Release Note

Software Release 2.1.3 for Rapier Switches and AR800 Series Modular Switching Routers

Contents

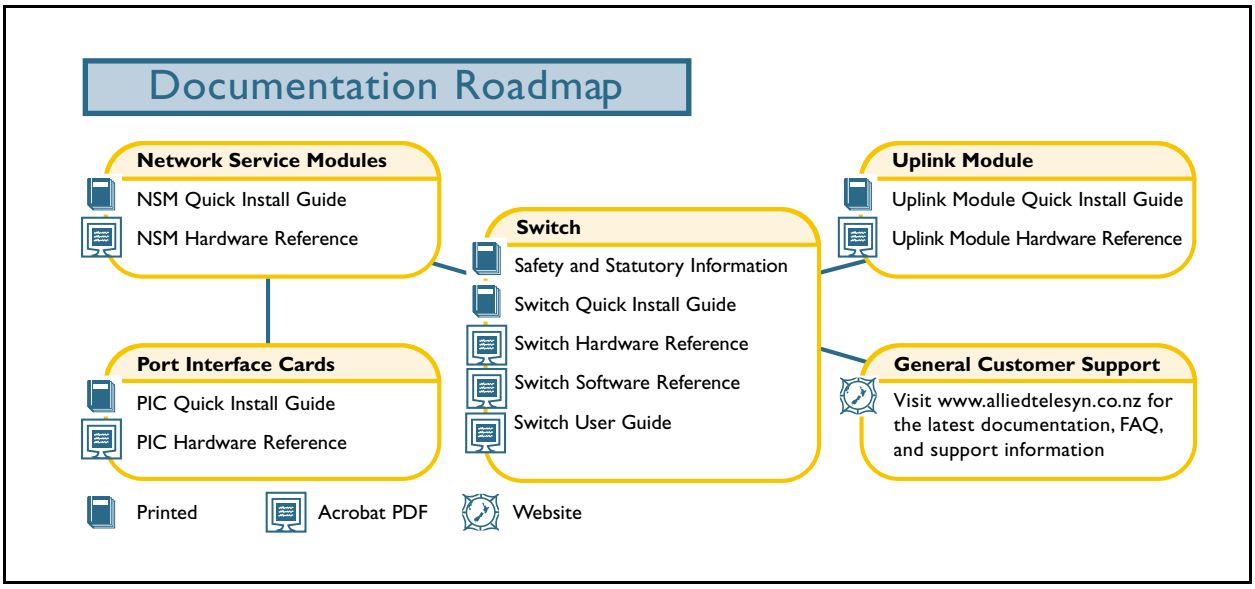
Introduction

Allied Telesyn International announces the release of Software Release 2.1.3 on new and existing models of layer 3 managed switches and switching routers. This release note describes the new features and enhancements to the AR800 Series Modular Switching Router, and the Rapier Layer 3 switches in Software Release 2.1.3. It should be read in conjunction with the Quick Install Guide, Hardware Reference, User Guide and Software Reference for your switch. These documents can be found on the Documentation and Tools CD-ROM packaged with your switch, or on the support site for your switch: www.alliedtelesyn.co.nz/support/rapier/ or www.alliedtelesyn.co.nz/support/ar800/.

The following hardware platforms are supported by Software Release 2.1.3:

- Rapier 24
- Rapier 16F/SC
- Rapier 16F/MT
- Rapier 8/8SC
- Rapier 8/8MT
- AR824
- AR816F/SC
- AR816F/MT

WARNING: Information in this release note is subject to change without notice and does not represent a commitment on the part of Allied Telesyn International. While every effort has been made to ensure that the information contained within this document and the features and changes described are accurate, Allied Telesyn International can not accept any type of liability for errors in, or omissions arising from the use of this information.



Hardware platforms

This section provides an overview of hardware features for the Rapier Layer 3 switches and AR800 Series modular switching routers.

Rapier Layer 3 switches and AR800 Series switching routers deliver wire speed Layer 2 and Layer 3 switching with low-latency high-bandwidth traffic capabilities. The range of models allows the user to choose the port connectors, expansion options and advanced features required for their network.

The following models are available:

- These Rapier Layer 3 Gigabit switches have an NSM bay for WAN expansion options.
  - Rapier 24
  - Rapier 16F/SC
  - Rapier 16F/MT
  - Rapier 8/8SC
  - Rapier 8/8MT
- The AR800 Series Modular Switching Routers include an NSM bay for WAN expansion options, and software support for advanced features.
  - AR824
  - AR816F/SC
  - AR816F/MT

Common features

The following features are common to all Rapier switches and AR800 Series switching routers.

