Chapter 7

Software Tools

There are a wealth of software tools that will assist in determining information about the software or hardware configuration of the system, that can be used for controlling the system. These tools can be very helpful when trying to determine what you're working with. This list is by no means exhaustive, but does provide a good overview of some of the most commonly used tools.

The tools have been divided into the following general categories:

- System Hardware Tools
- System Software Tools
- User Information Tools
- Terminal Tools
- Peripheral Tools
- Networking Tools
- Mail Tools
- Miscellaneous Tools

The tools mentioned here either have manual ("man") pages, or are compilable source code with some sort of readme file. Unless mentioned otherwise, typing "**`man commandname`**" will show manual page for that command.

The contents of the man pages for these tools will not be repeated here - just a general description of the command and what it can be used for. Where a particular set of command options provides useful information, that will be noted along with the expected results.

The following three pages show a list of the commands included in this chapter as well as some related information:

- Beware! - commands that are dangerous to use without being really sure what you're doing
- Description - a "one-liner" description of the command
- Page - what page they can be found on in this chapter
- Location - where the command can actually be found in the directory structure
- Related Commands - commands that might be of use, or perform similar or complementary functions

System Hardware Tools

Command	Beware!	Description	Page	Location	Related Commands
gfxinfo		show graphics subsystem information	7-5	/usr/gfx	
hinv		show system hardware configuration	7-5	/bin	
nvram	!!	show the values of Non-volatile RAM variables	7-6	/sbin	
sysinfo		show the system's unique identifier	7-6	/sbin	

System Software Tools

Command	Beware!	Description	Page	Location	Related Commands
chkconfig		show state of configuration flags	7-6	/sbin	
crontab		table of chronological events	7-6	/bin	
date		show or set system day and time	7-6	/sbin	
df		show amount of free disk blocks	7-6	/sbin	
du		show disk usage	7-7	/bin	
gr_osview		graphical version of osview	7-7	/usr/sbin	osview
gr_top		graphical version of top	7-8	/usr/sbin	top
hostname		show the name of the system	7-7	/usr/bsd	
idbg		kernel debugger print utility	7-7	/var/sysgen/ boot	
last		list last logins of users or devices	7-7	/usr/bsd	
mkboottape		build, list or extract a boot tape	7-7	/usr/sbin	
osview		show the activity of the operating system	7-7	/usr/sbin	gr_osview
printenv		show the settings of the environmental settings	7-7	/bin	
ps		show process status	7-8	/bin	
swap	!!	add, delete or monitor system swap areas	7-8	/sbin	
syserr/sysmon		show system error info	7-8	/usr/sbin	
systune	!!	display/set tunable kernel parameters	7-8	/usr/sbin	
top		show processes using largest percentage of CPU	7-8	/usr/sbin	gr_top
uname		show the current OS version	7-9	/bin	
versions		list software installed by inst	7-9	/usr/sbin	inst
whereis		locate source, binary or man pages for a program	7-9	/usr/bsd	
which		locate a program including aliases	7-9	/usr/bsd	
xlsfonts		list the fonts available to X server	7-9	/usr/bin/X11	
xdpyinfo		X display configuration info	7-9	/usr/bin/X11	
xwininfo		X window information	7-9	/usr/bin/X11	

User Information Tools

Command	Beware!	Description	Page	Location	Related Commands
id		show current user and group ID's	7-10	/bin	
who		show current system users	7-10	/bin	
whoami		show current user ID name	7-10	/bin	

Terminal Tools

Command	Beware!	Description	Page	Location	Related Commands
stty		set tty characteristics	7-10	/bin	
terminfo		terminal capabilities database	7-10	/usr/lib	
tput		initialize terminal or query terminfo database	7-10	/bin	
tty		get name of the terminal	7-10	/bin	

!! - When logged in as root, these commands could cause system damage. Not for casual use!!

