HANDS UP IF YOU DON'T HAVE A VM
OR IF YOU DON'T REMEMBER YOUR PASSWORDS

Or something broke

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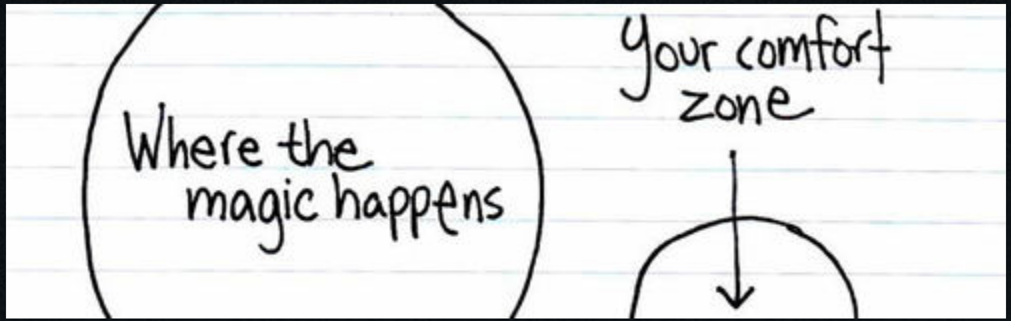
Securing your VM 101

Getting Comfy in Linux -> Comfort ++



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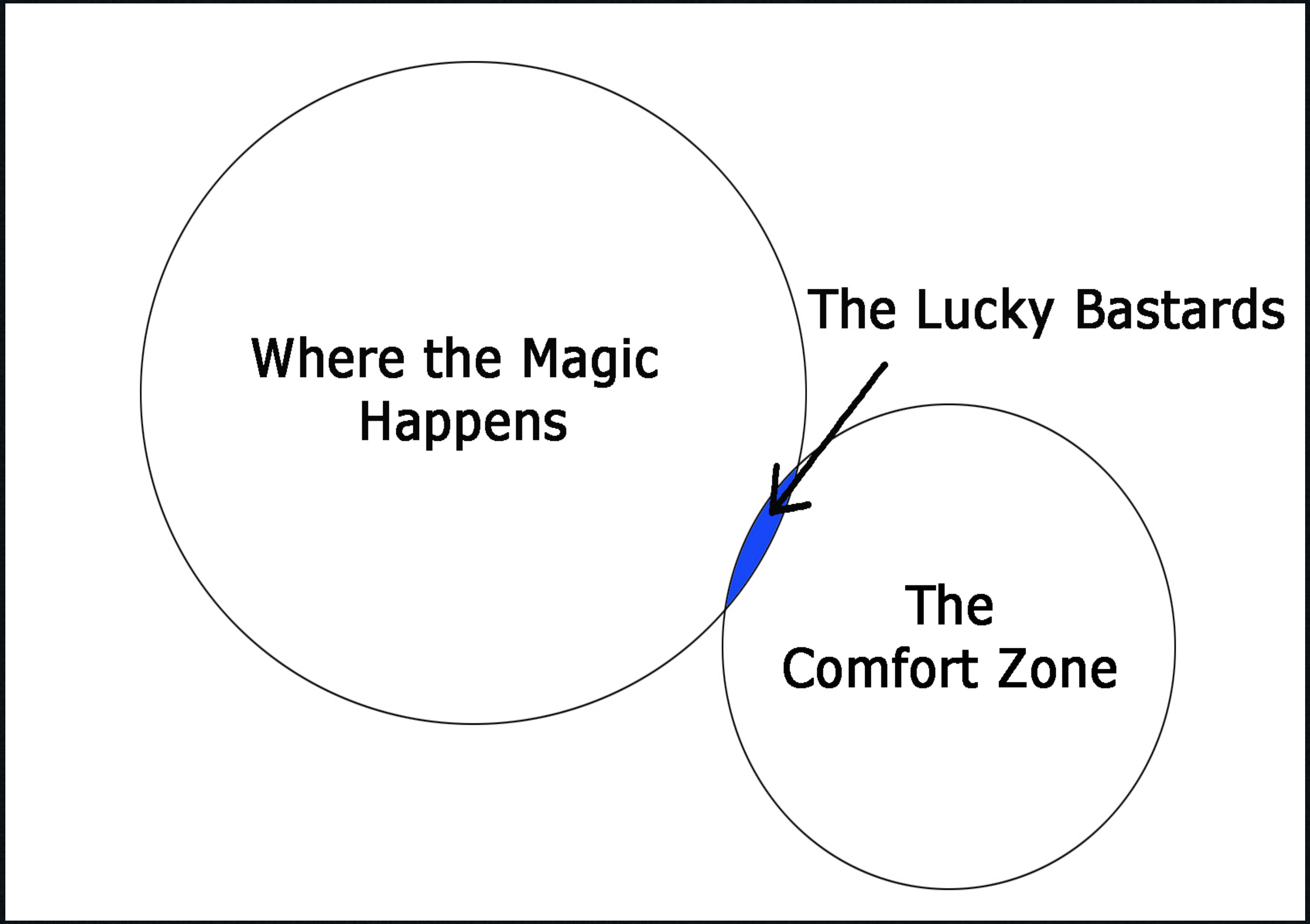
You After This Talk



