Cybersecurity Ops with bash

Attack, Defend, and Analyze from the Command Line

grep

Search the contents of files

`-c`	Count matching lines
`-E`	Enable extended regex
`-i`	Ignore case
`-P`	Enable Perl regex
`-R`	Recursively search

find

Search the system for files

`-exec`	Execute specified command for each file found
`-name`	Search by filename
`-size`	Search by file size
`-type`	Search by file type

file

Identify file type by magic number

`-f`	Read list from specified file
`-k`	List all type matches
`-z`	Look inside compressed files

Regular Expressions

Character	Meaning
`.`	Single wildcard character
`?`	Preceding item is optional
`*`	Match the preceding item zero or more times
`+`	Match the preceding item one or more times
`^`	Anchor pattern to the beginning of the string
`$`	Anchor pattern to the end of the string
`[ ]`	Character classes and ranges
`( )`	Group
`{ }`	Quantifier

cut

Extract portions of data from a file

`-c`	Character(s) to extract
`-d`	Field delimiter
`-f`	Field(s) to extract

head

Output the first few lines/bytes of file

`-n`	Number of lines to output
`-c`	Number of bytes to output

tail

Output the last few lines of a file

`-f`	Continuously monitor end of file
`-n`	Number of lines to output

uniq

Remove duplicate lines from a file

`-c`	Print number of times line is repeated
`-f`	Ignore the specified number of fields
`-i`	Ignore case

join

Combine two files

`-j`	Join using specified field
`-t`	Field delimiter

sdiff

Compare two files

`-a`	Treat files as text
`-i`	Ignore case
`-s`	Suppress common lines
`-w`	Max characters to output per line

base64

Encode/decode data using Base64

`-d`	Decode

curl

Network data transfer

`-A`	Specify user agent
`-d`	Send using HTTP POST
`-G`	Send using HTTP GET
`-I`	Only fetch header
`-L`	Follow redirects
`-s`	Do not show errors

vi commands

`b`	Back one word
`cc`	Replace current line
`cw`	Replace current word
`dw`	Delete current word
`dd`	Delete current line
`w`	Forward one word
`:q!`	Quit without save
`:wq`	Quit with save
`/`	Search forward
`?`	Search backward
`n`	Find next occurrence

tr

Translate one character to another

`-d`	Delete character
`-s`	Squeeze repeated characters

sort

Order the lines of a file

`-r`	Sort in descending order
`-f`	Ignore case
`-n`	Use numerical ordering
`-k`	Sort based on key
`-o`	Write output to file

xxd

Display file in binary or hexadecimal

`-b`	Display using binary rather than hex
`-l`	Print specified number of bytes
`-s`	Start printing at specified position

wevtutil

View and manage Windows logs

`el`	Enumerate available logs
`qe`	Query a log’s events
`/c`	Specify max number of events
`/f`	Format output as XML
`/rd`	Read direction, if true read most recent first

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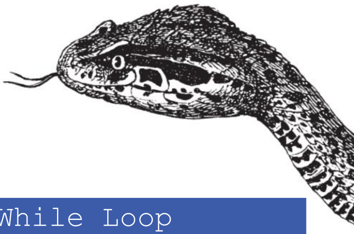

Output

Writing to the screen

```
echo 'Hello World'

printf 'Hello World\n'
```

Format Strings

Format strings for `printf`

`%s`	String
`%d`	Decimal
`%f`	Floating point
`%x`	Hexadecimal
`\n`	Newline
`\r`	Carriage return
`\t`	Horizontal tab

Positional Parameters

Script parameters

`$#`	Number of parameters
`$0`	Name of the script
`$1`	First parameter
`$2`	Second parameter …

Default parameters

```
MYVAR=${1:-Cake}
```

Note: If parameter 1 is unset, the value of `MYVAR` will default to `Cake`

User Input

Read from stdin

```
read MYVAR
```

Prompting

```
read -p 'Name: ' USRNAME
```

Reading a File

```
while IFS="" read MYLINE
do
  echo "$MYLINE"
done < "somefile.txt"
```

Note: `IFS=""` preserves whitespace

Variables

Declaring a Variable

```
MYVAR='Hello'
```

Referencing a Variable

```
echo $MYVAR

echo "$MYVAR World"
```

Assigning Shell Output

```
CMDOUT=$(pwd)
```

If Statements

Command conditional (`cmd` will return `0` if success)

```
if cmd
then
  some cmds
else
  other cmds
fi
```

File and numeric conditionals

```
if [[ -e $FILENAME ]]
then
  echo $FILENAME exists
fi
```

File Test	Use
`-d`	Directory exists
`-e`	File exists
`-r`	File is readable
`-w`	File is writable
`-x`	File is executable

Numeric Test	Use
`-eq`	Equal
`-gt`	Greater than
`-lt`	Less than

While Loop

```
i=0
while (( i < 1000 ))
do
  echo $i
  let i++
done
```

For Loop

Numerical looping

```
for ((i=0; i < 1000; i++))
do
  echo $i
done
```

Iterating over a list

```
for VAL in 20 3 dog 7
do
  echo $VAL
done
```

Case Statement

```
case $MYVAR in
  "carl")
    echo 'Hi Carl!'
    ;;
  "paul")
    echo 'Hi Paul!'
    ;;
  *)  # default
    echo 'Goodbye'
    exit
    ;;
esac
```

Functions

Declaring a function

```
function myfun ()
{
  # function body
  echo 'This is myfun()'
}
```

Invoking a function

```
myfun param1 param2
```

Paul Troncone & Carl Albing, Ph.D. **bash Quick Reference** https://www.rapidcyberops.com