IBM AIX commands you shouldn't leave home without

参考 ： https://www.ibm.com/developerworks/aix/library/au-aix_cmds/index.html
http://ibmsystemsmag.com/aix/tipstechniques/systemsmanagement/handy-aix-reference-guide/?page=2
https://www.ibm.com/support/knowledgecenter/en/ssw_aix_71/com.ibm.aix.cmds.navigation/alphabeticallistofcommands.htm

1. to know if I am running a uniprocessor kernel or a multiprocessor kernel, or a 32-bit kernel or a 64-bit kernel :
ls -l /unix
/unix is a symbilic link to the booted kernel. enter ls -l /unix and see what file /unix it links to.

2. to change from one kernel mode to another
run the following commands in sequence :
ln -sf /usr/lib/boot/unix_64 /unix
ln -sf /usr/lib/boot/unix_64 /usr/lib/boot/unix
bosboot -ad /dev/hdiskxx
shutdown -r

The /dev/hdiskxx directory is where the boot logical volume /dev/hd5 is located. To find out what xx is in hdiskxx, run the following command:
lslv -m hd5

3. to know if my machine is capable of running AIX 5L Version 5.3
AIX 5L Version 5.3 supports all 32- bit and 64-bit Common Hardware Reference Platform (CHRP)-based IBM Power® hardware. Only 64-bit CHRP systems are supported with AIX 6.1 and AIX V7.1.

4. to know if my machine is CHRP-based
Run the prtconf command. If it is a CHRP machine, the string chrp appears on the Model Architecture line.

5. to know if my Power System machine (hardware) is 32-bit or 64-bit
Run the prtconf command

6. to know how much real memory my machine have
To display real memory in kilobytes (KB), type the following :
lsattr -El sys0 -a realmem

7. Can my machine run the 64-bit kernel?
64-bit hardware is required to run the 64-bit kernel.

8. What are the values of attributes for devices in my system?
To list the current values of the attributes for the tape device, rmt0, type :
lsattr -l rmt0 -E
To list the default values of the attributes for the tape device, rmt0, type :
lsattr -l rmt0 -D
To list the possible values of the login attribute for the TTY device, tty0, type :
lsattr -l tty0 -a login -R
To display system-level attributes, type :
lsattr -E -l sys0

9. How many processors does my system have
To display the number of processors on you system, type :
lscfg | grep proc

10. How many hard disks does my system have and which ones are in use?
To display the number of hard disks on you system, type :
lspv

11. To list information about a specific physical volume
To find details about hdisk1, for example, run the following command :
lspv hdisk1

12. How do I get a detailed configuration of my system?
Type the following :
lscfg
or
prtconf
eg : to display details about the tape drive, rmt0, type :
lscfg -v1 rmt0

13. How do I find out the chip type, system name, node name, model number, and so forth?
The uname command provides details about your system.
uname -p : displays the chip type of the system.
uname -r : displays the release number of the operating system.
uname -s : displays the system name.
uname -n : displays the name of the node.
uname -a : displays the system name, nodename, version, machine ID.
uname -M : displays the system model name.
uname -v : displays the operating system version.
uname -m : displays the machine ID number of the hardware running the system.
uname -u : displays the system ID number

14. What is the technology level of my system?
To determine the highest technology level reached for the current version of AIX on the system, type :
oslevel -r
lslpp -h bos.rte
To list the installation state for the most-recent level of installed file sets for all of the bos.rte file sets, type :
lslpp -l "bos.rte.*"
To list which software is below AIX Version 5.3 technology level 1, type :
oslevel -r -l 5300-01
To list which software is at a level later than AIX Version 5.3 technology level 1, type :
oslevel -r -g 5300-01
To determine the highest service pack reached for the current technology level on the system, type :
oslevel -s
To list the known service packs on a system, type :
oslevel -sq
To list which software is below AIX Version 6.1 technology level 0, service pack1, type :
oslevel -s -l 6100-00-01-0748
To list which software is at a level later than AIX Version 6.1 technology level 0, service pack 1, type :
oslevel -s -g 6100-00-01-0748

15. How do I create a file system?
The following command will create, within volume group testvg, a journaled file system (JFS) of 10MB with mounting point /fs1 :
crfs -v jfs -g testvg -a size=10M -m /fs1
The following command creates, within the testvg volume group, a enhanced journaled file system (JFS2) of 10MB with mounting point /fs2 and having read-only permissions
crfs -v jfs2 -g testvg -a size-10M -p ro -m /fs2
To make a JFS on the rootvg volume group with nondefault fragment size and nondefault number of bytes per i-node(NBPI), enter :
crfs -v jfs -g rootvg -m /test -a \ size=32768 -a frag=521 -a nbpi=1024