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Quick recap from last week.

- Setup our first VM on Redbrick.
- Almost broke daniel
- Installed Ubuntu Server.
- Broke the Network.
- So now that we have a kinda working machine lets get to work

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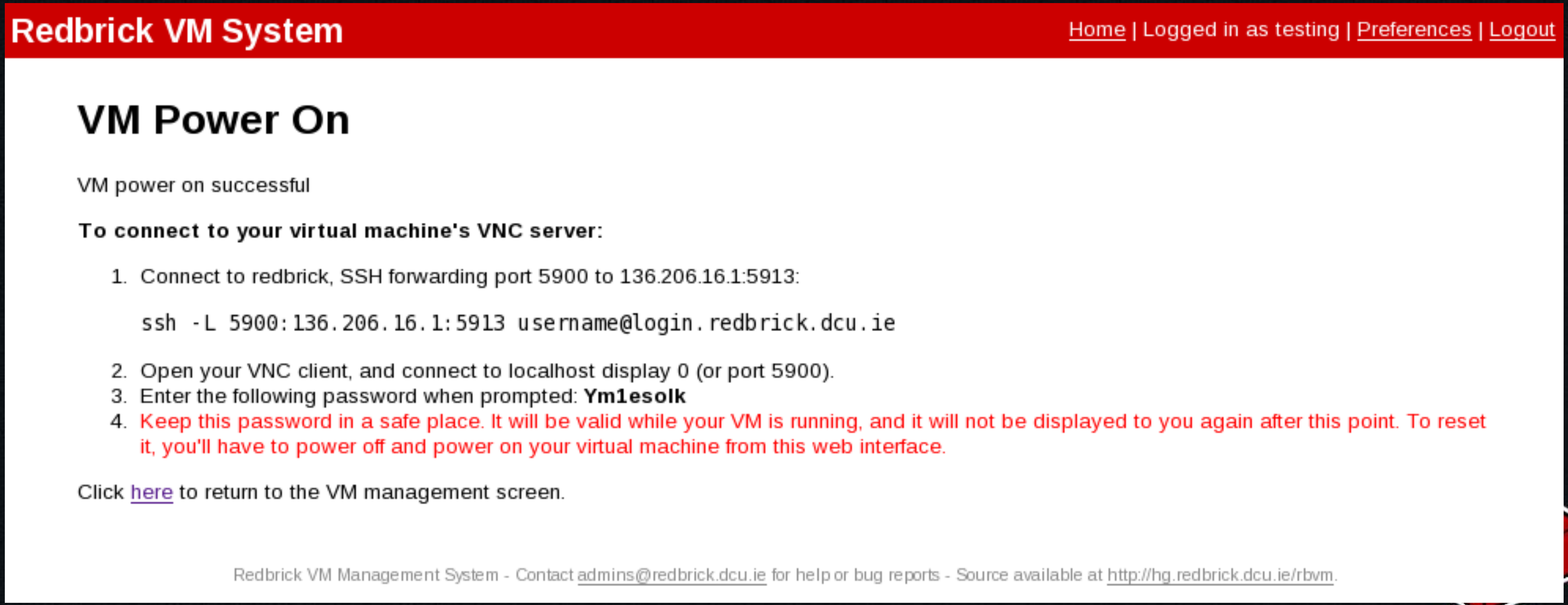
Access Over VNC

