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????

****????????****

???? Firefox ?????????? ? ?????????????????????????????? ?3?

????? soft links (Symbolic)

?? symlinks

```
$ sudo apt-get install symlinks
$ symlinks -r <directory-path>
$ symlinks -dr <directory-path>
```

?? find

List them

```
$ find /usr/local/ -xtype l
$ find /usr/local/ -xtype l ! -exec test -e {} \; -print
$ find /usr/local/ -xtype l -exec ls -l {} \;
```

Delete them

```
$ sudo find /usr/local/ -xtype l -delete
$ sudo find /usr/local/ -xtype l ! -exec test -e {} \; -delete
```

tree ??

tree --dirsfirst --filelimit 10 --sort-name

Inode ???

Example #1:

```
# pwd
/home/daygeek
```

```
# find . -printf "%h\n" | cut -d/ -f-2 | sort | uniq -c | sort -rn
43113 ./cache
16491 ./rustup
4057 ./mozilla
3257 ./Documents
3054 ./local
1869 ./config
```

Example #2:

```
# echo "Detailed Inode usage for: $(pwd)"; for d in `find -maxdepth 1 -type d |cut -d\ / -f2 |grep -xv . |sort`;
do c=$(find $d |wc -l); printf "$c\t\t- $d\n"; done; printf "Total: \t\t$(find $(pwd) | wc -l)\n"
```

Detailed Inode usage for: /home/alang/worktmp/Vim_ColorScheme

```
177      - foo
73       - Fruidle
116      - vim_colors
48       - vim-colorscheme
72       - wombat256.vim
```

Total: 488

? Python ????????

\$ cd /web-root-dir

\$ python -m SimpleHTTPServer 8080

???? http://xxx.xxx.xxx.xxx:8080

?????????

// increase the rand to generate more long string

openssl rand -hex 20

cat /dev/urandom | tr -dc "a-zA-Z0-9" | fold -w 40 | head -1

< /dev/urandom tr -dc _A-Z-a-z-0-9 | head -c\${1:-32};echo;

date +%s | sha256sum | base64 | head -c 32

?????????

#> ethtool eth0

Settings for eth0:

Supported ports: [TP]

Supported link modes: 10baseT/Half 10baseT/Full

100baseT/Half 100baseT/Full

1000baseT/Full

Supports auto-negotiation: Yes

Advertised link modes: 10baseT/Half 10baseT/Full

100baseT/Half 100baseT/Full

1000baseT/Full

Advertised auto-negotiation: Yes

Speed: 1000Mb/s

Duplex: Full

Port: Twisted Pair

PHYAD: 1

Transceiver: internal

Auto-negotiation: on

Supports Wake-on: g

Wake-on: g

Link detected: yes

?? IP ??

#> arp-scan -I eth0 -l

192.168.1.10 00:1b:a9:63:a2:4c BROTHER INDUSTRIES, LTD.

192.168.1.30 00:1e:8f:58:ec:49 CANON INC.

```
192.168.1.33 00:25:4b:1b:10:20 Apple, Inc
192.168.1.37 10:9a:dd:55:d7:95 Apple Inc
192.168.1.38 20:c9:d0:27:8d:56 (Unknown)
192.168.1.39 d4:85:64:4d:35:be Hewlett Packard
192.168.1.39 00:0b:46:e4:8e:6d Cisco (DUP: 2)
192.168.1.40 90:2b:34:18:59:c0 (Unknown)
```

```
#> arp-scan -I wls1 -l | uniq -D -w 15
```

```
192.168.1.39 d4:85:64:4d:35:be Hewlett Packard
192.168.1.39 00:0b:46:e4:8e:6d Cisco (DUP: 2)
```

???????

????????

```
#> du -a /var | sort -n -r | head -n 10
```

```
$ cd /path/to/some/where
```

```
$ du -hsx * | sort -rh | head -10
```

UNIX ??????

```
for i in G M K; do du -ah | grep [0-9]$i | sort -nr -k 1; done | head -n 11
```

? find ??

```
#> find /path/to/dir/ -printf '%s %p\n' | sort -nr | head -10
```

```
#> find . -printf '%s %p\n' | sort -nr | head -10
```

```
#> find /path/to/search/ -type f -printf '%s %p\n' | sort -nr | head -10
```

```
#> find /path/to/search/ -type f -iname "*.mp4" -printf '%s %p\n' | sort -nr | head -10
```

????????????

```
#> dmidecode -s system-manufacturer
```

```
#> systemd-detec-virt
```

```
#> virt-what
```

history ??

- <https://www.cyberciti.biz/faq/disabl...history-linux/>
- <https://www.redhat.com/sysadmin/parsing-bash-history>

??????

NOTE: ????.bash_profile????????????????????

```
#> HISTTIMEFORMAT="%F %T "
```

```
#> history | tail -3
```

```
53 2016-03-02 08:27:38 nano /etc/fstab
```

```
54 2016-03-02 08:27:38 umount /mnt/NAS
```

```
55 2016-03-02 08:27:38 mount /mnt/NAS
```

column ??

?????????????

column -ts: /etc/passwd

mount | column -t

who ??

????????

#> who

#> who -H

#> who -u

root pts/1 Jan 23 13:34 . 20153 (alanghsu.xxxx.com)

alang pts/2 Mar 22 17:41 . 4433 (10.12.25.68)

??????

pkill -HUP -u alang

kill -HUP 4433

??? runlevel

#> who -r

??????

#> who -b

du ????

?? /home ????????????????

#> du -a /home | sort -n -r | head -n 5

????????????????????

#> du -a | sort -n -r | head -n 5

? KB, MB ??

#> du -hs * | sort -rh | head -5

????????

#> du -Sh | sort -rh | head -5

????????

#> find -type f -exec du -Sh {} + | sort -rh | head -n 5

#> find /home/tecmint/Downloads/ -type f -exec du -Sh {} + | sort -rh | head -n 5


```
uptime
awk '{print "up " $1 /60 " minutes"}' /proc/uptime
w
```

???????

```
who -b
last reboot
last shutdown
```

??????? IP address

```
$> curl ipinfo.io
$> curl ifconfig.io
$> curl ifconfig.me
$> curl ifconfig.co
$> curl ip.sb
$> curl https://wtfismyip.com/text
$> dig TXT +short o-o.myaddr.l.google.com @ns1.google.com | awk -F'"' '{ print $2}'
$> dig TXT +short o-o.myaddr.l.google.com @ns1.google.com | sed 's/"//g'
$> dig +short myip.opendns.com @resolver1.opendns.com
$> wget -qO - icanhazip.com
$> curl http://checkip.amazonaws.com
```

```
## Without need of any 3rd-party software
## http://ip6.me/api/
$> exec 3<</dev/tcp/ip6.me/80; echo -e 'GET /api/\r' >&3; IFS=, read _IP _ADDR _REST <&3 3>&-; echo
your $_IP is $_ADDR
```

????????? Port 27017

Desktop)

Firefox > URL: <http://portquiz.net:27017/>

Command Line)

```
$> telnet portquiz.net 27017
$> nc -v portquiz.net 27017
$> curl portquiz.net:27017
$> wget -qO- portquiz.net:27017
```

???? shutdown

????

