

RELEASE NOTES:



Alteon OS™ 21.0

Layer 2-3 GbE Switch Module
for IBM @server BladeCenter

NORTEL
NETWORKS™

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Reference: 217026-A

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Release Notes

The Layer 2-3 GbE Switch Module is one of up to four GbE switch modules that can be installed in the IBM eServer BladeCenter chassis.

These release notes provide the latest information regarding *Alteon OS 21.0* for Nortel Networks Layer 2-3 GbE Switch Module for IBM eServer BladeCenter. This supplement modifies information found in the complete documentation:

- *Alteon OS Command Reference*
- *Alteon OS Application Guide*
- *Alteon OS Browser-Based Interface Quick Guide*
- *Installation Guide*

The publications listed above are available on the IBM *BladeCenter Documentation CD*. Please keep the Release Notes with your product manuals.

Hardware support

This *Alteon OS 21.0* software is only supported on the IBM eServer BladeCenter's Layer 2-3 GbE Switch Module hardware (see Figure 1). The Nortel Networks GbE Switch Module is a high performance Layer 2-3 embedded network switch. The Layer 2-3 GbE Switch Module supports six Gigabit Ethernet external copper or fiber ports, 14 Gigabit Ethernet internal ports and two Fast Ethernet management ports. The GbE Switch also features tight integration with IBM eServer BladeCenter's management module.

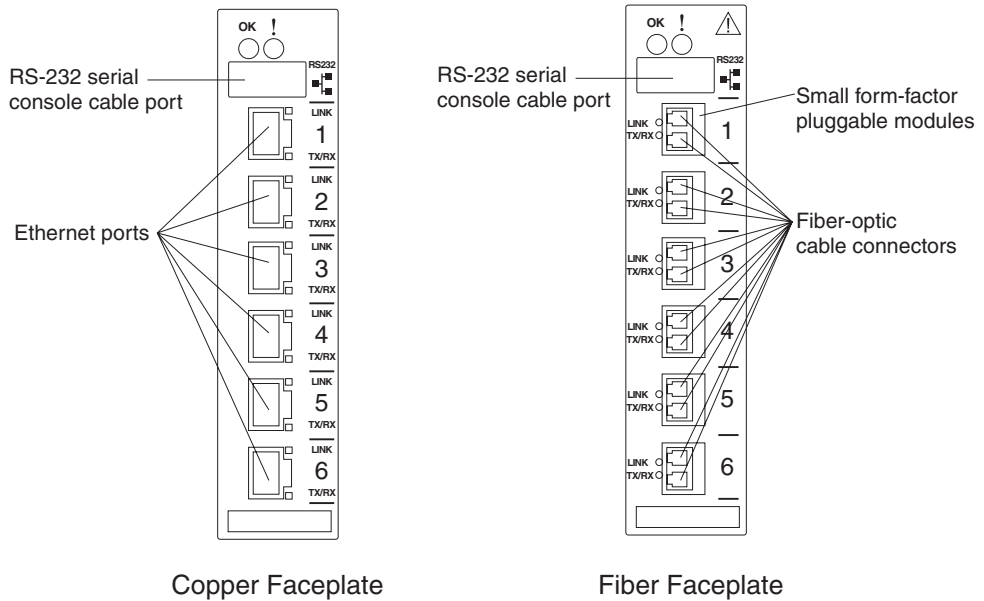


Figure 1 GbE Switch Module faceplate

Software Update Procedure

The software image is the executable code running on the GbE Switch Module. The switch module ships with a software image pre-installed. As new versions of the image are released, you can update the software running on your switch.

IBM maintains pages on the World Wide Web where you can get the latest technical information and follow the link for Downloads and Drivers. To access these pages, go to <http://www.ibm.com/pc/support/> and follow the instructions.

Update the switch software using a FTP or TFTP server application. Typically, this application is installed on a machine that is reachable from the switch through the external ports or the management module ports. Download the GbESM software to the machine where the FTP or TFTP server resides, and perform the steps indicated in the following section.

Downloading New Software to the GbE Switch Module

The GbE Switch Module can store up to two different Operating System (OS) software images, called `image1` and `image2`, as well as boot software, called `boot`. When you download new software, you must specify where it should be placed: either into `image1`, `image2`, or `boot`.

For example, if your active OS image is currently loaded into `image1`, you would probably load the new image software into `image2`. This lets you test the new software and reload the original active image (stored in `image1`), if needed.

