# Release Notes

**Product:** AMASS for UNIX® Version 5.4
**Operating Systems:** IBM® AIX 5.1 and 5.2 (32-bit only)
HP Tru64™ UNIX 5.1, 5.1A, and 5.1B
HP-UX® 11.00 (32-bit and 64-bit)
HP-UX® 11i (11.11) (32-bit and 64-bit) (PA-RISC only)
SGI IRIX® 6.5.16m - 6.5.23
Sun Solaris™ 8 and 9 (32-bit and 64-bit) (SPARC™ only)
**Date:** December 2004

## Contents



## Purpose of this Release

This release adds several new features and enhancements that extend the capabilities of AMASS for UNIX. These release notes list corrections to problems that were encountered in previous releases of AMASS for UNIX. Visit www.adic.com for additional information about AMASS for UNIX and previous releases.




*6-00031-05 Rev A*

# New Features

These features and enhancements are new in this release of AMASS for UNIX:

- **AMASS Read Only**—AMASS read only allows users to set AMASS to a read only state. You can read from AMASS, but not write or delete. To change the state to read only we use the `amasstat` command. The options are as follows:

  Usage: `amasstat [-aicfswuy] [-t sec]`

  - `-a` Changes filesystem to active status.
  - `-i` Changes filesystem to inactive status (reads and writes from/to open files continue).
  - `-r` Changes filesystem status to read only.
  - `-R` Changes filesystem status to read/write.
  - `-c` Checks current status, but do not change.
  - `-f` Forces status change even if timeout occurs.
  - `-s` Suppresses messages from kernel.
  - `-t` Time, in seconds, to wait for AMASS to go inactive.
  - `-u` Displays this usage message.
  - `-v` Displays the current AMASS version.
  - `-w` Disables writes to AMASS when inactive (reads from open files continue).
  - `-y` Suppresses confirmation and informational messages.

  If `-a`, `-i`, and `-c` are not specified, then the active status of the amass filesystem is toggled.

- **Cache Size**—AMASS supports up to 256 partitions and has been certified with up to 4 TB cache. The 4 TB cache budget may be spent on a single partition or dispersed among multiple partitions. In theory, each partition could use 4 TB cache, or up to 64 PB total; however, the total amount of cache among all partitions has only been certified up to 4 TB.

- **drivestat**—Three new command line options have been added to this tool.

  - `-r` Resets device runtime state flags to initial condition.
  - `-j` Resets device eject state flags to initial condition.

    The `-rj` option addresses a drive in an active state, but has no work scheduled for the drive. This situation arises after a volume, stuck in a drive, has been cleared offline. After restoring the drive to an active state, the drive remains idle. The `-rj` option will remove the drive state at the time of failure and restore the drive to its initial conditions. AMASS will assume and trust the operator to have cleared the drive and put the media away.

    The `-rj` option cannot be run on an active drive.

  - `-D` Displays detailed amass debug logging.

    The `-D` option has been a hidden option for several release cycles and one AMASS support person has instructed users how to use it. It is now part of the standard `-u` usage output.

    Usage: `drivestat -D` <*device-number*> <*juke-number*> <*debug-option*>; where <*debug-option*> is defined as the arithmetic sum of the following:

    - 0 = Resets all debug flags.
    - 1 = Sets scsi_debug flag.
    - 2 = Sets drvfd_debug flag.

- 4 = Sets scsi_verbose flag.
- 8 = Sets select_debug flag (in `libsched select_drive` function).
- 15 = ALL: 1+2+4+8

- **Enhanced Cache**—There are enhancements to the AMASS feature Enhanced Cache Control. The core of AMASS is a cache in which data is held prior to migrating to/from media. The cache is broke up into cache blocks whose size is configurable. Without the Enhanced Cache Control feature turned on, AMASS reuses cache blocks which are the oldest on the cache.

  With Enhanced Cache Control the cache blocks are allocated to cache block lists. Each of these lists can then be weighted to control from where cache blocks are acquired. The cache block lists are then associated with AMASS volume groups. AMASS volume groups allow users to group data in a AMASS directory with a set of volumes in the tape/optical library. When associating a volume group to a cache block list, the user can do so for read or writes. So once a file is written to cache, it is then migrated to tape, and could be made to persist in cache by having the file's volume group be associated with a highly weighted cache block list.

