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Release Notes for BayRS Version 14.0.2

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The Nortel Networks* BayRS Version 14.0.2 is a software release that includes bug fixes and new features added since BayRS Version 14.0.1. These release notes contain guidelines for using BayRS Version 14.0.2.

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Release Notes for BayRS Version 14.0.2

This document contains the latest information about Nortel Networks BayRS Version 14.0.2, including information on the following topics:

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Upgrading to Version 14.0.2

To upgrade BayRS to Version 14.0.2, see *Upgrading Routers to BayRS Version 14.xx*, in your upgrade package. In addition, read the following sections.

Upgrading FireWall-1 Configurations

To upgrade FireWall-1* from a BayRS version earlier than 13.20, complete the following steps.



Note: If you are currently running Firewall-1 from BayRS Version 13.20 and higher and want to upgrade to BayRS Version 14.0.2, you do not have to follow these steps.

- 1. Familiarize yourself with the Bay Command Console (BCC).**

Starting with BayRS Version 13.20, FireWall-1 no longer supports Site Manager as a configuration tool. You must use the BCC to manage and configure FireWall-1. For basic information about using the BCC, see *Using the Bay Command Console (BCC)*.

- 2. Make sure that you will not lose access to your router.**

When you upgrade to BayRS Version 14.0.2, once you boot your router, the Version 14.0.2 software invokes the default FireWall-1 security policy. This default security policy drops all attempts at communication with the router.

If you manage a router at a remote location, you will no longer be able to gain access to the router through the WAN connection. Before you upgrade, make sure that you can gain access to the router by dialing in through the console port, or that there is someone at the remote location who can configure the router.

- 3. Reboot the router with BayRS Version 14.0.2, using an existing configuration file.**

- 4. Use the BCC to reenale FireWall-1 on each IP interface.**

To reenale FireWall-1 on each IP interface, use the BCC to navigate to the prompt for the slot/connector on which you have configured the IP interface (for example, **box; eth 2/2**). Then enter:

```
ip address <ip_address> mask <address_mask>
```

ip_address is the IP address you have assigned to the interface.

address_mask is the mask associated with the IP address.

The prompt for the IP interface appears.

For example, the following command invokes the prompt for IP interface 2.2.2.2/255.0.0.0 (which has been configured on Ethernet slot 2, connector 2):

```
ethernet/2/2# ip address 2.2.2.2 mask 255.0.0.0  
ip/2.2.2.2/255.0.0.0#
```

At the prompt for the IP interface, enter the following command to reenables FireWall-1:

firewall

The firewall prompt appears.

For example, the following command reenables FireWall-1 on the IP interface 2.2.2.2/255.0.0.0:

```
ip/2.2.2.2/255.0.0.0# firewall  
firewall/2.2.2.2#
```

5. To use FireWall-1 on more than 32 circuits, set the policy index number for each IP interface.

The policy index allows multiple circuits to share the same instance of FireWall-1. You can have up to 32 instances of FireWall-1, with many circuits making up each FireWall-1 instance. All circuits in a grouping must share the same security policy.

By default, the policy index for a circuit is equal to the circuit number. If you are using FireWall-1 on fewer than 33 circuits, you do not have to use policy indexes.

If you are using FireWall-1 on more than 32 circuits, group circuits that share the same security policy. Then, set the policy index on each circuit in a group to the same value.

For example, suppose you want to use FireWall-1 on 40 circuits. The first five circuits share one security policy; the next 35 share a different security policy. Using the BCC, assign policy index 1 to the first five circuits and policy index 2 to the next 35 circuits. You then have a total of 40 firewall circuits on the router, with two policy index values and two security policies.



Note: If you do not use policy index values and you configure more than 32 circuits on the router, all IP forwarding is disabled on circuits after the 32nd. If you use policy index values, but configure more than 32 policy index groupings, all circuits assigned policy indexes after the 32nd will have all IP forwarding disabled. The router logs warning messages that can help you determine whether you have any circuits on which all IP forwarding is disabled.

The Check Point log viewer treats circuits that share a policy index as one circuit.

If you are running FireWall-1 on more than 32 circuits and you therefore need to set the policy index value, use the BCC to navigate to the firewall prompt, as described in step 4. Then enter:

policy-index <value>

value is the index value, from 1 to 1023.

For example, the following command sets the policy index to 1:

```
firewall/2.2.2.2# policy-index 1  
firewall/2.2.2.2#
```

6. Save the configuration file and reboot the router.

7. Reinstall the security policy.

Since you previously defined a security policy (using the earlier version of BaySecure FireWall-1), you do not need to define it again. However, you must reinstall it in on the router. For complete instructions on how to install the security policy, see your Check Point FireWall-1 documentation.

If you want to install different security policies for different policy indexes, use the Check Point FireWall-1 command line interface to enter the following command:

fw load ../conf/<config_file> pol<policy_index_number>@<router_name>

For example, the following command specifies that the system install the security policy in the configuration file *drop_ftp* on policy index number 1 on the router named *asn1*:

```
fw load ../conf/drop_ftp pol1 @asn1
```

Upgrading ATM Configurations

If you are upgrading from a BayRS version earlier than 12.20 and you defined log event traps for asynchronous transfer mode (ATM), ATM signaling, or ATM LAN emulation, you must redefine these traps.

The ATM, ATM signaling, and ATM LAN emulation log event messages changed in BayRS Version 12.20. The ATM_SIG entity (entity #95) no longer exists as a separate entity. We have combined the ATM_SIG entity with the ATM entity (entity #78). Combining and reorganizing these entities resulted in changes to the ATM log event message numbers. We added new log events to the ATM_LE entity (entity #100), resulting in log event message number changes for LAN emulation as well.

You can view the new and modified ATM log event messages in the event database on the BayRS Online Library Version 14.0.2 CD, or on the World Wide Web at this URL:

<http://www25.nortelnetworks.com/library/tpubs/events/>

Upgrading L2TP Configurations

If you have a BayRS Version 12.10 configuration file that includes L2TP operating on a router using BayRS Version 14.0.2, the router automatically upgrades the assigned user network addresses to L2TP IP interface addresses. L2TP IP interface addresses are internal to the router. When communicating with the remote user, the router associates the user's IP address with an L2TP IP interface address that you configure.

The user network addresses assigned to Version 12.10 apply to the entire router. In Version 14.0.2, each slot has a unique L2TP IP address. Consequently, if the number of configured L2TP slots is greater than the number of configured assigned user network addresses, the router will not be able to upgrade every slot from a Version 12.10 configuration to a Version 14.0.2 configuration. For slots that exceed the number of assigned user network addresses, you must manually configure L2TP IP interface addresses. To do this, delete L2TP from the slot, and then configure a new L2TP interface. Each slot must have L2TP IP interface addresses.

If the number of configured L2TP slots is less than or equal to the number of configured assigned user network addresses, the router automatically converts all assigned user network addresses to L2TP IP addresses.

Upgrading OSPF Configurations

When you upgrade BayRS from releases earlier than Version 12.20, there must not be an open shortest path first maximum transmission unit (OSPF MTU) interface mismatch. If a mismatch exists, adjacencies will not form between upgraded routers. All the OSPF routers forming adjacencies on a segment (broadcast, point-to-point [PPP], Point-to-Multipoint, or nonbroadcast multi-access [NBMA]) should have the same OSPF MTU size. You configure the OSPF MTU size through the MTU Size parameter in the OSPF Interfaces window in Site Manager.

BayRS Versions 12.20 and later comply with RFC 2178, which requires the OSPF MTU size feature.

Upgrading Static Forwarding Policy Filters

Internet Group Management Protocol (IGMP) static forwarding policy filters that you created in versions earlier than Site Manager Version 7.20 will not work correctly using Site Manager Version 7.20. To use these IGMP static forwarding policy filters, you must re-create them. For information about creating IGMP static forwarding policy filters, see *Configuring IP Multicasting and Multimedia Services*.

Upgrading IP Route Filters

If you have configured IP route filters and then disabled those filters (rather than deleted them), when you upgrade to Version 14.0.2, the filters will be re-enabled. You must disable the filters again after the upgrade is complete. If you do not want to use the filters, you might want to consider deleting them before you upgrade to Version 14.0.2.

BCC Guidelines

The BCC is a command-line interface for configuring Nortel Networks devices.

Before using the BCC, see the following guidelines for using the software and the platforms, protocols, interfaces, and hardware modules that the BCC supports.

Deleting Interfaces with the BCC

Before using the BCC to delete an interface, make sure that you did not use Site Manager to configure the interface with a protocol that the BCC does not recognize. If you did, use Site Manager to delete the interface.