Dimensions

- Height 66 mm (plus 5.5 mm if the rubber feet are used)
- Width 440 mm (excluding rack-mounting brackets)
- Depth 360 mm
- Weight 6.1 kg (excluding uplink modules and power cord)

Mounting System

- 1.5U rack mounting

Environmental Conditions

- Operating temperature range: 0 to 40º C (32 to 104º F)
- Storage temperature range: -25 to 70º C (-13 to 158º F)
- Relative humidity range: 5 to 95% non-condensing

Regulatory Standards

- EMC: CISPR22 class A, FCC class A, and VCCI class I
- Immunity testing to EN50082 levels 2 (ESD), 3 (susceptibility), 4 (fast transients), 5 (power surge), and 6 (RF immunity)
- Safety: UL1950, CSA22.2, EN60950 and CE

LEDs

- Ethernet port and System status LEDs

Power Supply Unit for AC models

- Universal 110-240 VAC 50-60 Hz input
- Redundant DC Power connection

Power Supply Unit for DC models

- 48 VDC (39-60 VDC is acceptable)
- Accepts positive or negative earthing (grounding)

Switching Core

- Broadcom BCM5600
- Non-blocking Layer 2 and Layer 3 IP switching

Processing Core

- 200 MHz RISC processor
- 32 MBytes Synchronous DRAM
- 6 Mbytes FLASH memory
- 128 KBytes non-volatile storage (battery backed SRAM)

