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Linux Administration

10/21/2021

CentOS 64-Bit Software Installs

The first program we’re going to install is Tmux, and it has a few different uses, like how it’s a multiplexer for the terminal which essentially means that it allows you to use multiple different terminals in one session at once. Also, it can be used to allow many different computers to all connect to one specific “host” at once. Alright, to download Tmux you enter the command “sudo dnf install tmux” into the terminal as shown in the picture below and then type “y” and then press enter.

Text

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Alright, now the program should be installed, and you can test it out with the command “tmux” and your screen should look like the picture below, and to close this extra terminal press Ctrl + B then press x and then press y to confirm to kill the window.

Shape

Description automatically generated

Now let’s install the next program called emacs, and this is a text editor that is used for Linux machines and has been out for quite some time. Alright, to install emacs use the command “sudo dnf install emacs” and press “y” and then enter to confirm the download as shown in the picture below.

Text

Description automatically generated with medium confidence

After emacs has installed you can use the command emacs -nw to open it up, and to exit that window press ctrl + c + x at the same time.

Now up next, we are going to update the virtual machine with the command “sudo dnf update” to make sure the next part works fine. So, after you enter “sudo dnf update” then it will ask you if you want to download everything press “y” then press enter, and after a few minutes it will download everything,

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Now we are going to install Fail2Ban which acts as another line of defense for your computer, like if someone is trying to brute force your password and it makes a bunch of failed attempts in a short time, their IP will get banned to prevent them from trying anymore. Alright to install it we use the command “sudo dnf install epel-release” (1st picture) to first get the epel repository which contains the fail2ban package. After that press “y” and then enter to confirm the download, and then it should finish in a few seconds (2nd picture). Alright now we need to use the command “sudo dnf install fail2ban” (3rd picture) to install fail2ban and then confirm it by entering “y” when it asks.

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Graphical user interface, text

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Text

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Now that fail2ban is installed lets configure the properties for it, first we will use the command “sudo vi -nw /etc/fail2ban/jail.local” to make a new file called jail.local which will act as our properties file because the default file jail.conf gets reset every time you update fail2ban.

Now the settings you will put in are some default settings I got from the tecmint website I listed in my sources below (the fourth source) expect I took out one of them, refer to the first picture below. The first part [DEFAULT] is used for the global options, and the next part bantime is how long the user will be banned in seconds, so 21600 would be 6 hours. The next command is findtime and it is used to count the amount of login attempts in that certain period of time (300 seconds) and if they exceed the limit the user will then be banned. The next command “maxretry = 3” ties in with the find time command because this only allows users 3 failed login attempts before being banned. After that we put in the command banaction = iptables-multiport and this is how the bans are done. Now we have the last part of default which is backend = system and this is the used to see what log files have been modified. Lastly, we have “[sshd] enabled = true” which enables sshd jail and then after you enter in all of the commands to match the first picture below save the file.

Text

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Alright now we have to start fail2ban with the command “systemct1 start fail2ban” then you need to enter your password to confirm, then enter the next command “systemctl enable fail2ban” which also requires your password to confirm, and then fail2ban should be enabled so we can check this with “systemctl status fail2ban” and your screen should be similar to the third picture below. After that you can monitor the failed/banned IP’s with “sudo fail2ban-client status” or “sudo fail2ban-client status sshd”.

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A picture containing graphical user interface

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Alright up next, we are going to install two more programs called cowsay and lolcat which are used to get a cow to say whatever you want it to or lolcat which turns all of your output text into a rainbow. First let’s install cowsay with the command “sudo dnf install cowsay” and then confirm the download by entering “y”. To test out cowsay try the command “cowsay (insert text here)” refer to the fourth picture below.Graphical user interface, text

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Now we are going to install lolcat but first we need to install ruby to be able to run/install it, so first use the command “sudo dnf install ruby” and then confirm it with “y”. After it finishes installing we can install lolcat from the github repository with the command “wget <https://github.com/busyloop/lolcat/archive/master.zip>” then “unzip master.zip”, “cd lolcat-master/bin” which moves the file and finally install it using “gem install lolcat” and to test out lolcat use the command “dnf repolist --all | lolcat ” (refer to the last picture)

Graphical user interface, text

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Text

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Graphical user interface, text

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Lastly, we shall be installing vim, and this is a text editor that is an upgraded version of VI. To install vim use the command “sudo dnf install vim” Sometimes vim can come preinstalled like how it was on my VM, but that’s all you need to do to install it.

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Also, the only things I have installed on my CentOS virtual machine are the files I installed right now (Tmux, Emcas, Fail2Ban, cowsay, lolcat, and vim but this was already installed)

Sources:

[How to Use tmux on Linux (and Why It’s Better Than Screen) (howtogeek.com)](https://www.howtogeek.com/671422/how-to-use-tmux-on-linux-and-why-its-better-than-screen/)

This site told me all about the tmux command, like how to install and use it and it was pretty straight forward in doing so.

[How To Install Software In Linux : An Introduction - Linux.com](https://www.linux.com/training-tutorials/how-install-software-linux-introduction/)

This website that you provided was pretty useful in helping me remember all of the install commands I needed to use.

[How do I download the command-line emacs instead of the GUI one? - Ask Ubuntu](https://askubuntu.com/questions/23645/how-do-i-download-the-command-line-emacs-instead-of-the-gui-one)

So the second top rated comment in this post helped me figure out how to use emacs in the terminal which was the command “emacs -nw”.

[How to Install Fail2Ban to Protect SSH on CentOS/RHEL 8 (tecmint.com)](https://www.tecmint.com/install-fail2ban-to-protect-ssh-on-centos-rhel/)

This website really helped me and walked me through the steps of installing and using fail2ban.

[How to update CentOS - Linux Tutorials - Learn Linux Configuration](https://linuxconfig.org/how-to-update-centos)

This website helped me go through the whole updating process, I mostly read this to make sure I didn’t mess anything up.

[Lolcat - A Command Line Tool to Output Rainbow Of Colors in Linux Terminal (tecmint.com)](https://www.tecmint.com/lolcat-command-to-output-rainbow-of-colors-in-linux-terminal/)

This website helped me a lot in installing lolcat by walking me through the installation process.