NOTE: ?????????????? I/O Error ??????????????????

```
echo 1 > /proc/sys/kernel/sysrq
echo o > /proc/sysrq-trigger <=== ???
```


????

```
echo 1 > /proc/sys/kernel/sysrq
echo b > /proc/sysrq-trigger
```

???????? fsck

shutdown -rf

-r Reboot after shutdown

-f Skip fsck on reboot

???? mapper ID ??

CentOS 6+)
#> lsblk

CentOS 5)
#> dmsetup ls

```
#> ls -l /dev/disk/by-path
#> ls -l /dev/disk/by-id
# > ls -l /dev/disk/by-uuid
```

?????? MAC Address

???? MAC
#> sed -i 's/HWADDR/#HWADDR/g' /etc/sysconfig/network-scripts/ifcfg-eth0

????? MAC
#> service network stop
#> ip link set eth0 address xx:xx:xx:xx:xx:xx
#> service network start

????

```
#> vi /etc/sysconfig/network-scripts/ifcfg-eth0
```

MACADDR=12:34:56:78:90:ab

???????? HWADDR?

```
less +F ??? tail -f
???? log ??????????
```

```
#> less +F my.log
```

Ctrl + c ?? normal mode ??????????

?????? shift +f (F)

??/?????(RPM & DPKG)

??????????

```
$ dpkg --get-selections
```

```
$ dpkg --get-selections > /backup/installed-software.log
```

```
$ rpm -qa
```

```
$ rpm -qa > /backup/installed-software.log
```

OR remove software version number (recommended):

```
$ rpm -qa --qf "%{NAME}\n" | sort > /backup/installed-software.log
```

??????????

```
# dpkg --set-selections < /backup/installed-software.log
```

Once list is imported, use the dselect command or other tools to install the packages, enter:

```
# dselect
```

Select 'i' for install the software.

OR use the following command:

```
# apt-get dselect-upgrade
```

```
# LIST="$( cat /backup/installed-software.log )"
```

If you are using the yum command, type the following bash for loop to install all software:

```
# for s in $LIST; do yum -y install $s; done
```

Or try out the following command (HT to gt):

```
# yum -y install $(cat /backup/installed-software.log)
```

A Note About RHEL version 4

If you are using RHEL/CentOS v4.x or older, enter:

```
# for s in $LIST; do up2date -i $s; done
```

Alternatively, you can use the following up2date command:

```
# up2date -i $(cat /backup/installed-software.log)
```

??????? (port) ????

???

```
telnet <IP> <port>
```

???

nc -zv <IP> <port>

?????

????????????????????(?? root)

chattr +i /etc/passwd

lsattr /etc/passwd

TIPs:

+i , add immutable attribute

?????

chattr -R +i my-dir/

-i, remove immutable attribute

????????????????(append mode)?????????

chattr +a /var/log/syslog

ssh ????

?:8888 ??? ?? irc.freenode.net:6667

ssh -L 8888:irc.freenode.net:6667 myuser@randomhost.net

?? SSH port ?????? 2745 ?

ssh -p2745 -L8888:irc.freenode.net:6667 myuser@randomhost.net

GPT/MBR ??

Q: ???????? GPT ???????? Linux ?????????????? Your boot partition is on a disk using the GPT partitioning Scheme but this machines cannot boot using GPT. ?????????????? MBR?????

??? CentOS ???????????? CTRL+ALT+F2?????

/usr/sbin/parted -s /dev/sda mklabel msdos

????????? GPT ??

/usr/sbin/parted -s /dev/sda mklabel gpt

???

MBR ??????????????

MBR ?????? 2TB?GPT ? 1024TB

Q: ?? CentOS 5.x ? > 2TB ????????

?? CentOS 5/6 ? > 2TB ?????????? BIOS ??(???? UEFI)????? Linux ?????????????? CentOS ?????????????? GPT ??????

???? 2TB ??? (GPT)

???????? 2TB ????????? 2TB ?????????????????? parted?

#> parted /dev/xvdc

(parted) mklabel gpt

(parted) print

???????? 4398 GB?

Model: Xen Virtual Block Device (xvd)

Disk /dev/xvdc: 4398GB

Sector size (logical/physical): 512B/512B

Partition Table: gpt

Number	Start	End	Size	File system	Name	Flags
--------	-------	-----	------	-------------	------	-------

(parted) mkpart primary ext3 0 4398GB

(parted) print

???????????

Model: Xen Virtual Block Device (xvd)

Disk /dev/xvdc: 4398GB

Sector size (logical/physical): 512B/512B

Partition Table: gpt

Number	Start	End	Size	File system	Name	Flags
--------	-------	-----	------	-------------	------	-------

1	17.4kB	4398GB	4398GB		primary	
---	--------	--------	--------	--	---------	--

(parted) set 1 lvm on

(parted) print

TIPS?

(parted) mkpart

Partition name? []? primary

File system type? ext3

Start? 0

End? -1

-1 ??????

??????? lvm?1 ??????

Model: Xen Virtual Block Device (xvd)

Disk /dev/xvdc: 4398GB

Sector size (logical/physical): 512B/512B

Partition Table: gpt

Number	Start	End	Size	File system	Name	Flags
1	17.4kB	4398GB	4398GB		primary lvm	

(parted) quit

#> fdisk -l

...

WARNING: GPT (GUID Partition Table) detected on '/dev/xvdc'! The util fdisk doesn't support GPT. Use GNU Parted.

WARNING: The size of this disk is 4.4 TB (4398046511104 bytes).
DOS partition table format can not be used on drives for volumes
larger than 2.2 TB (2199023255040 bytes). Use parted(1) and GUID
partition table format (GPT).

Disk /dev/xvdc: 4398.0 GB, 4398046511104 bytes

255 heads, 63 sectors/track, 534698 cylinders

Units = cylinders of 16065 * 512 = 8225280 bytes

Device	Boot	Start	End	Blocks	Id	System
/dev/xvdc1		1	267350	2147483647+	ee	EFI GPT

?????????

yum install make libtool autoconf subversion git cvs wget libogg-devel gcc gcc-c++ pkgconfig

???????

