

Sun Managers Frequently Asked Questions (FAQ)

Source: <http://unix.derkeiler.com/Mailing-Lists/SunManagers/2004-04/0298.html>

From: John DiMarco (*jdd_at_cs.toronto.edu*)

Date: 04/17/04

To: sunmanagers@sunmanagers.org

Date: Sat, 17 Apr 2004 00:30:01 -0400

Archive-name: sunmanagers-faq

Sun-Managers' Frequently Asked Questions

\$Id: faq,v 4.43 2004/03/18 18:31:31 jdd Exp \$

This is collection of common questions posted to the sunmanagers mailing list twice a month. It is intended to benefit Sun System Managers and reduce traffic to the list by providing quick answers to common problems.

Keeping with the style of a similar FAQ for comp.windows.x, questions marked with a '+' indicate questions new to this issue; those with significant changes of content since the last issue are marked by '*'

The Information Files maintainer is John DiMarco <jdd@cs.toronto.edu>. All corrections, submissions and FAQ administration-related messages should go to "sunmanagers-faq@sunmanagers.org". Do not send questions, subscription or unsubscription requests, or sunmanagers postings to this address; they will be quietly ignored.

The List Server maintainer is Bill Bradford <mrbill@mrbill.net>. Any problems with the mailing list server should be directed to Bill.

Questions

1. The Sun-Manager's Mailing list

- 1.1) How do I read, join, post to, or remove myself from the sunmanagers mailing list?
- 1.2) What is the Sun-Manager's Charter? What are the rules?
- 1.3) Are there any public archives for the sunmanagers list?
- 1.4) What should I keep in mind when posting to sunmanagers?
- 1.5) * What other forums are there for Suns?
- 1.6) Where are the answers to questions about old Suns/SunOS4?
- 1.7) What fields can I use to filter Sun Managers email?

2. Getting Help Over the Net

- 2.1) How do I find out what patches are available from Sun?

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

- 2.2) How do I get help upgrading to Solaris 2.x?
 - 2.3) How do I access Sun's documentation over the net?
 - 2.4) To which web sites can I go for help?
3. NIS, NIS+, DNS, and NFS
- 3.1) How do I use DNS for hostname resolution?
 - 3.2) How do I change NIS+ credentials for the root master server?
 - 3.3) When I compile something, errors occur saying `_dlopen` and other `_dl` routines can't be found. Why?
4. Window Systems
- 4.1) Why does my OpenWindows File Manager abort with a "mknod: permission denied"?
5. Disks, Tapes and SCSI
- 5.1) What is the `format.dat` entry for drive X?
 - 5.2) Can I replace the internal drive in a desktop Sun with a higher capacity model?
 - 5.3) Is it okay to disconnect or connect SCSI devices while powered on?
 - 5.4) How do I configure my sun to use Exabyte 4mm DAT tape drives?
 - 5.5) Why is tagged queueing a problem on my third-party disk?
 - 5.6) Why don't third-party CD-ROMS work on my sun?
 - 5.7) What size and density parameters should I use for `ufsdump` with a high-capacity tape drive?
 - 5.8) My floppy/cdrom device says "device busy". What do I do?
 - 5.9) What software is available for CD-R/CD-RW?
 - 5.10) Where is my disk space? The "du" and "df" commands disagree.
 - 5.11) * How do I use an EIDE/ATA disk larger than 8GB?
6. Resource Management and Performance Tuning
- 6.1) How do I tell what caused my machine to crash?
 - 6.2) What can I do if my machine slows to a crawl or just hangs?
 - 6.3) How do I find out how much physical memory a machine has?
 - 6.4) How do I find out what my machine's memory is being used for?
How can I tell if I need more memory?
 - 6.5) Why do some files take up more disk space after being copied?
Why are the sizes reported by `ls -l` and `du` different?
 - 6.6) How do I add more PTYS?
7. Anonymous FTP Service
- 7.1) How do I set up anonymous ftp on my machine?
 - 7.2) Where can I get a version of ftp that does logging?
8. Consoles, Keyboards and Key Remapping
- 8.1) How do I make the numeric keypad on a type 5 keyboard work with xterm?
 - 8.2) How do I swap the CAPS LOCK and CONTROL keys on a type 5 keyboard under Openwindows 3.x?
 - 8.3) How do I use a Windows PC for a Sun serial console?

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

9. Sun models and OS Versions

- 9.1) Which Sun models run which version of SunOS?
- 9.2) How can my program tell what model Sun it is running on?
- 9.3) What MBUS CPU modules are available? How can I tell what module(s) is/are in what model of SS10/SS20/SS600?
- 9.4) Which versions of SunOS/Solaris are Y2000 compliant? Are there patches for older versions of SunOS/Solaris?
- 9.5) What is the Y2000 compliance status of Sun hardware?
- 9.6) How do I find out a Sun's boot prom revision?
- 9.7) Which hardware/software is capable of 64-bit? Which is only 64-bit? How can I tell which is running?

