# Continued Setup (Installations)

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## Repository Overview 👀

A Linux repository is a storage location from which your system retrieves and installs OS updates and applications. Each repository is a collection of software hosted on a remote server and intended to be used for installing and updating software packages on Linux systems

## Objectives 🎯

This tutorial will teach you how view the Linux default repositories as well as install new ones.

## Table of Contents ⚓

## Updating CentOS✔️

It is always a good idea to check for updates before installing repos.

> ⓘ   sudo yum update

- This command will update installed software

```
[dave@localhost ~]$ sudo yum update
[sudo] password for dave:
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: mirror.umd.edu
 * extras: mirror.centos.iad1.serverforge.org
 * updates: mirrors.greenmountainaccess.net
base                                                        | 3.6 kB  00:00:00
extras                                                      | 2.9 kB  00:00:00
updates                                                     | 2.9 kB  00:00:00
No packages marked for update
[dave@localhost ~]$ _
```

## Updating Ubuntu✔️

It is always a good idea to check for updates before installing repos.

> ℹ️  sudo apt-get update

- This command will update installed software

```
dave@acme:~$ sudo apt-get upgade
E: Invalid operation upgade
dave@acme:~$ sudo apt-get update
Hit:1 http://us.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://us.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:5 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [1,750 kB]
Get:6 http://us.archive.ubuntu.com/ubuntu focal-updates/main Translation-en [325 kB]
Get:7 http://us.archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [15.0 kB]
Get:8 http://us.archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [947 kB]
Get:9 http://us.archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [135 kB]
Get:10 http://us.archive.ubuntu.com/ubuntu focal-updates/restricted amd64 c-n-f Metadata [528 B]
Get:11 http://us.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [920 kB]
Get:12 http://us.archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [206 kB]
Get:13 http://us.archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [20.6 kB]
Get:14 http://us.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [24.4 kB]
Get:15 http://us.archive.ubuntu.com/ubuntu focal-updates/multiverse Translation-en [7,336 B]
Get:16 http://us.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 c-n-f Metadata [592 B]
Get:17 http://us.archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [42.2 kB]
Get:18 http://us.archive.ubuntu.com/ubuntu focal-backports/main Translation-en [10.1 kB]
Get:19 http://us.archive.ubuntu.com/ubuntu focal-backports/main amd64 c-n-f Metadata [864 B]
Get:20 http://us.archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [22.7 kB]
Get:21 http://us.archive.ubuntu.com/ubuntu focal-backports/universe Translation-en [15.5 kB]
Get:22 http://us.archive.ubuntu.com/ubuntu focal-backports/universe amd64 c-n-f Metadata [804 B]
Get:23 http://us.archive.ubuntu.com/ubuntu focal-security/main amd64 Packages [1,422 kB]
Get:24 http://us.archive.ubuntu.com/ubuntu focal-security/main Translation-en [246 kB]
Get:25 http://us.archive.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata [10.1 kB]
Get:26 http://us.archive.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [886 kB]
Get:27 http://us.archive.ubuntu.com/ubuntu focal-security/restricted Translation-en [126 kB]
Get:28 http://us.archive.ubuntu.com/ubuntu focal-security/restricted amd64 c-n-f Metadata [532 B]
Get:29 http://us.archive.ubuntu.com/ubuntu focal-security/universe amd64 Packages [700 kB]
Get:30 http://us.archive.ubuntu.com/ubuntu focal-security/universe Translation-en [124 kB]
Get:31 http://us.archive.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metadata [14.4 kB]
Fetched 8,309 kB in 2s (3,364 kB/s)
Reading package lists... Done
dave@acme:~$
```

## Repository Locations CentOS✔️

> ⓘ  yum repolist all

- This command will list all repositories.



## Repository Locations Ubuntu✔️

> ⓘ  sudo apt-cache policy | less

- This command will list all repositories.



Example of command line                    Example of command line code

## CentOS Repo Installations✔️

**Tmux**

tmux is an open-source terminal multiplexer for Unix-like operating systems. It allows multiple terminal sessions to be accessed simultaneously in a single window. It is useful for running more than one command-line program at the same time. It can also be used to detach processes from their controlling terminals, allowing remote sessions to remain active without being visible.

