

# LPIC

WORLD BIZNet  
2013 7 20



- ” 1969 AT&T Ken  
Thompson UNIX
- ” 1974 AT&T UNIX ver.5
- ” 1977 BSD Bill Joy
- ” 1983 Richard Stallman FSF (GNU Project)

-----

” 1984 AT&T UNIX

” 1987 X/Open

” 1988 IEEE POSIX OSF





” 1991

Linus Torvald

POSIX

GPL

= AT&T

” Linux OS

Red Hat

Debian

Red Hat	Debian	
Red Hat Enterprise Linux	Debian GNU/Linux	Slackware
Cent OS (RHEL )	Ubuntu (Desktop )	openSUSE
Fedora (RHEL )	KNOPPIX	MontaVista( )

\*) Oracle SAP

Linux OS



”

”

CPU HW

” OS

”

CentOS Fedora Debian Ubuntu etc.

”

”

The Cathedral and the Bazaar Eric S. Raymond

Linux

Linux

<http://jla.linux.or.jp/>

Linux.com JAPAN

<http://jp.linux.com>

The Linux Foundation

<http://www.linuxfoundation.jp/>

Tokyo Linux Users Group

<http://tlug.jp/>



” Linux ( Linux  
Professional Institute Certification

” NPO LPI

- 
- 
- 
- 

<http://www.lpi.or.jp/>



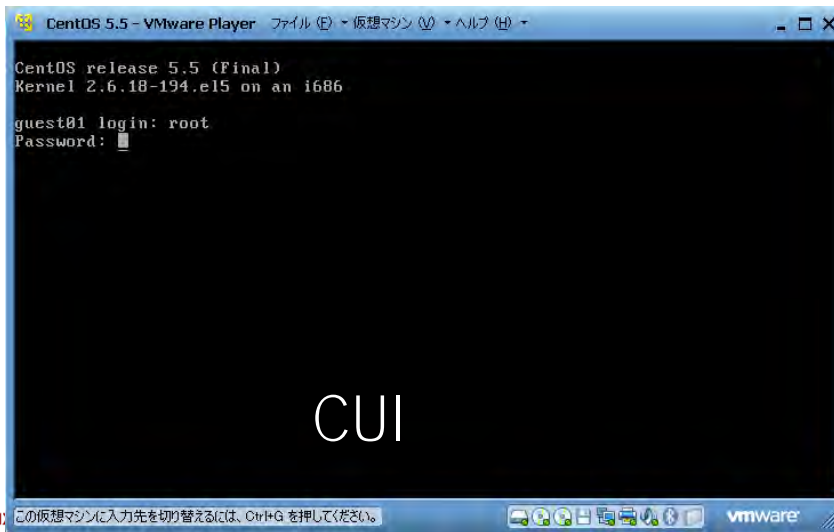


# Linux



” Linux

PC







”

”

”

” root

root



# CUI: Command line User Interface

”

”

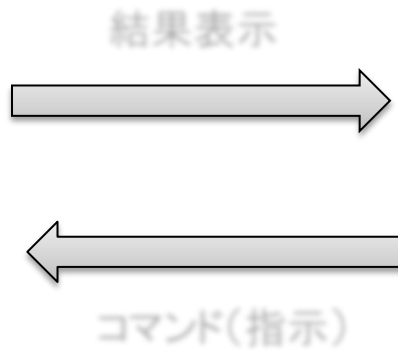
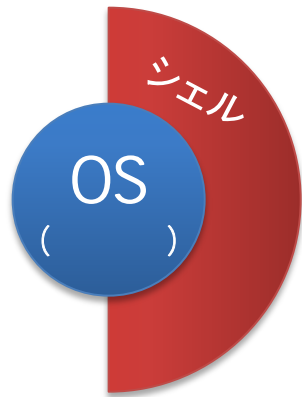
”

”





OS



```
[ycos@umejima-2 ~]$ date
2013  3  2          15:50:47 JST
[ycos@umejima-2 ~]$
```

- ・ OS
- ・ Linux
- ・
- ・ \$

(LPIC bash

\$

#



”

logout

”

shutdown

. # shutdown-r/-h

. r (reboot)

. h (halt)

. hh:mm

+n now

” shutdown

\$

#



”

man

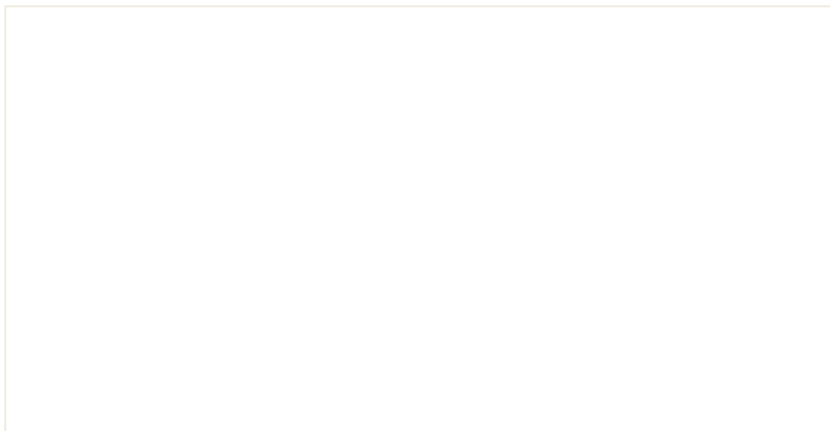
. \$ man

. \$ man k ( )

. man [ ] [ u ] [ q ]

” Web

manpage /



Search results for "manpage shutdown" on Google.

Google | Search: manpage shutdown | 検索

約 148,000 件 (0.20 秒) | 検索オプション

- [Manpage of SHUTDOWN ☆](#)

2010年4月25日 ... **shutdown** はシステムを安全に終了させる。ログインしている全てのユーザにはシステムが終了する旨が通知され、新たな login(1) プロセスは生成されなくなる。**shutdown** はシステムを直ちに終了させることも、また 指定した時間の経過 ...

archive.linux.or.jp/JM/html/SysVinit/man8/shutdown.8.html - キャッシュ
- [Manpage of SHUTDOWN ☆](#)

**shutdown(0)** は、socketd に関連づけられているソケットによる全二重接続 (full-duplex ...

archive.linux.or.jp/JM/html/LDP\_man-pages/.../shutdown.2.html - キャッシュ
- [shutdown\(8\): bring system down - Linux man page ☆](#) - [ このページを訳す ]

**shutdown** brings the system down in a secure way. All logged-in users are notified that the system is going down, and login(1) is blocked. It is possible to ...

