

29 June 2018



# NetIron OS 06.0.00g for ExtremeRouting MLX Series Devices

## Release Notes v1.0

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# Document history

| Version    | Summary of changes | Publication date |
|------------|--------------------|------------------|
| <b>1.0</b> | Initial release    | 29 June 2018     |

# 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](http://www.extremenetworks.com/support/contact).
- Email: [support@extremenetworks.com](mailto: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](http://www.extremenetworks.com). Product documentation for all supported releases is available to registered users at [www.extremenetworks.com/support/documentation](http://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 <http://www.extremenetworks.com/documentation-feedback-pdf/>
- Email us at [internalinfodev@extremenetworks.com](mailto:internalinfodev@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 6.0.00 introduces new functionalities and enhances the capabilities of ExtremeRouting MLX Series, ExtremeRouting CER 2000 Series and ExtremeSwitching CES 2000 Series devices. Extreme continues to innovate in key technologies and Release 6.0.00 brings new features in the following areas:

- SDN,
- Data privacy with IPsec,
- IP/MPLS services,
- Extreme Packet Broker functionality for 4G/LTE mobile networks and
- New Optics for 40G connectivity options.

Path Computation Element Protocol and OpenFlow to MPLS LSP as logical port allow service providers to migrate to an SDN operation model while maintaining interoperability with existing MPLS networks.

Layer 2 over IPsec enables secure connections for data center interconnect and enterprises can now meet security compliances in the public clouds and virtual private clouds.

In addition, manageability and troubleshooting functions are further enhanced for efficient network operation. With these features, MLX Series continues as the leading platform for converged data center and service provider network services.

## Extreme Network Packet Broker

Beginning with NetIron 6.0.00a two FPGA bundles will be available for download.

- Installing the Network Packet Broker (NPB) FPGA bundle will place the MLXe device chassis into Packet Broker mode.
- Installing the MAIN (default) FPGA bundle will place the MLXe device chassis into the default mode.

The global setting across the chassis can be either Network Packet Broker (NPB) mode or MAIN (default).

- The Main (default) global setting requires the MAIN FPGA manifest to be installed.
- The NPB global setting requires the NPB FPGA manifest to be installed.



# Behavior changes

## Behavior changes in release

- Consult the Software Features, the CLI Command, and the Upgrade and Downgrade Considerations sections of these notes for any behavior changes in this release.

There are no deprecated commands in R06.0.00g.

There are no deprecated commands in R06.0.00f.

There are no deprecated commands in R06.0.00e.

There are no deprecated commands in R06.0.00d.

There are no deprecated commands in R06.0.00c.

There are no deprecated commands in R06.0.00b.

There are no deprecated commands in R06.0.00a.

# Software Features

## New software features introduced in R06.0.00g

There are no new software features introduced in R06.0.00g.

Details of corrected defects are provided in Closed with Code changes R06.0.00g.

## New software features introduced in R06.0.00f

Details of corrected defects are provided in Closed with Code changes R06.0.00f.

### **The following is a new feature introduced in R06.0.00f:**

**Fabric link balancing** – This feature supports balancing fabric links to avoid congestion when a link is brought down by software monitoring. The software will also bring down the other link pair so the fabric links are balanced.

## New software features introduced in R06.0.00e

There are no new software features introduced in R06.0.00e.

## New software features introduced in R06.0.00d

Details of corrected defects are provided in Closed with Code changes R06.0.00d.

### Enhanced features introduced in R06.0.00d:

- **VLAN name length change** - This feature supports up to 35 characters of the VLAN name. The VLAN name character length is increased from 31 to 35 characters.
- **Scaling IPv4 Max-route per VRF** – This feature increases the capacity of IPv4 non-default VRF routes from 650K to 750K. By default, the system-max values for ip-route and ip-cache are increased from 650K to 750K to accommodate the max-route scale.

## New software features introduced in R06.0.00c

Details of corrected defects are provided in Closed with Code changes R06.0.00c.

### Enhanced features introduced in R06.0.00c:

- **Saving system state to Flash** - This feature aims to collect/capture system state information for debugging purposes at the customer site.
- **Longest Prefix Match Next Hop Walk** - This feature detects inconsistencies between the software and the hardware LPM next hop programming and can generate a syslog warning or take a corrective action to clear the affected routes.

## New software features introduced in R06.0.00b

Details of corrected defects are provided in Closed with Code changes R06.0.00b.

### Enhanced features introduced in R06.0.00b:

- **Preserving EXP bits in MPLS header** - Preserves the traffic class based on the EXP value from the MPLS header for the VPLS/VLL traffic from the MPLS uplink. Traffic is queued based on the extracted EXP/traffic class value from the packet.
- **Exclude PCP Marking** - With this ACL option, irrespective of priority-force, the packet's pcp value will not be modified on any packet L2/L3/VPLS.
- **Recovery using NP MAC FIFO reset on detecting MAC FIFO Full condition** - This feature monitors the NP Memory MAC FIFO full error condition and allows auto recovery of the system in cases of MAC FIFO full error. This feature will attempt to reset the FIFO for recovery when FIFO full condition is latched.
- **Logging hardware error from Tsec statistics and LP IPC buffer corruption into syslog/console** - This feature monitors Tsec (backplane LP Ethernet controller) for three types of the errors latched in Tsec like FCS error, code error and carrier sense error while receiving the packet from management card.
- **CRC check on Hi-Gig header in Rx path** - This feature is disabled by default. A command has been provided to enable Hi Gig CRC check on Rx path.
- **Flow Control Status** - This feature provides a consolidated view of the flow control status information, including pause frames received by the ports, at various sub-system levels of the line card.

## New software features introduced in R06.0.00a

### Network Packet Broker Enhancements:

Starting in the R06.0.00a release, some Network Packet Broker (NPB) features are enabled only on the NPB FPGA. If you are using any of the following features in NPB deployments on the following line cards, please ensure that you are using the correct NetIron 6.0.00a NPB FPGA files. All the other NPB features are enabled on all line cards and on both the Main and NPB FPGAs.

| MLXe Module   | NPB FPGA   | Main FPGA  |
|---------------|--|--|
| BR-MLX-10Gx20 | <ul style="list-style-type: none"><li>• Packet Timestamping</li><li>• NVGRE stripping</li><li>• Source port labeling</li></ul> | Following NPB features Not Present: <ul style="list-style-type: none"><li>• Packet Timestamping</li><li>• NVGRE stripping</li><li>• Source port labeling</li></ul> |
| BR-MLX-40Gx4  | Not Applicable   | <ul style="list-style-type: none"><li>• Packet Timestamping</li><li>• NVGRE stripping</li><li>• Source port labeling</li></ul>                                     |
| BR-MLX-100Gx2 | <ul style="list-style-type: none"><li>• Packet Timestamping</li><li>• NVGRE stripping</li><li>• Source port labeling</li></ul> | Following NPB features Not Present: <ul style="list-style-type: none"><li>• Packet Timestamping</li><li>• NVGRE stripping</li><li>• Source port labeling</li></ul> |

### The following features are the new NPB features:

- **802.1BR and VN-Tag stripping:** This feature strips 802.1br header (ether-type=0x893f) and VN-tag header (ether-type=0x8926) from ingress traffic before sending it for further processing/forwarding. This is useful in cases where the analytics tools do not understand these headers.
- **Packet Timestamping:** This feature allows inserting an 8-byte timestamp into ingress packets. The timestamp can be NTP time or local clock time.
- **SCTP traffic filtering:** This feature enables the user to filter SCTP traffic based on source and destination TCP/UDP ports.

- **Source port labeling:** Users can enable this feature to insert a 4-byte label to identify the ingress port. This source port label will hold the SNMP IfIndex value from IFMIB for the interface. Source port is used for downstream filtering.
- **NVGRE stripping:** The NVGRE header-stripping feature enables the user to strip the outer Ethernet, Outer IPv4, and the NVGRE header from incoming IPv4 NVGRE packets. This is useful in cases where the analytics tools do not understand these headers, or if the tool is only interested in the tunneled information.
- **Packet Length filtering:** This feature allows users to filter ingress IPv4 and IPv6 traffic based on IP Payload Length of packets. For IPv4, payload length excludes IP header length. For IPv6, there is already a Payload Length field present in the header.

**The following features are the other new features:**

#### **SNMP/MIB Changes:**

- **PCEP MIB:** This feature will provide MIB support to track the status and statistics of PCEP related information. The following tables and notifications are supported: PcepPcepEntityTable, PcepPcepPeerTable, PcepPcepSessTable, pcepPcepSessUp, pcepPcepSessDown, pcepPcepSessPeerOverload, pcepPcepSessPeerOverloadClear”
- **Auto-bandwidth MIB:** This MIB (mplsLspAutoBwTable) will help monitor status and statistics of MPLS RSVP auto-bandwidth related information via SNMP
- **SNMP support for CAM utilization (PRODRFE103262 ):** CAM usage can be monitored via SNMP MIBs. This feature aligns MIBs to the current CAM partition/sub-partition structure.

#### **OpenFlow Enhancements:**

- **OpenFlow: ARP to normal plus controller:** With this feature along with regular processing of ARP (consumed by CPU or flooded in bridge/vlan domain), punting of ARP packets to the SDN controller is also supported when the SDN controller programs such a flow rule. ARP packets can be tagged or untagged coming in on configured unprotected VLAN.
- **OpenFlow support for MPLS as switched:** When ingress MPLS traffic with no interface MAC is received on an openflowL2/L23 interface, it will be switched and will not hit the MPLS OpenFlow rule.
- **Primary Port LAG:** This feature changes primary port in LAG with no traffic disruption. Prior to this release, primary port change was manual and caused traffic disruption. Starting with NetIron 6.0.00a, the change will be seamless with no traffic disruption.
- **AAA local authentication fallback (PRODRFE103246):** This feature allows the administrator to fallback to the local authentication method in case a server in a previous authentication method returned access-reject. Prior to this release this was done only in case there was a timeout from servers of earlier methods. In case of authentication success from the server, that response is considered final for that method and the entire authentication.

- **DH group 14 for SSH in non-FIPS mode (PRODRFE103457):** In earlier releases, the Diffie Hellman Group 14 is supported for FIPS and CC mode only. With this feature enhancement DH Group 14 is supported in regular mode (for example, when FIPS is not enabled) as well.
- **CE2.0 Change in MLXe:** Rate-limiting function was enhanced to meet CE2.0 guidelines to enable certification.
- **Ingress ACL permit logging:** This feature when enabled will log packets matching the permit rule of an access-list for IPv4 and IPv6. It is supported for ingress filtering only, and can be enabled for User ACL and rACL bindings. It is not supported for L2ACLs. Logging can be done selectively as well with optional CLI to limit CPU utilization.

- **PKI offline enrollment:**

This feature introduces the following enhancements to PKI certificate management:

- **Offline certificate Enrollment:** Device will generate CSR and prints it to console and copies a file to flash in base64 format. User can manually take the CSR to CA server and can obtain the certificate. Then User can load the certificate into a device. Useful in case the CA server needs to be offline.
- **Offline loading of certificates and CRLs:** User can paste the PEM format certificate or CRL onto device console now.
- **Certificate chain validation using CRLs:** Previously when using CRL, only the revocation status of peer's client certificate is validated not the whole chain. With this enhancement, we validate the revocation status of entire peer certificate chain including CA certificates.

#### Optics Support:

Support for QSFP 28 Optics.

## Software features introduced in R06.0.00

The following software features are new in this release. For information about which platforms support these features, refer to the Feature Support Matrix.

#### IPsec enhancements:

- L2 over IPsec – The feature provides secure point to point layer 2 extension over WAN. The layer 2 traffic is encrypted by IPsec tunnels using the most advanced Suite-B security protocols.
- ICX IPsec interoperability - ICX and MLXe have been tested to interoperate in the same IPsec tunnels for secure VPN connection for enterprise.
- vRouter IPsec interoperability - vRouter and MLXe have been tested to interoperate in the same IPsec tunnels for secure VPN connection between enterprise data center and public cloud for hybrid cloud use case.

- Track IPsec tunnels for VRRP failover - If the IPsec tunnel goes down, the VRRP / VRRPe priority will decrement and trigger the failover the VRRP / VRRPe peers.
- Option to display IKEv2 debug for a particular IPsec tunnel - The debug option displays IKEv2 debug logs for a specific IPsec tunnel as configured by the user. The debug logs are as per the currently supported debug logs such as trace, event, error, packet et cetera.

#### **Software-defined Network (SDN):**

- Path Computing Element Communication Protocol (PCEP) - Path Computing Element (PCE) is SDN based solution for MPLS traffic engineering. MLXe will act as the PCE client (PCC) that will request RSVP LSP path calculation from the PCE server. PCE server will inquire its own traffic engineering database and respond with the explicit path object to the PCC. Stateless PCE based on RFC 5440 will be supported in NI 6.0.
- OpenFlow to MPLS LSP as logical port - MPLS LSP tunnels are supported in OpenFlow as logical ports.

#### **Network Packet Broker enhancements:**

- Increase traffic streams to 6K - The number of traffic streams / transparent VLANs is increased to 6K to support high scale network packet broker and telemetry functions.
- Increase L2 and L3 ACL to 4K - The number of Layer 2 and Layer 3 ACLs is increased to 4K to support high scale packet filtering.
- SNMP monitoring support L2 ACL - SNMP monitoring is enabled for L2 ACL through MIB.
- High/low watermark thresholds for traffic statistics - The high and low watermarks for the past 1 hour and past 24 hours of each physical interface will be tracked for interface statistics.
- IPv6 ACL .1p match - It allows user to filter IPv6 traffic on the basis of .1p priority.

