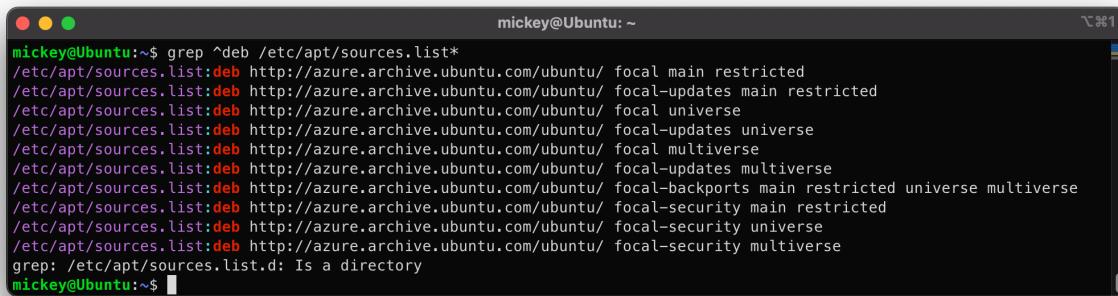


Continue Setup

1. Check your repositories that are included by default on both servers, find out how you'd go about adding a repository, (both official and PPA) and make sure you can install programs.

Ubuntu

```
grep ^deb /etc/apt/sources.list*
```



A screenshot of a terminal window titled "mickey@Ubuntu: ~". The window shows the command "grep ^deb /etc/apt/sources.list*" being run. The output lists several deb entries for the "focal" release, including main, restricted, focal-updates, universe, and multiverse components from various mirrors like http://azure.archive.ubuntu.com/ubuntu/. It also shows a warning message "grep: /etc/apt/sources.list.d: Is a directory". The terminal window has a dark background with white text and a black border.

```
mickey@Ubuntu:~$ grep ^deb /etc/apt/sources.list*
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal main restricted
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal-updates main restricted
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal universe
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal-updates universe
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal multiverse
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal-updates multiverse
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal-backports main restricted universe multiverse
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal-security main restricted
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal-security universe
/etc/apt/sources.list:deb http://azure.archive.ubuntu.com/ubuntu/ focal-security multiverse
grep: /etc/apt/sources.list.d: Is a directory
mickey@Ubuntu:~$
```

Ubuntu uses apt-get to find, download and install packages. Packages available in repositories can be downloaded using apt-get.

On Ubuntu and all other Debian based distributions, the apt software repositories are defined in the /etc/apt/sources.list file. The general syntax of the /etc/apt/sources.list file takes the following format - **deb http://repo.tld/ubuntu distro component...**

Adding official repositories

Adding Repositories with add-apt-repository, the basic syntax is **add-apt-repository [options] repository** where repository can be either a regular repository entry that can be added to the sources.list file like **deb http://repo.tld/ubuntu distro component** or a PPA repository in the **ppa:<user>/<ppa-name>** format.

Adding PPA

Personal Package Archives (PPA) is a service that allows users to upload Ubuntu source packages that are built and published with Launchpad as an apt repository. When adding a PPA repository the add-apt-repository command creates a new file under the /etc/apt/sources.list.d/ directory.

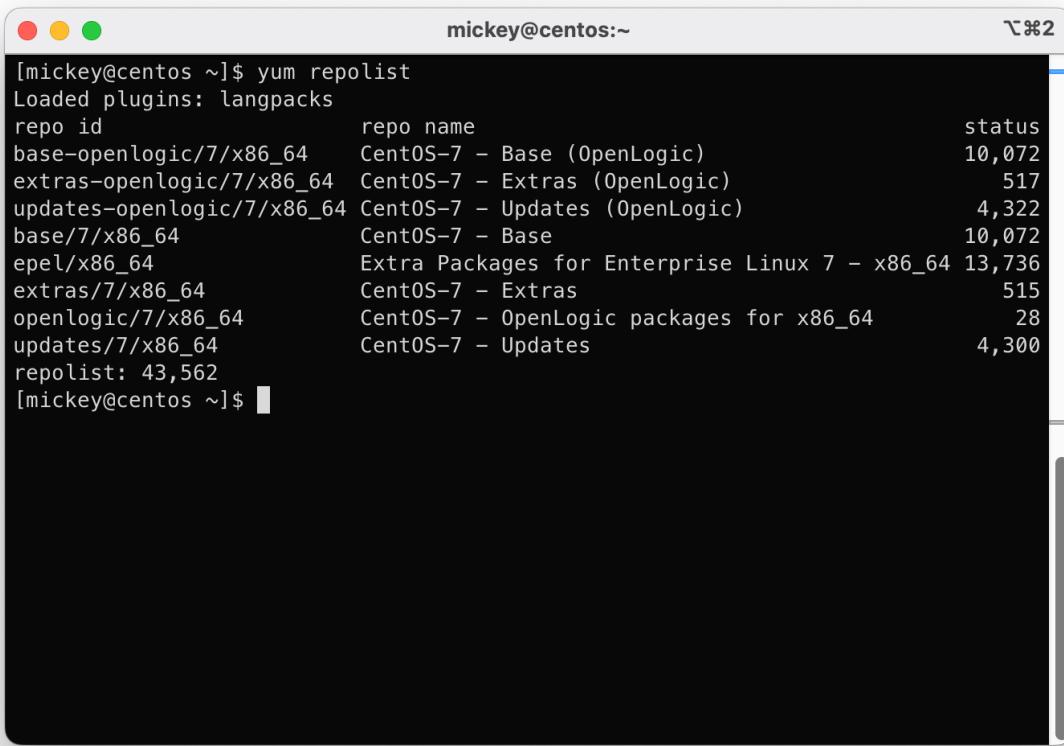
For example, to add the Mickey's PPA which provides FFmpeg version 4.x we could run:

```
sudo add-apt-repository ppa:mickey/ffmpeg-4
```

CentOS

CentOS uses yum (Yellow dog Updater Modified) as a package management tool.

The command **yum repolist** displays all repositories configured under YUM and enabled for use on the server.



The screenshot shows a terminal window with the title bar "mickey@centos:~". The window contains the output of the command "yum repolist". The output lists various repositories with their names, descriptions, and package counts:

repo id	repo name	status
base-openlogic/7/x86_64	CentOS-7 - Base (OpenLogic)	10,072
extras-openlogic/7/x86_64	CentOS-7 - Extras (OpenLogic)	517
updates-openlogic/7/x86_64	CentOS-7 - Updates (OpenLogic)	4,322
base/7/x86_64	CentOS-7 - Base	10,072
epel/x86_64	Extra Packages for Enterprise Linux 7 - x86_64	13,736
extras/7/x86_64	CentOS-7 - Extras	515
openlogic/7/x86_64	CentOS-7 - OpenLogic packages for x86_64	28
updates/7/x86_64	CentOS-7 - Updates	4,300
repolist: 43,562		

To install a repository

```
sudo yum install <Link to repository>
```

Manually configuring a yum repository requires we create a .repo file within /etc/yum.repo.d using a text editor. For ex:

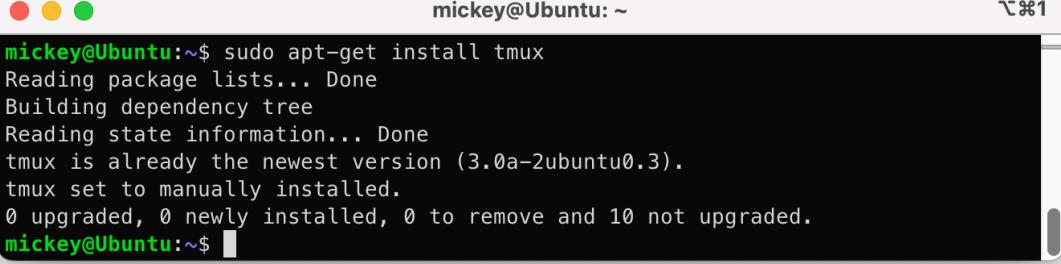
```
$ vi /etc/yum.repo.d/mysql57-community.repo
[mysql57-community]
name=MySQL 5.7 Community Server
baseurl=http://repo.mysql.com/yum/mysql-5.7-community/el/7/$basearch/
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-mysql
```

where `name` is the description of the repository, `baseurl` is the location of the repository, `enabled` refers to the default configuration of status of the repo, and the `gpgcheck` and `gpgkey` are information related to the GPG.