  - Eight cache block priority levels are maintained within the AMASS files system.
  - Cache block reallocation priorities are established on a volume group basis. No additional controls are provided for individual directories or files.
  - For each volume group, two cache list priorities (one through eight) are assigned. One list is assigned for reads and the other list is assigned for writes.
  - For a particular volume group, the priority can be changed dynamically for the read/write priority, but the new priority takes effect for cache blocks accessed or modified after the change.
  - Each cache list has an additional weighting factor that is used to compute a score for the cache block list. The score for a particular list is the weighting factor multiplied by the access time of the oldest cache block on the list.
  - A special weighting factor can be assigned specifying that all other cache lists should be searched before this list is searched. This stops the oldest cache block age from being used to create a score for a given cache list.
  - The weighting factor can be changed dynamically and the new settings immediately take effect.
  - If the weighting factor is assigned to multiple cache lists, an implied priority is established based on the cache list number (in other words, search the cache list with the lower priority level first).
  - **The special weight factor for list 1 CANNOT be set to zero.** Initially, all of the cache blocks available to the system live in the first list and setting the weight factor on this list causes undesired effects. Setting the weight to zero is interpreted by the system as ìonly use this list if no other cache blocks in the system are available.î The moment a file has been written to media and the cache blocks are put back on the free list, the blocks will be re-used immediately, even if there are thousands of unused cache blocks available on list one (with a weight of zero).
  - A cache block is reallocated from the list with the highest score for all eight cache priority lists.
  - All cache blocks exist on one list. Cache block reallocation occurs on a first-in-first-out basis.

- **medialist**—Users with large volumes can limit the medialist output to show only drive status.

  Usage: `./medialist [-v] [-j jukebox_number] [-D] [-V] [-T] [-M] [-x] [-j]`; where:

  - `-D` Shows Drive information only.
  - `-v` Shows barcode information (Valid only for SCSI attached libraries).
  - `-V` Shows volume information only.
  - `-T` Shows Transport information only (not valid for network attached library).
  - `-M` Shows Mailbox information only (not valid for network attached library).

- `-x` Turns on SCSI debugging.
- `-j` Directs the medialist command to jukebox ID rather than the default of 1.

- **Network Attached Libraries**—Enhancements to the network attached library interface include:
  - Reducing the number of 'query drive' commands thus softening the load on the XDI interface. A function to test the need to inquire about library drive status is added. If there are no drive candidates to service a pending IO request, the library query drive command is not called. This will reduce the load on the network library interface.
  - Releasing the shared memory semaphore across the library query drive command. Failure to do this will cause the entire AMASS system to lock up should a query drive command fail to complete (is hung).
  - Adding a feature that will time out a hung XDI command. This happens frequently in the presence of library errors.
  - Adding XDI failed mount/dismount retry option. XDI failed mounts and dismounts are retried 3 times before a drive/volume are taken out of service.

  The combination of these four fixes will prevent AMASS from locking up and loosing drive/volume resource in the presence of library errors.

  This new functionality is controlled by using the following environmental variables:
  - `AMASS_DISABLE_TEST_DRIVE` - should the reduction in queries to the drive cause undesired effects, this environmental variable will return AMASS to pre-fix default state that continually pings the library interface.
  - `AMASS_DRIVESTAT_TIMEOUT=<new_val_in_seconds>` - changes query drive time out from the default of 10 seconds to the value specified here.
  - `AMASS_STORE_TIMEOUT=<new_val_in_seconds>` - changes the library mount/dismount timeout from a default 360 seconds to the value specified here.
  - `AMASS_DISABLE_LIBTIMEOUT` - should the library timeout feature cause undesired effects, this environment variable will disable the feature.

 Note These environmental variables can be set in the shell in which AMASS is started or put directly in the amass_start script.

- **vgimport—**Importing and exporting large volume groups is expedited with the `-q` option.

  Usage: `vgimport [-yun] [-p path] [-v volumenumber(s) -or- -f volume_list_file]` filename; where:
  - `-q quick`; Do not verify NSR label against volume.
  - `-y` Suppress questions and informational messages.
  - `-u` Prints this usage message.
  - `-n` Parses the metadata file, but does not update the database.
  - `-p path` Specifies volume group root directory name.
  - `-v volumenumber` Specifies import volume number(s) (# #,# #-#).
  - `-f volume_list_file` Obtains volumes from input file (one volume per file line).
- **volstat**—New command line options have been added to this tool. The `volstat` command options now include:

  Usage: `volstat [-aifFsuy] <volume-number>`; where:
  - `-a` Changes volume status to active.

- `-i` Change volume status to inactive.
- `-f` Sets a tape volume to NOT FULL.

  Adds the value `vlk_maxxfr` found in `amass/scripts/amassconfig2` to the volume capacity.
- `-F` Sets a tape volume to FULL.
- `-s` Sets volume available (AVAIL) size (Mb)

  volstat -s <available size in Mb> <vol-num>
- `-u` Displays this usage message.
- `-y` Suppresses confirmation and informational messages.

If `-a` or `-i` are not specified, then the active status of the specified volume is toggled.

