

Software Release V4.0.0

Part No. 311523-C Rev 00  
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4401 Great America Parkway  
Santa Clara, CA 95054

# **Release Notes for the BayStack 450 10/100/1000 Series Switch**

\*311523-C Rev 00\*

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## Introduction

These release notes contain important information about software version V4.0.0 for the BayStack\* 450 Switch that may not be included in the related user guide *Using the BayStack 450 10/100/1000 Series Switch* (Part number 309978-D Rev 00). The information in these release notes supersedes the applicable information in the user guide.

These release notes contain the following sections:

- “Upgrading the BayStack 450 Firmware” (page 1)
- “The Upgrade Process” (page 2)
- “Creating a Mixed Stack” (page 4)
- “Accessing the Software Images” (page 5)
- “Upgrade Restrictions” (page 5)
- “Nortel Networks Online Documentation” (page 6)
- “New Features” (page 7)
- “Bug Fixes” (page 7)
- “Known Restrictions” (page 8)
- “Known Problems” (page 13)
- “Connecting to Accelar Gigabit Ports” (page 14)
- “1000BASE-LX Connectors” (page 15)
- “Network Management” (page 16)

## Upgrading the BayStack 450 Firmware

The BayStack 450 firmware provides a code load facility that allows you to upgrade the software image over any switch port, including any MDA ports.

The BayStack 400-ST1 Cascade Module *will not operate* with BayStack 450 switches that are configured with BayStack 450 software versions *earlier than* version V1.1.0. You *must upgrade all units* with BayStack 450 software version V1.1.0 (or later) *before* installing the BayStack 400-ST1 Cascade Modules.

To access the software images, see “Accessing the Software Images” on page 5.

## The Upgrade Process

Upgrading the BayStack 450 switch to software version V4.0.0 is a two-step process:

1. **Download the *boot code image*.**
2. **Download the *agent image*.**

To properly upgrade the BayStack 450 switch, the boot code image *must be downloaded first*, before you download the agent image. If the agent image (the operational software) is downloaded before the boot code image, the software may not be programmed into the BayStack 450 switch FLASH memory.

The switch indicates a failed image load as follows: An alternating LED pattern is displayed on the BayStack 450-24T 10/100 status LEDs (ports 13 to 24), on the BayStack 450-12T 10/100 status LEDs (ports 1 to 12), and on the BayStack 450-12F Link status LEDs (ports 1 to 12).

If this happens, cycle the switch power (power off the switch, then power it on). Use the Software Download screen to download the new boot code image. After the boot code image download completes, download the new agent image.

## Upgrading to Software Version V4.0.0 in a Mixed Stack

When you upgrade a mixed stack<sup>1</sup> to software version V4.0.0, you must first upgrade the agent code, before you upgrade the boot block. Although this is the inverse of the normal upgrade procedure, it is necessary to ensure a successful software upgrade.

For more information about mixed stack upgrades, see the Business Policy Switch 2000 *User's Guide*.

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<sup>1</sup>In this document, the term “mixed stack” refers to a stack configuration that includes BayStack 400 Series switches (BayStack 450 switches and BayStack 410-24T switches) *and* one or more Business Policy Switches.

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## Important Considerations

When you upgrade your BayStack 450 switch:

- Download *two images* (the *boot code image* and the *agent image*). The new boot code image must be downloaded *before* the agent image is downloaded.
- After upgrading your units, verify that the firmware and software versions, and the Interoperability Software Version Number (ISVN) is correct in the sysDescr field of the System Characteristics screen:
  - The correct firmware version is: **FW:V1.48**
  - The correct software version is: **SW:v4.0.0**
  - The correct ISVN number is: **2**



**Note:** When you upgrade to software version software version V4.0.0, you should also obtain a copy of *Using the BayStack 450 10/100/1000 Series Switch* (Part number 309978-D Rev 00). That user guide provides information about using the new software version V4.0.0 features. See “Nortel Networks Online Documentation” on page 6 to get the latest version of the user guide.

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## Recovering from a Failed Upgrade

The upgrade process is a fairly straightforward process when implemented correctly. However, if you do not follow the correct steps to upgrade your switch, the switch can become temporarily disabled.