CentOS 6

?? /etc/sysconfig/i18n

```
??
LANG="en_US.UTF-8"
```

```
????
LANG="zh_TW.UTF-8"
```

```
????
LANG="zh_CN.UTF-8"
```

Swap ????

- [How Much Swap Should You Use in Linux?](#)
- [What's the right amount of swap space for a modern Linux system?](#)

```
// ?????? swap ??
> free
> swapon -s
```

```
// ??/?? swap
> swapon /dev/sda3
> swapoff /dev/sda3
```

```
// ????? swap ??
> mkswap /dev/sda3
```

```
make-swapfile-DO?1GB
```

```
#!/bin/bash
```

```
dd if=/dev/zero of=/swapfile bs=1024 count=1024k
chown root:root /swapfile
chmod 0600 /swapfile
mkswap /swapfile
swapon /swapfile
echo "/swapfile    swap    swap    defaults    0 0" >> /etc/fstab
sysctl vm.swappiness=10
echo vm.swappiness=10 >> /etc/sysctl.conf
free -h
cat /proc/sys/vm/swappiness
```

Linux ??????

```
sendmail)
```

```
??????? 192.168.21.75 (smtp.my.domain)
?? /etc/mail/sendmail.cf
```

```
# "Smart" relay host (may be null)
DS[192.168.21.75]
```

???

"Smart" relay host (may be null)

DSsmtp.my.domain

??? sendmail ??

postfix)

?? /etc/postfix/main.cf

relayhost = [192.168.21.75]

????

[PHP] ??????????

php -i

[PHP] ?? extension ????

php -m | grep imagick

[PHP] ?? timezone

?? /etc/php.ini

date.timezone = 'Asia/Taipei'

???? Home ??

?? User ? Home ?????????????????????????????????????

????????????????

cd /home

cp -a user1/ user1_new/

????????????????

cd /home

cp -a user1/.[^.]* user1_new/

?????? Home ??

cp -r /etc/skel /home/user1

chown -R user1.group1 /home/user1

chmod 0700 /home/user1

?? EXT3 ? AUTO FSCK

????????? filesystem???? mount ?? > 30 ? 180 ?????????????????? FSCK???? downtime ????

?????????

tune2fs -l /dev/VolGroup/LogVol

Mount count: 1
 Maximum mount count: 30
 Last checked: Tue Apr 29 13:09:15 2014
 Check interval: 15552000 (6 months)

????????? - tune2fs???? RedHat 4.x/5.x?

// ????????

tune2fs -i 0 /dev/VolGroup/LogVol

// ?? mount ????????

tune2fs -c 0 -i 0 /dev/VolGroup/LogVol

????????? - fstab???? RedHat 4.x/5.x?

?? /etc/fstab??? 6 ?????? 0

/dev/VolGroup00/arclogLV /opt/oracle/arclog ext3 defaults 1 0

????????? - ?????????? RedHat 4.x/5.x?

????

shutdown -rf

-r Reboot after shutdown

-f Skip fsck on reboot

????????? - ?????????? RedHat 4.x/5.x?

????????? e > ? kernel ?????? **fastboot?**

???????

? AIX 5.3 ?? ls -l ??????????????????????

istat istflr.MMDB.CAPMM02.CAP.log0924.gz

Inode 11 on device 50/6 File

Protection: rw-r--r--

Owner: 801(istflr) Group: 801(db2adm)

Link count: 1 Length 5572891 bytes

Last updated: Tue Sep 24 09:22:23 TAIST 2013

Last modified: Tue Sep 24 09:20:59 TAIST 2013

Last accessed: Thu Jan 9 14:28:05 TAIST 2014

?? DHCP Server IP

```
# dhclient eth0
```

```
# grep dhcp-server-identifier /var/lib/dhclient/dhclient.leases
```

?? Linux ?????? kernel ??

```
#> cat /proc/cmdline
```

```
console=ttyAS0,115200 root=/dev/sdb1 rootfstype=ext3 rw
```

```
nwhwconf=device:eth0,hwaddr:24:cf:21:ba:22:46 phyaddr:0,watchdog:5000 mem=120M bigphysarea=2048
```

```
????? - bc
```

```
// ????
```

```
#> bc
```

```
scale=3 ;????? 3 ?
```

```
239/60
```

```
3.983
```

```
quit
```

```
// 16 ????? 10 ??
```

```
#> echo "ibase=16;A7" | bc
```

```
167
```

```
// 2 ????? 10 ??
```

```
#> echo "ibase=2;11111111" | bc
```

```
255
```

[CentOS] ????? Apache Test Page

```
cd /etc/httpd/conf.d
```

```
mv welcome.conf welcome.conf.disabled
```

```
service httpd restart
```

```
????? - account
```

- [How to Lock User Accounts After Failed Login Attempts](#)
- [Restrict SSH User Access to Certain Directory Using Chrooted Jail](#)
- [How can I restrict the normal user to run only limited set of commands in RHEL?](#)
- [How To Limit User's Access To The Linux System](#)

// ???????

CentOS/RedHat)

```
groupadd -r asterisk
useradd -r -g asterisk -d /var/lib/asterisk -M asterisk
```

Ubuntu/Debian)

```
addgroup --system asterisk
adduser --system --ingroup asterisk --home /var/lib/asterisk --no-create-home --shell /bin/bash asterisk
```

// ??????????????????????

??????

```
#> usermod -L <username>
```

???????????????

```
#> chage -d 0 <username>
```

??????

```
#> usermod -U <username>
```

???????

```
#> chage -l <user-name>
```

// ???????

??????

```
#> chage -l <user-name>
```

??????

```
#> chage -M 10 <user-name> ; 10 ???????
#> chage -E "2017-02-20" <user-name> ; 2017-02-20 ???????
#> chage -I 10 <user-name> ; ?????????????????? 10 ???????
```

?????

```
#> chage -E -1 <user-name> ; ?? -1 ???????
```

// ???????

?????

```
#> usermod -L <user-name>
```

?????

?????????? cron crond ?????????? crontab ??????

2. ?????????????????????

- telnet : /etc/pam.d/remote
? ??????
- SSH : /etc/pam.d/sshd
? ?????? SSHD
- Local ????: /etc/pam.d/login

????????????????????

```
# Limited users for remote login via telnet
# Check the file /etc/security/access.conf
account required pam_access.so
```

// ????????

Lock

```
#> passwd -l john
#> chage -E 0 john
```

Unlock

```
#> passwd -u john
#> chage -E john
```

TIPs:

???passwd ?????????????? SSH-Key ???

// ????????

```
#> mkhomedir_helper <username>
```

// Group ??

Add user i00371 into the group sysadmin

```
#> usermod -a -G sysadmin i00371
```

// ????????????

```
#> usermod -l new-name old-name
```

```
#> usermod -d /home/new-name new-name
```

SSHFS ?? SSH ????????