Sending BCC Feedback

After you use the BCC, we welcome your feedback. Please visit the BCC Web site at the following URL, where you can leave a message:

<http://www25.nortelnetworks.com/library/tpubs/bccfeedback/>

Memory Requirements

To use the BCC, each slot on the router must have:

- 16 MB of dynamic RAM (DRAM)
- 2 MB of free memory available when you start the BCC

If you try to start the BCC with insufficient DRAM or free memory on a slot, the BCC returns the following message. In this case, you must use Site Manager instead of the BCC to configure the router.

```
**Error** Unable to load bcc command from file system.  
Loadable Module: bcc.exe
```

Platforms Supported

The BCC runs on AN*, ANH, ARN, ASN, BN*, and System 5000 platforms including ARE, FRE-2, and FRE-4 processor modules.

Interfaces Supported

You can use BCC commands to configure the following interfaces:

- ATM
- Console
- DCM
- DSU/CSU
- Ethernet
- FDDI
- FE1
- FT1
- HSSI
- ISDN/BRI
- MCE1/MCT1
- Serial (synchronous)
- Token ring
- Virtual (referred to in Site Manager as Circuitless IP)

Tables [1](#) through 5 on pages [10](#) through [17](#) list the link and net modules that the BCC supports.

Protocols Supported

You can use BCC commands to configure the following protocols and services:

- Access (multiuser access accounts)
- ARP
- ATM
- BGP (including accept and announce policies)
- Data compression (WCP and Hi/fn)
- Dial backup

- Dial-on-demand
- DLSw
- DNS
- DVMRP (including accept and announce policies)
- FireWall-1
- Frame relay (multilink not supported)
- FTP
- GRE
- HTTP
- IGMP
- IP (including accept policies, adjacent hosts, static routes, and traffic filters)
- IPX (including static-netbios-route)
- IPXWAN
- LLC2
- MPOA
- NAT
- NHRP
- NTP
- OSPF (including accept and announce policies)
- PPP (certain line parameters only; no multiline or multilink supported)
- Proprietary Standard Point-to-Point
- RADIUS
- RIP (including accept and announce policies)
- Router discovery (RDISC)
- SDLC
- SNMP
- Source route bridge
- Spanning tree
- Syslog
- Telnet
- TFTP
- Transparent Bridge
- VRRP (Virtual Router Redundancy Protocol)

Identifying Board Types

Tables 1 through 5 identify the Board Type parameter values displayed by the BCC. Use the “BCC Board Type” column to find, in alphabetical order, a hardware module in an AN, ANH, ARN, ASN, BN, or System 5000 router configuration.



Note: You cannot use BCC commands to configure an X.25 PAD or V.34 console modem daughterboard for the ARN router. Use Site Manager to configure these daughterboards.



Note: Inserting a daughterboard into an AN base module redefines its module ID and board type.

[Table 1](#) lists the AN and ANH board types.

Table 1. BCC Board Types: AN and ANH Modules

| BCC Board Type | Technician Interface or MIB Module ID | Description |
|----------------|---------------------------------------|--|
| andeds | 1033 | AN-ENET (2 Ethernet ports, 2 serial ports) |
| andedsg | 1050 | ANH-8 (2 Ethernet ports, 2 serial ports) and an 8-port Ethernet hub active for the first Ethernet port |
| andedsh | 1035 | ANH-12 (2 Ethernet ports, 2 serial ports) and a 12-port Ethernet hub |
| andedst | 1034 | AN-ENET (2 Ethernet ports, 2 serial ports, 1 token ring port) |
| andst | 1037 | AN-TOKEN (2 serial ports, 1 token ring port) |
| andstc | 1091 | AN-TOKEN with CSU/DSU (2 serial ports, 1 token ring port) |
| andsti | 1038 | AN-TOKEN with ISDN (2 serial ports, 1 token ring port) |
| ansdsedst | 1041 | AN-ENET/TOKEN (1 Ethernet port, 2 serial ports, 1 token ring port) |
| anseds | 1024 | AN-ENET (1 Ethernet port, 2 serial ports) with 16 MB DRAM |
| ansedsc | 1090 | AN-ENET with CSU/DSU (2 Ethernet ports, 2 serial ports) |
| ansedsf | 1100 | AN-ENET with T1/FT1 (2 Ethernet ports, 2 serial ports) |

(continued)

Table 1. BCC Board Types: AN and ANH Modules *(continued)*

| BCC Board Type | Technician Interface or MIB Module ID | Description |
|-----------------------|--|--|
| ansedsg | 1047 | ANH-8 (1 Ethernet port, 2 serial ports) and an 8-port Ethernet hub |
| ansedsgc | 1094 | ANH-8 with CSU/DSU (1 Ethernet port, 2 serial ports) and an 8-port Ethernet hub |
| ansedsgf | 1108 | ANH-8 with T1/FT1 (1 Ethernet port, 2 serial ports) and an 8-port Ethernet hub |
| ansedsgi | 1051 | ANH-8 with ISDN (1 Ethernet port, 2 serial ports) and an 8-port Ethernet hub |
| ansedsgj | 1127 | AN-ENET (1 Ethernet port, 2 serial ports, 1 fractional E1 port) and an 8-port Ethernet hub |
| ansedsgjx | 1137 | AN-ENET (1 Ethernet port, 2 serial ports, 1 fractional E1 port) and an 8-port Ethernet hub and DCM |
| ansedsgx | 1048 | ANH-8 with DCM (1 Ethernet port, 2 serial ports) and an 8-port Ethernet hub |
| ansedsh | 1026 | ANH-12 (1 Ethernet port, 2 serial ports) and a 12-port Ethernet hub |
| ansedshc | 1093 | ANH-12 with CSU/DSU (1 Ethernet port, 2 serial ports) and a 12-port Ethernet hub |
| ansedshf | 1106 | ANH-12 with T1/FT1 (1 Ethernet port, 2 serial ports) and a 12-port Ethernet hub |
| ansedshi | 1029 | ANH-12 with ISDN (1 Ethernet port, 2 serial ports) and a 12-port Ethernet hub |
| ansedshj | 1125 | AN-ENET (1 Ethernet port, 2 serial ports, 1 fractional E1 port) and a 12-port Ethernet hub |
| ansedshjx | 1136 | AN-ENET (1 Ethernet port, 2 serial ports, 1 fractional E1 port) and a 12-port Ethernet hub and DCM |
| ansedsi | 1027 | AN-ENET with ISDN (2 Ethernet ports, 2 serial ports) with 16 MB DRAM |
| ansedsj | 1119 | AN-ENET (1 Ethernet port, 2 serial ports, 1 fractional E1 port) with 16 MB DRAM |
| ansedsjx | 1133 | AN-ENET (1 Ethernet port, 2 serial ports, 1 fractional E1 port) with 16 MB DRAM and DCM |

(continued)

Table 1. BCC Board Types: AN and ANH Modules *(continued)*

| BCC Board Type | Technician Interface or MIB Module ID | Description |
|-----------------------|--|---|
| ansedst | 1025 | AN-ENET/TOKEN (1 Ethernet port, 2 serial ports, 1 token ring port) with 16 MB DRAM |
| ansedstc | 1092 | AN-ENET/TOKEN with CSU/DSU (1 Ethernet port, 2 serial ports, 1 token ring port) |
| ansedsti | 1028 | AN-ENET/TOKEN with ISDN (1 Ethernet port, 2 serial ports, 1 token ring port) |
| ansedstj | 1123 | AN-ENET (1 Ethernet port, 2 serial ports, 3 fractional E1 ports) with 16 MB DRAM |
| ansedstjx | 1135 | AN-ENET (1 Ethernet port, 2 serial ports, 3 fractional E1 ports) with 16 MB DRAM and DCM |
| ansedstx | 1058 | AN-ENET/TOKEN with DCM (1 Ethernet port, 2 serial ports, 1 token ring port) with 16 MB DRAM |
| ansedsx | 1055 | AN-ENET with DCM (2 Ethernet ports, 2 serial ports) |
| ansets | 1030 | AN-ENET (1 Ethernet port, 3 serial ports) with 16 MB DRAM |
| ansetsg | 1049 | ANH-8 (1 Ethernet port, 3 serial ports) and an 8-port Ethernet hub |
| ansetsh | 1032 | ANH-12 (1 Ethernet port, 3 serial ports) and a 12-port Ethernet hub |
| ansetst | 1031 | AN-ETS (1 Ethernet port, 3 serial ports, 1 token ring port) |
| antst | 1039 | AN-TOKEN (3 serial ports, 1 token ring port) |

[Table 2](#) lists the BLN⁺ and BCN⁺ board types.

