RELEASE NOTES:

Alteon OS™ 20.0

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

NORTEL NETWORKS™

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Release Notes

The GbE Switch Module is one of up to two 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 20.0 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 20.0* 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.

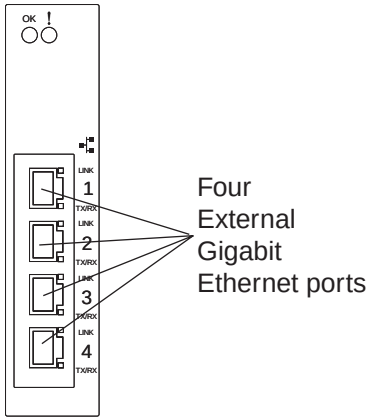

Figure 1 GbE Switch Module faceplate

Software upgrade 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 upgrade the software running on your switch.

IBM maintains pages on the World Wide Web where you can get the latest technical information and download software updates. To access these pages, go to `http://www.ibm.com/pc/support/` and follow the instructions.

The switch software is upgraded through a TFTP server application. Typically, this software runs as an application under your operating system. Make sure that this software is installed on your server; then, download the software images from the IBM Web site into a directory on your TFTP server. Enable the TFTP server and set its default directory to the one where you placed the software image.

Downloading new software to the GbE Switch Module

The GbE Switch Module can store up to two different 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 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-20.0.1.0-OS.img
- Boot file: GbESM-AOS-20.0.1.0-OS-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 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 20.0 Application Guide* for Nortel Networks' *Layer 2-7 GbE Switch Module for IBM eServer BladeCenter.*

Switch management

- IBM management module integration
- Browser-Based Interface
- Telnet support
- SSH/SCP support
- RADIUS authentication and authorization
- SNMP support
- TFTP image/configuration management
- Scriptable configuration management

Layer 2

- 128 Virtual LANs (VLANs)
- VLAN Tagging
- Spanning Tree Protocol (STP)
- 16 Spanning Tree Groups (STG)
- Trunking (port aggregation)

Layer 3

- 128 IP Interfaces
- IP Routing
- Inter-VLAN routing
- Default Gateways per VLAN
- 128 static routes
- RIPv1
- OSPFv2
- BGPv4

Virtual Server Load Balancing (Layer 4)

- 64 virtual servers/256 virtual services
- 64 real servers/256 real services
- 64 real server groups
- 300,000 concurrent sessions
- TCP, UDP application load balancing
- Application health checks
- Range of load-balancing metrics
- Server persistency support
- Application redirection
- Service group failover
- Overflow/backup servers
- Network-device load balancing

Content Aware Load Balancing (Layer 7)

- URL load balancing
- DNS and RTSP content-based load balancing
- HTTP cookie persistency
  - Cookie insert
  - Cookie rewrite
  - Cookie passive
- Secure Socket Layer (SSL) session ID persistency
- Virtual hosting
- Browser-type parsing
- Content-aware health checks
- User-scriptable health checks
- L4-7 Delayed Session Bindings

High Availability

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

Security

- 1024 security filters/policies
- Denial of Service protection
- TCP Rate Limiting
- SYN attack protection and detection
- Layer 7 Deny filter
- Intrusion-detection load balancing
- Secure switch administration

Supplemental information

This section provides additional information about configuring and operating the GbE Switch Module and Alteon OS 20.0.

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.”

- If Extended or Full POST are selected on the Management Module Interface, ensure that no external cables are plugged into the GbE Switch Module that is under test.

- 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 INT–INT14.

Management module-GbE Switch Module connectivity

Currently, the IBM management module is designed to provide one-way communication to the GbE Switch Module only. 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 has reset by itself, the management module is not informed 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 Management 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 reset the switch module via the ***I/O Module Power/Restart*** window on the management modules 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 20.0 Application Guide*.

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.

Known issues

This section describes known issues for the GbE Switch Module and Alteon OS 20.0.

GbE Switch TFTP Upgrade via BBI

- Problem: When the TFTP-GetOS button in GbE Switch BBI is used to upgrade Alteon OS, the Management module Firmware VPD display is not updated with the new revision information.