?? sshfs ??

for CentOS)

??? EPEL ???

yum install fuse sshfs

modprobe fuse

lsmod fuse

for Ubuntu)

apt-get install sshfs

?? sshfs

sshfs user@remote_host:/remote_directory /local_mount_point

??????

1. ?? module fuse ?????

2. ?? /etc/fstab

sshfs#root@10.233.10.212:/mnt/ssh fuse defaults 0 0

tar ????

??????????

tar fzt myapp.tar.gz | grep keyword

????????????????????????????????tar: Removing leading `/' from member names

???

tar cf nagios.tar -C/ etc/nagios

sudo ????

????? sudoers

??? john ?? SHELL

sudo -u john bash -c "whoami"

??? john ?? vnc ???-H ?????? HOME????? /root?

sudo -H -u john bash -c "vncserver"

??? devrpt ?? db2_get_tbs_usage.sh -d devrptdb

sudo -u devrpt -H -s /usr/local/bin/db2_get_tbs_usage.sh -d devrptdb

?

sudo -u devrpt -H bash -c "/usr/local/bin/db2_get_tbs_usage.sh -d devrptdb"

?? sudoers

#> visudo

alange ALL=(devrpt) /bin/bash,/usr/local/bin/db2_get_tbs_usage.sh

TIPS:

?????

????? ???????????=(???????) ???????

????? SHELL Scripts??? scripts ?????????? /bin/bash?

???? sudoers??????? root ??

su -l john -c "whoami"

?? user1 ??? root ?????????? root ??

#visudo

user1 ALL=(ALL) ALL

NOTES:

user1 ?????? sudo -i ? sudo -s ??? user1 ?????????? root?

Linux ?????

????

modprobe <module name> option=<option name>

?????????

lsmod

???????????

cat /sys/module/<module name>/<option name>

Perl ????

????????? - instmodsh

#instmodsh

cmd? l

Installed modules are:

```
Perl
asterisk-perl
cmd? quit
```

```
rsync ??/???
????????????????????
```

```
rsync -au --delete <source-dir> <target-dir>
```

```
--delete ? <source-dir> ??????????<target-dir> ??????????????
```

```
????????????????????????????????????????????(Rsync)
```

```
rsync -avh --ignore-existing source-dir/ target-dir/
```

```
????????????????
```

```
rsync -avh --ignore-existing source-dir/ target-dir/ > files.list
```

```
????????????
```

```
mkbootdisk --iso --device ./boot.iso `uname -r`
```

```
? CetOS5.5 ??????????cp: cannot stat `/usr/lib/syslinux/isolinux.bin': No such file or directory
Ans: ???????? mkbootdisk script ????????
```

```
if [ -n "$isoimage" ]; then
  cfgfile=$MOUNTDIR/isolinux/isolinux.cfg
  bootmsg=$MOUNTDIR/isolinux/boot.msg

  # create an iso image; the directory is all we need
  [ -n "$verbose" ] && echo -n "Installing isolinux... "
  mkdir $MOUNTDIR/isolinux
  #cp /usr/lib/syslinux/isolinux.bin $MOUNTDIR/isolinux <----- ???
  cp /usr/share/syslinux/isolinux.bin $MOUNTDIR/isolinux
  [ -n "$verbose" ] && echo don
```

[?GO TO TOP?](#)

?? JRE/JDK 6

```
// ?? jre-6u24-linux-i586-rpm.bin, jdk-6u24-linux-i586-rpm.bin
```

- <http://www.oracle.com/technetwork/ja...ads/index.html>
- <http://www.oracle.com/technetwork/ja...ve-139210.html> (???)

RHEL/CentOS

```
chmod u+x jre-6u24-linux-i586-rpm.bin
./jre-6u24-linux-i586-rpm.bin
```

```
## java ##
```

```
alternatives --install /usr/bin/java java /usr/java/jre1.6.0_45/bin/java 20000
```

```
## javaws ##
```

```
alternatives --install /usr/bin/javaws javaws /usr/java/jre1.6.0_45/bin/javaws 20000
```

```
## Java Browser (Mozilla) Plugin 32-bit ##
```

```
alternatives --install /usr/lib/mozilla/plugins/libjavaplugin.so libjavaplugin.so /usr/java/jre1.6.0_45/lib/i386/libnpp2.so 20000
```

```
## Java Browser (Mozilla) Plugin 64-bit ##
```

```
alternatives --install /usr/lib64/mozilla/plugins/libjavaplugin.so libjavaplugin.so.x86_64 /usr/java/jre1.6.0_45/lib/amd64/libnpp2.so 20000
```

Ubuntu/Debian

```
sudo update-alternatives --install "/usr/bin/java" "java" "/opt/java/32/jre1.6.0_45/bin/java" 1
```

```
sudo update-alternatives --set "java" "/opt/java/32/jre1.6.0_45/bin/java"
```

```
mkdir ~/.mozilla/plugins
```

```
ln -s /opt/java/32/jre1.6.0_45/lib/i386/libnpp2.so ~/.mozilla/plugins
```

????

```
# java -version
```

```
java version "1.6.0_24"
```

```
Java(TM) SE Runtime Environment (build 1.6.0_24-b07)
```

```
Java HotSpot(TM) Client VM (build 19.1-b02, mixed mode, sharing)
```

???? I/O ????

? 2010 ?????????????? 4096-byte(4K) sector size?? Linux ?????????? 512-byte ?????????????????? ext3 ???2TB ?

SATA ?????????? 1TB????????????? 4K-byte sector ?? 512-byte sector ?? 7 ???

???

fdisk -> x extra functionality (experts only) -> setting the start sector("b") to 64

???

```
hdparm -tT /dev/sda1
```

?????

- [Linux on 4KB-sector disks: Practical advice](#)
- [Linux Not Fully Prepared for 4096-Byte Sector Hard Drives](#)

Notes: ?????????????? 4096-byte sector size?

[?GO TO TOP?](#)

???? partition table - partprobe

?? fdisk ?? partition table ?????? reboot ????????????????

```
#> partprobe /dev/mapper/mpathb ;????
```

Putty ?? Linux ??? ncurses ???????????

Putty ???)

- Terminal > Use background colour to erase screen [**check**]
- Window > Translation
 - ? Received data assumed character set: [**UTF-8**]
 - ? Treat CJK ambiguous characters as wide [**unchecked**]
- Connection > Data > Terminal-type string [**linux**]

?? btmp ????????

???/var/log/btmp ??? 1.xGB ???

???btmp ???

????? lastb ?? SSH Port?

// ?? btmp ??

```
cat /dev/null > /var/log/btmp
```

[?GO TO TOP?](#)

??????