すべて | 画像 | 動画 | ニュース | ショッピング | もっと見る

東京都新宿区 | 場所を変更

ウェブ全体から検索 | 日本語のページを検索 | 翻訳して検索



” Linux

”

”

”

▪

—

-

▪

▪

▪ 255 (Bytes)

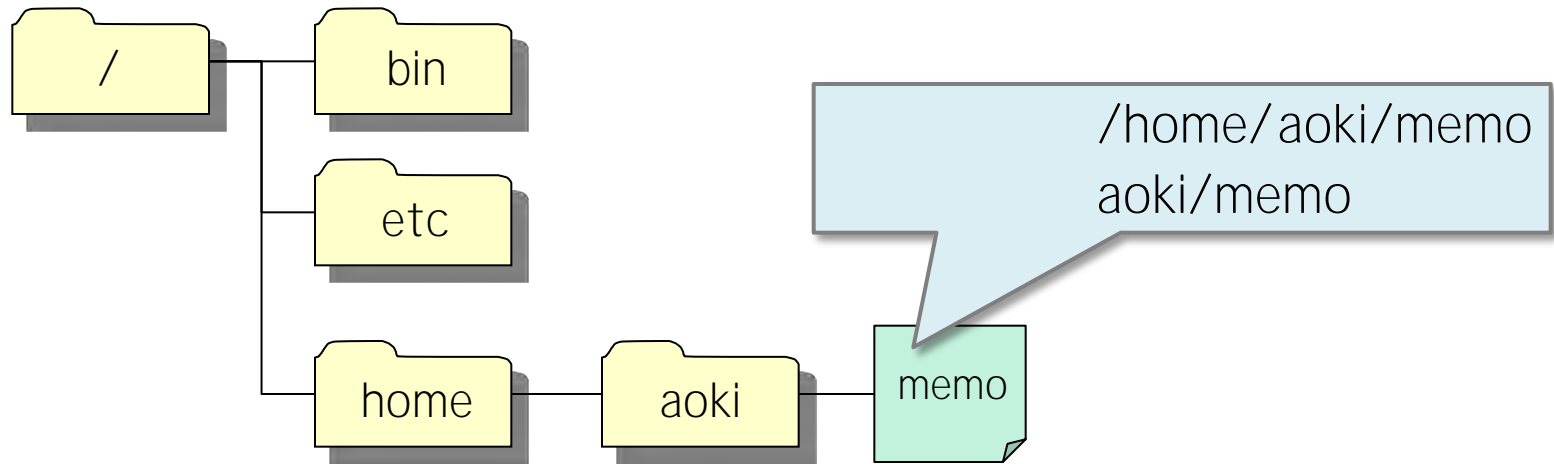


”

”

/( )

”





(1)

- ” change directory
- . \$ cd [ : ]\*
- . ( . ) ( .. ) ~
- ” print working dire.
- . \$ pwd
- ” list
- . \$ ls [ ]
- ” concatenate
- . \$ cat
- . \$ less

[]

\$

#





( )

”

• \$ cp

• \$ cp

•

Copy

/

”

• \$ mv

• \$ mv

•

•

Move

/

”

• \$ rm

•

Remove



( )

”

Make directory

- \$ mkdir
- \$ mkdir -p /

”

( - Recursive )

- \$ cp -r
- 

”

Remove directory

- \$ rmdir
- 
- \$ rm -r
-





” Linux

” UID GID

Linux

” UID GID 0 4,294,967,294

” 65,536

” /etc/passwd

/etc/group

Kernel ver 2.6.18 CentOS 5.9



# /etc/passwd

//

(1)	(2)	(3)UID	(4)GID	(5)	(6)	(7)
-----	-----	--------	--------	-----	-----	-----

1						
2					X	
		(/etc/shadow)				
3	UID			0		2
4	GID					
5		GECOS				
6						
7					(	/etc/shells )



# (/etc/group)

//

(1)                      (2)                      (3)GID (4)

1		
2		(/etc/group) X
3	GID	
4		(,)



(1)

”

. # useradd

.

user add

”

. \$ passwd [

.

pass word  
]

”

. # userdel [ -r ]

.

r

user delete

”

. # groupadd

group add



(2)

```
”  
.  
# groupdel  
.  
”
```

group delete

```
”  
.  
$ id [ ]  
.  
UID GID  
.  
$ groups[ ]  
.  
”
```

identify

```
”  
.  
$ su [-] [ root ]  
.  
.  
”
```

substitute user





# Linux

( ls l )

```
[ycos@umejima-2 ~]$ ls -l
合計 52
drwxrwxr-x 11 ycos apache 4096 12月 26 15:03 public_html
-rw-rw-r--  1 ycos ycos 263 12月 6 2009 revoke.asc
```

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

#		
1	- :	d:
2		
3		
4		
5		
6		(Bytes)
7		
8		



Linux

”

”

”

change owner

```
. # chown [ -R ]      :  
      R
```

/

```
. $ chgrp [ -R ]
```

/



”

(Read) ( ) (Write) (eXecute)

”

(Group) (Other) (User)

u			g			o		
r	w	x	r	w	x	r	w	x

```
-rw-rw-r-- 1 ycos ycos 263 12月 6 2009 revoke.asc
```

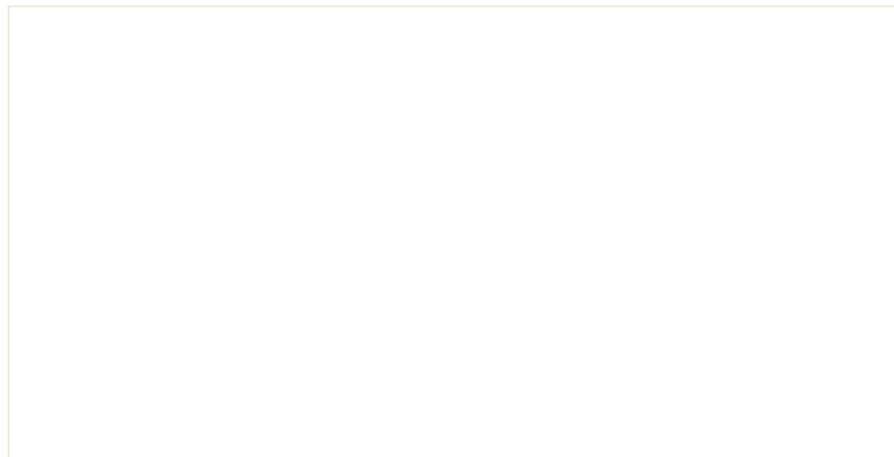
revoke.asc                      ycos                      ycos