Asynchronous Serial Port

- Up to 115 Kbps
- Standard DB9 female RS-232 connector
- Hardware flow control

PCI Accelerator Card (PAC) Slot

- For future 32-bit PCI based hardware Encryption and Compression Card

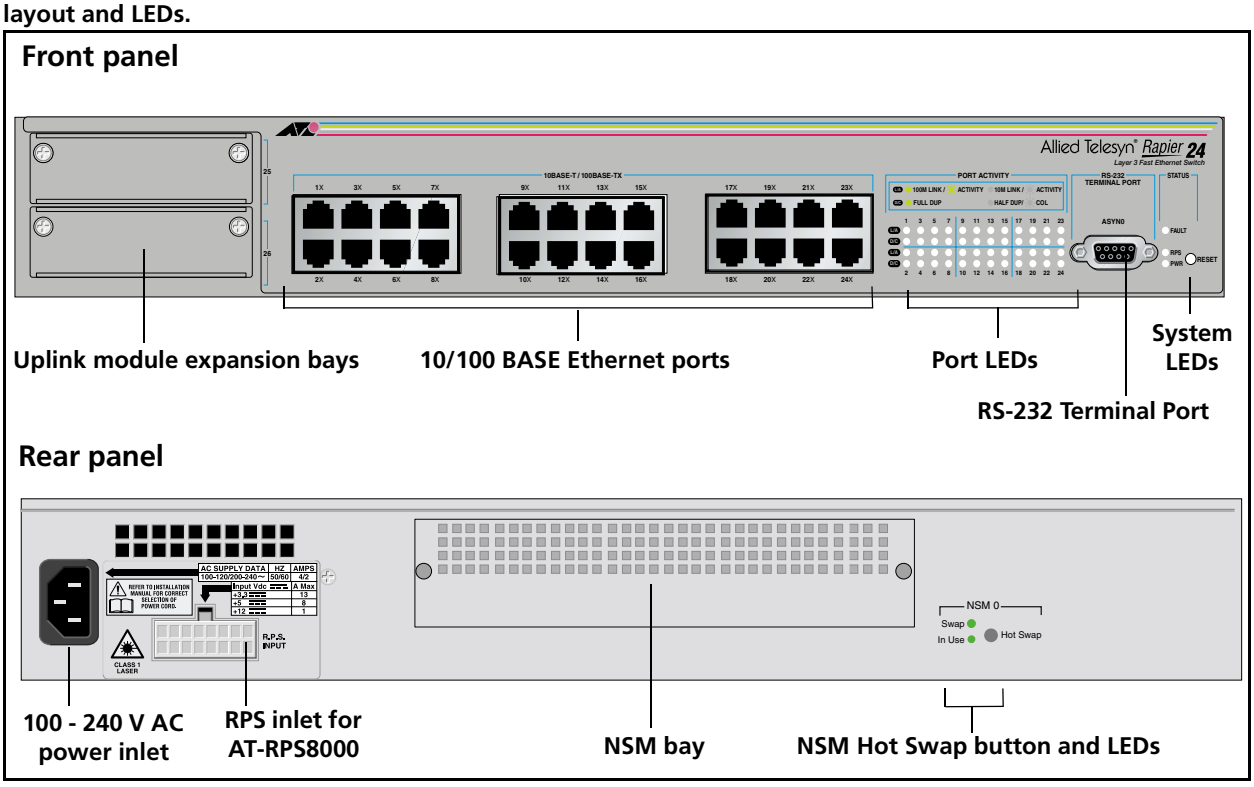
Uplink Module Bays

- 2 very high performance bays
- Support for 1 Gigabit Ethernet Uplink Modules

Rapier 24

- 24-port 10BASE-T/100BASE-TX (RJ-45 connectors)
- Two 1000BASE Uplink Module bays
- One Network Service Module bay (with support for various WAN interface cards)

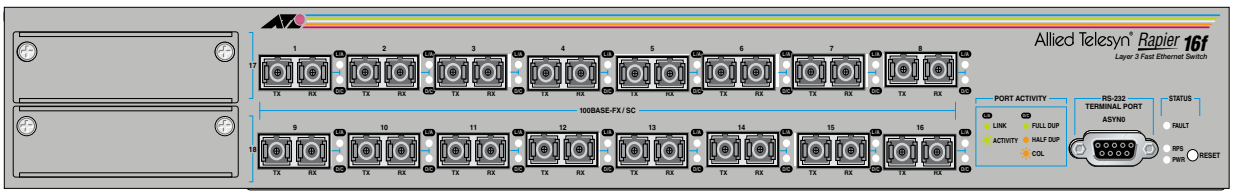
Figure 1: Front and rear panels of the Rapier 24 (AC model). All current Rapier models have the same rear panel layout and LEDs.



Rapier 16F/SC

- 16-port 100BASE-FX (SC fibre connectors)
- Two 1000BASE expansion bays
- One Network Service Module bay (with support for various WAN interface cards)

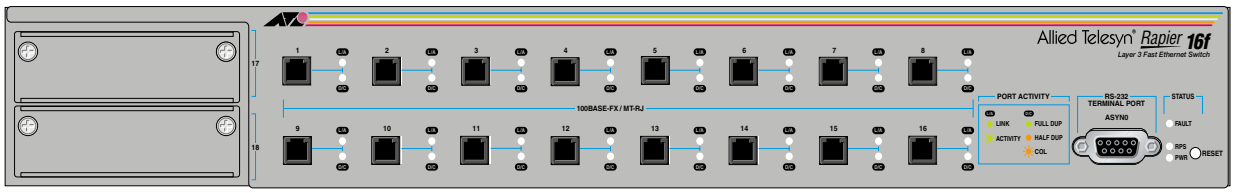
Figure 2: Front panel of the Rapier16F/SC.



Rapier 16F/MT

- 16-port 100BASE-FX (MT-RJ fibre connectors)
- Two 1000BASE expansion bays
- One Network Service Module bay (with support for various WAN interface cards)

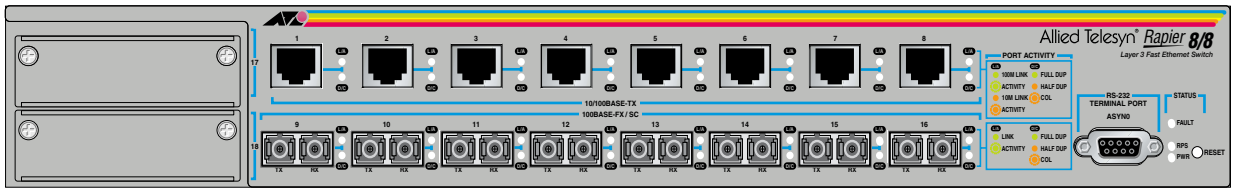
Figure 3: Front panel of the Rapier16F/MT.



Rapier 8/8SC

- 8-port 10BASE-T/100BASE-TX (RJ-45 connectors)
- 8-port 100BASE-FX (SC fibre connectors)
- Two 1000BASE expansion bays
- One Network Service Module bay (with support for various WAN interface cards)

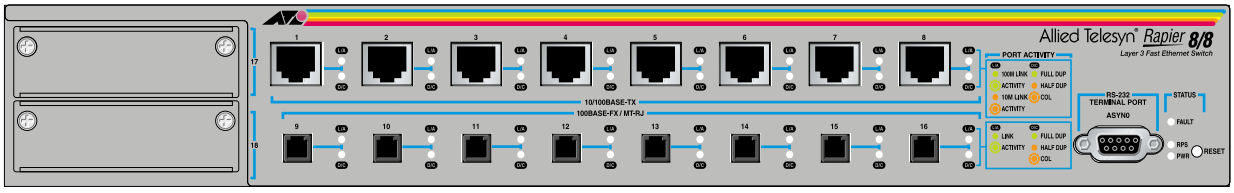
Figure 4: Front panel of the Rapier 8/8Sc.