16. How to create a file system?
to create within volume group testvg, a journaled file system (JFS) of 10MB with mounting point /fs1 :
crfs -v jfs -g testvg -a size=10M -m /fs1
to create within the testvg volume group, a enhanced journaled file system (JFS2) of 10MB with mounting point /fs2 and having read-only permissions :

crfs -v jfs2 -g testvg -a size=10M -p ro -m /fs2
to make a JFS on the rootvg volume group with nondefault fragment size and nondefault number of bytes per i-node (NBPI) :
crfs -v jfs -g rootvg -m /test -a \ size=32768 -a frag=512 -a nbpi=1024
to make a JFS on the rootvg volume group with nondefault fragment size and nondefault NBPI :
crfs -v jfs -g rootvg -m /test -a size=16M -a frag=512 -a nbpi=1024

17. How do I change the size of a file system?
to increase the /usr file system size by 1000000 512-byte blocks, type :
chfs -a size=+1000000 /usr
to change the file system size of the /test JFS, (to change the size of the /test JFS to 24576 512-byte blocks, or 12MB (provided, it was previously no larger than this).) enter :
chfs -a size=24576 /test
to increase the size of the /test JFS, enter :
chfs -a size=+8192 /test
to change the mount point of a file system,(to change the mount point of a file system from /test to /test2) enter :
chfs -m /test2 /test
to delete the accounting attribute from a file system,(removes the accounting attribute from the /home file system. The accounting attribute is deleted from the /home: stanza of the /etc/filesystems file.) enter :
chfs -d account /home
to split off a copy of a mirrored file system and mount it read-only for use as an online backup,(mounts a read-only copy of /testfs at /backup) enter :
chfs -a splitcopy=/backup -a copy=2 /testfs
to change the file system size of the /test JFS,(changes the size of the /test JFS to 64MB) enter :
chfs -a size=64M /test
to reduce the size of the /test JFS2 file system,(reduces the size of the /test JFS2 file system by 16MB) enter :
chfs -a size=-16M /test

18. How do I mount a CD?
Type the following :
mount -V cdrfs -o ro /dev/cd0 /cdrom

19. How do I mount a file system?
eg : mount file system /dev/fslv02 on the /test directory :
mount /dev/fslv02 /test

20. How to mount all default file systems (all standard file systems in the /etc/filesystems file marked by the mount=true attribute)?
mount {-a | all}

21. How do I display mounted file systems?
Type the following command to display information about all currently mounted file systems :
mount
eg : to mount a remote directory (sequence mounts the /home/tom.rmote directory located on modeA onto the local /home/tom.local directory. It assumes the default VfsName parameter=remote, which must be defined in the /etc/vfs file.)
mount -n nodeA /home/tom.remote /home/tom.local
eg : to mount a file or directory from the /etc/file systems file with a specific type, (sequence mounts all files or directories in the /etc/file systems file that have a stanza containing the type=remote attribute.)
mount -t remote
eg : to mount a snapshot, (mounts the snapshot contained on the /dev/snasb device onto the /home/janet/snapsb directory.)
mount -o snapshot /dev/snapb /home/janet/snapsb
eg : to mount a file system and createa snapsht, (mounts the file system contained on the /dev/sbdevice directory onto the /home/janet/sb directory and creates a snapshot for the file system on /dev/snapsbdevice.)
mount -o snapto=/dev/snapsb /dev/sb /home/janet/sb
eg : to remount the mounted read-only JFS2 file system to a read-write file system,
mount -o remount, rw fsname

22. How to unmount a file system?
eg : to unmount the /test file system

umount /test
eg : to unmount all mounts from the Node A remote node
umount -n nodeA

23. How to remove a file system?
eg : to remove the /test file system
rmfs /test

24. How to defragment a file system?
to improve or report the status of contiguous space within a file system.
eg : to defragment the file system /home
defragfs /home
eg : to generate a report on the /data1 file system that indicates its current status as well as its status after being defragmented
defragfs -r /data1
eg : to generate a report on the fragmentation in the /data1 file system
defragfs -s /data1