- Open a terminal
- Use the ssh command.
- Now on your local pc,
- Open VNC client and connect to loacalhost port 5900



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First Things First….

- run “tail .bashrc” you should see the below output

```
zergless@skynet:~$ tail .bashrc

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if [ -f /etc/bash_completion ] && ! shopt -oq posix; then
    . /etc/bash_completion
fi
export http_proxy="http://proxy.vmsrv.redbrick.dcu.ie:3128";
export https_proxy="http://proxy.vmsrv.redbrick.dcu.ie:3128";
export ftp_proxy="http://proxy.vmsrv.redbrick.dcu.ie:3128";
zergless@skynet:~$
```

- next as root cat /etc/apt/apt.conf.d/proxy

```
root@skynet:~# cat /etc/apt/apt.conf.d/proxy
Acquire::http::Proxy "http://proxy.vmsrv.redbrick.dcu.ie:3128";
```

- Assuming all is correct lets move on

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First Things First….

- Lets fix the network. We need to change the Gateway and DNS name server
- before we can do anything we need to be root.
    - su up: type “su”
    - enter your password (if you remember it)
- “nano /etc/network/interfaces”
- change : gateway to “136.206.16.254”
- change : dns-nameservers to “136.206.16.254”
- save the file
- now run “/etc/init.d/networking restart”

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Now that the network works...

- Login into your redbrick account and ssh to your vm using the login details you created.
- “ssh $your_username@$your_vm_IP”

- Because of your firewalls you can only ssh to your vm from redbrick.
- Now that we have access over ssh
- Lets update the package lists to the newest versions

- run “apt-get update”

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Su > Sudo:

- **Sudo** : allows any user in the sudoers file to run commands as root provided they have the sudoers passwd.
  - elevates your permissions in your current shell, (kind of blurs the lines between the “user” and “root”)

- **Su:** Allows users to login as root. They have full control of the operating system. Maintains root until the user logs out of root. (Or they timeout)

Intruder Alert: Fending off the bot-nets

- First we need a new root password.
  - to change your password type “passwd” Don't forget this password

- Now that we have a secure root password lets disable root ssh and users ability to sudo(including you).

1) First we need to find the config files
2) Next we need to edit the config file to disable root
3) Then we need to find the sudoers file.

Anyone any ideas?

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Intruder Alert: Fending off the bot-nets

- So the first file we need is the sshd_config which is found in /etc/ssh.
- Once we have found the file we need to change “PermitRootLogin yes” to “PermitRootLogin no”
- The next file we need is /etc/sudoers
- By Default /etc/sudoers is read only and can only be edited by using the command “visudo”
- we want to comment out the line that says

  “%sudo ALL=(ALL:ALL) ALL”