Peripheral Tools

Command	Beware!	Description	Page	Location	Related Commands
bru		backup and restore utility	7-11	/usr/sbin	
cpio		copy file and archives in and out	7-11	/bin	
inquire		show result of a SCSI device inquiry	7-11	~4Dgifts	scsicontrol, scsiha
dvhtool	!!	show disk volume header information	7-11	/sbin	
eject		eject removable media	7-11	/usr/sbin	
findblk		find file system block	7-11	/sbin	
fsck		check file system	7-12	/sbin	
fuser		identify a process using a file or file structure	7-12	/sbin	
fx	!!	disk formatter/exerciser	7-12	/bin	
ioconfig		configure I/O devices	7-12	-	
lpsched		start up the line printer scheduler	7-12	/usr/lib	
lpshut		shut down the line printer scheduler	7-12	/usr/lib	
lpstat		prints line printer scheduler	7-12	/bin	
mediad		removable media daemon	7-13	/usr/etc	
mkfs	!!	make a file system	7-13	/sbin	
mkfp		make a floppy disk partition	7-13	/bin	
mount		mount or unmount a file system	7-13	/sbin	showmount, umount
mt		magnetic tape program	7-13	/mt	
ncheck		generate a path name from an I-node number	7-14	/sbin	
prtvtoc		show disk volume header information	7-14	/usr/sbin	
quota		display disk usage limits	7-14		
scsicontrol		probe and control SCSI devices	7-14	/usr/sbin	inquire, scsiha
scsiha		probe and control SCSI buses	7-14	/usr/sbin	scsicontrol, inquire
umount		mount or unmount a file system	7-13	/sbin	showmount, mount
xfs_check		check XFS filesystem consistency	7-15	/usr/sbin	
xfs_repair		repair an XFS filesystem	7-15	/usr/sbin	
xselinput		show X device input events	7-15	~4Dgifts	
xlist		list all the X input devices	7-15	~4Dgifts	

Networking Tools

Command	Beware!	Description	Page	Location	Related Commands
exportfs		export and unexport directories to NFS clients	7-15	/usr/etc	
ifconfig		configure network parameters	7-15	/usr/etc	
netstat		show network status	7-15	/usr/etc	
ping		send an ECHO_REQUEST to a network machine	7-16	/usr/etc	
rup		show host status of host machine	7-16	/bin	
ruptime		show host status of local machines	7-16	/usr/bsd	
showmount		show remotely mounted file systems	7-16	/usr/sbin	mount, umount
timedc		timed control program	7-16	/usr/etc	
traceroute		print the route packets take to a network host	7-16	/usr/etc	
uustat		UUCP status and job control	7-16		
ypwhich		show the NIS server of map master hostname	7-17	/bin	

Mail Tools

Command	Beware!	Description	Page	Location	Related Commands
mailq		print contents of the mail queue	7-17	/usr/bsd	
sendmail		send network mail	7-17	/usr/lib	

!! - When logged in as root, these commands could cause system damage. Not for casual use!!

Miscellaneous Tools

Command	Beware!	Description	Page	Location	Related Commands
apropos		locate commands by keyword lookup	7-17	/bin	man
autoconfig	!!	configure a kernel	7-17	/etc	lboot
clri	!!	clear i-node	7-17	/sbin	
distcp		copy or compare software distributions	7-18	/usr/sbin	
endsession		terminate a login session	7-18	/usr/bin/X11	
ftp		Internet file transfer program	7-18	/usr/bsd	
gclear		clear the graphics screen	7-18	/usr/sbin	
halt	!!	halt the system	7-18	/etc	reboot, shutdown,
init		process control initialization	7-19	/etc	init
inst		software installation tool	7-19	/usr/sbin	distcp
kill		terminate a process by default	7-19	/bin	killall
killall		kill a named process	7-19	/sbin	kill
lboot	!!	configure a bootable kernel	7-19	/usr/sbin	autoconfig
MAKEDEV		create device special files	7-19	/dev	
makewhatis		make manual page database	7-19	/usr/lib	
man		print entries from on-line reference manuals	7-19	/bin	apropos
network		network initialization and shutdown script	7-20	/etc/init.d	
nice		run a command at a low priority	7-20	/bin	renice, npri
npri		modify the scheduling or priority of a process	7-20	/usr/sbin	nice, renice
od		octal dump	7-20	/bin	
powerdown		stop all processes and halt the system	7-20		halt, reboot, shutdown.
rcp		remote file copy	7-20	/usr/bsd	
rdist		remote file distribution program	7-20	/usr/bsd	
reboot	!!	reboot the system	7-20	/etc	halt, shutdown
renice		alter the priority of a running process	7-21	/usr/sbin	nice, npri
setmon		set the current and default video output format	7-21	/usr/gfx	
single		switch the system to single user mode	7-21	/etc	init
shutdown	!!	shut the system down, change system state	7-21	/etc	halt, reboot
startgfx, stopgfx		start or stop the window system	7-21	/usr/gfx	
su		switch to root or another user	7-21	/bin	single
sync		update the super block	7-21	/bin	
talk		talk to another user	7-21	/usr/bsd	
telinit		process control initialization	7-22	/sbin	init
wakeupat		request the system power back on at a future time	7-22	/usr/sbin	powerdown
whatis		describe what a command is	7-22	/bin	
winterm		a terminal emulator window	7-22	/usr/sbin	wsh, xwsh, xterm
wsh		create a window shell	7-22	/bin	xwsh, xterm, winterm
xconsole		monitor system console messages	7-22	/usr/bin/X11	
xterm		terminal emulator for X	7-22	/usr/bin/X11	wsh, xwsh, winterm
xwsh		creates and specifies a window shell	7-22	/usr/sbin	wsh, winterm, xterm

