Quick Reference: Linux to AIX
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Use this reference to contrast the AIX Version 5.1.0 and Linux (Red Hat) operating systems. The following tables contrast common tasks on these operating systems. Tasks are grouped according to major categories that are listed below. Each major category is contained within a table. Tables can also include location information of files or pertinent information that is related to the category they contain.

For detailed information about the AIX operating system, refer to the following Web address: http://www.ibm.com/servers/aix/library/.

AIX library information is listed under *Technical Publications*.

This reference provides information on AIX and Linux in the following categories:
- Packaging
- Installing and Upgrading Tasks
- Booting and Shutting Down
- User Management Tasks
- Device Management and Configuration
- Network Management and Configuration
- Printer Management and Configuration
- File System Management
- Logical Volume Management
- Troubleshooting and Additional Location Information

Packaging

The following information contrasts AIX and Linux packaging details.

Table 1.

Units	**AIX Version 5.1.0**	**Red Hat 7.1**
Smallest installable unit	fileset	package
Single installable image; must be distributed and installed as a unit	package	package
Logical grouping of packages	bundle	package
Logical grouping of packages and software clusters	Bundle offering, for example: • App-Dev: Application Development Environment • Client: – Pers-Prod – DCE-Client – Media-Defined	With a *workstation class*, a dual boot is possible. (It includes X-window desktop managers). A *laptop class* is similar to a *workstation class* with PCMCIA support. A *server class* contains *no* X-windows, *no* desktop managers, and *no* dual boot can be done.

Installing and Upgrading Tasks

The information contrasts AIX and Linux installing and upgrading tasks.

Table 2.

Tasks	AIX Version 5.1.0	Red Hat 7.1
Install packages	**installp -a** *or* **smitty install_latest** (fast path)	**rpm -i**
Display installed packages	**lslpp -L** *or* **smitty list_installed_sw** (fast path)	**rpm -q**
Remove software package	**installp -r** (for applied package) *or* **smitty reject** (fast path) **installp -u** (for committed package) *or* **smitty remove** (fast path)	**rpm -e**
Upgrade a package	**installp -a**	**rpm -U**
Verify correct installation	**lppchk** *or* **smitty check_files** (fast path)	**rpm -V**
Install a patch	**instfix** *or* **smitty update_by_fix** (fast path)	**rpm -F**
Remove a patch	**installp -r** *or* **smitty reject** (fast path)	N/A
Display installed patches	**instfix -ia**	N/A
Install OS on another disk (Alternate disk installation)	**alt_disk_install**	Install different OS on different disk
Create an installation server for network installation	**nimconfig**	N/A
Create a boot server for network installation	**smitty nim_config_env**	N/A
Set up a client for network installation	**nim -o bos_inst**	N/A

Booting and Shutting Down

The following displays processes and locations of items that are involved in booting and shutting down a system in AIX and Linux.

Table 3.

Tasks/Locations	AIX Version 5.1.0	Red Hat 7.1
Boot process	Phases: • Read Only Storage (ROS): Check the system board, perform Power-On Self-Test (POST), locate the boot image, load the boot image into memory, begin system initialization and execute phase 1 of the **/etc/rc.boot** script • Base Device Configuration: Start Configuration Manager to configure base devices • System Boot: Start **init** process phase 2, switch to hard-disk root file system, start other processes defined by records in the **/etc/inittab** file and execute phase 3 of the **/etc/rc.boot** script	Phases: • BIOS: Checks the system and peripheral devices. Locates and runs the Master Boot Record (MBR) • MBR loads Linux Loader (LILO). • LILO boots the kernel information in **/etc/lilo.conf** • System Boot: Starts **init** process. • init: Starts **rc.sysinit** and other processes based on the **/etc/inittab** file
Kernel modules directory	Kernel and kernel extension modules are stored in two directories: • **/usr/lib/boot** • **/usr/lib/drivers**	Kernel modules are stored in two directories: • **/boot** • **/lib/modules**
System run levels	Defined run levels: • 0-1: Reserved for future use • 2: Multiuser mode with NFS resources shared (default run level) • 3-9: Defined according to the user's preferences • m,M,s,S: Single-user mode (maintenance level) • a,b,c: Starts processes assigned to the new run levels while leaving the existing processes at the current level running • Q,q: **init** command to reexamine the **/etc/inittab** file **Note:** When a level from 1 to 9 is specified, the **init** command kills processes at the current level and restarts any processes associated with the new run level based on the **/etc/inittab** file.	Seven run levels: • 0: Halt state • 1: Single-user mode • 2: Multiuser mode • 3: Multiuser mode with NFS • 4: Not in use • 5: Multiuser mode with X11 • 6: Reboot mode
Determine a system's run level	**who -r**	**runlevel**
Change a system's run level	**telinit** *level number*	**telinit** *level number*
Startup script	**/etc/rc**	**/etc/rc.d/rc** *run-level number*
Use new kernel	**bosboot**	**lilo**