25. Which file set contains a particular binary?
eg : to list the file set that owns /usr/bin/vmstat
lslpp -w /usr/bin/vmstat
eg : to display all files in the inventory database
lslpp -w
eg : to list the file set that owns all file names containing installp
lslpp -w "*installp*"
eg : to show which file set contains /usr/bin/svmon
which_fileset svmon

26. How to display information about the installed file sets on my system?
eg :
lslpp -l
eg : to list the installation state for the most recent level of installed file sets for all of the bos.rte file sets
lslpp -l "bos.rte.*"
eg : to list the installation state for the base level and updates for the bos.rte.filesystem file set
lslpp -La bos.rte.filesystem
eg : to list the names of all the files of the bos.rte.lvm file set
lslpp -f bos.rte.lvm
eg : to list the file set that owns all file names containing installp
lslpp -w "*installp*"

27. How do I determine if all file sets of technology level are installed on my system?
eg :
instfix -i | grep TL

28. How to determine if a fix is installed on my system?
eg : to inform the user on whether fixes IX38794 and IX48523 are installed
instfix -i -k "IX38794 IX48532"

29. How do I install an individual fix by APAR?
eg : to install APAR IY73748 from /dev/cd0
instfix -k IY73748 -d /dev/cd0
eg : to install all file sets associated with fix IX38794 from the tape mounted on /dev/rmt0.1
instfix -k IX38794 -d /dev/rmt0.1
eg : to install all fixes on the media in the tape drive
instfix -T -d /dev/rmt0.1 | instfix -d /dev/rmt0.1 -f-

30. How do I verify if file sets have required prerequisites and are completely installed?
eg : to show the file sets that need to be installed or corrected

lppchk -v

31. How to get a dump of the header of the loader section and the symbol entries in symbolic representation?
eg :
dump -Htv
eg : to dump the object file headers
dump -o a.out
eg : to dump line number information for the a.out file
dump -l a.out
eg : to dump the contents of the a.out object file text section
dump -s a.out
eg : to dump symbol table information for the a.out object file
dump -t a.out

32. How to determine the amount of paging space allocated and in use?
lsps -a

33. How to increase a paging space?
eg : increase the size of hd6 with three logical partitions
chps -s 3 hd6
eg : to change the size of the myvg paging space
chps -s 4 myvg

34. How to reduce a paging space?
eg : to decrease the size of hd6 with four logical partitions
chps -d 4 hd6

35. How to know if my system is capable of using simultaneous multithreading (SMT)?
Your system is capable of SMT if it is an IBM POWER5 processor-based system or later running AIX 5L Version 5.3 or later.

36. How to know if SMT is enabled for my system?
If you run the smtctl command without any options, it tells you if it is enabled or not.

37. Is SMT supported for the 32-bit kernel?
Yes, SMT is supported for both 32-bit and 64-bit kernel.

38. How to enable or disable SMT?
smtctl [-m off | on [-w boot | now]]
If neither the -w boot option nor the -w now option is specified, then the mode change is made immediately. It persists across subsequent reboots if you run the bosboot command before the next system reboot.
eg : to disable simultaneous multithreading for the current boot cycle and for all subsequent boots
smtctl -m off

39. How to get partition-specific information and statistics?
eg : get the default LPAR statistics
lparstat 1 1
eg : to get default LPAR statistics with summary statistics on Hypervisor
lparstat -h 1 1
eg : get the information about the partition
lparstat -i
eg : to get detailed hypervisor statistics
lparstat -H 1 1
eg : to get statistics about the shared memory pool and the I/O memory entitlement of the partition
lparstat -m

Volume groups and logical volumes
AIX V7.1 includes enhanced support for solid-state drive (SSD) in the AIX Logical Volume Manager (LVM). The commands lsvg, mkvg, chvg, extendvg, and replacepv described in the following sections support creation, extension, and maintenance of volume groups

consisting of SSDs.

40. How to know if my volume group is normal, big or scalable?
Run the lsvg command on the volume group and look at the value for MAX PVs. The value is 32 for normal, 128 for big, and 1024 for scalable volume group.