#### **BGP diverse path:**

- BGP Add-Path - This enables router to advertise multiple paths for the same prefix for multi-pathing and faster convergence.
- BGP Best External - The router can advertise the best external BGP path to the BGP neighbors even when it receives a better internal BGP route. This enable multiple exit paths to other AS.

#### **GRE enhancements:**

- GRE tunnel bypassing ACL - An option is added to allow traffic coming in from the GRE tunnel to bypass the ACL configured on the interface.
- GRE tunnel to hand off to MPLS - This allows GRE tunnel to hand off to MPLS LSP
- IPv6 over IPv4 GRE - IPv6 traffic can be carried across IPv4 GRE tunnels.

#### **IPv6 enhancements:**

- IPv6 for VE over VPLS - IPv6 addresses and IPv6 routing will be supported on VE over VPLS interfaces.

- IPv6 ACL deny logging - The IPv6 ACL deny logging feature records traffic flows that are denied by IPv6 inbound ACLs. When a packet is denied by an ACL, a syslog entry is generated.
- IPv6 ACL per SNMP server group - IPv6 ACLs can be applied to individual SNMP server group to limit access at a per group level.

#### **New Optics:**

- 40G Bi-Di QSFP – 40G Bi-Di QSFP+ optics is now supported on the MLXe 4-port 40G line card.

#### **Other features:**

- BFD Support across MCT - BFD is supported on routers in MCT to provide connectivity check for faster route convergence.
- Load balance VLL to a specific group of LSPs - Traffic from VLL can be load balanced up to 8 LSPs.
- Radius over TCP / TLS - Radius connection will be sent over TCP (RFC 6613) and also over TLS (RFC 6614) to provide encrypted RADIUS.
- Increase Netconf RPC response limit to 512K - The RPC response limit to a NETCONF client has been increased to 512 Kbytes. It is 32 Kbytes in previous releases.
- LDP shortcut - Router generated packets such as routing protocols and OAM packets (pings and traceroutes) can be sent over MPLS LDP tunnels instead of regular IP routing.
- Multicast snooping per flag aging - The multicast snooping database will age out per flag.
- IPC stuck auto detection on LP and MP - This feature generates syslog's to indicate when IPC Tx queue is stuck when the queue is non-empty.
- Show tech additions - The following show tech sub-commands have been added.  
 Show cpu histogram hold no clear  
 Show cpu histogram wait noclear  
 Show tm log  
 Show tm histogram  
 Show tm non-empty-queue  
 ltc show statistics  
 ltc show error list  
 Statistics for IPC Retransmits from MP
- Show command for disabled CCEP port with MCT Spoke PW status - This show command is to display the MCT spoke PW state for both L2 and L2VPN client ports.
- MCT CCEP port up delay - A configurable delay is added to LACP-BLOCKED state after CCEP port is enabled to prevent duplicate L2 BUM packets.
- High CPU auto detection on MP - The MP CPU is monitored regularly. If the CPU crosses a threshold, log file will be created for troubleshooting.
- LSP down syslog reason string - This feature adds a reason string to LSP down syslog to explain what causes the LSP to go down.

- IPC statistics show TX drops – New fields are added to show the drops in reliable and unreliable transmit under the `ipc show statistics` command.

## CLI commands

The following commands are new in this release.

### New CLI commands R06.0.00g

There are no new CLI commands in R06.0.00g.

### New CLI commands R06.0.00f

There are no new CLI commands in R06.0.00f.

### New CLI commands R06.0.00e

There are no new CLI commands in R06.0.00e.

### Modified commands in R06.0.00d

The following commands have been modified in this release.

- Vlan *vlan-id* [name *vlan-name*]
- system-max ip-vrf-route *num*

### New CLI commands R06.0.00c

- memdump slot-*slot-id*
- reload-memdump
- reset-memdump
- [no] sysmon lpm nh-walk { action *action-selection* | auto | polling-period *duration* | threshold *threshold-setting*}
- Show sysmon lpm nh-walk status
- [no] sysmon lpm nh-walk start

### New CLI commands R06.0.00b

- [no] set-force-tc-match-label-exp
- [no] access-list 1200 permit any any any etype any priority-mapping priority-force exclude-pcp-marking
- show flow-ctrl *status all*

### New CLI commands R06.0.00a

- [no] fpga\_mode\_npb



- [no] lag port-primary-dynamic
- [no] port-primary-dynamic
- [no] lacp system-priority *number*
- [no] strip-802-1br all
- [no] strip-vn-tag slot *slot-num*
- [no] strip-802-1br slot *slot-num* device *device-id*
- [no] strip-vn-tag all
- [no] strip-vn-tag slot *slot-num*
- [no] strip-vn-tag slot *slot-num* device *device-id*
- show packet-encap-processing
- show packet-encap-processing strip-802-1BR
- show packet-encap-processing strip-vn-tag
- show packet-encap-processing [slot *slot-num*]
- show packet-encap-processing interface Ethernet
- show running-config – (for config-pkt-encap-proc mode)
- ip match-payload-len
- ipv6 match-payload-len
- show ip match-payload-len
- show ip match-payload-len [interface ethernet slot | port]
- show ipv6 match-payload-len
- show ipv6 match-payload-len [interface ethernet slot | port]
- [no] config-pkt-encap-proc

## Modified commands in Network Packet Broker R06.0.00a

- The show version and show flash command output will include information about whether the XPP FPGA on an LP is NPB. If there is no reference to NPB in the command output, it is the MAIN FPGA.

## CLI commands introduced in R06.0.00

- additional-paths
- additional-paths select
- advertise-best-external

- clear np qos statistics
- client-interfaces sync\_ccep\_early
- dead-timer
- disable-acl-for-6to4
- disable-acl-for-gre
- enable pce
- enable-qos-statistics
- match additional-paths advertise-set
- message-bundle-support
- max-unknown-messages
- max-unknown-requests
- min-keepalive
- negotiation-deny
- neighbor additional-paths
- neighbor additional-paths advertise
- new additional-paths disable
- pce compute
- preference
- request-timer
- router pcep
- set next-hop-tvf-domain
- show acl-policy
- show tvf-domain
- suppress-ipv6-priority-mapping
- sysmon mp-high-cpu enable
- sysmon mp-high-cpu cpu-threshold
- sysmon mp-high-cpu task-threshold
- sysmon ipc rel-q-mon enable
- trv-domain
- vll-peer (load-balance)

## Modified commands in R06.0.00

The following commands have been modified in this release.

- ipv6 access-list
- interface ve
- set next-hop-tvf-domain
- show cluster
- show ipsec profile
- show ip multicast
- show ip multicast vpls
- show ip route
- show ipv6 bgp neighbors
- show ipv6 bgp routes
- show np qos statistics
- show mpls vll
- show run
- sysmon np memory-errors action
- track-port
- vll-peer
- vll-peer (load balance)

## Deprecated commands

There are no deprecated commands in this release.

# MIBs and messages

## MIBs

### New MIB Objects

No MIB objects were introduced in release R06.0.00g.

### New MIB Objects

No MIB objects were introduced in release R06.0.00f.

### New MIB Objects

No MIB objects were introduced in release R06.0.00e.

### New MIB Objects

No MIB objects were introduced in release R06.0.00d.

## New MIB Objects

No MIB objects were introduced in release R06.0.00c.

## New MIB Objects

No MIB objects were introduced in release R06.0.00b.

## MIB Objects

The following MIB objects are introduced in release R06.0.00a:

- fdryL2AclIfBindAclName – New OID
- fdryL2NamedAclTable - New table
  - fdryL2NamedAclIndex
  - fdryL2NamedAclClauseIndex
  - fdryL2NamedAclName
  - fdryL2NamedAclAction
  - fdryL2NamedAclSourceMac
  - fdryL2NamedAclSourceMacMask
  - fdryL2NamedAclDestinationMac
  - fdryL2NamedAclDestinationMacMask
  - fdryL2NamedAclVlanId
  - fdryL2NamedAclEthernetType
  - fdryL2NamedAclDot1pPriority
  - fdryL2NamedAclDot1pPriorityForce
  - fdryL2NamedAclDot1pPriorityMapping
  - fdryL2NamedAclMirrorPackets
  - fdryL2NamedAclLogEnable
  - fdryL2NamedAclRowStatus
- bgp4V2NlriRxPathIdentifier – New OID
- bgp4V2NlriTxPathIdentifier – New OID
- IfXWatermarkTable – New Table
  - ifWatermarkCurrentHourWindowStartTime
  - ifWatermarkCurrentHourHighRxUtilTime
  - ifWatermarkCurrentHourHighInPktRate
  - ifWatermarkCurrentHourHighInBitRate
  - ifWatermarkCurrentHourLowRxInUtilTime
  - ifWatermarkCurrentHourLowInPktRate
  - ifWatermarkCurrentHourLowInBitRate
  - ifWatermarkCurrentHourHighTxUtilTime
  - ifWatermarkCurrentHourHighOutPktRate
  - ifWatermarkCurrentHourHighOutBitRate
  - ifWatermarkCurrentHourLowTxOutUtilTime
  - ifWatermarkCurrentHourLowOutPktRate
  - ifWatermarkCurrentHourLowOutBitRate
  - ifWatermarkLastHourHighRxUtilTime
  - ifWatermarkLastHourHighInPktRate
  - ifWatermarkLastHourHighInBitRate
  - ifWatermarkLastHourLowRxUtilTime

- ifWatermarkLastHourLowInPktRate
- ifWatermarkLastHourLowInBitRate
- ifWatermarkLastHourHighTxUtilTime
- ifWatermarkLastHourHighOutPktRate
- ifWatermarkLastHourHighOutBitRate
- ifWatermarkLastHourLowTxUtilTime
- ifWatermarkLastHourLowOutPktRate
- ifWatermarkLastHourLowOutBitRate
- ifWatermarkCurrentDayWindowStartTime
- ifWatermarkCurrentDayHighRxUtilTime
- ifWatermarkCurrentDayHighInPktRate
- ifWatermarkCurrentDayHighInBitRate
- ifWatermarkCurrentDayLowRxInUtilTime
- ifWatermarkCurrentDayLowInPktRate
- ifWatermarkCurrentDayLowInBitRate
- ifWatermarkCurrentDayHighTxUtilTime
- ifWatermarkCurrentDayHighOutPktRate
- ifWatermarkCurrentDayHighOutBitRate
- ifWatermarkCurrentDayLowTxOutUtilTime
- ifWatermarkCurrentDayLowOutPktRate
- ifWatermarkCurrentDayLowOutBitRate
- ifWatermarkLastDayHighRxUtilTime
- ifWatermarkLastDayHighInPktRate
- ifWatermarkLastDayHighInBitRate
- ifWatermarkLastDayLowRxUtilTime
- ifWatermarkLastDayLowInPktRate
- ifWatermarkLastDayLowInBitRate
- ifWatermarkLastDayHighTxUtilTime
- ifWatermarkLastDayHighOutPktRate
- ifWatermarkLastDayHighOutBitRate
- ifWatermarkLastDayLowTxUtilTime
- ifWatermarkLastDayLowOutPktRate
- ifWatermarkLastDayLowOutBitRate

### Deprecated MIBs

There are no deprecated MIBs in this release.

## RFCs and standards

The following RFCs and standards are newly supported in this release:

- draft-ietf-idr-add-paths-10
- draft-ietf-idr-best-external-05
- RFC 4655 – A Path Computation Element (PCE) Based Architecture.
- RFC 5440 – Path Computation Element (PCE) Protocol (PCEP). Fully supported except SVEC and Load-balance objects

- RFC 5521 – Extensions to the Path Computation Element Protocol (PCEP) for Route Exclusions. This is partially supported; SRLG ID and Unnumbered interfaces are not supported. Explicit Exclusion Route sub-object (EXRS) is not supported.

# Hardware support

## Supported devices for R06.0.00g

The following devices are supported in this release:

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

## Supported devices for Network Packet Broker R06.0.00g

| <b>XMR Series</b> | <b>MLX Series</b> |
|-------------------|-------------------|
| 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-100GX1-X       | MLX Series 1-port 100 GbE module with IPv4/IPv6/MPLS hardware support—requires high-speed switch fabric modules and CFP optics.   | Yes                                 | Yes                                 | 2          |
| BR-MLX-100GX2-X       | MLX Series 2-port 100 GbE module with IPv4/IPv6/MPLS hardware support—requires high-speed switch fabric modules and CFP optics.   | Yes                                 | Yes                                 | 2          |
| 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-1GX48-T-A   | MLX Series 48-port 10/100/1000BASE-T, MRJ21 module with IPv4/IPv6/MPLS hardware support.  | Yes                                 | No                                  | 1.1        |
| 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

For a list of supported fiber-optic transceivers that are available from Extreme, refer to the latest version of the Extreme Optics Family Data Sheet available online at

<https://cloud.kapostcontent.net/pub/a070d154-d6f1-400b-b2f0-3d039ae2f604/data-center-ethernet-optics-data-sheet?kui=Cc1YBpmqyfb2mDfw2vlq2g>.

The NetIron 6.0.00a release includes support for the following:

| Part number        | Description                      |
|--------------------|----------------------------------|
| CFP2-TO-QSFP28-MOD | CFP2 to QSFP28 conversion module |

# Software upgrade and downgrade

## Image file names

Download the following images from [www.extremenetworks.com](http://www.extremenetworks.com). In some cases, boot and manifest images do not need to be upgraded.

