MXK 194/198 2.5.4.028 Release Notes

This document describes the MXK 194/198 2.5.4.028 release:

Read all important notes below.

Note: **System database conversion**

IMPORTANT! Please read this note.

In release 2.5 DASAN Zhone introduced a new version of the system database that improves performance and reduces memory consumption.

The conversion process requires that the flash file system must have sufficient free disk space to convert the database.

Failure to follow the conversion procedure may be service affecting, see the note about infotbl conversion in Downloading software on the MXK 194/198, page 51 for more information.

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Note:

MXK 19x SW releases were part of MXK 319/819/823 until MXK 2.5.1.581, inclusive.

Starting from 2.5.4.x, MXK 19x SW releases are part of 1U product platform, MX 2.5.4.028.

Note: Flash card issue

IMPORTANT! Please read this note.

Some MXK 194/198 systems shipped between November 1 2014 and May 1 2016 utilize "Flexxon" brand flash cards and may experience an intermittent system hang or spontaneous reboot. This problem occurs as a result of a communication error with the Flexxon flash card. DASAN Zhone has modified the read / write operations to the Flexxon card in order to eliminate any issue when communicating with the Flexxon flash. As a result of this issue the affected units may fatal and potentially lock up. In order to recover, the unit may need to be power cycled to restart the Flexxon flash card and recover functionality.

In order to determine if the flash card in use is Flexxon, use the following command:

```
> ata info 1
```

Look for: model =**FLEXXON** FPCF256MTSE2-P93-10

Any Flexxon flash card, regardless of the model number, should be upgraded. A unit that does not indicate the FLEXXON flash does not need to be upgraded to 2.5.1.556.2.

See Product Bulletin PB.10221 for important upgrade notes and more information.

Note: After upgrading to 2.5.1.581, systems configured for radius-then-local will operate differently than they operated before the upgrade.

Before the upgrade, if radius-then-local was configured and the RADIUS server was reachable, users that were not registered on the RADIUS server *but were registered on the MXK* would be allowed to log into the MXK based on local registration only. Using this algorithm, it would not be necessary to register users on the RADIUS server if they were registered locally on the MXK. There are some inherent security risks with this older approach.

After the upgrade, if radius-then-local is configured and the RADIUS server is reachable, users that are not registered on the RADIUS server will be denied access locally even if they are registered on the MXK. Customers who have relied on the pre-2.5.1.581 functionality will no longer be able to access their system when only registered locally on the MXK after the upgrade. They will need to have valid login credentials registered on the RADIUS server.

NEW FEATURES

New features in 2.5.4.028

The 2.5.4.028 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.581

The 2.5.1.581 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.573

The 2.5.1.573 release is a maintenance release. See Fixed issues, page 22 for more details.

In addition to the fixed issues, support was added for the following zNIDs:

- ZNID-GPON/GE-9740

- ZNID-GPON 2101P

New features in 2.5.1.565

The 2.5.1.565 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.556.2

The 2.5.1.556.2 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.556

The 2.5.1.556 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.548

The 2.5.1.548 release is a maintenance release. See Fixed issues, page 22 for more details.

Support for the following zNIDs was added:

- ZNID-GPON-2726A1, ZNID-GPON-2726H1, ZNID-GPON-2727A1, ZNID-GPON-2728A1

- ZNID-GPON-2804D, ZNID-GPON-2812P, ZNID-GPON-2813P, ZNID-GPON-2814P, ZNID-GPON-2815P

New features in 2.5.1.535.1

The 2.5.1.535.1 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.535

The 2.5.1.535 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.521

The 2.5.1.521 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.517

The 2.5.1.517 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.515

The 2.5.1.515 release is a maintenance release with one new feature. See Fixed issues, page 22 for more details.

PoE Power Control per Port & Total Power Budget

The Power Over Ethernet (PoE) feature is only for zNIDs which support PoE. The Power Supply setting at the CPE system level is the rated output power in Watts of the 48V-54V power supply attached to the CPE. This value is used to determine the total PoE Power Budget.

Total PoE Power Budget is the total amount of power available for all PoE devices. A single 48V-54V input supplies power for ONT operation and powering of PoE device. To ensure that sufficient power is reserved for ONT

operation, the Total PoE Power Budget will always be less than the maximum power provided by the Power Supply.

The Power Supply is configured at the System level. The Total PoE Power Budget is calculated by subtracting 20W from the Power Supply, and then rounding down to the closest multiple of 7.6W. For example, if the Power Supply is 90W, the Total PoE Power Budget = 68.4W.

Configuring Power Supply at the System Level

1 Create a CPE system common profile and specify the **power-supply** field.

```
zSH> cpe system common add powercommon power-supply 90
```

```
zSH> CPE> SYSTEM> COMMON> show powercommon
                                Sync Cookie  Cross VLAN  Static Rte  Dns Host    TR69     Inform
Index          Profile Name     Firewall  Protection   Routing       List      List    Inform   Interval
===== ============================= ========  ==========  ==========  ==========  =========  ========  ==========
      2                        powercommon  enabled      enabled      disabled                0
  0  enabled        300
  Acs URL          :
  Acs Username      :
  Power Supply         : 90
  Power Shutdown Delay : 0
  Power Restore Delay  : 0
  1 entries found.
```

2 Apply the CPE system common profile to a CPE.

```
zSH> CPE> SYSTEM> add 1/1/1 sys-common-profile 2
System profile "1/1/1" has been created
```

Note that if the **sys-common-profile** *<index | profile-name>* option is missing in the above command example, the **cpe system add** command uses the Default_Cpe_System_Common or index 1.

```
zSH> CPE> SYSTEM> show 1/1/1
    CPE       SYSTEM COMMON PROFILE        MGCP CLIENT NAME
==========  ===========================  ================
    1/1/1       powercommon/2
1 entries found.
```

Configuring Maximum PoE Power Allowed per Port

The maximum PoE power allowed per port is defined in the **Power Range** field for each Ethernet port. The choices of this field are High, Low, Medium, Disabled (no PoE Power will be provided), and Custom. The actual values of the High, Low, Medium choices are defined at the CPE side based on the CPE model. The Custom is the recommended value for users. After specified Custom in the **power-range** field, users can customize the value of the maximum PoE power in the **custom-power-range** option of the **cpe eth add/ modify** command. The value of the **custom-power-range** is in the range of 0.0 to 30.8, in the unit of 0.1 watts.

Create service on the CPE 1/1/1 Ethernet port 1. Specify the maximum PoE power allowed on the Ethernet port 1 to 20 watts.

```
zSH> cpe eth add 1/1/1/1 power-range custom custom-power-range 20
Service has been created


zSH> cpe eth show 1/1/1/1
                                Video     Traf Mngt          Power Power  LLDP-MED
  CPE      Port Number  Admin  Rate Duplex Profile   Profile   Alm St Sev Shed Range   List     Description
========== =========== ======= ==== ====== ========= ========= ====== === ===== ======== ======== ============
          1/1/1          1     up auto   auto              0          0  Dis  Mj    En
  20.0           0
   1 services displayed
```

New features in 2.5.1.423

Decouple service template with zNIDs

A service template is essentially an example ONU, complete with configuration details, and can be applied to a zNID. These service templates provide the means to configure a zNID. However to add or delete services to existing configured zNIDs was not allowed.

Previously adding or deleting services could not be applied to existing configurations because of the association of existing cpe-service-application profiles to the service template. This new **srvtmpl decouple** command removes the association with the cpe-service-application profiles so customized services for that zNID may be added.

Once the service template has been decoupled the association with that service template is no longer used.

Upon creating a service template with the **srvtmpl add** command, the default setting is decouple disabled. Decouple to add/delete services from the zNID.

See *GPON Auto Provisioning Suite* on page 12 for more information.

Add description field to CPE subscriber profiles

Adds a 31 character description field in CPE subscriber profiles —
cpe-eth-subscriber, **cpe-wlan-subscriber**, **cpe-voip-subscriber**,
cpe-pwe-subscriber and **cpe-rf-subscriber** — which can be used to name a
port or describe the location of a port. The description field is searchable with
the **cpe eth find description** command.

Hot/warm line support on GPON-25xx zNIDs

Hotline and Warmline support has been added to the GPON-25xx zNIDs. The
feature is the same as for USP capable zNIDs, however for the GPON-25xx
zNIDs the warmline-timer is fixed to five seconds.

Unified Provisioning Support to include GPON ZNID serial number in Remote ID for Option 82

Adds the zNID serial number to Option 82 remote ID field which enables
carriers to store the serial number of the zNID in their database along with the
IP Address which has been assigned to the zNID.

Enhanced ONU Discovery includes model ID information

Enhances the ONU autodiscovery feature by adding the Model ID to the CLI
display and SNMP trap information. The SNMP enhancement enables ZMS
to know which model of zNID is connected and ready to be auto-assigned and
auto-provisioned.

```
zSH> onu show 14

Processing list of 512

This command may take several minutes to complete.
Do you want to continue?  (yes or no) [no] y
Free ONUs for slot 14 olt 1:
    1    2    3    4    5    6    7    8    9   10   11   12
   13   14   15   16   17   18   19   20   21   22   23   24
   25   26   27   28   29   30   31   32

Discovered serial numbers for slot 14 olt 1:
sernoID    Vendor   Serial Number    Model   Time Discovered
    1       ZNTS     031A73CC         2424     JUL 06 00:25:26 2015
    2       ZNTS     031A6D32         2424     JUL 06 00:26:29 2015
    3       ZNTS     031A7172         2424     JUL 06 00:26:30 2015
    4       ZNTS     031A63B8         2424     JUL 06 00:26:36 2015
```

Support for setting alternate WAN interface on USP zNIDs

While not technically a new feature for the MXK, USP provisioning features for Cross VLAN routing and Conditional DHCP used in concert create what is essentially an alternate WAN interface. By using conditional DHCP server and cross VLAN routing together on the zNID, a single Ethernet interface may be used to talk to STBs and other devices.