10. Miscellaneous Software

Subject: 10.1) My remote ufsdump is failing with a "Protocol botched" message. What do I do?

- 10.2) Where can I get a C compiler for Solaris 2.x?
- 10.3) How do I read Microsoft Word documents on my Sun?
- 10.4) How do I restore to a different location the contents of a tarfile created with absolute pathnames?

11. Miscellaneous Hardware

- 11.1) How come my mouse occasionally doesn't work?
- 11.2) How can I turn my old sun into an X-Terminal?
- 11.3) How can I use a VGA monitor on my Sun?
- 11.4) Where can I find alternate pointing devices for my Sun?
- 11.5) What should I do about my Ultra-1's CPU cooling fan?

12. Networking

- 12.1) Why do both my net interfaces have the same ethernet address?
- 12.2) How can I know the hardware vendor from an ethernet address?
- 12.3) How do I set my hme interface to e.g. 100Mb full duplex?
- 12.4) How do I find out what process is using a particular port?
- 12.5) I have a lot of ports in WAIT states. Why?

13. Electronic Mail

- 13.1) Where can I get a POP or IMAP server for my sun?

14. Printing

- 14.1) Is there a third-party source for SPARCprinter consumables?
- 14.2) How do I configure a non-postscript printer for postscript?

15. Misc System Administration

- 15.1) I've forgotten the root password; how can I recover?
- 15.2) How do I disable/remap STOP-A/L1-A?

Answers

1. The Sun-Manager's Mailing list

Subject: 1.1) How do I read, join, post to, or remove myself from the

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

sunmanagers mailing list?

Point your web browser to <http://www.sunmanagers.org>

Persons without web access should send a mail message to "sunmanagers-request@sunmanagers.org" containing the single word "help".

Messages can be posted to the list by mailing them to the address "sunmanagers@sunmanagers.org". Do not do this until you have read the charter/policy (question 1.2) and the "how to post" document at <http://www.sunmanagers.org>.

The policy and the "how to post" document is sent to the entire list twice a month. It is also sent out to every new subscriber and is available at <http://www.sunmanagers.org>.

The latest version of the FAQ (this file) is available at <http://www.sunmanagers.org>

Subject: 1.2) What is the Sun-Manager's Charter? What are the rules?

- 1: This list is NOT moderated! Every message that is sent to the list will be passed on to every member of the list.
- 2: Requests to have addresses added or removed from the list should NOT be sent to the entire list. Instead, addresses should be added or removed via the web page at <http://www.sunmanagers.org>. Similarly, test messages of any sort should not be sent to the list.
- 3: This list is intended to be a quick-turnaround trouble shooting aid for those who administer and manage Sun systems. Its primary purpose is to provide the Sun manager with a quick source of information for system management problems that are of a time-critical nature.
- 4: All responses are to be mailed back to the questioner and are NOT to be sent to the entire list. Any response to a list message sent to the list, rather than to the person asking the question, will be deleted without notice. The person who originally asked the question has the responsibility of summarizing the answers and sending the entire summary back to the list. When a summary is sent back to the list, the word "SUMMARY" should be the first word of the "Subject" line.
- 5: Discussions on ANY topic are not allowed and will not be tolerated. If you want to discuss something, take it to the appropriate Sun newsgroup.
- 6: If it is not specifically related to Sun system management, then it does NOT belong on this list. Requests for vendor recommendations are tolerated, provided that the hardware in question is something that system managers normally purchase.

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

- 7: Commercial Advertising of any sort on the list is strictly prohibited.
- 8: Postings about employment, either employment sought or offered, are not permitted on this list. Please use a more appropriate forum, e.g. one of the newsgroups in the misc.jobs USENET hierarchy.
- 9: Requests for software (free or otherwise) should be limited to software that is directly related to Sun SYSTEM MANAGEMENT ONLY.
- 10: Read the appropriate manuals BEFORE posting, including the "Read This First" documents. Oftentimes the manuals contain answers for common problems.
- 11: When including a traceback from a system panic, make sure that it is a symbolic traceback. Numeric tracebacks (the ones included as part of the panic message) are not helpful; don't bother sending them to the list.
- 12: A posting to sunmanagers is not a general invitation to email the poster — if you wish to send email to a sunmanagers poster, the email you send should be related to the posting, else it will be unsolicited email and may be treated like any other unsolicited email (e.g. spam). Sunmanagers is not to be used to collect email addresses of people who manage Sun systems. Those who do this not only violate the list's policy, but risk seriously offending the very people they are attempting to reach.
- 13: PLEASE PLEASE PLEASE...Think before you send a message! Ask yourself "is this really appropriate?" There are enough other newsgroups and mailing lists around to cover the marginal topics. Perhaps there is another forum that is more appropriate? Check the list of Sun specific newsgroups included in the FAQ. Perhaps your message would be more appropriate there? Remember that Sunmanagers is very public: we have thousands of subscribers, all postings are archived for posterity on various archive sites, and these sites are in turn searchable via various web engines. Submitting a posting is irreversible — once it goes out, it cannot be taken back!