Table 3. (continued)

Tasks/Locations	AIX Version 5.1.0	Red Hat 7.1
Display boot information	**bootinfo**	**cat /etc/lilo.conf**
Display or alter the list of boot devices	**bootlist**	**bios**
Shutdown and reboot	**shutdown -Fr**	**shutdown -r now**
Shutdown	**shutdown** or **halt**	**halt**

User Management Tasks

The following displays tasks and location of files or information that is needed to perform user management in AIX and Linux.

Table 4.

Tasks/Locations	AIX Version 5.1.0	Red Hat 7.1
Run multiple tasks in a GUI environment	Choose one of the following: • **smitty users** (fast path) • **smitty** • **wsm**	**linuxconf**
Add a user	**mkuser**	**useradd**
Remove a user	**rmuser**	**userdel**
Change a user	**chuser**	**usermod**
List users	**lsuser**	**awk /etc/passwd**
Password files	**/etc/passwd** *and* **/etc/security/passwd**	**/etc/passwd** *and* **/etc/shadow**
Group files	**/etc/group** *and* **/etc/security/group**	**/etc/group**
Process resource limits for users	**/etc/security/limits**	**/etc/security/limits.conf**
Systemwide environment file	**/etc/profile** *and* **/etc/environment**	**/etc/profile**
Configuration information for user authentication	**/etc/security/user**	**/etc/login.defs**
Profile template	**/etc/security/.profile**	**/etc/skel/profile**

Device Management and Configuration

The following is a list of tasks that are used for device management and configuration in AIX and Linux.

Table 5.

Tasks	AIX Version 5.1.0	Red Hat 7.1
Run multiple tasks in a GUI environment	Choose one of the following: • **smitty device** (fast path) • **smitty** • **wsm**	**linuxconf**
Configure a device	**cfgmgr**	**/dev/MAKEDEV**
Define a device	**mkdev**	**mknod**
Remove a device	**rmdev**	**/dev/MAKEDEV**
Change a device	**chdev**	N/A
List devices	Choose one of the following: • **lsdev** • **lscfg** • **prtconf**	**cat /proc/devices**

Network Management and Configuration

The following are tasks that are employed when performing network management and configuration in AIX and Linux.

Table 6.

Tasks	AIX Version 5.1.0	Red Hat 7.1
Run multiple tasks in a GUI environment	Choose one of the following: • **smitty tcpip** (fast path) • **smitty** • **wsm**	**netcfg**
Configure TCP/IP	**mktcpip**	**/etc/sysconfig/network_scripts/**
Display interface settings	**ifconfig**	**ifconfig**
Configure interface	**ifconfig**	**ifconfig**
Change name service	**chnamsv**	**vi /etc/resolv.conf**
Unconfigure name service	**rmnamsv**	**vi /etc/resolv.conf**
Display name service	**lsnamsv** *or* **cat /etc/resolv.conf**	**cat /etc/resolv.conf**
Configure host name resolution order	**vi /etc/netsvc.conf** *or* **NSORDER** environment variable	**vi /etc/nsswitch.conf**

Printer Management and Configuration

The following displays tasks that are involved in printer management and configuration in AIX and Linux.