//

- 
- 

R		(ls )
W		
X		(cd )





”

# chmod

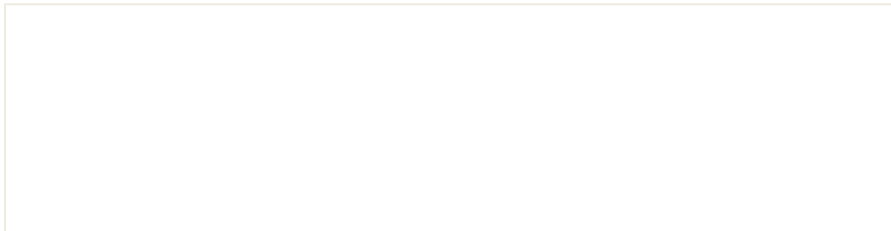
change mode

▪ \$ chmod ( )+/( ) /

▪ u : g: o: a: (u+g+o)

▪ +/- ( + : - :

▪ r : w : x :

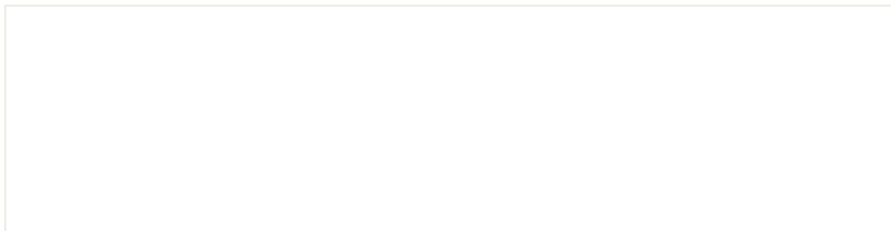




”

- ・ \$ chmod /
- ・

	u			g			o		
	r	w	x	r	w	x	r	w	x
	400	200	100	40	20	10	4	2	1



$$\begin{array}{c}
 \text{rw-rw-r } \acute{o} \\
 400+200 + 40+20 + 4 = 664
 \end{array}$$

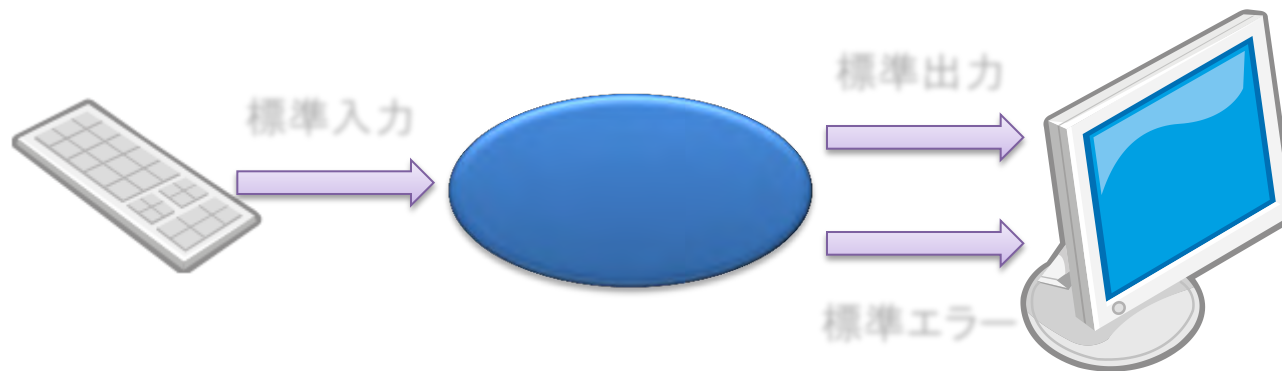


# Linux



//

- 0. (stdin)
- 1. (stdout)
- 2. \* (stderr)



\*)

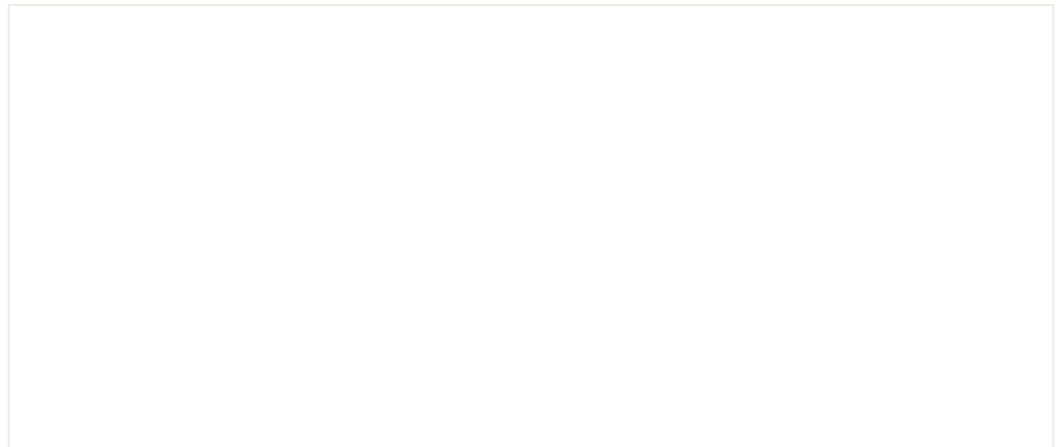




”