- To comment out the line put a # infront of it and save the file

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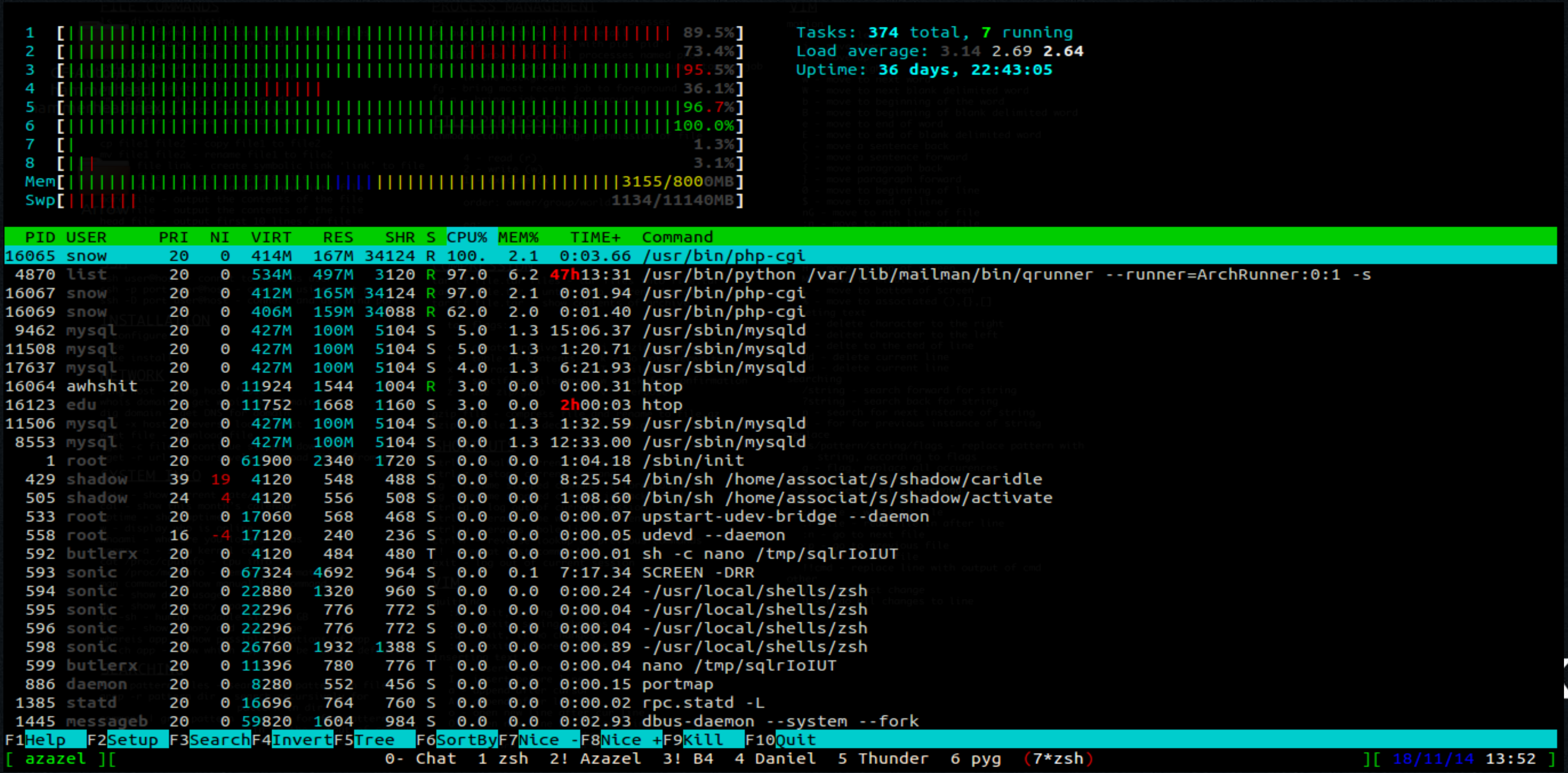
HTOP > TOP :

```
top - 13:52:27 up 36 days, 22:42, 21 users,  load average: 3.22, 2.67, 2.63
Tasks: 437 total,   5 running, 424 sleeping,   7 stopped,   1 zombie
Cpu(s): 38.2%us,  0.7%sy,  0.0%ni, 61.0%id,  0.0%wa,  0.0%hi,  0.1%si,  0.0%st
Mem:   8192616k total,  7430948k used,   761668k free,   393348k buffers
Swap: 11408376k total,  1161380k used, 10246996k free,  3999588k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
15920 snow      20   0  421m 174m  33m R  100  2.2   0:16.38 php-cgi
15954 snow      20   0  419m 172m  33m R  100  2.2   0:12.41 php-cgi
 4870 list      20   0  534m 497m 3120 R  100  6.2 2833:12 python
15978 snow      20   0  314m  67m  32m R   13  0.8   0:00.41 php-cgi
16123 edu       20   0 11752 1668 1160 S    3  0.0 120:03.36 htop
15976 awhshit   20   0 11388 1548  956 R    1  0.0   0:00.10 top
25927 fun       20   0 99.2m  35m 3128 S    1  0.4  45:13.40 irssi
 4876 list      20   0 64944  25m 2952 S    0  0.3   6:54.42 python
19827 awhshit   20   0 91592  876  752 S    0  0.0   0:01.54 sshd
    1 root      20   0 61900 2340 1720 S    0  0.0   1:04.18 init
    2 root      20   0     0    0    0 S    0  0.0   0:00.20 kthreadd
    3 root      RT   0     0    0    0 S    0  0.0   0:16.54 migration/0
    4 root      20   0     0    0    0 S    0  0.0   4:13.11 ksoftirqd/0