!! - When logged in as root, these commands could cause system damage. Not for casual use!!

7.1 System Hardware Tools

gfxinfo - show graphics subsystem information

This tool will help determine the kind of graphics subsystem that is installed in the system. It will provide information about the type and revision of the graphics board, the number of bit planes used and some other aspects of the graphics subsystem.

hinv - show system hardware configuration

The most familiar tool is '**hinv**'. This shows the **h**ardware **inv**entory for the system. This inventory includes:

- the CPU type and clock speed
- the CPU and FPU type and revision
- the number of serial ports
- the presence of a parallel port
- sizes of the various memory caches
- amount of main memory
- any bus adapters that are present - VME, or EISA
- the number and type of SCSI controllers and devices
- the type of graphics subsystem installed

The '-c' and '-t' options allow displays of the inventory for specific classes or types. A sample hinv result (from an Indigo^2 Extreme) is shown below:

```
1 150 MHZ IP22 Processor
FPU: MIPS R4010 Floating Point Chip Revision: 0.0
CPU: MIPS R4400 Processor Chip Revision: 5.0
On-board serial ports: 2
On-board bi-directional parallel port
Data cache size: 16 Kbytes
Instruction cache size: 16 Kbytes
Secondary unified instruction/data cache size: 1 Mbyte
Main memory size: 64 Mbytes
EISA bus: adapter 0
Iris Audio Processor: version A2 revision 0.1.0
Integral Ethernet: ec0, version 1
CDROM: unit 7 on SCSI controller 1
Tape drive: unit 6 on SCSI controller 1: QIC 150
Disk drive: unit 4 on SCSI controller 1
Integral SCSI controller 1: Version WD33C93B, revision D
Disk drive: unit 3 on SCSI controller 0
Tape drive: unit 2 on SCSI controller 0: DAT
Disk drive: unit 1 on SCSI controller 0
Integral SCSI controller 0: Version WD33C93B, revision D
Graphics board: GU1-Extreme
```

nvram - show the values of Non-volatile RAM variables

This tool allows you to see and set the values in the non-volatile RAM. Many important variables are kept in the nvram that determine how the system operates.

sysinfo - show the system's unique identifier

`sysinfo` prints the value of the unique system identifier. Many software companies use some sort of licensing scheme based on this value.

7.2 System Software Tools

chkconfig - show state of configuration flags

`chkconfig` shows the state of certain configurable flags for the system. For example, it will show whether or not networking is turned on. This tool can be used to turn on or off these configurable flags. Typing "**`chkconfig`**" will list all of the configurable options and their state. You must be root to modify any of these flags.

crontab - table of chronological events to be performed

`crontab` is a table of events that are scheduled to occur at a preset time and frequency. This could include tape backups, file updates, etc. To determine what events are in the queue for a specific user use **`crontab -l`**.

date - show or set system day and time

This tool allows the user to check or set the systems day and time.