Table 2. BCC Board Types: BLN and BCN Modules

| BCC Board Type | Technician Interface or MIB Module ID | Site Manager Model Number | Description |
|----------------|---------------------------------------|---------------------------|--|
| atmcds3 | 5120 | AG13110115 | ATM DS-3 |
| atmce3 | 5121 | AG13110114 | ATM E3 |
| atmcoc3mm | 4608 | AG13110112 | ATM STS-3/STM-1 MMF |
| atmcoc3sm | 4609 | AG13110113 | ATM STS-3/STM-1 SMF |
| comp | 4353 | AG2104037 | Octal Sync with 32-context compression daughterboard |
| comp128 | 4354 | AG2104038 | Octal Sync with 128-context compression daughterboard |
| de100 | 4864 | 50038 | 100BASE-T Ethernet |
| dst416 | 40 | 5740 | Dual Sync with token ring |
| dtok | 176 | 5710 | Dual token ring |
| enet3 | 132 | 5505 | Dual Ethernet |
| esaf | 236 | 5531 | Dual Sync Dual Ethernet with 2-CAM filters |
| | | 5532 | Dual Sync Dual Ethernet with 6-CAM filters |
| esafnf | 232 | 5431 | Dual Sync Dual Ethernet without hardware filters |
| gigenet | 6400 | | Gigabit Ethernet-SX link module |
| gigenetlx | 6401 | | Gigabit Ethernet-LX link module |
| mce1ii120 | 190 | AG2111002 | 120-ohm Dual Port Multichannel E1 (MCE1-II) for ISDN PRI and Leased Line |
| mce1ii75 | 188 | AG2111004 | 75-ohm Dual Port Multichannel E1 (MCE1-II) for 75-ohm Leased Line |
| mct1 | 168 | 5945 | Dual Port MCT1 |
| osync | 4352 | 5008 | Octal Sync |
| qef | 164 | 5950 | Quad Ethernet with hardware filters |
| qenf | 162 | 5450 | Quad Ethernet without hardware filters |
| qmct1db15 | 5377 | AG2111007 | Quad Port MCT1 DB15 |
| qmct1ds0a | 5378 | AG2104052 | Quad Port MCT1 DB15 with DS0A |

(continued)

Table 2. BCC Board Types: BLN and BCN Modules *(continued)*

| BCC Board Type | Technician Interface or MIB Module ID | Site Manager Model Number | Description |
|-----------------------|--|----------------------------------|--|
| qtok | 256 | 50021 | Quad token ring |
| shssi | 225 | 5295 | HSSI |
| smce1ii120 | 191 | AG2111001 | 120-ohm Single Port Multichannel E1 (MCE1-II) for ISDN PRI and Leased Line |
| smce1ii75 | 189 | AG2111003 | 75-ohm Single Port Multichannel E1 (MCE1-II) for 75-ohm Leased Line |
| smct1 | 169 | 5944 | Single Port MCT1 |
| sqe100 | 6144 | | Quad 100BASE-TX link module |
| sqe100fx | 6145 | | Quad 100BASE-FX link module |
| sse | 118 | 5410 | Single Sync with Ethernet |
| sync | 80 | 5280 | Quad Sync |
| wfddi1m | 193 | 5943 | Hybrid FDDI with single mode on connector B |
| wfddi1mf | 197 | 5949 | Hybrid FDDI with single mode on connector B and with hardware filters |
| wfddi1s | 195 | 5942 | Hybrid FDDI with single mode on connector A |
| wfddi1sf | 199 | 5948 | Hybrid FDDI with single mode on connector A and with hardware filters |
| wfddi2m | 192 | 5930 | Multimode FDDI |
| wfddi2mf | 196 | 5946 | Multimode FDDI with hardware filters |
| wfddi2s | 194 | 5940 | Single Mode FDDI |
| wfddi2sf | 198 | 5947 | Single Mode FDDI with hardware filters |

[Table 3](#) lists the ASN board types.

Table 3. BCC Board Types: ASN Modules

| BCC Board Type | Technician Interface or MIB Module ID | Description |
|-----------------------|--|----------------------------------|
| asnqbri | 2560 | Quad BRI Net Module |
| denm | 1280 | Dual Port Ethernet Net Module |
| dmct1nm | 2944 | Dual Port MCT1 Net Module |
| dsn1n | 1540 | Dual Port Synchronous Net Module |
| dsn1nisdn | 1588 | ISDN BRI/Dual Sync Net Module |
| dtnm | 2048 | Dual Port Token Ring Net Module |
| mce1nm | 2816 | MCE1 Net Module |
| mmasmbdas | 1833 | Hybrid PHY B FDDI Net Module |
| mmfsddas | 1793 | Multimode FDDI Net Module |
| qsyncm | 1664 | Quad Port Synchronous Net Module |
| se100nm | 2304 | 100BASE-T Ethernet Net Module |
| shssinm | 3584 | HSSI Net Module |
| smammbdas | 1825 | Hybrid PHY A FDDI Net Module |
| smfsddas | 1801 | Single Mode FDDI Net Module |
| spex | 512 | SPEX Net Module |
| spexhsd | 769 | SPEX Hot Swap Net Module |

[Table 4](#) lists the ARN board types.

Table 4. BCC Board Types: ARN Modules

| BCC Board Type | Technician Interface or MIB Module ID | Description |
|-----------------------|--|--|
| arn7sync | 8873 | ARN Seven-Port Serial Expansion Module |
| arndcsu | 8768 | ARN 56/64K DSU/CSU Adapter Module |
| arne7sync | 8872 | ARN Seven-Port Serial Expansion Module, with 1 Ethernet Port |
| arnentsync | 8864 | ARN Ethernet and Tri-Serial Expansion Module |
| arnfe1 | 8780 | E1/FE1 DSU/CSU Adapter Module |
| arnft1 | 8776 | T1/FT1 DSU/CSU Adapter Module |
| arnis | 8784 | ARN ISDN BRI S/T Adapter Module |
| arnisdnu | 8800 | ARN ISDN BRI U Adapter Module |
| arnisdnu | 8880 | ARN Token Ring and Tri-Serial Expansion Module |
| arnmbenx10 | 8896 | ARN Ethernet Base Module xxMB DRAM with DCM |
| arnmbsen | 8720 | ARN Ethernet Base Module with 0, 4, 8, 16, or 32 DRAM |
| arbnbsfetx | 8728 | ARN 10/100BASE-TX Ethernet Module |
| arnmbsfefx | 8729 | ARN 100BASE-FX Ethernet Module |
| arnmbstr | 8704 | ARN Token Ring Base Module with 0, 8, 16, or 32 MB DRAM |
| arnpbenx10 | 8928 | ARN Ethernet Expansion Module with DCM |
| arnpbtenx10 | 8960 | ARN Ethernet and Tri-Serial Expansion Module with DCM |
| arnsenet | 8832 | ARN Ethernet Port Expansion Module |
| arnssync | 8736 | ARN Serial Adapter Module |
| arnstkrq | 8816 | ARN Token Ring Expansion Module |
| arnsync | 8848 | ARN Tri-Serial Port Expansion Module |

[Table 5](#) lists the System 5000 board types.

Table 5. BCC Board Types: System 5000 Modules

| BCC Board Type | Technician Interface or MIB Module ID | Description |
|-----------------------|--|---|
| asnqbri | 2560 | Router Quad Port ISDN BRI Net Module |
| atm5000bh | 524544 | Centillion Multiprotocol Engine |
| denm | 1280 | Router Dual Ethernet Net Module |
| dmct1nm | 2944 | Router Dual Port MCT1 Net Module |
| dsnm1n | 1540 | Router Dual Synchronous Net Module |
| dtnm | 2048 | Router Dual Token Ring Net Module |
| iqe | 1408 | 5380 Ethernet Router Module |
| iqtok | 2176 | 5580 Token Ring Router Module |
| mce1nm | 2816 | Router MCE1 Net Module |
| mmasmbdas | 1833 | Router Hybrid PHY B FDDI Net Module |
| mmfsddas | 1793 | Router Multimode FDDI Net Module |
| qsyncnm | 1664 | Router Quad Port Synchronous Net Module |
| se100nm | 2304 | Router 100BASE-T Ethernet Net Module |
| shssinm | 3584 | Router HSSI Net Module |
| smammbdas | 1825 | Router Hybrid PHY A FDDI Net Module |
| smfsddas | 1801 | Router Single Mode FDDI Net Module |

Technician Interface Guidelines

The Technician Interface is a command-line interface that Nortel support technicians can use to troubleshoot and configure Nortel Networks devices.

We provide this section as an interim supplement to one or more of the following Technician Interface books:

- *Using Technician Interface Scripts*
- *Using Technician Interface Software*
- *Writing Technician Interface Scripts*

This information will appear in the Release Notes until we integrate it to the next released version of the associated Technician Interface book.

Using Scripts and Aliases to Dynamically Configure a Router

Use of rapid-fire scripts or aliases to dynamically set a router's configuration via the MIBs can put the router into a corrupted state and cause connectivity issues. When using Technician Interface to launch scripts or aliases to configure the router be sure to include pauses (one to two seconds) to allow sufficient time for the router to make the required changes to the MIBs.

Diagnostics On/Off Option for the ARN Router

For the ARN platform *only*, the Technician Interface **diags** command supports an option to enable or disable diagnostics, effective the next time you cycle power on the router. Disabling the diagnostics results in a faster boot time, but leaves the hardware components unverified. The syntax for this option is as follows:

```
diags [- on | off] [ <slot_id>]
```

General Guidelines

The following guidelines supplement the instructions in the BayRS Version 14.0.2 documentation set.

