

# myshell note

Release 1.0.0

KaliArch

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## 1 äyÄãÄÅåšžçąĄçšëèÉ

### 1.1 äyÄãÄÅShellçóÄžŃ

Shell æŸŕäyÄäyt C èŕ■élÄçijŰåĖŽçŽĎĎŽæIJñèŕ■élÄiijŃåõČæŸŕçŤŕæŁüäyŎ  
Linux çŽĎææçæçÄiijŃçŤŕæŁüè;ŞåĖëåŚ;ązd'ązd'çzŽ Shell åd'ĎçŔĖüjŃ Shell  
årĖçŽyåžŤçŽĎæŞ■ajIJaijæĖÅşçzŽåĖĚæäyüjŁKernelüjŁüjŃåĖĚæäyæŁŁåd'ĎçŔĖçŽĎçzşæđIJè;ŞåĜžçzŽçŤ  
çŕŕåžŔ=æŃĜäzd'+æŤŕæ■ó

### 1.2 ážŃãÄÅShellåŁĘçś

## 2.1 áŽŁąćçŤŇéć ShellĭĭĴGUI ShellĭĭĴ'

GUI äýž Unix æŁŰèĀĔçşz Unix æŞ■ĭĴçşzçzşæđĐéĀäýĀäýĽŁşèĴ;ăŏŇăŰđăĀĀæŞ■ăĭĴçŏĀă■Ťăžé KDEĭĭĴŇGnome ç■ĴăĀĆ

## 2.2 áŚĵăzd'ëąŇçŤŇéć ShellĭĭĴCLI ShellĭĭĴ'

CLI æŸřăĴĴŤĽăĽăĽăŖŖçđ'žçņăýŇéŤŏăĔăŖăĽ'ğăąŇăŇĠăzd'çŽĐçŤŇéĴĭĭĴŇçŤĽăĽăĔăŽéĴĠŏçŽ

ăĴĴ Linux çşzçzşäýĽăýžăĽĀçŽĐ CLI ăŏđçŎŖăŸř BashĭĭĴŇăŸřèŏýăđ'Ž Linux ăŖŖŖăŇçŤĽăŸŸèŏđ'çŽĐ ShellăĀĆèĴŸăĴĴ'èŏýăđ'Ž Unix äýĽShellăĀĆ

```
[root@10-234-2-128 pyworkspace]# cat /etc/shells
/bin/sh
/bin/bash
/sbin/nologin
/usr/bin/sh
/usr/bin/bash
/usr/sbin/nologin
```

### ShellçŽĐăĽĔçşz:

```
* Bourne ShellĭĭĴĴ/usr/bin/shăĽŰ/bin/shĭĭĴĴ'
* Bourne Again ShellĭĭĴĴ/bin/bashĭĭĴĴ'
* C ShellĭĭĴĴ/usr/bin/cshĭĭĴĴ'
* K ShellĭĭĴĴ/usr/bin/kshĭĭĴĴ'
* Shell for RootĭĭĴĴ/sbin/shĭĭĴĴ'
```

### èĐŽăĴĴŇăŚ;ăŖ■:

ăşĽăĐŖĭĴĴžèğĀăŖ■çşæĐŖĭĴĴŇăŖŎçĭĴĀèğĐèŇĴăýž.sh

## 1.3 äŸĽăĀĀçŇŇăŸĀäŸĴShell

```
#!/bin/bash
echo "this is my first shell script"
```

# ! ăŚĽĕřĴ'çşzçzşăĔăŖŖŎĕŭřăĴĐăĽ'ĂăŇĠăŏŽçŽĐçĴŇăžŖă■şăŸřèğçéĠă■đ'èĐŽăĴĴŇăŰĠăžŭçŽĐ  
Shell çĴŇăžŖ /bin/bash æŇĠăŏŽăĴĴŤĴçŽĐăŸřéĴççğ■shell  
echoăĴĴçŤĴŇăĽŖŖăĴŖăĠăĠăĴăĴăŏž

## 1.4 ăŽŽăĀĀăĽ'ğăąŇShellçŽĐăŸĴ'çğ■ăŰžăşŤ

### 4.1 çŽŤăŎĕbashăĽ'ğăąŇ

```
[root@shell workspace]# ll
total 4
-rw-r--r-- 1 root root 44 Sep  3 14:16 01-scripts.sh
[root@shell workspace]# cat 01-scripts.sh
#!/bin/bash

echo "this is my first script"
[root@shell workspace]# bash 01-scripts.sh
this is my first script
```

## 4.2 ./æL'gèaÑ

```
[root@shell workspace]# ./01-scripts.sh
-bash: ./01-scripts.sh: Permission denied
[root@shell workspace]# chmod +x 01-scripts.sh
[root@shell workspace]# ll
total 4
-rwxr-xr-x 1 root root 44 Sep  3 14:16 01-scripts.sh
[root@shell workspace]# ./01-scripts.sh
this is my first script
```

èfZçg■æÚzaijRézYëød'æázæ■øèDŽæIJññäyÄèqNæÑGåóŽçŽDègçéGLåZlâd'DçREijNæCædIæsaø  
Shell ègçéGLåZlæL'gèaÑãÁ

## 4.3 sourceæL'gèaÑ

```
[root@shell workspace]# source 01-scripts.sh
this is my first script
```

## 1.5 äžTãÄAŞhellâRÿéĞR

âRÿéĞRâR■+âEËâ■Yçl'zéÚr

âRÿéĞRètNâÄijijŽname=value

âijşçşzâdNâRÿéĞRijNæL'ÄæIJL'âRÿéĞRçşzâdNègEäyžâ■ÜçñäyşçşzâdNijNârzázŌæTřâÄijçŽyâLæ

## 5.1 âRÿéĞRâS;âR■ègDâLZijŽ

- âS;âR■âRlèÇ;ä;£çTlèNşæÚGâ■Uær■ijNæTřâ■UâŠNäyNâLŠçžfrijNéeÜäyłâ■Üçñäy■èÇ;äzèæTřâ■Ü
- äy■èÚr'äy■èÇ;æIJL'çl'žæâijijNâRřazèä;£çTlâyNâLŠçžfrijL\_ijL'ãÁ
- äy■èÇ;ä;£çTlæäGçCžçñæRûãÁ
- äy■èÇ;ä;£çTlæbashéGNçŽDâEşéTôâ■ÜijLâRřçTlhelpâS;äzd'æşççIJNâfIçTŽâEşéTôâ■ÜijL'

- āAžĀĹrèġAāR■çšæĎR

çŎřácČāRŸéĠRä;IJçTlèŇČāŽt'ijŽā;ŠāL'■shellèŁŻçÍŇāRĹāĒūā■ŘèŁŻçÍŇ

æIJñāIJřāRŸéĠRä;IJçTlèŇČāŽt'ijŽā;ŠāL'■shell

āsĀéČĹāRŸéĠRä;IJçTlèŇČāŽt'ijŽāžčçāAçL'Ġæŏt

āĹ'çTlèxportāřEæIJñāIJřāRŸéĠRārijāĒēāĹçŎřácČijŇæL'āđ'gā;IJçTlèŇČāŽt'

## 5.2 çšžçžšāEĚçjŏāRŸéĠR

āIJĹāŚ;äzd'èāŇæRŘçd'žçñçŽt'æŎēæL'ġèāŇenvāĀAsetæšēçIJŇçšžçžšæĹŪçŎřácČāRŸéĠRāĀCenv  
æŸççd'žçTlæĹūçŎřácČāRŸéĠRijŇset æŸççd'ž Shell éçĎāĒĹāŏŽāžĹ'āēççŽĎāRŸéĠRāžēāRĹçTlæĹūāRŸéĠR  
export ārijāĠžæĹĹçTlæĹūāRŸéĠRāĀC

èŁŸāŘréĀŽèŁĠprintevn/declare -x

|            |                                                                                         |
|------------|-----------------------------------------------------------------------------------------|
| \$SHELL    | éžŸèŏd' Shell                                                                           |
| \$HOME     | ā;ŠāL'■çTlæĹūāŏūçŽŏā;Ţ                                                                  |
| \$IFS      | āEĒéČĹā■ŪæŏtāĹEéŽŢçñç                                                                   |
| \$LANG     | éžŸèŏd'ér■ēĹĀ                                                                           |
| \$PATH     | éžŸèŏd' āŘřæL' ġèāŇçĹŇāžRèŭřā;Ď                                                         |
| \$PWD      | ā;ŠāL'■çŽŏā;Ţ                                                                           |
| \$UID      | ā;ŠāL'■çTlæĹū ID                                                                        |
| \$USER     | ā;ŠāL'■çTlæĹū                                                                           |
| \$HISTSIZE | āŎĒāŘšāŚ;äzd' āđ' ġāřRiiŇāŘréĀŽèŁĠ HISTTIMEFORMAT<br>→āŘŸéĠRèŏçjŏāŚ;äzd' æL' ġèāŇæŪēŪt' |
| \$RANDOM   | éŽRæIJžçŢšæĹŘäŸĀäŸĹ 0 èĠş 32767 çŽĎæŢt'æŢř                                              |
| \$HOSTNAME | äŸžæIJžāŘ■                                                                              |

## çĹžæŏĹāRŸéĠR

```

${1..n} æŇĠāŏŽçññnāŸĹèç;ŠāĒēçŽĎāRŸéĠRāŘ■çġř
$0      èĎŽæIJñèĠēžŇāŘ■ā■Ū

$?      èĹŢāžĎäŸŸLäŸĀēĹāŚ;äzd' æŸřāŘçæL' ġèāŇæĹŘāŁSiiŇŏ
→äŸžæL' ġèāŇæĹŘāŁSiiŇéĹđ 0 āĹžäŸžæL' ġèāŇāđ' sèt' ē

$#      ä;■çjŏāŘČæŢřæĀžæŢř

```

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```
$*      æL'ÄæIJL' çŽĎä;■ç;ôâŔĈæŦřèćńçIJNâAžçNñçńNçŽĎâ■Ůçņęäÿš
$@      æŕŔäÿłä;■ç;ôâŔĈæŦřèćńçIJNâAžçNñçńNçŽĎâ■Ůçņęäÿš
$$      â;ŞâL'■èŁŽçĺN PID
$!      äÿŁäÿÄæİaèŁŔèaŇâŔŎâŔŕèŁŽçĺNçŽĎ PID
```

**çŽÿâŔŇçĆŽiiJŽéČ;æŸŕaiJŦçŦlæL'ÄæIJL'âŔĈæŦŕăĂĆ**

**äÿ■âŔŇçĆŽiiJŽâŔlæIJL'âIJlâŔNâijŦâŔüäÿ■ä;ŞçŎŕâGžæİēăĂĆâAĞèő;âIJlèĎŽæIJñèŁŔèaŇæŮüâEžăžl**  
1âĂA2âĂA3iiJŇiiJŇâĹŽ âĂİ \* âĂİ ç■L'ăzûăžŎ âĂIJ1 2  
3âĂİiiJĹâijăeĂŞăžEäÿÄäÿlâŔĈæŦŕiiJL'iiJŇeĂŇ âĂIJ@âĂİ ç■L'ăzûăžŎ âĂIJ1âĂİ âĂIJ2âĂİ  
âĂIJ3âĂİiiJĹâijăeĂŞăžEäÿL'äÿlâŔĈæŦŕiiJL'ăĂĆ

profile çşžăĎŇiiJŽ \* âŏŽăžL'âĒlâśĂâŔŸéĜŔ \* èŁŔèaŇâŚ;ăzd' æĹŮèĎŽæIJñ

bashrc çşžăĎŇiiJŽ \* âŏŽăžL'æIJñâIJŕâŔŸéĜŔ \* âŏŽăžL'âŚ;ăzd' âĹnâŔ■

ăzd' äžŞâijŔçŽžâ;ŦshelliiJŽ âĹăè;;éąžăžŔiiJŽ/etc/profile -> /etc/profile.d/\* ->  
~/.bash\_profile -> ~/.bashrc -> /etc/bashrc

éİĎăžĎ' äžŞâijŔçŽžâ;ŦshelliiJŽ âĹăè;;éąžăžŔiiJŽ~/.bashrc -> /etc/bashrc ->  
/etc/profile.d/\*

### 5.3 çŦlæĹuèĞlăŏŽăžL'âŔŸéĜŔ

- æŽŏéĂŽâŔŸéĜŔ