- If you install a BayStack 400-ST1 Cascade Module before you upgrade the switch to software version V1.1.0 (or later), the code load facility may not function properly. To correct this situation, remove the BayStack 400-ST1 Cascade Module and upgrade the software properly before reinstalling it.
- If you try to download the agent image *before* you download the boot code image, the upgrade may fail: The agent software can detect an incompatible revision and will discontinue programming itself into FLASH memory. This condition is indicated by a steady pattern of alternating LEDs.

The switch will not automatically reset. To recover from this condition, you must cycle power to the switch, upgrade the boot software, and then upgrade the agent software.

## Creating a Mixed Stack

When creating a mixed stack that includes one or more more Business Policy Switch 2000\* switches<sup>1</sup>, complete the following steps:

**1. Upgrade your BayStack 450 switches and your BayStack 410-24T switches to software version V4.0.0:**

Confirm that all of the switches you intend to use in your new stack have the same ISVN numbers. Upgrade all switches that have incorrect ISVN numbers (see your switch's *User's Guide* for information about ISVN version numbers and upgrade details).

**2. Power down all BayStack 450 switches and BayStack 410-24T switches.**

**3. Set the Unit Select switch for all BayStack 450 switches and BayStack 410-24T switches to the "Off" position (Off = Down).**

**4. Set the Unit Select switch on one of your Business Policy Switches only, to the "Base" position (Base = Up).**

**5. Set the Stack Mode value for all Business Policy Switches to "Hybrid" mode.**

See your Business Policy Switch *User Guide* for details.

**6. Use the Reset command to reset all Business Policy Switches.**

**7. Power down all units.**

**8. Ensure that all cascade cables are connected properly, and then power up the stack.**

See your Business Policy Switch *User Guide* for details on managing your stack.

See your switch's *User Guide* for additional details about creating mixed stack configurations.

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<sup>1</sup>The terms "Nortel Networks Business Policy Switch 2000" and "Business Policy Switch" are used interchangeably in this document.



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## Accessing the Software Images

You can access the software image files directly from the Internet:



**Note:** When upgrading the switch, you must download *two images*, the *boot code image* (the firmware) and the *agent image* (the software).

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1. **Go to** [www25.nortelnetworks.com/software](http://www25.nortelnetworks.com/software).
2. **Under the Switching Products (or Data and Internet) heading, select BayStack Switches - 450 10/100/1000 Switch, then click the Go button.**
3. **Under the Operational Software heading, click on BayStack 450 Ethernet Switch boot code V4.0.0.**

Follow the prompts to download the BayStack 450 boot code image. The boot code image file name is *b4504001.img*.

4. **After the BayStack 450 boot code image is downloaded, click on BayStack 450 Ethernet Switch agent V4.0.0.**

Follow the prompts to download the BayStack 450 agent image. The agent image file name is *b4504002.img*.

For detailed information about downloading a new software image, see Chapter 3, “Using the Console Interface,” in *Using the BayStack 450 10/100/1000 Series Switch*.

## Upgrade Restrictions

The following restrictions apply when you upgrade the switch to software version V4.0.0:

- When you upgrade a stack configuration (running software versions earlier than V2.0) that uses a Gigabit distributed trunk for the uplink to the TFTP server, you must first disable the MultiLink Trunk at both ends.
- When you upgrade a stack configuration that contains a BayStack 410-24T unit (which is configured with at least one distributed trunk member), and the distributed trunk is the uplink to the TFTP server, you must first disable the MultiLink Trunk at both ends.

- The switch cannot be upgraded to software version V4.0.0 through a port that is configured for *tagged* traffic unless your switches are *currently* running software version V2.0 or later.

If your switches are currently running software versions *earlier* than software version V2.0, you must upgrade your switch to software version V4.0.0 through a port that is configured as an *untagged* member of VLAN 1. (Software versions V2.0 and later, now support upgrades to future versions over VLANs other than VLAN 1, with tagged or untagged ports.)

- When the BayStack 450 switch is upgraded with the new boot code image, all existing entries in the Event Log are erased. This corrects a potential problem with an earlier software version. A new entry is written to the Event Log confirming the upgrade of the boot code image.
- When you upgrade a *mixed stack* to software version V4.0.0, you must first upgrade the agent code, before you upgrade the boot block. Although this is the inverse of the normal upgrade procedure, it is necessary to ensure a successful software upgrade.