- >
- >>
- <
- 2>

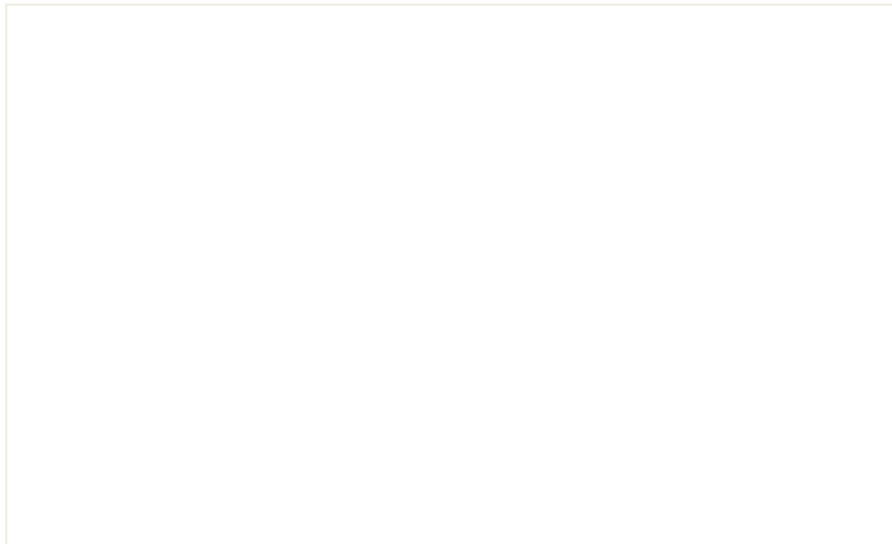
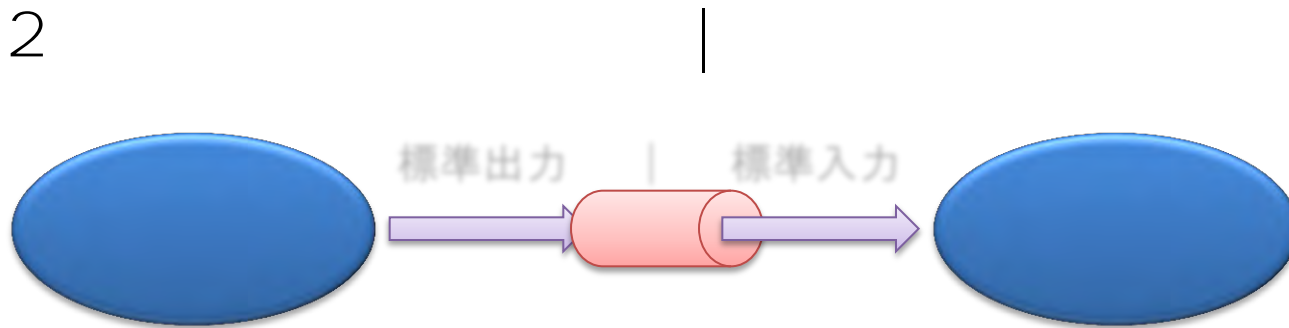
”  
”  
”





”

. 2



cat

n

\$ ls d > ls.out

\$ cat n ls.out

ls cat



”

- \$ =
- \$ echo \$ \$  
echo

”

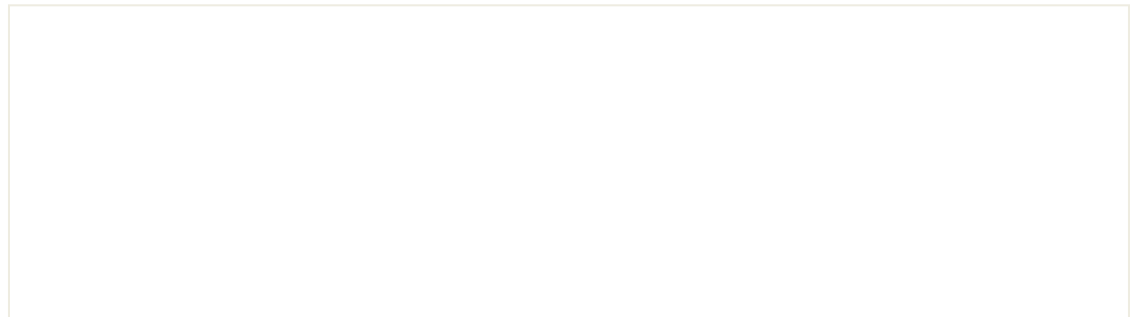
- \$ export
- \$ export =





”

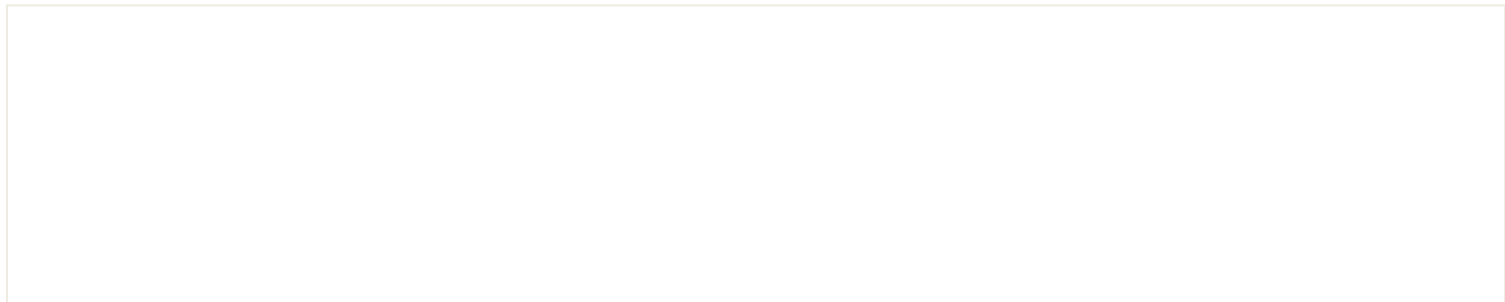
*	0	A*	Abc, A123, A °
?	1	A??	Abc, A12,Aaa ° 3
	1	[abc]	a, b, c
¥X	x	¥?	.





## ” Linux

- [Shift] + [7]
- [Shift] + [2]
- [Shift] + [ @ ]
- 





”