df - show the amount of free blocks on the disk

This tool shows the file systems that are currently mounted as well as how disk space is used. In particular, it shows the number of (disk) blocks on each mounted partition, the number of blocks currently used, and the number of blocks available. Keep in mind that disk blocks are 512 bytes. By using the **`-k`** option the tool will report all the above in terms of Kbytes instead of blocks.

du - show disk usage

This tools shows the amount of disk space for the current (and all underlying) directories. It is done in a bottom-up fashion, so the total space in the directory will be the last number listed. As with df, the numbers reported are in disk blocks unless the **`-k`** option is used.

hostname - show the name of the system

`hostname` shows the name of the system you are currently logged into.

idbg - kernel debugger print utility

A useful tool for getting more information about what is going on in the kernel.

last - list last logins of users or devices

`last` shows a listing of the logins (most recent first) for a particular user or device. It also shows the time the login occurred and its length.

mkboottape - build, list or extract a boot tape

`mkboottape` is used to make a bootable tape for system recovery. To list the contents of a boot tape use **`mkboottape -l`**.

osview & gr_osview - show the activity of the operating system

These two tools can show any number of different aspects of the operation of the system. The **`osview`** tool works purely in text, while the **`gr_osview`** tool opens up a window and shows various aspects of the system in real time.

Some aspects of the system that can be tracked are: memory usage, CPU load, swap space, I/O activity, etc.

printenv - show the settings of environmental variables

`printenv` shows the current settings for the systems environmental variables. Many of these variables are set by the system at boot or login time, but this tool also shows those variables set by the user in .cshrc or .login files. Two frequently used incantations of printenv are:

`printenv PATH` - this shows the current search path the system is using

`printenv TERM` - this shows the terminal type currently being used

ps - show process status

This tool shows all the processes that are currently running. It has several options that allow you to configure the way it presents the data. It's helpful in finding if some is still running when it shouldn't be. Some useful "**ps**" incantations:

ps -eaf | grep *process* - see if a particular *process* is running

ps -eaf | sort +n1 - list all the processes running by owner

ps -eal | sort +n4 - list all the processes running by process ID number

swap - add, delete or monitor system swap areas

swap is used to change or monitor the systems swap area(s). To show the current status of the swap area use **swap -l**.

syserr/sysmon - show system error information

Both of these utilities are part of the Desktop and can be found in the toolchest's SYSTEM menu.

syserr shows the critical system errors that have occurred. **Sysmon** shows all the errors the system has logged and their priorities. For an alternative way of checking system messages the command **tail -f /usr/adm/SYSLOG** or **tail -40 /usr/adm/SYSLOG**.

systune - display and set tunable kernel parameters

systune will display the kernel's tunable parameters. It will also allow some of these parameters to be modified in either an interactive or non-interactive mode. For these changes to take effect the kernel must be rebooted.

top and gr_top - show processes using largest percentage of CPU

These two tools accomplish the same end. They show the processes on the system that are using up the most CPU resources. The process at the top of the list is using the most resources. This can be very helpful in determining why a system is bogged down.

gr_top is opens its own window on the screen for running rather than running in the current window.

uname - show the current OS version

uname identifies the current IRIX Operating System that is on the machine. **uname -a** is typically used to show the version of IRIX that is running, as well as the system name and the type of CPU. The **-R** option shows additional release information.

versions - list software installed by “inst”

The **versions** tool can tell you what software has been installed by the ‘**inst**’ installation tool. It can also be used for removing software from the system that has been installed buy ‘**inst**’.

whereis - locate source, binary or manual page for a program

whereis will show where the source, executable or man page for a particular program. It is especially useful when the current PATH variable does not include the directory where the program exists.

which - locate a program including aliases

which is similar to **whereis** with the exception that it will show any aliases for that program that have been defined. This is only available in csh.

xlsfonts - list the fonts available to X Server

xlsfonts shows the fonts available on your system.

xdpyinfo - X display configuration information

This tool provides information about the X server. The number of displays and their possible configurations (8 bit / pixel, 24 bit / pixel, etc.) are included in this listing.

xwininfo - X window information

xwininfo provides information about an X-based window. The information can include window location, height, width, color depth, border width, colormap id, and corner locations to name a few. After typing **xwininfo**, the mouse is clicked on the window for which information is desired.

