SunATM™ 3.0 Update 1 Release Notes

THE NETWORK IS THE COMPUTER™

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Declaration of Conformity

Compliance ID: 155MMF

Product Name: SunATM/P 155 MMF

This product has been tested and complies with:

EMC

European Union—EC

This equipment complies with the following requirements of the EMC Directive 89/336/EEC:

EN55022 / CISPR22 (1985)		Class A
EN50082-1	IEC801-2 (1991)	4 kV (Direct), 8 kV (Air)
	IEC801-3 (1984)	3 V/m
	IEC801-4 (1988)	1.0 kV Power Lines, 0.5 kV Signal Lines
EN61000-3-2/IEC1000-3-2(1994)		Pass

Safety

This equipment complies with the following requirements of the Low Voltage Directive 73/23/EEC:

EN60950/IEC950 (1993)

Supplementary Information

This product was tested and complies with all the requirements for the CE Mark when connected to a Sun workstation or server.

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Declaration of Conformity

Compliance ID: 155UTP

Product Name: SunATM/P 155 UTP

This product has been tested and complies with:

EMC

European Union—EC

This equipment complies with the following requirements of the EMC Directive 89/336/EEC:

EN55022 / CISPR22 (1985)		Class A
EN50082-1	IEC801-2 (1991)	4 kV (Direct), 8 kV (Air)
	IEC801-3 (1984)	3 V/m
	IEC801-4 (1988)	1.0 kV Power Lines, 0.5 kV Signal Lines
EN61000-3-2/IEC1000-3-2(1994)		Pass

Safety

This equipment complies with the following requirements of the Low Voltage Directive 73/23/EEC:

EN60950/IEC950 (1993)

Supplementary Information

This product was tested and complies with all the requirements for the CE Mark when connected to a Sun workstation or server.

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Declaration of Conformity

Compliance ID: 622MMF

Product Name: SunATM/P 622 MMF

This product has been tested and complies with the following EMC and Safety standards:

EMC

European Union—EC

This equipment complies with the following requirements of the EMC Directive 89/336/EEC:

EN55022 / CISPR22 (1985)		Class A
EN50082-1	IEC801-2 (1991)	4 kV (direct), 8 kV (air)
	IEC801-3 (1984)	3 V/m
	IEC801-4 (1988)	1.0 kV power lines, 0.5 kV signal lines
EN61000-3-2/IEC1000-3-2 (1994)		Pass

Safety

This equipment complies with the following requirements of the Low Voltage Directive 73/23/EEC:

EN60950/IEC950 (1993)

Supplementary Information

This product was tested and complies with all the requirements for the CE Mark when connected to a Sun workstation or server.

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SunATM 3.0 Update 1 Release Notes

These release notes contain the late-breaking news for the SunATM™ 3.0 Update 1 hardware and software release.

Documentation Changes

This section addresses changes to the *SunATM 3.0 Installation and User's Guide*.

Classical IP and LAN Emulation Protocols

Chapter 6 inaccurately describes the `atmplumb` command as a method for unplumbing a SunATM interface. Unplumbing SunATM interfaces is not supported.

The `atmplumb` command has been replaced by the `atmsetup(1M)` command, which provides a plumb option for SunATM interfaces. Refer to the `atmsetup(1M)` man page for more information.

Number of SunATM Adapters Per System

TABLE 1 lists the number of SunATM/P 155 and SunATM/P 622 adapters tested per Sun™ system. The SunATM 3.0 Update 1 software is supported on systems running the Solaris™ operating environment, revisions 2.5.1 and 2.6.

TABLE 1 Number of SunATM/P Adapters Tested Per Sun System

Sun™ System	Number of SunATM/P 155 Adapters	OR	Number of SunATM/P 622 Adapters
Ultra™ 30	2		1
Ultra Enterprise™ 450	4		3
Ultra Enterprise 3000	4		2
Ultra Enterprise 4000/5000	4		3
Ultra Enterprise 6000	4		4

The SunATM/P 155 or SunATM/P 622 adapters can be inserted into any PCI slot (33Mhz or 66Mhz) on a Sun system. However, the adapters do not fit properly into Slot 10 (A1) of the Ultra Enterprise 450 server due to a mechanical issue. You can still install an adapter into any of the other nine PCI slots on the Ultra Enterprise 450 server.

