Cheatography

System Admin CS Cheat Sheet

by Heisere via cheatography.com/89610/cs/20395/

for loop

for word in ${words}; do echo "The word is: ${word}" done	for loop example
" "	bash keep spaces together also prevents asterisk from being expanded
' '	no variables will be replaced in single quotes plus what double quotes do

git keeper

git clone <url>	copies url to directory
git add <file>	keep track of git file
git commit -am "-done"	makes version of thing
git push	pushes version to git server

ERROR checking

sudo apt update && sudo apt upgrade -y	upgrades your machine with all tools completely
0	passes
any number other than 0	is a fail error
test -d /tmp/temp_dir test_rc=$?	check to see if directory was created
echo "mkdir resulted in ${mkdir_rc}, test resulted in ${test_rc}."	check return codes

ERROR checking (cont)

true && echo "We get here because the first part is true!" true || echo "We never see this because the first part is true :("	Check out how an exit status of 0 affects the logical operators:
false && echo "Since we only continue after && with an exit status of 0, this is never printed." false || echo "Because we only continue after || with a return code that is not 0, we see this!"	Check out how an exit status of 1 affects the logical operators:
if [[$# -ne 3]]; then echo "-Incorrect usage!" echo "-Usage: $0 <directory_n-ame> <file_name> <file_-content>" exit 1 fi	We need exactly three arguments, check how many have been passed to # the script.
directory_name=$1 file_n-ame=$2 file_content=$3	Save the arguments into variables.
absolute_file_path=${direct-ory_name}/${file_name}	create absolute path

ERROR checking (cont)

if [[! -d ${directory_name}]]; then mkdir ${directory_-name} || { echo "Cannot create directory, exiting script!"; exit 1; } fi	Check if the directory exists; otherwise, try to create it.
if [[! -f ${absolute_file_path}]]; then touch ${absolute_f-ile_path} || { echo "Cannot create file, exiting script!"; exit 1; } fi	Try to create the file, if it does not exist.
echo ${file_content} > ${absolute_file_path}	File has been created, echo the content to it.
cp /var/log/dpkg.log dpkg || { echo "Cannot copy dpkg.log to the new directory."; exit 1; }	Copy the log file to our new directory.
cd $(dirname $0)	Change directory to the script location.
cp /var/log/dpkg.log dpkg || { echo "Cannot copy dpkg.log to the new directory."; exit 1; }	Copy the log file to our new directory.
if [[$# -ne 1]]; then echo "-Incorrect usage!" echo "-Usage: $0 <file or directory path>" exit 1 fi	input validation

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Setting up Samba for file sharing

$ sudo yum install samba samba-client samba--common	install samba
$ sudo cp /etc/samba/s-mb.conf /etc/samba/s-mb.conf.backup	backup at each stage
$ sudo mkdir /SharedFo-lder/ $ sudo chmod -R 755 /SharedFolder/	grant user permissions
$ sudo firewall-cmd --add-service=samba $ sudo firewall-cmd --reload	get past firewall
$ sudo nano /etc/samb-a/smb.conf	configure samba file
$ sudo smbpasswd –a <user>	create user
$ sudo systemctl enable smb.service $ sudo systemctl enable nmb.se-rvice $ sudo systemctl start smb.service $ sudo systemctl start nmb.se-rvice	start service
$testparm -v	listing of all the Samba config-uration options and the values to which they are currently set
$sudo smbpasswd -a <user>	set up password for user

ARRAYS

ARRAY=(hi "how are" you)	set values
echo ${ARRAY[*]}	list variables in array
for x in "${ARRA-Y[@]}";do echo $x; done	list variables in new lines
unset ARRAY[variable]	remove variable
ARRAY+=("bland" "hel-lo")	add variables
echo ${#ARRAY}	get length of array
${VAR:-WORD}	substitute variable
"$@"	shift variables
declare -A aa	
${VAR/PATTERN/S-TRING}	replace parts of a variable
${VAR:OFFSET:LE-NGTH}	remove substring