# Additional Support

Additional operating system support includes:

- AIX 5.2 (32-bit)
- HP Tru64 5.1B
- SGI IRIX 6.5.21m
- SGI IRIX 6.5.22m
- SGI IRIX 6.5.23

Additional drive support includes:

- AIT-3 WORM
- HP Ultra Density Optical (UDO)—optical format and in selected ux-series libraries
- IBM 3592
- Plasmon Ultra Density Optical (UDO)—optical format and in selected G-series libraries
- SDLT 320
- STK 9840B

Additional library support includes:

- ADIC Scalar 10K in a Dual Aisle configuration

  The current version of AMASS does not support the high availability and fail over feature sets of the Scalar 10K in a Dual Aisle configuration. AMASS does support the Scalar 10K in a Dual Aisle configuration as a large 10K library.
- HP Low-End UDO Libraries
  - 700ux 24 slots
  - 1100ux 38 slots
- HP Mid-Range UDO Libraries
  - 1000ux 32 slots
  - 1900ux 64 slots
  - 2300ux 76 slots
- HP High-End UDO Libraries

    - 3800ux 128 slots
    - 7100ux 238 slots
- Plasmon G-Series with UDO

  The Plasmon G-Series libraries were previously supported with optical drives.

  Mixing drive types within the library is not currently supported.

    - G64
    - G104
    - G164
    - G238
    - G438
    - G638

Additional firmware support includes:

- ACSLS 7.0
- ACSLS 7.1
- Scalar i2000 library M1 firmware
- Scalar i2000 library M2 firmware
- Scalar DLC 2.5 Service Pack 1

# Software Installation

Use the information provided in this section to upgrade your AMASS for UNIX to Version 5.4.

## System Requirements

The requirements identified here are necessary to support the installation of AMASS for UNIX Version 5.4:

| System/Component | Requirement |
|---|---|
| Operating System | • The operating system must always be run in US English.<br>• Your native operating system, and not AMASS, limits the maximum size of your files.<br>• AMASS supports only the maintenance (m) and not the feature (f) stream of IRIX 6.5.x.<br>• For operating systems in which both 32-bit and 64-bit versions of AMASS exist, the bit version of the AMASS API must match the bit version of the AMASS applications. |
| Server Platform | To obtain details on supported application server platforms, contact your AMASS sales representative. |

### Required Operating System Patch Levels

ADIC requires operating system patches to successfully operate AMASS. Obtain these patches from the appropriate vendor. To view a list of patches that are already installed on your machine, go to View Patches.

Note ADIC assumes that you have installed all of the patches that your vendor recommended for your kernel, operating system, network, hardware, and storage devices.

## View Patches

To view a list of the patches that are currently installed on your machine, enter the appropriate command listed in the following table.

| Operating System | Command or Path |
|---|---|
| AIX | `lslpp -h` |
| HP Tru64 UNIX | `setld -i` |
| HP-UX | `/usr/sbin/swlist -1 product PH\*` |
| IRIX | `versions \| grep patch` |
| Solaris | `showrev -p` |

# Compatibility Matrix

**AMASS 5.4 is compatible with DataMgr 3.6.2 and later.**

Refer to the following table for information on firmware compatibility with AMASS for UNIX Version 5.4:

| Description | | Firmware Level |
|---|---|---|
| **Library** | | |
| ADIC | Scalar 24 | 107A.GY002 |
| | Scalar 100 | 3.22.0003 |
| | Scalar 1000 | 601A.00001<br>2.23.0004 |
| | Scalar i2000 | 200A-GS01801 |
| | Scalar 10K<br>AMASS supports the Scalar 10K in a Dual Aisle configuration as a large 10K library. The current version of AMASS does not support the high availability and fail over feature sets of the Scalar 10K in a Dual Aisle configuration. | 210A.00003 |
| Ampex | DST 812 | R 003.02.p |
| DISC | 245<br>525 | 3.16 |
| HP | Model 4/48 | 1.02 |
| | Model 600 FX | 0.48 |
| Phillips | LMS LF-6600 | C05B |
| Plasmon | D-Series 875 | 3.01a |
| Plasmon | G-Series | 4004 |
| StorageTek | 97xx Series | 1.10L |
| | L-180 Series | 3.06.00 |
| **Library Interface** | | |
| | ACSLS for StorageTek | 7.1 |
| | DAS for ADIC AML Series | 3.12 |
| | LMCPD for IBM 3494 | 2.4.1.00 |
| | Scalar DLC for ADIC Scalar | 2.5 SP1 |
| **Drive** | | |
| Ampex | DST 312 | S 2.12bd |
| | DST 314 | 1535 |
| HP | HP UDO | 3.00 |