Note – Because the SunATM/P 155 and SunATM/P 622 adapters have the same device driver name as the SunATM-155 and SunATM-622 SBus adapters, you cannot currently mix SunATM SBus and PCI adapters on the same system.

Using Address Resolution Protocol (ARP)

Since the Classical Internet Protocol (IP) network model resolves IP-to-ATM address pairs, rather than IP-to-MAC address pairs, the `/usr/sbin/arp` command does not support Classical IP interfaces at this time. A version of the `arp` command, `/etc/opt/SUNWatm/bin/atmarp`, is available to provide similar functionality for Classical IP interfaces. Refer to the `atmarp(1M)` man page for more information.

Using the snoop Command

The /usr/sbin/snoop command, which can be used to detect network problems, does not support SunATM interfaces at this time. A version of the snoop command, /etc/opt/SUNWatm/bin/atmsnoop, is available to provide this support. Refer to the atmsnoop(1M) man page for more information.

Setting the Trap Port for SNMP with Solaris 2.6

Because of changes in the handling of SNMP agents introduced in the Solaris 2.6 software, the trap port for the ATM SNMP agent must be manually set to 162 by modifying the SunATM startup script, /etc/rc2.d/S00sunatm. The line that starts up atmsnmpd should be changed to:

```
/etc/opt/SUNWatm/bin/atmsnmpd -p $PORT -t 162
```

Using a Router with Classical IP and LAN Emulation (LANE)

Performance problems will occur while simultaneously using ATM Classical IP (default 9180 byte MTU) and LAN Emulation (default 1500 byte MTU) links in a router. If a TCP connection is setup using one interface in one direction and the other interface in the opposite direction, TCP will be confused about the maximum packet size.

For example, suppose a TCP connection is setup between Host A and Host B, where packets from Host A travel to Host B over the LANE interface and packets from Host B travel to Host A travel over the Classical IP interface. Host A will attempt to send a 9180 byte packet which cannot traverse the LANE network to Host B. TCP will recover from this error and retransmit the packet but a significant performance loss will be noted.

Possible workarounds to improve performance are:

- Using the `ifconfig(1M)` utility, adjust the MTU size at the higher (IP) layer to 1500 bytes, thereby limiting the IP MTU size of the Classical IP link to 1500 bytes. This will resolve the TCP confusion caused by different MTU sizes. (Note that it is not possible to adjust the Classical IP MTU size directly).
- Depending upon the network topology, adjust the routing table on Host B to ensure that the route back to Host A points to the LANE interface.

This problem is not unique to ATM networks. It may affect any network configuration that has multiple routes with differing MTUs (such as FDDI and Ethernet or Token Ring). The problem is more pronounced with ATM subnets due to the different default MTUs of Classical IP and LANE.

Using Switches That Have a High Number of Registered Addresses

In some cases, if a switch with a high number of registered addresses reboots, some hosts may not be able to register their addresses properly when the switch restarts. This is due to the very high level of address registration traffic. If address registration fails, an error message will be printed, either on the console or to the `syslog`, indicating the failure and specifying the address and ATM interface.

If an error state is observed where address registration fails for one or more of a SunATM adapter's addresses, the interface may be unable to bring up its LAN Emulation Client or Classical IP server or client. To resolve this problem, run `lanesetup(1M)`and `aarsetup(1M)`, respectively. If the user application is a native-ATM application, use the `atmreg(1M)` utility for address registration. Refer to the `lanesetup(1M), aarsetup(1M)`, or `atmreg(1M)`man pages for more information.