Rapier 8/8MT

- 8-port 10BASE-T/100BASE-TX (RJ-45 connectors)
- 8-port 100BASE-FX (MT-RJ fibre connectors)
- Two 1000BASE expansion bays
- One Network Service Module bay (with support for various WAN interface cards)

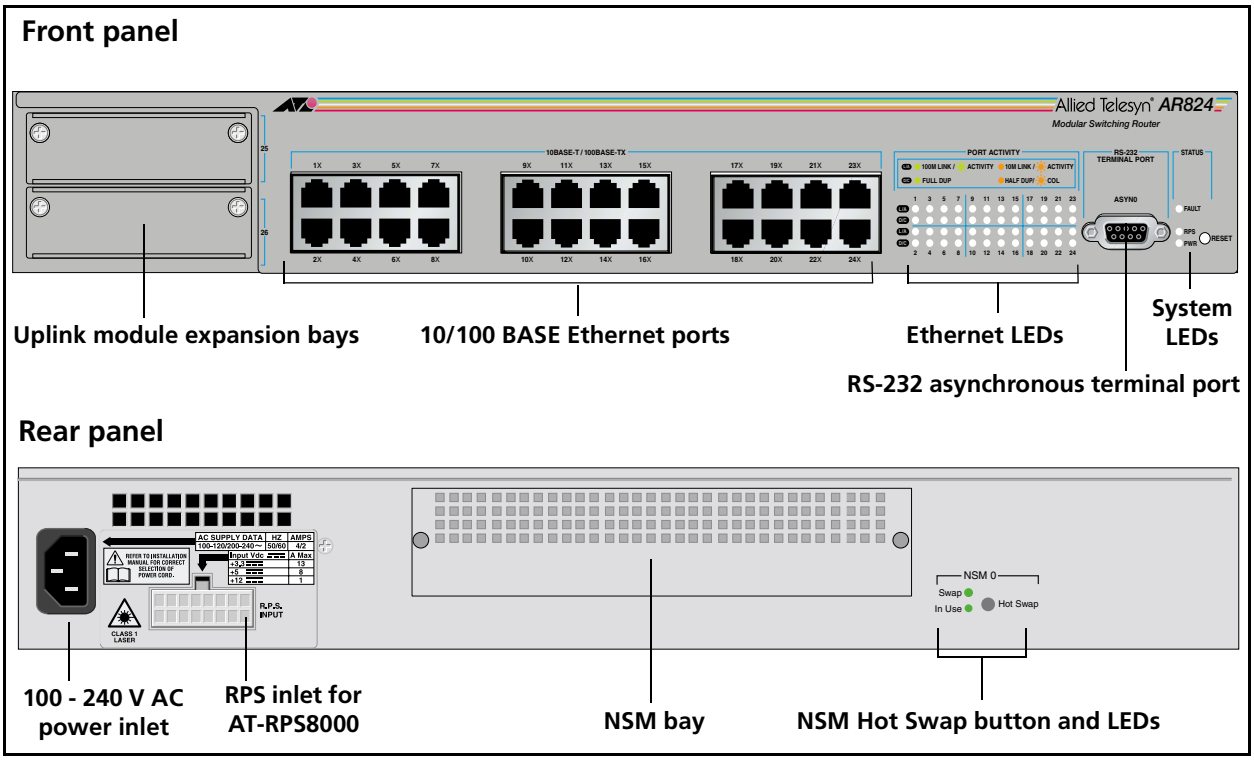
Figure 5: Front panel of the Rapier 8/8MT.