> ⓘ  sudo yum install tmux

- This command will install Tmux.

```
* base: mirrors.mit.edu
* extras: mirror.centos.iad1.serverforge.org
* updates: mirrors.greenmountainaccess.net
Resolving Dependencies
--> Running transaction check
---> Package tmux.x86_64 0:1.8-4.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package           Arch              Version           Repository        Size
================================================================================
Installing:
 tmux              x86_64            1.8-4.el7         base              243 k

Transaction Summary
================================================================================
Install  1 Package

Total download size: 243 k
Installed size: 558 k
Is this ok [y/d/N]: y
Downloading packages:
tmux-1.8-4.el7.x86_64.rpm                               | 243 kB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : tmux-1.8-4.el7.x86_64                                     1/1
  Verifying  : tmux-1.8-4.el7.x86_64                                     1/1

Installed:
  tmux.x86_64 0:1.8-4.el7

Complete!
[dave@localhost ~]$ _
```

**emacs**

Emacs is a text editor designed for POSIX operating systems and available on Linux, BSD, macOS, Windows, and more. Users love Emacs because it features efficient commands for common but complex actions and for the plugins and configuration hacks that have developed around it for nearly 40 years.

> ⓘ  sudo yum install emacs

- This command will install emacs.

```
   Verifying  : ImageMagick-6.9.10.68-6.el7_9.x86_64                                32/40
   Verifying  : jasper-libs-1.900.1-33.el7.x86_64                                   33/40
   Verifying  : libsoup-2.62.2-2.el7.x86_64                                         34/40
   Verifying  : 1:emacs-common-24.3-23.el7.x86_64                                   35/40
   Verifying  : librsvg2-2.40.20-1.el7.x86_64                                       36/40
   Verifying  : glib-networking-2.56.1-1.el7.x86_64                                 37/40
   Verifying  : OpenEXR-libs-1.7.1-8.el7.x86_64                                     38/40
   Verifying  : atk-2.28.1-2.el7.x86_64                                             39/40
   Verifying  : psmisc-22.20-17.el7.x86_64                                          40/40

 Installed:
   emacs.x86_64 1:24.3-23.el7

 Dependency Installed:
   GConf2.x86_64 0:3.2.6-8.el7                      ImageMagick.x86_64 0:6.9.10.68-6.el7_9
   OpenEXR-libs.x86_64 0:1.7.1-8.el7               adwaita-cursor-theme.noarch 0:3.28.0-1.el7
   adwaita-icon-theme.noarch 0:3.28.0-1.el7        at-spi2-atk.x86_64 0:2.26.2-1.el7
   at-spi2-core.x86_64 0:2.28.0-1.el7              atk.x86_64 0:2.28.1-2.el7
   cairo-gobject.x86_64 0:1.15.12-4.el7            dconf.x86_64 0:0.28.0-4.el7
   dejavu-sans-mono-fonts.noarch 0:2.33-6.el7      emacs-common.x86_64 1:24.3-23.el7
   gdk-pixbuf2.x86_64 0:2.36.12-3.el7              giflib.x86_64 0:4.1.6-9.el7
   glib-networking.x86_64 0:2.56.1-1.el7           gsettings-desktop-schemas.x86_64 0:3.28.0-3.el7
   gtk-update-icon-cache.x86_64 0:3.22.30-8.el7_9  gtk3.x86_64 0:3.22.30-8.el7_9
   hicolor-icon-theme.noarch 0:0.12-7.el7          ilmbase.x86_64 0:1.0.3-7.el7
   jasper-libs.x86_64 0:1.900.1-33.el7             json-glib.x86_64 0:1.4.2-2.el7
   libXaw.x86_64 0:1.0.13-4.el7                     libXcomposite.x86_64 0:0.4.4-4.1.el7
   libXtst.x86_64 0:1.2.3-1.el7                     libepoxy.x86_64 0:1.5.2-1.el7
   liblockfile.x86_64 0:1.08-17.el7                libotf.x86_64 0:0.9.13-4.el7
   librsvg2.x86_64 0:2.40.20-1.el7                 libsoup.x86_64 0:2.62.2-2.el7
   libwayland-cursor.x86_64 0:1.15.0-1.el7         libwayland-egl.x86_64 0:1.15.0-1.el7
   libwmf-lite.x86_64 0:0.2.8.4-44.el7             libxkbcommon.x86_64 0:0.7.1-3.el7
   m17n-db.noarch 0:1.6.4-4.el7                     m17n-lib.x86_64 0:1.6.4-14.el7
   psmisc.x86_64 0:22.20-17.el7                     rest.x86_64 0:0.8.1-2.el7
   xkeyboard-config.noarch 0:2.24-1.el7

 Complete!
 [dave@localhost ~]$
```