Failure to adhere to these guidelines may result in severe chastisement by the list participants. Not only will you succeed in looking like a careless fool, and in making Sun Systems Managers all over the world annoyed at your incompetence, you may end up damaging your professional reputation.

Subject: 1.3) Are there any public archives for the sunmanagers list?

Sunmanagers' official archive is accessible at <http://www.sunmanagers.org>
All postings are automatically archived. It is our policy not to accommodate requests to modify the archives, so if you are uncomfortable with your submissions in their entirety being public, do not submit them.

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

Also, various members also keep their own archives on their own initiative. Some of these are public. Here are some we know about:

http://aa11.cjb.net/sun_managers/index.htm

Hank Leininger <hlein@progressive-comp.com> maintains a searchable archive site of messages (both questions and summaries) in Florida.

It can be accessed at: <http://marc.theaimsgroup.com/?l=sun-managers>

Dataman Benelux in the Netherlands hosts a "fuzzy" full-text index of the Sun Managers mailing list at: <http://www.dataman.nl/cgi-bin/sunmanagers>

Manfred Liebchen <liebchen@rrz.Uni-Koeln.DE> maintains an archive site in Germany. It can be accessed at:

<http://www.uni-koeln.de/RRZK/Abt-Systeme/sun/infos/SUN-MANAGERS/sunman.html>

Older summaries (up to mid-1999) are available at

<http://www.latech.edu/sunman.html>

Subject: 1.4) What should I keep in mind when posting to sunmanagers?

- o VERY IMPORTANT! Before you post, read the sunmanager's list policy, which is available at <http://www.sunmanagers.org>
- o Sun Managers is a huge unmoderated mailing list. Every message you send will be passed on to every member of the list. This means you have access to a much larger audience when you need help, but it also means you can embarrass yourself in front of a huge number of people, most of them professionals in your field, including colleagues, peers, and possible future employers. Further, your posting will be archived in various places, some public, some private -- we have no way of knowing all the archive locations. Some of these archives, including the official one at <http://www.sunmanagers.org>, are web-searchable. It is our policy not to accommodate requests to remove or modify postings as archived on <http://www.sunmanagers.org>. Once you submit your message, it will be irretrievably accessible to a large number of people. There is no "taking it back".
- o Sun Managers is completely voluntary. Nobody is required to help you. We are all cooperating by sharing our knowledge. Accept with grace whatever responses you get, and don't hound people if they are helpful or they won't be the next time.
- o Sun Managers is not the list to use when you run out of other places to post. Job postings, PC questions, X questions all have their own lists and newsgroups. Use only the appropriate list or newsgroup for such things, not Sun Managers. Inappropriate postings will only make people annoyed at you.

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

- o The more information you give about a problem, the easier it is for others to help you. This doesn't mean you should uuencode the kernel and post it, but you should include your OS version, your hardware, and all relevant symptoms of your problem. Unless the request is of a general nature, the output of "uname -a" is almost certainly helpful.
- o When making a summary, please summarize as much as possible all the answers you received, even the ones you didn't decide to follow: if you receive several different suggestions, and decided on one, remember that somebody else reading the summary may not find the suggestion you followed to be the best one in his or her situation, and may benefit from one of the suggestions you didn't choose.
- o Be generous. If you have the information requested (especially if it is obscure) then please respond. You may be the person requesting help next time.

Subject: 1.5) * What other forums are there for Suns?