41. How to create a volume group?
syntax :
mkvg -y name_of_volume_group -s partition_size list_of_hard_disks
eg : to create a volume group that contains three physical volumes with partition size set to 1MB
mkvg -s 1 hdisk3 hdisk5 hdisk6
eg : to create a volume group that can accommodate a maximum of 1024 physical volumes and 2048 logical volumes
mkvg -S -v 2048 hdisk6

42. How to change the characteristics of a volume group?
chvg
eg : to cause volume group vg03 to be automatically activated during system startup
chvg -a y vg03

43. How to create a logical volume?
syntax :
mklv -y name_of_logical_volume name_of_volume_group number_of_partition
eg : to make a logical volume in vg03 with 15 logical partitions chosen from physical volumes hdisk5, hdisk6, and hdisk9
mklv vg03 15 hdisk5 hdisk6 hdisk9

44. How to increase the size of a logical volume?
eg : to increase the size of the logical volume represented by the lv05 directory by three logical partitions
extendlv lv05 3

45. How to display all logical volumes that are part of a volume group (eg. rootvg)?
lsvg -l rootvg
eg : to display the names of all active volume groups
lsvg -o
eg : to display the names of all volume groups within the system
lsvg
eg : to display information about volume group vg02
lsvg vg02

46. How to list information about logical volumes?
eg : to display information about the logical volume lv1
lslv lv1
eg : to display the logical volume allocation map for hdisk2
lslv -p hdisk2
eg : to display information about the lv03 logical volume by physical volume
lslv -l lv03

47. How to remove a logical volume from a volume group?
eg : remove the logical volume lv7
rmlv lv7
note : The rmlv command removes only the logical volume, but does not remove other entities, such as file systems or paging spaces that were using the logical volume.

48. How to mirror a logical volume?
syntax :
1) mklvcopy LogicalVolumeName Numberofcopies
2) syncvg VolumeGroupName
eg : to add physical partitions to the logical partitions in the lv01 logical volume, so that a total of three copies exist for each logical partition

mklvcopy lv01 3

49. How to remove a copy of a logical volume?
eg : to reduce the number of copies of each logical partition belonging to the testlv logical volume
rmlvcopy testlv 2

50. Queries about volume groups
eg : to show volume groups in the system
lsvg
eg : to show all the characteristics of rootvg
lsvg rootvg
eg : to show disks used by rootvg
lsvg -p rootvg

51. How to add a disk to a volume group?
syntax :
extendvg VoluemGroupName hdisk0 hdisk1 ... hdiskn
eg : to add physical volumes hdisk3 and hdisk8 to volume group vg3
extendvg vg3 hdisk3 hdisk8

52. How to find out the maximum supported logical track group (LTG) size of my hard disk?
Use the lquerypv with the -M flag

53. What does the syncvg command do
To synchronize stale physical partitions
eg : to synchronize the pysical partitions located on physical volumes hdisk4 and hdisk5
syncvg -p hdisk4 hdisk5
eg : to synchronize all physical partitions from volume group testvg
syncvg -v testvg
eg : to synchronize the copies on volume groups vg04 and vg05
syncvg -v vg04 vg05

54. How to replace a disk?
extendvg VolumeGroupName hdisk_new
migratepv hdisk_bad hdisk_new
reducevg -d VolumeGroupName hdisk_bad

55. How can I clone (make a copy of) the rootvg?
You can run the alt_disk_copy command to copy the current rootvg to an alternate disk.
eg : clone the rootvg to hdisk1
alt_disk_copy -d hdisk1

56. How to display or set values for network parameters?
Use the no command sets or displays current or next boot values for network runing parameters.
eg : to display the maximum size of the mbuf pool
no -o thewall
eg : to change the default socket buffer size on your system
no -r -o tcp_sendspace=32768
no -r -o udp_recvspace=32768
eg : to use a system as an Internet work router over the Internet Protocol networks,
no -o ipforwarding=1
eg : to list the current and reboot value, range, unit, type and dependencies of all tunable parameters that are managed by the no command
no -L

57. How do I get the IP address of my machine?
ifconfig -a
host Fully_Qualified_Host_Name

eg : type the following command to get the IP address of the machine cyclop.austin.ibm.com
host cyclop.austin.ibm.com

58. How to identify the network interfaces on my server?
lsdev -Cc if
ifconfig -a
eg : to get information about one specific network interface, tr0
ifconfig tr0

59. How to activate a network interface?
eg : to activate the network interface tr0
ifconfig tr0 up

60. How to deactivate a network interface?
eg : to deactivate the network interface tr0
ifconfig tr0 down

61. How to display routing table, interface, and protocol information?
eg : to display routing table information for an Internet interface
netstat -r -f inet
eg : to display interface information for an Internet interface
netstat -i -f inet
eg : to display statistics for each protocol
netstat -s -f inet

62. How to record packets received or transmitted?
eg : to record packets coming in and going out to any host on every interface (trace information is placed in the /tmp/nettrace file.)
iptrace /tmp/nettrace
eg : to record packets received on an interface en0 from a remote host airmail over the Telnet port (The trace information is placed in the /tmp/telnet.trace file.)
iptrace -i en0 -p telnet -s airmail /tmp/telnet.trace

63. How to create a workload partition
eg : to create a WPAR named temp with the IP address xxx.yyy.zzz.nnn
mkwpar -n temp -N address= xxx.yyy.zzz.nnn
eg : to create a workload partition based on an existing specification file wpar1.spec
mkwpar -f /tmp/wpar1.spec

64. How to create a new specification file for an existing workload partition wpar1?
eg : to create a specification file wpar2.spec for an existing workload partition wpar1
mkwpar -e wpar1 -o /tmp/wpar2.spec -w

65. How to start a workload partition?
eg : to start the workload partition called temp
startwpar temp

66. How to stop a workload partition?
eg : to stop the workload partition called temp
stopwar temp

67. How to view the characteristics of workload partitions?
eg : to view the characteristics of all workload partitions
lswpar

68. How to log in to a workload partition?
eg : to log in to the workload partition named wpar1 as user foo
clogin wpar1 -l foo

69. How to run a command in a workload partition?
eg : to run the /usr/bin/ps command as user root in a workload partition named howdy
clogin howdy -l root /usr/bin/ps

70. How to remove a workload partition?
eg : to remove the workload partition called temp
rmwpar temp
eg : to stop and remove the workload partition called temp preserving data on its file system
rmwpar -p -s temp

Performance monitoring tools
71. How to display virtual memory statistics?
eg : to display a summary of the virtual memory statistics since boot
vmstat
eg : to display five summaries at 2-second intervals
vmstat 2 5
eg : to display a summary of the statistics since boot including statistics for logical disk scdisk13 and scdisk14
wmstat scdisk13 scdisk14
eg : to display time-stamp next to each column of output of vmstat
vmstat -t
eg : to display all the VMM statistics available
vmstat -vs
eg : to display a summary of the statistics for all of the workload partitions after boot
vmstat -@ ALL
eg : to display all of the virtual memory statistics available for all of the workload partitions
vmstat -vs -@ ALL

72 How to display statistics for all TTY, CPU, and disks?
eg : to display a single set of statistics for all TTY, CPU, and disks since boot
iostat
eg : to display a continuous disk report at 2-second intervals for the disk with the logical name disk1
iostat -d disk1 2
eg : to display six reports at 2-second intervals for the disk with the logical name disk1
iostat disk1 2 6
eg ; to display six reports at 2-second intervals for all disks
iostat -d 2 6
eg : to display six reports at two second intervals for three disks named disk1, disk2, disk3
iostat disk1 disk2 disk3 2 6
eg : to print the system throughput report since boot
iostat -s
eg : to print the adapter throughput reports at 5-second intervals
iostat -a 5
eg : to print 10 system and adapter throughput reports at 20-second intervals, with only the TTY and CPU report (no disk reports)
iostat -sat 20 10
eg : to print the system and adapter throughput reports with the disk utilization reports of hdisk0 and hdisk7 every 30 seconds
iostat -sad hdisk0 hdisk7 30
eg : to display time stamp next to each line of output of iostat
iostat -T 60
eg : to display only file system statistics for all workload partitions
iostat -F -@ ALL
eg : to display system throughput of all workload partitions along with the system
iostat -s -@ ALL

73. How to display local and remote system statistics?
topas
eg : to go directly to the process display
topas -P

eg : to go directly to the logical partition display

topas -P

eg : to go directly to the logical partition display

topas -L

eg : to go directly to the disk metric display

topas -D

eg : to go directly to the file system display

topas -F

eg : to go directly to WPAR monitoring mode abc

topas -@ abc

eg : to go directly to the topas WPAR mode

topas -@

74. How to report system unit activity?

sar

eg : to report current TTY activity for each 2 seconds for the next 40 seconds

sar -y -r 2 20

eg : to report the processor use statistics in a WPAR from the global environment

sar -@ wparname

eg : to report all of the processor activities from inside a WPAR

sar -P ALL 1 1

eg : to report processor activity for the first two processors

sar -u -P 0,1