To download a new software to your switch, you will need the following:

- The image or boot software loaded on a FTP or TFTP server on your network
- The hostname or IP address of the FTP or TFTP server
- The name of the new software image or boot file

NOTE – The DNS parameters must be configured if specifying hostnames.

Image names:

- Image file: GbESM-AOS-1.0.1.1-os.img
- Boot file: GbESM-AOS-1.0.1.1-boot.img

When the above requirements are met, use the following procedure to download the new software to your switch.

NOTE – When performing this update, make sure you download the new boot file and the new image file.

1. **At the `Boot Options#` prompt, enter:**

```
Boot Options# gting
```

2. **Enter the name of the switch software to be replaced:**

```
Enter name of switch software image to be replaced
["image1"/"image2"/"boot"]: <image>
```

3. Enter the hostname or IP address of the FTP or TFTP server.

```
Enter hostname or IP address of FTP/TFTP server: <name or IP address>
```

4. Enter the name of the new software file on the server.

```
Enter name of file on FTP/TFTP server: <filename>
```

The exact form of the name will vary by server. However, the file location is normally relative to the FTP or TFTP directory (usually /tftpboot).

5. Enter your username for the server, if applicable.

```
Enter username for FTP server or hit return for TFTP server:
<username> or <Enter>
```

6. The system prompts you to confirm your request.

You should next select a software image to run, as described below.

Selecting a Software Image to Run

You can select which OS software image (image1 or image2) you want to run in switch memory for the next reboot.

1. At the Boot Options# prompt, enter:

```
Boot Options# image
```

2. Enter the name of the image you want the switch to use upon the next boot.

The system informs you of which image is currently set to be loaded at the next reset, and prompts you to enter a new choice:

```
Currently set to use switch software "image1" on next reset.
Specify new image to use on next reset ["image1"/"image2"]:
```

Software features

The list of features below summarizes the functionality of the GbE Switch Module. For more detailed information about GbE Switch Module's features and capabilities, please refer to the *Alteon OS 21.0 Application Guide* for Nortel Networks' *Layer 2-3 GbE Switch Module for IBM eServer BladeCenter*.

Switch management

- IBM management module integration
- BladeCenter Enterprise and Telco chassis support
- Browser-Based Interface (HTTP and HTTPS)
- Telnet support
- SSH/SCP support (version 1 and version 2)
- RADIUS authentication and authorization
- TACACS+ authentication and authorization
- SNMP support (version 1 and version 3)
- FTP/TFTP image and configuration management
- Scriptable configuration management

Layer 2

- 128 Virtual LANs (VLANs)
- VLAN Tagging
- Spanning Tree Protocol
- Rapid Spanning Tree Protocol and Multiple Spanning Tree Protocol
- Trunking (port aggregation)
- 802.1x Port Authentication (EAPOL)
- QoS/ACL Layer 2 Filtering
- 802.1p/Class Of Service support
- Fast Uplink Convergence
- Layer 2 Trunk Failover

Layer 3

- 128 IP Interfaces
- IP Routing
- Inter-VLAN routing
- Default Gateways per VLAN
- 128 static routes
- RIP v1 and v2
- OSPFv2
- BGPv4
- Differentiated Services
- IGMP Snooping

High Availability

- Virtual Router Redundancy Protocol (VRRP)
- Inter-Chassis Redundancy Link (ICRL)
- Active-Active support

Security

- Broadcast Storm Control
- Secure switch administration

Supplemental Information

This section provides additional information about configuring and operating the GbE Switch Module and *Alteon OS 21.0*.

Management Module

- The “Fast POST=Disabled/Enabled” inside the IBM management module Web interface “Advanced Management for I/O Module” does not apply to the GbE Switch Module.
Solution: To boot with Fast or Extended POST, go to the “I/O Module Power/Restart” window. Select the GbE Switch Module, and then choose “Restart Module and Run Standard Diagnostics” or “Restart Module and Run Extended Diagnostics.”
- The following table correlates the Firmware Type listed in the IBM management module’s Web interface “Firmware VPD” window to the GbE Switch Module software version:

Table 1 Firmware Type list

Firmware Type	Description
Boot ROM	GbE Switch Boot code version
Main Application 1	Image 1 GbE Switch Alteon OS version
Main Application 2	Image 2 GbE Switch Alteon OS version

- Within the IBM management module Web interface, the Java applets of “Start Telnet Session” and “Start Web Session” do not support changing of default known ports 23 and 80 respectively. If the Telnet or HTTP port on the GbE Switch Module is changed to something other than the default port number, the user must use a separate Telnet client or Web browser that supports specifying a non-default port to start a session to the GbE Switch Module user interface.