?? dash ??????

```
rm ./-1234567.txt
```

????????????????????Argument list too long

???

```
#> cd /var/spool/clientmqueue
```

```
#> for f in *
```

```
> do
```

```
> echo "rm $f";
```

```
> done
```

???

```
#> cd /var/spool/clientmqueue
```

```
#> find . -name "*" -maxdepth 1 -exec rm -f {} \;
```

?? Windows ????

CentOS 5)

([How to mount remote Windows shares](#))

```
mount.cifs //winbox/getme /mnt/win -o ip=123.123.123.123,username=sushi,password=yummy
```

? mount.cifs ??? samba-client ????

?? SELinux

?? SELinux

- [\[??? Linux ??? -- ?????? SELinux\]](#)
- [\[SELinux - Wikipedia\]](#)
- [CentOS:SELinux](#)
- [How to Disable SELinux](#)
- [SELinux FAQ](#)

// ?? Disable SELinux

????????

```
#> sed -i 's/SELINUX=.*$/SELINUX=disabled/' /etc/selinux/config
```

??????

```
#> setenforce 0
```

// ?? SELinux ???

```
#> sestatus
```

```
SELinux status:      disabled
```

```
?
```

```
#> getenforce
```

// ?????

??????

```
grub append> ro root=/dev/VolGroup00/LogVo100 selinux=0 enforcing=0
```

[?GO TO TOP?](#)

??(NTPD)????????-timezone

??????: Chrony

- [CHAPTER 18. CONFIGURING NTP USING THE CHRONY SUITE](#)

NTPD ???

```
yum install ntp
ntpdate pool.ntp.org
chkconfig ntpd on
service ntpd start
```

Crontab?
/etc/crontab

```
10 * * * * root (/usr/sbin/ntpdate tw.pool.ntp.org && /sbin/hwclock -w) &> /dev/null

/etc/cron.hourly/ntpdate.cron?
```

```
#!/usr/bin/env bash
TIMESVR="192.168.21.86"
```

```
(/sbin/ntpdate $TIMESVR && /sbin/hwclock -w) > /dev/null
```

?????

```
# ntpstat
synchronised to NTP server (204.9.54.119) at stratum 2
time correct to within 121 ms
polling server every 64 s
```

```
# ntpq -p
remote      refid      st t when poll reach  delay  offset jitter
```

```
=====
+w1-wdc.ipv4.got 10.0.77.54  4 u 14 64 377 214.365 -16.459 8.887
clock02.chil01. 204.9.54.119 2 u 15 64 377 278.195 -1.254 0.427
*ntp.your.org .CDMA.      1 u 13 64 377 196.313 -16.884 0.456
LOCAL(0) .LOCL.     10 l 14 64 377 0.000 0.000 0.001
```

TIPS?

?? ntpd server ????????? offset ?????? ntpd ?????????? ntpd ?????? ntpdate ?????????????? ntpd ???

?????

for CentOS 7)

```
# timedatectl
Local time: Fri 2020-02-07 14:58:52 CST
```

```
Universal time: Fri 2020-02-07 06:58:52 UTC
```

```
RTC time: Fri 2020-02-07 06:58:52
```

```
Time zone: Asia/Taipei (CST, +0800)
```

```
NTP enabled: no
```

```
NTP synchronized: no
```

```
RTC in local TZ: no
```

```
DST active: n/a
```

```
# timedatectl list-timezones | grep -o "Asia/*"
```

```
# timedatectl set-timezone "Asia/Kolkata"
```

```
for CentOS 5/6)
```

```
# ln -s /usr/share/zoneinfo/Asia/Taipei /etc/localtime
```

```
??
```

```
# system-config-date
```

```
?????
```

```
# date -s "2 OCT 2006 18:00:00"
```

```
# /sbin/hwclock --systohc
```

```
WGET ??
```

```
// Proxy ??
```

```
$ export http_proxy=http:??username:password?this.is.proxy.ip:port
```

```
$ export http_proxy=http:??windomain\\username:password?this.is.proxy.ip:port
```

```
? ?? /etc/wgetrc
```

```
http_proxy=http:??windomain\\username:password?this.is.proxy.ip:port/
```

```
??? domain ? username ??????????
```

```
// ?????????????????? URL ??
```

```
wget 'HTTP URL Link'
```

```
// ?????? HTML?(???? Index of)
```

```
wget -r --no-parent http://xxx.xxx.xxx/aaa/
```

```
// ????
```

```
$ cat list.txt
```

```
https://wordpress.org/latest.zip
https://downloads.joomla.org/cms/joomla3/3-8-5/Joomla_3-9-4-Stable-Full_Package.zip
https://ftp.drupal.org/files/projects/drupal-8.4.5.zip
```

```
$ wget -i list.txt
```

```
// ????
```

```
$ wget -b https://wordpress.org/latest.zip
```

```
$ wget ftp://user:password@host:/path-to-file/file.txt
```

```
// ??????????
```

```
$ wget -br ftp://user:password@ftp-host:/path-for-download/
```

```
curl
```

```
$ curl -o wordpress.zip https://wordpress.org/latest.zip
```

```
YUM ??????
```

```
// ????
```

```
yum repolist enabled
```

```
??????????
```

```
yum list updates
```

```
??????
```

```
yum update --disablerepo=epel
```

```
// ?????? yum-updatesd??????????
```

```
?? yum-updatesd
```

```
service yum-updatesd stop
```

```
chkconfig yum-updatesd off
```

```
?? /etc/cron.daily/yum.cron
```

```
#!/bin/sh
```

```
/usr/bin/yum -R 120 -e 0 -d 0 -y update yum
```

```
/usr/bin/yum -R 10 -e 0 -d 0 -y update #????????????????????????????
```

```
chmod 0755 /etc/cron.daily/yum.cron
```

```
// ????????????
```

```
http://vault.centos.org/
```

```
// ?????? CD ? ISO ?????? DVD ISO?????????? mkdvdiso.sh???????? RedHat/CentOS ??????????
```

```
yum install anaconda-runtime mkisofs
```

```
./mkdvdiso.sh cd/ /tmp/CentOS-5.5-i386-bin-DVD.iso
```