Files and Directories

ls	to hide files
ls -a	shows all files in current folder
ls ..	look in directory
ls ../.. -a	look in directory above
ls -a ..	look in hidden directory
./	run program from current folder
pwd	present working directory
tab	completes command
>	moves files somewhere else
rm ~/<filena-me>	delete file
rm -r <dir>	delete directories
mk dir	create directories
wget <folder>	download folder

Files and Directories (cont)

tar -xzf <folde-r>.tar.gz	unpack folder
cd <directory>	change directory
cd \	go to home directory
mv	move
History | grep <command>	find commands with <command> in it
-f	to follow code to the end
-f -u <unit>	filter by the type of unit
!<number>	repeat command on line
script	everything that happened in a session

virtual environments

python3 -m venv /path/-to/new/virtu-al/enviro-nment	create new virtual enviro-nment
-h, --help	man pages for enviro-nments
--system-sit-e-packages	Give the virtual enviro-nment access to the system site-packages dir.
--symlinks	Try to use symlinks rather than copies, when symlinks are not the default for the platform.
--copies	Try to use copies rather than symlinks, even when symlinks are the default for the platform.

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virtual environments (cont)

--clear	Delete the contents of the environment directory if it already exists, before enviro-nment creation.
--upgrade	Upgrade the environment directory to use this version of Python, assuming Python has been upgraded in-place.
--without-pip	Skips installing or upgrading pip in the virtual environment (pip is bootstrapped by default)
--prompt PROMPT	Provides an alternative prompt prefix for this environment.
<source> <dir>/-bin/ac-tivate/	activate virtual env
pip install <some project>	install a project
pip install -r requir-eme-nts.txt	install required files

general

lists the contents of files to the terminal window	cat
give your own name to a command or sequence of commands	alias
information and files from Uniform Resource Locators (URLs) or internet addresses	curl
shows the size, used space, and available space on the mounted filesystems of your computer	df

general (cont)

compares two text files and shows the differences between them	diff
close a terminal window	exit
gives you a short dump of information about a user, including the time of the user's last login, the user's home directory, and the user account's full name	finger
summary of the memory usage with your computer.	free
tells you which groups a user is a member of	groups
compresses files	gzip
gives you a listing of the first 10 lines of a file	head
terminate a process from the command line	kill
view files without opening an editor	less
verify that you have network connectivity with another network device	ping
lists running processes	ps
shut down or reboot your Linux system	shutdown
listing of the last 10 lines of a file	tail
create an archive file	tar
real-time display of the data relating to your Linux machine.	top
obtain some system inform-ation regarding the Linux computer you're working on	uname

general (cont)

lists the currently logged in users.	w
find out who you are logged in as or who is logged into an unmanned Linux terminal.	whoami

Installing and setting up samba

check samba is not running	ps ax | egrep "samba|-smbd|nmbd|winbindd
delete any samba files that are already on the system	smbd -b | grep "CONFIG-FILE" and smbd -b | egrep "LOCKDIR|STATEDIR|C-ACHEDIR|PRIVATE_DIR"; delete any files that these commands find
provision Samba AD. We'll want to do it intera-ctively so our password can't be seen	samba-tool domain provision --use-rfc2307 --interactive
for the requests:	Realm: SAP.CSLAB.MO-RAVIAN.EDU Domain: SAP Server Role: dc DNS backend: SAMBA_INT-ERNAL
Set your hostname to our domain:	hostname sap.cslab.mo-ravian.edu hostname -b sap.cslab.moravian.edu
Now enable samba and make it sure it will run at boot:	sudo systemctl start samba sudo systemctl enable samba

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Add users

add user	sudo useradd <username>
add user password	sudo smbpasswd -a <username>
Add Admin	sudo useradd -g wheel <lastnamefirstletter>

Permissions and Owners

ls -l	view permissions of files and directories
./<filename>	execute file
chmod +x <filename>	
ls -l	added permission to execute file
chown bin	changes ownership of file(can only be used by root)
chgrp bin	changes group
chmod -x <filename>	removed permission to execute file
chmod u+x <filename>	assign execute permission to yourself only
chmod ug+rwx <filename>	assign read, write, execute permission to user and group
etc /shadow	can only be run by root
chmod -R	recursive
history	show all command history
adduser	adds user