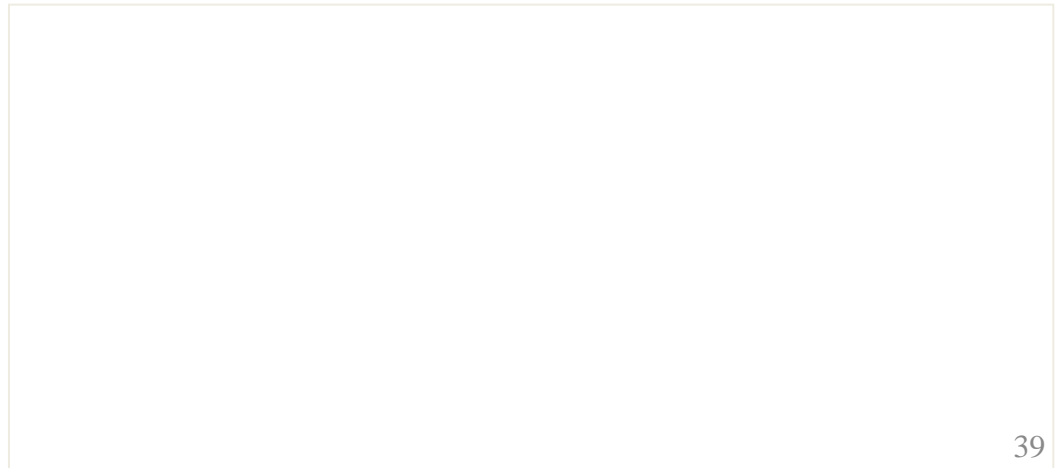
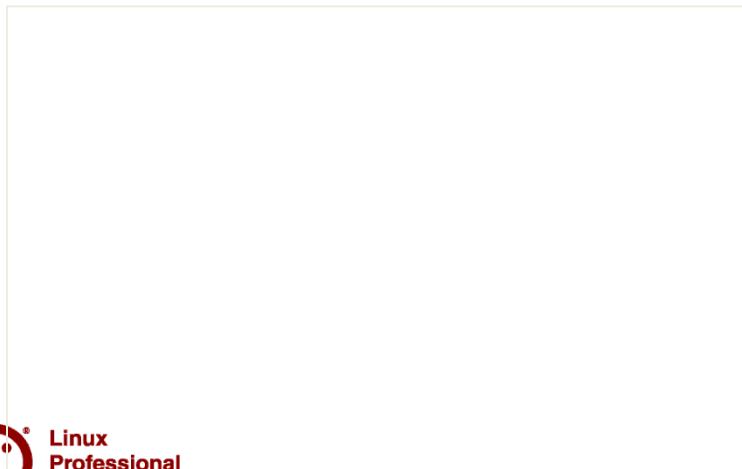
- \$ history

- \$ !n  
history n

”

- \$ alias

( )





//

. \$ locate

. \$ find

-name	
-size	[Bytes] +n n /-n k,M,G
-atime	n n mtime
	-ctime
-perm	+nnn +444
-type	f : d:
-a /-o	- a and -o or

1. 10MB
- 2.

locate

updatedb





”

global regular expression p

• \$ grep [ ]

[ ]

stdin

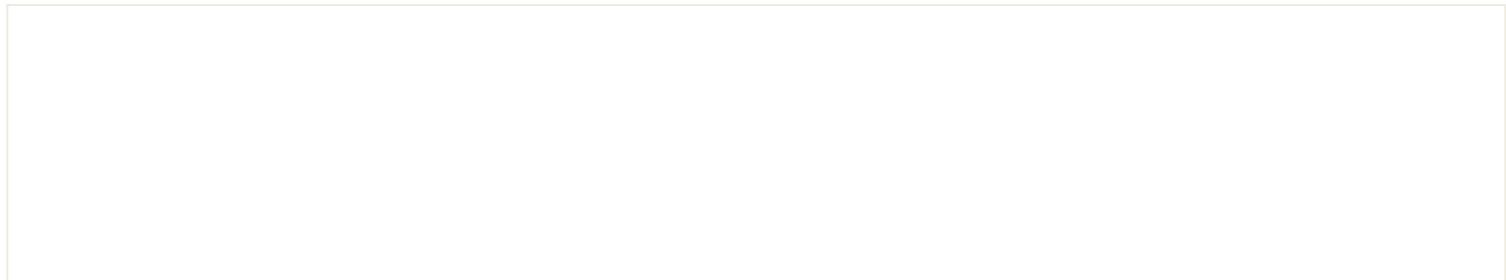
•

fgrep

•

egrep

-C	
-i	
-l	
-v	

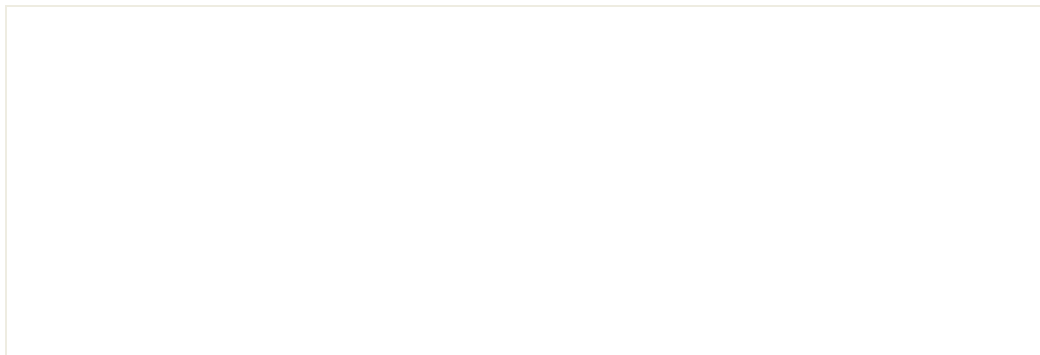




” grep

(regular expression)

.	
*	
	.
^	
\$	
¥X	X





```
“
. $ head [          ] [          ]
”
```

```
“
. $ tail [          ] [          ]
”
```

```
“
. $ nl [          ]
. cat -n          nl
”
```

number line

```
“
. $ wc [          ] [          ]
.          | :          -w :          -C :
”
```

word count





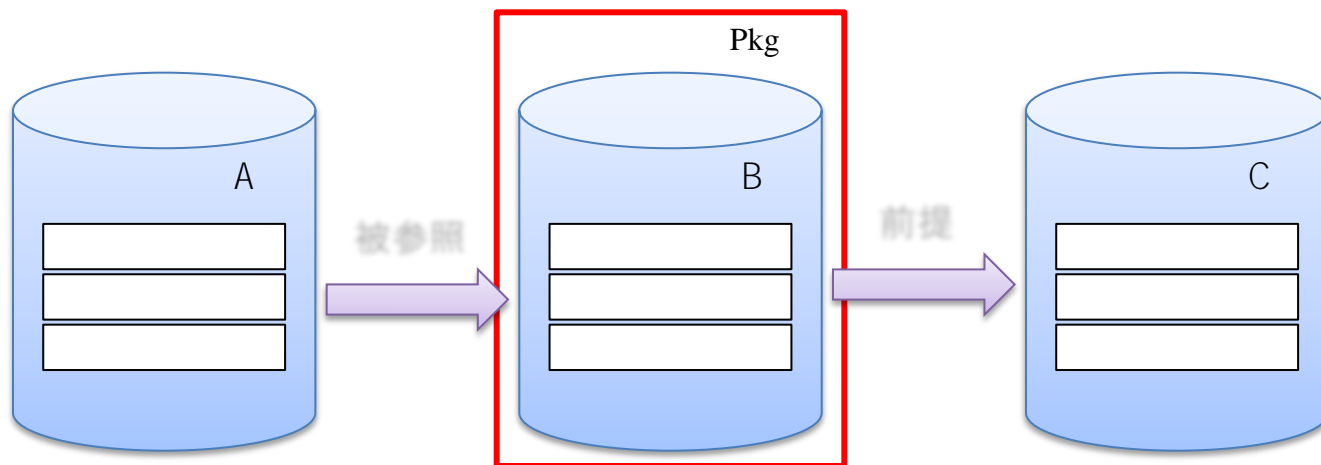
”