Failed SunATM Adapters in Systems with Multiple SunATM Adapters

If a SunATM adapter fails in a system configured with multiple SunATM adapters, you will see `lanesetup` error messages and the interfaces will not be plumbed. To avoid this problem, remove all references to non-working adapters from the `/etc/atmconfig` file and all references to the interfaces of non-working adapters from the `/etc/laneconfig` file.

Dynamic Host Configuration Protocol (DHCP)

The SunATM 3.0 software supports Dynamic Host Configuration Protocol (DHCP) as stated in the *SunATM 3.0 Installation and User's Guide*; however, the SunATM 3.0 DHCP feature is not currently supported due to a problem with the DHCP server software. Refer to the bug report (bugid 4064489) for additional information.

Simple Server Redundancy Protocol (SSRP)

SunATM adapter software does not support Cisco System's SSRP for LAN Emulation.

SunATM and Solstice FireWall-1 3.0

The Solstice™ FireWall-1™ 3.0 product does not currently support the SunATM 3.0 release. Refer to bug report (bugid 4073989) for more information.

Increasing System Performance by Adjusting TCP/IP Parameters

Transmission Control Protocol/Internet Protocol (TCP/IP) performance over an ATM network can be poor unless you carefully configure your network. Poor performance usually occurs because the TCP/IP packets are segmented into cells for transmission by the ATM software. Therefore, a loss of a single cell can cause the loss of an entire TCP/IP packet resulting in retransmissions that may congest the network. When the destination system detects congestion, the system reduces the transmission rate, which significantly reduces the network performance.

You can achieve better network performance from the SunATM adapter and software by adjusting your application's socket buffer size to 48 Kbytes. Refer to the application's documentation for instructions on how to set the socket buffer size.

Improving the Performance of NFS Version 3

Note – These workarounds are for systems running the Solaris 2.5.1 operating environment only.

When running Network File System (NFS) Version 3 on a SunATM network, you may notice poor network performance. By default, the version of the NFS protocol used between the client and the server is the highest one available on both systems. If the client is using version 2.5.1 of the Solaris software environment, it will use the NFS Version 3 software to share resources. This section describes two workarounds which will improve the NFS Version 3 performance on a SunATM network.

Note – These workarounds only apply when using Classical IP over a SunATM network, or when LAN Emulation interfaces are configured to use a 9218 byte maximum transmission unit (MTU). These workarounds will not affect LAN Emulation interfaces using 1500 or 4528 MTU sizes. Use the `ifconfig -a` command to find out the MTU size of your LAN Emulation interfaces.

Refer to the bug report (bugid 1260524) for more information about this NFS Version 3 performance issue on Solaris 2.5.1 systems.

Decreasing the NFS Read and Write Buffer Sizes

The best way to increase NFS performance on a SunATM network is to decrease the read and write buffer sizes to 4096 bytes on NFS filesystems mounted over a SunATM network. To set the read and write buffer sizes to 4096 bytes, use the `rsize` and `wsize` parameters when mounting the NFS filesystem.

For example, to mount a NFS Version 3 filesystem on a SunATM network, type:

```
# mount -o rsize=4096,wsize=4096 server:/usr/src /usr/src
```

Setting the Driver Configurations

If the previous workaround does not solve your NFS performance problems, you can set the TCP receive highwater mark to 65535 bytes in order to increase NFS performance. Change this setting only if you cannot use the previous workaround.

To set the TCP receive highwater mark to 65535 bytes, use the `ndd` command:

```
# ndd -set /dev/tcp tcp_recv_hiwat 65535
```

This command should be performed each time you reboot, so you should add the entire `ndd` command shown above to the `/etc/rc2.d/S00sunatm` run control script. Refer to your Solaris documentation for more information about editing run control scripts.

Running `atmtest`

Running `atmtest` for extended periods of time (i.e., over a day) will cause the system to panic. This is the result of a known OS problem (see BugID 4102546) against Solaris 2.6 and occurs when `ddi_dma_mem_free()` is called on a little-endian page whose virtual address is equal to or greater than 0x80000000.