## MLX Series and XMR Series 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 R6.0.00g MLX Series/XMR Series software upgrade

# Manifest File for XMR/MLX Release 06.0.00

-NETIRON\_IRONWARE\_VER XMR-MLXV6.0.00g

#=====

-DIRECTORY /Boot/InterfaceModule

xmlprm05900.bin

-DIRECTORY /Boot/ManagementModule

xmprm05900.bin

# Application Images

-DIRECTORY /Combined/FPGA

lpfpga06000g.bin

-DIRECTORY /Combined/Application

xm06000g.bin

-DIRECTORY /Monitor/InterfaceModule

xmlb06000.bin

-DIRECTORY /Monitor/ManagementModule

xmb06000.bin

-DIRECTORY /Application/ManagementModule

xmr06000g.bin

-DIRECTORY /Application/InterfaceModule

xmlp06000g.bin

-DIRECTORY /FPGA/InterfaceModule

pbif4x40\_06000g.bin 2.05

pbif8x10\_06000g.bin 2.24

pbifmrj\_06000g.bin 4.04

pbifsp2\_06000g.bin 4.02

statsmrj\_06000g.bin 0.09

xgmacsp2\_06000g.bin 0.17

xpp2x100\_06000g.bin 1.05

xpp4x40\_06000g.bin 6.00

xpp4x10g3\_06000g.bin 5.00

xpp8x10\_06000g.bin 1.08

xppmrj\_06000g.bin 1.03



xppsp2\_06000g.bin 1.01  
xppxsp2\_06000g.bin 1.01  
pbif-ber-g3\_06000g.bin 2.05  
xpp20x10g3\_06000g.bin 6.04  
xpp2x100g3\_06000g.bin 6.04  
-DIRECTORY /FPGA/ManagementModule  
mbridge32\_06000g.xsvf 36  
mbridge\_06000g.xsvf 37  
sbridge\_06000g.mcs 6  
hsbridge\_06000g.mcs 17  
-END\_OF\_IMAGES

-DIRECTORY /Signatures  
xmlprm05900.sig  
xmprm05900.sig  
xmlb06000.sig  
xmb06000.sig  
xmr06000g.sig  
xmlp06000g.sig  
lpfpga06000g.sig  
hsbridge\_06000g.sig  
mbridge\_06000g.sig  
mbridge32\_06000g.sig  
sbridge\_06000g.sig  
pbif4x40\_06000g.sig  
pbif8x10\_06000g.sig  
pbifmrj\_06000g.sig  
pbifsp2\_06000g.sig  
pbif-ber-g3\_06000g.sig  
statsmrj\_06000g.sig  
xgmacsp2\_06000g.sig  
xpp2x100\_06000g.sig  
xpp20x10g3\_06000g.sig  
xpp2x100g3\_06000g.sig  
xpp4x40\_06000g.sig  
xpp4x10g3\_06000g.sig  
xpp8x10\_06000g.sig  
xppmrj\_06000g.sig  
xppsp2\_06000g.sig  
xppxsp2\_06000g.sig  
xmlprm05900.sha256  
xmprm05900.sha256  
xmlb06000.sha256  
xmb06000.sha256  
xmr06000g.sha256  
xmlp06000g.sha256  
lpfpga06000g.sha256  
hsbridge\_06000g.sha256

mbridge\_06000g.sha256  
 mbridge32\_06000g.sha256  
 sbridge\_06000g.sha256  
 pbif4x40\_06000g.sha256  
 pbif8x10\_06000g.sha256  
 pbifmrj\_06000g.sha256  
 pbifsp2\_06000g.sha256  
 pbif-ber-g3\_06000g.sha256  
 statsmrj\_06000g.sha256  
 xgmacsp2\_06000g.sha256  
 xpp2x100\_06000g.sha256  
 xpp20x10g3\_06000g.sha256  
 xpp2x100g3\_06000g.sha256  
 xpp4x40\_06000g.sha256  
 xpp4x10g3\_06000g.sha256  
 xpp8x10\_06000g.sha256  
 xppmrj\_06000g.sha256  
 xppsp2\_06000g.sha256  
 xppxsp2\_06000g.sha256

#### FPGA file names and supported modules

| File Name   | Supported Modules                             |
|-------------|---|
| pbif4x40    | 4x40G modules                                 |
| pbif8x10    | 8x10G modules                                 |
| pbifmrj     | 24x1G and 48x1G modules                       |
| pbifsp2     | 2x10G, 4x10G, 4x10G-x and 20x1G modules       |
| statsmrj    | 24x1G and 48x1G modules                       |
| xgmacsp2    | 2x10G, 4x10G-x and 4x10G modules              |
| xpp2x100    | 2x100G modules (double-wide CFP-based module) |
| xpp4x40     | 4x40G modules                                 |
| xpp8x10     | 8x10G modules                                 |
| xppmrj      | 24x1G and 48x1G modules                       |
| xppsp2      | 2x10G, 4x10G, and 20x1G modules               |
| xpp4x10g3   | 4x10G and 4x1G (M) IPSEC modules              |
| xppxsp2     | 4x10G-x                                       |
| pbif-ber-g3 | 20x10G and 2x100G modules (-M and -X2)        |
| xpp20x10g3  | 20x10G modules                                |
| xpp2x100g3  | 2x100G modules (half-slot CFP2-based module)  |
| mbridge32   | MBRIDGE32                                     |
| mbridge     | MBRIDGE                                       |
| sbridge     | Switch fabric modules                         |
| hsbridge    | High speed switch fabric modules              |

## CES 2000 Series and CER 2000 Series devices

**NOTE:** When upgrading CES 2000 Series and 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 R6.0.00g software upgrade

```
-NETIRON_IRONWARE_VER CES-CERV6.0.00g
#=====
-DIRECTORY /Boot
ceb06000.bin
-DIRECTORY /Application
ce06000g.bin
-DIRECTORY /FPGA
pbifmetro_06000g.bin
-END_OF_IMAGES

-DIRECTORY /Signatures
ceb06000.sig
ce06000g.sig
pbifmetro_06000g.sig
ceb06000.sha256
ce06000g.sha256
pbifmetro_06000g.sha256
-DIRECTORY /MIBS
ce06000g.mib
ce06000g_std.mib
```

## 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 R6.0.00g software upgrade

```
-NETIRON_IRONWARE_VER XMR-MLXV6.0.00g
#=====
-DIRECTORY /Boot/InterfaceModule
xmlprm05900.bin
-DIRECTORY /Boot/ManagementModule
xmprm05900.bin
# Application Images
-DIRECTORY /Combined/FPGA
lpfpga_npb_06000g.bin
-DIRECTORY /Combined/Application
xm06000g.bin
-DIRECTORY /Monitor/InterfaceModule
xmlb06000.bin
```

-DIRECTORY /Monitor/ManagementModule  
xmb06000.bin  
-DIRECTORY /Application/ManagementModule  
xmr06000g.bin  
-DIRECTORY /Application/InterfaceModule  
xmlp06000g.bin  
-DIRECTORY /FPGA/InterfaceModule  
pbif4x40\_06000g.bin 2.05  
pbif8x10\_06000g.bin 2.24  
pbifmrj\_06000g.bin 4.04  
pbifsp2\_06000g.bin 4.02  
statsmrj\_06000g.bin 0.09  
xgmacsp2\_06000g.bin 0.17  
xpp2x100\_06000g.bin 1.05  
xpp4x40\_06000g.bin 6.00  
xpp4x10g3\_06000g.bin 5.00  
xpp8x10\_06000g.bin 1.08  
xppmrj\_06000g.bin 1.03  
xppsp2\_06000g.bin 1.01  
xppxsp2\_06000g.bin 1.01  
pbif-ber-g3\_06000g.bin 2.05  
xpp20x10g3\_npb\_06000g.bin 6.14  
xpp2x100g3\_npb\_06000g.bin 6.14  
-DIRECTORY /FPGA/ManagementModule  
mbridge32\_06000g.xsvf 36  
mbridge\_06000g.xsvf 37  
sbridge\_06000g.mcs 6  
hsbridge\_06000g.mcs 17  
-END\_OF\_IMAGES

-DIRECTORY /Signatures  
xmlprm05900.sig  
xmprm05900.sig  
xmlb06000.sig  
xmb06000.sig  
xmr06000g.sig  
xmlp06000g.sig  
lpfpga\_npb\_06000g.sig  
hsbridge\_06000g.sig  
mbridge\_06000g.sig  
mbridge32\_06000g.sig  
sbridge\_06000g.sig  
pbif4x40\_06000g.sig  
pbif8x10\_06000g.sig  
pbifmrj\_06000g.sig  
pbifsp2\_06000g.sig  
pbif-ber-g3\_06000g.sig  
statsmrj\_06000g.sig

xgmacsp2\_06000g.sig  
xpp2x100\_06000g.sig  
xpp20x10g3\_npb\_06000g.sig  
xpp2x100g3\_npb\_06000g.sig  
xpp4x40\_06000g.sig  
xpp4x10g3\_06000g.sig  
xpp8x10\_06000g.sig  
xppmrj\_06000g.sig  
xppsp2\_06000g.sig  
xppxsp2\_06000g.sig  
xmlprm05900.sha256  
xmprm05900.sha256  
xmlb06000.sha256  
xmb06000.sha256  
xmr06000g.sha256  
xmlp06000g.sha256  
lpfpga\_npb\_06000g.sha256  
hsbridge\_06000g.sha256  
mbridge\_06000g.sha256  
mbridge32\_06000g.sha256  
sbridge\_06000g.sha256  
pbif4x40\_06000g.sha256  
pbif8x10\_06000g.sha256  
pbifmrj\_06000g.sha256  
pbifsp2\_06000g.sha256  
pbif-ber-g3\_06000g.sha256  
statsmrj\_06000g.sha256  
xgmacsp2\_06000g.sha256  
xpp2x100\_06000g.sha256  
xpp20x10g3\_npb\_06000g.sha256  
xpp2x100g3\_npb\_06000g.sha256  
xpp4x40\_06000g.sha256  
xpp4x10g3\_06000g.sha256  
xpp8x10\_06000g.sha256  
xppmrj\_06000g.sha256  
xppsp2\_06000g.sha256  
xppxsp2\_06000g.sha256  
# MIBS:  
-DIRECTORY /MIBS  
xmr06000g.mib  
xmr06000g\_std.mib

## 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 6.0.00a, a two-step approach may be required.

### Scenario 1

Customers running releases 5.9.00a, 5.6.00ga, 5.6.00h, 5.8.00d, 5.7.00e or subsequent releases can directly upgrade to 6.0.00a using MLX06000a\_Manifest.txt.

**NOTE:** If the System is not running one of the releases listed above, follow scenario 2 or scenario 3 mentioned below.

### Scenario 2

To upgrade from 5.6.00c or any later release (other than the images mentioned in Scenario 1), a two-step approach is required.

1. Upgrade to 5.9.00b and reload the device.
2. Upgrade to 6.0.00a using MLX06000a\_Manifest and reload the device.

### Scenario 3

To upgrade to 6.0.00a from releases prior to R05.6.00c, use the following procedure.

1. Upgrade to 5.9.00b and reload the device.
2. Upgrade again to 5.9.00b 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 6.0.00a with MLX06000a\_Manifest.txt and reload the device.

### Scenario 4

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

- Packet Timestamping
  - Source port labeling
  - NVGRE stripping
1. Upgrade to 6.0.00a 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 NI 6.0.00a.
  3. Configure the **fpga-mode-npb** command and save the configuration.
  4. Upgrade to the 6.0.00a NPB image using MLX\_npb\_06000a\_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

```
MLX-GVR#show version
System Mode: XMR

...
...
...

FPGA versions:
Valid PBIF Version = 4.02, Build Time = 8/26/2013 14:30:00

Valid XPP Version = 1.01, Build Time = 9/6/2013 14:17:00

XGMAC-2 0
XGMAC-2 1
666 MHz MPC MPC8541E (version 8020/0020) 333 MHz bus
512 KB Boot Flash (MX29LV040C), 16 MB Code Flash (MT28F640J3)
512 MB DRAM, 8 KB SRAM

...
...

Boot      : Version 5.9.0T175 Copyright (c) 2017-2018 Extreme Networks, INC.
Compiled on Mar 19 2015 at 03:17:00 labeled as xmlprm05900
(449576 bytes) from boot flash
Monitor   : Version 5.9.0T175 Copyright (c) 2017-2018 Extreme Networks, INC.
Compiled on Apr 28 2016 at 02:42:58 labeled as xmlb05900b1
(571381 bytes) from code flash
IronWare  : Version 5.9.0T177 Copyright (c) 2017-2018 Extreme Networks, INC.
Compiled on Apr 23 2018 at 04:02:04 labeled as xmlp05900b1
(9558947 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

...
...
...

All show version done
MLX-GVR#
```

### Output example for the show flash command

```
MLX-GVR#show flash
~~~~~
...
...
...
~~~~~
```

Line Card Slot 1

Code Flash: Type MT28F256J3, Size 66846720 Bytes (~64 MB)  
o IronWare Image (Primary)  
Version 6.0.0aT177, Size 9529041 bytes, Check Sum a2c5  
Compiled on Jul 25 2016 at 11:27:22 labeled as xmlp06000a  
o IronWare Image (Secondary)  
Version 5.7.0bT177, Size 7800332 bytes, Check Sum 5d75  
Compiled on Oct 22 2014 at 20:08:46 labeled as xmlp05700b  
o Monitor Image  
Version 6.0.0T175, Size 571513 bytes, Check Sum 4875  
Compiled on Jun 7 2016 at 16:09:50 labeled as xmlb06000  
Boot Flash: Type MX29LV040C, Size 512 KB  
o Boot Image  
Version 5.9.0T175, Size 449576 bytes, Check Sum 3bc9  
Compiled on Mar 19 2015 at 03:17:00 labeled as xmlprm05900  
FPGA Version (Stored In Flash):  
PBIF Version = 2.05, Build Time = 5/20/2015 22:20:00  
  