Table 7.

Tasks	AIX Version 5.1.0	Red Hat 7.1
Run multiple tasks in a GUI environment	Choose one of the following: • **smitty print** (fast path) • **smitty** • **wsm**	**linuxconf** *or* **printtool**
Add a printer	**mkdev**	**printtool**
Start a print queue	**qadm** (AIX printing subsystem) *or* **lpc** (System V)	**lpc**
Stop a print queue	**qadm** (AIX printing subsystem) *or* **lpc**	**lpc**
Display print queue status	**lpstat**	**lpc** *or* **lpq**
Cancel a print job	**qcan**	**lprm**
Add a print queue	Choose one of the following: • AIX printing subsystem: – **mkque** – **mkquedev** – **mkvirprt** • System V: – **lpadmin -p**	**printtool** *or* **vi /etc/printcap**
Change a print queue	Choose one of the following: • AIX printing subsystem: – **chque** – **chquedev** – **chvirprt** • System V: – **lpadmin -p**	**printtool** *or* **vi /etc/printcap**
Remove a print queue	Choose one of the following: • AIX printing subsystem: – **rmque** – **rmquedev** – **rmvirprt** • System V: – **lpadmin -x**	**printtool** *or* **vi /etc/printcap**
Display settings of a print queue	Choose one of the following: • AIX printing subsystem: – **lsque** – **lsquedev** – **lsvirprt** • System V: – **lpstat**	**printtool** *or* **vi /etc/printcap**

File System Management

The following are tasks that are employed when performing file system management in AIX and Linux.

Table 8.

Tasks	**AIX Version 5.1.0**	**Red Hat 7.1**
Run multiple tasks in a GUI environment	Choose one of the following: • **smitty fs** (fast path) • **smitty** • **wsm**	**linuxconf**
Format a disk	N/A - Automatically handled	**fdisk**
Check a file system	**fsck**	**fsck**
Mount a file system	**mount**	**mount**
Display available file-system space	**df**	**df**
Partition a disk	N/A - Automatically handled	**cfdisk** *or* **fdisk**
List a volume's table of contents	**lchangelv**	**fdisk**
Add a file system	**crfs**	**mkfs**
Unmount a file system	**umount**	**umount**
Back up file systems/files/directories	**backup**	**dump**
Restore file systems/files/directories	**restore**	**restore**
Change a file system	**chfs**	**resize2ext**
Remove a file system	**rmfs**	N/A
Display file system information	**lsfs** *or* **cat /etc/filesystems**	**cat /etc/fstab**
Display file system mount table	**mount**	**/etc/mtab**

Logical Volume Management

The following is a list of tasks that are used when performing logical volume management in AIX. IBM includes its Logical Volume Manager (LVM) in AIX Version 5.1.0. For LVM on Linux, refer to the following Web address: http://www.sistina.com.

Table 9.

Tasks	AIX Version 5.1.0	Linux
Storage Structure	A *disk* is composed of *physical partitions*. A *physical volume* is a physical disk the same thing as a *disk*. A *volume group* is composed of *physical volumes*. A *volume group* is divided into *logical volumes*. A *file system* is placed onto a *logical volume*. A *logical volume* is extensible and can reside on more than one *physical volume*.	A *disk group* (similar to AIX volume group) is composed of *VM disks*. A *physical extent* is equivalent to the AIX physical partition. A *logical extent* is the same as the AIX logical partition. A *volume group* is the same as the AIX volume group. A *logical volume* is the same as the AIX logical volume.
Run multiple tasks in a GUI environment	Choose one of the following: • **smitty lvm** (fast path) • **smitty** • **wsm**	N/A
Move logical volume to another physical volume	**migratepv**	N/A
Create logical volume	**mklv**	**lvcreate**
Extend logical volume	**extendlv**	**lvextend**
Remove logical volume	**rmlv**	**lvremove**
Create volume group	**mkvg**	**vgcreate**
Remove disk from volume group	**reducevg**	**vgreduce**
Add disks under volume manager	**extendvg**	**vgextend**
Administer disks	**reducevg** *or* **extendvg**	**vgreduce** *or* **vgextend**
Set up disks	**extendvg**	**vgextend**
Change logical volume settings	**chlv**	**vgchange**
Create configuration records for storage structures	**mkvg** *or* **mklv**	**vgcreate** *or* **lvcreate**

