured as a Responder Only for IKEv2 and X509v3 certificates are used for peer authentication.                                                         |                          |                     |
| <b>Workaround:</b>          | Stop and restart IPsec tunnel establishment from the remote peer who is initiator or make MLXe as a initiator.                                                  |                          |                     |

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| <b>Parent Defect ID:</b>    | NI-21424                                                                                                                                                                                                                                                                                                                   | <b>Issue ID:</b>         | NI-21424            |
| <b>Severity:</b>            | S3 - Medium                                                                                                                                                                                                                                                                                                                |                          |                     |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                                                                                                 | <b>Technology Group:</b> | Security            |
| <b>Reported in Release:</b> | NI 06.3.00a1                                                                                                                                                                                                                                                                                                               | <b>Technology:</b>       | IPsec - IP Security |
| <b>Symptom:</b>             | Sometime IPsec Tunnel can be established with a remote peer that has sent invalid X509v3 certificate in case where the remote client has in last 10 minutes sent a valid X509v3 certificate.                                                                                                                               |                          |                     |
| <b>Condition:</b>           | Establishment of IPsec tunnel by remote peer with a valid X509v3 certificate followed by teardown of the IPsec tunnel and then re-establishment of same IPsec tunnel by same remote peer with an invalid X509v3 certificate within 10 minutes of previous successful IPsec tunnel setup with the valid X509v3 certificate. |                          |                     |
| <b>Workaround:</b>          | Issue " clear ikev2 sa" before IPsec tunnel is re-established.                                                                                                                                                                                                                                                             |                          |                     |

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| <b>Parent Defect ID:</b>    | NI-21426                                                                                                                                                                                                                                   | <b>Issue ID:</b>         | NI-21426                             |
| <b>Severity:</b>            | S2 - High                                                                                                                                                                                                                                  |                          |                                      |
| <b>Product:</b>             | NetIron OS                                                                                                                                                                                                                                 | <b>Technology Group:</b> | Layer 3<br>Routing/Network<br>Layer  |
| <b>Reported in Release:</b> | NI 06.3.00a1                                                                                                                                                                                                                               | <b>Technology:</b>       | ARP - Address<br>Resolution Protocol |
| <b>Symptom:</b>             | IPv6 Traffic is dropped when a lag which is member of a VE interface goes down due to IPv6 Neighbor Discovery Table entries are not updated to point to an alternative outgoing physical port which is up and member of same VE interface. |                          |                                      |
| <b>Condition:</b>           | Lag which is member of VE and currently selected outgoing physical port of a IPv6 neighbor discovery entries must go down and another physical port of VE which is up is selected as the new outgoing physical port for the ND6 entries.   |                          |                                      |
| <b>Workaround:</b>          | Issue " clear ipv6 neighbor ve <ve interface number>"                                                                                                                                                                                      |                          |                                      |