2. Install Tmux, emacs, and Fail2Ban. Make sure you look through the Fail2Ban settings as you do the install.

Ubuntu

```
sudo apt-get install tmux
```



A screenshot of a terminal window titled "mickey@Ubuntu: ~". The window shows the command "sudo apt-get install tmux" being run. The output indicates that tmux is already the newest version (3.0a-2ubuntu0.3) and is set to manually installed. There are 0 upgraded, 0 newly installed, 0 to remove, and 10 not upgraded packages.

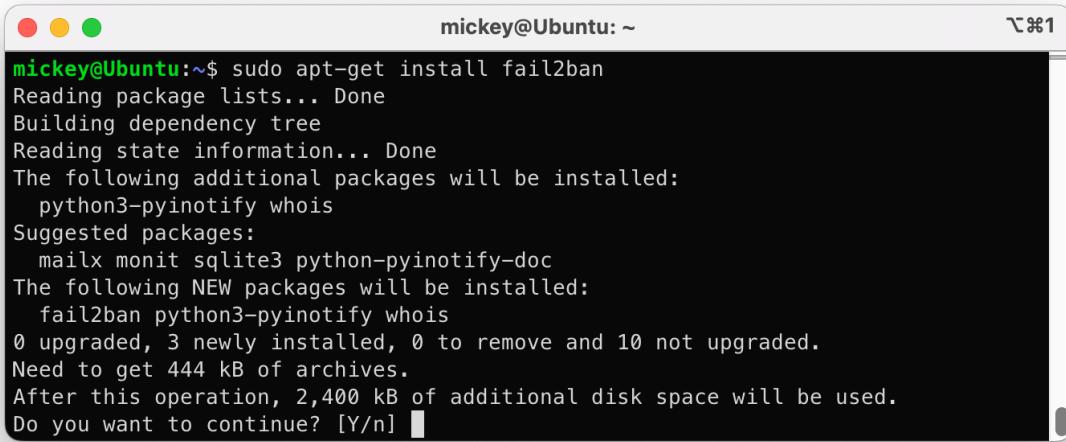
```
mickey@Ubuntu:~$ sudo apt-get install tmux
Reading package lists... Done
Building dependency tree
Reading state information... Done
tmux is already the newest version (3.0a-2ubuntu0.3).
tmux set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 10 not upgraded.
mickey@Ubuntu:~$
```

```
sudo apt-get install emacs
```

```
mickey@Ubuntu:~$ sudo apt-get install emacs
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
adwaita-icon-theme at-spi2-core emacs-bin-common emacs-common emacs-el
emacs-gtk emacs-en-common fontconfig fontconfig-config fonts-dejavu-core
fonts-droid-fallback fonts-noto-mono fonts-urw-base35 ghostscript gsffonts
gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme
imagemagick-6-common libatk-bridge2.0-0 libatk1.0-0 libatk1.0-data
libatspi2.0-0 libavahi-client3 libavahi-common-data libavahi-common3
libcairo-gobject2 libcairo2 libcolord2 libcups2 libdatrie1 libepoxy0
libfftw3-double3 libfontconfig1 libgd3 libgdk-pixbuf2.0-0
libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgif7 libgomp1 libgraphite2-3
libgs9 libgs9-common libgtk-3-0 libgtk-3-bin libgtk-3-common libharfbuzz0b
libice6 libidn11 libijs-0.35 libjbig0 libjbig2dec0 libjpeg-turbo8 libjpeg8
liblcms2-2 liblqr-1-0 libm17n-0 libmagickcore-6.q16-6 libmagickwand-6.q16-6
libopenjp2-7 libotf0 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0
libpaper-utils libpaper1 libpixman-1-0 librest-0.7-0 librsvg2-2
librsvg2-common libsm6 libsoup-gnome2.4-1 libthai-data libthai0 libtiff5
libwayland-client0 libwayland-cursor0 libwayland-egl1 libwebp6 libwebpmux3
libxcb-render0 libxcb-shm0 libcomposite1 libcursor1 libdamage1 libxfixes3
libxft2 libxi6 libxinerama1 libxkbcommon0 libxpm4 libxrandr2 libxrender1
libxt6 libxtst6 m17n-db poppler-data ubuntu-mono x11-common
Suggested packages:
mailutils emacs-common-non-dfsg fonts-noto fonts-freefont-otf
| fonts-freefont-ttf fonts-texgyre ghostscript-x colord cups-common
libfftw3-bin libfftw3-dev libgd-tools gvfs liblcms2-utils m17n-docs
libmagickcore-6.q16-6-extra librsvg2-bin poppler-utils fonts-japanese-mincho
| fonts-ipafont-mincho fonts-japanese-gothic | fonts-ipafont-gothic
fonts-aphic-ukai fonts-aphic-uming fonts-nanum
The following NEW packages will be installed:
adwaita-icon-theme at-spi2-core emacs emacs-bin-common emacs-common emacs-el
emacs-gtk emacs-en-common fontconfig fontconfig-config fonts-dejavu-core
fonts-droid-fallback fonts-noto-mono fonts-urw-base35 ghostscript gsffonts
gtk-update-icon-cache hicolor-icon-theme humanity-icon-theme
imagemagick-6-common libatk-bridge2.0-0 libatk1.0-0 libatk1.0-data
libatspi2.0-0 libavahi-client3 libavahi-common-data libavahi-common3
libcairo-gobject2 libcairo2 libcolord2 libcups2 libdatrie1 libepoxy0
libfftw3-double3 libfontconfig1 libgd3 libgdk-pixbuf2.0-0
libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgif7 libgomp1 libgraphite2-3
libgs9 libgs9-common libgtk-3-0 libgtk-3-bin libgtk-3-common libharfbuzz0b
libice6 libidn11 libijs-0.35 libjbig0 libjbig2dec0 libjpeg-turbo8 libjpeg8
liblcms2-2 liblqr-1-0 libm17n-0 libmagickcore-6.q16-6 libmagickwand-6.q16-6
libopenjp2-7 libotf0 libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0
libpaper-utils libpaper1 libpixman-1-0 librest-0.7-0 librsvg2-2
librsvg2-common libsm6 libsoup-gnome2.4-1 libthai-data libthai0 libtiff5
libwayland-client0 libwayland-cursor0 libwayland-egl1 libwebp6 libwebpmux3
libxcb-render0 libxcb-shm0 libcomposite1 libcursor1 libdamage1 libxfixes3
libxft2 libxi6 libxinerama1 libxkbcommon0 libxpm4 libxrandr2 libxrender1
libxt6 libxtst6 m17n-db poppler-data ubuntu-mono x11-common
0 upgraded, 100 newly installed, 0 to remove and 10 not upgraded.
Need to get 68.9 MB of archives.
After this operation, 278 MB of additional disk space will be used.
Do you want to continue? [Y/n] ■
```

```
mickey@Ubuntu: ~
Setting up emacs-bin-common (1:26.3+1~ubuntu2) ...
update-alternatives: using /usr/bin/ctags.emacs to provide /usr/bin/ctags (ctags ) in auto mode
update-alternatives: using /usr/bin/ebrowse.emacs to provide /usr/bin/ebrowse (e browse) in auto mode
update-alternatives: using /usr/bin/emacsclient.emacs to provide /usr/bin/emacsclient (emacsclient) in auto mode
update-alternatives: using /usr/bin/etags.emacs to provide /usr/bin/etags (etags ) in auto mode
Setting up libtiff5:amd64 (4.1.0+git191117~2ubuntu0.20.04.5) ...
Setting up libfontconfig1:amd64 (2.13.1~2ubuntu3) ...
Setting up libsm6:amd64 (2:1.2.3-1) ...
Setting up libavahi-client3:amd64 (0.7~4ubuntu7.1) ...
Setting up fontconfig (2.13.1~2ubuntu3) ...
Regenerating fonts cache... done.
Setting up libxft2:amd64 (2.3.3-0ubuntu1) ...
Setting up libpango-1.0-0:amd64 (1.44.7~2ubuntu4) ...
Setting up libcairo2:amd64 (1.16.0~4ubuntu1) ...
Setting up libmagickcore-6.q16-6:amd64 (8:6.9.10.23+dfsg-2.1ubuntu11.4) ...
Setting up libgdk-pixbuf2.0-0:amd64 (2.40.0+dfsg-3ubuntu0.4) ...
Setting up libgd3:amd64 (2.2.5-5.2ubuntu2.1) ...
Setting up libxt6:amd64 (1:1.1.5-1) ...
Setting up libcups2:amd64 (2.3.1~9ubuntu1.2) ...
Setting up libgdk-pixbuf2.0-bin (2.40.0+dfsg-3ubuntu0.4) ...
Setting up libmagickwand-6.q16-6:amd64 (8:6.9.10.23+dfsg-2.1ubuntu11.4) ...
Setting up libcairo-gobject2:amd64 (1.16.0~4ubuntu1) ...
Setting up libpangoft2-1.0-0:amd64 (1.44.7~2ubuntu4) ...
Setting up libpangocairo-1.0-0:amd64 (1.44.7~2ubuntu4) ...
Setting up gtk-update-icon-cache (3.24.20~0ubuntu1.1) ...
Setting up libgs9:amd64 (9.50~dfsg-5ubuntu4.6) ...
Setting up libm17n-0:amd64 (1.8.0-2) ...
Setting up ghostscript (9.50~dfsg-5ubuntu4.6) ...
Setting up librsvg2-2:amd64 (2.48.9~1ubuntu0.20.04.1) ...
Setting up librsvg2-common:amd64 (2.48.9~1ubuntu0.20.04.1) ...
Setting up adwaita-icon-theme (3.36.1~2ubuntu0.20.04.2) ...
update-alternatives: using /usr/share/icons/Adwaita/cursor.theme to provide /usr /share/icons/default/index.theme (x-cursor-theme) in auto mode
Setting up humanity-icon-theme (0.6.15) ...
Setting up ubuntu-mono (19.04~0ubuntu3) ...
Processing triggers for systemd (245.4~4ubuntu3.17) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for install-info (6.7.0.dfsg.2-5) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for libglib2.0-0:amd64 (2.64.6~1~ubuntu20.04.4) ...
Setting up libgtk-3-0:amd64 (3.24.20~0ubuntu1.1) ...
Processing triggers for libc-bin (2.31~0ubuntu9.9) ...
Setting up libgtk-3-bin (3.24.20~0ubuntu1.1) ...
Setting up emacs-gtk (1:26.3+1~ubuntu2) ...
update-alternatives: using /usr/bin/emacs-gtk to provide /usr/bin/emacs (emacs) in auto mode
Install emacsen-common for emacs
emacsen-common: Handling install of emacsen flavor emacs
Setting up emacs (1:26.3+1~ubuntu2) ...
Processing triggers for libgdk-pixbuf2.0-0:amd64 (2.40.0+dfsg-3ubuntu0.4) ...
mickey@Ubuntu:~$
```

```
sudo apt-get install fail2ban
```