TIPs?

```
?? CD ISO ??? cd/ ???
```

```
???? SELinux
```

```
????????????
```

```
// ?????????????????
```

```
yum clean all
```

```
// ????????????
```

```
?? libstdc++.so.6
```

```
yum whatprovides "*/libstdc++.so.6"
```

```
// ????????????
```

```
yum deplist <package-name>
```

```
// ?? RPM ??
```

```
yum -y install yum-utils.noarch
```

```
yumdownloader <package-name>
```

```
; Extract downloaded RPM
```

```
rpm2cpio dekiwiki-10.0.1-3.1.noarch.rpm | cpio -idmv
```

```
yum -y install --downloadonly --downloadaddir=/tmp/packages NetworkManager
```

```
// ?????????????????
```

```
yum --enablerepo=elrepo-kernel install kernel-ml kernel-ml-devel
```

```
// ??? ISO???????
```

```
# vi /etc/yum.repo.d/CentOS-Media.repo
```

```
[c6-local]
```

```
name=CentOS-$releasever - Media
```

```
baseurl=file:///mnt/iso/
gpgcheck=0
enabled=0
```

NOTE: enabled=0??? 1?? DVD ??? /mnt/iso?

```
# yum --disablerepo=* --enablerepo=c6-local upgrade
```

```
// ?????? RPM ??
```

```
yum --nogpgcheck install htop-1.0.2-1.el5.rf.x86_64.rpm
```

```
// ????????
```

```
yum --showduplicates list <package-name>
yum list <package-name>-<version>
yum install <package-name>-<version>
```

```
// ????????
```

```
yum repolist
yum repolist enabled
```

```
// ????????
```

```
yum list installed
yum list installed |tail -n +3|cut -d' ' -f1 > installed_packages.lst
?
rpm -qa > installed_packages.lst
```

```
yum -y install $(cat installed_packages.lst)
```

```
// ?? EPEL ???
```

[EPEL](#) - Extra Packages for Enterprise Linux

```
rpm -ivh http://mirror01.idc.hinet.net/EPEL/5/i386/epel-release-5-4.noarch.rpm
rpm -ivh http://mirror01.idc.hinet.net/EPEL/6/i386/epel-release-6-8.noarch.rpm
```

TIPS:

```
?: Error: Cannot retrieve metalink for repository: epel. Please verify its path and try again
?: sed -i "s/mirrorlist=https/mirrorlist=http/" /etc/yum.repos.d/epel.repo
```

```
// ?? ELRepo ???
```


CetOS 6/7:

```
createrepo /yum-repo-packages/centos_6.4_x86_64
createrepo -g /yum-repo-packages/centos_6.4_x86_64/repodata/2727...cab6f72-c6-x86_64-comps.xml
/yum-repo-packages/centos_6.4_x86_64
```

[?GO TO TOP?](#)

DNS ???? dig/host

?? host)

\$> host <FQDN> <DNS-Server>

?? dig)

- <https://www.cyberciti.biz/faq/linux-...-usage-syntax/>

???? nslookup ?? dig ??????????????????

// ?????? DNS server(resolv.conf) ????

\$> dig www.osslab.org.tw

// ????? DNS server(8.8.8.8)????????????? type ??

\$> dig @8.8.8.8 osslab.org.tw ANY

type ??? ANY, A, MX, SIG, etc...

// ??????????????????

\$> dig +multiline +noall +answer +nocmd cyberciti.biz ANY

// ?? IP

\$> dig -x 123.123.123.123

\$> dig +short -x 123.123.123.123

// ?????? domain name

\$> cat /path/to/lookup.txt

+short www.google.com

+short www.osslab.org.tw

\$> dig -f /path/to/lookup.txt

// ??????

\$dig +short +trace www.osslab.org.tw

// ?? TTL

\$> dig +nocmd +noall +answer +ttlid A www.cyberciti.biz

CentOS 5 ??? 4GB ?? RAM

CentOS ? v5 ?????kernel ?????????????? 4GB ?? RAM????????? **kernel-PAE** ?????????????????????? 4GB ??
RAM ? kernel????????????????? kernel ?????????????????? 4GB ?? RAM ??

```
#> yum install kernel-PAE
```

[???????](#)

[?GO TO TOP?](#)

?????-VNC

```
??VNC????????????????????????????????????????????????????????????
```

```
//????? vnc.so ????
```

```
shell>locate vnc.so
```

```
//????????????????? vnc.so
```

```
shell>vi /etc/X11/XF86Config
```

```
Section "Module"
```

```
    Load "dbe"
```

```
    Load "extmod"
```

```
    ...
```

```
    Load "vnc"
```

```
//?? VNC ??????
```

```
shell>vi /etc/X11/XF86Config
```

```
Section "Screen"
```

```
    ...
```

```
    Option "SecurityTypes" "VncAuth"
```

```
    Option "UserPasswdVerifier" "VncAuth"
```

```
    Option "PasswordFile" "/root/.vnc/passwd"
```

```
    ...
```

```
// ???????? xstartup
```

```
$ vi ~/.vnc/xstartup
```

```
?? GNOME ????
```

```
[ -r $HOME/.Xresources ] && xrdb $HOME/.Xresources
```

```
xsetroot -solid grey
```

```
#vncconfig -iconic &
```

```
xterm -geometry 80x24+10+10 -ls -title "$VNCDESKTOP Desktop" &
```

```
#twm &
```

```
gnome-session -sm-disable
```

```
gnome-session
```

?? KDE ????

```
[ -r $HOME/.Xresources ] && xrdp $HOME/.Xresources
xsetroot -solid grey
#vncconfig -iconic &
xterm -geometry 80x24+10+10 -ls -title "$VNCDESKTOP Desktop" &
twm &
startkde &
```

//?? VNC ??

```
shell> vncpasswd /root/.vnc/passwd
```

PS. ??????????????????

Section "Screen"

...

```
Option "SecurityTypes" "None"
EndSection
```

[?GO TO TOP?](#)

RPM ????

// ????????????????

```
shell> rpm -qi <rpm_name>
```

// ?????????? 32 ? 64 bit

```
shell> rpm -qa --qf "%{n}-%{v}-%{r}.%{arch}\n" | grep -i <package-name>
```

// ????????????

```
shell> rpm -qpi your.rpm
```

```
shell> less your.rpm
```

// ????????????????

```
shell> rpm -q --requires <package-name>
```

// ??????????? RPM ??????????

```
shell> rpm -qlp your.rpm
```

// ????????????????

```
shell> rpm -qf /usr/bin/ksh
```

```
// ?? source rpm
```

```
yum install rpm-build
rpmbuild --rebuild something.src.rpm
```

```
// ?? RPM Public Key
```

```
rpm -q gpg-pubkey | sort | uniq -c | sort -nr
```

```
// ?? RPM ??
```