    5 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/0
    6 root      RT   0     0    0    0 S    0  0.0   0:32.95 migration/1
    7 root      20   0     0    0    0 S    0  0.0   2:52.44 ksoftirqd/1
    8 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/1
    9 root      RT   0     0    0    0 S    0  0.0   0:21.40 migration/2
   10 root      20   0     0    0    0 S    0  0.0   0:45.91 ksoftirqd/2
   11 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/2
   12 root      RT   0     0    0    0 S    0  0.0   0:06.63 migration/3
   13 root      20   0     0    0    0 S    0  0.0   0:26.25 ksoftirqd/3
   14 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/3
   15 root      RT   0     0    0    0 S    0  0.0   0:16.00 migration/4
   16 root      20   0     0    0    0 S    0  0.0   1:34.00 ksoftirqd/4
   17 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/4
   18 root      RT   0     0    0    0 S    0  0.0   1:01.77 migration/5
   19 root      20   0     0    0    0 S    0  0.0   1:23.34 ksoftirqd/5
   20 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/5
   21 root      RT   0     0    0    0 S    0  0.0   0:28.15 migration/6
   22 root      20   0     0    0    0 S    0  0.0   0:46.47 ksoftirqd/6
   23 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/6
   24 root      RT   0     0    0    0 S    0  0.0   0:08.58 migration/7
[ azazel ][          0- Chat  1 zsh  2! Azazel  3! B4  4 Daniel  5 Thunder  6 pyg  (7*zsh)          ][ 18/11/14 13:52 ]
```