Solution: If you change the default Telnet or HTTP port in the GbE Switch Module configuration, then you must manage the switch from a non-management module Port; e.g. EXT1–EXT6, or INT1–INT14.

Management Module-GbE Switch Module Connectivity

Currently, the IBM management module is designed to provide one-way control of the GbE Switch Module. As a result, the GbE Switch Module may lose connectivity to the management module via the management port under the following conditions:

- If new IP attributes are pushed from the management module to the GbE Switch Module while the IP Routing table is full with 2048 entries, the new attributes will not be applied.

Solution: Enable “External Management over all ports,” connect to the switch using other interface and then clear the routing table. Then push the IP address from the management module. If this does not work, use Solution 2 below.

- If you execute the `/boot/reset` CLI command on the GbE Switch Module or the GbE Switch Module resets itself, the management module might not push the IP attributes to the switch, and connectivity may be lost.

Solution 1: If you experience any connectivity issues between the switch module and the management module, go to the *I/O Module Management* window on the management module’s Web interface. Under the *New Static IP Configuration* section, click **Save** to trigger the management module to push the stored IP attributes to the switch module.

Solution 2: If Solution 1 does not resolve your connectivity issue, then go to the *I/O Module Power/Restart* window on the management module’s Web interface. Restart the switch module in question.

Solution 3: If this still does not resolve the issue, enable *Preserve new IP configuration on all resets* setting on the management module and restart the switch module via the *I/O Module Power/Restart* window on the management module’s Web interface.

NOTE – As a rule, always use the management module Web interface to change the GbE Switch Module management IP attributes (IP address, mask and gateway), and then click **Save** to push the IP attributes to the switch module. Use of the command-line interface to change the switch module management IP attributes may result in duplicated IP Interface 128 entries in the GbE Switch route table and/or loss of connectivity via the management module.

Secure Management Network

The following GbE Switch Module attributes are reserved to provide secure management access to and from the IBM management module:

- VLAN 4095
- IP Interface 128
- Gateway 132
- MGT1 (Port 15)
- MGT2 (Port 16)
- STG 16

For more information about remotely managing the GbE Switch Module through the external ports, see “Accessing the Switch” in the *Alteon OS 21.0 Application Guide*.

NOTE – The external uplink ports (EXT1-EXT6) cannot be members of the management VLAN (4095).

Secure Shell (SSH)

Because SSH key generation is CPU intensive, the GbE Switch Module attempts to avoid unnecessary key generation. The process generates three server keys:

1. One key is generated to replace the current server key, if used.
2. A second key is generated as a spare, in case the current server key is used and the specified interval expires.
3. A third key is generated for use at the next reboot.

Therefore, if you never login via SSH, you will only see two key generation events. You may see all three events directly following a reboot. If you want to witness the key generation after the specified interval has expired, then you must login via SSH at least once during each expiration interval.

Port Mirroring

The GbESM Port Mirroring feature may behave differently than you expect. For detailed information, refer to “Troubleshooting” in the *Alteon OS 21.0 Application Guide*.

Trunk Group Configuration Tips

Please be aware of the following information when you configure trunk groups:

- Always configure trunk groups first on both ends, before you physically connect the links.
- Configure all ports in a trunk group to the same speed. You cannot aggregate 10/100Base-TX or 100Base-FX module ports with gigabit ports.

Spanning Tree Configuration Tips

To ensure proper operation with switches that use Cisco Per VLAN Spanning Tree (PVST+), you must do one of the following:

- Create a separate Spanning Tree Group for each VLAN.
- Manually add all associated VLANs into a single Spanning Tree Group.

When using Layer 2 Trunk Failover, disable Spanning Tree Protocol on external ports (EXT1-EXT6).

Syslog Configuration Tip

The *facility* parameter traditionally is used to correlate services (e.g. IP, CLI, etc.) to messages. This is done to distinguish between the different services that are running in the network/device. However, for the GbE Switch Module, there is a single configured facility value (0-7) used on all messages. By configuring a unique facility value for each switch, a single SYSLOG server can distinguish between the various GbESMs in the network. Refer to "System Host Log Configuration" in the *Alteon OS 21.0 Command Reference*.