XPP Version = 6.14 (NPB), Build Time = 5/18/2016 17:39:00

~~~~~  
Line Card Slot 2

Code Flash: Type MT28F256J3, Size 66846720 Bytes (~64 MB)  
o IronWare Image (Primary)  
Version 6.0.0aT177, Size 9529041 bytes, Check Sum a2c5  
Compiled on Jul 25 2016 at 11:27:22 labeled as xmlp06000a  
o IronWare Image (Secondary)  
Version 5.7.0T177, Size 7794476 bytes, Check Sum 5e0c  
Compiled on Jun 26 2014 at 12:16:28 labeled as xmlp05700  
o Monitor Image  
Version 6.0.0T175, Size 571513 bytes, Check Sum 4875  
Compiled on Jun 7 2016 at 16:09:50 labeled as xmlb06000  
Boot Flash: Type MX29LV040C, Size 512 KB  
o Boot Image  
Version 5.9.0T175, Size 449576 bytes, Check Sum 3bc9  
Compiled on Mar 19 2015 at 03:17:00 labeled as xmlprm05900  
FPGA Version (Stored In Flash):  
PBIF Version = 2.05, Build Time = 5/20/2015 22:20:00  
  
XPP Version = 6.14 (NPB), Build Time = 5/2/2016 12:00:00

~~~~~  
...  
...  
...  
~~~~~

Line Card Slot 16

Code Flash: Type MT28F256J3, Size 66846720 Bytes (~64 MB)  
o IronWare Image (Primary)  
Version 6.0.0aT177, Size 9529041 bytes, Check Sum a2c5  
Compiled on Jul 25 2016 at 11:27:22 labeled as xmlp06000a  
o IronWare Image (Secondary)  
Version 5.7.0bT177, Size 7800332 bytes, Check Sum 5d75  
Compiled on Oct 22 2014 at 20:08:46 labeled as xmlp05700b  
o Monitor Image  
Version 6.0.0T175, Size 571513 bytes, Check Sum 4875  
Compiled on Jun 7 2016 at 16:09:50 labeled as xmlb06000



```

Boot Flash: Type MX29LV040C, Size 512 KB
  o Boot Image
    Version 5.9.0T175, Size 449576 bytes, Check Sum 3bc9
    Compiled on Mar 19 2015 at 03:17:00 labeled as xmlprm05900
FPGA Version (Stored In Flash):
  PBIF Version = 2.05, Build Time = 5/20/2015 22:20:00

  XPP Version = 6.14 (NPB), Build Time = 5/18/2016 17:39:00

```

```

~~~~~
All show flash done
MLX-GVR#

```

### Output example for the show module command

```

MLX-GVR#show module
90
Module                                     Status
Ports      Starting MAC
M1 (upper):BR-MLX-MR2-X Management Module   Active
M2 (lower):BR-MLX-MR2-X Management Module   Standby(Ready State)
F1: NI-X-HSF Switch Fabric Module          Active
F2: NI-X-HSF Switch Fabric Module          Active
F3: NI-X-HSF Switch Fabric Module          Active
F4:
S1: BR-MLX-10Gx20 20-port 1/10GbE Module    CARD_STATE_UP
20      cc4e.2445.2300
S2: BR-MLX-100Gx2-CFP2 2-port 100GbE Module CARD_STATE_UP
2       cc4e.2445.2330
...
...
...

S15: BR-MLX-100Gx2-CFP2 2-port 100GbE Module CARD_STATE_UP
2      cc4e.2445.25a0
S16: BR-MLX-10Gx20 20-port 1/10GbE Module   CARD_STATE_UP
20     cc4e.2445.25d0
MLX-GVR#

```

## OpenFlow upgrade and downgrade

When downgrading the system from R06.0.00a to R05.8.00, 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 supported from R06.0.00f to R06.0.00g.

# Limitations and restrictions

## Scalability

All scalability limits are subject to change. The limits noted in this section apply to all the platforms listed unless otherwise specified.

| Scalability limits               | MLX Series |
|----------------------------------|------------|
| IPv4 non-default VRF routes      | 750K       |
| System max ip-route and ip-cache | 750K       |
| Address family IPv4 max-route    | 750K       |

## Compatibility and interoperability

- MLxe (NI6.0) and Vyatta (4.2R1) IPsec interop
- MLxe (NI5.9.0a) and ICX (8.0.41) IPsec interop
- MLxe (NI6.0) and BFO 1.2 interop

### **802.1BR and VN-tag header processing have the following limitations.**

- If the ingress port is on a 24x10 module, it is recommended to use a catch all Layer 2 Policy Based Routing (L2 PBR) to forward that traffic to a service port for VNTAG and 802.1BR header removal, followed by L2 and L3 PBR on the service port.
- Other ingress modules (8X10G etc) can separate the 802.1BR and VNTAG traffic to the service port using L2 PBR, and conduct L2/L3 PBR matching on the remaining traffic.
- 802.1BR header stripping and VN-tag header stripping features are supported in BR-MLX-40Gx4, BR-MLX-10Gx20, and BR-MLX-100Gx2-CFP2 modules.
- When using the 802.1BR header stripping and VN-tag header stripping features with loopback system configuration (intermediate card), support is only available on the BR-MLX-40Gx4 module. The 802.1BR header stripping and VN-tag header stripping configuration with loopback system is not supported on the BR-MLX-10Gx20 and BR-MLX-100Gx2-CFP2 modules.

## Important notes

### **CES device (512M memory) recommendations.**

- CES device configured with any MPLS feature AND any Layer 2 or Layer 3 scalability running at maximum system values will run at borderline or below the threshold memory for normal runtime operation. This is NOT a recommended configuration in NetIron 6.0.00x. Customers on earlier NetIron versions should not upgrade to NetIron 6.0.00x.
- CES device configured with any MPLS feature and any Layer 2 or Layer 3 scalability running at default system values will run above threshold memory for normal runtime operation. This is a supported configuration for NetIron 6.0.00x.
- CES device configured with any Layer 2 or Layer 3 scalability running at maximum system values and without any MPLS feature will run above threshold memory for normal runtime operation. This is a supported configuration for NetIron 6.0.00x.

- MCT timers for CES/CER: Recommended timers for scaled environments are 1s for 3 tries.
- BFD for CES/CER: In highly scaled CES/CER environments, the implementation of BFD is not recommended.
- IPsec and Hitless Upgrade: A few IPsec tunnels may flap during HLOS window for certain highly scaled scenarios with short rekey timers.

### Optics adapters

- The NetIron 6.0.00a release includes support for the CFP2-TO-QSFP28-MOD optics adapter. Upon installation, expect a linkup time of approximately 10 seconds.

## Hardware Notes

MR management module is supported until R05.7.00, and not supported in NI R05.8.00 and later.

The MR2 management module is required in NI R05.8.00 and later releases.

- If Gen1.1 line cards are present in a chassis, Gen3 modules cannot go to -X2 scale. In such cases, only the scale defined for Gen1.1 cards can be achieved. Gen1.1 cards will have to be removed from the chassis to achieve -X2 scale.
- On a chassis with Gen1.1 cards, it is strongly recommended to keep system-max values within the maximum supported in the CAM profile being used.
- With 1.8M IPv6 routes, during an MP switchover, protocol flaps or ND flaps could be encountered. The workaround is to use the following timer configuration –

```

ipv6 nd reachable-time 3000
!
!
!
address-family ipv6 unicast
 graceful-restart restart-time 1800
 graceful-restart stale-routes-time 1900
 graceful-restart purge-time 1950

```

- With -X2 scaling, it is recommended to limit BFD timers to >= 200ms using the command -
  - `bfd interval 200 min-rx 200 multiplier 3`
- With 2.4M IPv4 routes, BGP can take 3 to 4 minutes to learn routes on MP and 10 to 15 minutes to program routes on the LP. If the routes have MPLS next hops with several ECMP paths, learning can take up to 25 minutes.
- With 2M VPN routes configured, deleting 1000 VRFs or more within a few seconds might result in the MP and LP being out-of-sync. Workaround would be to leave a 5 second gap between deletion of every VRF.
- With -X2 scaling, LACP (short timer) flaps may be seen when an LP on which 2.4M IPv4 routes have been learned is reloaded.
- On BR-MLX-10Gx4-M-IPSEC, in 1G mode, when unencrypted traffic exceeds 99.9%, InErrors, may be seen in the “show statistics” output. These are seen as FCS errors (as shown below). This issue can be seen on the four 1G ports, as well as the four 10G/1G ports when operating in 1G mode, with non- IPsec traffic.
- 100% throughput can be achieved on BR-MLX-10Gx4-M-IPSEC with IPsec traffic.

```
Router#sh st e 1/6
```

```

PORT 1/6 Counters:
      InOctets      7831740944      OutOctets      7831962000
      InPkts        870257          OutPkts        870218

```

|                 |           |                   |           |
|-----------------|-----------|-------------------|-----------|
| InBroadcastPkts | 0         | OutBroadcastPkts  | 0         |
| InMulticastPkts | 0         | OutMulticastPkts  | 0         |
| InUnicastPkts   | 870131    | OutUnicastPkts    | 870218    |
| InDiscards      | 0         | OutDiscards       | 0         |
| InErrors        | 126       | OutErrors         | 0         |
| InCollisions    | 0         | OutCollisions     | 0         |
|                 |           | OutLateCollisions | 0         |
| Alignment       | 0         | FCS               | 126       |
| InFlowCtrlPkts  | 0         | OutFlowCtrlPkts   | 0         |
| GiantPkts       | 0         | ShortPkts         | 0         |
| InBitsPerSec    | 997746326 | OutBitsPerSec     | 997737206 |
| InPktsPerSec    | 13859     | OutPktsPerSec     | 13857     |
| InUtilization   | 99.99%    | OutUtilization    | 99.99%    |

- 100G CFP2 ER4 optic is supported on the MLXe 2-port 100GbE CFP2 line card with hardware revision 15 or later only. Use the *show version slot* command to check the hardware version of the line card and confirm that the part number (underlined in the example below) is -15 or later.

Syntax: **show version slot** <slot number>

```
MLX#sh ver sl 4
```

---

```

SL 4: BR-MLX-1Gcx24-X 24-port 10/100/1000Base-T Copper Module (Serial #:
BNA0427K002, Part #: 60-1001878-11)
License: MLX-1Gx24-X-Upgrade (LID: dpcFJHMmFFH)
Boot      : Version 5.9.0T175 Copyright (c) 2017-2018 Extreme Networks, INC.
Compiled on Mar 19 2015 at 03:17:00 labeled as xmlprm05900
(449576 bytes) from boot flash
Monitor   : Version 5.9.0T175 Copyright (c) 2017-2018 Extreme Networks, INC.
Compiled on Apr 28 2016 at 02:42:58 labeled as xmlb05900b1
(571381 bytes) from code flash
IronWare  : Version 5.9.0T177 Copyright (c) 2017-2018 Extreme Networks, INC.
Compiled on Apr 23 2018 at 04:02:04 labeled as xmlp05900b1
(9558947 bytes) from Primary
FPGA versions:
Valid PBIFF Version = 4.04, Build Time = 11/10/2014 22:10:00

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

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 4 uptime is 22 minutes 5 seconds

```

# TSBs

## 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 6.0c

---

| <b>TSB</b>            | <b>Summary</b>                                                                                                                                                                                                                                                                                                                      |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TSB 2016-249-A</b> | On a NetIron device running NetIron 05.8.00 and later releases up to and including 06.1.00, the management module may unexpectedly reload when a scanning tool is accessing the NetIron device to scan SSH port 22 continuously, corrupting the data structure of an existing SSH session. This may result in an unexpected reload. |
| <b>TSB 2016-248-A</b> | On a NetIron XMR/MLX device running NI 05.8.00 or later versions up to 06.1.00, GRE and IPv6-over-IPv4 traffic transiting through a non-default VRF will be dropped if "tunnel-mode" is configured.                                                                                                                                 |

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### TSB issues resolved in 6.0ab

---

| <b>TSB</b>            | <b>Summary</b>                                                                                                                                                                                                                     |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TSB 2016-242-A</b> | For a critical defect (DEFECT 617836) causing unexpected MLX Line Card reloads. Brocade strongly recommends that all customers running the affected releases upgrade to releases with the fix, whether IPsec is configured or not. |

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## TSB issues resolved in 6.0

| <b>TSB</b>                | <b>Summary</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TSB 2016-232-A [1]</b> | When upgrading to NetIron 5.7.00 or later from any version prior to NetIron 5.7.00, any ACL with a name starting with a number will not be applied after reload.                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>TSB 2016-233-A</b>     | With the default configuration, in 5.8.00d the MAC Port Security feature does not block non-secure MACs.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>TSB 2015-212-A [1]</b> | <p>This concerns a vulnerability in the Network Time Protocol (NTP) Project NTP daemon (ntpd) documented by CVE-2014-9296. The ntpd version 4.2.7 and previous versions allow attackers to overflow several buffers in a way that may allow malicious code to be executed.</p> <p>The NTP Project daemon implementation is widely used in operating system distributions and network products. This vulnerability affects ntpd acting as a server or client on a system in which not only is authentication configured, but an authentication error occurs.</p> |

# Defects

## Closed with code changes R06.0.00g

This section lists software defects with Critical, High, and Medium Technical Severity closed with a code change as of 06/27/2018 in NI 6.0.00g.