In a scenario where a LAN interface carries mixed Internet data and video traffic, based on the Set Top Box (STB) Organizational Unique Identifier (OUI), a Conditional DHCP Server assigns an IP address from its address pool to the STB.

The STB traffic is identified by the interface by its source IP address.

The Conditional DHCP Server also has an optional wan-vlan field. If the **wan-vlan** field is set, and Cross VLAN Routing is enabled, the STB traffic is redirected to the WAN interface of the *wan-vlan*. Other traffic will still be tagged with the default VLAN, and go up on its default WAN interface. This ability is useful when data and video are on separate VLANs in the operator's network.

Alternate WAN interface example

This example uses a path for video (GEM 301, VLAN 998) and data (GEM 401, VLAN 101) created in the normal way. Then by enabling cross VLAN routing and identifying the traffic from the STB (stb-ips) via the OUI/IP range from the conditional DHCP server, the alternate WAN interface is created.
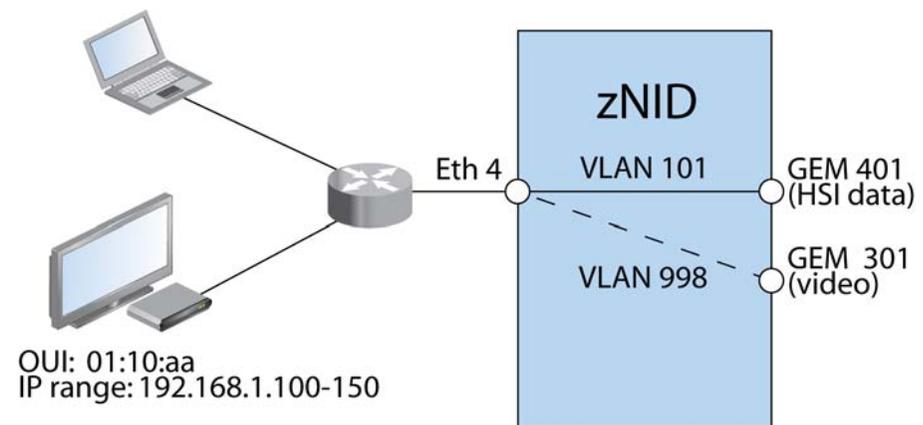
- Create a path for video

```
zSH> bridge add 1-1-1-1/gpononu gem 301 gtp 1 downlink vlan 998 tagged eth 1
rg-brouted video 0/10
```

- Create a path for Internet data

```
zSH> bridge add 1-1-1-1/gpononu gem 401 gtp 2 downlink vlan 101 tagged eth
[2,3] rg-brouted
```

- Enable Cross VLAN Routing

```
zSH> cpe system common add awan-test cross-vlan-routing enabled

zSH> cpe system add 1/1/1 sys-common-profile awan-test
```

- Create a Conditional DHCP Server rule for the STB(s)

```
zSH> cpe rg lan dhcp-srvr cond-dhcp add stb-ips vci-oui 01:10:aa start-addr
192.168.1.100 end-addr 192.168.1.150 wan-vlan 998

zSH> cpe rg lan dhcp-srvr modify 1001 cond-dhcp-srv-list stb-ips
```

User Privilege Management Via ZMS

Enables ZMS to create, modify, list, get and delete users on MXK.

New features in 2.5.1.409

Cycling the blocking/unblocking of bridge interfaces under storm conditions

A new optional parameter, **total-period** *<period>* has been added to the default packet rule, **bridgestormdetect**. The new parameter defines how long to keep following the three strike blocking and unblocking behavior described by the **auto-enable-interval**.

The default behavior upon updating to a new release which contains the total-period interval will be that the three strike blocking and unblocking behavior will continue indefinitely unless the existing rule is deleted and a new rule containing the total-period interval replaces it.

If the **total-period** keyword is defined a final blocking will occur when the defined time is reached, regardless of where the timer is in the three strike cycle.

If the three strikes cycle is desired to occur only once, compute the number of seconds for the three strikes (or double it to get six strikes) and so on.

New features in 2.5.1.318-2

The MXK 2.5.1.318-2 release is a maintenance release. See for more details.

New features in 2.5.1.303

The MXK 2.5.1.303 release is a maintenance release. See Fixed issues, page 22 for more details.

New features in 2.5.1.235

- ONT line status configurable alarm severity, page 11
- ONT software upgrades over 16 Megabytes, page 11

ONT line status configurable alarm severity

The severity of the alarm for **LineStatus** traps, which by default is **minor**, may be set to **major** or critical. **LineStatus** traps include **linkUp**, **linkDown**, and **lineStatusChange** traps.

ONT software upgrades over 16 Megabytes

The MXK now supports ONT software upgrades over 16 Megabytes.

New features in 2.5.1.147

GPON Auto Provisioning Suite

This release introduces several new key features to simplify the deployment experience for DASAN Zhone customers.

Today's GPON deployments require a wide variety of skill types with varying degrees of experience. These skills types can generally be broadly characterized into two key groupings:

- Installation, and

- Configuration

Installation tasks are related to the physical racking/stacking and powering of the OLT, the deployment and termination of the fiber that connects the OLT to the ONT, and the placement of the end devices which may include but are not limited to ONUs, phone sets, and set top video boxes. While there may be other unspecified installation tasks, all are easily identifiable because they require a personnel "visit" to deploy and physically connect a collection of "boxes." But while planning and organization are essential to a successful installation, there is only so much that can be done to drive efficiency in this brute-force part of the deployment.

On the other hand, while a completed installation is a "service enabler," the solution configuration involves tasks that are specifically related to the customization of the installed solution to transform it into a "service aware" solution, which can be a highly customizable, can be exceedingly complex, and requires highly-skilled resource. The following features when combined

together, drive deployment efficiency and accuracy for DASAN Zhone's value-added partners and enterprise customers during the configuration phase of the deployment:

Service Templates

These service templates are pre-configured profiles with a wide variety of user definable attributes like QOS, rate-limiting, LLDP, PoE, etc. Because these service templates can be archived for re-use, they can be widely deployed in "cookie-cutter" fashion in large volume but highly typical deployments like hotels, enterprise and academic campuses, and medical facilities.

Auto Discovery

This feature ensures that when an ONU is connected for the first time to a PON link, its serial number is discovered, it is automatically assigned to a free ONU interface within the PON link, and it is activated. After the ONU is active and the OMCI channel is established, the ONU's model ID is retrieved from the ONU through OMCI. If an internal ME profile for the model exists in the system, the internal ME profile is set on the ONU.

Auto Configuration

This feature is the automatic application of the service templates. When the ONU is first installed, this feature can work in conjunction with Auto Discovery to ensure that a default service is automatically applied to the ONU. With additional upstream DASAN Zhone management tools, this feature can be re-used post installation to change the ONU service template to address changes in network requirements due to employee moves in enterprise environments, or possibly due to the arrival of a high-value hospitality customer who requires premium data access in his room.

Figure 1: Auto Configuration and Auto Discovery provisioning flow chart
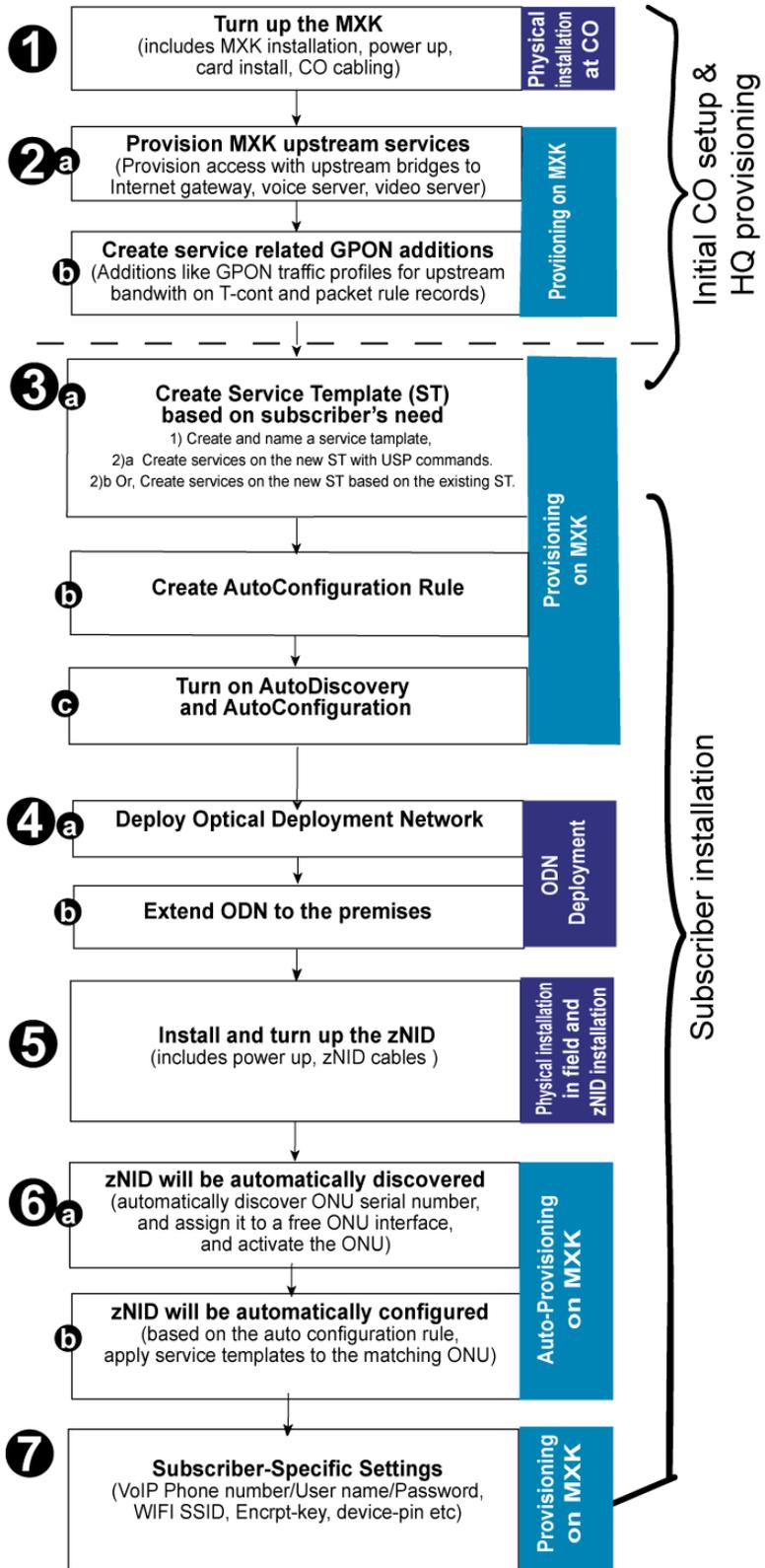
IPv6 compatibility

The MXK supports IPv6 for bridging. MXK Management interfaces and any other interfaces which require IP termination on the MXK use IPv4.