For more information about mixed stack upgrades, see the Business Policy Switch 2000 *User's Guide*.

- During the load process, the ports are configured as follows:
  - Twisted-pair ports: autonegotiation enabled
  - Fiber optic ports: 100 Mb/s, half-duplex
  - Gigabit MDA ports: autonegotiation disabled, Preferred Phy set to Right

## Nortel Networks Online Documentation

To be sure you have the latest updates to your product documentation, including these release notes, visit the Nortel Networks\* Web site at:

[www25.nortelnetworks.com/library/tpubs/](http://www25.nortelnetworks.com/library/tpubs/)

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## New Features

The following new features are provided with software version V4.0.0:

- Extensible Authentication Protocol Over LANs (EAPOL) -- Allows future operating systems to authenticate a user on a given port, and then allows that user access to other network services through that port. Your BayStack 450 switch serves the role of "Authenticator" in an EAPOL protected network.
- Gigabit Interface Converter (GBIC) MDA support -- The new Nortel Networks 450-1GBIC MDA is supported by software version V4.0.0.
- Automatic PVID selection option -- If enabled, when you assign a port to a VLAN, your BayStack 450 switch automatically sets the PVID on that port to match the new VLAN number.

## Bug Fixes

The following problems are corrected with software version V4.0.0:

- If you have security enabled on an MLT and an intrusion is detected, the MLT ports will become disabled. To enable the MLT members, enable any member of that MLT.
- The following SNMP traps are now supported: stpTopologyChange and stpNewRoot.
- SNMP traps are now visible through routers.
- System exception errors no longer occur when using RADIUS authentication to protect TELNET sessions.
- TFTP errors no longer occur when you attempt to save system configurations to TFTP servers that are several hops from your switch.
- Setting an RMON threshold no longer causes problem when using Optivity's Threshold Manager.

## Known Restrictions

The following known restrictions apply to software version V4.0.0 (and earlier versions):

- Software version V4.0.0 does not support IGMP-v2 leave messages.
- Software version V4.0.0, running on Rev B hardware (HW: RevB in the System Characteristics screen), does not support the BayStack 450-2M3/2S3 MDAs (ATM MDAs).
- Limited support for EAPOL TLS Certificates

TLS certificates are supported in mixed stacks only. MD5-Challenge authentication is supported in all configurations.

- Mixed stack configurations

The following restrictions apply to mixed stack configurations:

- If you are managing your mixed stack using a console interface, connect the console to a Business Policy Switch.
- Management VLAN functionality is operational only through ports that are configured as both “ingress” and “egress” members for the management VLAN.
- The following BayStack 450 switch features are not available in a mixed stack configuration:
  - SNMP Security
  - Save Current Settings
  - Support for the BayStack 450-2M3/2S3 MDAs (ATM MDAs)

- System reset due to MultiLink Trunking reconfiguration

If you add a new unit, that is configured with at least one bounded trunk<sup>1</sup> (with no distributed trunks<sup>2</sup>), into a stack that is configured with one or more distributed trunks, the new unit automatically resets before entering the operational mode of the stack.

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<sup>1</sup>Bounded trunk: an active trunk with all trunk members configured on the same module.

<sup>2</sup>Distributed trunk: an active trunk with trunk members configured on at least two different units within a single stack.

- MultiLink Trunking

MultiLink Trunking allows you to group ports of varying speeds (for example, you can group 10 Mb/s, 100 Mb/s, and 1000 Mb/s ports in any combination). Although this is a valid configuration, Nortel Networks recommends that you only group ports of equivalent speeds when configuring a trunk. The MultiLink Trunk algorithm distributes connections across all of the available links in the trunk, regardless of speed.

- Monitoring outgoing frames on trunk member ports

When you monitor outgoing frames on a full-duplex port that is a MultiLink trunk member, Nortel Networks recommends that you use the address-based mirroring mode. If you use port-based mirroring with this type of configuration, some frames may not be displayed.