Fail2Ban

Fail2ban scans log files (e.g. /var/log/apache/error_log) and bans IPs that show the malicious signs -- too many password failures, seeking for exploits, etc. Generally Fail2Ban is then used to update firewall rules to reject the IP addresses for a specified amount of time, although any arbitrary other action (e.g. sending an email) could also be configured. Out of the box Fail2Ban comes with filters for various services (apache, courier, ssh, etc).

Fail2Ban is able to reduce the rate of incorrect authentications attempts however it cannot eliminate the risk that weak authentication presents. Configure services to use only two factor or public/private authentication mechanisms if you really want to protect services.

> (i)  sudo yum install epel-release

- This command will install Extra Packages for Enterprise Linux. Required to install Fail2Ban.

```
 * base: mirrors.mit.edu
 * extras: mirror.wdc1.us.leaseweb.net
 * updates: mirrors.greenmountainaccess.net
Resolving Dependencies
--> Running transaction check
---> Package epel-release.noarch 0:7-11 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package              Arch           Version        Repository          Size
================================================================================
Installing:
 epel-release         noarch         7-11           extras              15 k

Transaction Summary
================================================================================
Install  1 Package

Total download size: 15 k
Installed size: 24 k
Is this ok [y/d/N]: y
Downloading packages:
epel-release-7-11.noarch.rpm                              |  15 kB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : epel-release-7-11.noarch                                    1/1
  Verifying  : epel-release-7-11.noarch                                    1/1

Installed:
  epel-release.noarch 0:7-11

Complete!
[dave@localhost ~]$
```

> ⓘ   sudo yum install fail2ban fail2ban-systemd

- This command will install Fail2Ban.

```
(2/5): fail2ban-firewalld-0.11.2-3.el7.noarch.rpm                        |  16 kB   00:00:00
(3/5): fail2ban-sendmail-0.11.2-3.el7.noarch.rpm                         |  19 kB   00:00:00
(4/5): fail2ban-server-0.11.2-3.el7.noarch.rpm                           | 464 kB   00:00:00
(5/5): fail2ban-systemd-0.11.2-3.el7.noarch.rpm                          |  16 kB   00:00:00
-----------------------------------------------------------------------------------------------
Total                                                       1.0 MB/s | 530 kB   00:00:00
Retrieving key from file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
Importing GPG key 0x352C64E5:
 Userid     : "Fedora EPEL (7) <epel@fedoraproject.org>"
 Fingerprint: 91e9 7d7c 4a5e 96f1 7f3e 888f 6a2f aea2 352c 64e5
 Package    : epel-release-7-11.noarch (@extras)
 From       : /etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7
Is this ok [y/N]: y
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : fail2ban-server-0.11.2-3.el7.noarch                                     1/5
  Installing : fail2ban-firewalld-0.11.2-3.el7.noarch                                  2/5
  Installing : fail2ban-sendmail-0.11.2-3.el7.noarch                                   3/5
  Installing : fail2ban-0.11.2-3.el7.noarch                                            4/5
  Installing : fail2ban-systemd-0.11.2-3.el7.noarch                                    5/5
  Verifying  : fail2ban-firewalld-0.11.2-3.el7.noarch                                  1/5
  Verifying  : fail2ban-systemd-0.11.2-3.el7.noarch                                    2/5
  Verifying  : fail2ban-server-0.11.2-3.el7.noarch                                     3/5
  Verifying  : fail2ban-0.11.2-3.el7.noarch                                            4/5
  Verifying  : fail2ban-sendmail-0.11.2-3.el7.noarch                                   5/5

Installed:
  fail2ban.noarch 0:0.11.2-3.el7                fail2ban-systemd.noarch 0:0.11.2-3.el7

Dependency Installed:
  fail2ban-firewalld.noarch 0:0.11.2-3.el7          fail2ban-sendmail.noarch 0:0.11.2-3.el7
  fail2ban-server.noarch 0:0.11.2-3.el7

Complete!
[dave@localhost ~]$ _
```