”

”

RPM Red Hat, CentOS  
Debian (Debian/LinuxUbuntu )  
Debian

”





## ” RPM

```
. # rpm [ ] [ RPM
```

```
. # yum [ ] [ RPM ]
```

RedhatPackage Manager  
Yellowdog Updater Modified

## ” Debian

```
. # dpkg [ ] [ deb / ]
```

```
. # apt-get [ ] [ deb ]
```

Advanced Packaging Tool



” rpm

-ivh	RPM
-Uvh	
-e	
-qa	
-qi	

・ yum

update [       ]	
install	
remove	
list	
info	



” HDD USB

# Linux

FS	*	
ext3	32TiB	ext2
ext4	1EiB	ext3
Reiserfs	16TiB	
XFS	8EiB	
NTFS	256TiB	Windows
FAT32	2TiB	Windows, USB
UDF	128TiB	DVD ISO 9660 (CD)

\*) TiB = 1024<sup>3</sup>Bytes, EiB = 1024<sup>4</sup>Bytes

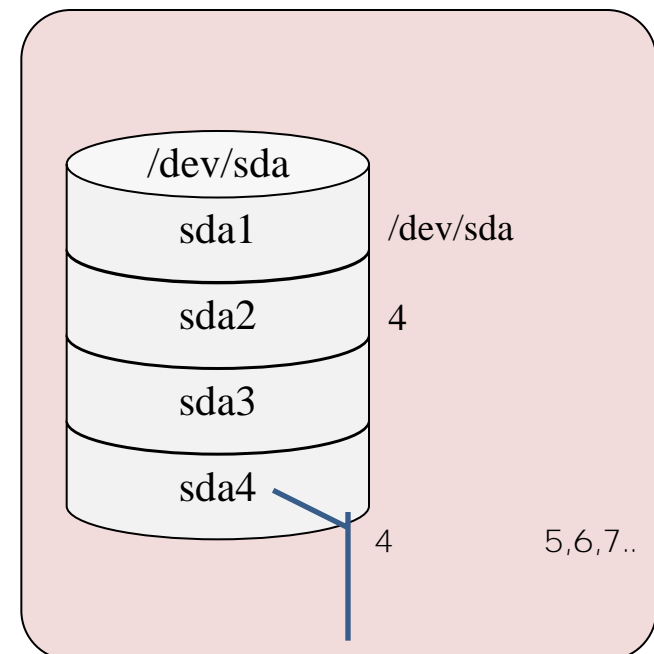
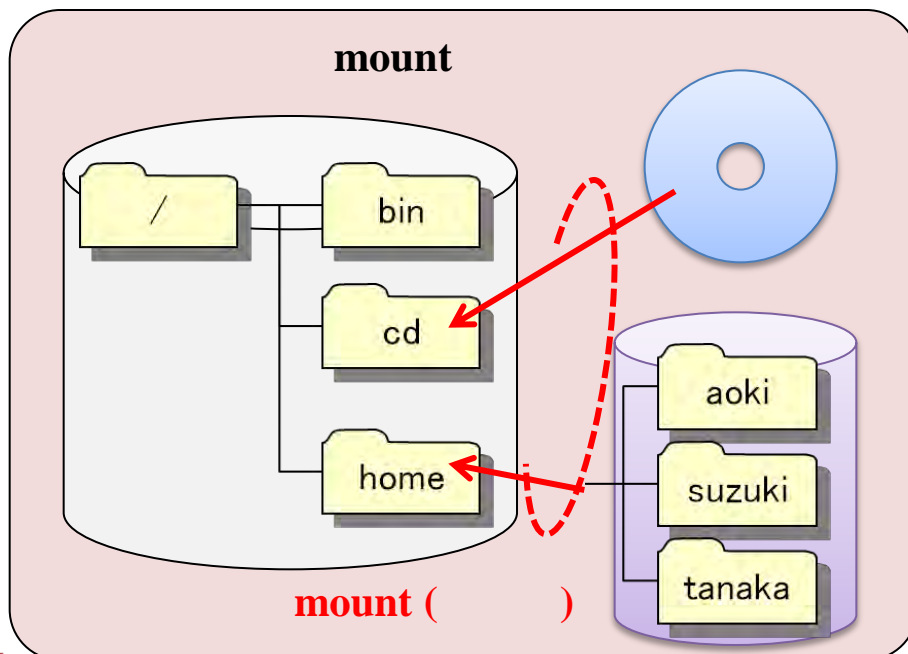