Bridging with IPv6 is quite similar to bridging with IPv4, however there are some differences. Whether the MXK IPv6 implementation uses Stateless and Stateful with IPv6 is determined by the downstream devices. Stateless uses Neighborhood Discovery Protocol (NDP). IPv6, NDP and router advertisement are supported in all directions for TLS and Wire bridges. Asymmetric bridges support passing messages through in the downstream direction (from uplink to downlink/intralinks).

Table 1 compares IPv4 and IPv6 configurations on the MXK and describes configuration differences for IPv6.

Table 1: IPv4 and IPv6 comparison

Feature/Configuration	Command	IPv4	IPv6 Stateless	IPv6 Statefull	Comment
Management					
Management interfaces	interface add ….	Yes	No	No	Uses IPv4 only. This includes all IP termination on MXK in band and out of band IP addresses for management.
ipobridge (all types)	bridge add…vlan x interface add …/ ipobridge vlan x	Yes	No	No	Uses IPv4 only.
TLS/Wire bridges					
TLS bridges	bridge add … tls	Yes	Yes	Yes	No config differences from IPv4, see TLS secure static bridge for IPv6 exception.
wire bridges	bridge add … wire	Yes	Yes	Yes	No config differences from IPv4.
TLS Secure Static bridge	bridge-path add/ modify...	Yes	Yes	Yes	In bridge-path add/modify command use ipv6 keyword instead of ip.
Asymmetric bridges					
Uplink	bridge add … uplink	Yes	Yes	Yes	No change.
Intralink	bridge add … intralink	Yes	Yes	Yes	No change.
rlink	bridge add … rlink	Yes	Yes	Yes	No change.
MVR	bridge add … mvr	Yes	Yes	Yes	No change.

Table 1: IPv4 and IPv6 comparison

Feature/Configuration	Command	IPv4	IPv6 Stateless	IPv6 Statefull	Comment
Video downlinks	bridge add … downlink-video	Yes	No	No	Currently multicast video (IPTV) is only supported with IPv4 and IGMP. Not in IPv6 and MLD. Conceptually, there is no requirement for bridge type downlinkvideo to have certain IP version. There is no related provisioning.
Data downlinks	bridge add … downlink-data	Yes	Yes	Yes	No video or voice on this downlink.
PPPoE downlinks	bridge add … downlink-pppoe	Yes	Yes	Yes	Assumes no DHCP on this bridge.
P2P downlinks	bridge add … downlink-p2p	Yes	Yes	Yes	No change.
Upstream multicast downlinks	bridge add … downlink-upmcast	Yes			This scenario is a downlink where upstream multicast video streaming is allowed (for surveillance system, supported in GPON cards only).
Bridge features					
Secure DHCP	bridge add/modify … secure	Yes	N/A. Uses NDP not DHCPv6	Yes. Automatically creates bridge-paths for IPv6.	For IPv4: The secure option creates two static bridge paths (MAC and IP) for each host on the bridge that successfully negotiates its IP address from the DHCP server. For IPv6: Use bridge-path modify with ipv6 keyword.
Secure Static	bridge add …. secure static mac+ip	Yes	Yes. User would need to create two static bridge-paths. One for link-local and one for the global address.		For IPv4: use ip keyword and IPv4 IP format in bridge-path command For IPv6: use ipv6 keyword and IPv6 IP format in bridge-path command
DHCP relay	dhcp relay add … and packet rule: rule add bridgeddhcprelay	Yes	No	No	Bridged dhcp relay is not supported in IPv6.
Option 82 insertion	packet rule: rule add bridgeinsertoption82	Yes	N/A. Uses NDP not DHCPv6	Yes	

Table 1: IPv4 and IPv6 comparison

Feature/Configuration	Command	IPv4	IPv6		Comment
			Stateless	Statefull	
Forbid OUI	packet rule: rule add bridgeforbidoui	Yes	Yes	Yes	
PPPoE with intermediate agent	packet rule: rule add bridgeinsertpppoeven dortag	Yes	Yes	Yes	
Rate limiting	packet rule: rule add ratelimitdiscard	Yes	Yes	Yes	
Color aware rate limiting	packet rule: rule add colorawareratelimitdis card	Yes	Yes	Yes	
Bridge storm detection	packet rule: bridgestormdetect	Yes	Yes	Yes	
Destination MAC Swapping	packet rule: dstmacswapstatic	Yes	Yes	Yes	
Promote first encapsulations VLAN	packet rule: promotefirstencapsula tionvlan	Yes	Yes	Yes	
Filter first encapsulation VLAN	packet rule: filterfirstencapsulatio nvlan	Yes	Yes	Yes	
Access Control List allow and deny	packet rule: rule add allow/deny	Yes	Yes	Yes	Access Control List has added several IPv6 options for rule add/deny: • ipv6 (v6 version of IP address) • icmp6 (IP proto 58) • srcipv6 (v6 version of srcip) • dstipv6 (v6 version of dstip) • dhcp6s (DHCPv6 server port 547) • dhcp6c (DHCPv6 client port 546)
Other connection types					
IGMP Send IP	bridge-path add/ modify … igmpsendip	Yes	No	No	Uses IPv4 only.

SNMPv3 support

Support for SNMPv3 has been added. For procedures for configuring the MXK for SNMPv3 clients for use with CLI or ZMS please see the *MXK Configuration Guide*.

Bridge statistics on demand in bytes

The purpose of statistics by byte is to report bandwidth. By counting bytes bits per second can be reported.

There are two commands for viewing statistics on bridges. The first command, **bridge stats**, displays all of the packet counters that have passed through the interface.The second command, **bridge rates**, displays all of the packets that pass through the bridge interface in rate-per-second.

The **bridge stats** command can display statistics for all bridge interfaces that display statistics, for a specified bridge interface, or for bridges on a specified VLAN ID.

Counting by bytes is supported in MXK-19x uplink and downlink ports.

> **Note:** There is a known issue with per byte counts on some cards. See *Known issues*.

IGMPv3 support

This MXK release now supports IGMPv3 to the network and responds to the IGMPv3 messages. If an IGMP v2 query is received from the network the MXK's IGMP proxy agent will revert to v2 and continue using v2 until the next reboot or the IGMP version is reset with the **bridge igmpver reset** command. If necessary an uplink bridge may be modified to force IGMPv2 on the network and the subscriber side.

Persistent logging

A parameter to enable persistent logging to the console has been added to the system profile. The field enables/disables logging.

USP feature additions and enhancements

ONU clone

The ONU clone feature allows users to copy ONU configuration from one ONU to another one or many ONUs; from one OLT port to another one or many OLT ports. The ONU configuration here includes all the CPE subscriber profiles, CPE connections, GEM ports, bridges, and assigned serial number on the ONU. This feature could be used in many cases. Note that, during cloning, some unique subscriber-specific fields are not copied, such as VoIP

phone number, user name, password, WIFI SSID, encrypt-key, and device-pin.

> **Note:** The destination ONU must have no ONU configuration on it. Otherwise, it will be overwritten during cloning.

> **Note:** After cloning ONU configuration to the destination ONU, the ONU configuration on the source ONU will not be deleted.

When cloning ONUs by OLT port, the ONU's GEM port IDs will be preserved. When cloning a single ONU, the ONU may be assigned a different GEM port ID when it is cloned, because another ONU may have already allocated the GEM port ID.

To copy the ONU configuration from a source ONU to the destination ONU, use the **onu clone** commands.

LLDP-MED on ONTs via USP

The MXK now supports Link Layer Discovery Protocol for Media EndPoint Devices Neighbors (LLDP-MED) on ONTs via Unified Service Provisioning. LLDP-MED is a link layer protocol that is used to create an inventory report of attached devices.

LLDP-MED uses Ethernet Multicast packets to enable communication between LLDP-enabled devices on a Bridged network.

Some LLDP-MED objects are configured on the ONT to define the content of the LLDP-MED frames sent out to the directly attached device. Some LLDP-MED objects are used to store information contained in LLDP-MED packets received from the directly attached device.

There is a 1:1 relationship between LAN ports on the ONT and LLDP-MED devices. Every physical Ethernet port on the ONT has an LLDP-MED interface instance in the database.

Conditional DHCP server for rg connections

Conditional DHCP server configuration is only for **rg-brouted** or **rg-bpppoe** connections. Conditional DHCP addressing is used to assign permanent IP address to Set Top Box (STB) and Digital Video Recorder (DVR) devices based on Vendor Class Identifier (VCI) or Organizationally Unique Identifier (OUI) classification. These devices are assigned IP addresses from a dedicated range within the subnet.

You can create Conditional DHCP server with cond-dhcp add command and then associate it with ONU's DHCP server.

Polling via SNMP the total count of configured GPON ONUs and total count of activated ONUs on a per GPON port

Columns have been added to the **gponolt status** command outputs:

- # ONUS configured

  Retrieve total count of configured GPON ONUs per GPON port.

- # ONUs active

  Retrieve total count of active ONUs on a per GPON port.

