RELEASE NOTES:

Alteon OS™ 20.1

Layer 2-7 GbE Switch Module
for IBM @server BladeCenter

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Release Notes

The GbE Switch Module is one of up to four GbE Switch Modules that can be installed in the IBM eServer BladeCenter Type 8677, also known as the BladeCenter unit.

These Release Notes provide the latest information regarding Alteon OS 20.1 for Nortel Networks Layer 2-7 GbE Switch Module for IBM eServer BladeCenter. This supplements and adds to information found in the complete documentation listed below:

- *Alteon OS Command Reference*

- *Alteon OS Application Guide*

- *Alteon OS Browser-Based Interface Quick Guide*

- *Installation Guide*

- *Hardware Maintenance Manual and Troubleshooting 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 20.1* software is only supported on the IBM eServer BladeCenter's Layer 2-7 GbE Switch Module hardware (see Figure 1). The Nortel Networks GbE Switch Module is a high performance Layer 2-7 embedded network switch. The switch module supports four external Gigabit Ethernet ports, 14 internal Gigabit Ethernet ports and two Fast Ethernet management ports. The GbE Switch Module also features tight integration with IBM eServer BladeCenter's management module.
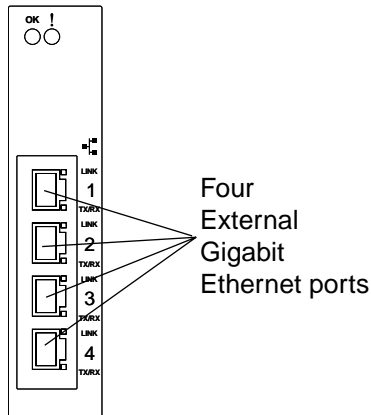
Figure 1 GbE Switch Module faceplate

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 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 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 TFTP server on your network
- The hostname or IP address of the 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-20.1.1.0-os.img
- Boot file: GbESM-AOS-20.1.1.0-boot.img

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

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

```
Boot Options# gtimg
```