AR824

- 24-port 10BASE-T/100BASE-TX (RJ-45 connectors)
- Two 1000BASE Uplink Module bays
- One Network Service Module bay (with support for various WAN interface cards)

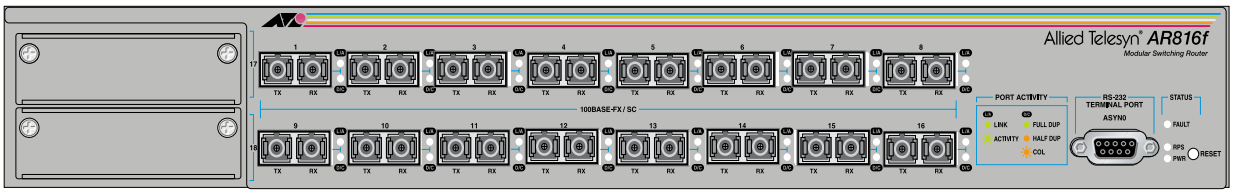
Front and rear panels of the AR824 (AC model). All current AR800 Series models have the same rear panel layout and LEDs.



AR816F/SC

- 16-port 100BASE-FX (SC fibre connectors)
- Two 1000BASE expansion bays
- One Network Service Module bay (with support for various WAN interface cards)

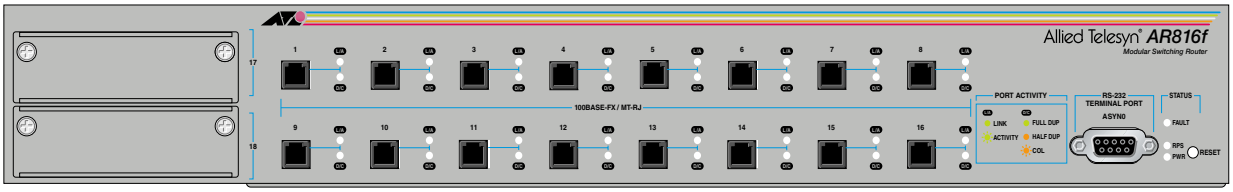
Figure 6: Front panel of the AR816F/SC.



AR816F/MT

- 16-port 100BASE-FX (MT-RJ fibre connectors)
- Two 1000BASE expansion bays
- One Network Service Module bay (with support for various WAN interface cards)

Figure 7: Front panel of the AR816F/MT.



Expansion Options

Network Service Modules (NSMs)

The NSM bay in the AR800 Series switching router and Rapier switch accommodates Allied Telesyn's *Network Service Modules* (NSMs). NSMs are designed to support high speed LAN/WAN technologies. The NSM uses a 32Mhz 32-bit PCI style bus for high speed data applications. The first NSM available is:

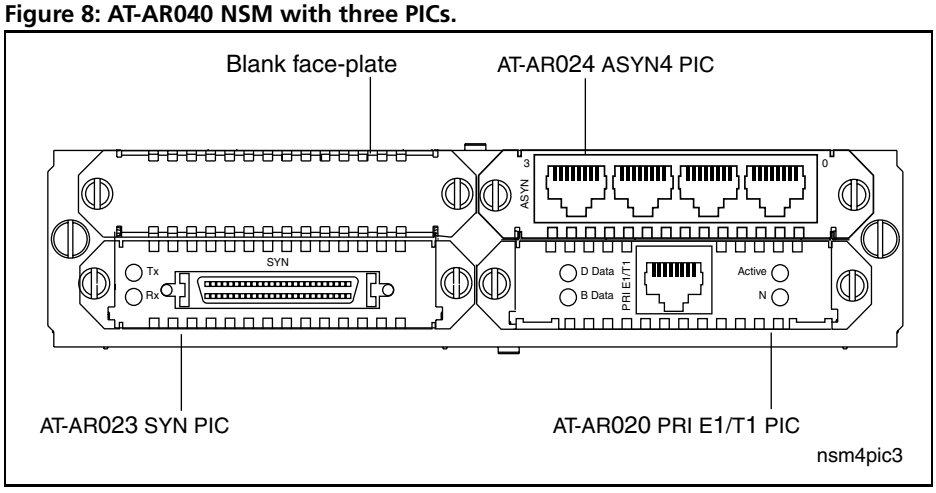
- AT-AR040 4-PIC NSM, 4 PIC bays

NSMs are also supported on Allied Telesyn's AT-AR740 router.

AT-AR040 NSM

The AT-AR040 provides four Port Interface Card (PIC) slots (Figure 8 on page 8).

Figure 8: AT-AR040 NSM with three PICs.



This NSM supports combinations of the following PICs (with a maximum of 2 E1/T1/PRI cards):

- AT-AR020 PRI E1/T1 (Primary Rate ISDN)
- AT-AR021 (S) BRI-S/T (Basic Rate ISDN S/T)
- AT-AR021 (U) BRI-U (Basic Rate ISDN U)
- AT-AR022 ETH PIC (Ethernet 10BASET/AUI port)
- AT-AR023 SYN (Synchronous RS-232/X21/V35 DCE/DTE to 2Mps)
- AT-AR024 ASYN4 (4 x Asynchronous)
- AT-AR025 PRI E1 PIC, 1 Primary Rate/G.703 E1 port

These PICs can also be used in the PIC bays on the AT-AR720 router.