7.3 User Information Tools

id - show current user and group ID's

This tool shows both the user ID and group ID by name and number.

who - show current system users

who identifies who is currently logged into the system, what port (either real or virtual) they're logged in on and what time that login started.

whoami - show current user ID

whoami is similar to **ID**, but shows only what your current user ID name is.

7.4 Terminal Tools

stty - set tty characteristics

This tool shows or sets the characteristics of the current terminal (either real or virtual). The terminal can be configured to respond to certain protocols or keystrokes. Often a basic terminal set up is provided in a .login or .cshrc file.

terminfo - terminal capabilities database

This is a database of capabilities for specific terminal (and printer) types. The database describes the way the terminal will react to certain keystrokes and function keys. The name for the terminal in use is found in the TERM environmental variable.

tput - initialize terminal or query terminfo database

This tool can be used for a number of different terminal control functions. It can initialize the terminal, show the settings for specific terminal capabilities, or can be used to set shell variables for setting bold or other terminal characteristics.

tty - get name of the terminal

This tool shows the name of the tty device that is currently being used.

7.5 Peripheral Tools

bru - backup and restore utility

This tool reads, writes and lists data on tapes using the bru format. To show a list of files contained on a cpio formatted tape, use **`bru -vt`**.

cpio - Copy file archives in and out

Cpio is most often used to transfer files onto and off of magnetic tape. It can also be used to transfer groups of files between disk drives and/or file systems. To show a list of files contained on a cpio formatted tape, use **`cpio -ivt`**.

inquire - show result of a SCSI device inquiry

This program will echo the results of an inquiry to a particular SCSI device (as specified on the command line). It can be useful in determining the exact manufacturer and model number of the device on the SCSI bus.

This program is provided in the /usr/people/4Dgifts directory. It does not have a man page. Consult the README file in the directory for specifics on using this utility.

dvhtool - show disk volume header information

`dvhtool` shows the information contained in a disks volume header. This tool can also be used to modify this information, but fx is the preferred tool for modifying any disk parameters.

> ***Caution!!!***
>
> *Since this utility can change a hard disks configuration, it is NOT RECOMMENDED for casual use. Read the "dvhtool" man page prior to using this utility.*

eject - eject removable media

`eject` does exactly what it sounds like. If no argument is given, it will try and eject the first device it finds in either fsd.tab or in the hardware inventory table. If the media is a mounted file system, eject will try and unmount it prior to ejecting it.

findblk - find filesystem block

Finds the filesystem claimants for the block specified.

fsck - check file system

This utility checks the integrity of a file system. It will automatically be run when IRIX boots if the system detects some problem with the file system. It can be invoked on separate file systems to resolve some file system problems.

fuser - identify a process using a file or file structure

`fuser` will show any process that is currently using the specified file or file structure. Since all IRIX devices are files, this allows a listing of all processes using that device.

fx - disk formatter/exerciser

This is a very useful, but potentially dangerous, tool. It allows the disk to be repartitioned, formatted and exercised. It uses a hierarchical command structure where many commands may be invoked by using one or two letters.

> ***Caution!!!***
>
> *Since this utility can erase data from a hard disk, it is NOT RECOMMENDED for casual use. Read the "fx" man page prior to using this utility.*

ioconfig - configure I/O devices

This tool, available in IRIX 6.4 and later, allows control of various I/O devices.

lpsched - start up the line printer scheduler

This tool is used to start up the scheduling process for a connected printer.

lpshut - shut down the line printer scheduler

This shuts down the printers scheduling process.

lpstat - prints line printer spooler status

This tool prints LP status information. Use **`'lpstat -t`**' to get all printer spooling information.

mediad - removable media daemon

Mediad monitors removable media on the system. When a piece of removable media is inserted into a drive mediad automatically determines the type of file system that is on the media and mounts the file system appropriately. This works for floppy drives and cdroms.

To disable mediad's automatic mounting, use '**mediad -q**'.

mkfs - make a file system

mkfs takes a disk partition and makes it usable as an IRIX file system. This file system may then be mounted to the system.