Other forums that relate to Suns:

USENET Newsgroups (accessible via "rn", "readnews", "nn", netscape, etc.):

There is entire USENET heirarchy devoted to Sun equipment. Some of these groups include:

- comp.sys.sun.admin Sun system administration
- comp.sys.sun.announce Announcements pertaining to Sun equipment
- comp.sys.sun.apps Applications that run on Suns
- comp.sys.sun.hardware Sun hardware (and clones too, I think)
- comp.sys.sun.misc Miscellaneous
- comp.sys.sun.wanted Sun stuff to buy or sell

Other newsgroups that may also be of interest:

- comp.unix.solaris Solaris 2.x on all platforms
- alt.sys.sun may not be available everywhere
- comp.sys.sun newsgroup equivalent of sun-spots
- comp.sources.sun Sun-specific sources (not very active)

Mailing lists:

Sun Flash (Sun Product Announcements/news releases)
sunflash-request@sunvice.East.Sun.COM add/remove requests

SunHelp (Discussion/help/chat about Sun machines and Software)
<http://www.sunhelp.org/mailman/listinfo/sunhelp>

Rescue (Rescuing old Sun equipment from the dump)
<http://www.sunhelp.org/mailman/listinfo/rescue>

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

Sunergy (Sun Commercial Newsletter)

sunergy_information@Sun.COM add/remove requests

Suns-at-home (Home use of Sun Workstations)

Suns-at-Home-Request@net-kitchen.com add/remove requests

Suns-at-Home@net-kitchen.com submissions

Suns-at-Home-Archives@net-kitchen.com archive requests

ssa-managers (Sun RAID software and hardware products)

majordomo@eng.auburn.edu add/remove requests

(e.g. send "subscribe ssa-managers" in message body)

veritas-users (Veritas products)

<http://mailman.eng.auburn.edu/mailman/listinfo>

CIAC notes (US. DOE Computer Incident Advisory Capability)

ciac-listproc@llnl.gov add/remove requests

listmanager@cheetah.llnl.gov human list manager

CERT Advisory mailing list (security notifications for Suns and others)

cert-advisory-request@cert.org add/remove requests

Solaris on Intel-based (x86) machines

<http://groups.yahoo.com/group/solarisx86/>

Old list archives at:

<http://www.egroups.com/list/solarisonintel/>

Auspex: managers of Auspex NFS file servers

auspex-request@princeton.edu add/remove requests

auspex@princeton.edu submissions

Solbourne: managers of Solbourne SPARC systems

"info-solbourne" list

majordomo@acsu.buffalo.edu add/remove requests

info-solbourne@acsu.buffalo.edu submissions

<ftp://ftp.acsu.buffalo.edu/pub/misc/info-solbourne.tar.z> archives

disksuite-l: for users who use Sun's Solstice Disksuite software

majordomo@lists.veritel.com.br add/remove requests

sysadm@veritel.com.br list owner

Linuxmanagers: for users of Linux, including Sun Linux.

<http://www.linuxmanagers.org>

NOTE: if you wish to be added to one of the above mailing lists, send mail to the REQUEST address! Do not send add requests to the main address!

For Web pages, see the answer to question 2.4.

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

Subject: 1.6) Where are the answers to questions about old Suns/SunOS4?

Those questions and answers used to be in this FAQ, but since they're no longer frequently asked, they've been moved to a different file, available at <ftp://ftp.cs.toronto.edu/pub/jdd/sunmanagers/faq-old>

Subject: 1.7) What fields can I use to filter Sun Managers email?

The following headers will exist in any mail to the list:

To: sunmanagers@sunmanagers.org
List-Help: <<mailto:sunmanagers-request@sunmanagers.org?subject=help>>
List-Post: <<mailto:sunmanagers@sunmanagers.org>>
List-Subscribe:
<<http://www.sunmanagers.org/mailman/listinfo/sunmanagers>>,
<<mailto:sunmanagers-request@sunmanagers.org?subject=subscribe>>
List-Id: The Sun Managers Mailing List <sunmanagers.sunmanagers.org>
List-Unsubscribe:
<<http://www.sunmanagers.org/mailman/listinfo/sunmanagers>>,
<<mailto:sunmanagers-request@sunmanagers.org?subject=unsubscribe>>
List-Archive: <<http://www.sunmanagers.org/pipermail/sunmanagers/>>

2. Getting Help Over the Net

Subject: 2.1) How do I find out what patches are available from Sun?

If you have a software service agreement with Sun, you can use Sun's "SunSolve ONLINE" service to obtain patches. Check your service agreement for details.

Sun recommended patches can be obtained from sun via anonymous ftp to [sunsolve1.sun.com](ftp://sunsolve1.sun.com).

Many anonymous ftp sites have partial collections of patches. The archie service can be consulted.

WARNING: if you ftp patches from an ftp site, you are trusting whomever put them there. To be absolutely safe, get your patches from a trusted source.

Rik Harris <rik.harris@vifp.monash.edu.au> maintains a WAIS archive (sun-fixes.src) of most available patch READMEs.

The Sun User Group (SUG) CD ROM also has a collection of Sun patches.

There is a special patch tape (U1) available from sun for Sun3's running SunOS 4.1.1 which fixes many of the bugs that were fixed for Sparcs in later releases. Note that sun3's don't run anything later than 4.1.1.