Using Both Site Manager and the BCC

You can use either Site Manager or the BCC to manage Nortel Networks routers. If you want to use both tools, follow these guidelines:

- Do not try to use both Site Manager and the BCC to manage a single router at the same time. You are prohibited from doing so with a lock-out mechanism.
- Site Manager cannot understand traffic filters you configured using the BCC.
- Site Manager config files that contain the / character in any of the ASCII text inputs (for example, Unnumbered CCT Name) cause an error when viewed in the BCC using the **show config -all** command. This error halts printing of the text parameter at the / character and displays the message, "Too many BCC ID values." To prevent this problem, do not use the / character when entering ASCII text for parameters in Site Manager.

GRE

If you plan to use different interface types to form the GRE tunnel, then you must set the OSPF MTU size to 2. For more information on setting MTU size, see Chapter 6 in *Configuring IP, ARP, RARP, RIP, and OSPF Services*.

Traffic Filters Guidelines

Follow these guidelines when configuring traffic filters:

- If you apply a traffic filter to a *multinetted interface* (that is, an interface with more than one IP address), the traffic filter might not work correctly. To ensure that the filter works correctly, you must assign the same filter to all of the IP addresses on the interface.
- Site Manager cannot understand traffic filters you have configured using the BCC.

- When implementing outbound traffic filters for LAN protocols, in some configurations the filters might cause a decline in throughput performance. For LAN circuits where the forwarding rate of the router is critical, monitor the throughput performance after configuring outbound traffic filters. If you notice an unacceptable performance degradation, try using inbound traffic filters.
- If you use Site Manager or the BCC to configure IP traffic filters with precedence values that are higher than the number of traffic filters configured, you might reach the maximum precedence value before you create the maximum number of filters. When you reach the maximum precedence value of 31 traffic filters, the router generates an error if you try to configure a filter with a precedence of 32. The system does not place you in extended filtering mode.

For example, if you create the following five traffic filters, an error occurs when you create the fifth filter:

Filter 1 precedence = 28

Filter 2 precedence = 29

Filter 3 precedence = 30

Filter 4 precedence = 31

Filter 5 precedence = 32 (error occurs here)

As a workaround, you can take one of the following actions:

- Reassign the precedence value of traffic filters 1 through 5 to lower values.
- Use the Technician Interface to turn on extended filtering mode and let the system assign precedence values to additional traffic filters on the IP interface.

Downloading Internet Routes from an ISP

To minimize the time required to download routes from an Internet Service Provider (ISP), adjust two IP global parameters. Use the BCC to set the routing-table-indexes value to 10000 and the routing-table-deviation value to 50, as follows:

```
ip#routing-table-indexes 10000  
ip#routing-table-deviation 50
```

See *Configuring IP, ARP, RARP, RIP, and OSPF Services* for more information about these commands.

Cisco Compatibility Issues Using PIM

This section describes Cisco® compatibility issues that exist when running Protocol Independent Multicast (PIM) in a network that consists of both Cisco and Nortel Networks routers.

Fragment Tagging in Bootstrap Messages

In a PIM network in which Nortel Networks and Cisco routers interoperate, a Cisco router sends bootstrap packets that contain a fragment tag set to a zero value. When the Nortel Networks router receives these packets, it treats them as duplicate packets and immediately drops them.

To enable a Nortel Networks router to accept bootstrap packets from a Cisco router, set the RFC2362 parameter to Enable using Site Manager.

Cisco Drops RP Advertisement Messages with Zero Prefix Count

If you configure a Cisco router to serve as the bootstrap router (BSR) and you configure a Nortel Networks router to serve as an RP router for a PIM domain, the Cisco router drops any RP advertisement packet it receives from the RP router that contains a zero group prefix count. As a result, the Cisco router cannot advertise RP set information to all PIM routers in the domain.

To ensure that the Cisco router sends advertisement messages to all multicast group ranges using address 224.0.0.0/4, set the RFC2362 parameter to Enable.

Routers Ignore RP Priority and Hash Value During RP Selection

You configure multiple RPs responsible for the same or overlapping group ranges in a PIM domain. For RPs responsible for the same group ranges, a Cisco router selects the first RP on the RP list, regardless of the RP priority and hash value. For RPs responsible for overlapping group ranges, a Cisco router selects the router with the most specific group range, regardless of the RP priority and hash value.

As a workaround, configure only one RP router for each unique group range. This allows the Nortel Networks router and the Cisco router to select the same RP.

ATM Half Bridge Support

BayRS Version 14.0.2 includes support of the ATM Half Bridge (AHB) feature.

Please be aware that some users, operating under certain conditions, may encounter issues such as the following:

- When AHB caches an unsecure host that it learned via ARP, the associated idle time is 0. The idle time remains at 0 and does not age correctly.
- When you boot a router running AHB, the ARE slot logs a fault message.
- When you reset the AHB, it stops forwarding traffic out of the AHB port.
- If you configure AHB on an ATM null PVC, the router may crash.
- If you configure AHB and add a PVC to the router while another system is sending a ping message to your router, the ARE slot may crash and may begin executing the cold start hardware diagnostics.

Failover and Load Balancing for ATM VCs Not Supported

You can configure multiple ATM virtual circuits (VCs) to the same destination address. However, this kind of configuration does not provide load balancing or failover support.

MPOA and VRRP over LANE Support

BayRS Version 14.0.2 does not support running both Virtual Router Redundancy Protocol (VRRP) over LAN Emulation (LANE) and Multi-Protocol Over ATM (MPOA) on the same service record.

FRE-2 DRAM Requirements

The FRE-2 processor card requires a minimum of 16 MB DRAM.

OSPF Guidelines

If you are using Open Shortest Path First (OSPF) services, please keep the following guidelines in mind:

- As of BayRS Version 14.0.2, we do not support the OSPF backup soloist feature.
- According to RFC 2328, the cost of an OSPF route to an aggregated group of networks should be the distance to the furthest network in the group. A new MIB parameter, `wfOspfAggrUseMaxCost`, allows you to determine how to summarize the subnets using the area range. To use the furthest cost in the routing table, set this MIB to **1** (Enable). If you accept the default, **2** (Disable), the OSPF route cost is represented as the shortest path to a network within the aggregated group of networks.

IPsec Guidelines

This section describes guidelines you should follow if you are using Internet Protocol Security (IPsec) services.

IPsec 3DES Performance Considerations

IPsec performance can vary greatly, and IPsec can impact router performance in general. Factors that affect performance are cryptographic algorithms used by IPsec that consume substantial CPU resources, other protocols and features running on the slot that share the same CPU resources as IPsec, and the processing power of the BayRS router.

The following information will help you plan and manage CPU resources in BayRS routers configured with IPsec.

Greater security can adversely affect performance. Before deploying IPsec, identify the data traffic that must be protected. Effective traffic analysis might result in minimal performance impact on the router. Configure IPsec to bypass traffic that does not need to be protected, thereby reducing the CPU resources used. Also, the amount of CPU resources required varies significantly for different encryption and authentication algorithms.

These algorithms are listed in order of increasing CPU consumption and security:

- MD5
- SHA1
- DES
- DES with MD5
- DES with SHA1
- 3DES
- 3DES with MD5
- 3DES with SHA1

In addition, the key generation and periodic rekeying done by IKE Diffie Hellman imposes a CPU burden. Therefore, consider the keying intervals for IKE and for IPsec that you choose during configuration. Less frequent rekeying reduces the burden on the CPU. Consider rekeying the Phase 1 (IKE) SAs less frequently than the IPsec SAs.

Finally, the packet size influences the performance of the router. Smaller packet sizes at a given data rate impose a greater processing load than larger packet sizes.

You can optimize performance by using the information in this section to plan and manage CPU resources. For example, BayRS IPsec on a BN can fill a 2 Mb/s WAN pipe with bidirectional DES encrypted traffic. Conversely, 3DES + SHA1 traffic with aggressive Phase 1 (IKE) and IPsec rekeying (for example, every 10 minutes) might cause significant performance degradation under heavy traffic loads.

You might experience SNMP timeouts during periods when the router is carrying peak loads of protected traffic.

IPsec Executable

To use the IPsec option, you must purchase a separate IPsec CD that contains either the 56-bit (DES) or both triple DES (3DES) and DES cryptographic API executable (*capi.exe*) for the BayRS software. Purchase the CD for the router platform on which you plan to install the IPsec software. Follow the instructions included with the CD or in *Configuring IPsec Services* to install the IPsec option.

Adding the IPsec File to the BayRS 14.0.2 Base Kernel

To use IPsec, you must use Image Builder to add an IPsec file to the BayRS 14.0.2 base kernel. The IPsec file is located on a separate CD, which ships with the IPsec feature. To install IPsec, follow the instructions included with the IPsec CD. You do not have to modify or add anything to Site Manager.