```
[root@shell workspace]# var=normal
[root@shell workspace]# echo $var
normal
```

- äÿt' æŮüçŎŕâćČâŔŸéĜŔ

âIJlâ;ŞâL'■shelläÿŇâŏŽăžL'çŽĎâŔŸéĜŔiiJŇâŔlâŕžâ;ŞâL'■shellæIJL'æŦlŕiiJŇæŮŕçŽĎbashăüşçžŔăĒüâ■

- âŔlêŕžâŔŸéĜŔ

```
[root@shell ~]# var='test'
[root@shell ~]# echo $var
test
[root@shell ~]# readonly var
[root@shell ~]# var='bbb'
-bash: var: readonly variable
```

- âĹăéŽĎ'âŔŸéĜŔ

unset variable\_name

âŔŸéĜŔèćnâĹăéŽĎ'âŔŎäÿ■èČ;âE■æŇăä;ŁçŦlăĂĆunset âŚ;ăzd' äÿ■èČ;âĹăéŽĎ' âŔlêŕžâŔŸéĜŔăĂĆ

## 5.4 āŖŸéĠŖāijŦçŦĪ

- = āŖŸéĠŖēŦŦāĀij
- += āŖŸéĠŖçŽyāŁă

```
[root@shell data]# var=123
[root@shell data]# var+=234
[root@shell data]# echo $var
123234
```

äyžéAŁăĚ■Ł'žæóŁă■ŦçņēāŖŁăŖŸéĠŖāyŦā■ŦçņēēŁđæŦēä;ŁçŦĪijŦāžžēōōāijŦçŦĪāŖŸéĠŖæūžāŁăād

## 1.6 āĚ■āĀāijŦāŦŦ

ā■ŦāijŦāŦŦāēŸŖāŦĚŖŦ' Shell āŁ;çŦēçŁ'žæóŁă■ŦçņēijŦēĀŦāŖŦāijŦāŦŦāŁŽēģčéĠçŁ'žæóŁçņēāŦŦāč

```
[root@xuel-tmp-shell www]# var1="aaa"
[root@xuel-tmp-shell www]# echo '$var1'
$var1
[root@xuel-tmp-shell www]# echo "$var1"
aaa
```

```
[root@xuel-tmp-shell www]# var2="aa"
[root@xuel-tmp-shell www]# var3='bb $var2'
[root@xuel-tmp-shell www]# echo $var3
bb $var2
[root@xuel-tmp-shell www]# var4="bb $var2"
[root@xuel-tmp-shell www]# echo $var4
bb aa
```

## 1.7 äyČăĀĀæšléĠŁ

- ā■ŦēāŦæšléĠŁă;ŁçŦĪ#
- āđ'ŽēāŦæšléĠŁăŽžāōŽăĠ;æŦŖæāijāijŦ

```
:<<EOF
āĚĚāōž...
āĚĚāōž...
EOF
```

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## 2 äžNăĂĀâ■ŬçņęäÿšäÿŌæŦŕçžĎ

### 2.1 äÿĂăĂĀâ■ŬçņęäÿšäÿÿçŦĲæŞ■äĲJ

#### 1.1 èŌuâRŪâ■ŬçņęäÿšéŦǻžę

ăĹŦçŦĲ\$ { #var } æĲèèŌuâRŪâ■ŬçņęäÿšéŦǻžę

```
[root@xuel-tmp-shell ~]# var='abcstring'
[root@xuel-tmp-shell ~]# echo ${#var}
9
```

#### 1.2 â■ŬçņęäÿšâĹĜçL'Ĝ

æăĲjăĲŦĲijŽ

\${parameter:offset} \${parameter:offset:length}

æĹłâRŪăžŌ offset äÿłâ■ŬçņęăĲjĂăĝŦĲijNăŔŠăŔŌ length äÿłâ■ŬçņęăĂĆ

```
[root@xuel-tmp-shell ~]# var="hello shell"
[root@xuel-tmp-shell ~]# echo ${var:0}
hello shell
[root@xuel-tmp-shell ~]# echo ${var:0:5}
hello
[root@xuel-tmp-shell ~]# echo ${var:6:5}
shell
[root@xuel-tmp-shell ~]# echo ${var:(-1)}
l
[root@xuel-tmp-shell ~]# echo ${var:(-2)}
ll
```

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```
[root@xuel-tmp-shell ~]# echo ${var: (-5):2}
sh
```

### 1.3 ĀŲĶņęäÿšæŽ£æċ

æäijåijŘüjŽ\$ { parameter/pattern/string}

```
[root@xuel-tmp-shell ~]# var="hello shell"
[root@xuel-tmp-shell ~]# echo ${var/shell/world}
hello world
```

## 1.4 ǎ■ŮčňęäÿšæŁǎRŮ

æǎijǎijŘïijŽ

$\$ \{ \text{parameter\#word} \} \# \text{ãŁăéŽđ'ãŃzéĚ■ãŁ■çijĂ}$

 $\{\text{parameter}\#\#\text{word}\}$ 
$$\${parameter\%word} \# \text{áĹăéŽď'ăŇzéĚ■ăŘŮçijĂ}$$
 $\{\text{parameter}\% \% \text{word}\}$ 

# ăŌzæŌL'ăũèè; žiiŋNæIJĂç§■ăNžéĚ■ălaăiŋRiiŋN##æIJĂéŤfăNžéĚ■ălaăiŋRăĂĆ

% åÕzæÕL'åRşè; zii jNæIJĂç§■åÑzéĚ■ælaaijRii jN%%æIJĂéTŁåÑzéĚ■ælaaijRãĂĆ

```
[root@xuel-tmp-shell ~]# url="https://www.baidu.com/index.html"
[root@xuel-tmp-shell ~]# echo ${url#*/}
/www.baidu.com/index.html
[root@xuel-tmp-shell ~]# echo ${url##*/}
index.html
```

```
[root@xuel-tmp-shell ~]# echo ${url%/*}
https://www.baidu.com
[root@xuel-tmp-shell ~]# echo ${url%%/*}
https:
```

## 1.5 åRÿéĜŔçŁúæĂAęŁNăĂij

$$\${\rm VAR:-string} \ \&CaeIJ \ {\rm VAR} \ \&R\ddot{Y}e\ddot{G}R\ddot{a}y\ddot{z}c'l'z\ddot{a}L\ddot{Z}e\ddot{f}T\ddot{a}Z\ddot{d} \ {\rm string}$$
[illegible]
$$\begin{array}{ccccccc} \{\text{VAR}=\text{string}\} & \text{æĆæđIJ} & \text{VAR} & \text{ǎŘŸéĞRäyžçł'žǎŁZéĞ■æŮřèłNǎĀij} & \text{VAR} & & \\ \text{ǎŘŸéĞRǎĀijäyž string} & & & & & & \end{array}$$

```
{VAR:?string} æĈæđIJ VAR åŖËéĜRäyžçł'žăĹŽârĖ string ěŠăĜžăĹř stderr
```

```
[root@xuel-tmp-shell ~]# url="https://www.baidu.com/index.html"
[root@xuel-tmp-shell ~]# echo ${url:-"string"}
https://www.baidu.com/index.html
[root@xuel-tmp-shell ~]# echo ${url:+"string"}
string
[root@xuel-tmp-shell ~]# unset url
[root@xuel-tmp-shell ~]# echo $url

[root@xuel-tmp-shell ~]# echo ${url:-"string"}
string
[root@xuel-tmp-shell ~]# echo ${url:+"string"}
```

```
æL' ;ãĜž/etc/groupäÿŇçŽĎæL' ÄæIJL' çžĎâR■çğř
for i in `cat /etc/group`;do echo ${i%:*};done
```

## 2.2 äžŇăÄAæTřçžĎ

```
bashæTřæŇAäÿÄçžt' æTřçžĎiijLäÿ■æTřæŇAäĎ' Žçžt' æTřçžĎiijL' iijŇázúäÿTæšææIJL' éŽŘăőŽæTřçžĎçž
çšžäijijäÿŎ C èí■èĹiijŇæTřçžĎâĚČçt' äçŽĎäÿŇæăĈçTš 0
äijÄăĝŇçijŮâRûăÄÇèŎüâRŮæTřçžĎäÿ■çŽĎâĚČçt' äèçAăĹI' çTĹäÿŇæăĜiijŇäÿŇæăĜâRřäzæÿræTř æTřæĹ
0ăÄÇ
```

### 2.1 æTřçžĎâőŽäzĹ

âIJĹ Shell äÿ■iijŇçTĹæŇŇâRûæĹèäĹçĎ' žæTřçžĎiijŇæTřçžĎâĚČçt' äçTĹăÄIJçĹ' žæäijăÄĹçŇæâRûăĹEăĹ' šâi

```
[root@xuel-tmp-shell ~]# args1=(aa bb cc 1123)
[root@xuel-tmp-shell ~]# echo $args1
aa

[root@xuel-tmp-shell ~]# echo ${args1[@]}
aa bb cc 1123
```

### 2.2 æTřçžĎâĚČçt' äèřžâRŮ

```
[root@xuel-tmp-shell ~]# args1=(aa bb cc 1123)
[root@xuel-tmp-shell ~]# echo ${#args1[@]}
→#èŎüâRŮæTřçžĎâĚČçt' ääÿĹæTř
4
[root@xuel-tmp-shell ~]# echo ${args1[0]}
aa
[root@xuel-tmp-shell ~]# echo ${args1[1]}
bb
```

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```
[root@monitor workspace]# filelist=$(ls)
[root@monitor workspace]# echo ${filelist[*]}
check_url_for.sh check_url_while01.sh check_url_while02.sh func01.
→sh func02.sh func03.sh urllist.txt

èŌûâRŮæTřčzĎăĚČť'ăçŽĎăŸNăăĜ
[root@monitor workspace]# echo ${!filelist[@]}
0 1 2 3 4 5 6
```

éA■ăŌEæŮĜăžű