- MultiLink Trunking interoperability with Accelar\*

When a Distributed MultiLink Trunk (DMLT) is connected to an Accelar switch, and you reset one of the stack units or change the spanning tree status of the DMLT, each unit sends out a (standalone) BPDU frame through the DMLT port. This can cause Accelar switches with software versions prior to V2.0.5 to disable the DMLT.

If this happens, reset the Accelar switch. If resetting the Accelar switch does not correct the problem, contact your Nortel Networks Technical Solutions Center (see “How to Get Help” in *Using the BayStack 450 10/100/1000 Series Switch*).

- BayStack switches automatically calculate the path cost for any given port, based on the port’s speed and duplex settings. If you manually change the path cost setting, the switch no longer automatically calculates the path cost for that port.

- Spanning Tree Participation value disabled for monitor port

When you use the Port Mirroring feature in a standalone switch configuration, the Spanning Tree Participation value for the monitor port is automatically set to Disabled. If you then insert the same standalone switch into a stack, the Spanning Tree Participation value for the previously configured monitor port *remains* Disabled. You must manually reset the Spanning Tree Participation value to Normal Learning or Fast Learning using the Spanning Tree Port Configuration screen.

- IEEE 802.1D spanning tree parameters

Spanning tree parameters cannot be configured from the console interface (CI) menus and screens.

Configuration support is available through the Bridge MIB using Simple Network Management Protocol (SNMP). Refer to RFC 1493 for more information.

- The spanning tree configuration must be the same on both ends of a MultiLink trunk.
- Spanning tree port participation

The Fast Learning value (used with the Participation field in the Spanning Tree Port Configuration screen) is the same as the Normal Learning value, except that the state transition timer is shortened to two seconds.

Nortel Networks recommends using the Fast Learning value to optimize switch-to-endstation connections. When you connect one switch to another switch, the Normal Learning (default) value provides the best results.

- MAC address-based security learning process

If you move a device from one port to another during the MAC address-based security learning process, the device's MAC address will move to the new port and will no longer be allowed on the original port. A given MAC address can be learned on only one port at a time.

- The BayStack 450-2M3 and the BayStack 450-2S3 MDAs do not support MAC-based security, Autotopology protocol, and EAPOL.
- You cannot assign an *untagged* port to multiple protocol VLANs that have the same protocol ID.
- Redundant gigabit Phy

You cannot use the redundant gigabit Phy port (the backup Phy port) to create two different paths.

- Autonegotiation restriction with gigabit ports

The BayStack 450 switch's gigabit MDA ports comply with IEEE 802.3z Draft 3.2 and IEEE 802.3z Draft 4.1; however, the following restriction applies to the autonegotiation feature:

-- Autonegotiation does not restart if an invalid code word is received from the link partner during the autonegotiation process. In cases where autonegotiation fails, disable and then enable autonegotiation.

- RMON Alarms and Event entries

RMON Alarms and Event entries are *not* saved to nonvolatile random access memory (NVRAM). When a reset condition or power-down sequence occurs, the entries are not preserved. This conforms to the current RFC 1757 standard. All RMON Alarms and Events must be reentered.

- RMON Event Log table's secondary index

The RMON Event Log table's secondary index is not incremented when all of the table's entries have been used. In this case, the existing indexes are reused. Thus, the index number cannot be used to indicate the total number of log entries received.

- RMON History Control entries

A maximum of 85 RMON History Control entries per stack unit are supported. The entry exists on the unit containing the "ControlDataSource."

- Changing from a stack unit to a standalone switch

When you change a switch from a stack unit into a standalone switch, or vice versa, the IP address of the switch/stack changes. As a result, all existing management applications that use the previous IP address are lost until you reconnect using the new IP address.

- Console may display a blank screen

When you connect a console terminal to an operating switch through the Comm Port, the console may display a blank screen. This is a normal condition. Press [Ctrl]-C to refresh the screen or, to get beyond the Nortel Networks logo screen, press [Ctrl]-Y.

- Adding or removing stack units

When you add a new unit to the stack or remove an existing stack unit, you will not be able to perform IP management functions for approximately 30 seconds.

During this time period, the following can occur:

- Packets are lost when performance testing with SmartBits or any other traffic generator.
- IP Multicast streams stop receiving.
- TELNET sessions time out and users lose their TELNET connection without warning. Users must re-establish lost TELNET sessions.