- [?? RPM ??](#)
- [RPM Tips](#)
- [RPM SPEC?????????](#)

```
????device?(/dev/sda)?LUN channel??????
```

```
???? sg_utils????? http://sg.torque.net/sg/sg3\_utils.html?
```

```
???? sg_map -i
```

```
root@oradb2 ~]# sg_map -i
/dev/sg0 /dev/sda ServeRA rootvg V1.0
/dev/sg1 /dev/sdb ServeRA datavg V1.0
/dev/sg2 IBM-ESXS VPBA073C3ETS11 N A2E8
/dev/sg3 IBM-ESXS VPBA073C3ETS11 N A2E8
/dev/sg4 IBM-ESXS VSC7160 1.07
/dev/sg5 /dev/sdd i-Raid gtnas02--VOL#01
R001
/dev/sg6 /dev/sdc i-Raid x3650---VOL#00
R001
/dev/sg7 /dev/nst0 HP Ultrium 2-SCSI
F6AW
/dev/sg8 HP NS E1200-160 5929
```

```
???? sg_scan -i
```



```
AuthLDAPBindDN ; ??????AD????????????????????AD?
```

```
AuthLDAPBindPassword ; ????????????
```

```
???
```

```
AuthMySQLEnable off
```

```
AuthType Basic
```

```
# What the users will see as a "title" of the login prompt:
```

```
#AuthName "Domain Credentials Required"
```

```
AuthName "Your Domain AD's account required"
```

```
# use plain LDAP authentication:
```

```
AuthLDAPMethod ldap
```

```
# FQDN resolvable hostname (or IP) of the Windows
```

```
# AD domain controller:
```

```
AuthLDAPServer myad.mydomain.com.tw
```

```
# Distinguished Name (DN) of the user that mod_authz_ldap should
```

```
# bind to the LDAP server as when searching for the domain user
```

```
# provided by the web client (Active Directory does not allow
```

```
# anonymous binds). Note, the cn attribute corresponds to the
```

```
# "Display Name" field of a user's account in the Active Directory
```

```
# Users and Computers tool, not their login username:
```

```
AuthLDAPBindDN "cn=John,ou=IT,dc=mydomain,dc=com,dc=tw"
```

```
# the BindDN user's password:
```

```
AuthLDAPBindPassword "123456"
```

```
# LDAP Attribute where the user's domain login username is stored in:
```

```
AuthLDAPUserKey sAMAccountName
```

```
# Base DN to begin searching for users from in the LDAP:
```

```
#AuthLDAPUserBase "ou=TestOU,dc=mydomain,dc=com,dc=tw"
```

```
AuthLDAPUserBase "ou=IT,dc=mydomain,dc=com,dc=tw"
```

```
# Search in sub-containers below the UserBase DN if
```

```
# necessary (most likely):
```

```
AuthLDAPUserScope subtree
```

```
# Require the username and password provided to be a valid
```

```
# user in the AD:
```

```
require valid-user
```

```
# log verbosity level:
```

```
AuthLDAPLogLevel info
```

??? AD ?????? LDAP ?????????????? [LDAP Browser](#) ??????(??30)?

?????

- [Apache and Active Directory Authentication on Debian](#)
- [Using Windows AD for Apache authentication](#)

[?GO TO TOP?](#)

???? MRTG ??????

?????CentOS 5.2

?????<http://oss.oetiker.ch/mrtg/download.en.html>

????

```
./configure --prefix=/opt/mrtg-2.16.2 \
--with-gd=/usr/include \
--with-gd-lib=/usr/lib \
--with-gd-inc=/usr/include \
--with-png=/usr/include \
--with-zlib=/usr/include
```

????????? GD Library ?????????? gd-devel ??

```
#yum install gd-devel
```

????

make

make install

[?GO TO TOP?](#)

?? Joomla 1.5x ????????????

1. ?? Joomla ??????
2. ?? php ?? allow_url_fopen?

?????

- ?? Joomla ?????? - http://kb.siteground.com/article/Joomla_hacked.html
- ?? Joomla ?????? - http://kb.siteground.com/article/How...omla_10XX.html
- ?? Joomla ?????? - <http://www.joomlasupport.co.uk/Jooml... Security.html>
- ?????????????? - http://docs.joomla.org/Vulnerable_Extensions_List

?? RPM??????????

```
rpm2cpio xxx.rpm | cpio -idmv
```

?? USB ?????????? USB ??/?

```
modprobe -r usb_storage
```

```
vi /etc/modprobe.conf
```

```
alias usb_storage off
```

[?GO TO TOP?](#)

NFS ????

?? umount ?? device is busy??????????????

//??????????????

```
fuser -m -v <mount_point>
```

```
lsof | grep <mount_point>
```

```
lsof +f -- <path-to-dir>
```

//????????

```
fuser -i -k <mount_point>
```

//????????? NFS Client daemon????? NFS ??????????

```
service netfs stop
```

```
service netfs start
```

// ??????????

```
umount -l <mount_point>
```

?????? Client ??? NFS ??

```
netstat -an | grep <nfs-server-ip>:2049
```

?? NFS Port ? 2049????? netstat -lt ??

Can't mount remotely Linux host on AIX

Q: Can't mount remotely Linux host on AIX ????

A: To run the following commands on your AIX.

??? VI ???

Notes: ?????????????????????? shift + ????

???????????????	????	????
i	???????????????	? a ??????????????????????????????
a	???????????????	
h j k l	?????????h--?, j--?, k--?, l--?	?????????????????????????????????
:1	?????????	
:22	??????22?	???????????????????
gg	?????????	
G	?????????	???????????????????????????
0	?????????	
\$?????????	
:wq	??????	
:w new.txt	?????? new.txt	
:w !sudo tee %	? sudo ?????	???????????????????? sudo ????????
:q!	??????	???
:set nu	?????	??????????
:set nonu	?????????	
:set hlsearch	Highlight ???????	??????????????
: syntax on	?? Hihjlight ??	
dd	?????????	
10dd	????????10?(???)	
yy	?????????	
3yy	????????3?(???)	
p	??	
:%s/old/new/g	?????old?????????new??	

:/<table>/,</table>/g/^\$/d	?? <table> ... </table> ?????	
/keyword	????	
/\Keyword	????(?????)	
/\s\+\$?????????? Highlight	????? :set hlsearch ??
~	?????	
:%s/[ctrl+V and ctrl+M]//g	?????? ^M	
:%s/\s\+\$//	????????????	
:1,\$d	??????	
:1,22d	?? 1-22 ?	
:23,\$d	?? 23 ????????	
:! ls -l	???? SHELL ??	:!! ??????
:vsplit my.file	???????????? my.file	ctrl + w + w ????
:split my.file	??????	ctrl + w + w ????

????????

vim -d file1 file2

?? VI Highlight Color

```
// CentOS/RedHat
#> yum install vim-enhanced
```

NOTE????? vim ?????????vi ??????

```
// Debian
#> vi ~/.vimrc
```

syntax on

Putty ??????