```
filelist=$(ls);for i in ${!filelist[@]};do echo ${filelist[$i]};
→done
```

## 2.3 äŸL'ăĀA■ŮčňæŸčđ'žécIĵèL's

| ă■Ůă;ŠécIĵèL's                                   | ă■Ůă;ŠeČŇæŽréciĵèL's                                          | æŸčđ'žæŮžăijŔ           |
|--------------------------------------------------|---------------------------------------------------------------|-------------------------|
| 30iijŽézŠ                                        | 40iijŽézŠ                                                     |                         |
| 31iijŽčžć                                        | 41iijŽæůšćžć                                                  | 0iijŽčžLčňréžŸěōđ'ěōč;ŏ |
| 32iijŽčžĚ                                        | 42iijŽčžĚ                                                     | 1iijŽénŸăžŏæŸčđ'ž       |
| 33iijŽézĎ                                        | 43iijŽézĎèL's                                                 | 4iijŽăŸNăLŠčžĚ          |
| 34iijŽeŠIèL's                                    | 44iijŽeŠIèL's                                                 | 5iijŽeŮIčČA             |
| 35iijŽčť'něL's                                   | 45iijŽčť'něL's                                                | 7iijŽăŔ■čŽ;æŸčđ'ž       |
| 36iijŽæůšćžĚ                                     | 46iijŽæůšćžĚ                                                  | 8iijŽeŽŔèŮŔ             |
| 37iijŽčŽ;èL's                                    | 47iijŽčŽ;èL's                                                 |                         |
| æăijăijŔiijŽ                                     |                                                               |                         |
| \033[1;31;40m 1 æŸŕæŸčđ'žæŮžăijŔiijŇăŔŕéĂL'ăĂČ31 | æŸŕă■Ůă;ŠécIĵèL'săĂČ40m<br>æŸŕă■Ůă;ŠeČŇæŽréciĵèL'săĂČ         |                         |
| \033[0m                                          | #   æĂčăđ'■čžLčňréžŸěōđ'écIĵèL'siijŇă■șăŔŮăŮLécIĵèL'sěōč;ŏăĂČ |                         |

- æŸčđ'žæŮžăijŔ

```
for i in {1..8};do echo -e "\033[$i;31;40m hello world \033[0m";done
```

- â■Ůă;ŠécIĵèL's

```
for i in {30..37};do echo -e "\033[$i;40m hello world \033[0m";done
```

- èČŇæŽréciĵèL's

```
for i in {40..47};do echo -e "\033[47;${i}m hello world! \033[0m";
→done
```

## Contents

- *äyL'ãĀĀè£ŘçóŮčņę*
  - *äyĀãĀĀShellèqłè¿¿;ăijŘ*
    - \* *1.1 æŦŦ'æŦŦærŦè¿¿Čņę*
    - \* *1.2 çóŮæIJrè£ŘçóŮčņę*
    - \* *1.3 âyČârŦè£ŘçóŮčņę*
    - \* *1.4 éĀžè¿¿Śè£ŘçóŮčņę*
    - \* *1.5 æŮŮĜăžúæŦŦNërŦè£ŘçóŮčņę*
    - \* *1.6 â■ŮčņęäyşæŦŦNërŦ*

## 3 äyL'ãĀĀè£ŘçóŮčņę

### 3.1 äyĀãĀĀShellèqłè¿¿;ăijŘ

#### 1.1 æŦŦ'æŦŦærŦè¿¿Čņę

| æŦŦè¿¿Čņę              | æŘŘè£ř            | çďžă¿Ů               |
|------------------------|-------------------|----------------------|
| -eqijŮnequal           | ç■L'ăžŮ           | [ 1 -eq 1 ]ăyž true  |
| -neijŮnot equal        | äy■ç■L'ăžŮ        | [ 1 -ne 1 ]ăyž false |
| -gtijŮgreater than     | ăď'ğăžŮ           | [ 2 -gt 1 ]ăyž true  |
| -ltijŮless than        | ăřRăžŮ            | [ 2 -lt 1 ]ăyž false |
| -geijŮgreater or equal | ăď'ğăžŮæLŮç■L'ăžŮ | [ 2 -ge 1 ]ăyž true  |
| -leijŮless or equal    | ăřRăžŮæLŮç■L'ăžŮ  | [ 2 -le 1 ]ăyž false |

```
[root@monitor ~]# [ 1 -gt 1 ] && echo true || echo false
false
[root@monitor ~]# [ 1 -ne 1 ] && echo true || echo false
false
[root@monitor ~]# [ 1 -eq 1 ] && echo true || echo false
true
[root@monitor ~]# [ 1 -ne 1 ] && echo true || echo false
false
[root@monitor ~]# [ 1 -gt 1 ] && echo true || echo false
false
[root@monitor ~]# [ 2 -gt 1 ] && echo true || echo false
true
[root@monitor ~]# [ 2 -lt 1 ] && echo true || echo false
false
```

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āAǾǎǾŽāRŸéǾŔ      a      äyž      10üijŅāRŸéǾŔ      b      äyž      20üijŽ  
 æślæĎŔüijŽēfŔĉŎUčņēäyĎ'è;žæIJL'çl'žæäij

```
A=3
B=6
1ãÄAlet çõÛæIJrè£ŘçõÛèaĺèçç;ăijŘ
let C=$A+$B
2ãÄA$ [çõÛæIJrè£ŘçõÛèaĺèçç;ăijŘ]
C=$ [$A+$B]
3ãÄA$ ( (çõÛæIJrè£ŘçõÛèaĺèçç;ăijŘ) )
C=$ ( ( $A+$B) )
4ãÄAexpr_
→çõÛæIJrè£ŘçõÛèaĺèçç;ăijŘiijÑèaĺèçç;ăijŘäÿ■ăŘĎæ$■ă;IJæŦřăŘŁè£ŘçõÛçņăžŦéŮt'èçAæIJ
C=`expr $A + $B`
```

## 1.4 éĀžè¿Šè£ŘçóŮçņę

|           |               |                                                 |
|-----------|---------------|-------------------------------------------------|
| èŁŘćŮŮċņę | èřřæŸŸ        | äÿĳäĳŃ                                          |
| &&        | éĚzèĴŚĴŹD AND | [[ \$a -lt 100 && \$b -gt 100 ]] èŁřřĤăŹď false |
|           | éĚzèĴŚĴŹD OR  | [[ \$a -lt 100    \$b -gt 100 ]] èŁřřĤăŹď true  |

## 1.6 Å■ÜçñęäÿšætÑèrŤ

âĀĢăŕŽăŘÿéĞŔ a äŷž âĤIabcâĤIiiJňăŘÿéĞŔ b äŷž âĤIJefgâĤIiiJŽ

- $\tilde{a}\tilde{Z}\tilde{Z}\tilde{a}\tilde{A}\epsilon_{\dagger}A_{\zeta}l\acute{N}\epsilon\check{O}\grave{g}\grave{a}L\acute{U}$   
 –  $\ddot{a}\ddot{y}\check{A}\check{a}\check{A}if\grave{e}r\neg aR\check{e}$   
   \* 1.1  $\grave{a}\neg T\grave{a}L\acute{E}\epsilon\check{T}r$   
   \* 1.2  $\grave{a}R\check{N}\grave{a}L\acute{E}\epsilon\check{T}r$

\* 1.3 *ad'ŽaŁEæTř*

- *äžÑãÄAforå;łçŔř*
- *äyL'ãÄAwhileèř■åŘě*
- *åŽŽãÄAbreak åŠŇ continue èř■åŘě*
- *äžTãÄAcaseèř■åŘě*

## 4 *åŽŽãÄAæłAçlÍNæŔğåLú*

### 4.1 *äyÄãÄAifèř■åŘě*

#### 1.1 *å■TåŁEæTř*

```
if condition
then
    command1
    command2
    ...
    commandN
fi
```

eg:

```
if [ `ps -ef |grep /usr/sbin/sshd|grep -v grep|wc -l` -eq 1 ];then
↪echo "sshd server exist";fi
```

#### 1.2 *åŘÑåŁEæTř*

```
if condition
then
    command1
    command2
    ...
    commandN
else
    command
fi
```

eg:

```
if [ `ps -ef |grep /usr/sbin/sshd|grep -v grep|wc -l` -eq 0 ];then
↪echo "sshd server exist";else echo "sshd server not exist";fi
```

## 1.3 if-then-else

```
if condition1
then
    command1
elif condition2
then
    command2
else
    commandN
fi
```

eg:

```
#!/bin/bash

cmd=`rpm -q centos-release|cut -d- -f3`

if [ $cmd -eq 6 ];then
    echo "sysversion is $cmd"
elif [ $cmd -eq 7 ];then
    echo "sysversion is $cmd"
else
    echo "sysversion is `rpm -q centos-release`"
fi
```

## 4.2 for

```
for var in item1 item2 ... itemN
do
    command1
    command2
    ...
    commandN
done
```

eg1:

```
for i in /*;
do
    echo -e "    \c";
    find $i |wc -l|sort -nr;
done
```

eg2:

```
#!/bin/bash
for i in {1..3};
```

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(continued from previous page)

```
do
    echo $i
done
```

eg3:

```
#!/bin/bash
for i in "$@"; {      # $@æŸřăřĚă;■ç;óăŔĈæŦřă;IJăŸžă■ŦăŸłæĬăđ'ĎčŘĚ
echo $i
}
```

ézŸèód' for âłçŎŕçŽĎăŔŨăĂijăĹŨèăłæŸřăžēçł'žçŽıçñăĹĒéŽŦijŊăžşăŕşæŸŕçñňăŸĂçăăèòşçşzçzşşăŔ

```
#!/bin/bash
OLD_IFS=$IFS
IFS=":"
for i in $(head -1 /etc/passwd); do
echo $i
done
```

```
#!/bin/bash

for ip in 192.168.1.{1..254}; do

    if ping -c 1 $ip >/dev/null; then

        echo "$ip OK."

    else

        echo "$ip NO!"

    fi

done
```

èřžăŔŨæŨĜăžŭ,ăĹđ'æŨ■urlăŔŕçŦĬæĂğ

```
#!/bin/bash
#function:check url
filename=urllist.txt
for url in $(cat $filename)
do
status=`curl -I $url -s|awk '/HTTP/{print $2}'`
if [ $status == "200" ];then
    echo "Url:$url is ok!status is $status"
else
    echo "Url:$url is error!status is $status"
fi
```

(continues on next page)

```
done
```

### 4.3 while

Example 1:

```
while while command
done
```

Example 2:

```
#!/bin/bash
N=0
while [ $N -lt 5 ]; do
let N++
echo $N
done
```

Example 3:

```
#!/bin/bash
IP=10.75.128.8
dir="/DATA/oracle/netdir/"
if [ ! -d ${dir} ];then
    mkdir -p ${dir}
fi
echo 1 > ${dir}ping.lock
while true
do
    Time=`date +%F`
    TIME="${Time} 23:59"
    if [ "${data}" == "${TIME}" ];then
        mkdir ${dir}${Time} && mv ${dir}ping2.log ${dir}${Time}-
ping2.log
        mv ${dir}${Time}-ping2.log ${dir}${Time}
    fi
    find ${dir} -mtime +7 -name "*-ping2.log" -exec rm -rf {} \;
    find ${dir} -mtime +7 -type d -exec rm -rf {} \;

    data=`date +%F' '%H:%M`
    data1=`date +%F' '%H:%M:%S`
    echo "-----${data1}-----">>${dir}ping2.log
    ping -c 10 ${IP} >>${dir}ping2.log
    if [ $? -eq 1 ];then
        STAT=`cat ${dir}ping.lock`
```

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```
        if [ ${STAT} -eq 1 ];then
            /usr/bin/python /DATA/oracle/netdir/GFweixin.py xuel
↪GLP-VPN "GLP from PDC(172.16.6.1
50) ping éĜŚèċ■ăžŚ(10.75.128.8)ăÿ■ăŮ■iijŇérûăčĂăSěăûśăĤăIJJ■VPNiijA
↪\n TIME:${data1}"                echo 0 > ${dir}ping.lock
            else
                continue
            fi
        else
            STAT=`cat ${dir}ping.lock`
            if [ ${STAT} -eq 0 ];then
                /usr/bin/python /DATA/oracle/netdir/GFweixin.py xuel
↪GLP-VPN "GLP from PDC(172.16.6.1
50) ping éĜŚèċ■ăžŚ(10.75.128.8)ăĄćăđ'■iijA \n TIME:${data1}"
↪ echo 1 > ${dir}ping.lock
            else
                continue
            fi
        fi
done
```