| Description | | Firmware Level |
|---|---|---|
| IBM | LTO-1 | 3643 |
| | LTO-2 | 42D1 |
| | 3590B1A Fibre | A_4EF |
| | 3590B1A SCSI<br>NOTE: An installed IBM 3590B1A tape drive in a StorageTek Silo ACS 4400 is seen by the ACSLS as a 9490 Timberline. | A_558 |
| | 3590E1A Fibre | D01F_2B9 |
| | 3590E1A SCSI | D01F_2B9 |
| | 3590H1A Fibre | F26E |
| | 3592 | 04A6 |
| Panasonic | SW-9571 Multi-Drive | A111 |
| Plasmon | Plasmon UDO | A027 |
| Quantum | DLT 4000 | 150 |
| | DLT 7000 | 276A |
| | DLT 8000 | 0250 |
| | SDLT 220 | 4646 |
| | SDLT 320 | 4646 |
| Sony | SDX-300C (AIT-1) | 04E5 |
| | SDX-500 (AIT-2)<br>(with or without WORM support) | 0200.CY10<br>To determine the minor release number (for instance, CY01), contact ATAC for assistance. |
| | SDX-700 (AIT-3)<br>(with or without WORM support) | 0201 |
| | GY-2120 (DFT-1) | 1.10 |
| | GY-8240 (DTF-2) | 1.31 |
| StorageTek | 9840A | R1.33.109E |
| | 9840B | R1.34.352 |
| | 9840C | R1.34.533 |
| | 9940A | R1.34.202 |
| | 9940B | R1.34.404 |
| | Redwood SD-3<br>Tape media written by Redwood SD-3 drives with a firmware level earlier than 2.2.3 may have missing or damaged LTC (Linear Time Code) tracks (Product Alert #AU33) | 2.2.3 |

# Tape Features

In this release, the following table describes the features that are available with the listed tape drives.

| Tape Drives | Configure Block Size (`volformat` command)[1] | Compression (`volformat` command)[1] | Tape Streaming (`config_prod -o`)[2] | Automatic Drive Cleaning[1] | Optional InfiniteFile Life[3] |
|---|---|---|---|---|---|
| Ampex DST 312 | X | - | - | - | - |
| Ampex DST 314 | X | - | - | - | - |
| IBM 3570 | X | X | X | X | - |
| IBM 3580 Ultrium (LTO-1) | X | X | X | X | - |
| IBM 3580 Ultrium (LTO-2) | X | X | X | X | - |
| IBM 3590 B1A | X | X | X | X<br>See Note 1 | - |
| IBM 3590B1A-ultra | X | X | X | X<br>See Note 1 | - |
| IBM 3590E1A | X | X | X | X<br>See Note 1 | - |
| IBM 3590 H1A | X | X | X | X<br>See Note 1 | - |
| IBM 3592 | X | X | X | X<br>See Note 1 | - |
| Quantum DLT 7000* | X | X | X | X<br>See Note 2 | - |
| Quantum DLT 8000* | X | X | X | X<br>See Note 2 | - |
| Quantum SDLT 220* | X | X | X | X<br>See Note 2 | - |
| Quantum SDLT 320* | X | X | X | X<br>See Note 2 | - |
| Sony SDX-300C (AIT-1) | X | X | - | X | Requires minimum FW level 0400 (CR8663) |
| Sony SDX-500C (AIT-2) | X | X | Requires minimum FW level 0107 | X | Requires minimum FW level 0107 |

| Tape Drives | Configure Block Size (volformat command)[1] | Compression (volformat command)[1] | Tape Streaming (config_prod -o)[2] | Automatic Drive Cleaning[1] | Optional InfiniteFile Life[3] |
|---|---|---|---|---|---|
| Sony SDX-700C (AIT-3) | X | X | X | X | Requires minimum FW level 0102 |
| Sony GY-2120 (DTF-1) | X | X | Requires minimum FW level 1.10 | X | Requires minimum FW level 1.10 |
| Sony G4-8240 (DTF-2) | X | X | X | X | - |
| StorageTek Timberline 9490-E | X | X | - | - | - |
| StorageTek Redwood SD-3 | X | X | X | - | - |
| StorageTek 9840 A, B, and C | X | X | X | See Note 2 | - |
| StorageTek 9940 A and B | X | X | X | See Note 2 | - |

[1] For more information about the AMASS volformat and driveclean commands, refer to the *Command Reference* chapter in *Managing the AMASS File System*. Drive Cleaning exceptions are noted under the specific libraries in *Accessing Storage Devices*.

[2] For more information about the AMASS config_prod -o script, refer to the *Optional Parameters* appendix in *Installing AMASS*.

[3] For more information about IFL, refer to the *InfiniteFileLife* book.