# Linux

- ・
- ・ Windows
- ・

mount





//

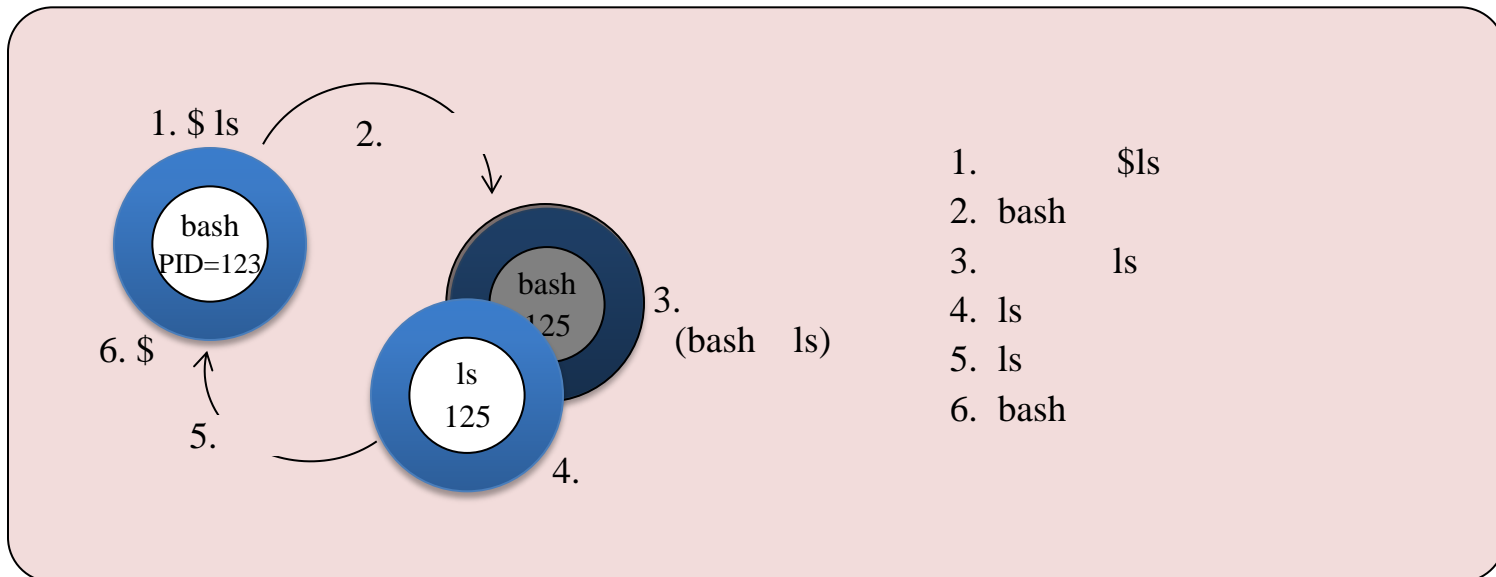
- . # fdisk (/dev/sda ) DOS FDISK  
 HDD
- . # newfs-t FS (/dev/sda1 )  
 new file system
- . # mount

	ext2/3	ReiserFS	XFS
	mke2fs	mkreiserfs	mkfs.xfs
	e3fsck	reiserfcck	xfs_check
	tune2fs	reiserfstune	xfs_admin



# Linux

- ・ [Enter] )
- ・ OS
- ・ Linux PID ( Process ID )
- ・ CPU(Core)
- ・



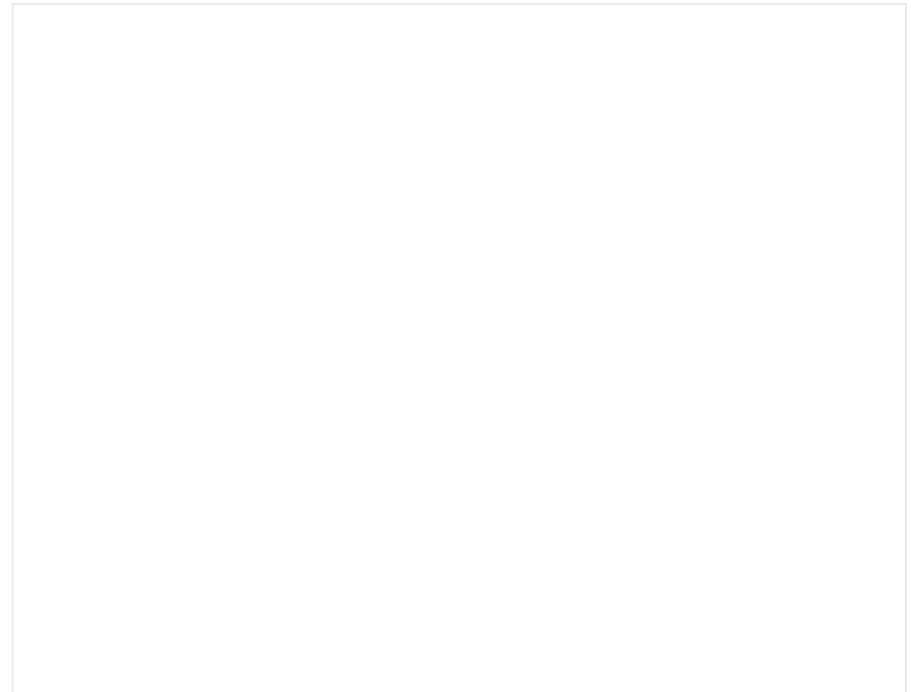
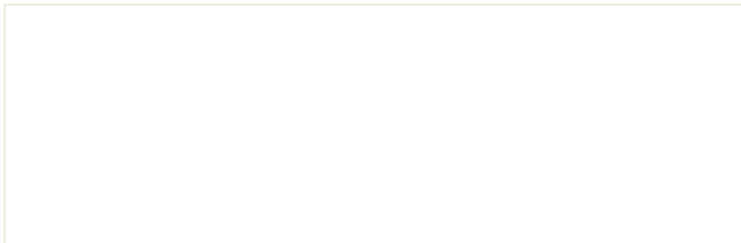
1. \$ls
2. bash
3. ls
4. ls
5. ls
6. bash



//

- \$ ps [ ] process status
- \$ kill { } PID

9	KILL	
15	TERM	
18	CONT	
19	STOP	



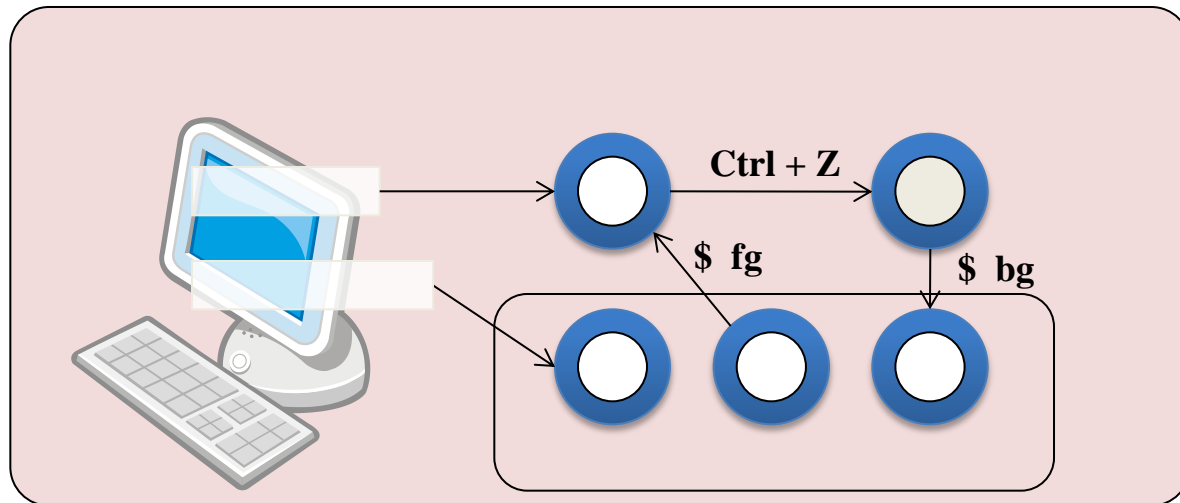


”