This is HTOP


1 [89.5%]
2 [73.4%]
3 [95.5%]
4 [36.1%]
5 [96.7%]
6 [100.0%]
7 [1.3%]
8 [3.1%]
Mem[3155/8000MB]
Swp[1134/11140MB]
Tasks: 374 total, 7 running
Load average: 3.14 2.69 2.64
Uptime: 36 days, 22:43:05
PID USER PRI NI VIRT RES SHR S CPU% MEM% TIME+ Command
16065 snow 20 0 414M 167M 34124 R 100. 2.1 0:03.66 /usr/bin/php-cgi
4870 list 20 0 534M 497M 3120 R 97.0 6.2 47h13:31 /usr/bin/python /var/lib/mailman/bin/qrunner --runner=ArchRunner:0:1 -s
16067 snow 20 0 412M 165M 34124 R 97.0 2.1 0:01.94 /usr/bin/php-cgi
16069 snow 20 0 406M 159M 34088 R 62.0 2.0 0:01.40 /usr/bin/php-cgi
9462 mysql 20 0 427M 100M 5104 S 5.0 1.3 15:06.37 /usr/sbin/mysqld
11508 mysql 20 0 427M 100M 5104 S 5.0 1.3 1:20.71 /usr/sbin/mysqld
17637 mysql 20 0 427M 100M 5104 S 4.0 1.3 6:21.93 /usr/sbin/mysqld
16064 awhshit 20 0 11924 1544 1004 R 3.0 0.0 0:00.31 htop
16123 edu 20 0 11752 1668 1160 S 3.0 0.0 2h00:03 htop
11506 mysql 20 0 427M 100M 5104 S 0.0 1.3 1:32.59 /usr/sbin/mysqld
8553 mysql 20 0 427M 100M 5104 S 0.0 1.3 12:33.00 /usr/sbin/mysqld
1 root 20 0 61900 2340 1720 S 0.0 0.0 1:04.18 /sbin/init
429 shadow 39 19 4120 548 488 S 0.0 0.0 8:25.54 /bin/sh /home/associat/s/shadow/caridle
505 shadow 24 4 4120 556 508 S 0.0 0.0 1:08.60 /bin/sh /home/associat/s/shadow/activate
533 root 20 0 17060 568 468 S 0.0 0.0 0:00.07 upstart-udev-bridge --daemon
558 root 16 -4 17120 240 236 S 0.0 0.0 0:00.05 udevd --daemon
592 butlerx 20 0 4120 484 480 T 0.0 0.0 0:00.01 sh -c nano /tmp/sqlrIoIUT
593 sonic 20 0 67324 4692 964 S 0.0 0.1 7:17.34 SCREEN -DRR
594 sonic 20 0 22880 1320 960 S 0.0 0.0 0:00.24 -/usr/local/shells/zsh
595 sonic 20 0 22296 776 772 S 0.0 0.0 0:00.04 -/usr/local/shells/zsh
596 sonic 20 0 22296 776 772 S 0.0 0.0 0:00.04 -/usr/local/shells/zsh
598 sonic 20 0 26760 1932 1388 S 0.0 0.0 0:00.89 -/usr/local/shells/zsh
599 butlerx 20 0 11396 780 776 T 0.0 0.0 0:00.04 nano /tmp/sqlrIoIUT
886 daemon 20 0 8280 552 456 S 0.0 0.0 0:00.15 portmap
1385 statd 20 0 16696 764 760 S 0.0 0.0 0:00.02 rpc.statd -L
1445 messageb 20 0 59820 1604 984 S 0.0 0.0 0:02.93 dbus-daemon --system --fork
F1Help F2Setup F3Search F4Invert F5Tree F6SortBy F7Nice - F8Nice + F9Kill F10Quit
[azazel][0- Chat 1 zsh 2! Azazel 3! B4 4 Daniel 5 Thunder 6 pyg (7*zsh)][18/11/14 13:52]

Let’s install HTOP:

Run: “apt-get install htop”

Some useful htop flags

-u : allows you to view the output for a particular user. - “htop -u $username”

-d : allows you to delay the time between updates (10ths of seconds) “htop -d 15”

Old friends GREP and | (PIPE)

Grep: Allows you to search for patterns in a commands output.

| : Allows you to string commands together.

“cat /etc/interfaces/networking” - long output

“cat /etc/interfaces/networking | grep gateway“ - only the output we want

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But what if I’m lazy? …..ALIASES

Aliases allow you you to be very very lazy.

- You can write synonyms for commands.
- “SshBrick” instead “ssh $username@login.redbrick.dcu.ie:”

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Lets write some aliases

I want to get back to my home directory quickly

home - “cd /home/username”

type > alias home=’cd /home/username’

I’m wondering what processes I am running at the moment.

whatdo - “ps aux | grep $username”

type > alias whatdo=’ps aux | grep kylar’

I want to ssh to redbrick from my VM

sshbrick “ssh $username@login.redbrick.dcu.ie”

type > alias sshbrick=’ssh $username@login.redbrick.dcu.ie’