|                             |                                                  |                          |                                      |
|-----------------------------|--------------------------------------------------|--------------------------|--------------------------------------|
| <b>Defect ID:</b>           | DEFECT000638335                                  |                          |                                      |
| <b>Technical Severity:</b>  | High                                             | <b>Probability:</b>      | High                                 |
| <b>Product:</b>             | Extreme NetIron OS                               | <b>Technology Group:</b> | OSPF - IPv4 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 05.8.00                                       | <b>Technology:</b>       | Layer 3 Routing/Network Layer        |
| <b>Symptom:</b>             | Routes for VEoVPLS in a VRF may not be resolved. |                          |                                      |
| <b>Condition:</b>           | Routes for VEoVPLS in a VRF may not be resolved. |                          |                                      |

|                             |                                                                                                                                                                                                                          |                          |                              |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------|
| <b>Defect ID:</b>           | DEFECT000656359                                                                                                                                                                                                          |                          |                              |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                   | <b>Probability:</b>      | Low                          |
| <b>Product:</b>             | Extreme NetIron OS                                                                                                                                                                                                       | <b>Technology Group:</b> | CLI - Command Line Interface |
| <b>Reported In Release:</b> | NI 06.1.00                                                                                                                                                                                                               | <b>Technology:</b>       | Management                   |
| <b>Symptom:</b>             | Following error message may be observed on LP Console<br>kbp_duplicate_entry_IPVPN[0] idx : 0x00218021 tbl_id : 32 vpn_id = 4097,<br>pfx : a.b.c.d/32                                                                    |                          |                              |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. Configure CAM in amod mode</li> <li>2. Configure a loopback interface</li> <li>3. Configure a VRF in VE interface</li> <li>4. Remove and re-add VRF in VE interface</li> </ol> |                          |                              |

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                          |                                     |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| <b>Defect ID:</b>           | DEFECT000660088                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                          |                                     |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Probability:</b>      | Low                                 |
| <b>Product:</b>             | Extreme NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Technology Group:</b> | BGP4 - IPv4 Border Gateway Protocol |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer    |
| <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> 21672168: memcpy(pc) 211fe30c: kbp_memcpy(lr) 20b5bf9c: kbp_npxpt_compare_data 20b5b504: kbp_npxpt_execute_req 20b5b300: kbp_npxpt_service_reqs 21547c34: kbp_xpt_service_requests 21546500: kbp_dm_12k_cbwlpn 2152ca78: device_compare 2152dcd0: kbp_instruction_search 21599064: NlmNsTrie__CheckAndFixRpt 215990f8: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599114: NlmNsTrie__FindIptUnderRpt 21599180: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 21599190: NlmNsTrie__FindRptEntries 215992d4: NlmNsTrie__SearchAndRepairRpt 215a7988: kbp_ftm_search_and_repair_rpt 215881bc: kbp_lpm_db_advanced_search_and_repair 215bab14: kbp_device_advanced_fix_errors 21534f38: kbp_device_12k_fix_parity_errors 2152a538: kbp_device_fix_errors 20b5561c: netroute_ifsr_fix_errors 20ac956c: nlcam_ifsr_netroute_scan_errors 20ac8b90: nlcam_ifsr_fifo_poll 200058c0: perform_callback 200062c8: timer_timeout 00040160: sys_end_entry 0005e4a0: suspend 0005cf78: dev_sleep 00005024: xsyscall </pre> |                          |                                     |



|                    |                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
|                    | 207f3af4: main<br>00040158: sys_end_task                                                                                         |
| <b>Condition:</b>  | Rarely observed during the execution of 'clear BGP neighbor' command when software is trying to fix a CAM error at the same time |
| <b>Workaround:</b> | To disable the soft repair feature through the CLI using the cam ifsr disable command.                                           |

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                          |                                     |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------|
| <b>Defect ID:</b>           | DEFECT000661413                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                          |                                     |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Probability:</b>      | Low                                 |
| <b>Product:</b>             | Extreme NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Technology Group:</b> | BGP4 - IPv4 Border Gateway Protocol |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer    |
| <b>Symptom:</b>             | <p>CES/CER device may unexpectedly reload with the following stack trace:-<br/>Possible Stack Trace (function call return address list)</p> <p>20069c74: update_nh_hw_resource(pc)<br/> 20069b24: update_nh_hw_resource(lr)<br/> 20069fd8: write_nh_hw_entry<br/> 200731c0: update_nh_hw_entry<br/> 20069348: update_next_hop_entry<br/> 2006b0d0: update_backlink_table<br/> 2006b80c: mark_route_info_changed<br/> 2048dc58: lp_cam_update_arp_entry_pram<br/> 205bb284: process_one_arp_update_ip<br/> 20591dd0: process_one_arp_update<br/> 205920ec: process_arp_dy_messages<br/> 2034b01c: process_dy_change_packet<br/> 2037facc: ipc_multi_module_handler<br/> 2038222c: ipc_process_messages<br/> 203829ec: ipc_receive_packet<br/> 2037d308: ge_process_ipc_data_msg<br/> 2037d690: ge_process_ipc_msg<br/> 200b962c: metro_sys_loop<br/> 200af638: main<br/> 00040158: sys_end_task</p> |                          |                                     |
| <b>Condition:</b>           | Very rarely occurs with CER is configured as one of the BGP Speaker and processing ARP update messages                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                                     |

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| <b>Defect ID:</b>           | DEFECT000661452                                                                                                                                                                                                    |                          |                                     |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                               | <b>Probability:</b>      | Low                                 |
| <b>Product:</b>             | Extreme NetIron OS                                                                                                                                                                                                 | <b>Technology Group:</b> | BGP4 - IPv4 Border Gateway Protocol |
| <b>Reported In Release:</b> | NI 06.2.00                                                                                                                                                                                                         | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer    |
| <b>Symptom:</b>             | The BGP routes that are learned on the Route Reflector may get lost for the some of the existing clients.                                                                                                          |                          |                                     |
| <b>Condition:</b>           | New route reflector client is added to the existing clients within the same VRF                                                                                                                                    |                          |                                     |
| <b>Recovery:</b>            | Recovered by any one of the following steps:-<br>1. 'Clear ip bgp vpv4 neighbor all soft in'<br>2. 'Clear ip bgp vpv4 neighbor all soft'<br>3. Forcing each and every Route Reflector client to resend BGP updates |                          |                                     |

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| <b>Defect ID:</b>           | DEFECT000661617                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |                                      |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Probability:</b>      | Low                                  |
| <b>Product:</b>             | Extreme NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Technology Group:</b> | OSPF - IPv4 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer     |
| <b>Symptom:</b>             | Active Management module may unexpectedly reload with the following stack trace:-<br>20ff077c: ospf_find_neighbor_from_grace_lsa(pc)<br>2104293c: age_the_link_state_database_entry(lr)<br>2104293c: age_the_link_state_database_entry<br>21041e0c: ospf_process_age_lsdb_entry<br>21041144: ospf_router_timer<br>2100a244: ospf_timer_callback<br>20b16280: itc_process_msgs_internal<br>20b16720: itc_process_msgs<br>2100a5b8: ospf_task<br>00005e18: sys_end_task |                          |                                      |
| <b>Condition:</b>           | Occurs very rarely when the OSPF process is restarted from a problematic neighboring device to recover.                                                                                                                                                                                                                                                                                                                                                               |                          |                                      |

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| <b>Defect ID:</b>           | DEFECT000661713                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                          |                                  |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Probability:</b>      | Low                              |
| <b>Product:</b>             | Extreme NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Technology Group:</b> | IPv6 Addressing                  |
| <b>Reported In Release:</b> | NI 06.2.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer |
| <b>Symptom:</b>             | <p>Line card module may reload unexpectedly with the following stack trace:-</p> <pre> 20a1cc64: ppcr_tx_packet(pc) 20a1d658: ppcr_tx_held_packet(lr) 20a1d658: ppcr_tx_held_packet 20fd8ce4: nd6_forward_ppcr_pending_pkt 20fd940c: nd6_process_all_pending_packets 20fd7a40: nd6_delete_neighbor_entry_from_cache 20fbc928: nd6_slave_incomplete_nei_aging_handler 20fbcad4: nd6_slave_incomplete_nei_aging 20fbc9b4: nd6_slave_timer 20fb90b8: ipv6_slave_timer 20005a74: perform_callback 2000647c: timer_timeout 00040160: sys_end_entry 0005e4a0: suspend 0005cf78: dev_sleep 00005024: xsyscall 207f1664: main 00040158: sys_end_task </pre> |                          |                                  |
| <b>Condition:</b>           | Very rarely occurs with large number of incomplete ND6 (IPv6 neighbor discovery) entries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                          |                                  |

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| <b>Defect ID:</b>           | DEFECT000661906                                                                                                                                                                                                                                                                                                                                                                                          |                          |                           |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Probability:</b>      | Low                       |
| <b>Product:</b>             | Extreme NetIron OS                                                                                                                                                                                                                                                                                                                                                                                       | <b>Technology Group:</b> | Rate Limiting and Shaping |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                                               | <b>Technology:</b>       | Traffic Management        |
| <b>Symptom:</b>             | <p>Unexpected traffic loss in transit node with Class 0 Remap index updated as "54" instead of "0" in the following rate-limit output :-</p> <pre> LP#dm rate-limit ppcr 0 0 : : Class Bound CIR   CBS   ACCRT   EIR   EBS   ACERT   Remap Remark ----- 0  RX  5464064 10928128 10928128  5464064  10928128 10928128 '54'   0 0  TX  5464064 10928128 10928128  5464064  10928128 10928128 '54' 0 </pre> |                          |                           |
| <b>Condition:</b>           | <p>This is very rare scenario and happens on executing clear rate-limit counters multiple times when IP Receive ACL configured with Rate-limit policy in the router.</p> <p>ex :</p> <pre> conf t   policy-map rl-icmp     cir 993568 cbs 2000000   end conf t   ip receive access-list 192 sequence 30 policy-map rl-icmp end </pre>                                                                    |                          |                           |

## Closed with code changes R06.0.00f

This section lists software defects with Critical, High, and Medium Technical Severity closed with a code change as of 02/19/2018 in NI 6.0.00f.

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| <b>Defect ID:</b>           | DEFECT000613781                                                     |                          |                                       |
| <b>Technical Severity:</b>  | Medium                                                              | <b>Probability:</b>      | Low                                   |
| <b>Product:</b>             | Brocade NetIron OS                                                  | <b>Technology Group:</b> | OAM - Operations, Admin & Maintenance |
| <b>Reported In Release:</b> | NI 05.7.00                                                          | <b>Technology:</b>       | Monitoring                            |
| <b>Symptom:</b>             | "show interface" may not have reason for port down.                 |                          |                                       |
| <b>Condition:</b>           | Ports are brought down because of all back plane fabric links down. |                          |                                       |

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| <b>Defect ID:</b>           | DEFECT000617890                                                                                                                                                          |                          |                                      |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                   | <b>Probability:</b>      | Medium                               |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                       | <b>Technology Group:</b> | OSPF - IPv4 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                                               | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer     |
| <b>Symptom:</b>             | Ospf3 Intra area route may not be calculated, if there are multiple Intra area prefix originated by same advertising router.                                             |                          |                                      |
| <b>Condition:</b>           | More than one Intra area prefix lsa originated by single advertising router & any other intra area prefix lsa with different advertising router's LSA hash becomes same. |                          |                                      |

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| <b>Defect ID:</b>           | DEFECT000619399                                                                                                                                                                                                                 |                          |                                     |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                          | <b>Probability:</b>      | High                                |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                              | <b>Technology Group:</b> | BGP4 - IPv4 Border Gateway Protocol |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                                                                                                                                                      | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer    |
| <b>Symptom:</b>             | Removing and adding "aggregate-address x.y.z.q summary-only" causes BGP not to select the aggregate route as BEST route and subsequently prevents route advertisement for the aggregate route.                                  |                          |                                     |
| <b>Condition:</b>           | BGP global protocol distance for local route is configured as 255 and the aggregate route is marked as BEST in BGP and advertised to peers before the no form of command: "aggregate-address x.y.z.q summary-only" is executed. |                          |                                     |
| <b>Workaround:</b>          | Change BGP global protocol distance for local routes to a value other than 255( other accepted values 1-254) and clear all the BGP neighbor sessions.                                                                           |                          |                                     |

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| <b>Defect ID:</b>           | DEFECT000626014                                                                                                                               |                          |                              |
| <b>Technical Severity:</b>  | Medium                                                                                                                                        | <b>Probability:</b>      | Low                          |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                            | <b>Technology Group:</b> | MCT - Multi-Chassis Trunking |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                    | <b>Technology:</b>       | Layer 2 Switching            |
| <b>Symptom:</b>             | Multicast and Broadcast data traffic may be dropped for up to 4-5sec when CCP goes down by reloading or MM switchover on a MCT peer.          |                          |                              |
| <b>Condition:</b>           | In a MCT network setup, CCP down event due to<br>- MCT peer reload or<br>- MCT peer management module switchover<br>will cause this condition |                          |                              |

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| <b>Defect ID:</b>           | DEFECT000632625                                                                                                                                                                                                                                                                                                                                                                             |                          |                                      |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                                                                                                                                                                      | <b>Probability:</b>      | Low                                  |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                          | <b>Technology Group:</b> | OSPF - IPv4 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                                                                                                                                                                                                                                                                  | <b>Technology:</b>       | Layer 3 Routing/Network Layer        |
| <b>Symptom:</b>             | A route exists in OSPF route table but the same route is not seen in RTM.                                                                                                                                                                                                                                                                                                                   |                          |                                      |
| <b>Condition:</b>           | <p>1) An OSPF destination is reachable through 2 INTRA AREA paths on which, one of them is DIRECT and the other is reachable through a next-hop.</p> <p>(2) By executing the following sequence of commands through script</p> <p>Example:</p> <pre>conf t int e 1/8 disable exit no int ve 124</pre> <p>Where, the interface e 1/8 is part of VE 124 and OSPF is configured on VE 124.</p> |                          |                                      |
| <b>Workaround:</b>          | <p>Executing the following sequence of commands manually will avoid this issue</p> <p>Example:</p> <pre>conf t int e 1/8 disable exit no int ve 124</pre>                                                                                                                                                                                                                                   |                          |                                      |