> ⓘ  cp -pf /etc/fail2ban/jail.conf /etc/fail2ban/jail.local

- This command will copy the jail file so that when the repo is updated it won't overwrite changes to the config file

> ⓘ  vim /etc/fail2ban/jail.local

- This command will open the jail file in vim so we can add the following.
    - Local IP address
    - ifconfig command will tell you your IP address

```
# following example can be used for small initial ban time (bantime=60) - it grows more aggressive a
t begin,
# for bantime=60 the multipliers are minutes and equal: 1 min, 5 min, 30 min, 1 hour, 5 hour, 12 hou
r, 1 day, 2 day
#bantime.multipliers = 1 5 30 60 300 720 1440 2880

# "bantime.overalljails" (if true) specifies the search of IP in the database will be executed
# cross over all jails, if false (dafault), only current jail of the ban IP will be searched
#bantime.overalljails = false

# --------------------

# "ignoreself" specifies whether the local resp. own IP addresses should be ignored
# (default is true). Fail2ban will not ban a host which matches such addresses.
#ignoreself = true

# "ignoreip" can be a list of IP addresses, CIDR masks or DNS hosts. Fail2ban
# will not ban a host which matches an address in this list. Several addresses
# can be defined using space (and/or comma) separator.
#ignoreip = 127.0.0.1/8 ::1

# External command that will take an tagged arguments to ignore, e.g. <ip>,
# and return true if the IP is to be ignored. False otherwise.
#
# ignorecommand = /path/to/command <ip>
ignorecommand =

# "bantime" is the number of seconds that a host is banned.
bantime  = 10m

# A host is banned if it has generated "maxretry" during the last "findtime"
# seconds.
findtime  = 10m

# "maxretry" is the number of failures before a host get banned.
maxretry = 5
                                                            92,1          7%
```

> (i)  systemctl enable fail2ban

- This command will enable fail2ban services

```
[dave@localhost ~]$ systemctl enable fail2ban
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-unit-files ===
Authentication is required to manage system service or unit files.
Authenticating as: dave
Password:
==== AUTHENTICATION COMPLETE ===
Created symlink from /etc/systemd/system/multi-user.target.wants/fail2ban.service to /usr/lib/system
d/system/fail2ban.service.
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ===
Authentication is required to reload the systemd state.
Authenticating as: dave
Password:
==== AUTHENTICATION COMPLETE ===
[dave@localhost ~]$
```

lolcat
A lolcat (pronounced /ˈlɒlkæt/ LOL-kat), or LOLcat, is **an image macro of one or more cats**. The image's text is often idiosyncratic and intentionally grammatically incorrect, and is known as lolspeak.