* DLT customers: ADIC recommends that you enable the Tape Streaming feature. Using tape streaming I/O eliminates start/stop cycles on these drives, which leads to better tape handling. For instructions on configuring AMASS for tape streaming, refer to the *Optional Parameters* appendix in *Installing AMASS*.

**Note 1:** If a 3590 OR 3592 drive is **installed in an IBM 3494 library,** automatic drive cleaning by AMASS is **not supported** because the library has its own internal drive cleaning capabilities.

**Note 2**: If a DLT or StorageTek 9840 or 9940 drive is **installed in a StorageTek 97xx or Lxx library,** automatic drive cleaning by AMASS is **not supported** because the library has its own internal drive cleaning capabilities.

# Upgrade Guidelines

When upgrading to AMASS 5.4, please make note of the following upgrade guidelines.

| Operating System | Upgrade Guidelines |
|---|---|
| HP Tru64 | To successfully install AMASS while using only part of a disk as the AMASS cache, you must first verify that the `c` partition of the disk has a file system type (`fstype`) of `unused`. Second, you must verify that the user `amass` has read/write permission to the raw `c` partition (for example, `/dev/rdisk/dsk2c`). You can get this permission by owning the file, belonging to a group that owns the file, or allowing access to all users of the file.<br>**NOTE:** If you do not perform these two verifications when attempting to start AMASS, you may get a message in the `tac` log that says the cache is invalid. |

# Upgrade Instructions

Note — Before upgrading your software and/or firmware, ADIC recommends that the AMASS database be backed up prior to performing the upgrade.

Note — The following tasks are presented as guidelines only because the actual steps are site-specific.

1. For pre-installation instructions for a specific storage device, refer to the *Accessing Storage Devices* book.
2. Make sure the UNIX server has the required operating system patch levels.

   Read the hard disk partitioning, space requirements, and guidelines on partitioning the cache in the "Getting Started" chapter in *Installing AMASS*.
3. Make sure the cache is empty by running the `sysperf` command and verifying that there are no dirty cache blocks.

   Use `killdaemons` to inactivate AMASS, unmount the file system, and kill the AMASS daemons.

   **CAUTION** — Run the `sysdbchk` utility to make sure there has been no database corruption.

   Note — Make a full backup of the AMASS File System Database and Journal by running the `amassbackup -fv` command.
4. Upgrade the UNIX operating system, if required.
5. Shut down and power off the UNIX server where AMASS will be installed.
6. **Fibre-Attached Devices:** Connect the storage devices to the Fibre-Channel bus on the server. The Fibre-Channel driver must be one that maps World-Wide-Names to SCSI device names.

   **Network-Attached Devices**: Connect the storage devices to the network.

   The AMASS installation script retrieves and displays device addresses to aid you in the AMASS configuration process.

**SCSI-Attached Devices:** Connect the storage devices to the SCSI bus on the server. Make sure the SCSI bus is properly terminated. Refer to your library's user manual for instructions on setting the SCSI addresses.

The AMASS installation script retrieves and displays device addresses to aid you in the AMASS configuration process.

7 Apply power to the storage devices and boot the UNIX server.

8 To assist you in answering the AMASS script questions, refer to the "Worksheet" chapter in the *Installing AMASS* book.

9 To install AMASS, refer to the *Installing AMASS* book. For any last minute instructions, refer to the Release Notes.

10 After AMASS is installed, reboot the UNIX server if necessary.

11 To verify the configuration, run the `install_tests` script. For complete information on this script, refer to the *Installation Procedure* chapter in the *Installing AMASS* book.

12 Make a full backup of the AMASS File System Database and Journal by running the `amassbackup -fv` command with a **new** Backup Volume.

13 Decide how you want to organize the AMASS file system. For example, what directories should be under the AMASS mount point? Set permissions for these directories to allow clients to access the file system. AMASS supports read and write permissions only; Access Control Lists (ACLs) are not supported.

14 Load media and create entries in the AMASS database for all your media. For detailed steps, refer to the "Initial Setup Tasks" chapter in the *Managing the AMASS File System* book.

15 Decide if you want to apportion media into volume groups to keep project data or department data together on a specified number of volumes. Also, do you want to have a volume group for cleaning cartridges? For a description of volume groups, refer to either the *AMASS Overview* book or the *Managing the AMASS File System* book.

## Authorization String

During an AMASS installation, you are prompted to enter an authorization string. Contact ATAC to obtain the authorization string.

Note For an upgrade, your existing authorization string will remain valid; it is not necessary to request a new one if your system ID remains the same.

Prior to obtaining an authorization string, you can use a 30-day temporary product key. To determine the temporary product key for your specific library, go to the ADIC Web site at www.adic.com.