Uplink Modules

Uplink modules allow you to connect switches together. The following uplink modules are available:

- AT-A35/SX 1-port 1000BASE-SX (SC fibre connector)
- AT-A35/LX 1-port 1000BASE-LX (SC fibre connector)

Software Release 2.1.3

Software Release 2.1.3 supports the following switch and router models with access via the command line interface and SNMP:

- Rapier 24
- Rapier 16F/SC
- Rapier 16F/MT
- Rapier 8/8SC
- Rapier 8/8MT
- AR824
- AR816F/SC
- AR816F/MT

Advanced Feature Licence FL3 Upgrade

The Rapier FL3 Upgrade licence AT-RPFL3Upgrade may be purchased to provide full Layer 3 features on Rapier switches. These features are automatically enabled on the AR800 Series. The FL3 Upgrade licence provides the following additional features:

- IPX routing
- Demand IPX
- IPX/SPX Spoofing
- IPX Filtering (not between switch ports)
- AppleTalk routing
- Resource Reservation Protocol (RSVP).

Future releases of the FL3 Upgrade licence will also provide the following features:

- IGMP
- DVMRP
- PIM Dense Mode
- PIM Sparse Mode

Graphical User Interface (GUI)

A web-based GUI has improved performance, and now supports the AR824 in addition to the Rapier 24. The GUI is now enabled by default on these models. Other models are configured using the command line interface.

New and Changed Features

Layer 3 Switch Filters

The MATCH parameter in the ADD and SET SWITCH L3FILTER MATCH commands have a TCPACK option for specifying that the filter entries will apply to packets matching the value of the TCPACK parameter in the filter entry.

The parameters for configuring layer 3 switch filters on ingress and egress ports have been modified in Release 2.1.3. The IMPORT and EMPORT parameters in the ADD or SET SWITCH L3FILTER MATCH commands determine whether a layer 3 switch filter applies to ingress or egress ports, while the specific ingress or egress ports are determined by the filter entries.

```
ADD SWITCH L3FILTER
    MATCH={TOS|TTL|PROTOCOL|SIPADDR|DIPADDR|TCPSPORT|
    TCPDPORT|TCPSYN|TCPACK|TCPFIN|UDPSPORT|UDPDPORT}[,...]
    [SCLASS={A|B|C|HOST}] [DCLASS={A|B|C|HOST}]
    [IMPORT={YES|NO|ON|OFF|TRUE|FALSE}]
    [EMPORT={YES|NO|ON|OFF|TRUE|FALSE}]

SET SWITCH L3FILTER=filter-id
    MATCH={TOS|TTL|PROTOCOL|SIPADDR|DIPADDR|TCPSPORT|TCPDPORT
    |TCPSYN|TCPACK|TCPFIN|UDPSPORT|UDPDPORT}[,...]
    [SCLASS={A|B|C|HOST}] [DCLASS={A|B|C|HOST}]
    [IMPORT={YES|NO|ON|OFF|TRUE|FALSE}]
    [EMPORT={YES|NO|ON|OFF|TRUE|FALSE}]
```

The IMPORT parameter specifies whether the filter will apply to all ingress ports or only to a particular ingress port specified in a filter entry. If NO, OFF or FALSE is specified, the filter will be applied to all ingress ports. If YES, ON or TRUE is specified, the filter will apply only to the ingress port specified by the IPORT parameter in the ADD or SET SWITCH L3FILTER ENTRY command. The default is FALSE, that is, the filter applies to all ingress ports.

The EMPORT parameter specifies whether the filter will apply to all egress ports or only to a particular egress port specified in a filter entry. If NO, OFF or FALSE is specified, the filter will be applied to all egress ports. If YES, ON or TRUE is specified, the filter will apply only to the egress port specified by the EPORT parameter in the ADD or SET SWITCH L3FILTER ENTRY command. The default is FALSE, that is, the filter applies to all egress ports.