Known issues

This section describes known issues for the GbE Switch Module and *Alteon OS 21.0*.

Firmware Version Display

When you update firmware on a GbE Switch Module running an OS version prior to 1.0.1.1, an incorrect OS version is displayed by the management module. This only occurs when using the BBI or SNMP to update the software image.

Solution: Download OS firmware version 1.0.1.1 (or later) and reset the switch. After the switch has finished rebooting, download version 1.0.1.1 (or later) again.

Interoperability with Older Hubs

The command-line interface might display **link up** and **link down** messages continuously for an external port that is connected to certain older hub models configured for 100 Mbps half-duplex. The display might show **link up** erroneously. This behavior has been observed when connecting the GbE Switch Module with the following devices:

- NetGear FE104 100 hub
- SBS 1000Base-T NIC
- 3Com Linkbuilder FMS100 Hub 3C250 TX/I
- 3Com SuperStack II 100TX 3C250C-TX-24/12
- Nortel Baystack 204 Hub

If the GbE Switch Module is connected to an Alteon Application Switch which requires a link speed of 100 Mbps half-duplex, then enable auto negotiation on the GbE Switch Module port with `port speed=any, mode=any, fctl=both, and auto=on`.

SNMP Link States

- Each port is capable of generating a LinkStateUp and LinkStateDown trap. This capability is enabled or disabled using the linktrap parameter, using the CLI command, `/cfg/sys/ssnmp/linkt`. LinkState traps are enabled by default. In this release of the software, when a user attempts to disable LinkState traps (`/cfg/sys/ssnmp/linkt <port #> d`), then applies and saves the configuration, an entry will be written incorrectly to the configuration file. Rather than writing the tree path `/cfg/sys/ssnmp`, the path `/cfg/ssnmp` will be saved, resulting in two behaviors:

On next reset, the GbE Switch Module will report an error; specifically

```
Error: unknown command "ssnmp"
```

Since the parameter change is not recognized, `linkt` will remain enabled.

Solution: Manually edit the configuration file. The configuration file can be written to, and read from a TFTP server.

- Start a TFTP server, then use the Switch Module command `/cfg/ptcfg` to write the configuration file to the device where the TFTP server is operating.
- Open the file with an ASCII text editor, locate the line starting with:

```
/cfg/ssnmp/linkt
```

- Change this line to:

```
/cfg/sys/ssnmp/linkt
```

- Write the change to the `cfg` file, then use the command `/cfg/gtcfg` to read the file back to the GbE Switch Module. Now reset the GbE Switch Module.
- The link state (`/info/link`) infrequently may report link up status for a server blade that has been removed from the chassis.

Solution: Disable internal ports for empty server blade slots.

Inactive Management Port Status

After turning ON Multiple Spanning Tree/Rapid Spanning Tree, the status of the inactive management port (MGT1 or MGT2) changes from DISABLED to DOWN. This is a display issue only. There is no functional impact since either DISABLED or DOWN state has the same effect of not allowing packets to be forwarded through the port.

Link Aggregation Control Protocol

If a static trunk on a GbESM is connected to another GbESM with LACP configured (but no active LACP trunk), the command `/info/l2/trunk` might erroneously report the static trunk as forwarding.

Since LACP trunks use LACPDU packet to maintain trunking with the partner, there is a possibility for those packets to be dropped from an extremely busy trunk. If this happens, some links in the LACP trunk might be removed, then aggregated back to the trunk if an LACPDU is received. To avoid this unstable LACP trunk link, you can add more links to the trunk to increase the bandwidth, or use regular static trunk if there are no more links available.

Linking at 10/100MB

When the link speed for an external connection is forced (i.e. no Auto-Negotiation) to 100 Mbps and then changed to 10 Mbps, if the external device is changed first, the external device may erroneously report the link as DOWN even after the GbESM is changed to 10 Mbps.

Solution: At the external device, disconnect and reconnect the cable.

Static MRouter

If a port has a static multicast router (MRouter) configured, and you move the port to a different VLAN, the static MRouter appears in the `/info/13/igmp/mrouter/dump` output for the original VLAN.

Solution: When you move the port to a new VLAN, remove the static MRouter from the port, and add it again.