  Solution: Upgrade using the CLI command `/boot/tftp` and then restart from the Management Module.

Port Mirroring

The behavior of the GbE Switch Port Mirroring feature is a function of the following attributes:

- Ingress or egress Port Mirroring
- Mirroring port VLAN assignments—same VLAN as Monitoring Port or different VLAN than Monitoring Port
- VLAN tagging configuration—on the Mirroring Port and on the Monitoring Port

Table 2 on page 13 displays the specific behavior for each combination of these attributes:

Table 2 GbE Switch Module Port Mirroring behavior

Ingress Port Mirroring					
		Mirrored Port			
		Same VLAN as Monitoring Port		Different VLAN from Monitoring Port	
		Tagged Port	Untagged Port	Tagged Port	Untagged Port
Monitoring Port	Tagged Port	Tagged packet with VID of ingress port	Tagged packet with VID of ingress port	Tagged packet with VID of ingress port	Tagged packet with VID of ingress port
	Untagged Port	Untagged packet	Untagged packet	Tagged packet with VID of ingress port	Tagged packet with VID of ingress port
Egress Port Mirroring					
		Mirrored Port			
		Same VLAN as Monitoring Port		Different VLAN from Monitoring Port	
		Tagged Port	Untagged Port	Tagged Port	Untagged Port
Monitoring Port	Tagged Port	Tagged packet with VID of egress port	Tagged packet with VID of egress port	Tagged packet with VID of egress port	Tagged packet with VID of egress port
	Untagged Port	Untagged packet	Untagged packet	Tagged packet with VID of egress port	Tagged packet with VID of egress port

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 NetGear FE104 100 hub, SMC EZ Hub 100, and the NetGear DS108 Dual Speed 10/100 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`) may infrequently report link up status for a server blade that has been removed from the chassis.

  Solution: Disable internal ports for empty server blade slots.

SNMP MIB support

In the *Command Reference Appendix B*, the following SNMP MIB should be added to list of standard MIBs supported by Alteon OS:

- rfc2037.mib

The following MIB is not supported and should be disregarded:

- AOSBwm.mib

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.

Radius server configuration notes

Use the following information to modify your RADIUS configuration files for the Nortel Networks BaySecure Access Control RADIUS server, to provide authentication for users of the GbE Switch Module.

1. **Create a dictionary file called `alteon.dct`, with the following content:**

```
##########################################################################
# alteon.dct - RADLINX Alteon dictionary
#
# (See README.DCT for more details on the format of this file)
##########################################################################
#
# Use the Radius specification attributes in lieu of the
# RADLINX Alteon ones
#
@radius.dct

#
# Define additional RADLINX Alteon parameters
# (add RADLINX Alteon specific attributes below)

ATTRIBUTE   Radlinx-Vendor-Specific  26  [vid=648 data=string]  R

##########################################################################
# alteon.dct - RADLINX Alteon dictionary
##########################################################################
#Define Alteon GbESM Layer 2 & Layer 3 dictionary
#@radius.dct

@alteon.dct
   VALUE        Service-Type     user            255
   VALUE        Service-Type     slboper         254
   VALUE        Service-Type     l4oper          253
   VALUE        Service-Type     oper            252
   VALUE        Service-Type     slbadmin        251
   VALUE        Service-Type     l4admin         250
##########################################################################
```

2. **Open the `dictiona.dcm` file, and add the following line (as in the example):**

   - `@alteon.dct`

```
########################################################################
# dictiona.dcm
########################################################################
# Generic Radius

@radius.dct

#
# Specific Implementations (vendor specific)
#
@pprtl2l3.dct
@acc.dct
@accessbd.dct
@alteon.dct
.
.
.
########################################################################
# dictiona.dcm
########################################################################
```

3. **Open the vendor file (`vendor.ini`), and add the following data to the Vendor-Product identification list:**

```
vendor-product      = Alteon Blade-server module
dictionary          = alteon
ignore-ports        = no
help-id             = 0
```

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