A screenshot of a terminal window titled "mickey@Ubuntu: ~". The window shows the command "sudo apt-get install fail2ban" being run. The output indicates that the package is already installed ("Reading package lists... Done"), and it lists several additional packages that will be installed, including "python3-pyinotify" and "whois". It also lists suggested packages like "mailx", "monit", "sqlite3", and "python-pyinotify-doc". The terminal then asks if the user wants to continue with the installation, with the prompt "[Y/n]".

```
mickey@Ubuntu:~$ sudo apt-get install fail2ban
Reading package lists... Done
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 10 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] ■
```

```
mickey@Ubuntu:~$ fail2ban-client -h
Usage: fail2ban-client [OPTIONS] <COMMAND>

Fail2Ban v0.11.1 reads log file that contains password failure report
and bans the corresponding IP addresses using firewall rules.

Options:
  -c <DIR>           configuration directory
  -s <FILE>            socket path
  -p <FILE>            pidfile path
  --loglevel <LEVEL>   logging level
  --logtarget <TARGET> logging target, use file-name or stdout, stderr, sys
log or sysout.
  --syslogsocket auto|<FILE>
  -d                  dump configuration. For debugging
  --dp, --dump-pretty  dump the configuration using more human readable rep
resentation
  -t, --test           test configuration (can be also specified with start
parameters)
  -i                  interactive mode
  -v                  increase verbosity
  -q                  decrease verbosity
  -x                  force execution of the server (remove socket file)
  -b                  start server in background (default)
  -f                  start server in foreground
  --async              start server in async mode (for internal usage only,
don't read configuration)
  --timeout            timeout to wait for the server (for internal usage o
nly, don't read configuration)
  --str2sec <STRING>   convert time abbreviation format to seconds
  -h, --help            display this help message
  -V, --version         print the version (-V returns machine-readable short
format)
```

```
sudo cat /etc/fail2ban/fail2ban.conf
```

```

mickey@Ubuntu:~$ sudo cat /etc/fail2ban/fail2ban.conf
# Fail2Ban main configuration file
#
# Comments: use '#' for comment lines and ';' (following a space) for inline comments
#
# Changes: in most of the cases you should not modify this
#           file, but provide customizations in fail2ban.local file, e.g.:
#
# [DEFAULT]
# loglevel = DEBUG
#
[DEFAULT]

# Option: loglevel
# Notes.: Set the log level output.
#          CRITICAL
#          ERROR
#          WARNING
#          NOTICE
#          INFO
#          DEBUG
# Values: [ LEVEL ] Default: ERROR
#
loglevel = INFO

# Option: logtarget
# Notes.: Set the log target. This could be a file, SYSLOG, STDERR or STDOUT.
#          Only one log target can be specified.
#          If you change logtarget from the default value and you are
#          using logrotate -- also adjust or disable rotation in the
#          corresponding configuration file
#          (e.g. /etc/logrotate.d/fail2ban on Debian systems)
# Values: [ STDOUT | STDERR | SYSLOG | SYSOUT | FILE ] Default: STDERR
#
logtarget = /var/log/fail2ban.log

# Option: syslogsocket
# Notes: Set the syslog socket file. Only used when logtarget is SYSLOG
#        auto uses platform.system() to determine predefined paths
# Values: [ auto | FILE ] Default: auto
syslogsocket = auto

# Option: socket
# Notes.: Set the socket file. This is used to communicate with the daemon. Do
#         not remove this file when Fail2ban runs. It will not be possible to
#         communicate with the server afterwards.
# Values: [ FILE ] Default: /var/run/fail2ban/fail2ban.sock
#
socket = /var/run/fail2ban/fail2ban.sock

# Option: pidfile
# Notes.: Set the PID file. This is used to store the process ID of the
#          fail2ban server.
# Values: [ FILE ] Default: /var/run/fail2ban/fail2ban.pid
#
pidfile = /var/run/fail2ban/fail2ban.pid

# Options: dbfile
# Notes.: Set the file for the fail2ban persistent data to be stored.
#          A value of ":memory;" means database is only stored in memory
#          and data is lost when fail2ban is stopped.
#          A value of "None" disables the database.
# Values: [ None :memory: FILE ] Default: /var/lib/fail2ban/fail2ban.sqlite3
dbfile = /var/lib/fail2ban/fail2ban.sqlite3

# Options: dbpurgeage
# Notes.: Sets age at which bans should be purged from the database
# Values: [ SECONDS ] Default: 86400 (24hours)
dbpurgeage = 1d

# Options: dbmaxmatches
# Notes.: Number of matches stored in database per ticket (resolvable via
#          tags <ipmatches>/<ipjailmatches> in actions)
# Values: [ INT ] Default: 10
dbmaxmatches = 10

[Definition]

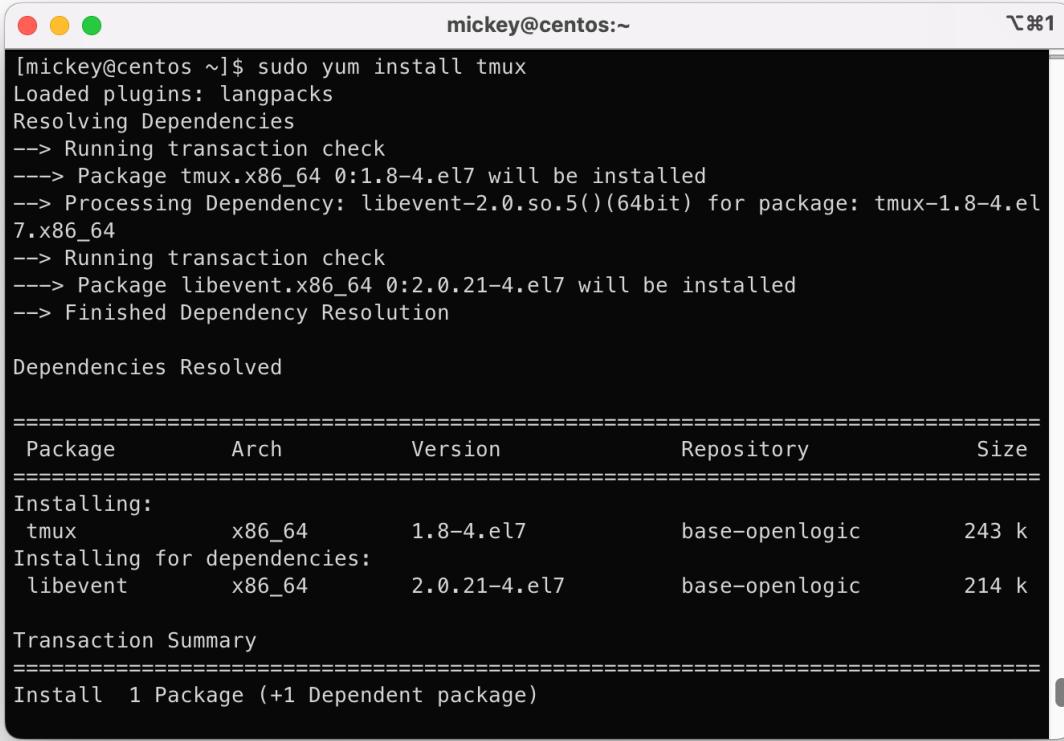
[Thread]

# Options: stacksize
# Notes.: Specifies the stack size (in KiB) to be used for subsequently created threads,
#          and must be 0 or a positive integer value of at least 32.
# Values: [ SIZE ] Default: 0 (use platform or configured default)
#stacksize = 0
mickey@Ubuntu:~$ 