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

Subject: 2.2) How do I get help upgrading to Solaris 2.x?

Start by reading the Solaris FAQ, maintained and posted periodically to comp.unix.solaris by Casper Dik <casper@fwi.uva.nl>. It can be obtained by anonymous ftp to ftp.fwi.uva.nl, in /pub/solaris. An HTML version can be obtained at <ftp://ftp.fwi.uva.nl/pub/solaris/solaris2.html>. Then go to the Solaris Security FAQ, maintained by John Pancharian and hosted by IT World at <http://www.itworld.com/Comp/2377/security-faq/>

Subject: 2.3) How do I access Sun's documentation over the net?

Sun has a web site devoted to documentation, at <http://docs.sun.com>

Subject: 2.4) To which web sites can I go for help?

This is not a complete list, but:

First, see the answer to question 2.2.

Sun's documentation is available at <http://docs.sun.com>
You can search the Sun newsgroups at <http://www.dejanews.com>
Sun-Managers Archives are described in the answer to question 1.3 above.

Some sites suggested by Jeffrey Meltzer <meltzer@villagenet.com> are:

SolarisGuide <http://www.solarisguide.com>
ISP-Solaris <http://www.isp-solaris.com>
SunHelp <http://www.sunhelp.org>
SolarisCentral <http://www.solariscentral.org>
SunGuru <http://www.sunguru.com>
SunFreeware <http://www.sunfreeware.com>

Gil Young <gjy@hobbes.crc.comm> runs a Solaris Forum at Brainbuzz:

<http://networking.brainbuzz.com/boards/viewboardmessages.asp.b~S2B43>

Hisham Al Saad" <ahisham@batelco.com.bh> recommends a Solaris-Specific search engine at <http://www.searchSolaris.com>

Eric De Mund <ead@ixian.com> suggests the BigAdmin site run by Sun, at <http://www.sun.com/bigadmin>, and Celeste Stokeley's site at <http://www.stokely.com/unix.sysadm.resources>

Alan Pae <paedalbu@yahoo.com> suggests Sun Country, at <http://alanpae.tripod.com>, which is mirrored at <http://resources.solaris-x86.org>

3. NIS, NIS+, DNS, and NFS

Subject: 3.1) How do I use DNS for hostname resolution?

In Solaris 2.x, this is easy: simply edit `/etc/nsswitch.conf` and put "dns" before (or instead of) nis or nisplus on the line that begins with "hosts:". For example, to look up hostnames first in the host file and then in the DNS, use "hosts: files dns"

Subject: 3.2) How do I change NIS+ credentials for the root master server?

If an NIS+ system is functioning correctly and only the root password and root private keys for the system need to be changed, follow these steps:

- 1) Login as root for the system and change the root password in the `/etc/shadow` file:

```
{root}3% passwd
passwd: Changing password for root
New password:
Re-enter new password:
{root}4%
```

- 2) Change the system's private key in the cred table:

```
{root}4% chkey -p
Updating nisplus publickey database.
Reencrypting key for 'unix.ramayan@bharat.i n'.
Please enter the Secure-RPC password for root: <enter old passwd>
Please enter the login password for root: <enter new passwd>
{root}5%
```

- 3) If running replica server(s) then wait until the changes to the credential object table has been propagated to its replicas. This could be up to 2 minutes.

- 4) Change the system's `/etc/.rootkey`:

```
{root}5% keylogin -r
Password: <enter new passwd>
Wrote secret key into /etc/.rootkey
{root}6%
```

The procedure above will work for any system — root server, root replica, non-root servers, and all clients. The steps above change only the system's root password and private keys, not the public keys for the system.

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

Thanks to Ronald W. Henderson <rw@atmos.albany.edu>.

However, if you want to change all the root credentials, including the public key, follow these steps:

Use the `passwd` command on the root master server to change the root password. But **DO NOT** follow this with a `chkey -p` to update the credentials for the root master server, because this will disable the entire NIS+ domain. The only way to recover from this is to rebuild the domain from scratch!

It is possible to change the credentials of the root master server, but it is not easy. The procedure follows:

To change the keys for the root master server do as follows:

1. use these commands in this order:

```
nisupdkeys -CH master.server.name. groups_dir.domain.name.  
nisupdkeys -CH master.server.name. org_dir.domain.name.  
nisupdkeys -CH master.server.name. domain.name.
```

(This **CLEARs** the public key for the HOST "master.server.name" in this directory.)