The default value for the ACTION parameter in the ADD and SET SWITCH L3FILTER ENTRY commands has changed from DENY to FORWARD. If FORWARD is specified, or if no action is specified, the packet is now forwarded using the default Class of Service (priority).

```
ADD SWITCH L3FILTER=filter-id ENTRY [TOS=number] [TTL=number]
    [PROTOCOL={TCP|UDP|ICMP|IGMP|protocol}] [SIPADDR=ipadd]
    [DIPADDR=ipadd] [TCPSPORT=port-id] [TCPDPORT=port-id]
    [TCPSYN={TRUE|FALSE}] [TCPACK={TRUE|FALSE}]
    [TCPFIN={TRUE|FALSE}] [UDPSPORT=port-id]
    [UDPDPORT=port-id] [IPORT=port-number] [EPORT=port-number]
    [PRIORITY=0…7] [PORT=port-number] [NEWTOS=number]
    [ACTION={SETPRIORITY|SENDCOS|SETTOS|DENY|
    SENDEPORT|SENDMIRROR|FORWARD}[,…]]

SET SWITCH L3FILTER=filter-id ENTRY=entry-id [TOS=number]
    [TTL=number] [PROTOCOL={TCP|UDP|ICMP|IGMP|protocol}]
    [SIPADDR=ipadd] [DIPADDR=ipadd] [TCPSPORT=port-id]
    [TCPDPORT=port-id] [TCPSYN={TRUE|FALSE}]
    [TCPACK={TRUE|FALSE}] [TCPFIN={TRUE|FALSE}]
    [UDPSPORT=port-id] [UDPDPORT=port-id] [IPORT=port-number]
    [EPORT=port-number] [PRIORITY=0…7] [PORT=port-number]
    [NEWTOS=number] [ACTION={SETPRIORITY|SENDCOS|SETTOS|
    DENY|SENDEPORT|SENDMIRROR|FORWARD}[,…]]
```

The IPORT parameter specifies the ingress port number to be matched by this filter entry, if the IMPORT parameter in the filter is set to TRUE. The default is no port, that is, the filter entry does not apply to any ingress ports. If the IMPORT parameter in the filter is set to FALSE, the IPORT parameter is ignored, and the filter entry applies to all ingress ports.

The EPORT parameter specifies the egress port number to be matched by this filter entry, if the EMPORT parameter in the filter is set to TRUE. The default is no port, that is, the filter entry does not apply to any egress ports. If the EMPORT parameter in the filter is set to FALSE, the EPORT parameter is ignored, and the filter entry applies to all egress ports.

This parameter is required if the EMPORT parameter in the ADD or SET SWITCH L3FILTER MATCH command is set to TRUE. Otherwise, the filter applies to no egress ports.

The TCPACK parameter specifies the ACK (acknowledgement) flag in the TCP header to match. This parameter is required if TCPACK is specified in the ADD or SET SWITCH L3FILTER MATCH parameter.

The new IMPORT and EMPORT parameter values are displayed in the output from the SHOW SWITCH L3FILTER command.

The ACTION parameter in the SHOW SWITCH L3FILTER command now shows abbreviated actions: “sp” (SETPRIORITY), “sc” (FORWARD or SENDCOS), “st” SETTOS, “dn” (DENY), “se” SENDEPORT), or “sm” (SENDMIRROR).

Figure 9: Example output from the SHOW SWITCH L3FILTER command.

```
Filter ............... 1
Matched fields ....... tos, ttl, sipaddr, dipaddr, protocol
Source address mask .. 255.255.255.0
Dest. address mask ... 255.255.255.0
Ingress port mask .... TRUE
Egress port mask ..... TRUE
Ent.  S-Address           D-Address      Prot   TTL  TOS  NewTOS  Priority
      S-Mask              D-Mask         Iport  Eport     Port    Syn/Ack/Fin
      S-Port              D-Port         Action
-------------------------------------------------------------------------------
1     192.168.1.0         192.168.2.0    ICMP   30   2    1       0
      255.255.255.0       255.255.255.0  2      3                 0/0/0
      -                   -              dn
-------------------------------------------------------------------------------
2     192.168.2.0         192.168.1.0    ICMP   30   2    1       0
      255.255.255.0       255.255.255.0  2      3                 0/0/0
      -                   -              sc
-------------------------------------------------------------------------------
```

Table 1: New and modified parameters in the output of the SHOW SWITCH L3FILTER command.

Parameter	Meaning
Ingress port mask	Whether or not the filter applies to ingress ports. One of "TRUE" or "FALSE".
Egress port mask	Whether or not the filter applies to egress ports. One of "TRUE" or "FALSE".
Action	The action to take when a packet matches this entry; one of "sp" (SETPRIORITY), "sc" (FORWARD or SENDCOS), "st" SETTOS, "cp" (CPUCOPY), "dn" (DENY), "se" SENDEPORT), or "sm" (SENDMIRROR).