> (i)  sudo yum install snapd

snap

A snap is **a bundle of an app and its dependencies that works without modification across many different Linux distributions**. Snaps are discoverable and installable from the Snap Store, an app store with an audience of millions. Snapcraft is a powerful and easy to use command line tool for building snaps.

```
    Installing : squashfs-tools-4.3-0.21.gitaae0aff4.el7.x86_64                          7/14
    Installing : snap-confine-2.55.3-1.el7.x86_64                                         8/14
    Installing : checkpolicy-2.5-8.el7.x86_64                                             9/14
    Installing : policycoreutils-python-2.5-34.el7.x86_64                                10/14
    Installing : snapd-selinux-2.55.3-1.el7.noarch                                       11/14
    Installing : squashfuse-libs-0.1.102-1.el7.x86_64                                    12/14
    Installing : squashfuse-0.1.102-1.el7.x86_64                                         13/14
    Installing : snapd-2.55.3-1.el7.x86_64                                               14/14
    Verifying  : snapd-2.55.3-1.el7.x86_64                                                1/14
    Verifying  : squashfuse-libs-0.1.102-1.el7.x86_64                                     2/14
    Verifying  : checkpolicy-2.5-8.el7.x86_64                                             3/14
    Verifying  : snap-confine-2.55.3-1.el7.x86_64                                         4/14
    Verifying  : squashfs-tools-4.3-0.21.gitaae0aff4.el7.x86_64                           5/14
    Verifying  : python-IPy-0.75-6.el7.noarch                                             6/14
    Verifying  : libsemanage-python-2.5-14.el7.x86_64                                     7/14
    Verifying  : libzstd-1.5.2-1.el7.x86_64                                               8/14
    Verifying  : policycoreutils-python-2.5-34.el7.x86_64                                 9/14
    Verifying  : squashfuse-0.1.102-1.el7.x86_64                                         10/14
    Verifying  : libcgroup-0.41-21.el7.x86_64                                            11/14
    Verifying  : audit-libs-python-2.8.5-4.el7.x86_64                                    12/14
    Verifying  : snapd-selinux-2.55.3-1.el7.noarch                                       13/14
    Verifying  : setools-libs-3.3.8-4.el7.x86_64                                         14/14

 Installed:
   snapd.x86_64 0:2.55.3-1.el7

 Dependency Installed:
   audit-libs-python.x86_64 0:2.8.5-4.el7              checkpolicy.x86_64 0:2.5-8.el7
   libcgroup.x86_64 0:0.41-21.el7                      libsemanage-python.x86_64 0:2.5-14.el7
   libzstd.x86_64 0:1.5.2-1.el7                        policycoreutils-python.x86_64 0:2.5-34.el7
   python-IPy.noarch 0:0.75-6.el7                      setools-libs.x86_64 0:3.3.8-4.el7
   snap-confine.x86_64 0:2.55.3-1.el7                  snapd-selinux.noarch 0:2.55.3-1.el7
   squashfs-tools.x86_64 0:4.3-0.21.gitaae0aff4.el7    squashfuse.x86_64 0:0.1.102-1.el7
   squashfuse-libs.x86_64 0:0.1.102-1.el7

 Complete!
 [dave@localhost ~]$
```

> (i)  sudo systemctl enable --now snapd.socket

- This command will enable snap communication

> (i)  sudo snap install lolcat

- This command will install lolcat

```
[dave@localhost ~]$ sudo snap install lolcat
Setup snap "snapd" (15534) security profiles
[ 2687.131104] Buffer I/O error on dev loop1, logical block 0, async page read
2022-05-01T15:02:39-04:00 INFO Waiting for automatic snapd restart...
lolcat 100.0.1 from moe (busyloop) installed
[dave@localhost ~]$
```

# Ubuntu Repo Installations✔️

**Tmux**

tmux is an open-source terminal multiplexer for Unix-like operating systems. It allows multiple terminal sessions to be accessed simultaneously in a single window. It is useful for running more than one command-line program at the same time. It can also be used to detach processes from their controlling terminals, allowing remote sessions to remain active without being visible.

> ⓘ  tmux

- This command will start a new tmux session.

**emacs**

Emacs is a text editor designed for POSIX operating systems and available on Linux, BSD, macOS, Windows, and more. Users love Emacs because it features efficient commands for common but complex actions and for the plugins and configuration hacks that have developed around it for nearly 40 years.

> ⓘ  sudo snap install emacs --classic

- This command will install emacs.

```
dave@acme:~$ sudo snap install emacs --classic
emacs 28.1 from Alex Murray (alexmurray) installed
dave@acme:~$ _
```

Fail2Ban

Fail2ban scans log files (e.g. /var/log/apache/error_log) and bans IPs that show the malicious signs -- too many password failures, seeking for exploits, etc. Generally Fail2Ban is then used to update firewall rules to reject the IP addresses for a specified amount of time, although any arbitrary other action (e.g. sending an email) could also be configured. Out of the box Fail2Ban comes with filters for various services (apache, courier, ssh, etc).

Fail2Ban is able to reduce the rate of incorrect authentications attempts however it cannot eliminate the risk that weak authentication presents. Configure services to use only two factor or public/private authentication mechanisms if you really want to protect services.