Command example:

gponolt status [**gtp**] [*<slot>*[*/<olt>*]]

Display OLT status and alloc-id information

```
zSH> gponolt status gtp
                                    DBA         Total
                                    Alloc-Ids   Alloc-Ids   # ONUs     # ONUs
OLT Interface  OLT State  # GEM Ports  used  avail  used  avail  configured  active
=============  =========  ===========  ===========  ===========  ========  ======
6/1            Active           0       0    384    0    768        0         0
6/2            Inactive         0       0    384    0    768        0         0
6/3            Inactive         0       0    384    0    768        0         0
6/4            Inactive         0       0    384    0    768        0         0
6/5            Inactive         0       0    384    0    768        0         0
6/6            Inactive         0       0    384    0    768        0         0
6/7            Inactive         0       0    384    0    768        0         0
6/8            Inactive         0       0    384    0    768        0         0
```

This information is also available via external SNMP request and ZMS. Contact DASAN Zhone Support for MIB information.

System Time on the ONU

ONUs get time of day and time zone offset from MXK automatically with OMCI. To view the current time and date on MXK, you can use the **showdatetime** command. To view the current time zone offset, use ntp-client-config 0 profile. The time is retrieved from one of the SNTP servers configured in the ntp-client-config 0 profile. The local-timezone field in the profile is used to set the time zone offset. The system time on the ONU maybe displayed on the CPE WEBUI, for example, zNID 24xx displays it in the System Date and Time field under the Device Info table.

To view the current time on MXK. This value will be sent to ONU by OMCI:

```
zSH> showdatetime
Current Time: TUE JAN 04 02:59:34 2013 GMT
```

To update the time settings on MXK, use the following command. The local-timezone will be sent to ONU by OMCI:

```
zSH> update ntp-client-config 0
ntp-client-config  0
Please provide the following: [q]uit.
primary-ntp-server-ip-address: ---> {0.0.0.0}: 128.2.136.71
secondary-ntp-server-ip-address: -> {0.0.0.0}: 50.31.2.213
local-timezone: -----------------> {gmt}: pacific CPE TimeZone Offset
daylight-savings-time: ----------> {false}:
daylight-savings-time-start: -----> {}:
daylight-savings-time-end: -------> {}:
....................
Save changes? [s]ave, [c]hange or [q]uit:s
```

Support for the 2804P FiberJACK ONT and zNID 2311 SFP ONT

Support for two new DASAN Zhone zNIDs, the 2804P FiberJACK ONT and zNID 2311 SFP ONT have been added to the MXK.

Fixed issues

Issues fixed in release 2.5.4.028

SR125158   Resolved an issue that took unexpected long time for HSIA and VoIP services to be active after a reboot.

◊   Fixed an issue that RG-BPPPOE bridges did not work properly and reported error "IP address and gateway are not at same network".

◊   Fixed an issue that "onu show" commands reports incorrect number of ONUs.

◊   Fixed an issue that video streams were not going through to STB over rg-brouted MVR/Dual-MVR bridges.

◊   Fixed an issue that cpe ip-com profile with index 0 could not be deleted after it was created.

◊   Fixed an issue that gponrp errors reported when adding RG bridges to zNID. This in turn generated ZNID RgComError.

Issues fixed in release 2.5.1.581

SR 127997   Resolves an issue whereby under certain circumstances asymmetric and TLS bridges with single to double tagged promotion are not learning MAC addresses.

◊   Includes an update ensuring that gpon-olt-onu-config system traps reliably report modelID binding information.

◊   Includes several service template enhancements for customizing a PoE power range setting.

◊   Corrects an issue that can cause a service impact to traffic on the 5xx GEM port after a Type B switchover.

◊   Addresses an issue whereby under certain circumstances, a user issued slot reboot command on an active uplink is not executed.

◊   Resolves a spurious black screen IPTV condition by relaxing a response time parameter found to be too tight on large systems.

Issues fixed in release 2.5.1.573

SR126307   Eliminates a problem that caused WLAN profiles to be lost after an upgrade to MXK 2.5.1.565.

SR124270   Resolves an issue whereby under certain circumstances, it is not possible to set DNS Profile 0 in the Unified Services Provisioning CPE system common profile.

◊   Includes an update adding an enhanced error code for cpe-static-profile when a user attempts to create a cpe-static-route profile with duplicate values.

◊   Eliminates a rare condition whereby the ONU may appear to be stuck in the provisioning list.

◊   Corrects an issue that causes ZMS to incorrectly report alarms and to not display the serial number next to the ONU.

◊   Addresses a problem where IPTV can stop working as expected following a switch of activity.

◊   Improves the Audit CLI command robustness by eliminating orphaned GPON-port configuration files.

◊   Resolves a problem whereby Ethernet link fails on some L2 switches resulting in half-duplex transmission.

◊   Addresses an issue whereby LinkAgg ifSpeed and ifHighSpeed were not reporting valid values.

◊   Resolves an issue with certain tranceivers whereby DDM values were not being reported.

Issues fixed in release 2.5.1.565

SR124952   Resolve an issue where devices (and their MAC addresses) were moving and the move and confirmation were not matching properly.

◊   Resolves an issue with switch/router protection with link aggregation in revertive mode. When the edge router does a fast switch the link would intermittently fail return to the working state.

◊   Corrects an issue that results in a RG error when adding a bridge to WLAN1.

◊   Includes an update that prevents bridge loops on certain switches when using LinkAgg.

◊ Resolves a power shedding configuration issue between PoE and wireless that prevents a ZNID-GPON-2427 from initializing properly.

◊ To repair incomplete or malformed bridge interface records such as the improper "0-0-0-0" for the "shelf-slot-port-subport" portion of the interface name, the **audit** command has been enhanced.

Issues fixed in release 2.5.1.556.2

◊ DASAN Zhone has modified the read / write operations to the Flexxon flash card in order to eliminate any issue when communicating with the Flexxon flash.

Issues fixed in release 2.5.1.556

SR124030 Resolves an issue whereby the GPON line may restart if a "GponOmciParamFind failed" printing error occurs.

◊ Improves the rogue ONU detection algorithm by only counting ONU signal loss for RSSI rogue detect if dying gasp is received before the ONU goes down. Previously, dying gasp was not considered as an input to the decision process of the algorithm.

◊ Improves the robustness of the USP option 82 feature when an MXK system name longer than 31 characters is sent to a ZNID.

◊ Eliminates a situation whereby manually initiated system reboots will not execute.

Issues fixed in release 2.5.1.548

SR124098 Resolves an issue whereby if a user connects STB's to the wrong ONT ETH port the, the MAC is lost on Static-Bridge.

SR123316 Includes a Broadcom firmware update that resolves an issue whereby multiple ZNID 24xx could drop traffic after a Type-B switch.

SR123266 Corrects an issue introduced in an earlier release that on rare occasions caused an uplink to restart after a daylight savings time adjustment due to repetitive and unnecessary database updates following ONU config changes.

SR122885 Corrects an issue whereby the use of the ONU upgrade command exhausts available resources causing a restart, and then ONTs are exceedingly slow to recover.

SR122842 Resolves a FiberLAN mode specific problem whereby IPv6 reserved Mcast packets flood the CPU.

SR122560 Includes a software validation update that eliminates the potential for an MXK-19x reboot due to a rare memory corruption event. (MXK 19x)

SR121592 Corrects an issue whereby the ONT system DNS is not provisioned properly via USP.

SR121133 Resolves an issue whereby under rare circumstances, the use of CLI tab completion can cause a system restart.

SR118057 Eliminates a system issue that unexpectedly reconfigures an ONT following an MXK reboot.

SR116398 Removes the possibility for dynamic alloc-ID exhaustion which can prevent bridges from functioning as expected.

◊ Resolves intermittent failure to upgrade ONUs and bulk auto-upgrade issues.

◊ Corrects an issue whereby the CBR rate of a GPON connection is not updated correctly with a new GTP.

◊ Corrects an issue that causes *rtfree* error messages when CPE Manager is added for the first time or from ZMS.

◊ Addresses an issue whereby if an SNMP command fails for one port, the *cpe-common* profile stops the configuration for the all remaining ports.

◊ Includes new 802.1x support adding

- a new TP TYPE called "dot1x" which creates bridged connections to the VEIP that will be used to carry customer traffic on ports that have the 802.1X Port Based Authentication feature enabled.

  The 802.1X feature will automatically add an Ethernet port as an untagged member to whichever dot1X VLAN bridge the user has been authorized to access, and will automatically remove the Ethernet port from the VLAN when the authorization expires or is terminated for any reason, such as a link down event on the port. For these reasons, when creating a bridge for the dot1x TP Type no Ethernet or WLAN membership is specified.

- a new TP Type called "radius" that can be used for the **bridge add** for the **rg-bridged** VLAN to be used as the bound interface for the RADIUS client used by the 802.1X feature where Eth0 is the only (tagged) member of the VLAN.

◊ Eliminates spurious "Warning: cpe-wlan-advanced 1 found in reserved address, conflicts with auto profile" messages.

◊ Includes an update that improves re-ranging performance after a Type-B switchover.

◊ Includes an update that eliminates the potential for a memory over-run on the GPON line over a long period of time due to the accumulation of unreleased alarm traps.

◊ Resolves an issue whereby under certain circumstances, 802.1Q packet headers are unexpectedly removed when incoming CoS is enabled on a line card bridge.

◊ Includes new WebUI support for robo-login protection, RADIUS login CLI function *CliRadiusAuthenticate*, resolved several issues with CPE auto-config record creation, and fixed issues with advanced/standard mode in statistics screens.

◊ Resolves an issue with spurious phantom *shelfctrl* alarms improperly indicating a power/temp/fantray problem.

◊ Enhances RADIUS server authentication by preventing local login if the RADIUS server refused the login when configured for *radius-then-local.*

◊ Includes an update that prevents users from entering an invalid CLI command that unexpectedly updates all bridge-interface records.

◊ Adds support for new ZNID-GPON-2726A1, ZNID-GPON-2726H1, ZNID-GPON-2727A1, ZNID-GPON-2728A1, ZNID-GPON-2804D, ZNID-GPON-2812P, ZNID-GPON-2813P, ZNID-GPON-2814P, ZNID-GPON-2815P.

◊ Enhances system performance by removing bridge storm detect on TLS-GW bridges.

◊ Resolves an issue whereby under rare circumstances using a combination of CLI and ZMS inputs, a database mismatch can be created allowing the duplication of uplink bridges.

◊ Introduces USP dual radio WiFi support for the 27xx ZNIDs.

◊ Resolves an issue where conditional DHCP server field changes are not applied as expected.

◊ Added functionality that allows learnUnicast to be modified on an existing bridge.

◊ Includes an update that improves flapping performance between two GPON ONUs on the same OLT port.

◊ Eliminates cssagent error messages after the user performs an onu delete command.

   Addresses an problem whereby the user is unable to modify ip-addr of a WAN port when the addressing mode is set to static.

   Introduces functionality enabling IP address learning from DHCP ACK in the downstream direction for non-secure bridges.

◊ Resolves a USP issue that occurs during the use of conditional DHCP option 43 VSI CHARS/Digits, resulting in an RgServiceSetupErr.

◊ Eliminates a WebUI bug that prevents it from properly provisioning an Ethernet subscriber.

◊ Addresses a service template issue whereby WLAN parameters are not correctly applied to the target ONU.

◊ Resolves an issue whereby a codec selection change in the CPE media type caused infosrv errors.

◊ Includes USP support to enable configurable SIP display name.

◊ IPv6 prefix delegation is not currently supported; asymmetric secure bridging will not operate when client requests IP address assignment using prefix delegation. This will be resolved in a subsequent release.

◊ Includes an update adding three new behavior strings in voip server profile to support

   • fax/modem/isdn call detection by both sides of a SIP call, and

   • customized hotline behavior.

◊ Updated the default value of *decouple-service-template* to enabled.

◊ Includes several PoE usability enhancements on the Ethernet subscriber profile.

Issues fixed in release 2.5.1.535

SR119911   Eliminates spurious MSTP loops when utilized with a Cisco ASR.

SR119856   An issue was resolved where multicast traffic was dropping STB packets when using MVR and VLAN translation. The upstream server was running IGMPv2, but due to the incomplete communication from the server, the MXK was staying in IGMPv3 rather than dropping back to IGMPv2. The solution was to add a test for dropping back to IGMPv2 in this situation, which resolved the issue.

◊   Added functionality to simplify the enablement/disablement of high-speed internet access (HSIA) VLANs for all subscribers, whether they are currently signed up for HSIA or not, without having to create and delete the HSIA VLAN on the ONT.

◊   Includes an update which improves the accuracy of ONU distance reporting.

◊   Includes an update adding two new fields in cpe-voip-features profile: conf-uri and conf-options.

◊   Eliminates spurious parity error reports caused by a recent Broadcom update.

◊   Corrects an IPv6 issue whereby secure bridges with/without option82 insertion do not pass traffic when the user performs DHCPv6 with prefix delegation.

Includes an update that enables Type B switchover support when primary and secondary fiber length are of different lengths.

◊   Includes an update that increases the TFTP upload/download file size beyond 32M.

◊   Adds support for Option 60 VCI on a conditional DHCP server.

◊   Resolves an issue whereby LinkAggregation groups may revert back to one link.

◊   Adds support so that when a subscriber registration fails, an alarm trap is sent to ZMS, then clears once registration is successful

◊   Enhances bridge loop detection to maintain data flowing to the device on the upstream TLS bridge interface.

◊   Includes an update for decoupling ONTs from the service template so that changes to the template can be modified

Issues fixed in release 2.5.1.521

TR 121162 Includes an update correcting several small issues with the WebGUI management interface.

◊ Includes an update that suppresses the display of alarm-free ONUs when using the alarms command.

◊ Resolves a minor formatting on the output generated when issuing the **onu upgrade show downloading** command.

◊ Includes an update to the CLI adding "**pbs**" to "**rule add ratelimitdiscard**" as a synonym to "**ebs**", recognizing that each describe the second "bucket", however the term "**ebs**" is used with single rate three color marking, and the term "**pbs**" is used for two-rate three-color marking.

Issues fixed in release 2.5.1.517

◊ Introduces new functionality that allows users to set different Option 82 DHCP relay settings on IPv4 and IPv6 flows.

Issues fixed in release 2.5.1.515

SR120990 Corrects an issue whereby GPON RegID is not working as expected after upgrading to 2.5.1.423, and must be disabled to use AutoConfig.

SR120895 Includes an update that eliminates spurious "Tx Power Too Low" messages on some SFPs.

SR119691, SR117580 Resolves an issue whereby bridges were not learning MAC addresses from ONT with Type B redundancy.

SR119005 Resolves a problem whereby OLT port flapping can result in a mismatch across system status displays.

SR118498 Resolves an issue changing the default VLANs on Ethernet ports 1 and 2 on a ZNID 2608T provisioned using the auto-configuration feature.

SR118469 Corrects a Session Description Protocol issue with T.38 negotiation.

SR117007 Corrects an issue whereby a user's userID/password is not processed correctly on PPPoE connections.

◊ Resolves an issue with SNMP get commands when trying to read zhoneGponSerialNoTable entries containing trailing zero values.

◊ Corrects an issue whereby in rare circumstances, a database synchronization problem between the MXK and ZMS can cause a partial configuration change and potentially affect traffic.

◊ Includes an update that eliminates cssagent errors.

◊ Adds support allowing users to find specific ONU UNI ports based on their description.

◊ Includes an update that ensures that after a system reboot, ZNID RF ports recovers properly.

◊ Addresses several alarm-severity field help text files for cpe-eth-subscriber, cpe-pwe-subscriber and cpe-rf-subscriber, resolves an issue with the use of the RSSI GPON distance function, and corrects an issue with the use of blank spaces in the system name when using SNMP set commands.

◊ Addresses several issues with IPv6 delegated prefix support.

◊ Eliminates an issue with DHCP Option 82 whereby it was not populating CircuitID values.

◊ Addresses two IPv6 LDRA behavior issues where the 1) hop-count was initialized to 1 instead of 0, and 2) the link-address field of the Relay-Forward message was not correctly set to the Unspecified Address (::) and did not include the Interface-ID option in all DHCP Relay-Forward messages.

◊ Adds support allowing IPv4 224.0.1.x as a valid IPTV multicast address.

◊ Corrects a problem whereby under certain circumstances, a Type-B switchover may fail after a slot reboot.

◊ Eliminates a problem whereby the system auto-confirms an L2 address, however the circuit does not pass traffic.

◊ Includes an update adding support for IPv6 Prefix Delegation on secure bridges.

◊ Includes an update correcting an issue whereby POE appears to be added to non-POE NIDs.

◊ Resolves an issue whereby under certain circumstances, Type-B redundancy does not function as expected without a port bounce on the secondary OLT port.

Issues fixed in release 2.5.1.423

Issues fixed in release 2.5.1.409

SR118225 Includes an update on numbering inconsistency when using **gpononuponstat** command.

SR118203 Addresses a situation whereby CPE Manager does not work as expected after an upgrade to 3.5.1.318-2.

SR117224 Resolves an issue with SNMP SET support for PoE power level provisioning

◊ Addresses a buffer overrun problem that can occur when the "onu gemports" command is issued

Issues fixed in release 2.5.1.318-2

◊ Dynamic OMCI and RG provisioning using the WebUI were not supported in the initial 2.5.1.318 release, but that issue has been resolved by updating the WebUI tar files without rebuilding the MXK binary files. Please see the note about USP web tar file in Downloading software on the MXK 194/198, page 51 for more information.

Issues fixed in release 2.5.1.318

SR 117085 Corrects an issue whereby the **bridge-path show** command results do not reliably indicate whether blocking is configured.

SR 117000 Resolves a rarely occurring problem whereby recurring "InfoServer" restarts may occur on high-density USP PPPOE provisioned systems.

SR 117000 During an upgrade from releases prior to 2.5, the system will automatically perform a data conversion that improves data storage efficiency and access time. When this process is complete the system will initiate an automatic reboot to reclaim unused database memory. This second boot will only happen once when converting from infotbl.v8 to infotbl.v9. Subsequent reboots are not effected.

Please also refer to the section describing flash file system space requirements prior to this upgrade.

SR 116870 Resolves an issue whereby persistent console logging does not work properly after an upgrade to 2.5.1.x.

SR 114815   Provides an update to disable ZNID ONT POTS ports. See User interface changes for 2.5.1.318-2, page 45 for greater detail.

◊   Includes a correction to improve the accuracy of ONU distance reports.

◊   Addresses an issue whereby the user is not able to create more than one bridge interface using GEM 5xx and the same VLAN.

◊   Includes an update correcting an issue with MAC aging.

◊   Fixes an issue where CPE Manager would not work when client was in the same subnet as public interface .

◊   Resolves an issue with WebUI whereby the user is unable to provision IPv6 static bridge paths, and IPv6 addresses are not visible for static bridge paths built dynamically on DHCPv6 renew.

Issues fixed in release 2.5.1.303

TR115464   Resolves an issue where a rare mismatch between two system files both containing the number of user entered CLI characters could cause a system reset.

◊   Resolves an issue whereby RG WAN/LAN service template connections are not being properly displayed when using 'cpe rg' commands.

◊   A previous limitation has been resolved regarding the MXK support for first octet layer 3 loopkup of multi-cast IP addresses on the DASAN Zhone ZNID, however there is a software dependency on the ZNID.

Issues fixed in release 2.5.1.235

SR/TR 116034   Add **bridge add** support for **eth all** for video bridge and **wlan all**.

SR/TR 115655   Resolves an issue with certain set-top-boxes when processing jumbo frames.

SR/TR 114073   Resolves an issue whereby an rgcomerror message is generated after adding a port-forward to a bpppoe connection.

SR/TR 112064   Addresses an issue created when the password length is not properly validated by software when trying to setup WEP encrypted WLAN access point.

SR/TR 106406   Resolves an issue with flapping mode on an uplink bridge path whereby MACs are not flushed as expected after the provisioned 60 sec interval.

◊ Introduces a change to improve memory integrity when there are multiple interfaces on one port and the port is moving around due to facility protection.

◊ Includes an update adding an FTP Client to the SLMS software to allow system administrators to use the FTP protocol for file transfer on the MXK, and to facilitate debugging config sync issues.

◊ Includes an update adding 0.1 W granularity to zNID PoE output power settings on the WebGUI.

◊ Resolves an issue with the accuracy of the low disk space alarm.

◊ Adds **learnlp** and **learnUnicast** setting support used on older versions of ZMS that do not support bridge types.

◊ Incorporates several additional exception rules for TLS enterprise networking applications.

◊ Corrects a problem whereby 1GE uplink ports may indicate "UNSELECTED" when added to a link aggregation group.

◊ Includes an update to correcting skin graphic issues with certain set-top-boxes.

◊ Resolves an issue with **insertOption82** when used with secure DHCPv6.

◊ Includes an update which automatically enables the bridge loop recovery feature when the bridge loop detection feature is enabled.

◊ Resolves an issue whereby the removal of links from an aggregation group on the remote end does not remove them on the MXK.

◊ Includes an update to correct a bridged video issue when provisioning via RG.

◊ Addresses an issue whereby the CPE Manager does not work as expected when a client is in the same subnet as public interface.

◊ Corrects an issue where an ONT's WAN ports may become disabled after the issuance of an ONT resync command.

◊ Resolves an issue whereby under certain circumstances, TR-69 connections can not be deleted.

Issues fixed in release 2.5.1.147

TR 112173 Increases OMCI SIP username character support from 25 to 50 characters.

TR 111716 Includes support for the user to manually select which CODECs are used on 24xx ONTs.

TR 111401 Eliminates a case sensitivity issue related to download file names.

TR 111117 Includes WebUI support for the creation of static IP and MAC path entries.

TR 110511 Resolves a rolling reboot issue that occurred when the **cpe-traffic-mgmt** field of GPON GEM Ports was non-zero.

TR 110096 Addresses an issue whereby ONU clone was not properly cloning all CPE Manager connection parameters.

◊ Adds "**gem port reuse**" to CLI "**bridge add**" command.

◊ Includes a Broadcom firmware update on all GPON ASICs.

◊ Includes an update that enables CPE LLDP support on the ZNID via CPE profiles.

◊ Introduces a change blocking DNS queries on cpe-mgr VLANs to prevent unnecessary CPE and network utilization

◊ Includes an update enabling IPv6 awareness of host-based ACLs.

◊ Includes an update adding G.988 OMCI support for setting the ONU real-time clock.

◊ Includes an update which prevents users from inadvertently deleting POTS or WLAN subscribers from CPE port submenu

Known issues

This section describes known issues in this release. For a history of known issues see past release notes.

During configuration, system messages may be reported. These messages may be useful for troubleshooting but should not affect operation of the system.

Here are the known issues by type:

General

◊ Untagged bridge can not be modified after it is created.

Workaround: Delete the bridge and re-create it per new bridge settings.

◊ RSTP is not supported in this release. This will be resolved in a later release.

TR 117577, TR-6443

A settable system attribute to indicate not to recreate defaults will be delivered in next release.

◊ Some MXK 194/198 systems shipped between November 1 2014 and May 1 2016 utilize "Flexxon" brand flash cards and may experience an intermittent system hang or spontaneous reboot. This problem occurs as a result of a communication error with the Flexxon flash card. DASAN Zhone has modified the read / write operations to the Flexxon card in order to eliminate any issue when communicating with the Flexxon flash. As a result of this issue the affected units may fatal and potentially lock up. In order to recover, the unit may need to be power cycled to restart the Flexxon flash card and recover functionality.

In order to determine if the flash card in use is Flexxon, use the following command:

```
> ata info 1
```

Look for: model =**FLEXXON FPCF256MTSE2-P93-10**

Any Flexxon flash card, regardless of the model number, should be upgraded. A unit that does not indicate the FLEXXON flash does not need to be upgraded to 2.5.1.556.2.

See Product Bulletin PB.10221 for important upgrade notes and more information.

◊ Video is not supported on RG connections guided VLANs.

◊ If the MXK19x device fails to communicate with the IP address specified in the **trap-destination** profile, a ZMS partial config sync warning will be reported

◊ When a DHCP client with the same MAC is configured on two different bridges, traffic is blocked on the first bridge. This is a hardware limitation.

◊ If an IPoBridge based interface is configured as the primary default route, and the uplink serving it goes down, the system doesn't recognize it and route to the secondary address

◊ Video is not supported on an rg-bridged connection using a guided VLAN.

◊ Wire bridge is not supported in Spanning Tree based rings.

◊ There is no SNMPv3 trap or access lists support on MXK.

◊ If a packet traverses a downlink static secure MAC bridge and there is no **bridge-path** for that MAC, a bridge storm will be falsely indicated.

◊ Whenever a flush is performed, the bridge is not always cleared.

◊ DASAN Zhone recommends using IPoBridge for management in a dedicated management VLAN. Management traffic should be separated from Residential services, and business services VLANs.

◊ TLS secure bridging is no longer supported in release 2.5; use downlink point-to-point bridges instead.

◊ Access list packet rule modifications do not take affect until the packet rule is re-applied to the bridge.

◊ Egress COS marking on GPON bridges is not provisioned on the MXK; it is provisioned on the ONT using USP or OMCI.

◊ Since wire bridge is transparent to the MXK, it cannot maintain visibility of packet types within the data stream; all packets are counted as uni-cast.

◊ DASAN Zhone strongly recommends the use of IPoBridge instead of routed interfaces.

◊ SNMPv3 clients must re-authenticate with the system after a protection switch.

◊ Authentication failure traps are not generated when an SNMPv3 user with readonly access attempts to change a MIB variable.

◊ MXK will generate an SNMP trap when a new ONT is detected only after the ONU is auto-assigned.

◊ A SNMPv3 user will not be deleted when using via "**user delete snmp**"; use "**deleteuser snmp**" instead.

◊ Using "**user add snmp**" adds an SNMP user without asking for auth protocol, priv protocol, passwords or permissions.

◊ SNMPv3 clients must re-authenticate with the system after a protection switch.

◊ Authentication failure traps are not generated when an SNMPv3 user with readonly access attempts to change a MIB variable.

◊ Auth Mode "None" is not valid in SNMPv3 DES; MXK only supports Auth mode of **md5** and **sha** with **priv** protocol of **DES**.

◊ Internal MXK command line tools do not support SNMPv3.

◊ When modifying frame size or rate limiting, the Ethernet MAC is reconfigured and will renegotiate link; this is a service affecting action.

◊ MXK hardware only counts PKT, oversize and the bucket counter (applies to all Ethernet ports except 10/100 management ports). Jumbo packets are not counted as Unicast.

◊ MXK switches can only rate limit to a point; all testing should be done with UDP (not TCP) to demonstrate "real-world" conditions, otherwise there is always some margin of error with rate limiting.

◊ The link LED may illuminate when copper SFPs are used but an Ethernet cable is not attached.

◊ By default, Windows 7 runs stateless, therefore **dhcpv6** messages are not supported.

◊ MXK supports up to 256 on-demand bridge stat counters per card in release 2.5.

◊ The "**bridge stats rules**" only apply to bridges that have stats as on-demand and are enabled (byte or packet). GPON has only ingress stats as on-demand, but for egress there are sufficient egress stats rules to supply the maximum number of bridges allowed on that card, therefore the egress side stats are not counted, but if any of the GPON bridge stats are enabled they'll show up in the output (representing the ingress side).

◊ When using mirroring on MVR, users should mirror the translated VLAN, not the MVR VLAN.

◊ Upstream multi-cast is only supported on GPON line services.

◊ Host-based routing is no longer supported in release 2.5.

◊ Bridge loops cannot be detected on non learning wirebridges.

◊ Latest version of OpenSSH OpenSSL client can not SSH to device

Note: MXK supports OpenSSH_5.9p1 and OpenSSL 1.0.1.

◊ DHCP relay is not supported in IPv6.

◊ Secure web access (https) to the ONTs is not supported via CPE Manager.

◊ TLS bridges no longer flood IP TV Multicast. Only Unknown multicast and IPV4 Reserved multicast are flooded.

◊ DHCP relay is not supported in IPv6.

◊ When the igmptimer is modified with **bridge-path modify**, the multi-cast aging timer is also changed.

◊ Forbidoui is not supported on non-learning bridges.

◊ When using PTP in EAPS nodes or when the system is in line protection mode, the PTP source must come in the active uplink.   If a protection event occurs, the system will continue in clock-holdover mode until protection is restored.

◊ New bridge type displays have changed and are not truncated, but are abbreviated. Please see the Configuration Guide for additional information.

◊ IPSLA is not supported.

◊ When modifying outgoing COS and SCOS on bridge interface, the new COS and SCOS value never gets entered.

◊ The **bridge showdetail** command does not report all details.

◊ Users are able to the delete IP interface on ipobridge interfaces when it is used as the public side interface for the CPE Manager.

◊ IPoBridges built on asymmetric bridges need to have a static MAC and IP address or they can age out and cause the MXK to become unreachable. Bridges built on 2.4.1.320 or later build statics by default.

◊ Cisco switches occasionally generate invalid logs when the MXK enables sync, collect and distribute too early on LACP link switchovers.

◊ CPE Manager no longer works if a wildcard VLAN with SLAN promotion is configured on a port.

◊ When an EAPS protection event takes place, all protected VLANs are flushed. MXK does not flush downlink learned MACs, however anything on intralinks and TLS is flushed, and relearns/joins are completed by the next IGMP query cycle.

◊ When adding secure to a TLS bridge, if the secure bridge parameters are not mac+ip, it will learn IP (there is no harm in learning IP, the bridge will continue to work).

◊ With the introduction of IGMP v3 towards the network, MXK is relying on the switch to downshift to v2 if it sees a v2 membership report. If a Cisco switch is configured for v3, it works immediately, otherwise it does not behave properly. Video resumes after the first query cycle.

◊ Wire bridges (with the same VLAN/SLAN) cannot exist on the same PON link.

‡ Existing MSTP/RSTP configurations will continue to have 15 seconds as default; to change the **fwDelay** param to 4 seconds, the user must manually update the **stp-param** profile.

‡ When **FlapMode** is enabled, the MAC moves but the IP does not. The IP will flap on the next IP packet that is sent to the CPU, such as DHCP Discover, ARP, or any broadcast packet.

◊ CSFP autonegotiate does not work between 100/1000MB SFPs.

Workaround: Manually set autonegotiate to disable and change mauType/ ifType to mau100basetfd, link will occur and traffic will pass.

‡ When deleting RLINK bridges, MXK deletes the bridge paths first which is problematic. If the user wants to switch from EAPS to regular lines, they must remove any RLINK bridges they may have created before they do **line-red add**, then they can add bridges.

◊ Packet rule **dstmacswapstatic** is not supported on TLS bridges.

◊ VLAN COS Marking is supported when MXK adds a VLAN tag. COS re-marking is only supported with VLAN translation.

◊ If a packet rule for **forbid oui** is entered without the oui being properly input, a phantom packet rule is created. This phantom rule can be eliminated by

issuing
```
zSH> delete ingress-packet-rule 1/1 -orphan.
```

◊ Uplink bridges do not pass traffic after changing loop prevention from 'blockAsym' to 'blockAll' on a static-bridge path.

◊ If line-red is added prior to inserting a fiber cable into standby, and there is a fail over to the standby, the standby will come up but does not know it is part of a line-red.

Workaround: This situation is resolved by a port bounce.

◊ When using the **rule add** command to set the *dscptocos* profile, **rule add** sets the profile to 1 regardless of what is entered.

◊ When a **dscptocos** mapping is used, the **dscp-to-cos 1** profile must be selected, and the profile index for the DSCP-to-COS mapping within the MXK must be 1.

GPON

◊ When more than 256 secure IP entries are issued on a GPON card, some hosts will not work properly. This will be resolved in a later release.

◊ MXK USP Option 82 token **$CpSystemName** fails when the MXK system name is longer than 31 characters.

◊ The **onu inventory** CLI command displays results twice when OLTs are type-B redundant.

◊ When configuring Type-B redundancy, the secondary will not be in a ready state until the primary finishes processing all the ONU provisioning requests.

◊ If a switchover occurs before type B is ready, it will be required to use a **gpononu resync** command in order to recover the ONUs in error state.

◊ Multicast statistics on GPON ports is not supported.

◊ The **bridge add** command using wildcards is not supported on redundant OLT.

◊ Unlike when upgrading when using OMCI, when upgrading an ONT using TFTP, there is no "commit" function; DASAN Zhone recommends using "activate" when using TFTP which is really activate and then commit.

◊ OLT alarm / trap enhancements provide better alarm correlation actions to the OLT alarm processing.

◊ When a MAC flap on the same PON link, the MXK sends a MAC move indication to the host, but also sends the packet to the sgmii interface.

The switch can not tell the difference between one GEM and another. We have already learned the source MAC on this GPON OLT port, so as far as the switch goes, there is nothing new here.

◊ When performing an ONU move, the original GEM port is replaced with another value.

◊ VoIP CoS is set by default to 0 when provisioning VoIP on zNID-GPON.

Workaround: Set the CoS to a non-zero value when creating the connection.

◊ If a manual ONU upgrade is started by a user but left in a non-committed state, auto upgrade will not be scheduled for that ONU.

Workaround: In order for auto upgrade to work, the ONU must be in Downloaded-Activated-Committed state.

◊ Colorawareratelimiting is not supported on GEM port bridges.

◊ Multicast statistics do not count on GPON bridges.

◊ When configured for dual MVR, membership reports are sent to both VLANs, however only one of them is supposed to respond with a video stream.

‡ Direct GPON profile modifications should be avoided; only CLI commands or SNMP operations are supported.

◊ When creating a GPON intralink, an error message may result and the bridge may not be created.

Workaround: To resolve, delete and re-add the bridge.

Recommended version of ZMS

Starting from the 2.5.4.028 release of MXK 194/198, please refer to the ZMS release notes for corresponding features supported in ZMS.

Interface changes

User interface changes for 2.5.4.028

- There are no interface changes in this release.

User interface changes for 2.5.1.581

- There are no interface changes in this release.

User interface changes for 2.5.1.573

- There are no interface changes in this release.

User interface changes for 2.5.1.565

- There are no interface changes in this release.

User interface changes for 2.5.1.556.2

- There are no interface changes in this release.

User interface changes for 2.5.1.548

- New bridge type supports for 802.1x:
  - a new TP TYPE called "dot1x" which creates bridged connections to the VEIP that will be used to carry customer traffic on ports that have the 802.1X Port Based Authentication feature enabled.

    The 802.1X feature will automatically add an Ethernet port as an untagged member to whichever dot1X VLAN bridge the user has been authorized to access, and will automatically remove the Ethernet port from the VLAN when the authorization expires or is terminated for any reason, such as a link down event on the port. For these reasons, when creating a bridge for the dot1x TP Type no Ethernet or WLAN membership is specified.

  - a new TP Type called "radius" that can be used for the **bridge add** for the **rg-bridged** VLAN to be used as the bound interface for the RADIUS client used by the 802.1X feature where Eth0 is the only (tagged) member of the VLAN.

- Includes an update adding three new behavior strings in voip server profile to support.
  - fax/modem/isdn call detection by both sides of a SIP call, and
  - customized hotline behavior.

User interface changes for 2.5.1.535.1

There are no user interface changes for this release.

User interface changes for 2.5.1.535

There are no user interface changes for this release.

User interface changes for 2.5.1.521

- Added **pbs** to **rule add ratelimitdiscard** as a synonym to **ebs**, recognizing that each describe the second "bucket", however the term **ebs** is used with single rate three color marking, and the term **pbs** is used for two-rate three-color marking.

User interface changes for 2.5.1.517

There are no user interface changes for this release.

User interface changes for 2.5.1.515

- The "slash" character is not allowed in interface name

  The "/" is used as a separator for s**helf/slot/port/subport/type** when looking for records in the database and can not be used in if-Name.

- Do not allow GPON OLT to use the CLI **port bounce** command

  The **port bounce** command executes the **port down** command, waits one second, and then executes the **port up** command.

  The **port bounce** command was created to simplify testing of admin up/down operations in lab environments.

  When type-B protection is configured for GPON OLTs, returning the port back to service immediately after admin down can cause unexpected results. Hence the **port bounce** command has been removed for GPON OLTs.

  To perform a forced protection switch use **port down** followed by **port up**.

User interface changes for 2.5.1.423

- A new parameter has been add to cpe-cfg-global-settings to allow the decoupling of cpe-service-application profiles for a specific zNID. See *Decouple service template with zNIDs* on page 7 for more information
- *Add description field to CPE subscriber profiles* on page 8
- *Unified Provisioning Support to include GPON ZNID serial number in Remote ID for Option 82* on page 8
- *Enhanced ONU Discovery includes model ID information* on page 8

User interface changes for 2.5.1.409

- *Cycling the blocking/unblocking of bridge interfaces under storm conditions on page 10*

User interface changes for 2.5.1.318-2

- An update to disable ZNID ONT POTS ports has been added — the command has been changed from:
  cpe voip add "ports" dial-number 123456 user-name 12345 password 12345 voip-server-profile 1
  cpe voip modify "port"
  to
  cpe voip add "ports" admin-state down.

- A new mtu parameter has been added to the **cpe-ip-server** profile with a provision to specify a value ranging from 0 - 1540 with a default value of 1500.

- Two new parameters have been added to the **cpe-cfg-global-settings** profile: **derived-mac-bpppoe** and **derived-mac-brouted** adding an optional **disable** function to each where previously it was always enabled.

- The parameters in the cpe-global-settings profile may now be modified directly from the CLI.

  ```
  zSH> cpe settings modify auto-assign enabled
  auto-config enabled
  ```

- A new parameter has been added to the **cpe-cfg-global-settings** profile, **decouple-service-template**, which allow the service template to be decoupled from the CPE. This decoupling allows for permanent changes to be made on the CPE after the templates was initially applied. Prior to this change once a template has been applied to an ONU, adding/deleting a service on the same ONU was not allowed.

User interface changes for 2.5.1.235

- Ability to change the severity of Line Status traps in the **gpon-olt-onu-config** profile using the **line-status-traps** and **link-status-alarm-severity** parameters. See ONT line status configurable alarm severity, page 11

- Enhancements to the **sipstack reg** command to display Server Address. See Fixed issues, page 22

- Added. 0.1 W granularity to zNID PoE output power settings on the WebGUI. See Fixed issues, page 22

User interface changes for 2.5.1.147

- The option **gem port reuse** added to the CLI **bridge add** command.

- Error message regarding modifying data for an SNMPv3 user has been updated.

- IPv6 awareness of host-based ACLs added.

- Validation messaging for auto-detection of bond group type (EFM or N2N) has been updated.

- The "**esa show mode**" command has been enhanced to display the ESA mode of all the voip server entries configured, except back-up voip-server.

- The **system 0** profile now contains a field to enable/disable console file logging. See Persistent logging, page 18.

- The **bridge table** command now allows filtering by ip, mac, as well as ipv6 addresses.

- The **onu status** and **onu showall** commands now allow filtering by "**enabled**," "**free**," or "**all**."

- The **bridge stats** command now has an optional parameter "**bytes**" to count by bytes rather than packets.