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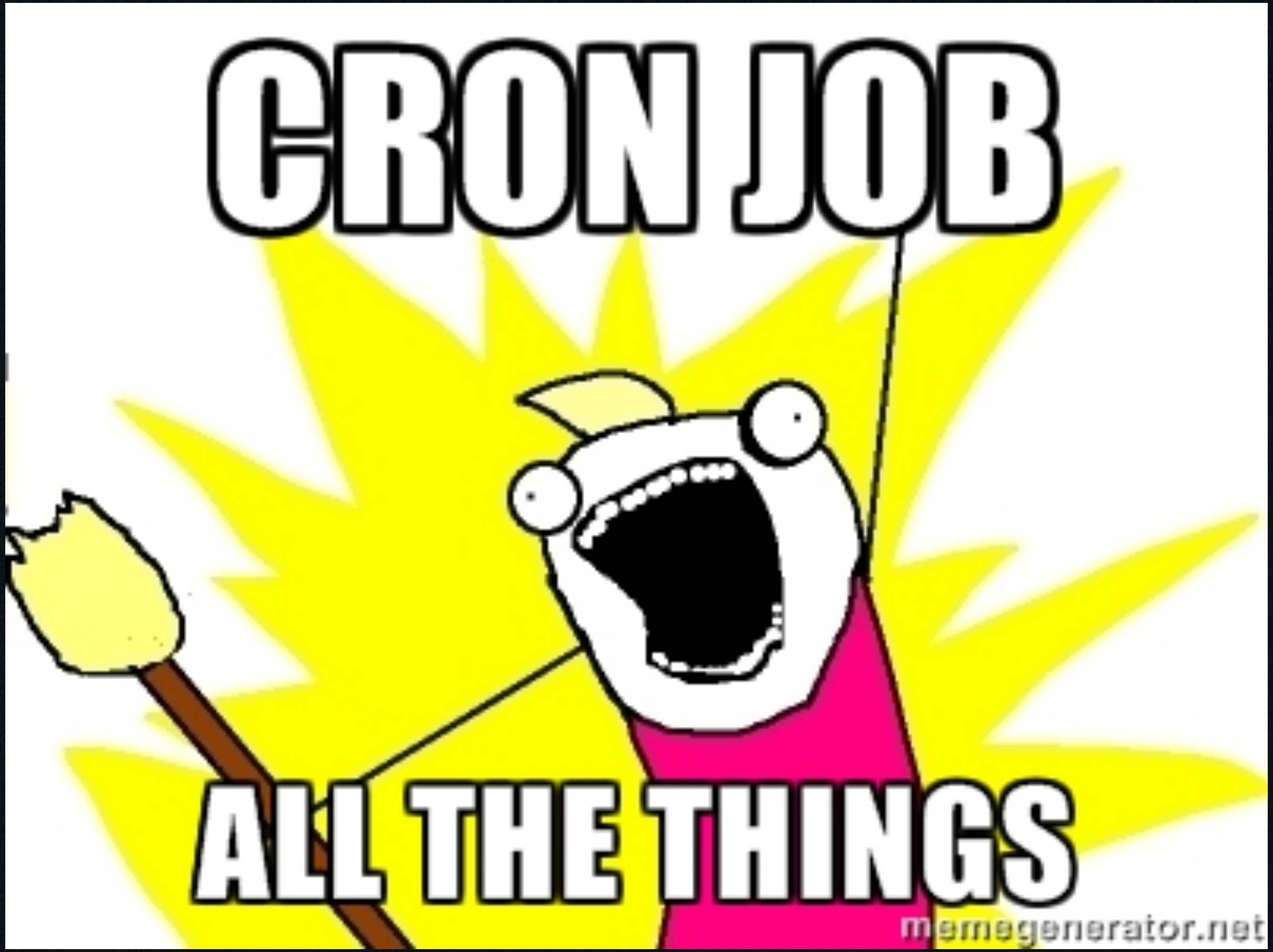
Cron



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Cron

- The cron daemon allows you to run commands/scripts at regular intervals.
  - On certain days, hours, months, weeks.

- So what would I use it for?
  - Running backups
  - Copying files to remote servers
  - Sending automated emails

- Run “crontab -e”