> ⓘ  sudo apt install fail2ban

- This command will install Fail2Ban.

```
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  python3-pyinotify whois
Suggested packages:
  mailx monit sqlite3 python-pyinotify-doc
The following NEW packages will be installed:
  fail2ban python3-pyinotify whois
0 upgraded, 3 newly installed, 0 to remove and 61 not upgraded.
Need to get 444 kB of archives.
After this operation, 2,400 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us.archive.ubuntu.com/ubuntu focal/universe amd64 fail2ban all 0.11.1-1 [375 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu focal/main amd64 python3-pyinotify all 0.9.6-1.2ubuntu1 [2
4.8 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu focal/main amd64 whois amd64 5.5.6 [44.7 kB]
Fetched 444 kB in 0s (2,090 kB/s)
Selecting previously unselected package fail2ban.
(Reading database ... 108106 files and directories currently installed.)
Preparing to unpack .../fail2ban_0.11.1-1_all.deb ...
Unpacking fail2ban (0.11.1-1) ...
Selecting previously unselected package python3-pyinotify.
Preparing to unpack .../python3-pyinotify_0.9.6-1.2ubuntu1_all.deb ...
Unpacking python3-pyinotify (0.9.6-1.2ubuntu1) ...
Selecting previously unselected package whois.
Preparing to unpack .../archives/whois_5.5.6_amd64.deb ...
Unpacking whois (5.5.6) ...
Setting up whois (5.5.6) ...
Setting up fail2ban (0.11.1-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/fail2ban.service → /lib/systemd/system/f
ail2ban.service.
Setting up python3-pyinotify (0.9.6-1.2ubuntu1) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for systemd (245.4-4ubuntu3.15) ...
dave@acme:~$
```

> (i)   sudo cp /etc/fail2ban/jail.{conf,local}

- This command will copy the jail file so that when the repo is updated it won't overwrite changes to the config file.

> (i)   sudo nano /etc/fail2ban/jail.local

- This command will open the jail file so we can add the following.
    - Local IP address
    - ifconfig command will tell you your IP address

```
  GNU nano 4.8                          /etc/fail2ban/jail.local
#
# WARNING: heavily refactored in 0.9.0 release.  Please review and
#          customize settings for your setup.
#
# Changes:  in most of the cases you should not modify this
#           file, but provide customizations in jail.local file,
#           or separate .conf files under jail.d/ directory, e.g.:
#
# HOW TO ACTIVATE JAILS:
#
# YOU SHOULD NOT MODIFY THIS FILE.
#
# It will probably be overwritten or improved in a distribution update.
#
# Provide customizations in a jail.local file or a jail.d/customisation.local.
# For example to change the default bantime for all jails and to enable the
# ssh-iptables jail the following (uncommented) would appear in the .local file.
# See man 5 jail.conf for details.
#
# [DEFAULT]
# bantime = 1h
#
# [sshd]
# enabled = true
#
# See jail.conf(5) man page for more information



# Comments: use '#' for comment lines and ';' (following a space) for inline comments


[INCLUDES]                          [ Read 953 lines ]
^G Get Help    ^O Write Out   ^W Where Is    ^K Cut Text    ^J Justify     ^C Cur Pos     M-U Undo
^X Exit        ^R Read File   ^\ Replace     ^U Paste Text  ^T To Spell    ^_ Go To Line  M-E Redo
```

> (i)   sudo systemctl status fail2ban

- This command will check status of fail2ban services

```
dave@acme:~$ sudo systemctl status fail2ban
● fail2ban.service - Fail2Ban Service
     Loaded: loaded (/lib/systemd/system/fail2ban.service; enabled; vendor preset: enabled)
     Active: active (running) since Sun 2022-05-01 23:41:38 UTC; 15min ago
       Docs: man:fail2ban(1)
   Main PID: 52062 (f2b/server)
      Tasks: 5 (limit: 4575)
     Memory: 13.8M
     CGroup: /system.slice/fail2ban.service
             └─52062 /usr/bin/python3 /usr/bin/fail2ban-server -xf start

May 01 23:41:38 acme systemd[1]: Starting Fail2Ban Service...
May 01 23:41:38 acme systemd[1]: Started Fail2Ban Service.
May 01 23:41:38 acme fail2ban-server[52062]: Server ready
dave@acme:~$
```

lolcat

A lolcat (pronounced /ˈlɒlkæt/ LOL-kat), or LOLcat, is **an image macro of one or more cats**. The image's text is often idiosyncratic and intentionally grammatically incorrect, and is known as lolspeak.