ăŮĜăžăŮăđ'ĎćŘĚ

eg3:

```
#!/bin/bash
#function:check url
filename=urllist.txt
cat $filename | while read url;do
status=`curl -I $url -s|awk '/HTTP/{print $2}'`
if [ $status == "200" ];then
    echo "Url:$url is ok!status is $status"
else
    echo "Url:$url is error!status is $status"
fi
done
```

ăĹŮ

```
#!/bin/bash
#function:check url
filename=urllist.txt
while read url;
do
status=`curl -I $url -s|awk '/HTTP/{print $2}'`
if [ $status == "200" ];then
    echo "Url:$url is ok!status is ${status}"
else
```

(continues on next page)

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```
        echo "Url:$url is error!status is ${status}"
    fi
done <$filename
```

## 4.4 break a continue

break

```
#!/bin/bash

N=0
while true; do
    let N++
    if [ $N -eq 5 ]; then
        break
    fi
    echo $N
done
```

continue

```
#!/bin/bash

N=0
while [ $N -lt 5 ]; do
    let N++
    if [ $N -eq 3 ]; then
        continue
    fi
    echo $N
done
```

## 4.5 case

```
case $1 in
    1)
        echo "1"
        ;;
    2)
        echo "2"
        ;;
    *)
        echo "Invalid option"
        ;;
esac
```

eg

```
#!/bin/bash
case $1 in
    start)
        echo "start."
        ;;
    stop)
        echo "stop."
        ;;
    restart)
        echo "restart."
        ;;
    *)
        echo "Usage: $0 {start|stop|restart}"
esac
```

## Contents

- *äžTãĀĀăĜĵæTř*
  - *äyĀăĀĀæċĆăŁt*
  - *äžŇăĀĀæăijăijŘ*
  - *äyL'ăĀĀăĜĵæTřăŘĆæTř*

## 5 äžTãĀĀăĜĵæTř

### 5.1 äyĀăĀĀæċĆăŁt

linux shell äŖřäzëçTĪæĹuăóŽăzL'ăĜĵæTřijŇçĎuăŘŌăIJĪshellèĎŽæIJňäy■äŖřäzëéŽŖăĴëŕÇçTĪ,äžæ■d

### 5.2 äžŇăĀĀæăijăijŘ

```
[ function ] funname()
{
    action;
    [return int;]
}
```

èŕt'æŸŌijŽ

- function äĚséTŌă■ŪăŖăĚĪijŇăžšăŖăy■ăĚăĂĆ
- äŖĆæTřèŁTăŽđijŇăŖřäzëæŸĴçd'žăĹăijŽreturnèŁTăŽđijŇăċĆăđIJäy■ăĹăijŇăŕĚăžëæIJĂăŖŌăyĂæĪ  
returnăŖŌëűşæTřăĀijn(0-255ijL',hell äĜĵæTřèŁTăŽđăĀijăŖĪèČĵæŸŕæTř'ăĴæTřăĀijijŇăyĂèĹăŸŕç

argument requiredâĂiaĂ Ć æĆædIJăĂăŹëeAèol'ăĠ;æTrêfTăZďăyĂăylæLŪăd'ŽăylăĂijijŃăRăzêăo

```
#!/bin/bash
function output_data() {
    DATA=$((1+1))
    return $DATA
}
output_data
echo $?
```

```
#!/bin/bash
# function:add number
function add_num() {
    echo "èrùè¿ŞăĚĚçňňăÿĂăÿłæŦřřijŽ"
    read number01
    echo "èrùè¿ŞăĚĚçňňăžŇăÿłæŦřřă░"
    read number02
    if [[ "$number01" =~ ^[0-9]+$ ]] && [[ "$number02" =~ ^[0-9]+$↵
→]];then
        sum=$((number01+number02))
        echo "number01 + number02 = $sum"
    else
        echo "input must be number"
    fi
}
add_num
```

### 5.3 äyLãÄÅåĞjæŦřåŦĆæŦř

ǎřĚǎĜ; æTrǎĚZǎĹRǎŮačLúǎĂAçŽDiiǃNǎřĚǎTrǎ■oǎ; ŠǎAZǎRĆǎTrèřZǎǃNǎiǎǎĚĚ

```
#!/bin/bash
funWithParam() {
    echo "çñňäÿĂäÿłăŔĆæŦřäÿž $1 !"
    echo "çñňăžŇăÿłăŔĆæŦřäÿž $2 !"
    echo "çñňă■ĂäÿłăŔĆæŦřäÿž $10 !"
    echo "çñňă■ĂäÿłăŔĆæŦřäÿž ${10} !"
    echo "çñňă■ĂäÿĂäÿłăŔĆæŦřäÿž ${11} !"
    echo "ăŔĆæŦřăĂžæŦřæIJL' $# äÿł!"
    echo "ă;IJäÿžäÿĂäÿłă■Ůçñęäÿšë;ŞăĞžæL' ĂæIJL' ăŔĆæŦř $* !"
    echo "ă;IJäÿžäÿĂäÿłă■Ůçñęäÿšë;ŞăĞžæL' ĂæIJL' ăŔĆæŦř $@ !"
}
funWithParam `seq 1 20`
```

\$\{1..n\}\$ æŃĞăőŽçňñnäÿlè;ŞăĖēçŽĎăŔŸēĠŔăŔ■çğŕ  
\$0 ēĎŽăĬJñēĠlèžňăŔ■ă■Ů

(continues on next page)

$$:() \{ \quad : | : \& \quad \} ; :$$
[illegible]

- ..ăŃzéĚ■ăzzæĐŔă■Țăylă■Ŭçŋe
- 
- [^]:ăŃzéĚ■ăŃĜăoŽēŃĈăZŕ'ăd' ŬčŽĐăzzæĐŔă■Țăylă■Ŭçŋe

- ```
posixa■Ůčņē
[:alnum:] ā■Ůær■æṭṛā■Ů[a-z A-Z 0-9]
[:alpha:] ā■Ůær■[a-z A-Z]
[:blank:] çl'žæäijæĹŮâĹŮèaĹéĤō
[:cntrl:] äzzä;ṭæŌğâĹŮā■Ůčņē
[:digit:] æṭṛā■Ů [0-9]
[:graph:] äzzä;ṭârṚèğEā■ŮčņēiijĹæŮăçl'žæäijiiijĹ'
[:lower:] âṛṚâEĹŽ [a-z]
[:print:] éîdæŌğâĹŮā■Ůčņē
[:punct:] æăĢçĆzâ■Ůčņē
[:space:] çl'žæäij
[:upper:] âd'ğâEĹŽ [A-Z]
[:xdigit:] ā■AâĔ■èĹŽâĹŮæṭṛā■Ů [0-9 a-f A-F]
```

|                                                       |  |
|-------------------------------------------------------|--|
| çL' zæóŁăĦŮçņę                                        |  |
| \w aŃžéĚăz zæĎŘæŤřăŮăŠŇăŮæřĦi jŃçL' æŤĹ[a-zA-Z0-9_]   |  |
| \W aŃŇ\wçŻÿăŖĦi jŃçL' æŤĹ[^a-zA-Z0-9_]                |  |
| \b aŃžéĚăŮçņęăÿšăi jĂăğŇăĹŮç z Šăİš i jŃçL' æŤĹ<aŃŇ\> |  |
| \s aŃžéĚăz zæĎŘçŽĎçĹ' žçŽ;ăŮçņę                       |  |
| \S aŃžéĚăėİđçĹ' žçŽ;ăŮçņę                             |  |

çTlâIjIâLúâoŽçŽDâ■UçñeâRŎéIcñijNèaIçd'žâLúâoŽâL■éIççŽDâ■UçñeâGžçŎřad'ŽârSæñâ  
 \* :âNzéĚâL■éIççŽDâ■UçñeâzzæDRæñâijI0æñâeŎûæŮæTřæñâijI' \*  
 ? :âNzéĚâL■éIççŽDâ■Uçñe0æñâæLŮ1æñâ \* + :âNzéĚâL■éIççŽDâ■UçñeGşârS1æñâ \*  
 {m,}:âNzéĚâL■éIççŽDâ■UçñeGşârSmæñâijI LéžYèod'âûëâ;IjâIjIèt'łâł'łæłâijRâyNñijN?ârŮæŮlèt'łâł'łæł  
 \* {m,n}:âNzéĚâL■éIççŽDâ■UçñeGşârSmæñâijI NèGşad'Žnæñâ eg:

. \* : å Ñ é Ě ■ ä z z æ Ď Ŕ å ■ Ů ċ ę ä z z æ Ď Ŕ æ ñ a æ Ț ř

- $\wedge:\grave{\text{e}}\grave{\text{a}}\grave{\text{N}}\acute{\text{e}}\acute{\text{e}}\acute{\text{U}}\acute{\text{e}}\acute{\text{T}}\acute{\text{Z}}\acute{\text{a}}\acute{o}\acute{\text{Z}}\acute{\text{i}}\acute{\text{j}}\acute{\text{N}}_{\text{ç}}\acute{\text{T}}\acute{\text{l}}\acute{\text{a}}\acute{z}\acute{\text{O}}\acute{\text{e}}\acute{\text{l}}\acute{\text{a}}\acute{\text{i}}\acute{\text{j}}\acute{\text{R}}\acute{\text{æ}}\acute{\text{I}}\acute{\text{J}}\acute{\text{A}}\acute{\text{a}}\acute{\text{u}}\acute{\text{e}}_{\text{ç}}\acute{\text{z}}$
- $\$: \grave{\text{e}}\grave{\text{a}}\grave{\text{N}}\grave{\text{a}}\grave{\text{r}}_{\text{ç}}\acute{\text{e}}\acute{\text{T}}\acute{\text{Z}}\acute{\text{a}}\acute{o}\acute{\text{Z}}_{\text{ç}}\acute{\text{T}}\acute{\text{l}}\acute{\text{a}}\acute{z}\acute{\text{O}}\acute{\text{e}}\acute{\text{l}}\acute{\text{a}}\acute{\text{i}}\acute{\text{j}}\acute{\text{R}}\acute{\text{æ}}\acute{\text{I}}\acute{\text{J}}\acute{\text{A}}\acute{\text{a}}\acute{\text{R}}\grave{\text{s}}_{\text{ç}}\acute{\text{z}}$
- $\backslash<\acute{\text{æ}}\acute{\text{L}}\acute{\text{U}}:\text{raw-latex:}\acute{\text{b}}:\acute{\text{e}}\acute{\text{T}}\acute{\text{Z}}\acute{\text{a}}\acute{o}\acute{\text{Z}}\acute{\text{e}}\acute{\text{r}}\blacksquare\acute{\text{e}}\acute{\text{e}}\acute{\text{U}}\acute{\text{i}}\acute{\text{j}}\acute{\text{N}}_{\text{ç}}\acute{\text{T}}\acute{\text{l}}\acute{\text{a}}\acute{z}\acute{\text{O}}\acute{\text{a}}\blacksquare\text{ç}\acute{\text{T}}\acute{\text{e}}\acute{\text{r}}\blacksquare\acute{\text{æ}}\acute{\text{l}}\acute{\text{a}}\acute{\text{i}}\acute{\text{j}}\acute{\text{R}}\acute{\text{a}}\acute{\text{u}}\acute{\text{e}}\grave{\text{a}}_{\text{ç}}\acute{\text{g}}$
- $\backslash>\acute{\text{æ}}\acute{\text{L}}\acute{\text{U}}:\text{raw-latex:}\acute{\text{b}}:\acute{\text{e}}\acute{\text{T}}\acute{\text{Z}}\acute{\text{a}}\acute{o}\acute{\text{Z}}\acute{\text{e}}\acute{\text{r}}\blacksquare\grave{\text{a}}\acute{\text{r}}_{\text{ç}}\acute{\text{i}}\acute{\text{j}}\acute{\text{N}}_{\text{ç}}\acute{\text{T}}\acute{\text{l}}\acute{\text{a}}\acute{z}\acute{\text{O}}\acute{\text{a}}\blacksquare\text{ç}\acute{\text{T}}\acute{\text{e}}\acute{\text{r}}\blacksquare\acute{\text{æ}}\acute{\text{l}}\acute{\text{a}}\acute{\text{i}}\acute{\text{j}}\acute{\text{R}}\acute{\text{a}}\acute{\text{R}}\grave{\text{s}}\grave{\text{a}}_{\text{ç}}\acute{\text{g}}$

eg:

[illegible]

## 1.4 aĽEęzĎaijTęTĪ

aĽEęzĎ \* ():aŕEäyÄäyĽĽUād'ŽäyĽa■Uęņęa;ŞaĽŔäyÄäyĽTt'ä;ŞaĽëëŁZëaŇaŔŌęz■ād'ĎęŔE

aijTęTĪ \* IiijŽäzŌaüęä;ęętiijŇaijTęTĪčňäyÄäyĽaüęęNňaŔüäzëaŔĽäyŌäzŇaŇzéĚ■aŔşęaŇňaŔüäzŇé

exercises:

```
1. aĽę;ęd' ž /etc/init.d/
  → functionsaŮĜäzüäy■äzëād' ğaŕŔsaıjÄād' t' ęŽĎëaŇ (ä;ŁęTĪläyd' ęĝ■aŮzaijŔ)
grep '[Pp]' /etc/init.d/functions
grep -i "p" /etc/init.d/functions

2. aĽę;ęd' ž /etc/passwd aŮĜäzüäy■äy■äzë /bin/bash ęzŞaŕ;ęŽĎëaŇ
grep -v "/bin/bash$" /etc/passwd

3. aĽę;ęd' ž /etc/passwd aŮĜäzüäy■IDaŕüaIJÄād' ğęTĪäĽüęŽĎęTĪäĽüaŕ■
sort -t: -k3 -n /etc/passwd | tail -1 | cut -d: -f1

4. aęĆadIJrootęTĪäĽüa■ŸaIJĽ, aĽę;ęd' ž aĚüéžŸëöd' ęŽĎshellęĽŇažŔ
id root && grep '^<root>' /etc/passwd | awk -F: '{print $NF}'

5. aĽ' ęaĜž /etc/passwd äy■ęŽĎäyd' ä;■aĽŮäyĽ' ä;■aŦŕ
grep -o -E "[0-9]{2,3}" /etc/passwd
grep -o "[0-9]\{2,3\}" /etc/passwd

6. aĽę;ęd' ž /etc/rc.d/rc.sysinit aŮĜäzüäy■,
  → eĜşaŕŞäzëäyÄäyĽęĽ' žęŽ; a■UęņęaijÄād' t' ęŽĎäyŦaŔŌëİcā■ŸëİdęĽ' žęŽ; a■UęņęęŽĎëaŇ:
grep '^[[[:space:]]\+[^[:space:]]' /etc/rc.d/rc.sysinit

7. aĽ' ęaĜž "netstat -tan" aŦ;äzd' ęŽĎęzŞadIJäzë "LISTEN" aŔŌëüŞ0,
  → aĽŮUād' ŽäyĽęĽ' žęŽ; a■UęņęęzŞaŕ;ęŽĎëaŇ
netstat -tan | grep 'LISTEN[[[:space:]]]*$'

8. aęĆadIJrootęTĪäĽüęŽzā;ŦäžEęşzęzŞ, aŕśaŸę;ęd' ž rootęTĪäĽüaIJĽęžĽ,
  → aŕęaĽžëŕt' aŸŌaIJĽęŽzā;Ŧ
w | grep '^<root>'>/dev/null && echo "rootaIJĽęžĽ" || echo
  → "rootaIJĽęŽzā;Ŧ"

9. aĽ' ęaĜž /etc/rc.d/init.d/
  → functionsaŮĜäzüäy■aŦŕ■aŔŌëİcëüŞäyÄaŕzāŕŔaŇňaŕüęŽĎëaŇ
grep '[[[:alpha:]]*()' /etc/rc.d/init.d/functions

10. ä;ŁęTĪechoë;ŞaĜžäyÄäyĽëüŕa;Ď, ä;ŁęTĪegrep aŔŮaĜžāŞzāŕ■
  echo /tmp/tmp1/vmstat.8.gz | grep -E -o '[^/]+\?$'| cut -d/ -f1
  echo /tmp/tmp1/vmstat.8.gz | awk -F '/' '{print $NF}'

11. aŇzéĚ■PPIDaijÄād' t' iijŇëaŇäy■aŔĽaE■aŇaĜžęŔPPIDęŽĎaEĚaőzāĀĆ/etc/
  → init.d/functions
grep -E "(PPID).*\|1" /etc/init.d/functions
```

(continues on next page)

```
12.âĦl'ċřĭawkæL'ċăĜž/etc/ssh/sshd_configâĤĤâĜžèĤĜċl'žèâĤăŸŌăžè
↪#âĤijĂăd't'ċŽĎĕăŇ
awk '!/^#/ && !/^${print}' /etc/ssh/sshd_config
grep -v -E '^#|^$' /etc/ssh/sshd_config
```

## Contents

- $\ddot{a}\ddot{y}\check{C}\check{a}\check{A}\check{A}\check{a}\check{y}L\grave{a}L\acute{S}\acute{a}\acute{o}\acute{c}\acute{a}\acute{z}\acute{N}g\check{r}ep$ 
  - $\ddot{a}\ddot{y}\check{A}\check{a}\check{A}\check{A}\check{a}\check{e}\check{C}\check{a}\check{f}\check{t}$
  - $\check{a}\check{z}\check{N}\check{a}\check{A}\check{A}\check{e}\check{r}\check{a}\check{s}\check{T}\check{a}\check{e}\check{i}\check{j}\check{a}\check{i}\check{j}\check{R}$
- \* 2.1  $\acute{e}\check{A}L\acute{e}q\check{z}$

## 7 äÿČãĀAäÿL'ăL'ŠăőcăzŊgřę

## 7.1 äÿĂăÃÄæçĆąŁ

grep (global search regular expression(RE) and print out the  
line,āĖléÍcæŘIJçť cæ■čālŽēaľē;łajRāzũæŁŁēaNæL'Sā■řāGžæİē)æYřäyĂçğ■aijžad'gčŽDæŮĞæIJñæŘIJçť d  
fgrepāršæYřfixed grepæLŮfast grepīijNăōČazñæŁŁæL'ÄæIJL'čŽDâ■Ůärēč;çIJNă;IJâ■Tēr■ijNăžšāršæYřfē  
GăĀĀ-EăĀĀ-FăŠ;äzd'eāNéĀL'éazæİēā;łçTĭlegrepāŠNfgrepcŽDăŁšèč;ăĀĆ

## 7.2 äžÑăÄÇér■æşȚæăijăiŕ

```
grep [OPTION] PATTERN [FILE]
```

## 2.1 éĀL'éąż

- -iijŽāf;çTēād' gārĀEŽ
- -c:çžšēōāāNžēĒ■āLrā■ŪçņēäyščŽDæñqætŕ
- -n:éqžä;£è;ŠāGžèāNāRū
- -v:āR■āRŠéĀL'æNl'iijNæÿ;çd'žæšqæIJL'āNžēĒ■āLrçŽDāEĒāōž
- -oiiijŽāRlæÿ;çd'žāNžēĒ■āLrçŽDäyš
- -A:æÿ;çd'žāNžēĒ■āLrçŽDā■ŪçņēāRŌéícçŽDnèāN
- -B:æÿ;çd'žāNžēĒ■āLrçŽDā■ŪçņēāL'■éícçŽDnèāN
- -C:æÿ;çd'žāL'■āRŌāRĎnèāN

- **2.2 ælaðaijR**

- åşžæIñæ■čăĹŽèaìè; ;ăijRăĚČă■ŮçņēiijŽ

. :ǎŋzéĚ■äzzæḌRā■Ṭäyɭā■Ůçņę  
[ ] :ǎŋzéĚ■æŋĞăōžēŇČăẗt' áĒĖçŽDā■Ůçņę  
[^] :ǎŋzéĚ■æŋĞăōžēŇČăẗt' ad' ŮçŽDäzzæḌRā■Ůçņę

- æñqæṭṛāñzéĚ■iijLèt'łal'łælaaijRiijL'

```

*iiijŽāŃžéĚ■āĒūāL'■čŽĎā■Ůčňę0ii jŃlāĽŮèĀĚāđ'Žæñā
ïijšïijŽāŃžéĚ■āĒūāL'■čŽĎā■Ůčňę0æĽŮlāñā
\{m,n\}:
    \ (m,\):èĠşăřŚmæñā
    \{0,n\}:èĠşăđ'Žñæñā
    \{m\}:mæñā

```

- éŤŽǎǒŽčňęïijŽ

```

r..t iijžroot chroot
* aTèrÉİŹăŏžiiijž
\<:éİŹăŏžèrÉéŮiijž\<r..t, \b
\>:éİŹăŏžèrăřĭiijžroot\>
* èaÑééŮèaÑăIJnéİŹăŏžiiijž
^: ^root, èaÑééŮ
$: root$ èaÑăřĭ
.*: äzzăDŘéŤfăžęçŽDăzzăDŘăŮĭçņę

```

- åŁEçzǺïjŹ () (abc)

- $\mathfrak{a}_{ij} T_{\zeta} \check{T} l_{ij} \check{Z}$

\1\_

↪:ãŖÕăŘŠăijȚçȚlīijÑăijȚçȚlâL'■éÍcÇŽDçñňäÿĂăÿłauęæNňâRûäÿÖäÿŐăžNârżăžȚçŻĐârşæNňă

eg:

```
dmesg |grep -n eth0
grep -E '/.{2,3}' /etc/passwd
```

åRŮæŎL'çl'žèąŃ

```
grep -E -v "^\$|^#" /etc/httpd/conf/httpd.conf
```

æ§ěçIJŇmysqläy■çŽĎǎžŠ

```
$ (mysql -uroot -p'passwd' -e "show databases;" | egrep -v 'Database|^
↪test|mysql|performance_schema|information_schema')
```

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- *āĒñāĀāüyL'āL'SāóćäzŊsed*
  - *äyĀāĀāæçĆāŁtĳijŽ*
  - *äžŊāĀāéĀĆçTlāIJžæŽr*
  - *äyL'āĀāèr■æşT*

## 8 āĒñāĀāüyL'āL'SāóćäzŊsed

### 8.1 äyĀāĀāæçĆāŁtĳijŽ

sedāYřäyĀçğ■ætAçijŮè;ŚçŽDæŮĞæIJñād'DçŘEāũěāĒüĳijŊ \*  
āũěāIJælaāijRĳijŽārEā;ŞāL■ād'DçŘEçŽDèāŊā■YāĆlāIJläyt'æŮüçijŞāEşāŊzĳijLælaāijRçl'žéŮt'ĳijL'ĳijŊárzç

### 8.2 äžŊāĀāéĀĆçTlāIJžæŽr

- ād'ğæŮĞäzū
- æIJL'èğDā;ŊçŽDæŮĞæIJñ

### 8.3 äyL'āĀāèr■æşT

sed [option] āĀYAddresscommandāĀŽ [file āĀç]

- éĀL'éāž

'\* -n:āōL' éIŽælaāijRĳijŊäzĒæY;çd'žscriptād'DçŘEāŘŌçŽDçzŞædIJĳijŊäy■āE■  
\* -e:<script>āŁŮ--expression=<script> äžééĀL' éāžäy■æŊĞāōŽçŽDscriptæĪēād'D  
\* -f:ārzáLūāōŽçŽDæŮĞäzūçŽt'æŌěèŁžèāŊsedçŽDcommandæŞ■ā;IJ \*  
-i:çŽt'æŌěäfōæTžāŌŞæŮĞäzū \* -r:æTřæŊāæL'l'āsTæ■čāLžèāĪè;çāijR

- āIJřāĪĀāōŽçTŊ

•