```

CentOS

```
sudo yum install tmux
```



The screenshot shows a terminal window titled "mickey@centos:~". The command "sudo yum install tmux" is run, and the output shows the package being installed along with its dependencies. The transaction summary indicates 1 package to be installed and 1 dependent package.

```
[mickey@centos ~]$ sudo yum install tmux
Loaded plugins: langpacks
Resolving Dependencies
--> Running transaction check
--> Package tmux.x86_64 0:1.8-4.el7 will be installed
--> Processing Dependency: libevent-2.0.so.5()(64bit) for package: tmux-1.8-4.el7.x86_64
--> Running transaction check
--> Package libevent.x86_64 0:2.0.21-4.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package      Arch      Version       Repository      Size
=====
Installing:
tmux        x86_64    1.8-4.el7   base-openlogic 243 k
Installing for dependencies:
libevent     x86_64    2.0.21-4.el7 base-openlogic 214 k

Transaction Summary
=====
Install 1 Package (+1 Dependent package)
```

```
mickey@centos:~ % Total download size: 457 k  
 Installed size: 1.3 M  
 Is this ok [y/d/N]: y  
 Downloading packages:  
 (1/2): libevent-2.0.21-4.el7.x86_64.rpm | 214 kB 00:00  
 (2/2): tmux-1.8-4.el7.x86_64.rpm | 243 kB 00:00  
 -----  
 Total 1.0 MB/s | 457 kB 00:00  
 Running transaction check  
 Running transaction test  
 Transaction test succeeded  
 Running transaction  
   Installing : libevent-2.0.21-4.el7.x86_64 1/2  
   Installing : tmux-1.8-4.el7.x86_64 2/2  
   Verifying : tmux-1.8-4.el7.x86_64 1/2  
   Verifying : libevent-2.0.21-4.el7.x86_64 2/2  
 Installed:  
   tmux.x86_64 0:1.8-4.el7  
 Dependency Installed:  
   libevent.x86_64 0:2.0.21-4.el7  
 Complete!
```

```
sudo yum install emacs
```

```
[mickey@centos ~]$ sudo yum install emacs
Loaded plugins: langpacks
Resolving Dependencies
--> Running transaction check
--> Package emacs.x86_64 1:24.3-23.el7 will be installed
--> Processing Dependency: emacs-common = 1:24.3-23.el7 for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: libtiff.so.5(LIBTIFF_4.0)(64bit) for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: libjpeg.so.62(LIBJPEG_6.2)(64bit) for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: dejavu-sans-mono-fonts for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: libtiff.so.5()(64bit) for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: librsvg-2.so.2()(64bit) for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: libpangocairo-1.0.so.0()(64bit) for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: libpango-1.0.so.0()(64bit) for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: libotf.so.0()(64bit) for package: 1:emacs-24.3-23.el7.x86_64
--> Processing Dependency: libm17n-flt.so.0()(64bit) for package: 1:emacs-24.3-23.el7.x86_64
```

```
mickey@centos:~
```

```
mesa-libEGL.x86_64 0:18.3.4-12.el7_9
mesa-libGL.x86_64 0:18.3.4-12.el7_9
mesa-libgbm.x86_64 0:18.3.4-12.el7_9
mesa-libglapi.x86_64 0:18.3.4-12.el7_9
openjpeg2.x86_64 0:2.3.1-3.el7_7
pango.x86_64 0:1.42.4-4.el7_7
rest.x86_64 0:0.8.1-2.el7
urw-base35-bookman-fonts.noarch 0:20170801-10.el7
urw-base35-c059-fonts.noarch 0:20170801-10.el7
urw-base35-d050000l-fonts.noarch 0:20170801-10.el7
urw-base35-fonts.noarch 0:20170801-10.el7
urw-base35-fonts-common.noarch 0:20170801-10.el7
urw-base35-gothic-fonts.noarch 0:20170801-10.el7
urw-base35-nimbus-mono-ps-fonts.noarch 0:20170801-10.el7
urw-base35-nimbus-roman-fonts.noarch 0:20170801-10.el7
urw-base35-nimbus-sans-fonts.noarch 0:20170801-10.el7
urw-base35-p052-fonts.noarch 0:20170801-10.el7
urw-base35-standard-symbols-ps-fonts.noarch 0:20170801-10.el7
urw-base35-z003-fonts.noarch 0:20170801-10.el7
xkeyboard-config.noarch 0:2.24-1.el7
xorg-x11-font-utils.x86_64 1:7.5-21.el7
xorg-x11-server-utils.x86_64 0:7.7-20.el7

Complete!
[mickey@centos ~]$
```

```
sudo yum install fail2ban
```

```
mickey@centos:~ [mickey@centos ~]$ sudo yum install fail2ban
Loaded plugins: langpacks
No package fail2ban available.
Error: Nothing to do
[mickey@centos ~]$ sudo yum install epel-release
Loaded plugins: langpacks
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-openlogic 15 k

Transaction Summary
=====
Install 1 Package

Total download size: 15 k
Installed size: 24 k
```

```
mickey@centos:~ % 
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          1/4
  Installing : fail2ban-firewalld-0.11.2-3.el7.noarch        2/4
  Installing : fail2ban-sendmail-0.11.2-3.el7.noarch        3/4
  Installing : fail2ban-0.11.2-3.el7.noarch                  4/4
  Verifying   : fail2ban-firewalld-0.11.2-3.el7.noarch        1/4
  Verifying   : fail2ban-server-0.11.2-3.el7.noarch          2/4
  Verifying   : fail2ban-0.11.2-3.el7.noarch                  3/4
  Verifying   : fail2ban-sendmail-0.11.2-3.el7.noarch          4/4

Installed:
  fail2ban.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!
[mickey@centos ~]$
```

```
sudo cat /etc/fail2ban/fail2ban.conf
```

```
[mickey@centos ~]$ cat /etc/fail2ban/fail2ban.conf
# Fail2Ban main configuration file
#
# Comments: use '#' for comment lines and ';' (following a space) for inline comments
#
# Changes: in most of the cases you should not modify this
#           file, but provide customizations in fail2ban.local file, e.g.:
#
# [DEFAULT]
# loglevel = DEBUG
#
[DEFAULT]

# Option: loglevel
# Notes.: Set the log level output.
#          CRITICAL
#          ERROR
#          WARNING
#          NOTICE
#          INFO
#          DEBUG
# Values: [ LEVEL ] Default: INFO
#
loglevel = INFO

# Option: logtarget
# Notes.: Set the log target. This could be a file, SYSLOG, STDERR or STDOUT.
#          Only one log target can be specified.
#          If you change logtarget from the default value and you are
#          using logrotate -- also adjust or disable rotation in the
#          corresponding configuration file
#          (e.g. /etc/logrotate.d/fail2ban on Debian systems)
# Values: [ STDOUT | STDERR | SYSLOG | SYSOUT | FILE ] Default: STDERR
#
logtarget = /var/log/fail2ban.log

# Option: syslogsocket
# Notes: Set the syslog socket file. Only used when logtarget is SYSLOG
#        auto uses platform.system() to determine predefined paths
# Values: [ auto | FILE ] Default: auto
syslogsocket = auto

# Option: socket
# Notes.: Set the socket file. This is used to communicate with the daemon. Do
#         not remove this file when Fail2ban runs. It will not be possible to
#         communicate with the server afterwards.
# Values: [ FILE ] Default: /var/run/fail2ban/fail2ban.sock
#
socket = /var/run/fail2ban/fail2ban.sock

# Option: pidfile
# Notes.: Set the PID file. This is used to store the process ID of the
#          fail2ban server.
# Values: [ FILE ] Default: /var/run/fail2ban/fail2ban.pid
#
pidfile = /var/run/fail2ban/fail2ban.pid

# Options: dbfile
# Notes.: Set the file for the fail2ban persistent data to be stored.
#          A value of ":memory;" means database is only stored in memory
#          and data is lost when fail2ban is stopped.
#          A value of "None" disables the database.
# Values: [ None :memory: FILE ] Default: /var/lib/fail2ban/fail2ban.sqlite3
dbfile = /var/lib/fail2ban/fail2ban.sqlite3

# Options: dbpurgeage
# Notes.: Sets age at which bans should be purged from the database
# Values: [ SECONDS ] Default: 86400 (24hours)
dbpurgeage = 1d

# Options: dbmaxmatches
# Notes.: Number of matches stored in database per ticket (resolvable via
#          tags <ipmatches>/<ipjailmatches> in actions)
# Values: [ INT ] Default: 10
dbmaxmatches = 10

[Definition]

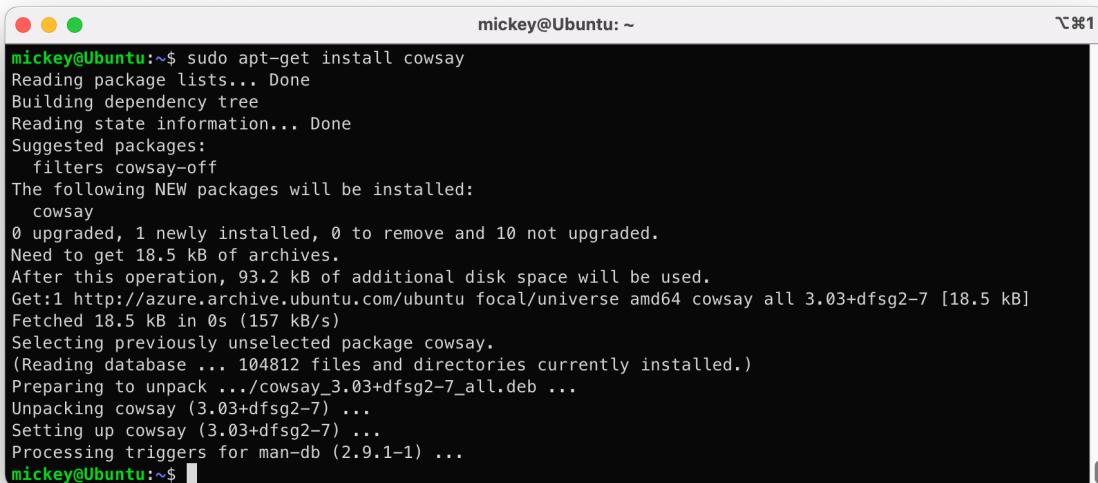
[Thread]

# Options: stacksize
# Notes.: Specifies the stack size (in KiB) to be used for subsequently created threads,
#          and must be 0 or a positive integer value of at least 32.
# Values: [ SIZE ] Default: 0 (use platform or configured default)
#stacksize = 0
[mickey@centos ~]$
```