> (i)  sudo apt-get install ruby

ruby
Ruby is one of the most popular programming languages today. It has an elegant syntax and focuses on simplicity and productivity. Ruby is the language behind the powerful Ruby on Rails framework

```
Selecting previously unselected package ruby-power-assert.
Preparing to unpack .../09-ruby-power-assert_1.1.7-1_all.deb ...
Unpacking ruby-power-assert (1.1.7-1) ...
Selecting previously unselected package ruby-test-unit.
Preparing to unpack .../10-ruby-test-unit_3.3.5-1_all.deb ...
Unpacking ruby-test-unit (3.3.5-1) ...
Selecting previously unselected package ruby-xmlrpc.
Preparing to unpack .../11-ruby-xmlrpc_0.3.0-2_all.deb ...
Unpacking ruby-xmlrpc (0.3.0-2) ...
Selecting previously unselected package libruby2.7:amd64.
Preparing to unpack .../12-libruby2.7_2.7.0-5ubuntu1.6_amd64.deb ...
Unpacking libruby2.7:amd64 (2.7.0-5ubuntu1.6) ...
Selecting previously unselected package unzip.
Preparing to unpack .../13-unzip_6.0-25ubuntu1_amd64.deb ...
Unpacking unzip (6.0-25ubuntu1) ...
Selecting previously unselected package zip.
Preparing to unpack .../14-zip_3.0-11build1_amd64.deb ...
Unpacking zip (3.0-11build1) ...
Setting up javascript-common (11) ...
Setting up fonts-lato (2.0-2) ...
Setting up ruby-power-assert (1.1.7-1) ...
Setting up unzip (6.0-25ubuntu1) ...
Setting up rubygems-integration (1.16) ...
Setting up ruby-minitest (5.13.0-1) ...
Setting up zip (3.0-11build1) ...
Setting up ruby-test-unit (3.3.5-1) ...
Setting up ruby-net-telnet (0.1.1-2) ...
Setting up libjs-jquery (3.3.1~dfsg-3) ...
Setting up ruby-xmlrpc (0.3.0-2) ...
Setting up rake (13.0.1-4) ...
Setting up libruby2.7:amd64 (2.7.0-5ubuntu1.6) ...
Setting up ruby2.7 (2.7.0-5ubuntu1.6) ...
Setting up ruby (1:2.7+1) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.7) ...
Processing triggers for man-db (2.9.1-1) ...
dave@acme:~$
```

> (i)  wget http://github.com/busyloop/lolcat/archive/master.zip

- This command will download the lolcat repo

> (i)  unzip master.zip

- This command will unzip the package

> ⓘ  cd lolcat-master.bin

- This command changes directories to where lolcat installation files are.

> ⓘ  gem install lolcat

- This command will install lolcat.

```
dave@acme:~/lolcat-master/bin$ sudo gem install lolcat
Fetching lolcat-100.0.1.gem
Fetching paint-2.2.1.gem
Fetching optimist-3.0.1.gem
Fetching manpages-0.6.1.gem
Successfully installed paint-2.2.1
Successfully installed optimist-3.0.1
Successfully installed manpages-0.6.1
Successfully installed lolcat-100.0.1
Parsing documentation for paint-2.2.1
Installing ri documentation for paint-2.2.1
Parsing documentation for optimist-3.0.1
Installing ri documentation for optimist-3.0.1
Parsing documentation for manpages-0.6.1
Installing ri documentation for manpages-0.6.1
Parsing documentation for lolcat-100.0.1
Installing ri documentation for lolcat-100.0.1
Done installing documentation for paint, optimist, manpages, lolcat after 0 seconds
4 gems installed
dave@acme:~/lolcat-master/bin$
```

## Citations💁🏼

Repository Overview

https://www.networkworld.com/article/3305810/how-to-list-repositories-on-linux.html

Tmux Description

https://en.wikipedia.org/wiki/Tmux

Emacs Description

https://opensource.com/resources/what-emacs

Fail2Ban Description

https://www.fail2ban.org/wiki/index.php/Main_Page

lolcat Description

https://en.wikipedia.org/wiki/Lolcat

snap Description

https://ubuntu.com/tutorials/create-your-first-snap#1-overview

Ruby Description

https://linuxize.com/post/how-to-install-ruby-on-ubuntu-20-04/

PDF Template

slite.com

## Technical Support Contact Information 💬

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