Network Diagnostic Tools

ping <webaddress> or <IP>	tracks the time the round trip took to server
ping -s <number>	try a packet of <number>
/path/to/traceroot <webaddress>	shows whether it can reach a host, but also the route it takes

Network Diagnostic Tools (cont)

dig	queries DNS servers and returns the information held about a particular domain.

ports an firewalls

firewall-cmd --permanent --add-port=<port#>/tcp	add port
firewall-cmd --reload	reboot port
firewall-cmd --list-ports	list ports
firewall-cmd --permanent --add-service=http	use predefined service instead of port #
sudo tcpdump -a -c 1000	looks for the past 1000 connections within server
ifconfig	show local ip

Cups printer

set up cups	lpadmin -p laserjet -L "-Printer" -v usb://HP/LaserJet%202200?serial=0-0USBGJ02797
list the available backends and printers	lpinfo -v
The Bonjour (DNS-SD) protocol.	dnssd
The Internet Printing Protocol (IPP) with optional encryption.	ipp
The Internet Printing Protocol with mandatory encryption.	ipps

Cups printer (cont)

The Line Printer Daemon protocol	lpd:
The AppSocket (JetDirect) protocol.	socket
Set printer	lpadmin -p printername -v device-uri
aborts jobs. on printer	abort-job
Enables/disables per-printer sharing	-o printer-is-shared=true/false
Enables sharing of printers with other computers and mobile devices on your local network.	--share-printers
Expands printer sharing to any network that can reach your server.	--remote-any
create, modify, or delete a class	lpadmin -p printername -c classname
printer is removed from the class	lpadmin -p printername -r classname
deletes the named class	lpadmin -x classname
enable debug logging	cupsctl --debug-logging
disable debug logging	cupsctl --no-debug-logging
creates a destination for a printer at IP address 11.22.33.44	lpadmin -p printername -E -v ipp://11.22.33.44/ipp/print -m everywhere

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Cups printer (cont)

creates a destination for a HP LaserJet printer at IP address 11.22.33.44	lpadmin -p printername -E -v socket://11.22.33.44 -m drv:///sample.drv/laserjet.ppd

SSH

$ ssh -l <account name> <remote system>	log in
$ ssh <account name>@<remote system>	log in
$ ssh <remote system>	log in if on same local and remote system
$ ssh -l <account name> <remote system> rm <absolute path name>	run a single command
$ scp <file name> <account name>@<remote server>:	copy files from local to remote
$ scp <account name>@<remote system>:<file name> .	copy files from remote to local
$ scp -r <account name>@<remote system>t:<directory> .	copy directory

Set up SMB

go to file	sudo nano /etc/samba/smb.conf
input values	[homes] comment = Home Directories browsable = no writeable = yes valid users = sap.cslab.moravian.edu\%S [printers] comment = All Printers path = /var/spool/samba browsable = no guest ok = no writeable = no printable = yes

Set up SMB (cont)

run	sudo setsebool -P samba_enable_home_dirs on

Set up DHCP

Setting up Static IP on Server (For DHCP)	ip addr add 192.168.114.1 dev br0;
Setting up Bridging	sudo dnf install bridge-utils sudo brctl addbr br0 sudo brctl addif enp1s0 sudo brctl addif eno1 sudo ifconfig br0 up
DHCP Config	subnet 192.168.114.0 netmask 255.255.255.0 { range 192.168.114.1 192.168.114.255; option subnet-mask 255.255.255.0; option routers 192.168.114.1; option broadcast-address 192.168.114.255; default-lease-time 600; max-lease-time 7200; host interface0 { hardware ethernet 54:04:a6:3f:85:35; fixed-address 192.168.114.1; } }
DHCP Config pt.2	/etc/sysconfig/network-scripts/if-cfg-eno1:

Set up DHCP (cont)

DHCP Config pt.3	DEVICE=eno1 BOOTPROTO:dhcp TYPE: ethernet ipaddr=192.168.114.1 ONBOOT=yes