> ***Caution!!!***
>
> *Since this utility can erase data from a hard disk, it is NOT RECOMMENDED for casual use. Read the "mkfs" man page prior to using this utility.*

mkfp - make a floppy disk partition

mkfp will write an FAT (MS-DOS) or HFS (Macintosh) type file system onto a floppy disk. The utility will format 5 different types of FAT file systems - 360Kbytes (5.25" disk), 720 Kbytes (3.5" disk), 1.2Mbytes (5.25" disk), 1.44Mbytes (3.5" disk), or 20 Mbytes (floptical). Two HFS formats are supported - 1.44Mbytes and 20Mbytes - both on 3.5" media.

mount/umount - mount or unmount a file system

mount can take an existing file system (most typically on a disk drive) and mount it onto a defined mount point. **umount** does the reverse. Either command may be used to mount a single file system, group of file systems, or those file systems related to a particular host. **mount** uses the file /etc/fstab for some operations.

The **mount** command without any options will show all mounted file systems.

mt - magnetic tape program

mt can be used for a number of things. It can control and get status of a magnetic tape device (QIC, DAT, 1/2", etc.). Useful incantations of **mt** include:

mt -t /dev/mt/tps0d2 stat - get the status of tape device 2 on SCSI bus 0.

mt -t /dev/tape rew - rewind the default /dev/tape device

ncheck - generate a path name from an I-node number

ncheck will accept an I-node number and, optionally, a file system and generate a path name for each I-node given.

prtvtoc - show disk volume header information

This tool prints the disk volume header information for a specific disk. You must be root to run this tool.

An example printout for a root disk is shown below.

```
Printing label for root disk
* /dev/rdsk/dks0d1s0 (bootfile “/unix”)
* 512 bytes/sector
* 54 sectors/track
* 15 tracks/cylinder
* 2 spare blocks/cylinder
* 1631 cylinders
* 4 cylinders occupied by header
* 1627 accessible cylinders
*
* No space unallocated to partitions
Partition Type  Fs  Start: sec (cyl)  Size: sec (cyl)  Mount Directory
 0         efs  yes      3232  ( 4)      32320 ( 40)  /
 1         raw          35552 ( 44)      81608( 101)
 6         efs  yes    117160( 145)    1200688(1486)  /usr
 7         efs           3232  ( 4)    1314616(1627)
 8      volhdr  0               ( 0)       3232  ( 4)
10      volume  0               ( 0)    1317848(1631)
```

quota - display disk usage and limits

quota displays the amount of disk space used and the limits for usage for each user.

scsicontrol - probe and control SCSI devices

This tool is a replacement for the **inquire** tool that was available previously only as a gift. As of 6.2 this tool is part of the IRIX release.

scsiha - probe and control SCSI buses

Similar in concept to scsicontrol, this tool allows control of SCSI buses rather than specific devices on a bus.

xfs_check - check XFS filesystem for consistency

Checks to see that the XFS filesystem is intact.

xfs_repair - repair an XFS filesystem

Repairs, to the best of its ability, an XFS filesystem.

xselinput - show X device input events

This program will provide information about X events coming into the system from X devices.

This program is provided in the /usr/people/4Dgifts directory. It does not have a man page. Consult the README file in the directory for specifics on using this utility.

xlist - list all the X input devices

This program lists all the X devices that the system has attached.

This program is provided in the /usr/people/4Dgifts directory. It does not have a man page. Consult the README file in the directory for specifics on using this utility.

7.6 Networking Tools

exportfs - Export and unexport directories to NFS clients

`exportfs` makes a local directory (or file) available for mounting over the network by NFS clients. A list of exported directories is kept in /etc/exports.

ifconfig - configure network parameters

`ifconfig` is used to configure network interface parameters. Each network interface has a name (“enp0” for example). Ifconfig can be used to turn on or off each of these network interfaces by name. An example is **`ifconfig enp0 down`**. This shuts down the network interface enp0.

netstat - show network status

`netstat` shows the status of the network connections on the machine. In particular, **`netstat -i`** will show the status of the various network interfaces. **`netstat -C`** shows

several formats in a full screen, dynamic fashion. **`netstat -ia`** shows the MAC address of a network device.