3. Just for fun, install cowsay and lolcat. (Yes I know these are silly, the point is that i know they aren't there already.)

Ubuntu

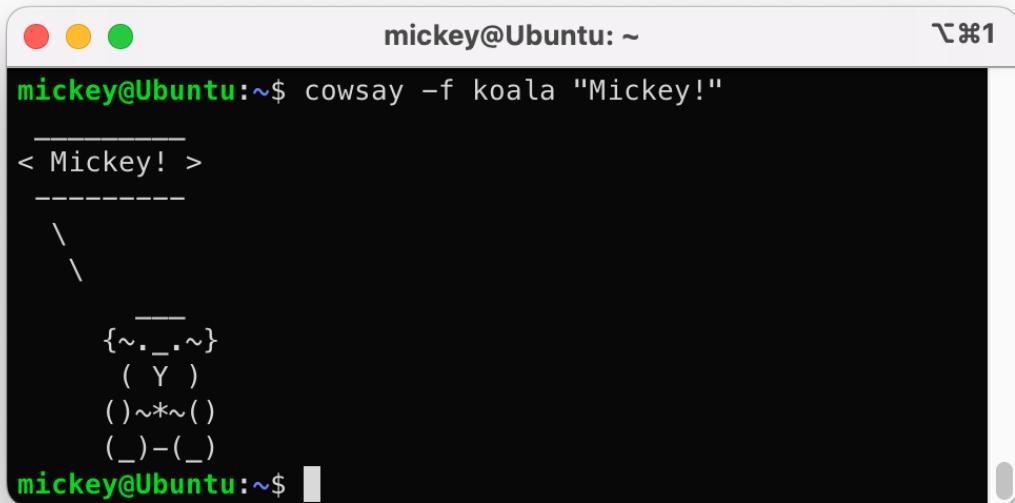
```
sudo apt-get install cowsay
```



A terminal window titled "mickey@Ubuntu: ~". The command "sudo apt-get install cowsay" is run, followed by its output. The output shows the package being installed from the "focal/universe" repository, with a file size of 18.5 kB. The process involves unpacking and setting up the "cowsay" package.

```
mickey@Ubuntu:~$ sudo apt-get install cowsay
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  filters cowsay-off
The following NEW packages will be installed:
  cowsay
0 upgraded, 1 newly installed, 0 to remove and 10 not upgraded.
Need to get 18.5 kB of archives.
After this operation, 93.2 kB of additional disk space will be used.
Get:1 http://azure.archive.ubuntu.com/ubuntu focal/universe amd64 cowsay all 3.03+dfsg2-7 [18.5 kB]
Fetched 18.5 kB in 0s (157 kB/s)
Selecting previously unselected package cowsay.
(Reading database ... 104812 files and directories currently installed.)
Preparing to unpack .../cowsay_3.03+dfsg2-7_all.deb ...
Unpacking cowsay (3.03+dfsg2-7) ...
Setting up cowsay (3.03+dfsg2-7) ...
Processing triggers for man-db (2.9.1-1) ...
mickey@Ubuntu:~$
```

```
cowsay -f koala "Mickey!"
```