2. Kill `rpc.nisd` and restart it at security level `O` then run this command:

```
nistbladm -R cname=master.server.name. cred.org_dir.domain.name.  
nisaddcred des
```

<This deletes the old credential and creates a new one.>

3. Shutdown and restart any replicas of `org_dir.domain.name.` at run level `O`

```
nisping org_dir.domain.name.
```

<This propogates the new key pair to the replicas.>

```
nisdupdkeys domain.name.  
nisupddkeys org_dir.domain.name.  
nisupdkeys groups_dir.domain.name.
```

<This puts the new credential in the effected directory objects.>

4. Kill and restart all `rpc.nisd` servers at level `O` to security level `2`.

Note that changing a server's key affects all directory objects containing the key.

Thanks to Rogerio Rocha <rogerio@bvl.pt> and Sun INFODOC ID 2213 for this information.

Subject: 3.3) When I compile something, errors occur saying `_dlopen` and other `_dl` routines can't be found. Why?

You are probably trying to compile something statically. You must either include stub routines for the `_dl` routines, or you must link the C library (or `-ldl`) dynamically. The source code below provides do-nothing stubs for the routines in question.

```
/* libdl stubs --- John DiMarco <jdd@cs.toronto.edu> */
char *dgettext(domainname, msgid)
char *domainname;
char *msgid;
{ return(msgid); }

void *dlopen(pathname, mode)
char *pathname;
int mode;
{ return((void *)NULL); }

void *dlsym(handle, name)
void *handle;
char *name;
{ return((void *)NULL); }

char *dlerror()
{ return(NULL); }

int dlclose(handle)
void *handle;
{ return(0); }
```

4. Window Systems

Subject: 4.1) Why does my OpenWindows File Manager abort with a "mknod: permission denied"?

Under Solaris 2.3, the first time `filemgr` is launched, it created a `/tmp/.removable` directory owned by the user who launched it. If a different user later starts up `filemgr`, it will try to create `/tmp/.removable`, but that directory will already exist from the last time, owned by the previous user, so the attempt will fail. Fix by installing patch 101514-02.

5. Disks, Tapes and SCSI

Subject: 5.1) What is the `format.dat` entry for drive X?

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

The answer can vary according to what OS you are running, the architecture of your machine or the type of SCSI/SMD/IPI controller you are using. Opinions also vary on how to format once you have all the information you need. If you are buying a Sun supported drive, you will likely find an entry for it in "/etc/format.dat". On third party drives, you should inquire with the vendor you bought it from. If you are on your own, contact the manufacturer, or try to get hold of the manufacturer's OEM manual for your drive model. You might be able to derive enough information from the manual to make up your own entry.

Most drive manufacturers provide drive specifications from their web sites. Try these:

<http://www.seagate.com> (Seagate, Connor, Imprimis, CDC)

<http://www.fujitsu.com/products/support.html> (Fujitsu)

<http://www.maxtor.com> (Maxtor, Quantum, Micropolis)

<http://www.samsungelectronics.com> (Samsung)

<http://www.storage.ibm.com> (IBM)

<http://www.westerndigital.com> (Western Digital)

It is also possible to contact drive manufacturers by telephone.

Some relevant numbers:

Fujitsu USA 800-626-4686

408-432-1300

Fujitsu FAXLINE 408-428-0456

Fujitsu Canada 416-602-5454

800-263-7091

Maxtor USA 800-2MA-XTOR

Maxtor FAXBACK 303-678-2618

Seagate USA 800-468-3472

405-936-1200

Seagate FAX 408-438-8137

Seagate FAXBACK 408-438-2620

A format.dat file containing entries submitted by various people is available for anonymous ftp at

<ftp://ftp.cs.toronto.edu/pub/jdd/sunmanagers/format.dat>

It is currently maintained by John DiMarco (jdd@cs.toronto.edu). New entries are welcome; mail them to sunmanagers-format@sunmanagers.org

Note: do not post a format.dat request to the list or to the comp.sys.sun.admin newsgroup unless you have exhausted all these avenues.

For SCSI disks on modern suns, a format.dat entry can be auto-generated using John DiMarco's scsiinfo program, available at <ftp://ftp.cs.toronto.edu/pub/jdd/scsiinfo/>. It will query the disk directly, and generate an appropriate format.dat entry

Tips for rolling your own format.dat:

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

– For SCSI disks, any combination of cylinders, heads, and sectors that does not add up to more than the rated formatted capacity of the drive will normally work. A grossly different geometry may result in some slight performance degradation, but it should still work. The SCSI protocol hides most of the drive details from the host, and hence the host need not know much about the drive to format or use it.

Subject: 5.2) Can I replace the internal drive in a desktop Sun with a higher capacity model?