- ICMP echo (PING) requests do not receive responses.
- All IP-related processes fail temporarily.
- Tagged bridge protocol data units (BPDUs)  
Tagged BPDUs are not supported in this version.
- Network interface controllers (NICs)  
The MultiLink Trunking feature supports only multiport NICs that are configured as a single MAC address, single IP address entity.
- Downgrading a switch or stack to a software version earlier than software version V1.3.



**Note:** Software versions earlier than software version V1.3 do not support distributed trunking. You must remove any distributed trunks before you downgrade the switch to software versions earlier than software version V1.3 or problems will occur.

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If you must downgrade a switch from software version V1.3 (or later) to an earlier version, you must first remove any existing distributed trunks using the MultiLink Trunk Configuration screen. You can remove the trunk by disabling the trunk and setting all the trunk members to none [blank field].

If you downgrade a switch with a bounded MultiLink trunk from software version V1.3 (or later) to an earlier version, some ports may become disabled. If this happens, you can enable the ports again using the Port Configuration screen.

- Configuring port mirroring monitor ports  
Nortel Networks recommends that you configure the port mirroring monitor port to be on the same stack unit as the mirrored ports.
- Monitoring outgoing frames on a gigabit Ethernet port  
When you monitor outgoing frames on a gigabit port, the multicast frames that are generated by the switch (for example, BPDUs, Autotopology, and IGMP) will not be seen on the monitor port.



- Downgrading your BayStack 450-12F switch  
You cannot downgrade your BayStack 450-12F switch or a stack configuration that contains a BayStack 450-12F switch, to a software version earlier than software version V1.3. Software versions earlier than V1.3 do not support the BayStack 450-12F switch.
- Software versions earlier than V3.1.0 do not support:
  - Mixed stacks that include Business Policy Switches
  - BayStack 450-2M3/2S3 (ATM MDAs).
- Stack reset when creating the first DMLT  
When you create your first DMLT using SNMP management, your stack can reset without warning. This reset is required to enable only the first DMLT in a stack.

## Known Problems

The following problems are known to exist in software version V4.0.0 (and earlier versions):

- If you are running IGMP multicast traffic over a DMLT while the IGMP snooping feature is disabled, the IGMP traffic that is received on one link of the DMLT will be looped back onto another link of the trunk.  
To break the loop, disconnect one link of the DMLT or enable the IGMP snooping feature.
- When using 1000BASE-XD and 1000BASE-ZX (long-haul) GBICs in your 450-1GBIC MDA, the System Characteristics screen *incorrectly* shows the GBIC devices as “Unsupported.” However, the GBIC devices operate properly and pass traffic correctly.
- MDAs must be *firmly secured* in the chassis for proper operation. Be sure to secure the MDA in the chassis by *firmly* tightening the two thumbscrews on the MDA front panel.
- A link state cannot be established when you connect a cable that is 100 percent utilized into a BayStack 450 switch port. As soon as a break in the traffic occurs, the link state is established.

- When mirroring a single MLT member, the monitor port will receive all of the unknown unicast traffic that is transmitted over the entire MLT.
- When you connect the BayStack 450 switch to an Alteon network interface controller (NIC), the switch learns invalid MAC addresses whenever autonegotiation for a gigabit MDA port is enabled (the invalid MAC addresses eventually age out). This problem occurs only when you reset the switch (via the console interface main menu or during a power cycle) and does not affect the correct operation of the BayStack 450 switch.

## Connecting to Accelar Gigabit Ports

The BayStack 450 switch supports gigabit MDA port connections to the Nortel Networks Accelar switch gigabit ports, with the following restrictions:

- Autonegotiation *is not* supported on the Accelar 1000BaseSXWG (ASIC Version *GMAC 2*).

When connecting to this version, disable autonegotiation on the BayStack 450 switch's gigabit MDA port.

- Autonegotiation *is* supported on the Accelar 1000BaseSXWG (ASIC Version *GMAC 4*).

When connecting to this version, set autonegotiation to enabled (or disabled) at both ends of the communications link. The autonegotiation setting must be identical at both ends of the communications link.