- Added new field voip-features field to **voip-server-entry**, added create and update validation in CLI and SNMP for below conditions:

  – Check if profile exists with same ip address already

  – sip-outbound and GRUU features are supported only for sip protocol

  – sip-outbound feature can be enabled only on primary **voip-server-entry**

  – Special case - Create secondary and set sip-outbound if it is set in primary.

- Additions to **bridge** and **bridge-path** commands, see *IPv6 compatibility*

- System parameter for *SNMPv3 support*

- The **lldp** submenu was added to the **cpe** menu. *LLDP-MED on ONTs via USP*

- The **onu clone** command was added, see *USP feature additions and enhancements*

CPE support matrix

- *ONUs that support RG provisioning*
- *Firmware for OMCI only zNIDs*
- *Support for new zNIDs*

ONUs that support RG provisioning

Table 2 describes DASAN Zhone ONU CPE models and software support for RG provisioning for GPON only.

Table 2: CPE support for ONU RG provisioning

DASAN Zhone CPE model numbers	Software minimum
24xx	S3.0.522, M3.0.522
26xx	S3.0.522, M3.0.522
27xx	S3.1.261, M3.1.261
28xx	S4.0.027, M4.0.027
42xx	S3.0.522, M3.0.522
9xxx	S2.5.131, M2.5.131

Firmware for OMCI only zNIDs

Table 3 describes DASAN Zhone ONU CPE models and software support for OMCI for GPON only.

Table 3: Firmware support for OMCI only zNIDs

DASAN Zhone CPE model numbers	Firmware minimum
2301	R1.1 25543
2311	R1.1 25594

Support for new zNIDs

Support added for the following new zNID models in the 2.5.4.028 release:

- ZNID-GPON-2424A1, ZNID-GPON-2426A1, ZNID-GPON-2428A1, ZNID-GPON-6024T

Support added for the following new zNID models in the 2.5.1.573 release:

- ZNID-GPON/GE-9740, ZNID-GPON 2101P

Support added for the following new zNID models in the 2.5.1.548 release:

- ZNID-GPON-2726A1, ZNID-GPON-2726H1, ZNID-GPON-2727A1, ZNID-GPON-2728A1

- ZNID-GPON-2804D, ZNID-GPON-2812P, ZNID-GPON-2813P, ZNID-GPON-2814P, ZNID-GPON-2815P

Support added for the following new zNID models in the 2.5.1.147 release:

- 2804P FiberJACK ONT

- zNID 2311 SFP ONT

Limitations and features not supported

The following are system limitations for the DASAN Zhone release 2.5.4.028 for the MXK:

- VLANs 0 and 3710-4095 are reserved for GPON functionality, so may not be assigned when using GPON.

- VLANs 0 and 4090-4095 are reserved for system functionality and should not be used.

- VLAN 7 is reserved for CPE manager even if it never has been and never will be configured. If CPE Manager is not used and the use of vlan 7 is required for other purposes, such as external DHCP for CPE management via bridge, please use the following to free vlan 7 for general purpose use:

```
zSH> update cpe-mgr-global 0

cpe-mgr-global  0
Please provide the following: [q]uit.
local-vlan: -------------------------> {7}: 4089
local-slan: -------------------------> {0}:
cpe-cfg-mgr-concurrent-update-limit: -> {5}:
....................
Save changes? [s]ave, [c]hange or [q]uit: s
Record updated.
```

- The ability to add global uplinks for bridges is not supported.

  Workaround: Individual bridge paths must be built for each VLAN.

- Hitless upgrades are not supported in this release.

- Configuring a mix of secure and non-secure bridges in the same VLAN is not supported.

- Users should refrain from provisioning linkagg groups comprised of members of different line rates. This is an invalid configuration.

- If a manual ONU upgrade is started by a user but left in a non-committed state auto upgrade will not be scheduled for that ONU. In order for auto upgrade to work the ONU must be in Downloaded-Activated-Committed state.

- When testing the daylight savings time feature in lab environments please note that the feature requires that a start and end time be separated by at least a 2-hour interval.

- By design BlockAll will block the network and should not be used on asymmetric VLANS.

- Unified Service Provisioning support for the 26xx Family of ONTs is limited and is suitable for early-introduction use.

- Due to varying switch implementations of link aggregation, DASAN Zhone recommends that customers validate new topologies in lab conditions or in controlled deployments prior to large scale implementation.

- WebUI should not be used to support over 256 CPE Configuration Managed devices. ZMS or ZMS VA should be used.

- In certain circumstances when enabling extended reach on the GPON line cards, the distance is not always 100% accurate.

- IGMP snooping is not supported, please use IGMP proxy.

- MXK only supports SSH2 and is not compatible with newer versions of OpenSSH and OpenSSL. MXK supports OpenSSH_5.9p1 and OpenSSL 1.0.1

- When installing FiberLAN in environments which use a large number of TLS bridge interfaces, in the **system** profile, add **fiberlan** to the **options** parameter. For any questions, contact DASAN Zhone GSS. See Contacting Global Service and Support, page 52.

- cpe manager does not work when client is in same subnet as public interface.

- Untagged intralinks are not supported.

Downloading software on the MXK 194/198

Before downloading a new release of the system software on the MXK 194/198 , Dasan Zhone recommends, as a precautionary measure, that you back up the existing system configuration and the current version of the system software locally on the MXK 19x. Backing up the existing system configuration and software can also be done to a TFTP server on the network.

> **Note: infotbl conversion**
>
> **IMPORTANT!** Please read this note.
>
> Failure to observe the following information and correct any anomalies can result in a service impacting situation.
>
> On an upgrade from releases prior to 2.5, the system performs a data conversion that improves data storage efficiency and access time.
>
> In release 2.5 DSZ is introducing a new version of the **infotbl** database that improves performance and reduces memory consumption. When upgrading from 2.4 to 2.5, **infotbl.v8** will be converted.
>
> The new database is written to a file named **infotbl.v9** (from **.v8**). In the process of the conversion a temporary copy of the **.v9** is created, as **.v9.tm**p, until the conversion is complete.
>
> At the end of the upgrade there will be the following database files on the flash:
>
> - **infotbl.v9**: The new converted database
> - **infotbl.v9.old**: The backup version of the new database
> - **infotbl.v8.old**: a backup copy of the database prior to conversion
>
> A temporary copy of **infotbl.v9.tmp** will grow as large as **infotbl.v8** was before conversion, and then be renamed.
>
> *The conversion requires that the flash file system must have free disk space to store 3 times the current **infotbl.v8**.* Use the **dir** command and compute the open space required and compare it with the open space available.
>
> Failure to have this free space will result in a failed upgrade and a truck roll.
>
> After a successful upgrade the **infotbl.v8.old** should be removed.
>
> When this process is complete the system will initiate an automatic reboot to reclaim unused database memory. This second boot will only happen once when converting from **infotbl.v8** to **infotbl.v9**. Subsequent reboots are not effected.

> ✓ **Note: WebUI http.tar files to restore GPON Unified Services Provisioning support**
>
> This version of the Release Notes documents the update of the WebUI http.tar files to restore GPON Unified Services Provisioning support for the WebUI MXK 2.5.1.318 release. Since this update was done within the http.tar file itself and not within the MXK binary files, a new loadbuild number was not required. The only difference between the original .318 (version 1) posting and this one (version 2) is an update to the WebUI http.tar files.
>
> Please note that updated firmware files for the MXK-19x have been placed on the public website and are named MXK_19x/ MXK_2.5.1.318-2 respectively.
>
> To distinguish between .318 version 1 and version 2 containing the updated http file, the new file is identifiable by the "-2" extension, i.e., ".318-2" in its name. Since the binary files in ".318-2" are identical to those found in the ".318" version 1 build, a software query of the system will not contain the "-2" extension, but will display "2.5.1.318".
>
> The version 2 http files can also be identified by the fact that all have 5-Mar-15 date codes whereas the version 1 http files were timestamped on 26-Feb-15 for MXK-19x.

Contacting Global Service and Support

If your product is under warranty (typically one year from date of purchase) or you have a valid service contract, you can contact Global Service and Support (GSS) for questions about this or other DASAN Zhone products, or for Technical Support or Hardware Repairs.

Before contacting GSS, make sure you have the following information:

• DASAN Zhone product you are using

• System configuration

• Software version running on the system

• Description of the issue

• Your contact information

If your product is not under warranty or you do not have a valid service contract, please contact GSS or your local sales representative to get a quote on a service plan. You can view the options on our web site at

http://www.dasanzhone.com/support/.

Technical support

The Technical Assistance Center (TAC) is available with experienced support engineers who can handle questions, assist with service requests, and help troubleshoot systems.

Hours of operation	Monday - Friday, 8 a.m. to 5 p.m, Pacific Time (excluding U.S. holidays)
Telephone (North America)	877-946-6320
Telephone (International)	510-777-7133
E-mail	support@dasanzhone.com
Web - available 24 x 7 to submit and track Service Requests (SR's)	www.dasanzhone.com/support/ Click **Technical Assistance (TAC)**

If you purchased the product from an authorized dealer, distributor, Value Added Reseller (VAR), or third party, contact that supplier for technical assistance and warranty support.

Hardware repair

If the product malfunctions, all repairs must be authorized by DASAN Zhone with a Return Merchandise Authorization (RMA) and performed by the manufacturer or a DASAN Zhone-authorized agent. It is the responsibility of users requiring service to report the need for repair to GSS as follows:

- Complete the RMA Request form (http://www.dasanzhone.com/account/sr/submit.cgi) or contact DASAN Zhone Support via phone or email:

  Hours of operation: Monday - Friday, 8 a.m. to 5 p.m, Pacific Time (excluding U.S. holidays)

  E-mail:support@dasanzhone.com (preferred)

  Phone:877-946-6320 or 510-777-7133, prompt #3, #2

- Provide the part numbers and serial numbers of the products to be repaired.

- All product lines ship with a minimum one year standard warranty (may vary by contract).

- DASAN Zhone will verify the warranty and provide the customer with a repair quote for anything that is not under warranty. DASAN Zhone requires a purchase order or credit card for out of warranty fees.