A terminal window titled "mickey@Ubuntu: ~". The command "cowsay -f koala \"Mickey!\"" is run. The output is a cow head with the text "Mickey!" inside it, rendered in a stylized font.

```
mickey@Ubuntu:~$ cowsay -f koala "Mickey!"
_____
< Mickey! >
-----
\ \
  {~._.~}
    ( Y )
    ( )~*~( )
    ( _ )-( _ )
mickey@Ubuntu:~$
```

```
sudo apt-get install lolcat
```

```
mickey@Ubuntu:~$ sudo apt-get install lolcat
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fonts-lato javascript-common libjs-jquery libruby2.7 rake ruby ruby-minitest
    ruby-net-telnet ruby-paint ruby-power-assert ruby-test-unit ruby-trollop ruby-xmlrpc
    ruby2.7 rubygems-integration unzip zip
Suggested packages:
  apache2 | lighttpd | httpd ri ruby-dev bundler
The following NEW packages will be installed:
  fonts-lato javascript-common libjs-jquery libruby2.7 lolcat rake ruby ruby-minitest
    ruby-net-telnet ruby-paint ruby-power-assert ruby-test-unit ruby-trollop ruby-xmlrpc
    ruby2.7 rubygems-integration unzip zip
0 upgraded, 18 newly installed, 0 to remove and 10 not upgraded.
Need to get 7,267 kB of archives.
After this operation, 32.9 MB of additional disk space will be used.
```

```
echo "Mickey's Ubuntu" | lolcat
```

```
mickey@Ubuntu:~$ echo "Mickey's Ubuntu" | lolcat
Mickey's Ubuntu
mickey@Ubuntu:~$ echo "Mickey's Ubuntu" | lolcat
Mickey's Ubuntu
mickey@Ubuntu:~$ echo "Mickey's Ubuntu" | lolcat
Mickey's Ubuntu
mickey@Ubuntu:~$
```

CentOS

```
sudo yum install cowsay
```

```
[mickey@centos ~]$ sudo yum install cowsay
Loaded plugins: langpacks
Resolving Dependencies
--> Running transaction check
----> Package cowsay.noarch 0:3.04-4.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package           Arch      Version       Repository      Size
=====
Installing:
cowsay           noarch   3.04-4.el7   epel            42 k

Transaction Summary
=====
Install 1 Package

Total download size: 42 k
Installed size: 77 k
Is this ok [y/d/N]: y
Downloading packages:
cowsay-3.04-4.el7.noarch.rpm | 42 kB  00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : cowsay-3.04-4.el7.noarch          1/1
  Verifying  : cowsay-3.04-4.el7.noarch          1/1

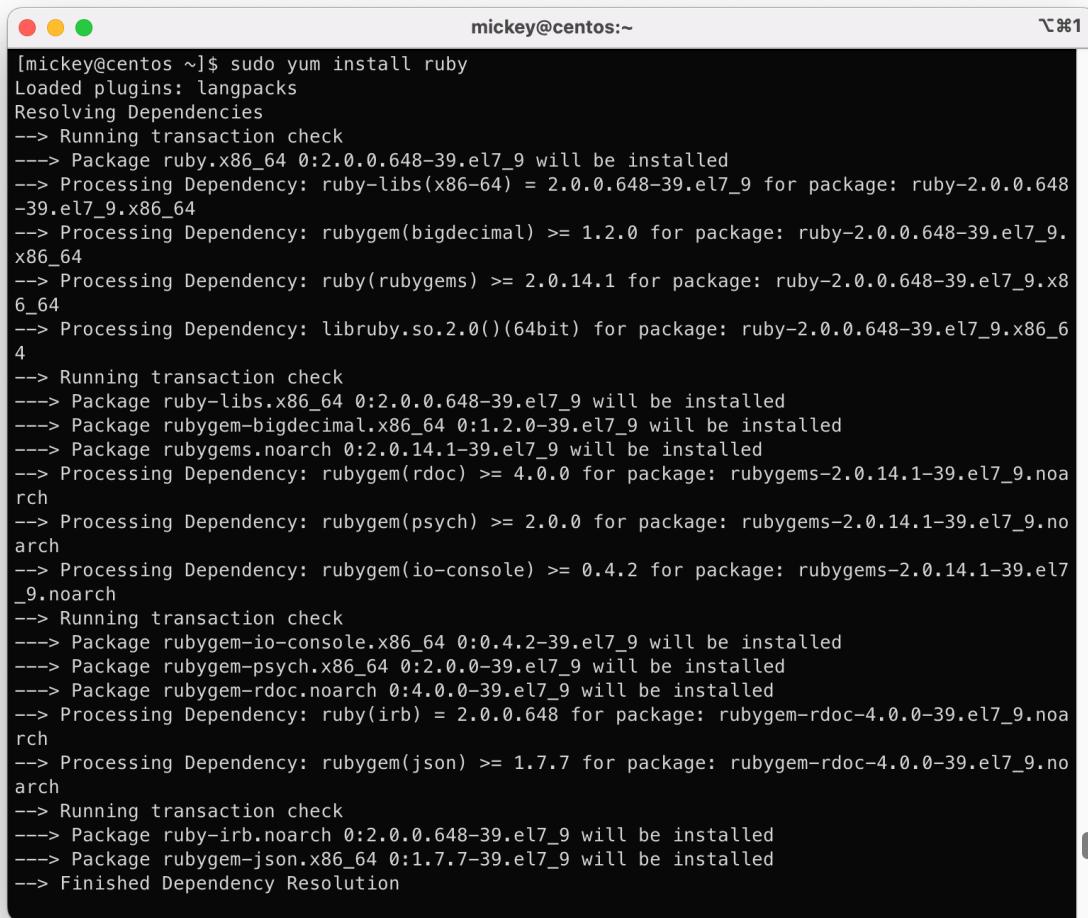
Installed:
cowsay.noarch 0:3.04-4.el7

Complete!
[mickey@centos ~]$
```

cowsay -f tux "Mickey!"

```
[mickey@centos lolcat-master]$ cowsay -f tux "Mickey"
< Mickey >
-----
 \ \
  .--.
 |o_o |
 |:_/ |
 //  \ \
 (|     | )
 /' \_ _/_\
 \___)=(_/
```

```
sudo yum install ruby
wget https://github.com/busyloop/lolcat/archive/master.zip
unzip master.zip
cd lolcat-master/
gem install lolcat
```