Renaming the FireWall-1 Redundant Management Scripts

Nortel Networks provides redundant management script files to make it easy to synchronize firewall management stations using the **fwfilex** command. You can use these scripts to transfer security policies and configuration files from one Windows NT platform to another, or from one UNIX platform to another.

You can get the files necessary to synchronize backup stations from either the BayRS software CD or the World Wide Web.

If you are using UNIX systems for your backup management stations, copy the file (*fwfilex.*) in the *fwbkpscr/unix* directory on the CD into the FireWall-1 bin directory (typically */etc/fw/bin*) on your primary backup station.



Note: After you copy the file (*fwfilex.*) to the */etc/fw/bin* directory on the primary backup station, you must rename the file to *fwfilex* so that it no longer has a period (.) at the end.

For detailed information about the redundant management script files and how to synchronize firewall management stations, see *Configuring BaySecure FireWall-1*.

BayRS Bandwidth Broker for Differentiated Services

To implement a differentiated services network using a BayRS bandwidth broker, you must install the BayRS Bandwidth Broker software on a PC running Microsoft Windows NT 4.0. The Nortel Networks router that communicates with the bandwidth broker must be operating with BayRS Version 13.20 or later software.

To download the BayRS Bandwidth Broker software and learn how to configure it:

1. **Go to the Router Management Labs page at <http://www.nortelnetworks.com/rml>.**
2. **Click on Software Solutions.**
3. **If you are a registered user, enter your email address. If not, register.**

You see a list of solutions for which you can download software.

4. **Scroll through the list to locate the BayRS Bandwidth Broker.**

From here you can download the software and the user manual.

Event Database

You can view the event database on the World Wide Web and the BayRS Online Library Version 14.0.2 CD. To access the event database on the World Wide Web, go to: <http://www25.nortelnetworks.com/library/tpubs/events/>

To access the event database on the BayRS Online Library Version 14.0.2 CD, follow the instructions in the CD booklet.

The event database includes a search facility that allows you to sort events by entity number, event number, severity, and text of the event message. For example, you can list only the warning messages for the IPX entity.

SunOS 4.1.4 Support for Site Manager

Customers using Site Manager with SunOS 4.1.4 must migrate to a supported Solaris OS platform. Site Manager Version 14.0.2 does not work with SunOS, but continues to work with Solaris and other supported operating systems.

Protocol Statistics for MPLS

The HTTP Server interface contains a folder icon for displaying Multiprotocol Label Switching (MPLS) statistics. The following table summarizes these statistics and how to get them using the HTTP Server interface.

Clicking on Statistics > Protocols > MPLS in the navigational frame reveals the following subordinate links: MLM Interface, MLM Sessions, MLM Connections, LDP Sessions, and LDP Information.

| To see these statistics | Use this path |
|-------------------------|---|
| MLM Interface | Statistics > Protocols > MPLS > MLM Interfaces |
| MLM Sessions | Statistics > Protocols > MPLS > MLM Sessions |
| MLM Connections | Statistics > Protocols > MPLS > MLM Connections |
| LDP Sessions | Statistics > Protocols > MPLS > LDP Sessions |
| LDP Information | Statistics > Protocols > MPLS > LDP Information |

Using the Embedded Web Server to Transfer Files

When you use the embedded web server to transfer files to or from the router, HTTP (Hypertext Transfer Protocol) encapsulates the data. You do not need to be concerned with selecting a file format (text or binary, for example) the way you would if you were using FTP (File Transfer Protocol) or TFTP (Trivial File Transfer Protocol) to transfer the files.

For example, to transfer an image file to the router, use your browser's default file format type to transfer the file to the router's FLASH memory. The file arrives at the router as an image file from which you can boot the router.

AN/ANH and ARN Guidelines

Follow these guidelines when using AN, ANH, or ARN routers.

Allocating Memory on ARN Routers

Although you can change the default memory allocation on other Nortel Networks router platforms, the ARN platform does not support this "buffer carving" feature.

On the ARN, Site Manager does not support the Admin > Kernel Configuration option, and the Technician Interface does not support the **set** command for wfKernCfgParamEntry objects. Attempting to set wfKernCfgParamGlobMem on the ARN results in a warning message.

DSU/CSU Test LED Remains On After Reset

The ARN DSU/CSU Test LED properly goes on when the interface enters test or loopback mode. However, the LED remains on after resetting the DSU/CSU module, even though all looping terminates and the module hardware resets.

Restarting the router turns the LED off. However, this action is not necessary for proper operation of the DSU/CSU interface.

Network Booting on DSU/CSU Interfaces

AN and ANH DSU/CSU interfaces do not support network booting.

ARN Router Not a Supported DVS RADIUS Client

The ARN router is not a supported DVS RADIUS client.

Increasing Buffer Size on Non-Token-Ring AN Routers

By default, AN routers without token ring modules installed initialize with a buffer size of 1824 bytes, which makes these ANs unable to accept packets larger than 1590 bytes. To allow ANs without token ring modules to accept larger packets, you can increase the buffer size by setting the MIB variable wfKernCfgParamEntry.wfKernCfgParamBufSize to 4800.

For complete instructions on using the Technician Interface to set MIB variables, see *Using Technician Interface Software*. The following example shows Technician Interface commands you might use to reset the MIB variable wfKernCfgParamEntry.wfKernCfgParamBufSize to 4800:

```
set wfKernCfgParamEntry.wfKernCfgParamDelete.1 1
set wfKernCfgParamEntry.wfKernCfgParamBufSize.1 4800
set wfKernCfgParamEntry.wfKernCfgParamDelete.1 2
commit
save config 2:config
reset 1
```

To set the buffer size back to its default of 1824 bytes, issue the following command:

```
set wfKernCfgParamEntry.wfKernCfgParamBufSizeReset.1 1
commit
```


BayRS Version Flash Memory Requirements

BayRS software ships on the following flash memory cards:

| Platform | Flash Memory Required | Associated Software Suites |
|-------------|-----------------------|--|
| AN/ANH | 8 or 16 MB | corp_suite, ip_access, office_suite |
| ARN | 8 or 16 MB | corp_suite, ip_access, office_suite |
| ASN | 8 or 16 MB | corp_suite, lan_suite, system_suite, wan_suite |
| BN | 16 or 32 MB | atm_suite, corp_suite, lan_suite, system_suite, vnr_suite, wan_suite |
| System 5000 | 8 or 16 MB | corp_suite, lan_suite, system_suite, vnr_suite, wan_suite |

Configuring PU 4 and SDLC Link Stations

If you use PU 4 devices with Synchronous Data Link Control (SDLC) and modulo 128, set the SDLC parameters MAXOUT and MAXIN to 127. You see these parameters in the SDLC Link Station Configuration window. For instructions on setting these parameters, see *Configuring SDLC Services*.

Creating Multiple GRE Tunnels

When creating multiple GRE tunnels dynamically, you can configure a maximum of five point-to-point GRE tunnels. In multipoint configurations, you can configure 64 GRE tunnels per interface.

Configuring NAT Dynamically

When you configure a local or global interface for NAT in dynamic mode, the router returns an SNMP set error. However, this error does not affect the configuration of the router.

Protocol Prioritization No Call Filters and TCP Applications

Using a no call filter that applies to any TCP application can cause TCP to retransmit the filtered packet.

When two routers running a TCP application are connected using a demand line, and the demand line becomes inactive, the TCP application remains connected.

If a demand line configured with a no call filter goes down, the no call filter drops the TCP packet that matches the no call filter rule. Because TCP never receives an acknowledgment that the packet was dropped, the TCP application continues to retransmit that packet until the connection times out and the application stops operating.



Note: No call filters are specific to dial services. For additional information about traffic filters and protocol prioritization, see *Configuring Traffic Filters and Protocol Prioritization*.

Support for Strata-Flash Card

BayRS supports the Strata-Flash card on AN, ANH, ARN, ASN, and BN routers. For details about flash cards, see “[Flash Memory Cards Supported](#)” on [page 47](#).

Adding SDLC Changes Serial Parameter Settings

When you configure SDLC on a serial interface, the router software automatically changes the values for the following serial parameters:

- cable type
- clock source
- internal clock speed
- signal mode

Defaults for serial parameters, without SDLC, are listed in [Table 6](#).

Table 6. Default Settings for Serial Parameters without SDLC

| Parameter | Default Setting |
|----------------------|-----------------|
| cable type | null |
| clock source | external |
| internal clock speed | clk64k |
| signal mode | balanced |

After you add SDLC to an interface, the settings for the serial parameters change. The new settings are listed in [Table 7](#).

Table 7. Default Settings for Serial Parameters with SDLC

| Parameter | Default Setting |
|----------------------|-----------------|
| cable type | rs232 |
| clock source | internal |
| internal clock speed | clk19200 |
| signal mode | unbalanced |

WEP Executable

To use the DES-40 WAN Encryption Option or DES-56 WAN Encryption Option to perform PPP or frame relay layer 2 encryption, you must purchase a separate CD containing the WEP executable (*wep.exe*) for BayRS 14.0.2 software.