A week before the 30-day time limit, AMASS displays a message on the system console indicating that the temporary product key will expire. When this happens, contact ATAC and request a permanent authorization string. If a valid authorization string is not entered by the end of the expiration period, AMASS converts to read-only mode; no data is lost.

Note The temporary product keys do not enable optional software features.

# Fibre Channel Guidelines

The following guidelines exist for AMASS running with fibre channel.

## HP-UX Fibre

For AMASS users in a HP-UX fibre environment connected to a PathLight 5000 SNC, the environment variable: `AMASS_PLSNK` should be used.

A known error condition exists where the first SCSI test-unit-ready sent to the device is never received but rather absorbed by the PathLight and a SCSI bus reset status returned. The detected presence of this environmental variable in the UNIX shell will cause AMASS to respond correctly to this condition. This environmental variable can be set in the shell in which AMASS is started or put directly in the `amass_start` script.


Note

Make sure that if this environment variable is being used to set it in the shell before `amassbackup` and `amassrestore` are executed.

## Solaris Fibre

AMASS supports fibre on the Sun Solaris platform. When installing AMASS, the AMASS juke driver may be unable to attach to fiber attached drives and libraries. If you have this problem, please call ATAC for assistance.

## SGI IRIX 6.5 Fibre

AMASS uses symbolic links (`/dev/rjuke1, /dev/rj1d1..`) that are mapped to system device files.

For example: `/dev/rjuke1 ->/hw/scsi/sc7d510`

However, the AMASS install process may have trouble creating symbolic links for fibre devices attached to a fabric under IRIX 6.5.14 and later. For instance, after entering the desired controller, target, and Logical Unit Number (LUN), you might receive the following error message.

```
Failed to build a path to the device for you.
Please enter the explicit device path:
```

To find the explicit device path, use the following steps. You can also use the same steps to determine the explicit device path for other fibre devices. This example tries to determine the device path for the first device listed in Step 1.

```
Fabric Tape: node 1000006045170ad2 port 2001006045170ad2, lun 2 on SCSI
controller 8: unknown
```

1. Perform an `hinv` system call.

   ```
   # hinv | grep -i tape
   Fabric Tape: node 1000006045170ad2 port 2001006045170ad2, lun 2 on SCSI
   controller 8: unknown
   Fabric Tape: node 1000006045170ad2 port 2001006045170ad2, lun 4 on SCSI
   controller 8: unknown
   Fabric Tape: node 1000006045170ad2 port 2001006045170ad2, lun 6 on SCSI
   controller 8: unknown
   Fabric Tape: node 1000006045170ad2 port 2001006045170ad2, lun 8 on SCSI
   controller 8: unknown
   ```

2. Look at the contents of the `/dev/scsi` or `/hw/scsi` directories and match the output from the `hinv` system call for the desired device.

```
# ls -l /hw/scsi
total 0
drwxr-xr-x 2 root sys 0 Apr 24 12:38 1000006045170ad2
drwxr-xr-x 2 root sys 0 Apr 24 12:38 2000000087000b63
drwxr-xr-x 2 root sys 0 Apr 24 12:38 2000000087002b04
drwxr-xr-x 2 root sys 0 Apr 24 12:38 2000000087003124
```

**3** Look at the contents of the node directory for that device.

```
# ls -l /hw/scsi/1000006045170ad2
total 0
drwxr-xr-x 2 root sys 0 Apr 24 12:42 lun0
drwxr-xr-x 2 root sys 0 Apr 24 12:42 lun2
drwxr-xr-x 2 root sys 0 Apr 24 12:42 lun4
drwxr-xr-x 2 root sys 0 Apr 24 12:42 lun6
drwxr-xr-x 2 root sys 0 Apr 24 12:42 lun8
```

**4** Look at the contents of the LUN directory for that device.

```
# ls -l /hw/scsi/1000006045170ad2/lun2
total 0
crw------- 1 amass sys 0,282 Apr 24 12:43 c8p2001006045170ad2
```

Therefore, the explicit device path for the prompt shown on the previous page would be as follows:

```
Failed to build a path to the device for you.
Please enter the explicit device path:
/hw/scsi/1000006045170ad2/c8p2001006045170ad2
```

## Mappings

Storage Network Controllers (SNCs) can usually be configured for multiple mapping schemes of the SCSI bus: target: LUN address to the FC LUN addresses. The HBA can then have its own mapping of FC LUNS to target: LUN combinations. Some routers and Fibre Channel HBAs also support non-permanent mappings that can dynamically change as devices are added or removed from the buses.


Note

To avoid the problems of a dynamically changing bus address, configure the ADIC FC router to use indexed addressing, which permanently maps the bus: target: LUN to the FC:LUN.