ping - send an ECHO_REQUEST to a network machine

`ping` is used to see if you can communicate with a remote machine. This is done by sending an ECHO_REQUEST to a the machine. Ping will continue to send these requests until you stop the process (Control-C).

rup - show host status of local machines

`rup` shows a listing of all local machines with their name, how long they've been up and what their load average is.

ruptime - show host status of local machines

`ruptime` shows the status of local machines.

showmount - show remotely mounted file systems

`showmount` shows all the clients that have remotely mounted a filesystem from a particular host (the local host if no argument given).

timedc - timed control program

`timedc` is used to control the timed daemon. It can be used to determine the time difference between two systems, find the system on the network being used as a time master, or help debug problems with the timed daemon.

traceroute - prints the route packets take to a network host

A useful tool if networking routing issues seem to be a problem. Allows you to follow a packet as it proceeds from one network machine to another and (hopefully) to the proper destination.

uustat - UUCP status and job control

`uustat` will show the status of uucp commands or the status of uucp connections.

ypwhich - show the NIS server or map master hostname

ypwhich shows which Network Information Service (NIS) server supplies the NIS services to an NIS client, or which server is the master for a map. If no hostname is supplied as an argument, it supplies the hostname of the NIS server for the local machine.

7.7 Mail Tools

mailq - print contents of the mail queue

mailq prints the contents of the mail queue. It is actually the sendmail program invoked with the argument '**-bp**'.

sendmail - send network mail

sendmail is the facility used by mail programs to send mail over the network.

7.8 Miscellaneous Tools

The following is a list of commands for doing common operations on SGI systems. Some might be considered tools, while others are the commands necessary to bring a system up, shut it down, or change it into some different operational state.

apropos - locate commands by keyword lookup

apropos uses the whatis database to find commands associated with keywords.

autoconfig - configure a kernel

autoconfig is used to invoke lboot and other commands to generate a UNIX kernel. **autoconfig** automatically places the newly generated kernel in place for the next reboot.

clri - clear i-node

clri writes nulls on the inode table entry for the given i-number.

distcp - copy or compare software distributions

distcp copies or compares software distributions. Software distributions are software releases for one or more software products that are prepared by Silicon Graphics and installed by inst.

endsession - terminate a login session

endsession terminates a login session initiated by xdm.

ftp - Internet file transfer program

ftp is the user interface to the Internet standard File Transfer Protocol. The program allows a user to transfer files to and from a remote network site.

gclear - clear the graphics screen

gclear clears every visible bit of every pixel on the entire IRIS graphics screen.

halt - halt the system

halt causes the system to be shut down. The -p option can cause the power to be turned off once the system is down on those system that support this feature. **halt** calls the shutdown command. Key differences between **halt**, **powerdown**, **reboot** and **shutdown** are shown below:

Table 7-1 System shutdown commands

Command	Confirmation Option?	Grace Period Option?	Init State Choice?	Power Down Option?	Restart System?	Confirmation if remote?
halt	no	no	no (state 0)	yes	no	yes
powerdown	yes	yes	no	yes (default)	no	
reboot	no	no	no (state 6)	no	no	yes
shutdown	yes	yes	yes (state 0)	yes	no	no

init - process control initialization

init is used to change the operating level of the system. It can be used to bring the system from a multiuser state into a single user state.

inst - software installation tool

The **inst** tool installs software from a source where the software is in the "**inst**" format. This can be from a CD-ROM, tape, local disk or remote disk. An "**-a**" argument will enable the automatic mode where little interaction is required.

kill - terminate a process by default

kill sends a signal to the processes either by process ID or process group ID.

killall - kill named processes

killall sends a signal to a set of processes specified either by name, process group, or process ID. **killall** is similar to **kill** except the process can be specified by name.

lboot - configure a bootable kernel

lboot creates a bootable kernel based on the information in the master directory. By default, the resulting kernel is placed in the file unix.new. **Lboot** does not replace the new kernel for the currently used kernel. Since **lboot** forces the system to check for all installed hardware, using the verbose flag, **lboot -v**, can be used to see whether a board or device responds to a probe. Also see **autoconfig**.