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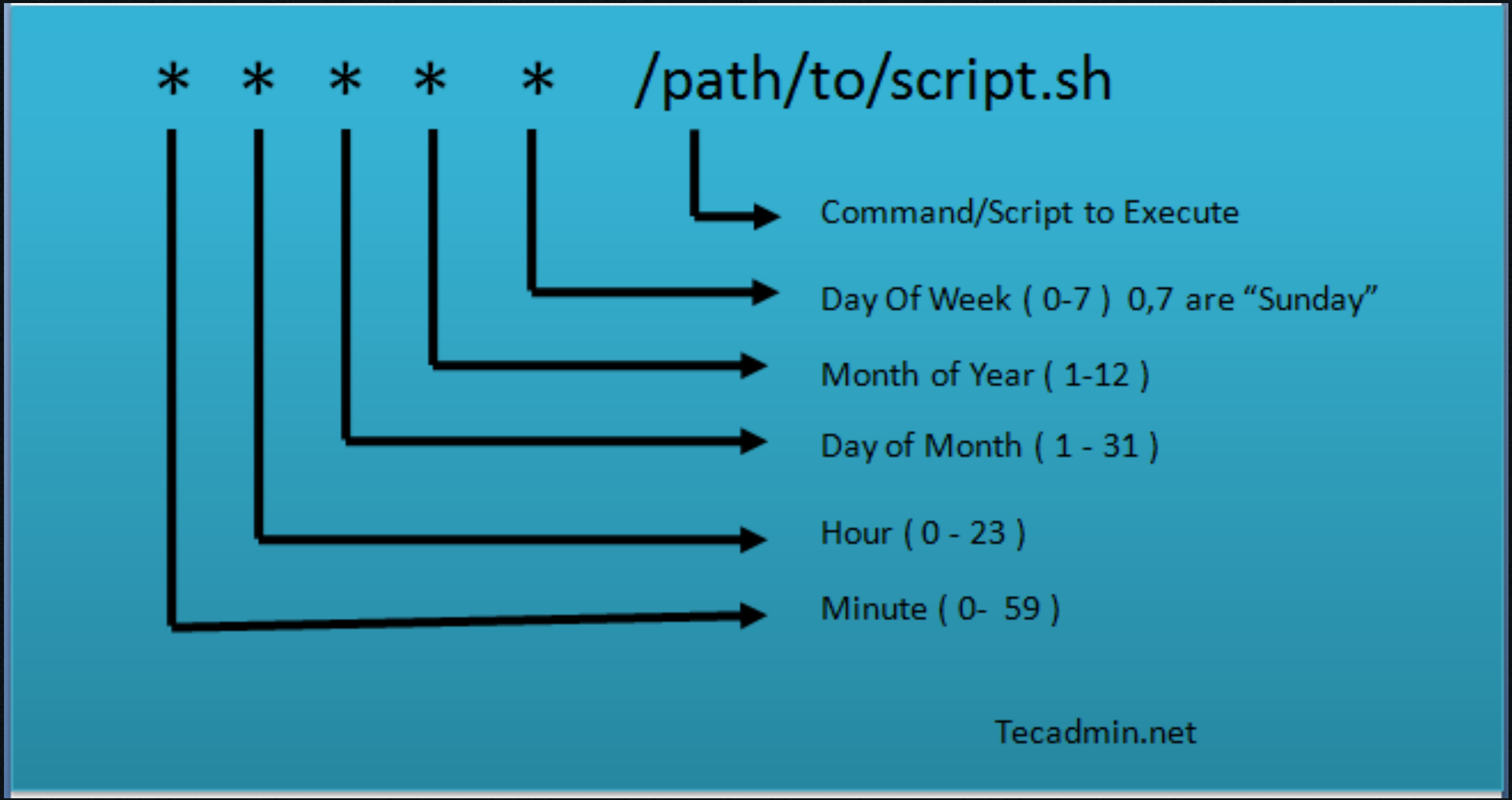
Cron Syntax



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Writing your first cron job.

- We’re going to backup our home directories every day.
- Type crontab -e

- Read the instructions,
- You cron line should look like
  - 0 0 * * 0 tar -zcf /var/backups/home.tgz /home/
  - This will back-up all user accounts ay 12am every sunday morning

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KEEP CALM AND ASK ME QUESTIONS

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Tell us what you want?

- Go through sections of the admin exam?
  - Security
  - Filesystems
  - Networking
  - Hardware
  - Practical/Scripting
- Do more things with vms?
  -
- Something completely different?
- More in depth command like talk?

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