- 
- 
- 
- 
- 

bg                      Ctrl + [ C ]                      Ctrl + [ Z ]

fg









## ” Linux

- . network
- . Ifcfg\*
- . resolv.conf

`/etc/sysconfig/network`

```
NETWORKING=yes  
GATEWAY=192.168.0.1  
HOSTNAME=www.uso800.com
```

`/etc/resolv.conf`

```
search uso800.com  
nameserver 192.168.0.1  
nameserver 10.20.30.40
```

`/etc/sysconfig/network-scripts/ifcfg-eth0`

```
DEVICE=eth0  
BOOTPROTO=static  
IPADDR=192.168.0.7  
NETMASK=255.255.255.0  
ONBOOT=yes  
BROADCAST=192.168.0.255  
NETWORK=192.168.0.0
```

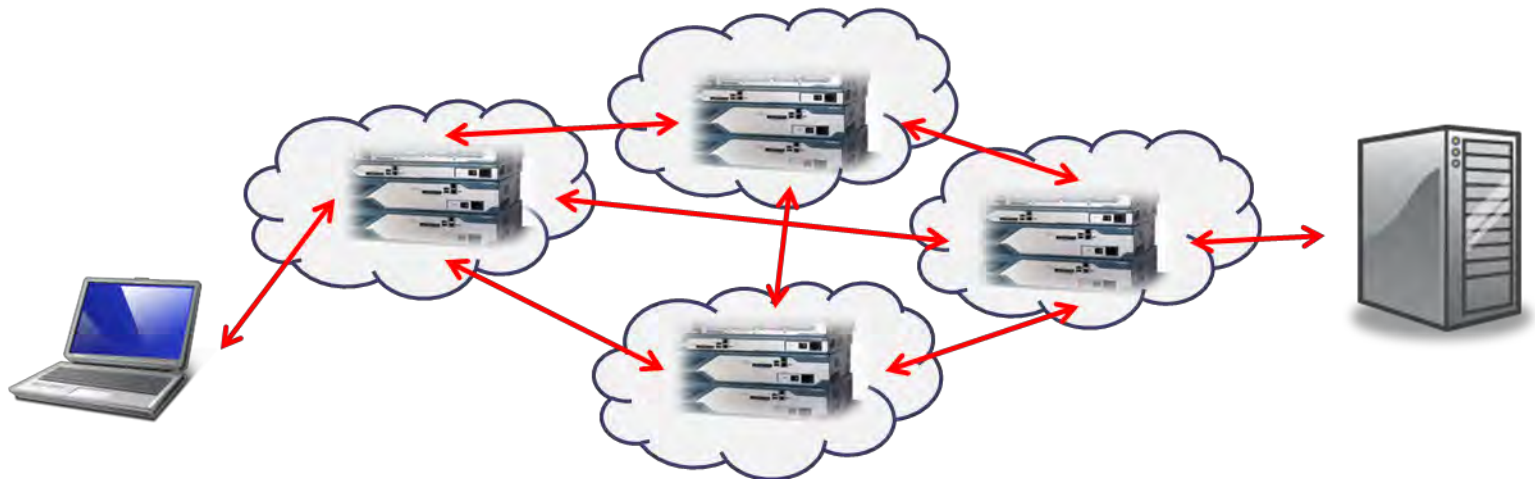




//

- \$ ping
- \$ nslookup  
IP
- \$ traceroute
- \$ netstat

Windows	cmd
traceroute	tracert







# Ver. 3.5.0 update

” 2012 10 Ver. 3.5.0

- (init)
      - init
      - upstart/systemd OS
      - /etc/inittab
    - GRUB2
    - grubmkconfig /etc/default/grub.conf update
    - grub
  - IPv6
  - 32bit(4Bytes/octet) / 10 128bit/16
- fe80:00C8:0000:0000:0000:0012:0045:0067  
 fe80:C8:0:0:0:12:45:67  
 fe80:C8:::12:45:67



# ping

” Windows ping

. Windows ping

Ctrl + C

linux



## ” nslookup

- www.google.com

- `www.l.google.com`

```
コマンド プロンプト
C:¥Documents and Settings¥ycos>nslookup www.google.com
Server: ntt.setup
Address: 192.168.1.1

Non-authoritative answer:
Name: www.l.google.com
Addresses: 74.125.153.99, 74.125.153.103, 74.125.153.104, 74.125.153.105
           74.125.153.106, 74.125.153.147
Aliases: www.google.com

C:¥Documents and Settings¥ycos>
```



## ” Windows tracert

12

- 
- 

```
コマンド プロンプト
C:¥Documents and Settings¥ycos>tracert www.linuxacademy.ne.jp

Tracing route to www.linuxacademy.ne.jp [203.174.70.235]
over a maximum of 30 hops:

  1    4 ms    4 ms    4 ms    ntt.setup [192.168.1.1]
  2   19 ms   11 ms   15 ms   softbank[203.174.200.200].bbtec.net [203.174.200.200]
  3   12 ms   12 ms   11 ms   softbank[203.174.200.200].bbtec.net [203.174.200.200]
  4   24 ms   19 ms   19 ms   softbank[203.174.200.200].bbtec.net [203.174.200.200]
  5    *      *      *      Request timed out.
  6    *      *      *      Request timed out.
  7    *      *      *      Request timed out.
  8   13 ms   14 ms   12 ms   210.173.176.29
  9   14 ms   12 ms   13 ms   m320-2-ae2.data-hotel.net [203.174.64.13]
 10   13 ms   11 ms   12 ms   240-2-xe-220.data-hotel.net [203.174.64.150]
 11   13 ms   12 ms   11 ms   c65-4a-L-v30.data-hotel.net [203.174.64.186]
 12   16 ms   12 ms   19 ms   web2.linuxacademy.ne.jp [203.174.70.235]

Trace complete.

C:¥Documents and Settings¥ycos>
```



# netstat

” netstat

```
.      3  
.      7
```



2010/03/21  
 294p / 21cm / A5  
 ISBN 9784844328445

5

2012/09/12  
 535p / 21cm / A5  
 ISBN 9784798127927



2009/04/02  
 607p / 21cm / A5  
 ISBN 9784798022291

## Linux



<http://www.linuxacademy.ne.jp/>

<http://www.wbiznet.co.jp/>

<http://ycos.sakura.ne.jp>