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| <b>Defect ID:</b>           | DEFECT000634069                                                                                                                                                            |                          |                              |
| <b>Technical Severity:</b>  | High                                                                                                                                                                       | <b>Probability:</b>      | Low                          |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                         | <b>Technology Group:</b> | CLI - Command Line Interface |
| <b>Reported In Release:</b> | NI 05.9.00                                                                                                                                                                 | <b>Technology:</b>       | Management                   |
| <b>Symptom:</b>             | Port of 20X10G Line card Module may not come up.                                                                                                                           |                          |                              |
| <b>Condition:</b>           | It is very rarely observed when a new connection is made on a port of 20X10G.                                                                                              |                          |                              |
| <b>Recovery:</b>            | Any one of the following methods can help in recovery:-<br>1. Removal and Re-insert of SFPP<br>2. Swap SFPP by SFP and re-swap SFP by SFPP.<br>3. Reload Line card Module. |                          |                              |

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| <b>Defect ID:</b>           | DEFECT000637097                                                                                                                                                                                                                                                                                                                                                                                       |                          |                                     |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Probability:</b>      | High                                |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                    | <b>Technology Group:</b> | BGP4 - IPv4 Border Gateway Protocol |
| <b>Reported In Release:</b> | NI 06.1.00                                                                                                                                                                                                                                                                                                                                                                                            | <b>Technology:</b>       | Layer 3 Routing/Network Layer       |
| <b>Symptom:</b>             | BGP session in VRF does not come up if the BGP session is trying to establish in non-default vrf instance which is on loop-back interface and the next-hop is configured on default vrf to reach the bgp peer.                                                                                                                                                                                        |                          |                                     |
| <b>Condition:</b>           | BGP session on vrf instance is not coming up under the following conditions.<br>1) The BGP interface and the next-hop interfaces are not in the same vrf-forwarding instances.<br>2) Also when we configured inter vrf leaking for importing the routes.                                                                                                                                              |                          |                                     |
| <b>Workaround:</b>          | Follow all steps below to workaround the issue<br>1) Configure a secondary path to reach the BGP peer via different next-hop in the DUT.<br>2) The next-hop should be configured on the same vrf instance where the BGP session is originated in the DUT.<br>3) Also have the configuration to import the routes from one vrf to other vrf to achieve the inter-vrf routing configuration in the DUT. |                          |                                     |

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| <b>Defect ID:</b>           | DEFECT000639485                                                                                                                    |                          |                                 |
| <b>Technical Severity:</b>  | Medium                                                                                                                             | <b>Probability:</b>      | Medium                          |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                 | <b>Technology Group:</b> | Traffic Queueing and Scheduling |
| <b>Reported In Release:</b> | NI 05.4.00                                                                                                                         | <b>Technology:</b>       | Traffic Management              |
| <b>Symptom:</b>             | The EnQue/DeQue packet counts from "show tm-voq-stat src_port x/y cpu-queue" command does not match statistics of destination port |                          |                                 |
| <b>Condition:</b>           | For all CPU destined traffic                                                                                                       |                          |                                 |

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| <b>Defect ID:</b>           | DEFECT000640363                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |                                      |
| <b>Technical Severity:</b>  | Critical                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Probability:</b>      | Low                                  |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Technology Group:</b> | PIM - Protocol-Independent Multicast |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Technology:</b>       | IP Multicast                         |
| <b>Symptom:</b>             | Management Module unexpectedly reloads with the below stack trace and goes into a rolling reboot state :-<br>Possible Stack Trace (function call return address list)<br>20f736f4: pack_pim_nbr_node(pc)<br>20f736f0: pack_pim_nbr_node(lr)<br>20f73bb4: process_pim_nbr_download_request<br>202cc074: process_dy_download_request<br>202b5e98: ipc_process_messages<br>202b6b4c: ipc_receive_packet<br>20d6e9f0: sw_receive_packet<br>20d6f4e8: mp_rx_main<br>00005e18: sys_end_task |                          |                                      |
| <b>Condition:</b>           | It is very rarely observed during replacement of defective Line card Module                                                                                                                                                                                                                                                                                                                                                                                                           |                          |                                      |
| <b>Recovery:</b>            | <ol style="list-style-type: none"> <li>1.Power-off the chassis</li> <li>2. Remove one Management Module</li> <li>3.Power-on the chassis and bring the first Management Module Up</li> <li>4.Insert the other Management Module</li> </ol>                                                                                                                                                                                                                                             |                          |                                      |

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| <b>Defect ID:</b>           | DEFECT000640634                                                                                                                   |                          |                              |
| <b>Technical Severity:</b>  | High                                                                                                                              | <b>Probability:</b>      | Medium                       |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                | <b>Technology Group:</b> | MCT - Multi-Chassis Trunking |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                        | <b>Technology:</b>       | Layer 2 Switching            |
| <b>Symptom:</b>             | MCT cluster node fails to forward the packet towards CCEP ports                                                                   |                          |                              |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. MCT cluster peer is down</li> <li>2. Reload the Stand alone MCT cluster node</li> </ol> |                          |                              |
| <b>Recovery:</b>            | Reconfigure the cluster by "no deploy/deploy".                                                                                    |                          |                              |



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| <b>Defect ID:</b>           | DEFECT000642455                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          |                                      |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Probability:</b>      | Medium                               |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Technology Group:</b> | OSPF - IPv4 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer     |
| <b>Symptom:</b>             | Standby Management Module may unexpectedly reload with the following stack trace:-<br>Possible Stack Trace (function call return address list)<br>203afea4: nht_get_specific_index_from_pool(pc)<br>203b31fc: nht_create_new_entry_standby(lr)<br>203b31fc: nht_create_new_entry_standby<br>203b3d38: nht_standby_mp_update_entry<br>203b56a4: nht_standby_mp_process_dy_messages<br>2033a738: process_dy_change_packet<br>2032192c: ipc_process_messages<br>20322600: ipc_receive_packet<br>20f3cc70: sw_receive_packet<br>20f3d778: mp_rx_main<br>00005e18: sys_end_task |                          |                                      |
| <b>Condition:</b>           | It is observed rarely on a MLX/XMR device with OSPF, VRRP or MPLS combination.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |                                      |

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| <b>Defect ID:</b>           | DEFECT000642897                                                                                                                                                                                                                                                                                                                                                        |                          |                                                       |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                                                                                                                                                 | <b>Probability:</b>      | Medium                                                |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                     | <b>Technology Group:</b> | VRRPv3 - Virtual Router Redundancy Protocol Version 3 |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                                                                                                                                                                                                                                                             | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer                      |
| <b>Symptom:</b>             | Ping failure is observed for a IPv6 VRRP virtual IP from Host.                                                                                                                                                                                                                                                                                                         |                          |                                                       |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. VRRP master failover by disabling the VE interface</li> <li>2. Bring back the VRRP node as master again by enabling the VE interface</li> </ol> Example config:<br><pre>interface ve xx ip address a.b.c.d/24 ipv6 address e::f/64 ipv6 enable ipv6 vrrp vrid yy owner ipv6-address zz::a ipv6-address e::f activate !</pre> |                          |                                                       |
| <b>Recovery:</b>            | Ping from IPV6 VRRP master to Host to make reverse ping work.                                                                                                                                                                                                                                                                                                          |                          |                                                       |

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| <b>Defect ID:</b>           | DEFECT000643135                                                                                            |                          |                              |
| <b>Technical Severity:</b>  | Low                                                                                                        | <b>Probability:</b>      | Low                          |
| <b>Product:</b>             | Brocade NetIron OS                                                                                         | <b>Technology Group:</b> | CLI - Command Line Interface |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                                 | <b>Technology:</b>       | Management                   |
| <b>Symptom:</b>             | Fan-threshold command does not display option for Gen 2 Line card Modules though it accepts when executed. |                          |                              |
| <b>Condition:</b>           | When fan-threshold command is queried for further option.                                                  |                          |                              |

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| <b>Defect ID:</b>           | DEFECT000644003                                                                                                                                                                                                                                                                                                                                                                                                                   |                          |                                  |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Probability:</b>      | Low                              |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Technology Group:</b> | IP Addressing                    |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer |
| <b>Symptom:</b>             | Ping fails on a newly configured VRRP node.                                                                                                                                                                                                                                                                                                                                                                                       |                          |                                  |
| <b>Condition:</b>           | <p>It is very rarely observed when a new VRRP instance is configured through a script on a telnet console</p> <p>Note: This is specific to CES/CER only.</p> <p>Example config:</p> <pre> conf t vlan abc name XXX tagged ethe 2/3 to 2/4 router-interface ve abc interface ve abc port-name YYY ip address a.b.c.d/24 ip vrrp auth-type simple-text-auth xyz ip vrrp vrid abc owner ip-address a.b.c.d activate exit exit </pre> |                          |                                  |
| <b>Recovery:</b>            | <p>Disable and re-enable the VE</p> <pre> conf t int ve abc disable enable end </pre>                                                                                                                                                                                                                                                                                                                                             |                          |                                  |

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| <b>Defect ID:</b>           | DEFECT000644369                                                     |                          |                                           |
| <b>Technical Severity:</b>  | Medium                                                              | <b>Probability:</b>      | Medium                                    |
| <b>Product:</b>             | Brocade NetIron OS                                                  | <b>Technology Group:</b> | SNMP - Simple Network Management Protocol |
| <b>Reported In Release:</b> | NI 05.6.00                                                          | <b>Technology:</b>       | Management                                |
| <b>Symptom:</b>             | SNMP OID: "ifCounterDiscontinuityTime" does not have correct value. |                          |                                           |
| <b>Condition:</b>           | SNMP polling for the OID: "ifCounterDiscontinuityTime".             |                          |                                           |

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| <b>Defect ID:</b>           | DEFECT000644574                                                                                                                                                                                                                        |                          |                                      |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                 | <b>Probability:</b>      | Low                                  |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                     | <b>Technology Group:</b> | OSPF - IPv4 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                                                                                                                                                             | <b>Technology:</b>       | Layer 3 Routing/Network Layer        |
| <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:-<br>(1) OSPFv2 is enabled on the device<br>(2) static routes are configured with gateway, which is reachable and redistributed into OSPFv2<br>(3) Repeated image upgrade and downgrade |                          |                                      |
| <b>Recovery:</b>            | Flapping the interface towards the gateway will resolve the issue.                                                                                                                                                                     |                          |                                      |

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| <b>Defect ID:</b>           | DEFECT000645207                                                                                                                                                                                                                                                                                                                                                 |                          |                          |
| <b>Technical Severity:</b>  | Critical                                                                                                                                                                                                                                                                                                                                                        | <b>Probability:</b>      | High                     |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                              | <b>Technology Group:</b> | MPLS Traffic Engineering |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                                                                                                                                                                                                                                                                                      | <b>Technology:</b>       | MPLS                     |
| <b>Symptom:</b>             | On a scaled scenario where the LSPs are adaptive and protected, when an interface which has a lot of LSPs, around a 1000 at least, goes down all these LSPs will attempt to establish MBB LSP at the same time which causes a spike in CPU usage. In some cases some of the LSPs might even go down due to lack of CPU availability to process control packets. |                          |                          |
| <b>Condition:</b>           | This happens only in scaled scenarios where the LSPs are adaptive and protected, and a few thousand such LSPs are riding a protected interface, and the protected interface goes down.                                                                                                                                                                          |                          |                          |

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| <b>Defect ID:</b>           | DEFECT000645700                                                                 |                          |            |
| <b>Technical Severity:</b>  | Low                                                                             | <b>Probability:</b>      | Low        |
| <b>Product:</b>             | Brocade NetIron OS                                                              | <b>Technology Group:</b> | Sysmon     |
| <b>Reported In Release:</b> | NI 05.8.00                                                                      | <b>Technology:</b>       | Monitoring |
| <b>Symptom:</b>             | Execution of "sysmon sfm walk status" command may not return to command prompt. |                          |            |
| <b>Condition:</b>           | Execution of "sysmon sfm walk status" from telnet or ssh.                       |                          |            |
| <b>Workaround:</b>          | Execute "sysmon sfm walk status" from console session.                          |                          |            |
| <b>Recovery:</b>            | A return key will help.                                                         |                          |            |

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| <b>Defect ID:</b>           | DEFECT000646227                                                                                                                        |                          |                                       |
| <b>Technical Severity:</b>  | Medium                                                                                                                                 | <b>Probability:</b>      | Medium                                |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                     | <b>Technology Group:</b> | OAM - Operations, Admin & Maintenance |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                                                             | <b>Technology:</b>       | Monitoring                            |
| <b>Symptom:</b>             | Link may go down with Brocade 100G-LR4 CFP2 optic.                                                                                     |                          |                                       |
| <b>Condition:</b>           | Rarely observed when a interface is disabled and then enabled with Brocade 100G-LR4 CFP2 optic having serial number starting from YDF. |                          |                                       |

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| <b>Defect ID:</b>           | DEFECT000646510                                                 |                          |                                                     |
| <b>Technical Severity:</b>  | High                                                            | <b>Probability:</b>      | Medium                                              |
| <b>Product:</b>             | Brocade NetIron OS                                              | <b>Technology Group:</b> | RAS - Reliability, Availability, and Serviceability |
| <b>Reported In Release:</b> | NI 06.0.00                                                      | <b>Technology:</b>       | Monitoring                                          |
| <b>Symptom:</b>             | Unable to configure "speed-duplex 100-full" on CES/CER 1G port. |                          |                                                     |
| <b>Condition:</b>           | On Optics E1MG-100BXD and E1MG-100BXU.                          |                          |                                                     |