```
* startlineĳijŊendline
* /regexp/
* /pattern1/, /pattern2/
→:çŋñäyĀāæçñpattern1āŊzéĒ■āŁřçŽDèāŊāijĀāğŊĳijŊçŽt'āŁřèçñpattern2āŊzéĒ■āŁřçŽDè
* linenuberĳijŊžāLūāōžèāŊāRū
* startlineĳijŊ+nĳijŊäzŌstartlineāijĀāğŊĳijŊāŘSāŘŌnèāŊçzŞæĪS
* startline~step:æ■ééTĳijŊærŘéŽTstepæ■ě
```

- āŚ;äzd'æŞ■ā;IJ



```
2ãÄæžŁæ■ć/etc/inittabæŮĜăžúäÿ■"id:3:initdefault:
→"äÿÄëÑäÿ■çŽĐæŤră■Ůäÿž5iijŽ
's/id:[0-9]/id:5/g' /etc/inittab
3ãÄæāĹăéŽd' /etc/inittabæŮĜăžúäÿ■æšĹéĜĹëaÑiijŽ
sed '/^#/d' /etc/inittab
4ãÄæâŖŮüĹ/etc/inittabæŮĜăžúäÿ■ăijĂăd't'çŽĐ#âŖû;
sed 's/^#//g' /etc/inittab
5ãÄæL'šă■ŕæŮĜăžú/etc/servicesăŇžéĚ■blp5ăijĂăd't'çŽĐëaÑ
sed -n '/^blp5/p' /etc/services
6ãÄæL'šă■ŕ2-5ëaÑ
sed -n '2,5p' /etc/services
7ãÄæL'šă■ŕăěĜæŤŕëaÑ
seq 10 |sed -n '1~2p'
8ãÄæL'šă■ŕæIJăŖŮăÿÄëaÑ
sed '$p' /etc/services
```

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- *äzĹăÄäÿL'ăL'SăŮćăžNawk*
  - *äÿÄăÄæçĆăŁŧ*
    - \* *1.1 awkèçšăĜž*
    - \* *1.2 awkăŖŸéĜŖ*
    - \* *1.3 æš■ăjIJçņę*
    - \* *1.4 Pattern*
    - \* *1.5 äÿÿçŦĹaction*
    - \* *1.6 æŬğăĹŮër■ăŖě*
    - \* *1.7 âĜjæŤŕ*

## 9 äzĹăÄäÿL'ăL'SăŮćăžNawk

### 9.1 äÿÄăÄæçĆăŁŧ

AWKiižŁæĹăšŁçŦšæĹŖăŽĹiijŇæăijăijŖăŇŮæŮĜæIJñèçšăĜžăüëăĚă

```
awk [options] 'script' file1,file2...
awk [options] 'PATTERN {action}' file1,file2
```

- âd'ĐçŖĚæIJžăĹŮiijŽäÿÄæŇăžŮæŮĜăžúäÿ■ëržăŖŮăĜžăĹëäÿÄëaÑiijŇæŇL'çĚğçL'žăŮŽăĹĚéŽŦçņęă
- æ■čĹd'iijŽ

- èrZ( Read )iijŽAWK äzÖè; ŠăĚætĀiijLæŮGăzŭăĂAçōæAŞæLŮĕĂĚăGăĜEè; ŠăĚĕiijL'äy■érZ
- æL'gĕaŃ(Execute)iijŽărzăžŌæfRăyĂĕaŃĕ; ŠăĚĕiijŃæL'ĂæIJL'çŽĐ  
 AWK                   ăŞ;ăzd' æŃL'ĕažæL'gĕaŃăĂĆ                   ĕžŸĕōd' æĈĚăEġăyŃiijŃAWK  
 ăŞ;ăzd' æŸréŞLărzăžŌæfRăyĂĕaŃĕ; ŠăĚĕiijŃă;EăŸrăĹSăznăRfăžĕăfEăĚŭĕŽŖăĹŭăIJĹæŃĜăōŽ
- éĜ■ăd' ■iijLRepeateiijL'iijŽăyĂçŽt' éĜ■ăd' ■ăyLĕfřăy'd' äyĽĕfĜçĹŃçŽt' ăĹrăŮGăzŭçzŞæĹşăĂĆ

#### • çĹŃăžŖçzŞădĐiijŽ

- ăijĂăġŃăĪŮiijLBEGIN BLOCKiijL'iijŽ

```
èr■æŞŤiijŽ
BEGIN{awk-commands}
ăijĂăġŃăĪŮăřsăŸrawkçĹŃăžŖăŖăăĹăŮăL' ġĕaŃçŽĐăžççăĂĕĈăĹĕĹiijLăIJĹăd' ĐçŖEè; ŠăĚ
```

- äyžă; ŠăĹŮiijLBody BlockiijL'iijŽ

```
èr■æŞŤiijŽ
/pattern/{awk-commands}
éŞĹărzărRăyĂăyĽè; ŠăĚĕçŽĐĕaŃĕĈ; ăijŽæL' ġĕaŃăyĂăŃăăyžă; ŠĕĈăĹĕĹçŽĐăŞ; ăzd' iijŃĕžŸ
→pattern/éŽŖăĹŭăĚŭăIJĹæŃĜăōŽăĹăăijRăyŃăĂĆ
```

- çzŞăĹşăĹŮiijLEND BLOCKiijL'iijŽ

```
èr■æŞŤiijŽ
END{awk-commands}
çzŞăĹşăĹŮăŸrawkçĹŃăžŖçzŞăĹşăŮăL' ġĕaŃçŽĐăžççăĂiijLăIJĹăd' ĐçŖEăōŃĕ; ŠăĚĕætĀăžŃ
```

## 1.1 awkè; ŠăĜž

### 1. print ä;ĤçŤĹăăijăijŖ

```
print item1,item2...
```

ĕĕAçĆZ: \* 1.ăŖĐă■ŮăōġăžŃĕŮt' éĂŮăŖŭĕŽŤăijĂiijŃĕ; ŠăĜžæŮăăžĕçĹ'žçŽ;ă■ŮçŃăĹĕăĹŤiijŽ

- 2.è; ŠăĜžçŽĐă■ŮăōġăŖăžĕăyžă■ŮçŃăyşăĹŮăŤŖăĂiijŃă; ŠăĹ■ĕōŖă;ŤçŽĐă■ŮăōġiijLăçĈ\$1iijL'ăĂ
- 3.printăŞ;ăzd' ăŖŌĕĹçŽĐitemăŖăžĕçĹAçŤĕiijŃă■d' æŮăăĚŭăĹşĕĈ;çŽyă; ŠăžŌprint  
 \$0,ăçĈăđĹăĈşĕ; ŠăĜžçĹ'žçŽ;iijŃăŖăžĕă;ĤçŤĹprint " "

eg:

```
awk -F: '{print $1,$NF}' /etc/passwd|column -t
```

```
tail -1 /etc/passwd|awk -F: 'BEGIN{OFS="#"}{print âĀIJhelloâĀĪ$1,$2}
→'
```

### 2.printf

printfăŞ;ăzd' çŽĐă;ĤçŤĹăăijăijŖ:

```
printf <format> item1,item2...
```

**ëeAçĆziiž** \* 1.ãĚüäyŎprintãŠ;äzd' æIJĀad' gãŃžãĹn,printf éIJĀèeAæŃGãŃŽfor-  
mat,formatãĚÉeãžçzŽãĜž

• 2.formatçĹlãžŎæŃGãŃŽãĚŎéĹçŽDæfRäyĥitemè;ŠãĜžæãijãijR

• 3.printf èr■ãRëäy■äijŽèĜlãĹlæL'Šã■ræ■cèaŃ■Ůçņę:

formatæãijãijRçŽDæŃGçd'žçņęčĹ;äžë%ãijĀad't'rijŃãRŎèușäyĀäyĹã■Ůçņę:

```
%c:æŸçd'žascallçãA
%d:%i:ã■AèĹŽãĹúæĹt'æĹř
%eijjŃ%EijjŽçġšã■eèöaæĹřæšĹ
%f:æĹŏçĆzæĹř
%siijžã■ŮçņęäŸš
%uiijžæŮăçņęãRûæĹt'æĹř
%%ijjžæŸçd'ž%èĜlèžn

ăĹŏéérçņęijjž
#[.]:çñňäŸĀäŸł#æŎġãĹúæŸçd'žçŽDăŏ;ăžęijjžçñňăžŃäŸł
→#èăĹçd'žăřRæĹřçĆzăRŎçŽDçš;ăžęijjž

%3.1f

-:ăûęăřzé;Ř
+ijjžæŸçd'žæĹřçzDçņęãRû
```

egĹijž

```
awk -F: '{printf "Username:%-15s    ,Uid:%d\n",$1,$3}' /etc/passwd
```

## 1.2 awkãRŸéĜŘ

• awkãEĚç;ŏãRŸéĜŘãžŃèŏřã;ĹãRŸéĜŘijž

– FS:field separatorijjNè;ŠãĚëã■ŮæŏĹãĹÉŽĹçņęijjLézŸèŏd'çĹ'žçŽ;ijjL

– OFS:output field separatorijjNè;ŠãĜžã■ŮæŏĹãĹÉŽĹçņę

– RS:Record separator:è;ŠãĚëæŮĜæIJŃæ■cèaŃçņęijjLézŸèŏd'ăŽdè;ęijjL

– ORS:è;ŠãĜžæŮĜæIJŃæ■cèaŃçņę

• awkãEĚç;ŏãRŸéĜŘãžŃæĹræ■ŏãRŸéĜŘ

– NR:the number of input records,awkãŠ;äzd' æL'Āad'ĎçRĚçŽDæŮĜäzüçŽDèaŃæĹrijŃãçĀdIJæ

– NF:number of field,ã;ŠãĹ■èŏřã;ĹçŽDfieldäyĹæĹř

```
{print NF},{print $NF}
```

– ARGV:æĹřçzDrijŃãĹĹã■ŸãŠ;äzd'èaŃæIJŃèžñèĚäyĹã■ŮçņęäyšijjŃ

- ARGV: array of command-line arguments
- FILENAME: filename of the current file being processed
- ENVIRON: array of environment variables

```
awk 'BEGIN{print ENVIRON["PATH"]}'
```

- `awk -v var=value`  
assign a value to a variable

```
awk -v test="abc" 'BEGIN{print test}'
```

```
awk 'BEGIN{var="name";print var}'
```

### 1.3 awk special characters

- Arithmetic operators

- +, -, \*, /, ^, %