The screenshot shows a terminal window titled "mickey@centos:~". The command "sudo yum install ruby" was run, and the terminal displayed the following output:

```
[mickey@centos ~]$ sudo yum install ruby
Loaded plugins: langpacks
Resolving Dependencies
--> Running transaction check
--> Package ruby.x86_64 0:2.0.0.648-39.el7_9 will be installed
--> Processing Dependency: ruby-libs(x86-64) = 2.0.0.648-39.el7_9 for package: ruby-2.0.0.648-39.el7_9.x86_64
--> Processing Dependency: rubygem(bigdecimal) >= 1.2.0 for package: ruby-2.0.0.648-39.el7_9.x86_64
--> Processing Dependency: ruby(rubygems) >= 2.0.14.1 for package: ruby-2.0.0.648-39.el7_9.x86_64
--> Processing Dependency: libruby.so.2.0()(64bit) for package: ruby-2.0.0.648-39.el7_9.x86_64
--> Running transaction check
--> Package ruby-libs.x86_64 0:2.0.0.648-39.el7_9 will be installed
--> Package rubygem-bigdecimal.x86_64 0:1.2.0-39.el7_9 will be installed
--> Package rubygems.noarch 0:2.0.14.1-39.el7_9 will be installed
--> Processing Dependency: rubygem(rdoc) >= 4.0.0 for package: rubygems-2.0.14.1-39.el7_9.noarch
--> Processing Dependency: rubygem(psych) >= 2.0.0 for package: rubygems-2.0.14.1-39.el7_9.noarch
--> Processing Dependency: rubygem(io-console) >= 0.4.2 for package: rubygems-2.0.14.1-39.el7_9.noarch
--> Running transaction check
--> Package rubygem-io-console.x86_64 0:0.4.2-39.el7_9 will be installed
--> Package rubygem-psych.x86_64 0:2.0.0-39.el7_9 will be installed
--> Package rubygem-rdoc.noarch 0:4.0.0-39.el7_9 will be installed
--> Processing Dependency: ruby(irb) = 2.0.0.648 for package: rubygem-rdoc-4.0.0-39.el7_9.noarch
--> Processing Dependency: rubygem(json) >= 1.7.7 for package: rubygem-rdoc-4.0.0-39.el7_9.noarch
--> Running transaction check
--> Package ruby-irb.noarch 0:2.0.0.648-39.el7_9 will be installed
--> Package rubygem-json.x86_64 0:1.7.7-39.el7_9 will be installed
--> Finished Dependency Resolution
```

```
mickey@centos:~
```

```
Total 7.9 MB/s | 3.8 MB 00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : ruby-libs-2.0.0.648-39.el7_9.x86_64 1/9
  Installing : ruby-irb-2.0.0.648-39.el7_9.noarch 2/9
  Installing : rubygem-psych-2.0.0-39.el7_9.x86_64 3/9
  Installing : rubygem-rdoc-4.0.0-39.el7_9.noarch 4/9
  Installing : rubygem-json-1.7.7-39.el7_9.x86_64 5/9
  Installing : rubygem-bigdecimal-1.2.0-39.el7_9.x86_64 6/9
  Installing : rubygem-io-console-0.4.2-39.el7_9.x86_64 7/9
  Installing : rubygems-2.0.14.1-39.el7_9.noarch 8/9
  Installing : ruby-2.0.0.648-39.el7_9.x86_64 9/9
  Verifying   : ruby-2.0.0.648-39.el7_9.x86_64 1/9
  Verifying   : rubygem-psych-2.0.0-39.el7_9.x86_64 2/9
  Verifying   : rubygem-rdoc-4.0.0-39.el7_9.noarch 3/9
  Verifying   : ruby-libs-2.0.0.648-39.el7_9.x86_64 4/9
  Verifying   : rubygem-json-1.7.7-39.el7_9.x86_64 5/9
  Verifying   : rubygem-bigdecimal-1.2.0-39.el7_9.x86_64 6/9
  Verifying   : ruby-irb-2.0.0.648-39.el7_9.noarch 7/9
  Verifying   : rubygems-2.0.14.1-39.el7_9.noarch 8/9
  Verifying   : rubygem-io-console-0.4.2-39.el7_9.x86_64 9/9

Installed:
  ruby.x86_64 0:2.0.0.648-39.el7_9

Dependency Installed:
  ruby-irb.noarch 0:2.0.0.648-39.el7_9           ruby-libs.x86_64 0:2.0.0.648-39.el7_9
  rubygem-bigdecimal.x86_64 0:1.2.0-39.el7_9      rubygem-io-console.x86_64 0:0.4.2-39.el7_9
  rubygem-json.x86_64 0:1.7.7-39.el7_9          rubygem-psych.x86_64 0:2.0.0-39.el7_9
  rubygem-rdoc.noarch 0:4.0.0-39.el7_9           rubygems.noarch 0:2.0.14.1-39.el7_9

Complete!
[mickey@centos ~]$
```

```
mickey@centos:~/lolcat-master
```

```
Dependency Installed:
 ruby-irb.noarch 0:2.0.0.648-39.el7_9      ruby-libs.x86_64 0:2.0.0.648-39.el7_9
 rubygem-bigdecimal.x86_64 0:1.2.0-39.el7_9   rubygem-io-console.x86_64 0:0.4.2-39.el7_9
 rubygem-json.x86_64 0:1.7.7-39.el7_9       rubygem-psych.x86_64 0:2.0.0-39.el7_9
 rubygem-rdoc.noarch 0:4.0.0-39.el7_9        rubygems.noarch 0:2.0.14.1-39.el7_9

Complete!
[mickey@centos ~]$ 
[mickey@centos ~]$ ruby -v
ruby 2.0.0p648 (2015-12-16) [x86_64-linux]
[mickey@centos ~]$ wget https://github.com/busyloop/lolcat/archive/master.zip
--2022-10-23 09:48:25--  https://github.com/busyloop/lolcat/archive/master.zip
Resolving github.com (github.com)... 140.82.113.3
Connecting to github.com (github.com)|140.82.113.3|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://codeload.github.com/busyloop/lolcat/zip/refs/heads/master [following]
--2022-10-23 09:48:25--  https://codeload.github.com/busyloop/lolcat/zip/refs/heads/master
Resolving codeload.github.com (codeload.github.com)... 140.82.113.9
Connecting to codeload.github.com (codeload.github.com)|140.82.113.9|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [application/zip]
Saving to: 'master.zip'

[ <=>                                ] 121,154      624KB/s  in 0.2s

2022-10-23 09:48:26 (624 KB/s) - 'master.zip' saved [121154]

[mickey@centos ~]$ unzip master.zip
Archive:  master.zip
f4cca5601ea57df2b5b3c98feeaa8ad05f4421039
  creating: lolcat-master/
  extracting: lolcat-master/.gitignore
  inflating: lolcat-master/Gemfile
  inflating: lolcat-master/LICENSE
  inflating: lolcat-master/README.md
  extracting: lolcat-master/Rakefile
```

```
lolcat -h
```

```
mickey@centos:~/lolcat-master
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
4 gems installed
[mickey@centos lolcat-master]$ lolcat -h

Usage: lolcat [OPTION]... [FILE]...

Concatenate FILE(s), or standard input, to standard output.
With no FILE, or when FILE is -, read standard input.

-p, --spread=<f>      Rainbow spread (default: 3.0)
-F, --freq=<f>         Rainbow frequency (default: 0.1)
-S, --seed=<i>          Rainbow seed, 0 = random (default: 0)
-a, --animate           Enable psychedelics
-d, --duration=<i>     Animation duration (default: 12)
-s, --speed=<f>         Animation speed (default: 20.0)
-i, --invert             Invert fg and bg
-t, --truecolor          24-bit (truecolor)
-f, --force              Force color even when stdout is not a tty
-v, --version            Print version and exit
-h, --help               Show this message

Examples:
lolcat f - g      Output f's contents, then stdin, then g's contents.
lolcat           Copy standard input to standard output.
fortune | lolcat Display a rainbow cookie.

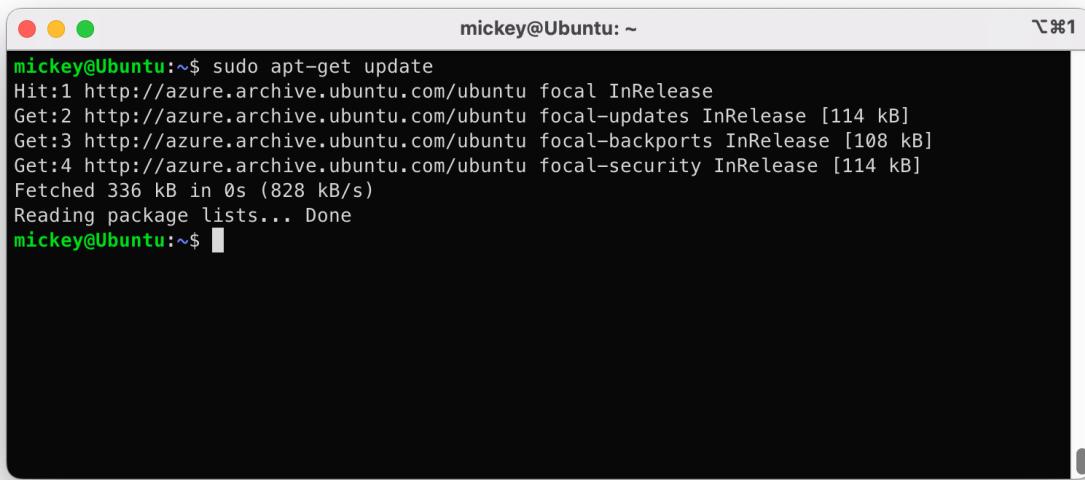
Report lolcat bugs to <https://github.com/busyloop/lolcat/issues>
lolcat home page: <https://github.com/busyloop/lolcat/>
Report lolcat translation bugs to <http://speaklolcat.com/>

[mickey@centos lolcat-master]$
```