Yes, so long as the drive does not pull more power and/or require more heat than the drive for which the machine was designed. For a SPARCstation 1, 1+, or 2, do not use a disk dissipating more than 10W. For a later SPARCstation, do not use a disk dissipating more than 11W. Most 5400rpm drives should be alright; 7200rpm drives or faster, particularly early 7200rpm drives, are likely to be too hot.

For systems which support two drives, if only one drive is installed, it should be possible to relax this constraint somewhat.

For desktop suns with EIDE drives running Solaris 2.6 or earlier, the operating system supports only the first 8GB of an EIDE drive; see question 5.11 for more details.

Subject: 5.3) Is it okay to disconnect or connect SCSI devices while powered on?

On older machines (without onboard SCSI controllers), it is never a good idea to do this. You risk blowing a fuse on the CPU board, or part of the SCSI hardware. On newer machines (sparcstations and later), many people have done this regularly without problems. Halt the machine (sync;L1-A), remove or add the device, then continue. However, it is possible to blow the SCSI termination power fuse on the motherboard. If your machine hangs immediately on powerup unless the SCSI bus is externally terminated, this fuse may need to be replaced. Caveat Emptor.

Subject: 5.4) How do I configure my sun to use Exabyte 4mm DAT tape drives?

Add the following to /kernel/drv/st.conf:

```
tape-config-list =  
  "EXABYTE EXB-4200", "Exabyte 4mm EXB-4200", "EXBT-4200",  
  "EXABYTE EXB-4200c", "Exabyte 4mm EXB-4200c", "EXBT-4200c"
```

```
EXBT-4200 = 1,0x34,1024,0x0029,4,0x63,0,0,0,3;  
EXBT-4200c = 1,0x34,1024,0x0029,4,0x63,0,0x13,0,3;
```

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

Exabyte also recommends that their 4mm tape drives have firmware revision levels of at least the following when used on suns:

EXB-4200 No restriction, but revision 148 or higher is recommended
EXB-4200c Level 149 minimum (mode select for compression)

Thanks to Dave Hightower <hightowr@afwc.af.mil>.

Subject: 5.5) Why is tagged queueing a problem on my third-party disk?

Tagged Command Queueing (TCQ) is an optional part of the SCSI-2 specification. It permits a drive to accept multiple I/O requests for execution later. These requests are "tagged" by a reusable id so that the drive and the OS can keep track of them. The drive can reorder these requests to optimize seeks. For more details, see the SCSI-2 specifications. A draft version is available at <ftp://ftp.cs.toronto.edu/pub/jdd/scsi-doc/scsi2.10b.gz>

SunOS 4.x and earlier never uses tagged queueing. However, Solaris 2.x will make use of tagged queueing if the drive claims to support it. Unfortunately, some drive manufacturers have found it hard to design their drives to do tagged queueing properly, and this particular area has been a common source of bugs in drive firmware.

If it is not possible to turn off tagged queueing in the drive that is causing the problem, Solaris 2.x can be told not to use tagged queueing at all, by putting the following line in /etc/system:

```
set scsi_options & ~0x80
```

The "scsi_options" kernel variable contains a number of bit flags which are defined in /usr/include/sys/scsi/conf/autoconf.h. 0x80 corresponds to tagged queueing.

However, this turns off tagged queueing for the entire machine, not just the problematic drive. Because tagged queueing can provide a significant performance enhancement for busy drives, this may not always be desirable. In Solaris 2.4 and later, it is possible to disable tagged queueing and set or clear other scsi options on a per-controller or per-drive basis. The appropriate technique is described in the esp(7) and isp(7) man pages.

Subject: 5.6) Why don't third-party CD-ROMS work on my sun?

When Sun first decided to add CD-ROM support, there were already a great number of systems in the field, all of which contained boot proms that expected to boot from disks with 512 byte sectors. Sun had to decide between replacing a whole lot of boot proms or finding a way to make a CDROM act like a disk with 512 byte sectors in order to support it as a boot device. They chose the latter approach.

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

Many third party CD-ROM drives use 1024 or 2048-byte sectors, which causes the SCSI driver to see a "data overrun". When the driver asks for N "blocks" (which it thinks are 512 bytes each) it gets more data back than it expected.

Some CD-ROM drives can be told to use 512 byte sectors by setting a jumper, cutting a trace, or using a software command (mode select). Details vary widely, but if you are seeing a data overrun on a third party CD-ROM, then it is most likely doing 1K or 2K transfers and will need some work to be a boot device for a Sun.

