1. What is SSH? What is the default port number of SSH?

Default port is 22

Shell (SSH) is a cryptographic network protocol for secure data communication, remote command-line login, remote command execution, and other secure network services between two networked computers.

1. *What is Linux SWAP space? How it is used?*

Swap space in Linux is used when the amount of physical memory (RAM) is full. If the system needs more memory resources and the RAM is full, inactive pages in memory are moved to the swap space. While swap space can help machines with a small amount of RAM, it should not be considered a replacement for more RAM. Swap space is located on hard drives, which have a slower access time than physical memory.

Linux divides its physical RAM (random access memory) into chucks of memory called pages. Swapping is the process whereby a page of memory is copied to the preconfigured space on the hard disk, called swap space, to free up that page of memory. The combined sizes of the physical memory and the swap space is the amount of virtual memory available.

Swapping is necessary for two important reasons. First, when the system requires more memory than is physically available, the kernel swaps out less used pages and gives memory to the current application (process) that needs the memory immediately. Second, a significant number of the pages used by an application during its startup phase may only be used for initialization and then never used again. The system can swap out those pages and free the memory for other applications or even for the disk cache.

However, swapping does have a downside. Compared to memory, disks are very slow. Memory speeds can be measured in nanoseconds, while disks are measured in milliseconds, so accessing the disk can be tens of thousands times slower than accessing physical memory. The more swapping that occurs, the slower your system will be. Sometimes excessive swapping or thrashing occurs where a page is swapped out and then very soon swapped in and then swapped out again and so on. In such situations the system is struggling to find free memory and keep applications running at the same time. In this case only adding more RAM will help.

Linux has two forms of swap space: the swap partition and the swap file. The swap partition is an independent section of the hard disk used solely for swapping; no other files can reside there. The swap file is a special file in the filesystem that resides amongst your system and data files.

To see what swap space you have, use the command swapon -s. The output will look something like this:

Filename Type Size Used Priority

/dev/sda5 partition 859436 0 -1

Each line lists a separate swap space being used by the system. Here, the 'Type' field indicates that this swap space is a partition rather than a file, and from 'Filename' we see that it is on the disk sda5. The 'Size' is listed in kilobytes, and the 'Used' field tells us how many kilobytes of swap space has been used (in this case none). 'Priority' tells Linux which swap space to use first. One great thing about the Linux swapping subsystem is that if you mount two (or more) swap spaces (preferably on two different devices) with the same priority, Linux will interleave its swapping activity between them, which can greatly increase swapping performance.

To add an extra swap partition to your system, you first need to prepare it. Step one is to ensure that the partition is marked as a swap partition and step two is to make the swap filesystem. To check that the partition is marked for swap, run as root:

fdisk -l /dev/hdb

Replace /dev/hdb with the device of the hard disk on your system with the swap partition on it. You should see output that looks like this:

Device Boot Start End Blocks Id System

/dev/hdb1 2328 2434 859446 82 Linux swap / Solaris

If the partition isn't marked as swap you will need to alter it by running fdisk and using the 't' menu option. Be careful when working with partitions -- you don't want to delete important partitions by mistake or change the id of your system partition to swap by mistake. All data on a swap partition will be lost, so double-check every change you make. Also note that Solaris uses the same ID as Linux swap space for its partitions, so be careful not to kill your Solaris partitions by mistake.

Once a partition is marked as swap, you need to prepare it using the mkswap (make swap) command as root:

mkswap /dev/hdb1

If you see no errors, your swap space is ready to use. To activate it immediately, type:

swapon /dev/hdb1

You can verify that it is being used by running swapon -s. To mount the swap space automatically at boot time, you must add an entry to the /etc/fstab file, which contains a list of filesystems and swap spaces that need to be mounted at boot up. The format of each line is:

Since swap space is a special type of filesystem, many of these parameters aren't applicable. For swap space, add:

/dev/hdb1 none swap sw 0 0

where /dev/hdb1 is the swap partition. It doesn't have a specific mount point, hence *none*. It is of type *swap*with options of *sw*, and the last two parameters aren't used so they are entered as 0.

To check that your swap space is being automatically mounted without having to reboot, you can run the swapoff -a command (which turns off all swap spaces) and then swapon -a (which mounts all swap spaces listed in the /etc/fstab file) and then check it with swapon -s.

**Swap file**

As well as the swap partition, Linux also supports a swap file that you can create, prepare, and mount in a fashion similar to that of a swap partition. The advantage of swap files is that you don't need to find an empty partition or repartition a disk to add additional swap space.

To create a swap file, use the dd command to create an empty file. To create a 1GB file, type:

dd if=/dev/zero of=/swapfile bs=1024 count=1048576

/swapfile is the name of the swap file, and the count of 1048576 is the size in kilobytes (i.e. 1GB).

Prepare the swap file using mkswap just as you would a partition, but this time use the name of the swap file:

mkswap /swapfile

And similarly, mount it using the swapon command: swapon /swapfile.

The /etc/fstab entry for a swap file would look like this:

/swapfile none swap sw 0 0

**How big should my swap space be?**

It is possible to run a Linux system without a swap space, and the system will run well if you have a large amount of memory -- but if you run out of physical memory then the system will crash, as it has nothing else it can do, so it is advisable to have a swap space, especially since disk space is relatively cheap.

The key question is how much? Older versions of Unix-type operating systems (such as Sun OS and Ultrix) demanded a swap space of two to three times that of physical memory. Modern implementations (such as Linux) don't require that much, but they can use it if you configure it. A rule of thumb is as follows: 1) for a desktop system, use a swap space of double system memory, as it will allow you to run a large number of applications (many of which may will be idle and easily swapped), making more RAM available for the active applications; 2) for a server, have a smaller amount of swap available (say half of physical memory) so that you have some flexibility for swapping when needed, but monitor the amount of swap space used and upgrade your RAM if necessary; 3) for older desktop machines (with say only 128MB), use as much swap space as you can spare, even up to 1GB.

The Linux 2.6 kernel added a new kernel parameter called *swappiness* to let administrators tweak the way Linux swaps. It is a number from 0 to 100. In essence, higher values lead to more pages being swapped, and lower values lead to more applications being kept in memory, even if they are idle. Kernel maintainer Andrew Morton has said that he runs his desktop machines with a swappiness of 100, stating that "My point is that decreasing the tendency of the kernel to swap stuff out is wrong. You really don't want hundreds of megabytes of BloatyApp's untouched memory floating about in the machine. Get it out on the disk, use the memory for something useful."

One downside to Morton's idea is that if memory is swapped out too quickly then application response time drops, because when the application's window is clicked the system has to swap the application back into memory, which will make it feel slow.

The default value for swappiness is 60. You can alter it temporarily (until you next reboot) by typing as root:

echo 50 > /proc/sys/vm/swappiness

If you want to alter it permanently then you need to change the *vm.swappiness* parameter in the /etc/sysctl.conf file.

1. *What is booting Process in Linux?*
2. *What are the command used to kill and terminate the process in Linux?*

### 1. Kill Command – Kill the process by specifying its PID

$ kill -TERM pid $ kill -SIGTERM pid $ kill -15 pid

#pgrep firefox ---- to get pid of forefox

#pidof firefox

### 2. Killall Command – Kill processes by name

$ killall -9 firefox

### 3. Pkill Command – Send signal to the process based on its name

$ pkill sample

kill -HUP pid\_of\_apache The above command will cause Apache to reload its configuration file and resume serving content.

*5. How do you see routing table in Linux?*

netstat -rn

[*http://www.thegeekstuff.com/2012/04/route-examples/*](http://www.thegeekstuff.com/2012/04/route-examples/)

*6. What is the difference between GREP and FIND command?*

Grep Searches the content of a file and whereas find only searches files and directories

*7. How to check PHYSICAL MEMORY size in Linux?* cat /proc/meminfo,free

The dmidecode command is different from all other commands. It extracts hardware information by reading data from the [SMBOIS data structures](http://en.wikipedia.org/wiki/System_Management_BIOS) (also called DMI tables).

# display information about the processor/cpu

$ sudo dmidecode -t processor

# memory/ram information

$ sudo dmidecode -t memory

# bios details

$ sudo dmidecode -t bios

Many of the virtual files in the /proc directory contain information about hardware and configurations. Here are some of them

CPU/Memory information

# cpu information

$ cat /proc/cpuinfo

# memory information

$ cat /proc/meminfo

Linux/kernel information

$ cat /proc/version

Linux version 3.11.0-12-generic (buildd@allspice) (gcc version 4.8.1 (Ubuntu/Linaro 4.8.1-10ubuntu7) ) #19-Ubuntu SMP Wed Oct 9 16:20:46 UTC 2013

SCSI/Sata devices

$ cat /proc/scsi/scsi

Attached devices:

Host: scsi3 Channel: 00 Id: 00 Lun: 00

Vendor: ATA Model: ST3500418AS Rev: CC38

Type: Direct-Access ANSI SCSI revision: 05

Host: scsi4 Channel: 00 Id: 00 Lun: 00

Vendor: SONY Model: DVD RW DRU-190A Rev: 1.63

Type: CD-ROM ANSI SCSI revision: 05

Partitions

$ cat /proc/partitions

major minor #blocks name

8 0 488386584 sda

8 1 73400953 sda1

8 2 1 sda2

8 5 102406311 sda5

8 6 102406311 sda6

8 7 1998848 sda7

8 8 208171008 sda8

11 0 1048575 sr0

*9. How do you monitor live process in Linux machine?*

*TOP & PS*

*10. What is Telnet and port number of Telnet?*

A terminal emulation that enables a user to connect to a remote [host](http://www.computerhope.com/jargon/h/hostcomp.htm) or [device](http://www.computerhope.com/jargon/d/device.htm) using a telnet client, usually over [port](http://www.computerhope.com/jargon/p/port.htm)23. For example, typing **telnet hostname** would connect a user to a host named **hostname**. **Telnet** enables a user to manage an account or device remotely.

*11. What is DNS?*

*Port no 53*

*12. What is DHCP and port number of DHCP?*

*Port no 67,68*

*13. What are default permissions set on file and directory on Linux?*

The default umask value is 0022, which decides the default permission for a new file or directory. Default permission for a directory is 0777, for files the permissions are 0666 from which the default umask value 0022 is deducted to get the newly created files or directory permission.

Final default permission for a file is calculated as shown below:

* Default file permission: 666
* Default umask : 022
* Final default file permission: 644

Final default permission for a directory is calculated as shown below:

* Default directory permission: 777
* Default umask: 022
* Final default directory permission: 755

## Procedure To Setup Default umask

You can setup umask in [**/etc/bashrc**](http://bash.cyberciti.biz/guide/etc/bashrc) or [**/etc/profile**](http://bash.cyberciti.biz/guide/etc/profile) file for all users. By default most Linux distro set it to 0022 (022) or 0002 (002). Open /etc/profile or ~/.bashrc file, enter:  
# vi /etc/profile  
OR  
$ vi ~/.bashrc  
Append/modify following line to setup a new umask:  
umask 022  
Save and close the file. Changes will take effect after next login. All UNIX users can override the system umask defaults in their /etc/profile file, ~/.profile (Korn / Bourne shell) ~/.cshrc file (C shells), ~/.bash\_profile (Bash shell) or ~/.login file (defines the user's environment at login).

*14. What is HEAD and TAIL command?*

*Head displays top lines of a file #Head option filename*

*Tail display last lines of a file #tail option filename*

*15. What is name/path of configuration file of SAMBA?*

*/etc/smbd/smb.conf*

*SMBD uses port 139,445(tcp)*

*NMBD uses port 137 (udp)*

*16. What is IPtables in Linux?*

*17. Command to check memory related information?*

*Free –m, cat /proc/meminfo*

*18. How to check Internet Protocol address with local user login?*

*19. What is the difference between Router and Repeater?*

*20. What is the difference between TOP and PS command?*

The **top** program provides a dynamic real-time view of a running system. It can display system summary information as well as a list of [processes](http://www.computerhope.com/jargon/p/process.htm) or threads currently being managed by the [kernel](http://www.computerhope.com/jargon/k/kernel.htm).

It provides a snapshot of the current processes along with detailed information like user id, cpu usage, memory usage, command name etc.

*21. What is vmstat command?*

*It reports on virtual memory statistics.(processes,cpu statistics,memory usage info,i/0 statistics)*

*22. What is RAID?*

*23. How do you see the memory usage?*

*Free,cat /proc/memoryinfo,vmstat,top*

*24. How do you see the Linux system boot messages?*

*DMESG*

*25. Do you know about OS Hardening?*

*http://www.tecmint.com/linux-server-hardening-security-tips/*

*26. What OS applications you know?*

*27. How do you change the gateway permanently?*

To add the route manually on the command line:

**# route add default gw 192.168.12.1 eth0**

To make the default gateway permanent or persistent as it’s called, you need to edit the /etc/sysconfig/network file and add your default gateway.

**# cat /etc/sysconfig/network**

GATEWAY=192.168.12.1

*28. What do you know about fencing in Clusters?*

*28. What is the difference between cp, scp, rsync?*

*Cp command used to copy files cp –r to copy directories*

*Scp command is used to copy files from remote servers*

*Rync used to synchronize files and directories from one location to other*

*29. How do you configure Apache with SSL?*

*30. How do you configure DHCP, NFS, FTP, SAMBA, APACHE & TOMCAT server?*

*31. How do you check for already installed packages using RPM?*

*Rpm –qa | grep package name*

*32. Do you tar and untar?*

*http://www.tecmint.com/18-tar-command-examples-in-linux/*

*33. What is the difference between tar and gunzip?*

The “tar” is a file archiving technique which combine multiple file into single file archive. It’s very useful when you want to transfer some files from one server/machine to another. Combining multiple files using the “tar” is helpful to upload and transfer files simply. We already discussed the usage and possibilities of tar command in Unix.

Gzip is file compression technique used to compress files which has large size. By using this file compression technique, we can simply reduce the file size before sending/transferring it from source to destination. We can also decompress the compressed file at the destination.

*34. How much a file can be compressed?*

Some types of files compress better than others. Some data files, such as text files, picture files in the BMP format, and certain text style database files can often be compressed by 90% or more. There are some other types of files, such as program files, that may compress by 50% or so.

*35. How many fields are there in crontab?*

MIN HOUR DOM MON DOW CMD

*36. How do you create a crontab file and how do you list the crontab?*

crontab -e    Edit your crontab file, or create one if it doesn’t already exist.  
crontab -l      Display your crontab file.  
crontab -r      Remove your crontab file.  
crontab -v      Display the last time you edited your crontab file. (This option is only available on a few systems.)

*37. If you have 200 log files, how will you search a particular file?*

*38. If I have 2 servers. I want to transfer server1 2GB data to server2 without causing any overhead on the server1 and on the network. It should be fast. Also server1 space is full and you cannot add any more overhead on it. What is the method?*

*39. I have some 50 servers, how will you apply a patch on all the 50 servers at one time and what is the Linux technology you will use to patch all the 50 servers at a time?*

*40. What is kernal panic & memory leak. Can you tell me where it happens and how it happens?*

A **kernel panic** is an action taken by an [operating system](http://en.wikipedia.org/wiki/Operating_system) upon detecting an internal [fatal error](http://en.wikipedia.org/wiki/Fatal_system_error) from which it cannot safely recover.

*41. What is Linux?*

*42. What is DNS?*

*43. What is IP address?*

*44. Version of IP?*

*45. Difference between Windows & Linux?*

*46. Which command is used to see that what is user doing in his terminal?*

*47. Configuration of Samba server.*

*48. Explain booting process and grub.conf file?*

[*http://www.slashroot.in/linux-booting-process-step-step-tutorial-understanding-linux-boot-sequence*](http://www.slashroot.in/linux-booting-process-step-step-tutorial-understanding-linux-boot-sequence)

*http://www.slashroot.in/linux-grubgrand-unified-bootloader-tutorial*

*49. Common commands for monitoring Linux .*

*50. NFS server configuration?*

*51. Difference between Layer 2 and Layer 3 devices?*

*52. How to configure two lan card in your eth0 port?*

*By bonding*

*53. Difference between soft link and hard link?*

*54. What does these command do – vmstat, htop, grep?*

*55. How to find Linux OS current version OR Linux kernel current version?*

*56. Configure at least one server like Apache, LDAP, NFS, DHCP or SQUID?*

*57. How to check Linux system’s current used and remaining physical memory?*

*58. How to change the ownership of a file?*

*#Chown username.groupname filename/dir*

*59. Can we used multiple IP in a single system, if yes, then how?*

*By crating alias interfaces*

*60. How to check Linux system performance & what is the use of top command?*

*61. Linux is which kind of operating System i.e. multi user or multi tasking or multi-processing?*

*62. What is the port number of these services- ftp –20 data transfer,21 control connection, ssh--22, dns--53, http--80, https--443, telnet--23, smtp--25, ntp--123, mysql--3306?*

*63. How to add printer to a Linux machine?*

*64. How to reset the root password in Linux, if root password is lost?*

*65. Who developed the kickstart in Linux?*

*66. Difference between Red Hat Linux and Ubuntu Linux?*

*67. Who created vi editor and can you run a command in vi editor?*

*:! command*

*68. How to find the process which is consuming the maximum memory of system?*

*69. Explain different parameter of top command like load division?*

*70. What is the core of Linux operating system?*

*71. What are different run levels of Linux operating system?*

0: Halt System (To shutdown the system)  
1: Single user mode  
2: Basic multi user mode without NFS  
3: Full multi user mode (text based)  
4: unused  
5: Multi user mode with Graphical User Interface  
6: Reboot System

*72. How to login via SSH to a another Linux system?*

*#ssh root@remotehost.com:/home*

*73. What is port number of MySQL?*

*3306*

*74. How to check MySQL version in current Linux operating System?*

*Mysql – u root –p version*

*75. How to login to MySQL in Linux OS?*

*#mysql –h localhost –u root -p*