MAKEDEV - create device special files

MAKEDEV creates specified device files in the current directory. This is most often invoked in the /dev directory to make (or remake) all or some of the systems devices. For example, '**MAKEDEV tape**' will create all the tape device special files.

makewhatis - make manual page database

makewhatis finds all the man pages and compiles a database that is used by **man**, **apropos** and **whatis**.

man - print entries from on-line reference manuals

Man is used to print the manual page for the given command.

network - network initialization and shutdown script

network (**/etc/init.d/network [start | stop]**) is used to either start or stop the network devices attached to the system. Issuing a '**network stop**', then a '**network start**' will cause the system to recognize any changes in network configuration and reinitialize the networking hardware.

nice - run a command at a low priority

nice executes a command with a lower CPU scheduling priority.

npri - modify the scheduling or priority of a process

Allows root to adjust the scheduling or priority of a process.

od - octal dump

Somewhat of a misnomer, **od** displays a file in one of several different formats, including octal, character, hexadecimal and decimal.

powerdown - stop all processes and halt the system

powerdown brings the system to a state where nothing is running so the power can be turned off. By default, the user is asked questions that control how much warning the other users are given. This can be overriden by a command line argument. **Powerdown** invokes shutdown. This command is useful for shutting down a system after it completes some long running command. For a comparison of **halt**, **powerdown**, **reboot** and **shutdown** see Table 7-1.

rcp - remote file copy

rcp copies one or more files from a source machine to a destination machine.

rdist - remote file distribution program

rdist is a program to maintain identical copies of files over multiple hosts.

reboot - reboot the system

reboot halts the system and then restarts it. To bring a system down before shutting off the power use either halt or shutdown. For the differences between **halt**, **powerdown**, **reboot** and **shutdown** see Table 7-1.

renice - alter the priority of running processes

renice alters the scheduling priority of one or more running processes.

setmon - set the current and default video output format

setmon changes the video output format to the one specified on the command line. It is also used to define the default video format for the system.

single - switch the system to single user mode

single switches the system to single user mode and turns gettys off. This can be performed while in IRIX or in the command mode of the prom monitor.

shutdown - shut the system down, change system state

shutdown brings the system to a new system state (by default, the PROM monitor). For differences between halt, powerdown, reboot and shutdown consult Table 7-1.

startgfx, stopgfx - start stop the window system

startgfx turns the windowsystem configuration flag on, and executes the X Display Manager, xdm. **stopgfx** turns the windowsystem configuration flag off, and terminates the X Display Manager.

su - switch to root or another user

Su is used to switch from the current login to another user login. Without an argument su assumes you want to switch to the root login. Use of the "**-**" argument defines that the environment of new login will be used. Otherwise the current environment will be used for the new login.

sync - update the super block

sync is used to update the information on the disks super block. It flushes all previously unwritten system buffers out to disk, thus assuring that all file modifications up to that point will be saved.

talk - talk to another user

talk is a visual communication program which copies lines from your terminal to that of another user.

telinit - process control initialization

telinit is used to change the operating level of the system. It can be used to bring the system from a multiuser state into a single user state.

wakeupat - request the system power back on at a future time

wakeupat allows you to specify a time at which the system will power on by itself.

whatis - describe what a command is

whatis uses the whatis database to show the header line from a particular commands man page.

winterm - a terminal emulator window

winterm is a shell script that runs an application in a shell window. It is used by workspace and toolchest when launching applications with teletype-style user interfaces. The value of winterm is that it will start a **wsh**, **xwsh** or **xterm** terminal emulator by specifying the $WINTERM variable. Winterm is specific to SGI machines.

wsh - creates a window shell

wsh is the predecessor to Xwsh. It is a terminal emulation program that runs a shell (or other UNIX command) within its own window on the screen. **wsh** is specific to SGI machines. It takes advantage of the SGI graphics hardware.

xconsole - monitor system console messages

xconsole displays messages which are usually sent to /dev/console.

xterm - terminal emulator for X

The **xterm** program is a terminal emulator for the X Window System. Useful for running programs specifically written for a pure X environment.

xwsh - creates and specifies a window shell

xwsh is a terminal emulation program that runs a shell (or other UNIX command) within its own window on the screen. **xwsh** is specific to SGI machines. It takes advantage of the SGI graphics hardware.