ACL Filters

The ACL filters for TCP/UDP work properly only on packets that do not have IP options.

QoS Metering

Traffic may exceed the configured maximum burst size of the ACL meter (`/cfg/port x/aclqos/meter/mbsize`) by one packet, with that packet remaining In-Profile. Once the ACL meter has been exceeded, additional burst packets fall Out-of-Profile.

QoS Scheduling

The observed scheduling weight used by the highest Class Of Service queue might not match the configured value entered in the `/cfg/qos/8021p/weight` command. The highest-weighted COS queue is not serviced according to its configured value if that value is two or greater than the value configured for the second-highest weighted COS queue. In Example 1 below, the highest weighted COS queue has an observed weight that is one more than the second-highest COS queue. In Example 2 below, the highest-weighted COS queue has an observable weight equal to the second-highest COS queue.

Example 1: The highest-weighted COS queue has a higher priority COS than the second highest-weighted COS queue:

```
COSq 0 = 1
COSq 1 = 2
COSq 2 = 3
COSq 3 = 4
COSq 4 = 4
COSq 5 = 4
COSq 6 = 5
COSq 7 = 9
```

In this example, COS queue 7 is serviced with a weight of 6, based on the weight of COS queue 6, plus one. All other COS queues are serviced with their configured weights.

Example 2: The highest-weighted COS queue has a lower-priority COS than the second highest-weighted COS queue:

```
COSq 0 = 1
COSq 1 = 1
COSq 2 = 1
COSq 3 = 1
COSq 4 = 1
COSq 5 = 1
COSq 6 = 7
COSq 7 = 2
```

In this example, COS queue 6 is serviced with a weight of 2, which is equal to the value COS queue 7. All other COS queues are serviced with their configured weights.

NOTE – COS queues configured with a value of zero (strict priority) are not affected by this limitation.

QoS and Trunking

When you assign an ACL (or ACL Group) to one port in a trunk, Alteon OS does not automatically assign the ACL to other ports in the trunk, and it does not prompt you to assign the ACL to other ports in the trunk.

Solution: Manually assign each ACL or ACL Group to all ports in a trunk.

RADIUS with SSHv2

With RADIUS turned on, users might see a duplicate login prompt for SSHv2 clients, if the RADIUS server is too slow to respond or if the RADIUS server is not available. In this case, users must re-type the username and password to login.

RIP MIBs

Due to backward-compatibility issues, two Routing Information Protocol (RIP) MIBs are available in Alteon OS 21.0: `ripCfg` and `rip2Cfg`. Use the `rip2Cfg` MIB to configure RIPv1 and RIPv2 through SNMP.

Alteon OS 21.0 does not support the standard RIPv2 MIB, as described in RFC 1724. Use the `rip2Cfg` MIB to configure RIPv1 and RIPv2 through SNMP.

Trunk and Link Loop

When you create a trunk or link loop between the GbESM and another switch, packets might loop infinitely at line rate within the related links. When this problem occurs, the GbESM continuously displays the following messages at the console:

```
WARNING: packet_sent u: 0, dv_active: tx ring full
packet_sent dcnt=114, public1=110, vcnt=1025
```

Solution: Remove the loop to resolve this misconfiguration.

Trunk Traffic

Multicast, broadcast and DLF (Destination Lookup Failed, which are unknown destination MAC packets) traffic is sent to the lowest numbered port in the trunk. If this port is down, then the traffic is sent to the next lowest-numbered port. If the port that was down comes up again, the traffic is not re-hashed back to the recovered port.

IGMP Snooping Information

If IGMP reports are learnt over a trunk, IGMP Snooping Information displays list the individual ports, not the trunk groups.

Browser-Based Interface

Sometimes, when using a browser from a client to access the BBI of the switch, the console will display “Failed login attempt, via BBI.” In fact, they are all successful attempts, and none of them have failed. This occurs using the `user` logins with pre-configured passwords for access.

BBI Dashboard

The BBI Dashboard does not provide the complete Virtual Router Interface information. Use the `/info/13/vrrp` command to get the complete VRRP information.

Date and Time

The maximum year supported in the GbE Switch Module is 2037. If a year higher than 2037 is entered in the Alteon OS CLI setup wizard, the BBI or the `/cfg/sys/date` CLI command, an erroneous date of 12/31/2069 is displayed.

The `/cfg/dump` and `/maint/tsdump` output do not include system date and time information.