```
awk 'BEGIN{a=5;b=3;print "a + b =",a+b}'
```

- String concatenation

- `str1 str2` concatenates str1 and str2

```
awk 'BEGIN { str1="Hello,"; str2="World"; str3 = str1 str2;
  print str3 }'
```

- Conditional operators

- `==`, `<`, `>`, `!=`, `==`, `!=`, `==`

```
awk 'BEGIN{a=5;b=6;if(a == b) print "a == b";else print "a!=b"}
  print'
```

```
awk -F: '{sum+=$3}END{print sum}' /etc/passwd
```

- Relational operators

- `>`, `>=`, `<`, `<=`, `!=`, `==`

- String comparison operators

- `~`: string matches pattern

- `!~`: string does not match pattern

```
awk -F: '$1~"root"{print $0}' /etc/passwd
```

- Logical operators

- `&&`, `||`, `!&&`, `!||`

```
awk 'BEGIN{a=6;if(a > 0 && a <= 6) print "true";else print
→"false"}'
```

- `function_name(argu1, argu2)`
- `selectionif-true-expressionif-false-expression`

```
awk -F: '{ $3>=100?usertype="common user":usertype="sysadmin";
→printf "%15s:%s\n", $1, usertype}' /etc/passwd
```

## 1.4 Pattern

- empty: `pattern`
- /regular expression/
- relational expression `pattern1 pattern2`

```
awk -F: '$3>100{print $1,$3}' /etc/passwd
```

```
awk -F: '$NF=="/bin/bash"{printf "%15s, %s\n", $NF, $1}' /etc/
→passwd
```

```
awk -F: '$NF~/bash$/{printf "%15s, %s\n", $NF, $1}' /etc/passwd
```

```
df -Th|awk '/^\/dev/{print}'
```

- line ranges `startlineendline`

```
awk -F: '/10/,/20/{print $1}' /etc/passwd
awk -F: '(NR>2&&NR<=10){print $1}' /etc/passwd
```

- BEGIN/END
- `BEGIN{ }`
- `END{ }`

```
awk -F: 'BEGIN{print "username      uid\n-----"}
→{printf "%-15s: %d\n", $1, $3}END{print "-----\n"
nd}' /etc/passwd
```

## 1.5 Action

- Expression

- output statements

## 1.6 æŌğǎŁűér■ǎŘě

- `if(condition) { statments } [else { statments }]`

```
awk -F: '{if($3>100) print $1,$3}' /etc/passwd
```

```
awk -F: '{if($3>100) {printf "Common user:%-15s\n",$1} else  
→{printf "sysadmin user:%-15s\n",$1}}' /etc/passwd
```

```
awk -F: '{if ($NF==" /bin/bash") print $1,$NF}' /etc/passwd
```

```
awk -F: '{if($NF>7) print}' /etc/fstab
```

- ä;ɛçTl̥laIjæZr̥ijŽar̥zäyAəaŋNaEĖçZDad'Žäyl̥a■UəotēÄRäyĂcszajijjad'DčŘEæUüä;ɛçTl̥ijŋNárza

```
awk '/^[[:space:]]*if/{i=1;while(i<=NF) {print $i,length($i);  
→i++}}' /etc/init.d/functions
```

```
awk '/^[[:space:]]*if/{i=1;while(i<NF) {if(length($i)>7) {print  
↪$i,length($i)};i++}}' /etc/init.d/functions
```

- ```
- çL'žæǒŁçTlæşTijŽëÇ;ǎđ šéA■ǎŎEæTřçzDäy■çŽDǎĚČçt'äijŇfor (var in
array) {for-body}
```

```
awk '/^[[:space:]]*if/{for(i=1;i<NF;i++) {print $i,length($i)}}'
↪ /etc/init.d/functions
```

```
awk '/^[[:space:]]*if/{for(i=1;i<NF;i++) {if(length($i)>7)
→print $i,length($i)}}' /etc/init.d/functions
```

- break
- continue
- delete array[index]
- switch
  - `switch(expression) {case VALUE1 or /REGEXP/: statement; case VALUE2 or /REGEXP2/: statement; default: statement}`

## 1.6 array

- Accessing array elements
  - `array[index-expression]`
  - \* index-expression:
    - `array[index]`
    - `array[expression]`

```
awk 'BEGIN{weekdays["mon"]="Monday"; weekdays["tue"]="Tuesday"; print weekdays["tue"]}'
```

- \* `for` loop
  - `for(var in array) {do-body}`

```
awk 'BEGIN{weekdays["mon"]="Monday"; weekdays["tue"]="Tuesday"; for(i in weekdays) print weekdays[i]}'
```

- `for` loop with `in` operator

```
netstat -tan | awk '/^tcp/{state[$NF]++} END{for(i in state) print i, state[i]}'
```

```
awk '{ips[$1]++} END{for(i in ips){printf "%-5d, %s\n", ips[i], i}}' /var/log/httpd/access_log-20180916 | sort -k1 -nr
```

## 1.7 Random numbers

- Random numbers
  - `rand()` returns a random number between 0 and 1

```
awk 'BEGIN{print rand()}'
```

– āŮŇĕäÿšād’ĐĉŘĚĭijŽ length([s]):ēŁŦāŽđāĹŭāōŽāŮŇĕäÿšĉŽĐēŦĚāžę  
sub(r,s,[t])ĭijŽāžĕrēāĹĉđ’žĉŽĐēāĭijŘāĹēæšĕæĹĵtæĹ’ĀēāĹĉđ’žĉŽĐāŮŇĕäÿšäÿāŇzéĚāĹřĉŽĐā

exercises:

```
* ĉžŠèőa/etc/
→fstabēŮĜäžŭäÿāēŕŘäÿĹāŦērāĜžĉŎřĉŽĐēñæŦřĭijŇāžŭæŇĹ’äžŎād’ġāĹŕāŕŘæŎŠāžŘ
awk '{for(i=1;i<=NF;i++){words[$i]++}}END{for(key in words)print
→key,words[key]}' /etc/fstab|sort -k2 -nr

awk '{ips[$1]++}END{for(i in ips) print i,ips[i]}' access_nginx.log
→|column -t|sort -k2 -nr

* ĉžŠèőa/etc/fstabēŕŘäÿĹāŮĜäžŭĉšžĉžŠĉśžāđŇāĜžĉŎřĉŽĐēñæŦř
awk '!/^#/&&!/^$/{dev[$3]++}END{for(i in dev) print i,dev[i]}' /etc/
→fstab

* pingäÿĀäÿĹāššāŕŮĭijŇēĴšāĜžpingæđ’āĹžĉŽĐæŮŭéŮt’
ping baidu.com|awk '{print $0" "strftime("%Y-%m-%d %H:%M:%S")}'

* āĹĹ’ĉŦĹnetstatĉžŠāŎġæĪJāĹæŸŕāŘęæĉāÿÿĉžŠāŕŇ
netstat -lntup|awk 'NR>2{if($4 ~/.*:22/) print $0"yes";exit 0}'

* ĉžŠèőawebæĪJāĹæāžĹāŮēāŦŮĉĹŭæĀĀĉăĀ
awk '$9~"[0-9]"{stat[$9]++}END{for(i in stat) print i,stat[i]}'
→access_log
```

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  - äÿĀāĀæĴšāĚĕēĴšāĜž
  - äžŇāĀāšĴäžđ’
  - äÿĹāĀāōđæĹŸ
    - \* 3.1 æŮĜäžŭæĹ’ñæŘŘæäqélŇ
    - \* 3.2 èĜĹāŏŽäžĹāđĈāĪJĵāŽđæŦŭ
    - \* 3.3 LinuxĉšžĉžšæĉĀæŦŇ

## 10 āŮŇĕäÿšād’ĐĉŘĚĭijŽ

### 10.1 äÿĀāĀæĴšāĚĕēĴšāĜž

- èĴšāĚĕēĴšāĜž æŮĜäžŭæŘŘèŦŕĉņę | æŘŘèŦŕ | æŸāārĐāĚšĉž āĀŦāĀŦāĀŦ 0 | æāĜāĜĖēĴšāĚĕē | /dev/stdin -> /proc/self/fd/0 1 | æāĜāĜĖēĴšāĜž | /dev/stdout ->

- éĜ■ǎǒŽǎŘŚ

eg:

## 10.2 äžÑãĀĄśjäd'

– screen -wipe

èĎŽæIJñçijŮâĚŽæşlæĎRăžŇéąž

```
1iijL'âijĂăd't'âŁăğçéĜŁăŽĺiijž#!/bin/bash

2iijL'èr■æşŤçijl'èŁžiiijŇă;ŁçŤĺăžžăÿłçl'žăaijiiijžăd'žăŁăæşléĜŁèrt'æŸŎăĂĈ

3iijL'ăŚ;ăŘ■ăžžèőöèĝĎăĹžiiijžăRŸéĜŔăŘ■ăđ'ĝăĚžăĂĂăśĂéĈĺăRŸéĜŔăŘăĚžiiijŇăĜ;æŤŕăŘ■ăřŔ

4iijL'ézŸèöd'ăRŸéĜŔăŸŕăĚĺăśĂçŽĎiijŇăIJĺăĜ;æŤŕăÿ■ăRŸéĜŔ local_
→æŇĜăŏžăÿžăśĂéĈĺăRŸéĜŔiijŇéĂłăĚ■ăśăæŞşăĚŮăžŮă;IJçŤĺăşşăĂĈ

5iijL'æIJL'ăÿd'ăÿĺăŚ;ăžd'èĈ;ăÿŏăĹl'ăĹŚèŕĈèŕŤèĎŽæIJñiijžset -e_
→éĂĜăĹŕăĹ'ĝèăŇéĭđ 0 æŮŮéĂĂăĜžèĎŽæIJñiijŇset -x_
→æL'şă■ŕăĹ'ĝèăŇèŁĜçĺŇăĂĈ

6iijL'ăĚŽèĎŽæIJñăÿĂăŏžăĚĹăŤŇèŕŤăĚ■ăĹŕçŤŞăžĝăÿŁăĂĈ
```

## 10.3 äÿL'ăĂĂăŏđæĹŸ

æŽŕăđ'Žçđ'žă;ŇăŔŕăŔĈèĂĈiijŽshell èĎŽæIJñçđ'žă;Ň

### 3.1 æŮĜăžŮæĹ'ŇæŔŔæăăéİŇ

```
#!/bin/bash
#func:scan file
#md5sum -c $SCAN_FILE

SCAN_DIR=`echo $PATH |sed 's:/ /g'`
SCAN_CMD=`which md5sum`
SCAN_FILE_FALL="/tmp/scan_$(date +%F%H%m)_fall.txt"
SCAN_FILE_BIN="/tmp/scan_$(date +%F%H%m)_bin.txt"

scan_fall_disk() {
    echo "æ■čăIJĺăĚĺçžŸăĹ'ŇăŔŔiijŇèŕŮçĺ■ç■Ĺ'iiijAæŮĜăžŮèŮŕă;Ď:
→$SCAN_FILE_FALL"
    find / -type f -exec $SCAN_CMD \{\} \;>> $SCAN_FILE_FALL 2>/
→dev/null
}

scan_bin() {
    echo
→"æ■čăIJĺăĹ'ŇăŔŔPATHăŔŕăĹ'ĝèăŇæŮĜăžŮiijŇèŕŮçĺ■ç■Ĺ'iiijŇæŮĜăžŮèŮŕă;Ďiijž
→$SCAN_FILE_BIN"
    for file in $SCAN_DIR
    do
```

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```
        find $filae -type f -exec $SCAN_CMD \{\} \;>> $SCAN_FILE_
    ↪BIN 2>/dev/null
        done
    }

main() {
    [ $# -lt 1 ] && echo
    ↪"èrűä;ŁçŤĺăŔĈæŦřiiĵŇlèaĺçd' žăĚĺçŽŸæL' náŔŔřiiĵŇ2èaĺçd' žăžŇèŁŽăĹúăŔŕæL' ğèaŇæŮĜăžú
    ↪"
        read number
        case $number in
            1)
                scan_fall_disk;;
            2)
                scan_bin;;
            *)
                echo
                ↪"ăŔĈæŦřéŦžèŕřiiĵŇlĭiiĵŇèaĺçd' žăĚĺçŽŸæL' náŔŔřiiĵŇ2èaĺçd' žăžŇèŁŽăĹúăŮĜăžúæL' náŔŔŔ
                ↪"
            esac
        }

main
```