Table 9. (continued)

Tasks	AIX Version 5.1.0	Linux
Manage volume groups	**chvg** *or* **mkvg**	**vgchange** *or* **vgcreate**
Display volume group	**lsvg**	**vgdisplay**
Change size of logical volume	**extendlv** *or* **chlv**	**lvextend**
Manage subdisk or physical volume	**chpv**	**pvchange**
Display statistics for storage structures	Choose one of the following: • **lspv** • **lsvg** • **lslv**	**lvmadc** *and* **lvmsar**
Manage volume	Choose one of the following: • **chlv** • **mklv** • **rmlv**	Choose one of the following: • **lvchange** • **lvcreate** • **lvremove**

Troubleshooting and Additional Location Information

The following table includes troubleshooting and additional location information in AIX and Linux.

Table 10.

Tasks/Locations	AIX Version 5.1.0	Red Hat 7.1
Change a host name	**chdev -l inet0 -a hostname=***host name*	**hostname**
List of well-known networking services and port numbers	**/etc/services**	**/etc/services**
List of well-known protocols	**/etc/protocols**	**/etc/protocols**
Provide interface-level packet tracing for Internet protocols	**iptrace**	N/A
Display network status	**netstat**	**netstat**
Display NFS and RPC statistics	**nfsstat**	**nfsstat**
Display statistics on network I/O and network CPU usage	**netpmon**	N/A
Display a snapshot of virtual memory	**svmon**	**cat /proc/meminfo**
Capture and analyze a snapshot of virtual memory	**svmon**	N/A
Display virtual memory statistics	**vmstat**	**vmstat**
Display I/O statistics	**iostat** *or* **filemon**	**iostat**

Table 10. (continued)

Tasks/Locations	AIX Version 5.1.0	Red Hat 7.1
Report system activity	**sar**	**sar**
Display simple and complex lock contention information	**lockstat**	**view /var/lock** directory
Report CPU usage	**tprof** or **topas**	**top**
Simulate a system with different memory sizes for performance testing	**rmss**	use ″**append=**″ directive in **/etc/lilo.conf**
Display system error log	**errpt -a**	**dmesg**
Display/Set dump device	**sysdumpdev**	N/A
Display paging/swapping space	**lsps -a**	**swapon -s**
Specify users who have access to **cron** (Every user has access to **cron** if the access file does not exist.)	**/var/adm/cron/cron.allow**	**/etc/cron.d/cron.allow**
Specify users who have no access to **cron**	**/var/adm/cron/cron.deny**	**/etc/cron.d/cron.deny**
Specify remote users and hosts that can execute commands on the local host	**/etc/hosts.equiv**	**/etc/hosts.equiv**
Default superuser log	**/var/adm/sulog**	**/var/log/messages**
Configure **syslogd** logging	**/etc/syslog.conf**	**/etc/syslog.conf**
Display physical RAM	**bootinfo -r** *or* **prtconf**	**cat /proc/meminfo**
Back up operating system	**mksysb** (to tape or file) *or* **mkcd** (CD-ROM)	N/A
Restore operating system	**mksysb** (to tape or file) *or* **mkcd** (CD-ROM)	N/A
Start or stop scripts directory	**/etc**	**/etc/rc.d/init.d**
Devices directory	**/dev**	**/dev**

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