To install WEP on a router, you must first add the WEP executable to your BayRS 14.0.2 base kernel using Image Builder in Site Manager.

You can purchase two WEP executables based on the key size: a 40-bit version and a 56-bit version, which are included on separate CDs.

You must purchase three CDs when ordering the WEP protocol for BayRS software:

- Base BayRS 14.0.2 CD, which contains no WEP functions
- 40-bit WEP CD, which contains the 40-bit executable file

- 56-bit WEP CD, which contains the 56-bit executable file

To configure WEP, you do not have to modify Site Manager.

IPv6 Supported on ATM PVCs

BayRS supports IPv6. You can configure IPv6 using Site Manager on an ATM PVC interface.

Configuring RADIUS Servers

To enable RADIUS authentication for multilevel access or to use vendor-specific attributes (VSAs), you must configure the BSAC RADIUS server with the following files:

- *bayrs.dct*
- *vendor.ini*
- *dictiona.dcm*

These files load at server startup and enable the server to recognize the vendor-specific RADIUS clients. You can locate these files in the *bsac* directory on the BayRS Router and Site Manager Software update CD.

- To configure a Nortel Networks RADIUS server, copy the three files to the directory that you define at installation time (typically *C:\RADIUS\Service*).
- To configure a non-Nortel Networks RADIUS server, use the *bayrs.dct* file as a reference to change the existing RADIUS dictionary. Because *bayrs.dct* is in the format of some popular RADIUS servers, you might be able to use it as a direct replacement for the existing RADIUS dictionary. For more information, see the vendor's documentation.



Note: To use RADIUS with IP utilities such as FTP, NTP, HTTP, and Telnet, your RADIUS server must support VSAs.

The RADIUS dictionary file (*bayrs.dct*) defines the Nortel Networks vendor-specific attributes. The Nortel Networks vendor ID is 1584, as allocated by the Internet Assigned Numbers Authority. Use this ID in the header when using VSAs.

| For more information on | See this document |
|--------------------------|---|
| RADIUS | <i>Configuring RADIUS</i> |
| BaySecure Access Control | <i>BaySecure Access Control Administration Guide (for your specific platform: UNIX, NetWare, or Windows NT)</i> |
| Multilevel Access | <i>Using the Bay Command Console (BCC)</i> |

Operating Limitations and Cautions

Be aware of the following limitations when using BayRS 14.0.2.

ATM Services

The following limitations exist for ATM services in BayRS:

- Failover and load balancing for ATM VCs is not supported. You can configure multiple ATM virtual circuits (VCs) to the same destination address. However, this kind of configuration does not provide load balancing or failover support.
- The ATM traffic parameter maximum burst size (MBS) is not supported.
- Differentiated Services Queue Management and Scheduling (DSQMS) is not supported in ATM.
- Using the BCC to delete an ATM interface or a service record with more than 570 PVCs can cause a watchdog timeout on the router. To prevent this from occurring on configurations with more than 570 PVCs, use Site Manager to delete the interface, or use the BCC to delete the PVCs before you delete the ATM interface.
- If there is a loss of signal to a router during a period of heavy traffic, the ATM interface on the router might stop functioning. If the ATM interface stops functioning, you must reboot the router to recover.

- The following three MIB attributes: wfAtmizerVclRxOctets, wfAtmizerVclTxOctets, and wfAtmizerVclTxClipFrames. Ignore the values that these statistics return.
- On the ARE, BayRS does not release virtual channel connections when they time out. To maintain the availability of VCCs for new activities, configure a LAN emulation client (LEC) other than the router to release the inactive VCCs.

APPN

The value configured for the Advanced Peer-to-Peer Networking (APPN) TG Number parameter in Site Manager is not being used; the TG number on a link station is being autonegotiated.

BCC

If a context is deleted and re-created in the same BCC source file, unexpected results may occur. The create/delete MIB is set to deleted when issuing the deletion, but it is not reset to created when re-configuring the context.

DLSw — SDLC Fast and Slow Poll Timer Defaults

If you have a router performing SDLC to LLC conversion, and you use the default values for the SDLC parameters Fast Poll Timer and Slow Poll Timer, SDLC controller performance is degraded. To avoid this problem, change the Fast Poll Timer to 200 and the Slow Poll Timer to 400. Changing these settings improves performance for both single- and dual-switch DLSw configurations in which the router acts as an SDLC primary device. Depending on the number of SDLC controllers you are supporting, you may need to increase or decrease the numbers to improve controller response time and router performance.

Deleting a Hybrid Mode Permanent Virtual Circuit (PVC)

If you configure SRB on a router, do not delete hybrid mode PVCs. Otherwise, all slots will restart.

DSQMS

The following limitations exist for DSQMS services in BayRS:

- Queue starvation can occur despite priority-time-quantum settings. Queues with the same priority level and priority-time-quantum settings may nevertheless experience queue starvation if one of the queues is bandwidth-heavy.

To address this condition you can configure traffic policing for the bandwidth-heavy traffic flow to an acceptable rate for its assigned DSQMS Priority Queue. Configure traffic policing before the DSQMS outbound interface to control UDP as well as TCP flows.

- DSQMS is not supported with Protocol Priority Queuing (PPQ).

DVMRP — Specifying the Lifetime of a Prune Message

The lifetime of a prune message which DVMRP sends to a neighbor should never be *greater* than the forward cache time-to-live set for the same circuit. These values are set at the following parameters in the BCC and Site Manager respectively:

Related BCC Parameters

prune-lifetime
fwd-cache-timeout

Related Site Manager Parameters

Prune Life Time
Forward Cache TTL

For additional information see “Customizing DVMRP on an Interface” in the *Configuring IP Multicasting and Multimedia Services* manual.

DVMRP Use with Interfaces with More than One IP Address

You cannot use the BayRS Version 14.0.2 implementation of Distance Vector Multicast Routing Protocol (DVMRP) with circuits with multinetted interfaces (that is, interfaces with more than one IP address).

FireWall-1 Services

The following problems can occur while using FireWall-1 services in BayRS:

- Check Point Log Viewer displays the incorrect time which is approximately one hour behind. For example, if the correct time is 12:17, the Log Viewer displays the time as 11:17. Log events from the management station (or fw daemon) display the correct time.
- Check Point Log Viewer incorrectly reports that a router has stopped logging. You can ignore the “Stopped Logging” message whenever the logging continues uninterrupted.
- You cannot define an address range for source and destination addresses for a FireWall-1 Security policy.
- You cannot disable FireWall-1 dynamically using the BCC even though the legal values for the state object of firewall are listed as enabled and disabled.

Flash Compaction or Extensive File Management Use on ARE

Do not perform a flash compaction or extensive file management on a busy or production ARE module. Doing so may cause a fault in the module.

Frame Relay Services

One element of the frame relay SAP translation feature that directs multiple client connection requests to a single destination MAC address over a single SVC is not available. This issue affects frame relay services configured with DLSw and LLC2 running either BNN_PVC or BNN_SVC. This restriction applies to frame relay services configured using either the BCC or Site Manager.

IPsec

If you change the setting of the router's Internet Protocol Security (IPsec) feature (MIB variable `wfIpIntFCfgEnableSecurity`) from Disabled to Enabled, the router loses its IP connection. You must reboot the router to recover.

ISDN-BRI – Configuring B Channels on the ARN

The ARN router can use only three B channels. If you select 2B + D service for one BRI interface, you must use 1B + D service for the second interface.

NAT Services

The following limitations exist for NAT services in BayRS:

- NAT does not operate in IP ISP Mode. To avoid this problem you should disable the global IP ISP mode parameter.
- NAT and IPsec cannot interoperate with overlapping source IP address ranges, because NAT takes precedence. IPsec cannot process a source address that is also in a NAT address range. However, the following workarounds are available:

For UNIX systems, you can separate IP hosts on the networks into two groups: a NAT-only group and an IPsec-only group. You can then use the multinetted interfaces or two network interface cards on a host to establish these two logical groups on one physical host.

You can also configure NAT and IPsec on different devices so that one BayRS router runs IPsec and another BayRS router runs NAT.

RIP Export Filters

Setting the From Protocols parameter for a RIP export filter to any value other than the “Any” option causes the filter to fail. Consequently, the RIP export route filter does not work if you specify any of the following options: RIP, EGP, OSPF, Direct, Static, or BGP-3. To avoid this problem, be sure to use the “Any” option when configuring all RIP export filters.

Signal Ports Settings on a Switch and Router Conflict

If you are using a switch with signal ports set to V3.1, be sure to set the signaling setting on the router to V3.1. If you accept the default setting of V3.0 for the router, the router faults repeatedly until you change the setting to V3.1.