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| <b>Defect ID:</b>           | DEFECT000646724                                                                                                                                                                                                                                                                                                                                                                   |                          |                                     |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                                                                                                              | <b>Probability:</b>      | Medium                              |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                | <b>Technology Group:</b> | BGP4 - IPv4 Border Gateway Protocol |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                        | <b>Technology:</b>       | Layer 3 Routing/Network Layer       |
| <b>Symptom:</b>             | Traffic drop due to increase in BGP convergence time.                                                                                                                                                                                                                                                                                                                             |                          |                                     |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1. The device has both BGP/OSPF configuration</li> <li>2. BGP has (iBGP/eBGP) neighborship with more than 50 neighbor of routers with multiple policies configured for RIB-Out processing</li> <li>3. OSPF is used as IGP for installing the BGP routes</li> <li>4. OSPF path changes by cost modifications or port down events</li> </ol> |                          |                                     |

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| <b>Defect ID:</b>           | DEFECT000646997                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          |                             |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Probability:</b>      | Low                         |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Technology Group:</b> | ACLs - Access Control Lists |
| <b>Reported In Release:</b> | NI 05.7.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Technology:</b>       | Security                    |
| <b>Symptom:</b>             | Existing as-path access-list is modified when another access-list with same pattern is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                          |                             |
| <b>Condition:</b>           | <p>Existing as-path access-list is modified when another access-list with same pattern and different sequence number is added like below:-<br/>Existing config:</p> <pre>ip as-path access-list filter-from-as58453 seq 1 permit _xy\$ ip as-path access-list filter-from-as58453 seq 10 deny _(xy[0-9])_ ip as-path access-list filter-from-as58453 seq 1000 permit ^.*\$</pre> <p>New : 'ip as-path access-list filter-from-as58453 seq 2 deny ^.*\$'</p> <p>The new rule modifies the existing rule with seq num 1000, as they have similar pattern string and hence, changes the action from permit to deny like below:-</p> <pre>ip as-path access-list filter-from-as58453 seq 1000 deny ^.*\$</pre> |                          |                             |

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| <b>Defect ID:</b>           | DEFECT000648703                                                             |                          |                                      |
| <b>Technical Severity:</b>  | Medium                                                                      | <b>Probability:</b>      | Medium                               |
| <b>Product:</b>             | Brocade NetIron OS                                                          | <b>Technology Group:</b> | OSPF - IPv4 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 06.2.00                                                                  | <b>Technology:</b>       | Layer 3 Routing/Network Layer        |
| <b>Symptom:</b>             | OSPF may be installing invalid routes upon receiving invalid LSA            |                          |                                      |
| <b>Condition:</b>           | OSPF is flooded with invalid manipulated LSA and gets installed in database |                          |                                      |

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| <b>Defect ID:</b>           | DEFECT000649540                                                                                                                                                                                                                                                                        |                          |              |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                   | <b>Probability:</b>      | Low          |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                     | <b>Technology Group:</b> | IP over MPLS |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                                                                                                                                                             | <b>Technology:</b>       | MPLS         |
| <b>Symptom:</b>             | Connectivity may be lost for 3 minutes when backup LSP path is down                                                                                                                                                                                                                    |                          |              |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>1.The problematic prefix has to be learned from two different BGP peers.</li> <li>2.Both BGP peers should have equal IGP cost</li> <li>3.Static NULL0 drop route also configured for the next-hop</li> <li>4.Backup LSP path is down</li> </ol> |                          |              |
| <b>Workaround:</b>          | Configure route-maps with MED to override the Static NULL0 route                                                                                                                                                                                                                       |                          |              |

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| <b>Defect ID:</b>           | DEFECT000649996                                                           |                          |                                           |
| <b>Technical Severity:</b>  | High                                                                      | <b>Probability:</b>      | Low                                       |
| <b>Product:</b>             | Brocade NetIron OS                                                        | <b>Technology Group:</b> | SNMP - Simple Network Management Protocol |
| <b>Reported In Release:</b> | NI 06.0.00                                                                | <b>Technology:</b>       | Management                                |
| <b>Symptom:</b>             | VRRP-E session state changes unexpectedly.                                |                          |                                           |
| <b>Condition:</b>           | Polling SNMP table: IldpRemTable (.1.0.8802.1.1.2.1.4.1).                 |                          |                                           |
| <b>Workaround:</b>          | Disable SNMP polling for the table: IldpRemTable (.1.0.8802.1.1.2.1.4.1). |                          |                                           |

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| <b>Defect ID:</b>           | DEFECT000650682                                                                                                                                                                                        |                          |                                      |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                 | <b>Probability:</b>      | Low                                  |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                     | <b>Technology Group:</b> | OSPF - IPv4 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                                                                             | <b>Technology:</b>       | Layer 3 Routing/Network Layer        |
| <b>Symptom:</b>             | OSPF ECMP route for some of external destinations may not be installed into the routing table of non-translator NSSA ABR.                                                                              |                          |                                      |
| <b>Condition:</b>           | (1) Atleast two NSSA ABRs present in the OSPF network.<br>(2) About 100 or so external destinations are redistributed into NSSA area by two NSSA ASBRs with FA set to an address within the NSSA area. |                          |                                      |

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| <b>Defect ID:</b>           | DEFECT000651862                                                                                                                                                                                                                    |                          |                               |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                             | <b>Probability:</b>      | Low                           |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                 | <b>Technology Group:</b> | IP Addressing                 |
| <b>Reported In Release:</b> | NI 06.1.00                                                                                                                                                                                                                         | <b>Technology:</b>       | Layer 3 Routing/Network Layer |
| <b>Symptom:</b>             | Traffic loss might be observed on MLX with Q-in-Q configuration.                                                                                                                                                                   |                          |                               |
| <b>Condition:</b>           | 1. MRP should be configured on outer VLAN of Q-in-Q.<br>2. Physical loopback connection should be established between two interfaces where one interface belongs to outer VLAN and other interface belongs to inner VLAN of Q-in-Q |                          |                               |

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| <b>Defect ID:</b>           | DEFECT000653000                                                                                                                              |                          |                                  |
| <b>Technical Severity:</b>  | High                                                                                                                                         | <b>Probability:</b>      | Medium                           |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                           | <b>Technology Group:</b> | IPv6 Addressing                  |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                                   | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer |
| <b>Symptom:</b>             | IPV6 neighbor stuck in PROBE state.                                                                                                          |                          |                                  |
| <b>Condition:</b>           | 1. Connect the host with MLX and establish neighbors<br>2. Remove connected host<br>3. IPV6 entries are not removed and stuck in PROBE state |                          |                                  |
| <b>Recovery:</b>            | clear ipv6 neighbors.                                                                                                                        |                          |                                  |

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| <b>Defect ID:</b>           | DEFECT000654961                                                              |                          |                                 |
| <b>Technical Severity:</b>  | High                                                                         | <b>Probability:</b>      | Medium                          |
| <b>Product:</b>             | Brocade NetIron OS                                                           | <b>Technology Group:</b> | Traffic Queueing and Scheduling |
| <b>Reported In Release:</b> | NI 05.9.00                                                                   | <b>Technology:</b>       | Traffic Management              |
| <b>Symptom:</b>             | Traffic loss may be observed with LAG.                                       |                          |                                 |
| <b>Condition:</b>           | After boot up of any Gen1.1 line card in the presence of LAG configurations. |                          |                                 |
| <b>Recovery:</b>            | Undeploy and deploy of LAG.                                                  |                          |                                 |

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| <b>Defect ID:</b>           | DEFECT000655172                                                                                  |                          |                     |
| <b>Technical Severity:</b>  | Medium                                                                                           | <b>Probability:</b>      | Medium              |
| <b>Product:</b>             | Brocade NetIron OS                                                                               | <b>Technology Group:</b> | Hardware Monitoring |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                       | <b>Technology:</b>       | Monitoring          |
| <b>Symptom:</b>             | The 'show chassis' may display incorrect information for available power and power status fields |                          |                     |
| <b>Condition:</b>           | Power-off power supply manually<br>(OR)<br>Remove and re-insert the power cord.                  |                          |                     |

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| <b>Defect ID:</b>           | DEFECT000655355                                                                                                                                                            |                          |                                          |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                     | <b>Probability:</b>      | Medium                                   |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                         | <b>Technology Group:</b> | OAM - Operations,<br>Admin & Maintenance |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                                                                 | <b>Technology:</b>       | Monitoring                               |
| <b>Symptom:</b>             | Port of 20X10G Line card Module may not come up                                                                                                                            |                          |                                          |
| <b>Condition:</b>           | It is very rarely observed when a new connection is made on a port of 20X10G                                                                                               |                          |                                          |
| <b>Recovery:</b>            | Any one of the following methods can help in recovery:-<br>1. Removal and Re-insert of SFPP<br>2. Swap SFPP by SFP and re-swap SFP by SFPP.<br>3. Reload Line card Module. |                          |                                          |

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| <b>Defect ID:</b>           | DEFECT000656069                                                                                                                            |                          |                                                       |
| <b>Technical Severity:</b>  | Medium                                                                                                                                     | <b>Probability:</b>      | Medium                                                |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                         | <b>Technology Group:</b> | VRRPv2 - Virtual Router Redundancy Protocol Version 2 |
| <b>Reported In Release:</b> | NI 05.6.00                                                                                                                                 | <b>Technology:</b>       | Layer 3 Routing/Network Layer                         |
| <b>Symptom:</b>             | Traffic loss may be observed with VRRP                                                                                                     |                          |                                                       |
| <b>Condition:</b>           | VRRP has to be configured on virtual interface and physical port is part of Un tagged VLAN<br>This is applicable for CES/CER devices only. |                          |                                                       |

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| <b>Defect ID:</b>           | DEFECT000656781                                                                                    |                          |                                           |
| <b>Technical Severity:</b>  | Medium                                                                                             | <b>Probability:</b>      | Medium                                    |
| <b>Product:</b>             | Brocade NetIron OS                                                                                 | <b>Technology Group:</b> | SNMP - Simple Network Management Protocol |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                         | <b>Technology:</b>       | Management                                |
| <b>Symptom:</b>             | SNMP may display a maximum number 4294967295 when polled for this object fdryVplsEndPoint2InnerTag |                          |                                           |
| <b>Condition:</b>           | VPLS endpoints are configured with no inner tag                                                    |                          |                                           |

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| <b>Defect ID:</b>           | DEFECT000656819                                                                                                                                                                                                                                                                             |                          |                              |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                                                                      | <b>Probability:</b>      | Medium                       |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                          | <b>Technology Group:</b> | CLI - Command Line Interface |
| <b>Reported In Release:</b> | NI 06.2.00                                                                                                                                                                                                                                                                                  | <b>Technology:</b>       | Management                   |
| <b>Symptom:</b>             | <p>The 'show optic' command may display optic data as N/A even though the port is up like below:-</p> <pre> MLX2#sh optic 1 Port Temperature Tx Power Rx Power Tx Bias Current +---+-----+-----+-----+-----+ 1/1  N/A      N/A      N/A      N/A 1/2  N/A      N/A      N/A      N/A </pre> |                          |                              |
| <b>Condition:</b>           | <ol style="list-style-type: none"> <li>Line card module is 20x10G.</li> <li>Dual mode optic is connected and speed is configured as 1G.</li> <li>Line card is reloaded with 1G speed configuration.</li> </ol>                                                                              |                          |                              |
| <b>Recovery:</b>            | <p>The only recovery to correct the display issue is to reset line card by following below steps:-</p> <ol style="list-style-type: none"> <li>Remove 1G configuration and reload line card module.</li> <li>After boot up reapply the configuration.</li> </ol>                             |                          |                              |



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| <b>Defect ID:</b>           | DEFECT000657495                                                               |                          |                                     |
| <b>Technical Severity:</b>  | Medium                                                                        | <b>Probability:</b>      | Medium                              |
| <b>Product:</b>             | Brocade NetIron OS                                                            | <b>Technology Group:</b> | BGP4 - IPv4 Border Gateway Protocol |
| <b>Reported In Release:</b> | NI 05.8.00                                                                    | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer    |
| <b>Symptom:</b>             | SNMP polling may display incorrect information for BGP peer's session UP time |                          |                                     |
| <b>Condition:</b>           | Polling this Object "bgpPeerFsmEstablishedTime" through SNMP                  |                          |                                     |

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| <b>Defect ID:</b>           | DEFECT000657519                                                                                                                                                           |                          |                                  |
| <b>Technical Severity:</b>  | High                                                                                                                                                                      | <b>Probability:</b>      | Low                              |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                        | <b>Technology Group:</b> | IPv6 Addressing                  |
| <b>Reported In Release:</b> | NI 05.8.00                                                                                                                                                                | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer |
| <b>Symptom:</b>             | Following IPV6 CAM Update violations may be observed with high CPU on Line Card module:-<br>Nov 8 16:37:06:A:CAM update violation: slot 3 XPP 2 0x000abcdef<br>0x00000000 |                          |                                  |
| <b>Condition:</b>           | Very rarely observed during frequent modifications of IPV6 routes                                                                                                         |                          |                                  |

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| <b>Defect ID:</b>           | DEFECT000657929                                                                                                                                                                                                                        |                          |                                        |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                 | <b>Probability:</b>      | Medium                                 |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                     | <b>Technology Group:</b> | OSPFv3 - IPv6 Open Shortest Path First |
| <b>Reported In Release:</b> | NI 06.2.00                                                                                                                                                                                                                             | <b>Technology:</b>       | Layer 3<br>Routing/Network Layer       |
| <b>Symptom:</b>             | OSPFv3 Interface number may not be displayed correctly in "show log" output like below:-<br>Nov 30 05:22:15:N:OSPFv3: Interface state changed, rid a.b.c.d, intf eth x/y, state down, where x/y is not correct physical port/interface |                          |                                        |
| <b>Condition:</b>           | Enable/Disable OSPFv3 interface followed by the execution of "show ipv6 ospf neighbors"                                                                                                                                                |                          |                                        |