4. Update VI to vim, update your servers if it's needed.

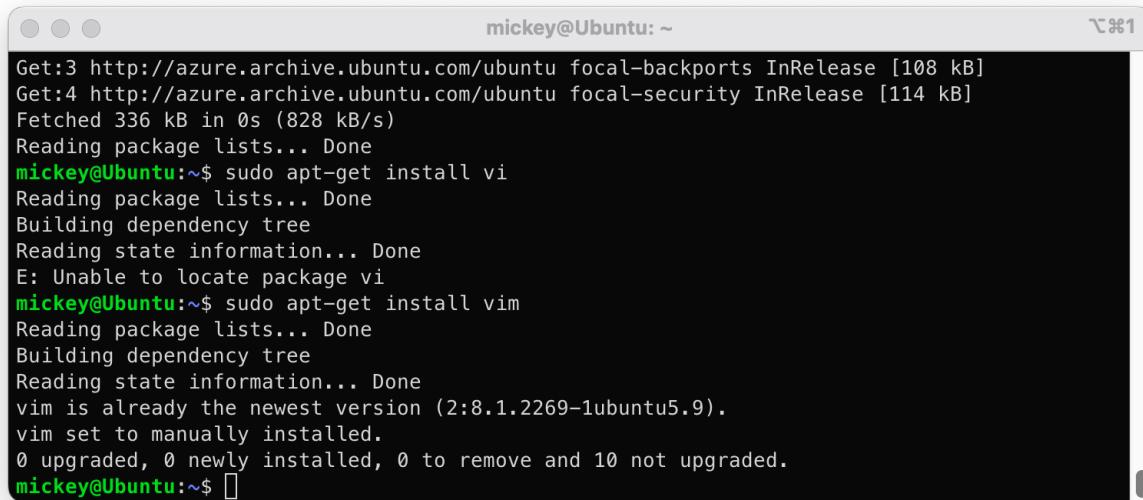
Ubuntu

```
sudo apt-get update
```



```
mickey@Ubuntu:~$ sudo apt-get update
Hit:1 http://azure.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://azure.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://azure.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Fetched 336 kB in 0s (828 kB/s)
Reading package lists... Done
mickey@Ubuntu:~$
```

```
sudo apt-get install vim
```



```
mickey@Ubuntu:~$ sudo apt-get install vi
Get:3 http://azure.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:4 http://azure.archive.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Fetched 336 kB in 0s (828 kB/s)
Reading package lists... Done
mickey@Ubuntu:~$ sudo apt-get install vim
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package vi
mickey@Ubuntu:~$ sudo apt-get install vim
Reading package lists... Done
Building dependency tree
Reading state information... Done
vim is already the newest version (2:8.1.2269-1ubuntu5.9).
vim set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 10 not upgraded.
mickey@Ubuntu:~$
```

CentOS

```
sudo yum clean all
sudo yum update
```

```
mickey@centos:~ % ssh -i ~/.ssh/mickey mickey@20.168.23.139
Last login: Sat Sep 17 22:35:44 2022 from 23.105.134.162
[mickey@centos ~]$ 
[mickey@centos ~]$ yum clean all
Loaded plugins: langpacks
Cleaning repos: base-openlogic extras-openlogic updates-openlogic base extras
               : openlogic updates
[mickey@centos ~]$ 
[mickey@centos ~]$ yum update
Loaded plugins: langpacks
You need to be root to perform this command.
[mickey@centos ~]$ sudo yum update
Loaded plugins: langpacks
base-openlogic           | 3.1 kB   00:00
extras-openlogic          | 2.5 kB   00:00
updates-openlogic         | 2.6 kB   00:00
base                      | 3.6 kB   00:00
extras                     | 2.9 kB   00:00
openlogic                  | 2.9 kB   00:00
updates                    | 2.9 kB   00:00
(1/9): base-openlogic/7/x86_64/group_gz      | 153 kB   00:00
(2/9): extras-openlogic/7/x86_64/primary_db  | 250 kB   00:00
(3/9): base/7/x86_64/group_gz                | 153 kB   00:00
(4/9): base-openlogic/7/x86_64/primary_db    | 6.1 MB   00:00
(5/9): openlogic/7/x86_64/primary_db          | 35 kB    00:00
```

mickey@centos:~

openssl.x86_64 1:1.0.2k-25.el7_9
openssl-libs.x86_64 1:1.0.2k-25.el7_9
python.x86_64 0:2.7.5-92.el7_9
python-libs.x86_64 0:2.7.5-92.el7_9
python-perf.x86_64 0:3.10.0-1160.76.1.el7
rsync.x86_64 0:3.1.2-11.el7_9
rsyslog.x86_64 0:8.24.0-57.el7_9.3
samba-client-libs.x86_64 0:4.10.16-20.el7_9
samba-common.noarch 0:4.10.16-20.el7_9
samba-common-libs.x86_64 0:4.10.16-20.el7_9
sos.noarch 0:3.9-5.el7.centos.11
sssd-client.x86_64 0:1.16.5-10.el7_9.13
systemd.x86_64 0:219-78.el7_9.7
systemd-libs.x86_64 0:219-78.el7_9.7
systemd-python.x86_64 0:219-78.el7_9.7
systemd-sysv.x86_64 0:219-78.el7_9.7
tuned.noarch 0:2.11.0-12.el7_9
tzdata.noarch 0:2022d-1.el7
xfsdump.x86_64 0:3.1.7-2.el7_9
xz.x86_64 0:5.2.2-2.el7_9
xz-libs.x86_64 0:5.2.2-2.el7_9
zlib.x86_64 0:1.2.7-20.el7_9

Complete!
[mickey@centos ~]\$

vim --version

```
[mickey@centos ~]$ vim --version
VIM - Vi IMproved 7.4 (2013 Aug 10, compiled Dec 15 2020 16:44:08)
Included patches: 1-207, 209-629
Modified by <bugzilla@redhat.com>
Compiled by <bugzilla@redhat.com>
Huge version without GUI. Features included (+) or not (-):
+acl          +farsi          +mouse_netterm   +syntax
+arabic       +file_in_path   +mouse_sgr        +tag_binary
+autocmd      +find_in_path   -mouse_sysmouse +tag_old_static
-balloon_eval +float          +mouse_urxvt     -tag_any_white
/browse       +folding         +mouse_xterm     -tcl
++builtin_terms -footer        +multi_byte      +terminfo
+byte_offset   +fork()         +multi_lang      +termresponse
+cindent       +gettext         -mzscheme        +textobjects
-clientserver -hangul_input  +netbeans_intg   +title
-clipboard    +iconv           +path_extra      -toolbar
+cmdline_compl +insert_expand +perl            +user_commands
+cmdline_hist  +jumplist       +persistent_undo +vertsplit
+cmdline_info  +keymap         +postscript      +virtualedit
+comments     +langmap         +printer         +visual
+conceal       +libcall         +profile         +visualextra
+cryptv        +linebreak      +python/dyn     +viminfo
+cscope        +lispindent     -python3         +vreplace
+cursorbind   +listcmds      +quickfix       +wildignore
+cursorshape  +localmap      +reltime         +wildmenu
```

```
sudo yum update vim*
```

```
[mickey@centos ~]$ sudo yum update vim*
Loaded plugins: langpacks
base-openlogic                                         | 3.1 kB  00:00
extras-openlogic                                      | 2.5 kB  00:00
updates-openlogic                                     | 2.6 kB  00:00
base                                                 | 3.6 kB  00:00
epel/x86_64/metalink                                | 15 kB   00:00
epel                                                | 4.7 kB  00:00
extras                                              | 2.9 kB  00:00
openlogic                                           | 2.9 kB  00:00
updates                                             | 2.9 kB  00:00
(1/2): epel/x86_64/updateinfo                      | 1.0 MB  00:00
(2/2): epel/x86_64/primary_db                        | 7.0 MB  00:01
No packages marked for update
[mickey@centos ~]$
```

On both the Ubuntu and CentOS VMs the following have been installed: - Tmux - Emacs - fail2ban - cowsay - lolcat

Ubuntu updated to lastest repositories that was invoked by `sudo apt-get update` and CentOS via `yum update`. Updated as of 23rd Oct, 2022.

- No change have been made to fail2Ban configuration. It can be updated as the need arises.

References:

1. <https://askubuntu.com/questions/148932/how-can-i-get-a-list-of-all-repositories-and-ppas-from-the-command-line-into-an>
2. <https://linuxize.com/post/how-to-add-apt-repository-in-ubuntu/>
3. https://www.fail2ban.org/wiki/index.php/Main_Page
4. <https://packages.ubuntu.com/bionic/fail2ban>
5. <https://upcloud.com/resources/tutorials/install-fail2ban-centos>
6. <https://www.tecmint.com/lolcat-command-to-output-rainbow-of-colors-in-linux-terminal/>
7. <https://www.redhat.com/sysadmin/add-yum-repository>
8. <https://kerneltalks.com/howto/how-to-list-yum-repositories-in-rhel-centos/>