# Operating Guidelines

When operating AMASS 5.4, please make note of the following operating guidelines.

## IRIX: Tape Support (TS) system

The tape support (TS) system consists of a tape support driver, personality daemons, and a daemon to manage the personality daemons. Thie TS system is provided by SGI to manage tape devices. AMASS does not require the TS system to run and it has trouble if the TS system is controlling the AMASS drives. The `mediad` daemon initiates the `ts` daemon on the AMASS drives. To disable the `ts` daemon, change the `mediad` configuration, `/etc/config/mediad.config`, so that the `mediad` daemon ignores the AMASS drives.

## Solaris: Shared Memory

AMASS may require more shared memory than the default size allocated on your operating system. If this happens, the following message appears.

```
AMASS shared memory size of 1692944 bytes exceeds current system limit.
Error getting shared memory via shmget, errno 22 - Invalid argument.
```

Workaround:

1. Refer to the `man` page for `system (4)` on Solaris.
2. Set the value for `shmsys:shminfo_shmmax` in the `/etc/system` file to a number that is large enough to accommodate AMASS and other processes on your system.
3. Reboot the Solaris machine.

## Solaris: FTP

Customers may experience poor performance in writing/reading from AMASS via ftp. The problem is the size of the IO request issued and the amount of IO buffering at the OS level between the application and AMASS kernel. This could exist for applications other than FTP as well.

To get better performance use an alternative FTP daemon which can be configured to write/read from AMASS with larger block sizes. WU FTPD is one option. A customer may also experience poor performance with a FTP client. Please contact ATAC for details.

## All: Scalar DLC

AMASS may experience a problem with loading media into the S10K (with Scalar DLC). The drive types are AIT, but Scalar DLC looks for 8mm for the mount rather than AIT due to a mismatch in parameters. The XDI utility sends the drive type AIT rather than 8mm on the mount.

 Note This procedure is for Scalar DLC 2.x only.

Workaround:

1. On the Scalar DLC box, select **Configuration > Clients**.
2. Select the **AMASS DAS** client entry.
3. Select the **aliasing** tab.
4. Change the media type to `sony_ait` on the media type alias entry.
5. Restart Scalar DLC.
6. Follow the mount procedure as usual.

# Known Issues

Known issues in this release of AMASS for UNIX Version 5.4 are listed in the table below. In addition to the following known issues, be aware of the setup and operational guidelines. For more information, refer to “Installation Guidelines,” “Fibre Channel Guidelines,” and “Operating Guidelines” in this document.

| Operating System | Change Request Number | Description | Workaround |
|---|---|---|---|
| All | 4682 | After reboot, AMASS database check fails with “`missing volume group key`” errors. | This problem only occurs rarely.<br>Run `sysdbchk -y` to correct the problem. |
| | 5729 | The `libsched` command core on invalid volume ID. | This problem only occurs rarely.<br>Stop and restart AMASS. |
| | 6580 | The `mqverify` command leaves the “ReleaseReq” flag on the drive. | This problem only occurs rarely.<br>Run `drivestat -r` to reset the drive. |
| | 7864 | The `kill -9` command on BEAWeblogicProcesses causes AMASS to hang the system. | This problem only occurs rarely.<br>Stop and restart AMASS. |
| | 8864<br>5898 | UNIX command, `ls`, does not report all files in all sub-directories. | Run `dirfilelist` to resolve the problem. |
| | 8934<br>30898 | System crashed with “`vnode ref count negative`” error. | Reboot and start AMASS. |
| | 17340 | Scattered write algorithm causes AMASS to thrash. | Disable scattered writes. |
| | 17952 | SAMBA files stop copying with ”`ret blk not lst on dirty lst`.” | Use an alternative method to copy files to AMASS. |
| | 22288 | IFL inconsistencies occur in AMASS 5.3. | Use the `volstat` command instead of the `volmedia` command to resolve the problem. |
| | 24790 | No explicit AMASS error message when jukebox fails on second try. | Use other messages in the log indicating drive failure to resolve the problem. |
| | 24797 | Can not write more than 119,999 MB to 9940B media. | Use the `volstat` command with the `-s` option to resolve the problem. |
| | 34562 | The `vgimport` command fails on duplicate entries. | Edit the metadata file. |
| | 34640 | The `volgroup` command generates bad values message. | Messages are only warnings. |