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| <b>Defect ID:</b>           | DEFECT000658203                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                          |                            |
| <b>Technical Severity:</b>  | High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Probability:</b>      | Low                        |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Technology Group:</b> | Configuration Fundamentals |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Technology:</b>       | Management                 |
| <b>Symptom:</b>             | Management Module may reload unexpectedly with the following stack trace:-<br>Exception Type 1100 (DTLB Load), telnet_0<br>0008f030: msr<br>00000000: dar<br>00000000: dsisr<br>202ed8dc: next_token(pc)<br>202f0af8: parse_node(lr)<br>202f0af8: parse_node<br>202f04f0: parse_node_recurse<br>202f0d3c: parse_node<br>202f04f0: parse_node_recurse<br>202f0d3c: parse_node<br>20364838: parse_input<br>2042a7e0: cli_aaa_accounting_callback<br>2079f290: aaa_accounting_start<br>2042a034: cli_request_command_accounting<br>202f0964: parse_node<br>202eefb8: parser<br>20364814: parse_input<br>20a90aac: handle_new_line_from_telnet_client<br>20a91408: telnet_application_control<br>20a94814: telnet_receive_packet<br>20a93240: telnet_socket_control<br>20a97ee0: telnet_receive_data_ready<br>20a97f24: telnet_tcp_receive_data_ready_callback<br>20ba3844: itc_process_msgs_internal |                          |                            |
| <b>Condition:</b>           | 1. 'aaa accounting commands 0 default start-stop' is configured<br>2. Debug destination is set to TELNET<br>3. 'no telnet server' is issued on the same TELNET session                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          |                            |

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| <b>Defect ID:</b>           | DEFECT000658954                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          |                                 |
| <b>Technical Severity:</b>  | Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Probability:</b>      | Medium                          |
| <b>Product:</b>             | Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Technology Group:</b> | Traffic Queueing and Scheduling |
| <b>Reported In Release:</b> | NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Technology:</b>       | Traffic Management              |
| <b>Symptom:</b>             | <p>Protocols may flap when configured with very low timeout value less than or equal to 100 msec and Management Module may unexpectedly reload with the following stack trace:-</p> <p>Possible Stack Trace (function call return address list)</p> <pre> 0002f89c: get_memory_pool_info(pc) 00005024: xsyscall(lr) 000b6558: set_memory_histogram 0002e140: allocate_memory_pool 0002ed40: allocate_memory 0002b124: dev_allocate_memory 00005024: xsyscall 203105d0: os_malloc_zero 20b9eda0: itc_alloc_request_state 20b9f10c: itc_send_request_internal 20ba0f20: itc_send_request_and_wait_internal 20ba14e8: itc_send_request_and_wait 20f1a22c: bfd_scb_send_itc 205490a8: show_tm_non_empty 20037eec: show_tech_support 2035ed7c: timer_callback_wrapper 20ba069c: itc_process_msgs_internal 20ba0f44: itc_send_request_and_wait_internal 20ba14e8: itc_send_request_and_wait 20f1a22c: bfd_scb_send_itc 205490a8: show_tm_non_empty 20037eec: show_tech_support 2035ed7c: timer_callback_wrapper 20ba069c: itc_process_msgs_internal 20ba0f44: itc_send_request_and_wait_internal 20ba14e8: itc_send_request_and_wait 20f1a22c: bfd_scb_send_itc 205490a8: show_tm_non_empty 20037eec: show_tech_support 2035ed7c: timer_callback_wrapper 20ba069c: itc_process_msgs_internal 20ba0f44: itc_send_request_and_wait_internal 20ba14e8: itc_send_request_and_wait 20f1a22c: bfd_scb_send_itc 20549104: show_tm_non_empty 20037eec: show_tech_support 2035ed7c: timer_callback_wrapper 20ba069c: itc_process_msgs_internal 20ba0f44: itc_send_request_and_wait_internal 20ba14e8: itc_send_request_and_wait 20f1a22c: bfd_scb_send_itc 20549104: show_tm_non_empty 20037eec: show_tech_support </pre> |                          |                                 |

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|                    | 2035ed7c: timer_callback_wrapper<br>20ba069c: itc_process_msgs_internal<br>20ba0f44: itc_send_request_and_wait_internal<br>20ba14e8: itc_send_request_and_wait<br>20f1a22c: bfd_scb_send_itc<br>20549104: show_tm_non_empty<br>20037eec: show_tech_support<br>2035ed7c: timer_callback_wrapper<br>20ba069c: itc_process_msgs_internal<br>20ba0f44: itc_send_request_and_wait_internal<br>20ba14e8: itc_send_request_and_wait<br>20f1a22c: bfd_scb_send_itc<br>20549104: show_tm_non_empty<br>20037eec: show_tech_support<br>2035ed7c: timer_callback_wrapper<br>20ba069c: itc_process_msgs_internal<br>20ba0f44: itc_send_request_and_wait_internal<br>20ba14e8: itc_send_request_and_wait<br>20f1a22c: bfd_scb_send_itc<br>20549104: show_tm_non_empty<br>20037eec: show_tech_support<br>Call stack too deep! |
| <b>Condition:</b>  | <ol style="list-style-type: none"> <li>1. UDLD is configured with 100ms timeout by configuration command 'link-keepalive interval 1'</li> <li>2. when any one of the following command is executed 'show tech', 'show tm non-empty-queues' or 'show tm non-empty-queues detail'</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Workaround:</b> | Increase the Protocol timer expiry value accordingly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Closed with code changes R06.0.00e

This section lists software defects with Critical, High, and Medium Technical Severity closed with a code change as of 11/8/2017 in NI 6.0.00e.

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| <b>Defect ID:</b> DEFECT000649776                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                              |
| <b>Technical Severity:</b> Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Probability:</b> Medium                                   |
| <b>Product:</b> Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Technology Group:</b> Management                          |
| <b>Reported In Release:</b> NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Technology:</b> SNMP - Simple Network Management Protocol |
| <b>Symptom:</b> Management Module module may unexpectedly reload with the following stack trace:-<br><br>Possible Stack Trace (function call return address list)<br>20adcd84: cu_optic_process_cfp_aggregate_optical_mon_parameter(pc)<br>20ade1e8: cu_get_aggregate_optical_parameter_from_object(lr)<br>20ade1e8: cu_get_aggregate_optical_parameter_from_object<br>208a98b4: snIfOpticalMonitoringInfoEntry_get_value<br>208a9e2c: snIfOpticalMonitoringInfoEntry_next<br>209642f4: SNMP_Process_Bulk_Redo<br>20966fb4: SNMP_Continue_function<br>20967088: process_packet_two<br>2096751c: process_packet_one<br>20967868: Process_Rcvd_SNMP_Packet_Async<br>20965504: Process_Received_SNMP_Packet<br>209919a4: snmp_receive_message<br>209943a0: snmp_udp_rcv_callback_common<br>209944ac: snmp_udp_rcv_callback<br>20ba0540: itc_process_msgs_internal<br>20ba09ec: itc_process_msgs<br>2099101c: snmp_task<br>00005e18: sys_end_task |                                                              |
| <b>Condition:</b> While inserting non-Brocade (Flex Optix) CFP2-QSFP28 adapter on a 2x100G-CFP2 Linecard module.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                              |

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| <b>Defect ID:</b> DEFECT000651122                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                        |
| <b>Technical Severity:</b> High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Probability:</b> Low                                |
| <b>Product:</b> Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Technology Group:</b> Layer 3 Routing/Network Layer |
| <b>Reported In Release:</b> NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Technology:</b> ARP - Address Resolution Protocol   |
| <p><b>Symptom:</b> Line card module may unexpectedly reload with the following stack trace:-<br/>Possible Stack Trace (function call return address list)</p> <pre> 20f0839c: fpip_process_pending_packets(pc) 20f08398: fpip_process_pending_packets(lr) 20f039d0: fpip_update_host_cache_entry 20f03b4c: fpip_update_host_cache_in_all_vrf 20f19544: arp_process_one_entry_pram_update 20d1e178: lp_cam_update_arp_entry_pram 20e23fb0: process_one_arp_update_lp 20f176ec: process_one_arp_update 20f17950: process_arp_dy_messages 20bd5818: process_dy_change_packet 20c1ca54: ipc_multi_module_handler 20c1efc8: ipc_process_messages 20c1f7a4: ipc_receive_packet 20036ce4: ge_process_ipc_data_msg 207f4f20: lp_ipc_task 00040158: sys_end_task </pre> |                                                        |
| <b>Condition:</b> It is rarely observed during a Line card bootstrap or a link flap between MCT clusters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                        |

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| <b>Defect ID:</b> DEFECT000651855                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          |
| <b>Technical Severity:</b> Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Probability:</b> Medium                               |
| <b>Product:</b> Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Technology Group:</b> Monitoring                      |
| <b>Reported In Release:</b> NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Technology:</b> OAM - Operations, Admin & Maintenance |
| <p><b>Symptom:</b> 2x100G-CFP2 Linecard module may unexpectedly reload with the following stack trace:-</p> <p>Possible Stack Trace (function call return address list)</p> <pre> 00069064: assert_dobule_free_large_memory(pc) 0006905c: assert_dobule_free_large_memory(lr) 00069274: free_memory_pool 00069918: free_memory 00065e80: dev_free_memory 00005024: xsyscall 2000105c: free 21610cb8: bcm_pm_if_cleanup 20026928: bcm_82790_uninit 209cd328: phy_adapter_removed 209b946c: phy_conn_check_existence 20a4086c: port_read_physical_existance 20a309ec: port_check_port_status 20a34900: port_link_status_poll 20a34404: port_status_poll 200058c0: perform_callback 200062c8: timer_timeout 00040160: sys_end_entry 0005e4a0: suspend 0005cf78: dev_sleep 00005024: xsyscall 207f3af4: main 00040158: sys_end_task </pre> |                                                          |
| <p><b>Condition:</b> While removing a non-Brocade (Flex Optix) CFP2-QSFP28 adapter from the 2x100G-CFP2 Line card module.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                          |

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| <b>Defect ID:</b> DEFECT000651950                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                 |
| <b>Technical Severity:</b> Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Probability:</b> Low                         |
| <b>Product:</b> Brocade NetIron OS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Technology Group:</b> Management             |
| <b>Reported In Release:</b> NI 06.0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Technology:</b> CLI - Command Line Interface |
| <b>Symptom:</b> Management Module may unexpectedly reload with the following stack trace:-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                 |
| <p>Possible Stack Trace (function call return address list)</p> <p>54797064: (pc)</p> <p>20ac71d8: cu_show_int_lag_callback(lr)</p> <p>20ad8e04: cu_show_int_lag</p> <p>2044cc58: show_int_lag_all</p> <p>202e8754: call_action_func</p> <p>202e924c: parse_node</p> <p>202e8cc8: parse_node_recurse</p> <p>202e9514: parse_node</p> <p>202e8cc8: parse_node_recurse</p> <p>202e9514: parse_node</p> <p>2035cd28: parse_input</p> <p>2041c358: cli_aaa_accounting_callback</p> <p>207906c0: aaa_accounting_start</p> <p>2041bbac: cli_request_command_accounting</p> <p>202e913c: parse_node</p> <p>202e7790: parser</p> <p>2035cd04: parse_input</p> <p>20a94a74: ssh_event_handler</p> <p>20aa7ccc: ProcessChannelData</p> <p>20aa52e8: ShProcessMessage</p> <p>20aae688: ProcessClientInputData</p> <p>20aade20: ShFiniteStateMachine</p> <p>209b03cc: HandleProtocolAction</p> <p>209b01ac: HandleConnectionTask</p> <p>20a93644: ssh_connection_task</p> <p>20a93d90: ssh_socket_control</p> <p>20a96a2c: ssh_receive_data_ready</p> <p>20a96a70: ssh_tcp_receive_data_ready_callback</p> <p>20b9321c: itc_process_msgs_internal</p> <p>20b9</p> |                                                 |
| <b>Condition:</b> "Show interface lag" is executed frequently from one or more SSH sessions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                 |

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| <b>Defect ID:</b> DEFECT000653092                                                                                                     |                                                             |
| <b>Technical Severity:</b> Medium                                                                                                     | <b>Probability:</b> Medium                                  |
| <b>Product:</b> Brocade NetIron OS                                                                                                    | <b>Technology Group:</b> MPLS                               |
| <b>Reported In Release:</b> NI 06.0.00                                                                                                | <b>Technology:</b> MPLS VPLS - Virtual Private LAN Services |
| <b>Symptom:</b> MPLS BFD session which has multiple path will go down and comes up.                                                   |                                                             |
| <b>Condition:</b> During LSP path switch BFD session will go down after 60 seconds and comes up. This happens only for adaptive LSPs. |                                                             |



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| <b>Defect ID:</b> DEFECT000653095                                                                                                                                     |                                             |
| <b>Technical Severity:</b> Low                                                                                                                                        | <b>Probability:</b> Low                     |
| <b>Product:</b> Brocade NetIron OS                                                                                                                                    | <b>Technology Group:</b> MPLS               |
| <b>Reported In Release:</b> NI 06.0.00                                                                                                                                | <b>Technology:</b> MPLS Traffic Engineering |
| <b>Symptom:</b> Sometimes when executing "show tech-support mpls" some of the commands would not show output, instead they'll show a message "invalid input -> mpls". |                                             |
| <b>Condition:</b> For show rsvp session in "show tech-support mpls".                                                                                                  |                                             |