Thanks to Kevin Sheehan <Kevin.Sheehan@uniqu.com.au>

For more information about third-party CD-ROMS on Suns, consult the CD-ROM FAQ, maintained by Mike Frisch <mfrisch@saturn.tlug.org> and Martin Hargreaves <martin@datamodl.demon.co.uk>. It can be found on the World Wide Web at "<http://saturn.tlug.org/suncdfaq>". A UK mirror is available at "<http://www.datamodl.demon.co.uk/suncd/>".

Subject: 5.7) What size and density parameters should I use for ufsdump with a high-capacity tape drive?

The only purpose of the ufsdump size and density parameters is to let Dump calculate the capacity of each tape and then decide for itself when it needs a new tape. If the filesystem you are dumping is larger than the tape, you will need to use more than one tape. But ufsdump can detect the end of media for all modern tape drives, and will automatically prompt for new tapes when needed, so as long as the size and density parameters indicate a tape as long as or longer than the one you're using, ufsdump will behave properly.

Thanks to Niall O Broin <nobroin@esoc.esa.de>

Subject: 5.8) My floppy/cdrom device says "device busy". What do I do?

The Volume Manager (vold) is probably holding the device open. You can access a floppy through the volume manager by typing "volcheck" and looking in /floppy/*. CD-ROMs don't require volcheck; just insert one and the volume manager should automatically notice, and mount it under /cdrom/*. Unmount by typing "eject floppy" or "eject cdrom", respectively. The Volume Manager can be configured by editing /etc/vold.conf.

If you need to access a floppy or CD-ROM special device, however, you may need to turn off the volume manager. As root, type "/etc/init.d/volmgt stop". To turn it back on, type "/etc/init.d/volmgt start".

Subject: 5.9) What software is available for CD-R/CD-RW?

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

Commercial Software:

GEAR by Elektoson

– <http://www.elektroson.com/>

Young Minds

– <http://www.ymi.com/>

– High-end integrated hardware/software solution

Creative Digital Research

– <http://www.cdr1.com/>

Joerg Schilling has developed an excellent cd recording package called cdrecord. This package should meet most needs. See

<http://www.fokus.gmd.de/research/cc/glone>

[/employees/joerg.schilling/private/cdrecord.html](http://www.fokus.gmd.de/research/cc/glone/employees/joerg.schilling/private/cdrecord.html)

for much more information, including supported hardware.

Andy McFadden has an excellent CD-Recordable FAQ at:

<http://www.cdrfaq.org>

Thanks to Mark Belanger <mjb@ltx.com>

Subject: 5.10) Where is my disk space? The "du" a use, and frees up more on demand. Hence the free memory reported by vmstat is not an accurate reflection, for example, of the amount of memory available for user processes.

An easy way to determine whether or not your machine needs more memory is to run vmstat and examine the po (page out) column and the sr (scan rate) column. If these columns consistently show large numbers, this suggests that your machine does not have enough memory to support its current workload, and frequently needs to write pages belonging to active processes to disk in order to free up enough memory to run the current job.

Subject: 6.5) Why do some files take up more disk space after being copied?
Why are the sizes reported by ls -l and du different?

Some files -- core files being one common example -- contain "holes", areas which were seeked over without being written. These files are called "sparse". When read back, these areas appear to contain zeros; however they do not occupy disk space. The "length" of such a file (as reported by "ls -l") will exceed its "size" (as reported by "ls -s" and reflected in the results of du or df).

cp, cpio, and tar do not detect holes; they read and copy the zeros, and the resulting files will contain all-zero blocks (which occupy space) where the input files contained holes (which do not).

SunManagers: Sun Managers Frequently Asked Questions (FAQ)

dump will detect holes in the dumped files, and restore will reproduce them.

Thanks to Perry Hutchison <perryh@pluto.rain.com>

GNU tar has an "-S" option which preserves holes, and Joerg Schilling's "star" has "-sparse" and "-force_hole" options which can be used to preserve and re-insert holes, respectively. star is available for download at <ftp://ftp.fokus.gmd.de/pub/unix/star>

Subject: 6.6) How do I add more PTYs?

For Solaris 7 and earlier, add a line in /etc/system that says

```
set pt_cnt = <num>
```

where <num> is the number of PTYs you want. Halt the system, and do a "boot -r".

Solaris 2.x supports more than 3000 ptys. The default is 48. Solaris 8 and later create new PTY's as they are needed.

7. Anonymous FTP Service

Subject: 7.1) How do I set up anonymous ftp on my machine?

For Solaris 2.x, see the ftpd(1m) man page, and follow its instructions. You will also need to set up nsswitch.conf in etc. However, you should consider using a different ftpd.

Subject: 7.2) Where can I get a version of ftp that does logging?

These are many versions that have enhanced logging or can be modified to enable logging:

<http://www.wu-ftp.org>

Solaris "pkg" versions of proftpd and wuftp are available at: