

### Automated Commands

atq: show which commands you have in the at queue. Also displays job number, job owner, and date of planned execution.

arm job-num: deletes a job from the queue by specifying job-num.

at: reads commands to be executed from files or standard input.

man 5 crontab: view manpage for crontab.

crontab -e: edit scheduled tasks in the /var/spool/cron/crontabs file

crontab -l: list schedule tasks

### Bash Scripting

#!/bin/env/bash: the shebang used to at the start of all bash scripts.

bash file-name.sh: run the bash script in terminal.

exit [0-255]: exit script and return number from 0-255.

exit [0]: means everything ran as intended.

exit[1-255]: these values are used to tell the user some error, different by the number, has occurred

\$0: refers back to the script name

\$#: the number of arguments that have been passed to the script

&&: AND

||: OR

#: Used to make comments throughout the script

[parameter]: used to denote when parameters are optional in a script

<parameter>: used to denote when parameters are required in a script

./ file-name.sh: runs the bash script in terminal if script is set too executable

### System

shutdown now: shutdown the machine

man command: show manpage for command

kill: get rid of a command running in the background

free: display amount of free and used memory

df: display free disk space

du: display disk usage stats

&: puts command into the background

### File Searching Commands

locate file: locates a file

grep -r pattern dir: recursively searches for pattern in dir

grep options pattern files: searches through files for a certain pattern, displays all lines containing that pattern

find: search for a file or directory

### Bash Functions and Arrays

type -a command: tells the user if the command is an alias

alias alias='bash-command': how to define an alias

alias: lists all aliases defined in user's current session

function() {something}: how to define a function

shift: move argument \$2 to \$1

array=("some" "strings"): creates an array of strings

\${array[0]}: gets the first index of the array

\${array[\*]}: gets all elements of the array

\${array[-1]}: gets the last element in the array

### Basic Usage

pwd: print working directory

cd: change directory

mkdir: make directory

rmdir: remove directory

rm: deletes files

ls: list files in a directory

cat: used to be able to quickly scan a file/directory

ssh: stands for secure shell, used to securely access the virtual machine

scp: copies files and moves a copy to the desired location

add a -r to scp: copies a directory

sudo: changes the user to root

adduser: adds a user into the system.

passwd: allows root to change a user's password

userdel: deletes the users account

add a -r to userdel: forces the users home directory to be deleted as well

chown: changes the owner of a file

chgrp: changes the group of a file

chmod: changes permissions

(add onto chmod) +: adds what permission to change

(add onto chmod) -: removes a permission

dnf upgrade: updates system

### System Log Commands

exit: exit from session

script: record output for session in a file

lcommand-num: repeat and run command from history

history | grep keyword: search for command by keyword in user's history

history: list previous commands used

last: display last user login

dmesg: view kernel messages from the last boot of the machine

### System Log Commands (cont)

journalctl: view the log of the whole system

journalctl -u sshd: view only log entries for ssh unit

who: gives information on who is logged in

w: gives information on who is logged in

finger: gives information on who is logged in

id -u username: get user ID for specific user

### Bash Syntax

basename path: get the filename from a given path

cut: cut different parts of a string

break: can add to while or for loops to exit from the loop, while continuing the rest of the script

for ( ;; ) do ... done: infinite loop

for counter in {starting-value ... ending-value}; do ... done: brace expansion that iterates over a number range from starting value to ending value

for ((counter=number; counter <=number; counter++)); do ... done: start the counter at equal to some number, do something then increment that counter by 1 until the counter is greater than or equal to some other number.

for value in list-of-values; do ... done: iterate over a list of values

sleep time: wait for a specified number of seconds before continuing through the script

until condition-is-true; do ... done: opposite of a while loop, does something until the condition is true.

while condition-is-true; do ... done: does something as long as the condition is true

if condition; then do ... elif condition; then do ... else do...: If condition is true, do something. Else if this other condition is true and the first is not, do this different thing. Else, if all conditions prior are false, do this thing.

if fi: basic structure of if statements in bash

### Download Help

wget file-url: download a file

tar -xzf tar-file: extract a tar file

### Package Management Commands

dnf remove package-name: remove a package from system

dnf install package-name: install new software packages

dnf provides package-name: check package name to install

dnf search package-name: search for new software called package-name

dnf upgrade: update the system and all of its package

### SSH

ssh: gives information about ssh command

ssh-keygen: generate private/public key pair

exit: exits the shell

ssh-keyscan: used for retrieving public keys from servers

### Notable Directories

/: root directory

/boot: location where the kernel and other files used during booting are stored

/dev: contains device files, which is the interface between the hardware and the filesystem

/etc: contains configuration files, can usually be edited by a text editor(nano)

/home: contains a home folder for each user on system

/root: home directory for the root user

/tmp: temporary files stored by apps

/var: contains administrative files

/var/spool: temporary storage for files being printed