You can determine the ASIC version number for the 1000BaseSXWG gigabit card using the following command from the Accelar console port:

```
Accelar-1100# sh sys info
```

---

## 1000BASE-LX Connectors

The 1000BASE-LX (gigabit) MDAs use a longwave 1300 nm, fiber optic transceiver to connect devices over single-mode (5 km/3.1 mi) or multimode (550 m/1,805 ft) fiber optic cables.



**Note:** The transceiver must be mode conditioned externally via a special offset SMF/MMF patch cord for 1000BASE-LX multimode applications. The offset SMF/MMF patch cord allows the same transceiver to be used for both multimode and single-mode fiber. See your Nortel Networks sales representative for more information about the SMF/MMF patch cord.

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The optical performance of this transceiver cannot be guaranteed when connected to a multimode fiber plant without the use of the special offset SMF/MMF (mode conditioning) patch cord.

The 1000BASE-LX MDA transceiver is designed to mechanically accommodate the *single-mode ferrules* used on one end of the special offset SMF/MMF patch cord. *Multimode ferrules* can bind and cause damage to the transceiver.



**Caution:** Do not connect multimode cables directly into the 1000BASE-LX MDA transceiver. Connect a special offset SMF/MMF patch cord into the transceiver, then connect the multimode cable into the SMF/MMF patch cord.

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For more information about gigabit transmission over fiber optic cable and mode conditioning, refer to:

*Reference Note: Gigabit Ethernet Physical Layer Considerations*  
(Part number 201540-B).

The publication is available on the World Wide Web at [support.baynetworks.com/library/tpubs/](http://support.baynetworks.com/library/tpubs/). At the Web site, click on Accelar under the Routing Switches heading.

## Network Management

Table 1 lists the supported network management applications that are available:

**Table 1. Supported Network Management Applications**

BayStack 450 Software Versions				
Application	V2.0.0/V2.0.1 (HW Rev B, D, L)	V3.0.0 (HW Rev B, D, L)	V3.1.0 (HW Rev B, D, L)	V4.0.0 (HW Rev B, D, L)
NMS 9.0	Partial support only (see Note)	Partial support only (see Note)	Partial support only (see Note)	Partial support only (see Note)
NMS 9.0, with 9.0.0.2 patch <sup>1</sup>	Yes	Yes	Yes	Yes
NMS 9.0.1 <sup>1</sup>	Yes	Yes	Yes	Yes
NMS 9.0.1.1 <sup>1</sup>	Yes	Yes	Yes	Yes
Device Manager 3.0.3	Yes	No	No	No
Device Manager 3.0.4.1	Yes	Yes	No	No
Device Manager 4.0.0	Yes	Yes	Yes (No ATM support)	No
Device Manager 4.2.0	Yes	Yes	Yes	No
Device Manager 5.0.0	Yes	Yes	Yes	Yes
Switch Manager V1.0	Partial support only (VLAN only)	Partial support only (VLAN only)	Partial support only (VLAN only)	Yes
Switch Manager V1.1	Yes	Yes	Yes	Partial support only
NCS V2.2 <sup>2</sup>	Yes	Yes	Yes	Yes

<sup>1</sup> Requires installation of the appropriate version Optivity Integration Toolkit (OIT) for the BayStack 450 (see "OIT Support for Multiple Software Versions" on page 17).

<sup>2</sup> Requires installation of the appropriate version NCS Optivity Integration Toolkit (OIT) for the BayStack 450 switches.



**Note:** Optivity NMS 9.0 provides partial support only for these switch versions. For a list of Optivity modules or components that support the BayStack product, see *Release Notes for Optivity Network Management System 9.0 for Solaris and Windows NT* (Part number 205970-A). You can obtain a copy of the Optivity 9.0 release notes at: [support.baynetworks.com/library/tpubs/nav/netman/nms.htm#OPTN90](http://support.baynetworks.com/library/tpubs/nav/netman/nms.htm#OPTN90).

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## OIT Support for Multiple Software Versions

The Optivity Integration Toolkit (OIT) files are designed to support specific versions of the BayStack 450 switch software. If your networking environment requires you to support multiple BayStack software versions (for example, BayStack software version V2.0 on some devices and BayStack software version V4.0.0 on other devices), you must have both versions of the supporting OIT files loaded onto your Network Management Station (NMS).