STP

If the STP pathcost parameter is left at its default value, it is updated automatically when the port speed changes from 10 to 100 Mbps or 100 to 10 Mbps. If the pathcost parameter is manually set to another value, it does not automatically update. The default, and hence the automatic updating feature, can be restored using the command:

```
SET STP PORT={port-list|ALL} [DEFAULT]
```

IP

The RESET IP command now causes a warm start trap. For more information about traps, see the Simple Network Management Protocol (SNMP) chapter in the Software Reference for your switch.

The SHOW IP IGMP command now displays group membership, as well as ports listening to the multicast group.

Figure 10: Example output from the SHOW IP IGMP command.

```
IGMP Protocol
--------------------------------------------------------------------------------
Status ........................... Enabled
Default Query Interval ........... 125 secs
Default Timeout Interval ......... 270 secs

Interface Name .......... vlan10              (DR)
Group List ..............
    Group. 224.0.1.17          Last Adv. 192.168.1.130       Refresh time 27
           1,2,3
    Group. 224.0.1.43          Last Adv. 192.168.1.130       Refresh time 27
           7,8
    Group. 224.0.1.66          Last Adv. 192.168.1.140       Refresh time 27
           4,5,6
--------------------------------------------------------------------------------
```

The SHOW IP INTERFACE command now indicates that a VLAN interface is operationally down by displaying the hash symbol "#" after the VLAN identifier.

When the router is configured as a DHCP client, it can now receive a domain name parameter from the DHCP server, in addition to the IP address and mask, DNS, and gateway parameters.

VLAN status changes (between all ports down state and at least one port up state) are now reported to IP. This aids IP routing performance, and the routing process over VLANs now responds more sensitively to topology changes.

OSPF

OSPF, which was not present in Release 2.1.2, is now a part of the switch release. OSPF now supports VLAN interfaces.

```
ADD OSPF INTERFACE=interface AREA={BACKBONE|area-number}
    [other OSPF parameters...]
```

where *interface* is an interface name formed by concatenating an interface type and an interface instance. Valid interface names are interfaces defined for IP, e.g. eth0, vlan1 (the VLAN with VLAN identifier 1), fr1, ppp2, or a unique virtual interface instance, e.g. virt9.

For more information about OSPF, download the OSPF document from the support site for your switch: *www.alliedtelesyn.co.nz/support/rapier/docs.html* or *www.alliedtelesyn.co.nz/support/ar800/docs.html*.

SNMP

The switch now generates a cold start TRAP at boot. For more information about traps, see the Simple Network Management Protocol (SNMP) chapter in the Software Reference for your switch.

VRRP

VRRP now operates over VLAN interfaces, as well as WAN ports.

```
CREATE VRRP=vr-identifier OVER=physical-interface
    IPADDRESS=ipadd [ADINTERVAL=1..255]
    [AUTHENTICATION={NONE|PLAINTEXT}] [PASSWORD=password]
    [PREEMPT={ON|OFF}] [PRIORITY=1..254]
```

where *physical-interface* is ETH*n* or VLAN*n*.

Firewall

The Firewall session timeouts are now shown in seconds.

Resolved Issues

Error messages are now generated if a user attempts to configure a port with an invalid port speed.

Improvements and enhancements have been made to:

- DHCP
- Firewall
- ARP over VLANs
- Priority filtering
- RIP-2 authentication
- STP
- Switch drivers, including intrusion detection, MAC address learning, broadcast packets, and handling of disabled ports.
- Memory usage in Telnet

Limitations

There are web-based GUIs for the Rapier 24 and the AR824 only. The GUI viewed with a web browser on Windows NT, while it correctly configures the switch, may display some extraneous characters.

Availability

Software Release 2.1.3 is available immediately as a FLASH release for upgrading existing switches and switching routers. The release file can be downloaded directly from the Allied Telesyn support site for your switch: *www.alliedtelesyn.co.nz/support/rapier/* or *www.alliedtelesyn.co.nz/support/ar800/*.

Software releases must be licenced and require a password to activate. To obtain a licence and password, download a Software Upgrade request form from the Software Updates area of the Allied Telesyn web site at *www.alliedtelesyn.co.nz/support/updates/patches.html*, complete the form, and contact your authorised Allied Telesyn distributor or reseller.

Installation

There are no issues upgrading from Software Release 2.1.1 or 2.1.2 to Software Release 2.1.3.