ANSI Blue: Red:74 Green:74 Blue:255
ANSI Blue Bold: Red:140: Green:140 Blue:255

FAQ:

Q: ?????A line cannot be longer than 2048 characters.

A: ??? VI ????????? 2048 ?????????????????????????????????

cut -c1-2047 before.log > after.log

[?GO TO TOP?](#)

? top ?????? - htop

???? <http://dag.wieers.com/rpm/packages/htop/>???? <http://htop.sourceforge.net/>

????

```

root@vps: ~temp/htop
  1  [|||||]          2.6%]      Tasks: 119 total, 2 running
  2  [|||||]          1.3%]      Load average: 0.40 0.33 0.28
  3  [|||||]          0.0%]      Uptime: 21 days, 23:24:11
  4  [|||||]          100.0%]
Mem[|||||]          606/3802MB]
Swp[|||||]          0/1023MB]

  PID USER   PRI  NI  VIRT   RES   SHR  S  CPU% MEM%   TIME+  Command
 2229 mysql   15   0 176M 59712 5260  S 100. 1.5  94h27:41 /usr/libexec/mysqld --defaults-file=/e
31735 mysql   25   0 176M 59712 5260  R 100. 1.5  0:17.11 /usr/libexec/mysqld --defaults-file=/e
31608 root     15   0 2220 1088   876  R  2.6  0.0  0:02.53 htop
10507 root     18   0 1688  448   372  S  0.7  0.0  3:14.94 /root/ispconfig/cronolog --symlink=/va
31759 apache  15   0 51088 20936 1740  S  0.0  0.5  0:00.00 /usr/sbin/httpd
 2970 root     18   0 51088 27816 8664  S  0.0  0.7  5:02.02 /usr/sbin/httpd
30814 apache  16   0 55444 25004 4460  S  0.0  0.6  0:01.44 /usr/sbin/httpd
31752 apache  15   0 51088 20940 1740  S  0.0  0.5  0:00.01 /usr/sbin/httpd
31758 apache  15   0 51088 20936 1740  S  0.0  0.5  0:00.01 /usr/sbin/httpd
31760 apache  15   0 51088 20936 1740  S  0.0  0.5  0:00.01 /usr/sbin/httpd
30914 apache  15   0 63196 33204 5232  S  0.0  0.9  0:01.91 /usr/sbin/httpd
31613 apache  15   0 55024 24512 4276  S  0.0  0.6  0:00.29 /usr/sbin/httpd
31602 apache  15   0 55016 24508 4272  S  0.0  0.6  0:00.25 /usr/sbin/httpd
30657 apache  15   0 63624 33920 5344  S  0.0  0.9  0:02.42 /usr/sbin/httpd
28513 apache  15   0 63744 34180 5484  S  0.0  0.9  0:04.44 /usr/sbin/httpd
27089 apache  15   0 64512 34644 5732  S  0.0  0.9  0:09.73 /usr/sbin/httpd
31619 apache  15   0 55112 24484 4284  S  0.0  0.6  0:00.42 /usr/sbin/httpd
 2594 root     15   0 1932   608   532  S  0.0  0.0  19:50.25 hald-addon-storage: polling /dev/hda
31610 apache  15   0 60908 31004 5036  S  0.0  0.8  0:00.42 /usr/sbin/httpd
29508 apache  15   0 64140 34160 5416  S  0.0  0.9  0:04.63 /usr/sbin/httpd
F1 Help  F2 Setup  F3 Search  F4 Invert  F5 Tree  F6 SortBy  F7 Nice  F8 Nice  F9 Kill  F10 Quit

```

?? dd ???

// ??MBR

dd if=/dev/hdx of=/path/to/image count=1 bs=512

// ????? iso ?

dd if=dev/cdrom of=/root/cd.iso

// ???????

dd if=/dev/urandom of=/dev/hda1

// ????? USB-Flash

dd if=/dev/sdb | gzip > ./my-usb_flash.img.gz

//?? USB-Flash

gzip -dc ./my-usb_flash.img.gz | dd of=/dev/sdb

```
// ??????????10GB
dd if=/dev/zero of=/path/to/image bs=1G count=10
NOTE: ?? Linux ??????
fallocate -l 1G test.img
```

```
// Test network bandwidth between 2 Linux servers
dd if=/nas-mount-point/samplefile of=/dev/null bs=1M count=1024 iflag=direct
dd if=/dev/zero of=/nas-mount-point/samplefile bs=1M count=1024 oflag=direct
NOTE: the samplefile is greater than 1GB and the RAM is preferably more than 2GB.
```

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```
ps ??
? PID ??
```

```
ps -fp <PID>
ps -fp <PID#1>,<PID#2>,<PID#3>
```

??CPU/Memory??

```
// CPU ??????10??
```

```
// for CentOS
ps -eo pid,ppid,cmd,%mem,%cpu --sort=-%cpu | head -11
```

```
//
ps aux | head -1; ps aux | sort -rn +2 | head -10
or
ps aux | head -1; ps aux | sort -rn -k 3 | head -10
```

```
// Memory ??????10??
```

```
// for CentOS
ps -eo pid,ppid,cmd,%mem,%cpu --sort=-%mem | head -11
```

```
ps aux | head -1; ps aux | sort -rn +3 | head
or
ps aux | head -1; ps aux | sort -rn -k 4 | head
```

```
ps -eo cmd,pid,ppid,%mem,%cpu --sort=-%mem | head -n 6
```

```
ps aux | awk '{print $6/1024 " MB\t\t" $11}' | sort -rn | head -25
```

```
// ????????
```

```
ps -eakl | sort -n +6 | head
or
```

```
ps -eal | sort -n -k 7 | head
```

```
// ??? nice ???
```

```
ps -eakl | sort -n +7
```

```
or
```

```
ps -eal | sort -n -k 8
```

```
// ??????????
```

```
ps vx | head -1; ps vx | grep -v PID | sort -rn +3 | head -10
```

```
or
```

```
ps vx | head -1; ps vx | grep -v PID | sort -rn -k 4 | head -10
```

```
// ??? I/O ??
```

```
ps vx | head -1; ps vx | grep -v PID | sort -rn +4 | head -10
```

```
or
```

```
ps vx | head -1; ps vx | grep -v PID | sort -rn -k 5 | head -10
```

```
// ???????
```

```
ps vg | head -1; ps vg | grep -w wait
```

```
// ?? PID ????????????
```

```
ps -p <PID> -o etime,start
```

```
?? ls ??
```

```
????
```

```
ls --sort=size /path-to-dir
```

```
?? size ????????????
```

- extension
- none
- size
- time
- version

```
??????
```

```
ls -l | grep ^d
```

ls -d */

????????

ls myfile[1,3,5,7,9]

ls myfile[1-9]

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