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 TFTP server.**

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

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

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

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

5. **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"]:
```

New Software Features

The list of features below briefly describes the new functionality of the GbE Switch Module. For more detailed information about GbE Switch Module's features and capabilities, please refer to the *Alteon OS 20.1 Application Guide* for Nortel Networks' *Layer 2-7 GbE Switch Module for IBM eServer BladeCenter.*

Four Switch Support

The BladeCenter can accommodate up to four GbE Switch Modules in a single chassis. For more information, see "High Availability" in the *Alteon OS 20.1 Application Guide* for Nortel Networks' *Layer 2-7 GbE Switch Module for IBM eServer BladeCenter.*

L2 Trunk Failover

Layer 2 Trunk Failover enables the GbE Switch Module to provide support for Network Adapter teaming. The switch controls the failover mechanism by monitoring the links within a trunk group and conveying changes in link status to the Server NIC Team. Failover can be enabled on an individual trunk basis.

For more information, see "High Availability" in the *Alteon OS 20.1 Application Guide* for Nortel Networks' *Layer 2-7 GbE Switch Module for IBM eServer BladeCenter.*

VRRP Hot-Standby

Hot-Standby provides support for Network Adapter teaming. It works by using Virtual Router Redundancy Protocol (VRRP). All virtual routers (VSRs and VIRs) must be grouped together, so that one GbESM is Master or HOT while the other is Backup or STANDBY for all instances of virtual router. This method has many tracking options to control each switch's VRRP priorities, which are shared with each other via VRRP updates.

For more information, see "High Availability" in the *Alteon OS 20.1 Application Guide* for Nortel Networks' *Layer 2-7 GbE Switch Module for IBM eServer BladeCenter.*

Serial-over-LAN

The GbE Switch Module supports the IBM Serial-over-LAN (SoL) feature. This feature provides access to the text-console command prompt on each blade server through a Serial over LAN (SOL) connection, enabling the blade servers to be managed from a remote location.

For more information, refer to the Serial over LAN Setup Guide:
http://www-306.ibm.com/pc/support/site.wss/document.do?lndocid=MIGR-54666

Link Aggregation Control Protocol

Link Aggregation Control Protocol (LACP) allows the GbE Switch Module to control and configure trunk groups dynamically. The GbESM supports the IEEE 802.3ad-2002 standard. For more information, see "Ports and Trunking" in the *Alteon OS 20.1 Application Guide* for Nortel Networks' *Layer 2-7 GbE Switch Module for IBM eServer BladeCenter.*

Configurable Trunk Hash Algorithm

This feature allows you to configure the particular parameters for the GbE Switch Module Trunk Hash algorithm, instead of relying on the default values. You can configure new default behavior for L2 traffic and L3 traffic, using the menu `/cfg/l2/thash`. You may select up to two of the following parameters to create your optimal configuration:

- Source IP (SIP)

- Destination IP (DIP)

- Source MAC (SMAC)

- Destination MAC (DMAC)

For more information, see "Ports and Trunking" in the *Alteon OS 20.1 Application Guide* for Nortel Networks' *Layer 2-7 GbE Switch Module for IBM eServer BladeCenter.*

Port Fast Forwarding

Port Fast Forwarding permits a port that participates in Spanning Tree to bypass the Listening and Learning states and enter directly into the Forwarding state. While in the Forwarding state, the port listens to the BPDUs to learn if there is a loop, and if dictated by normal STP behavior (following priorities, etc.), the port transitions into the Blocking state. This feature is enabled on an individual port basis, and permits the GbE Switch Module to interoperate well within Rapid Spanning Tree networks.

For more information, see "Spanning Tree Group" in the *Alteon OS 20.1 Application Guide* for Nortel Networks' *Layer 2-7 GbE Switch Module for IBM eServer BladeCenter.*

Supplemental Information

This section provides additional information about configuring and operating the GbE Switch Module and Alteon OS 20.1.

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–EXT4, 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 should 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.

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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 20.1 Application Guide*.

VLAN 4095 traffic is not mirrored to the external ports. In order to monitor management VLAN (4095) traffic, set up port mirroring to use an internal port which is also a member of VLAN 4095.

NOTE – The external uplink ports (EXT1-EXT4) cannot be members of the management VLAN (4095).

NOTE – It is recommended not to enable jumbo-frame support for 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.

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.

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Known Issues

This section describes known issues for the GbE Switch Module and Alteon OS 20.1.

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 autonegotiation 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.

Non-Applicable SNMP MIBs

The following SNMP operations are not applicable to the Alteon OS MIBs for the GbESM, and general error will occur if they are executed.

■ agPortCurCfgLinkTrap.20=enabled(1)
OID
1.3.6.1.4.1.1872.2.5.1.1.2.2.1.16

■ agPortCurCfgPreferred
1.3.6.1.4.1.1872.2.5.1.1.2.2.1.17

■ agPortCurCfgBackup
1.3.6.1.4.1.1872.2.5.1.1.2.2.1.18

■ agPortNewCfgLinkTrap
1.3.6.1.4.1.1872.2.5.1.1.2.3.1.16

■ agPortNewCfgPreferred
1.3.6.1.4.1.1872.2.5.1.1.2.3.1.17

■ agPortNewCfgBackup
1.3.6.1.4.1.1872.2.5.1.1.2.3.1.18

The following items also return an error (Function timed out):

- agTftpLastActionStatus
  1.3.6.1.4.1.1872.2.5.1.1.7.7

- agTftpPort
  1.3.6.1.4.1.1872.2.5.1.1.7.8

- agEnabledBwmKey
  1.3.6.1.4.1.1872.2.5.1.3.3.3

- agEnabledSecurityKey
  1.3.6.1.4.1.1872.2.5.1.3.3.4

- ipStaticArpTableMaxSize
  1.3.6.1.4.1.1872.2.5.3.1.15.1

- ipCurCfgStaticArpTable
  1.3.6.1.4.1.1872.2.5.3.1.15.2

- ipNewCfgStaticArpTable
  1.3.6.1.4.1.1872.2.5.3.1.15.3

- slbNewCfgFastage
  1.3.6.1.4.1.1872.2.5.4.1.1.1.20

- slbCurCfgSlowage
  1.3.6.1.4.1.1872.2.5.4.1.1.1.21

- slbNewCfgSlowage
  1.3.6.1.4.1.1872.2.5.4.1.1.1.22

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 and l4oper logins with pre-configured passwords for access.

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.

SLB Health Checks

If the management gateway is the only gateway operational, and the internal server blades are on the same IP subnet as the management gateway, then the GbESM may try to use the management gateway to send out traffic intended for the server blades, such as L4 health checks. This happens because both the management network and the server blades reside on VLAN 4095.

Solution: To avoid unwanted traffic on the management gateway, make sure that another gateway is operational, or temporarily disable real services on the GbESM while servicing the internal server blades.

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.

Disabling Tagging on ports INT1 and INT2

An attempt to disable VLAN tagging for ports INT1 or INT2 might cause the Telnet session to become unresponsive.

Solution: Remove ports INT1 or INT2 from all VLANs except the Default VLAN before you disable tagging. If the Telnet session is not responding, restart the switch from the management module web interface.

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