Sync

If the cable is removed from any synchronous port except octal sync on a BN, the router gives no indication of the problem and the link remains active. The configured WAN protocol closes all connections when the synchronous line driver detects connection signal lost. To prevent this problem, enable the Sync Polling parameter (Configuration Manager -> Edit Line -> Edit Sync Parameters).

TFTP

If you try to use the Router File Manager to TFTP a file to the router from a Windows directory that includes long names and spaces, the transfer fails. To prevent this problem, move the file you want to send to a directory with a simple name of no more than 15 bytes and no space characters.

Unnumbered IP Interfaces

You cannot use the disable and enable scripts on unnumbered IP interfaces. The scripts do not allow an interface IP address format specifying both the IP address 0.0.0.0 and the circuit number. However, you can use Site Manager or the Technician Interface to disable unnumbered IP interfaces.

VRRP Over LANE

Virtual Router Redundancy Protocol (VRRP) over LAN Emulation (LANE) and Multi-Protocol Over ATM (MPOA) are not supported on the same service record.

WCP

WCP for PPP Multilink

If you configure an existing PPP/WCP non-multilink circuit for multilink (on BayRS Version 12.10 or later) and the CCP Type parameter is set to CCP, WCP must be deleted and re-added to the circuit to negotiate WCP above the bundle.

See *Configuring Data Compression Services* for additional information.

Adding Bandwidth on Demand Disables WCP Data Compression

Adding Bandwidth on Demand to a PRI circuit disables WCP data compression. The call comes up and traffic flows, but WCP never creates a VC and does not compress traffic.

Protocols Supported

BayRS Version 14.0.2 supports the following bridging/routing protocols and router configuration features:

- Advanced Peer-to-Peer Networking (APPN)
- AppleTalk and AppleTalk Update Routing Protocol (AURP)
- Asynchronous transfer mode (ATM)
- ATM Data Exchange Interface (ATM DXI)
- ATM Half Bridge (AHB)
- ATM LAN Emulation (802.3 and 802.5)
- Bandwidth Allocation Protocol (BAP)
- Binary Synchronous Communication Type 3 (BSC3)
- Bisync over TCP (BOT)
- Bootstrap Protocol (BootP)
- Border Gateway Protocol (BGP-3 and BGP-4)
- Classless interdomain routing (CIDR)
- Data compression (WCP and Hi/fn)
- Data link switching (DLSw)
- DECnet Phase IV
- Differentiated services
- Distance Vector Multicast Routing Protocol (DVMRP)
- Dynamic Host Configuration Protocol (DHCP)
- Encryption (WEP; proprietary)
- Exterior Gateway Protocol-2 (EGP-2)

- File Transfer Protocol (FTP)
- Frame relay (PVC, SVC)
- HP Probe
- Hypertext Transfer Protocol (HTTP)
- Integrated Services Digital Network (ISDN)
- Interface redundancy (proprietary)
- Internet Control Message Protocol (ICMP)
- Internet Gateway Management Protocol (IGMP)
- Internet Key Exchange (IKE)
- Internet Packet Exchange (IPX)
- Internet Protocol (IP)
- Internet Protocol Version 6 (IPv6)
- Internet Stream Protocol (ST2)
- IP Security (IPsec)
- IPsec Encapsulating Security Payload (ESP)
- IPv6 PPP Control Protocol (IPv6CP)
- Layer 2 Tunneling Protocol (L2TP)
- Learning bridge
- Logical Link Control 2 (LLC2)
- Multicast OSPF (MOSPF)
- Multiprotocol Label Switching (MPLS)
- Multiprotocol Over ATM (MPOA)
- Native Mode LAN (NML)
- Network Time Protocol (NTP)
- Open Shortest Path First (OSPF)
- Open Systems Interconnection (OSI)
- Point-to-Point Protocol (PPP)
- Polled Asynch (PAS), also called Asynch Passthru over TCP

- Protocol prioritization
- Qualified Logical Link Control (QLLC)
- RaisedTR dialup
- Remote Authentication Dial-In User Service (RADIUS)
- Resource Reservation Protocol (RSVP)
- Router discovery (RDISC)
- Router redundancy (proprietary)
- Routing Information Protocol (RIP)
- Service Advertisement Protocol (SAP)
- Simple Network Management Protocol (SNMP)
- Source route bridging (SRB)
- Source route bridging over ATM permanent virtual circuits (PVCs)
- Spanning tree
- Switched Multimegabit Data Service (SMDS)
- Synchronous Data Link Control (SDLC)
- Telnet (inbound and outbound)
- Transmission Control Protocol (TCP)
- Transparent bridge
- Transparent-to-source routing translation bridge
- Trivial File Transfer Protocol (TFTP)
- User Datagram Protocol (UDP)
- V.25bis dialup
- Virtual Network Systems (VINES)
- Virtual Router Redundancy Protocol (VRRP)
- X.25 with QLLC
- Xerox Network System (XNS)
- XMODEM and YMODEM

Standards Supported

[Table 8](#) lists the Request For Comments (RFCs) and other standards documents with which Version 14.0.2 complies. BayRS Version 14.0.2 might support additional standards that are not listed in this table.

Table 8. Standards Supported by Version 14.0.2

| Standard | Description |
|------------------------|---|
| ANSI T1.107b-1991 | Digital Hierarchy -- Supplement to formats specifications |
| ANSI T1.404 | DS3 Metallic Interface Specification |
| ANSI X3t9.5 | Fiber Distributed Data Interface (FDDI) |
| Bellcore FR-440 | Transport Systems Generic Requirements (TSGR) |
| Bellcore TR-TSY-000009 | Asynchronous Digital Multiplexes, Requirements, and Objectives |
| Bellcore TR-TSY-000010 | Synchronous DS3 Add-Drop Multiplex (ADM 3/X) Requirements and Objectives |
| FIPS 46-2 | Data Encryption Standard (DES) |
| FIPS 81 | DES Modes of Operation (ECB, CBC) |
| IEEE 802.1 | Logical Link Control (LLC) |
| IEEE 802.1Q | IEEE 802.1Q VLAN tagging |
| IEEE 802.3 | Carrier Sense Multiple Access with Collision Detection (CSMA/CD) |
| IEEE 802.5 | Token Ring Access Method and Physical Layer Specifications |
| IEEE 802.1D | Spanning Tree Bridges |
| ITU Q.921 | ISDN Layer 2 Specification |
| ITU Q.931 | ISDN Layer 3 Specification |
| ITU X.25 | Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuits |
| RFC 768 | User Datagram Protocol (UDP) |
| RFC 791 | Internet Protocol (IP) |
| RFC 792 | Internet Control Message Protocol (ICMP) |
| RFC 793 | Transmission Control Protocol (TCP) |
| RFC 813 | Window and Acknowledgment Strategy in TCP |

(continued)

Table 8. Standards Supported by Version 14.0.2 *(continued)*

| Standard | Description |
|----------|--|
| RFC 826 | Ethernet Address Resolution Protocol |
| RFC 827 | Exterior Gateway Protocol (EGP) |
| RFC 854 | Telnet Protocol Specification |
| RFC 855 | Telnet Option Specification |
| RFC 856 | Telnet Binary Transmission |
| RFC 857 | Telnet Echo Option |
| RFC 858 | Telnet Suppress Go Ahead Option |
| RFC 859 | Telnet Status Option |
| RFC 860 | Telnet Timing Mark Option |
| RFC 861 | Telnet Extended Options: List Option |
| RFC 863 | Discard Protocol |
| RFC 877 | Transmission of IP Datagrams over Public Data Networks |
| RFC 879 | TCP Maximum Segment Size and Related Topics |
| RFC 888 | "STUB" Exterior Gateway Protocol |
| RFC 894 | Transmission of IP Datagrams over Ethernet Networks |
| RFC 896 | Congestion Control in IP/TCP Internetworks |
| RFC 903 | Reverse Address Resolution Protocol |
| RFC 904 | Exterior Gateway Protocol Formal Specification |
| RFC 919 | Broadcasting Internet Datagrams |
| RFC 922 | Broadcasting Internet Datagrams in Subnets |
| RFC 925 | Multi-LAN Address Resolution |
| RFC 950 | Internet Standard Subnetting Procedure |
| RFC 951 | Bootstrap Protocol |
| RFC 959 | File Transfer Protocol |
| RFC 994 | Protocol for Providing the Connectionless-Mode Network Service |
| RFC 1009 | Requirements for Internet Gateways |
| RFC 1027 | Using ARP to Implement Transparent Subnet Gateways |
| RFC 1042 | Transmission of IP over IEEE/802 Networks |
| RFC 1058 | Routing Information Protocol |

(continued)