| Operating System | Change Request Number | Description | Workaround |
|---|---|---|---|
| All | 34938 | Cannot delete a file or the volume on which the file resides. | Set the environmental variable to VOLCLEAN_OLD in the command window and re-run `voldelete`. |
| | 35398 | READAHEAD does not function as expected. | The nature of this problem is to be determined. |
| | 36867 | `libio` and `amassmain` cores. | Stop and restart AMASS. |
| | 37550 | `amassrecovery` with `-v` option corrupts `vollabel`. | When running `amassrestore`, do not use the `-v` option. |
| | 37552 | `klogd daemon` panics the host. | Reboot and start AMASS. |
| HP-UX 11 | 6039 | AMASS upgrade from 4.13 to 5.3 on HP-UX results in system panic and unbootable kernel. | 1 Remove the AMASS kernel components.<br>2 Rebuild the kernel.<br>3 Reboot.<br>4 Install AMASS. |
| Solaris (8 and 9) | 4948<br>6601 | System BAD TRAP panic while AMASS driver is making `mutex_enter()` call. | This problem only occurs rarely.<br>Stop and restart AMASS. |
| | 4949 | Panic BAD TRAP occurred in module “juke” due to a NULL deference. | This problem only occurs rarely.<br>Stop and restart AMASS. |
| IRIX | 6100 | AIO fails on IRIX 6.5. | Disable AIO with `config_prod -o`. |

# Resolved Issues

Problems that have been resolved in this release of AMASS for UNIX are as follows:

| Operating System | Change Request Number | Description |
|---|---|---|
| All | 8688 | It is not possible to recover from ACSLS network drop without restarting. |
| | 8972 | Enhanced Cache Management does not reuse cache blocks according to specification. |
| | 10966 | MAXLTIME/MINLTIME do not perform as expected. |
| | 11201 | Volume replacement by IFL does not eject tape; rather, it removes the volume from the database. |
| | 12682 | The `vgimport` command causes SEGV due to nil pointer passed to amassDevjukeltr. |
| | 18370 | Please test and certify new STK firmware for use with AMASS. |
| | 22018 | Poor performance on AMASS 5.3.2. |
| | 24038 | 9940B drives volformat refuses block sizes greater than 256K. |
| | 24072 | Seeing duplicate entries when running ls -lR in /archive. |
| | 24452 | Need to reflect initial cache block list in documentation for ECM. |
| | 28991 | AMASS 5.3.2 database corruption. |
| | 29517 | `sysdbchk` completes successfully with errors. |
| | 29645 | Wish to have a way to put AMASS into read-only mode. |
| | 29744 | Mismatch between working pbn and pbn reported by drive causes data corruption. |
| | 30420 | AMASS `vgimport` command is out of memory. |
| | 31340 | Database error-7 prevents AMASS backup from locking the database. |
| | 33392 | Little endian host reports the wrong volume capacity for LTO drives. |
| | 34015 | `ls` on a single file returns with an error. |
| | 34400 | AMASS panics on memory alignment error. |
| | 35048 | Unable to add Fabric 9940B drives because of error in line 526 from enter_scsi script. |
| | 35106 | Update documentation for tape cleaning on STK libraries. |
| | 35983 | Truncation of a file to a smaller, non-zero size causes panic. |
| | 36101 | Libio spinning while in kernel thread. |
| | 36680 | Reduce frequency of check drive calls. |

| Operating System | Change Request Number | Description |
|---|---|---|
| All | 36713 | Make changes to AMASS/XDI and the `ssi daemon` to support timeouts. |
| | 37250 | Database error -6 hangs the system. |
| AIX | 34556 | AMASS prompt bus failure on AIX install. |
| | 36118 | test_install failure on AIX 5.2. |
| DEC | 5909 | The `killdaemons -F` command panics on DEC. |
| IRIX | 25127 | AMASS 5.3.3 causes panic on IRIX 6.5.22m. |
| | 30540 | AMASS is not able to coexist with IRIX tape support. |
| | 30639 | Tape tried to mount twice without a dismount in between. |

# Documentation

The following documents are currently available for the AMASS:

| Document Number | Document Title |
|---|---|
| 6-00323-01 | InfiniteFileLife (IFL)<br>**NOTE:** This book is not included in the product packaging and is **not** available in print. However, it is included as a PDF file on the CD-ROM and can be printed from Acrobat Reader or it can be ordered from ADIC. IFL is optional. |
| 6-00024-01 | Quick Reference Guide |
| 6-00025-01 | Accessing Storage Devices |
| 6-00026-01 | AMASS Overview |
| 6-00027-01 | Installing AMASS |
| 6-00028-01 | Managing the AMASS File System |
| 6-00029-01 | Errors and Corrective Action<br>**NOTE:** This book is not included in the product packaging. However, it is included as a PDF file on the CD-ROM and can be printed from Acrobat Reader or it can be ordered from ADIC. |
| 6-00030-01 | Application Program Interface (API) Guide<br>**NOTE:** The API Guide is sold separately. |
| 6-00032-01 | CD Booklet |