## 3.2 èĜĺăŏŽăžL'ădĈăĹĵ;ăŽďæŦŮ

```
#!/bin/bash
# function:èĜĺăŏŽăžL'ŕmăŦ;ăžď'ĭiiĵŇăŕŔăď'l'æŽŽăŸŁăŏŽăŮúæŸĚçŘĚ

CMD_SCRIPTS=$HOME/.rm_scripts.sh
TRASH_DIR=$HOME/.TRASH_DIR
CRON_FILE=/var/spool/cron/root
BASHRC=$HOME/.bashrc

[ ! -d ${TRASH_DIR} ] && mkdir -p ${TRASH_DIR}
cat > $CMD_SCRIPTS <<EOF
PARA_CNT=\$#
TRASH_DIR=$TRASH_DIR

for i in \${*}; do
    DATE=\$(date +%F%T)
    fileName=\$(basename \${i})
    mv \${i} \${TRASH_DIR}/\${fileName}.\${DATE}
done
EOF
```

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```
sed -i "s@$(grep 'alias rm=' $BASHRC)@alias rm='bash ${CMD_SCRIPTS}
↪ '@g" $BASHRC
source $HOME/.bashrc

echo "0 0 * * * rm -rf $TRASH_DIR/*" >> $CRON_FILE
echo "áĹăéŽd'čŽóâ;T:$TRASH_DIR"
echo "áĹăéŽd'èĎŽæIJň:$CMD_SCRIPTS"
echo "èřůæL'ġèaŇ:source $BASHRC
↪ æİěâŁăè; ;ăŮĠăžůăLŮéĂăĠžă;ŠăL'■shelléĠæŮřčŽžă;T"
```

### 3.3 LinuxčšžčžšæčĂæťŇ

```
#!/bin/bash
# auth:kaliarch
# func:sys info check
# version:v1.0
# sys:centos6.x/7.x

[ $(id -u) -gt 0 ] && echo "èřůčŤĹrootčŤĹăĹăL'ġèaŇæ■d'èĎŽæIJňiiĴA" &
↪ & exit 1
sysversion=$(rpm -q centos-release|cut -d- -f3)
line="-----"

[ -d logs ] || mkdir logs

sys_check_file="logs/$(ip a show dev eth0|grep -w inet|awk '{print
↪ $2}'|awk -F '/' '{print $1}')->`date +%Y%m%d`.txt"

# èŮăăŔŮčšžčžšCpuăĴæĂŕ
function get_cpu_info() {
    Physical_CPUs=$(grep "physical id" /proc/cpuinfo| sort | uniq |
↪ wc -l)
    Virt_CPUs=$(grep "processor" /proc/cpuinfo | wc -l)
    CPU_Kernels=$(grep "cores" /proc/cpuinfo|uniq| awk -F ':' ' '
↪ {print $2}')
    CPU_Type=$(grep "model name" /proc/cpuinfo | awk -F ':' ' '
↪ {print $2}' | sort | uniq)
    CPU_Arch=$(uname -m)
cat <<EOF | column -t
CPUăĴæĂŕ:

çL'l'čŘĚCPUăŸĴæŤř: $Physical_CPUs
éĂžèçšCPUăŸĴæŤř: $Virt_CPUs
æŕŔCPUăăŸăĴčĂŤř: $CPU_Kernels
CPUăĎŇăŔŮ: $CPU_Type
CPUăĎŮăĎĎ: $CPU_Arch
```

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```

EOF
}

# èÕûâŕŰÇşżçżŞâĚĚâ■ŸäſæAŕ
function get_mem_info() {
    check_mem=$(free -m)
    MemTotal=$(grep MemTotal /proc/meminfo| awk '{print $2}') #KB
    MemFree=$(grep MemFree /proc/meminfo| awk '{print $2}') #KB
    let MemUsed=MemTotal-MemFree
    MemPercent=$(awk "BEGIN {if($MemTotal==0){printf 100}else
    ↳{printf \"%.2f\\\", $MemUsed*100/$MemTotal}}")
    report_MemTotal="$ ( (MemTotal/1024) ) ""MB"
    ↳#âĚĚâ■ŸäſæAŕ (MB)
    report_MemFree="$ ( (MemFree/1024) ) ""MB"
    ↳#âĚĚâ■ŸäſæAŕ (MB)
    report_MemUsedPercent="$ (awk "BEGIN {if($MemTotal==0){printf
    ↳100}else{printf \"%.2f\\\", $MemUsed*100/$MemTotal}}") ""%"
    ↳#âĚĚâ■ŸäſæAŕ;ſçŦŦçŦŦ%

cat <<EOF
âĚĚâ■ŸäſæAŕiijŽ

${check_mem}
EOF
}

# èÕûâŕŰÇşżçżŞç;ŞçIJäſæAŕ
function get_net_info() {
    pri_ipadd=$(ip a show dev eth0|grep -w inet|awk '{print $2}
    ↳'|awk -F '/' '{print $1}')
    pub_ipadd=$(curl ifconfig.me -s)
    gateway=$(ip route | grep default | awk '{print $3}')
    mac_info=$(ip link| egrep -v "lo"|grep link|awk '{print $2}')
    dns_config=$(egrep -v "^$|^#" /etc/resolv.conf)
    route_info=$(route -n)
cat <<EOF | column -t
IPäſæAŕ:

çşżçżŞâĚŇç;ŞâIJŕäĬ: ${pub_ipadd}
çşżçżŞçĜAç;ŞâIJŕäĬ: ${pri_ipadd}
ç;ŞâĚŞâIJŕäĬ: ${gateway}
MACâIJŕäĬ: ${mac_info}

èŭŕçŦŦäſæAŕ:
${route_info}

DNS äſæAŕ:
${dns_config}
EOF

```

```

}

# èÕûâŔŬçşżçżŞçĈAçŽŸäfaæAŕ
function get_disk_info() {
    disk_info=$(fdisk -l|grep "Disk /dev"|cut -d, -f1)
    disk_use=$(df -hTP|awk '$2!="tmpfs"{print}')
    disk_inode=$(df -hiP|awk '$1!="tmpfs"{print}')

cat <<EOF
çĈAçŽŸäfaæAŕ:

${disk_info}
çĈAçŽŸä;ŁçŦl:

${disk_use}
inodeäfaæAŕ:

${disk_inode}
EOF

}

# èÕûâŔŬçşżçżŞäfaæAŕ
function get_systatus_info() {
    sys_os=$(uname -o)
    sys_release=$(cat /etc/redhat-release)
    sys_kernel=$(uname -r)
    sys_hostname=$(hostname)
    sys_selinux=$(getenforce)
    sys_lang=$(echo $LANG)
    sys_lastreboot=$(who -b | awk '{print $3,$4}')
    sys_runtime=$(uptime |awk '{print $3,$4}'|cut -d, -f1)
    sys_time=$(date)
    sys_load=$(uptime |cut -d: -f5)

cat <<EOF | column -t
çşżçżŞäfaæAŕ:

çşżçżŞ: ${sys_os}
âŔŦëaŇçL'ŦæIJň:    ${sys_release}
çşżçżŞäEĚäŸ:    ${sys_kernel}
äŸžæIJžâŦ■:    ${sys_hostname}
selinuxçŁŭæĀA:    ${sys_selinux}
çşżçżŞèŕ■èlĀ:    ${sys_lang}
çşżçżŞä;ŞâL'■æŬúéŬt': ${sys_time}
çşżçżŞæIJĀâŦŌéĈ■âŦŕæŬúéŬt':    ${sys_lastreboot}
çşżçżŞèŁŦëaŇæŬúéŬt':    ${sys_runtime}
çşżçżŞèt'Sè;:    ${sys_load}

```

```

EOF
}

# ẽŌũăŔŮæIJ■ăŁaăŁaæAŕ
function get_service_info() {
    port_listen=$(netstat -lntup|grep -v "Active Internet")
    kernel_config=$(sysctl -p 2>/dev/null)
    if [ ${sysversion} -gt 6 ];then
        service_config=$(systemctl list-unit-files --type=service --
↪state=enabled|grep "enabled")
        run_service=$(systemctl list-units --type=service --
↪state=running |grep ".service")
    else
        service_config=$(/sbin/chkconfig | grep -E ":on|:ăŔŕçŦĺ"
↪|column -t)
        run_service=$(/sbin/service --status-all|grep -E "running")
    fi
cat <<EOF
æIJ■ăŁaăŔŕăŁĺÉĚ■ç;ŏ:

${service_config}
${line}
èŁŔèaŇçŽĐæIJ■ăŁa:

${run_service}
${line}
çŽŚăŔŇçŕŕăŔč:

${port_listen}
${line}
ăĚĚæăŷăŔŔĈèĂĈéĚ■ç;ŏ:

${kernel_config}
EOF
}

function get_sys_user() {
    login_user=$(awk -F: '{if ($NF==" /bin/bash") print $0}' /etc/
↪passwd)
    ssh_config=$(egrep -v "^#|^$" /etc/ssh/sshd_config)
    sudo_config=$(egrep -v "^#|^$" /etc/sudoers |grep -v "^Defaults
↪")
    host_config=$(egrep -v "^#|^$" /etc/hosts)
    crond_config=$(for cronuser in /var/spool/cron/* ;do ls $
↪{cronuser} 2>/dev/null|cut -d/ -f5;egrep -v "^$|^#" ${cronuser} 2>
↪/dev/null;echo "";done)
cat <<EOF
çşžçžŚçŽžă;ŦçŦĺæŁũ:

```

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```

${login_user}
${line}
ssh éĚ■ç;őăġaæAř:

${ssh_config}
${line}
sudo éĚ■ç;őçŤĺæĹû:

${sudo_config}
${line}
ăőŽæŮüăžžăĹaéĚ■ç;ő:

${crond_config}
${line}
hosts äġaæAř:

${host_config}
EOF
}

function process_top_info() {

    top_title=$(top -b n1|head -7|tail -1)
    cpu_top10=$(top b -n1 | head -17 | tail -10)
    mem_top10=$(top -b n1|head -17|tail -10|sort -k10 -r)

cat <<EOF
CPUă■ăçŤĺtop10:

${top_title}
${cpu_top10}

ăĚă■ăçŤĺtop10:

${top_title}
${mem_top10}
EOF
}

function sys_check() {
    get_cpu_info
    echo ${line}
    get_mem_info
    echo ${line}
    get_net_info
    echo ${line}

```

(continued from previous page)

```
get_disk_info
echo ${line}
get_systatus_info
echo ${line}
get_service_info
echo ${line}
get_sys_user
echo ${line}
process_top_info
}

sys_check > ${sys_check_file}
```