Table 8. Standards Supported by Version 14.0.2 *(continued)*

| Standard | Description |
|----------|---|
| RFC 1075 | Distance Vector Multicast Routing Protocol (DVMRP) |
| RFC 1076 | Redefinition of Managed Objects for IEEE 802.3 Repeater Devices (AN hubs only) |
| RFC 1079 | Telnet Terminal Speed Option |
| RFC 1084 | BOOTP Vendor Information Extensions |
| RFC 1091 | Telnet Terminal-Type Option |
| RFC 1108 | Security Options for the Internet Protocol |
| RFC 1112 | Host Extensions for IP Multicasting Appendix I, Internet Group Management Protocol |
| RFC 1116 | Telnet Line-Mode Option |
| RFC 1139 | Echo Function for ISO 8473 |
| RFC 1155 | Structure and Identification of Management Information for TCP/IP-based Internets |
| RFC 1157 | Simple Network Management Protocol (SNMP) |
| RFC 1163 | BGP-2 (obsoleted by RFC 1267) |
| RFC 1164 | Application of BGP in the Internet |
| RFC 1166 | Internet Numbers |
| RFC 1188 | Proposed Standard for the Transmission of IP over FDDI |
| RFC 1191 | Path MTU Discovery |
| RFC 1209 | Transmission of IP Datagrams over SMDS |
| RFC 1212 | Concise MIB Definitions |
| RFC 1213 | MIB for Network Management of TCP/IP-Based Internets |
| RFC 1267 | Border Gateway Protocol 3 (BGP-3; obsoletes RFC 1163) |
| RFC 1293 | Inverse ARP for Frame Relay (obsoleted by RFC 2390) |
| RFC 1294 | Multiprotocol Interconnect over Frame Relay (obsoleted by RFC 1490 and RFC 2427) |
| RFC 1304 | Definition of Managed Objects for the SIP Interface Type |
| RFC 1305 | Network Time Protocol |
| RFC 1315 | Management Information Base for Frame Relay DTEs (obsoleted by RFC 2115) |
| RFC 1321 | MDS Digest Algorithm |
| RFC 1323 | TCP Extensions for High Performance |

(continued)

Table 8. Standards Supported by Version 14.0.2 *(continued)*

| Standard | Description |
|----------|--|
| RFC 1331 | Point-to-Point Protocol (PPP; obsoleted by RFC 1661) |
| RFC 1332 | PPP Internet Protocol Control Protocol (IPCP) |
| RFC 1333 | PPP Link Quality Monitoring (obsoleted by RFC 1989) |
| RFC 1334 | PPP Authentication Protocols |
| RFC 1350 | The TFTP Protocol (Revision 2) |
| RFC 1356 | Multiprotocol Interconnect on X.25 and ISDN in the Packet Mode |
| RFC 1376 | PPP DECnet Phase IV Control Protocol (DNCP) |
| RFC 1377 | OSI over PPP |
| RFC 1378 | PPP AppleTalk Control Protocol (ATCP) |
| RFC 1390 | Transmission of IP and ARP over FDDI Networks |
| RFC 1403 | BGP OSPF Interaction |
| RFC 1434 | Data Link Switching: Switch-to-Switch Protocol |
| RFC 1483 | Multiprotocol Encapsulation over ATM AAL5 |
| RFC 1490 | Multiprotocol Interconnect over Frame Relay (obsoletes RFC 1294, obsoleted by RFC 2427) |
| RFC 1541 | Dynamic Host Configuration Protocol |
| RFC 1552 | The PPP Internetwork Packet Exchange Control Protocol (IPXCP) |
| RFC 1577 | Classical IP and ARP over ATM |
| RFC 1585 | MOSPF: Analysis and Experience |
| RFC 1634 | Novell IPX over Various WAN Media (IPXWAN) |
| RFC 1638 | PPP Bridging Control Protocol (BCP) |
| RFC 1654 | Border Gateway Protocol 4 (BGP-4; obsoleted by RFC 1771) |
| RFC 1661 | Point-to-Point Protocol (PPP; obsoletes RFC 1331) |
| RFC 1662 | PPP in HDLC-like Framing |
| RFC 1717 | PPP Multilink Protocol (MP; obsoleted by RFC 1990) |
| RFC 1755 | Signaling Support for IP over ATM |
| RFC 1757 | Remote Network Monitoring Management Information Base (RMON), for AN, ANH, and ARN equipped with data collection module only |
| RFC 1762 | PPP Banyan VINES Control Protocol (BVCP) |
| RFC 1763 | PPP DECnet Phase IV Control Protocol (DNCP) |

(continued)

Table 8. Standards Supported by Version 14.0.2 *(continued)*

| Standard | Description |
|------------|---|
| RFC 1764 | PPP XNS IDP Control Protocol (XNSCP) |
| RFC 1771 | Border Gateway Protocol 4 (BGP-4; obsoletes RFC 1654) |
| RFC 1795 | Data Link Switching: Switch-to-Switch Protocol, Version 1 |
| RFC 1819 | Internet Stream Protocol, Version 2 |
| RFC 1974 | PPP Stac LZS Compression Protocol |
| RFC 1989 | PPP Link Quality Monitoring (obsoletes RFC 1333) |
| RFC 1990 | PPP Multilink Protocol (MP; obsoletes RFC 1717) |
| RFC 2068 | HTTP Version 1.1 |
| RFC 2069 | An extension to HTTP: Digest Access Authentication |
| RFC 2104 | HMAC: Keyed-Hashing for Message Authentication |
| RFC 2115 | Management Information Base for Frame Relay DTEs Using SMIv2 (obsoletes RFC 1315) |
| RFC 2138 | Remote Authentication Dial-In User Service (RADIUS) |
| RFC 2139 | RADIUS Accounting |
| RFC 2166 | Data Link Switching, Version 2.0, Enhancements |
| RFC 2178 | OSPF Version 2 |
| RFC 2205 | Resource ReSerVation Protocol (RSVP) -- Version 1 Functional Specification |
| RFC 2338 | Virtual Router Redundancy Protocol |
| RFC 2385 | Protection of BGP Sessions via the TCP MD5 Signature Option |
| RFC 2390 | Inverse Address Resolution Protocol (obsoletes RFC 1293) |
| RFC 2403 | Use of HMAC-MD5-96 within ESP and AH |
| RFC 2404 | Use of HMAC-SHA-1-96 within ESP and AH |
| RFC 2405 | ESP DES-CBC Cipher Algorithm with Explicit IV |
| RFC 2406 | IP Encapsulating Security Payload (ESP) |
| RFC 2407 | Internet IP Security Domain of Interpretation for ISAKMP |
| RFC 2409 | Internet Key Exchange (IKE) |
| RFC 2410 | NULL Encryption Algorithm and Its Use with IPsec |
| RFC 2427 | Multiprotocol Interconnect over Frame Relay (obsoletes RFC 1294 and RFC 1490) |
| RFC 2451 | ESP CBC-Mode Cipher Algorithms |
| VINES 4.11 | BayRS works with the Banyan VINES 4.11 standard. BayRS Version 8.10 (and later) also supports VINES 5.50 sequenced routing. |

Flash Memory Cards Supported

You use Personal Computer Memory Card International Association (PCMCIA) flash memory cards to store the software image and the configuration files in Nortel Networks routers.



Note: See [“BayRS Version Flash Memory Requirements” on page 29](#) for the flash memory requirements by platform.

[Table 9](#) lists the flash memory cards approved for use.

Table 9. Approved Flash Memory Cards

| Size | Vendor | Part Number |
|------|------------------------------|-------------------|
| 4 MB | Advanced Micro Devices (AMD) | AMC004CFLKA-150 |
| | AMP | 797262-3 |
| | | 797263-2 |
| | Centennial | FL04M-20-11119 |
| | | FL04M-20-11138 |
| | | FL04M-20-11119-61 |
| | | FL04M-20-11119-67 |
| | Epson | HWB401BNX2 |
| | IBM | IBM1700400D1DA-25 |
| | Intel | IMC004FLSAQ1381 |

(continued)

Table 9. Approved Flash Memory Cards *(continued)*

| Size | Vendor | Part Number |
|-------|---------------------------|----------------------|
| 8 MB | AMD | AMC008CFLKA-150 |
| | | AMC008CFLKA-200 |
| | | AMC008CFLKA-250 |
| | | AMC008DFLKA-150 |
| | | AMC008DFLKA-200 |
| | | AMC008DFLKA-250 |
| | Centennial | FL08M-25-11119-01 |
| | | FL08M-15-11119-01 |
| | | FL08M-20-11138 |
| | | FL08M-20-11119-01 |
| | | FL08M-20-11119-61 |
| | | FL08M-20-11119-67 |
| | Centennial (Strata-Flash) | FL08M-20-11736-J5-61 |
| | Epson | HWB801BNX0 |
| | Intel | IMC008FLSP/Q1422 |
| 16 MB | Epson | HWB161BNX2 |
| | Centennial (Strata-Flash) | FL16M-20-11736-J5-61 |
| | | FL16M-20-11119-61 |
| | | FL16M-20-11119-67 |
| 32 MB | Centennial | FL32M-20-11119-61 |
| | | FL32M-20-11119-67 |
| | | FL32M-20-11736-J5-61 |