Upgrading Software with APT on Linux Ubuntu Server 22.04.02

Upgrading software with Apt.

Apt, the Advanced Packaging Tool, is a command line application at the heart of Debian systems which handles the installation, categorization and removal of applications and their dependencies from the software repositories. Apt is available via the Terminal and we can even administrate systems using a remote connection such as SSH.

First use the Apt "update" command to determine the latest updates that are available from our software repositories for purposes of next upgrading those existing installed applications for which updates are available. To upgrade all of our currently installed software applications on Ubuntu, we can then use the "upgrade" command. Using the "upgrade" command along with first using the "update" command, we can ensure that our software repositories are up-to-date, meaning that any new software is at the latest version. So, the following is the two step process of using Apt to update and upgrade existing installed applications:

1. Open a terminal or SSH to the Ubuntu server and use the update command. The update command will update the list of available software application packages for your machine.

```
$ sudo apt update
```

2. Run the upgrade command to download and install the latest software. We can use the -y switch to automatically agree to installing the application upgrade, or don't use the -y switch and answer "yes" or "y" when prompted after submitting the upgrade command.

```
$ sudo apt upgrade -y
```

We can also chain together these commands into a one line script. Using "&&" between the commands we can instruct the system to chain the commands to run one after the other. The "&&" means that the second command will only run if the first command runs successfully.

```
$ sudo apt update && sudo apt upgrade -y
```

Example of Update and Upgrade:

```
user@svr1:~$ sudo apt update
[sudo] password for user:
```

```
Hit:1 http://us.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease [108 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages
[721 kB]
Get:6 http://us.archive.ubuntu.com/ubuntu jammy-updates/universe amd64
Packages [927 kB]
```

```
Fetched 1,986 kB in 1s (1,386 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
59 packages can be upgraded. Run 'apt list --upgradable' to see them.
user@svr1:~$
```

```
user@svr1:~$ sudo apt list --upgradable
```

```
Listing... Done
apparmor/jammy-updates 3.0.4-2ubuntu2.2 amd64 [upgradable from:
3.0.4-2ubuntu2.1]
apport/jammy-updates 2.20.11-0ubuntu82.5 all [upgradable from:
2.20.11-0ubuntu82.4]
apt-utils/jammy-updates 2.4.9 amd64 [upgradable from: 2.4.8]
apt/jammy-updates 2.4.9 amd64 [upgradable from: 2.4.8]
bind9-dnsutils/jammy-updates 1:9.18.12-0ubuntu0.22.04.1 amd64 [upgradable
from: 1:9.18.1-1ubuntu1.3]
bind9-host/jammy-updates 1:9.18.12-0ubuntu0.22.04.1 amd64 [upgradable from:
1:9.18.1-1ubuntu1.3]
bind9-libs/jammy-updates 1:9.18.12-0ubuntu0.22.04.1 amd64 [upgradable from:
1:9.18.1-1ubuntu1.3]
distro-info-data/jammy-updates 0.52ubuntu0.4 all [upgradable from:
0.52ubuntu0.2]
dpkg/jammy-updates 1.21.1ubuntu2.2 amd64 [upgradable from: 1.21.1ubuntu2.1]
fwupd-signed/jammy-updates 1.51.1~22.04.1+1.4-0ubuntu0.1 amd64 [upgradable
from: 1.51~22.04.1+1.2-3ubuntu0.2]
fwupd/jammy-updates 1.7.9-1~22.04.3 amd64 [upgradable from: 1.7.9-1~22.04.1]
iptables/jammy-updates 1.8.7-1ubuntu5.1 amd64 [upgradable from:
1.8.7-1ubuntu5]
isc-dhcp-client/jammy-updates 4.4.1-2.3ubuntu2.4 amd64 [upgradable from:
4.4.1-2.3ubuntu2.3]
isc-dhcp-common/jammy-updates 4.4.1-2.3ubuntu2.4 amd64 [upgradable from:
4.4.1-2.3ubuntu2.3]
libapparmor1/jammy-updates 3.0.4-2ubuntu2.2 amd64 [upgradable from:
3.0.4-2ubuntu2.1]
libapt-pkg6.0/jammy-updates 2.4.9 amd64 [upgradable from: 2.4.8]
libfwupd2/jammy-updates 1.7.9-1~22.04.3 amd64 [upgradable from:
1.7.9-1~22.04.1]
libfwupdplugin5/jammy-updates 1.7.9-1~22.04.3 amd64 [upgradable from:
1.7.9-1~22.04.1]
libgssapi-krb5-2/jammy-updates 1.19.2-2ubuntu0.2 amd64 [upgradable from:
1.19.2-2ubuntu0.1]
libip4tc2/jammy-updates 1.8.7-1ubuntu5.1 amd64 [upgradable from:
1.8.7-1ubuntu5]
libip6tc2/jammy-updates 1.8.7-1ubuntu5.1 amd64 [upgradable from:
1.8.7-1ubuntu5]
libk5crypto3/jammy-updates 1.19.2-2ubuntu0.2 amd64 [upgradable from:
1.19.2-2ubuntu0.1]
```

```
libkrb5-3/jammy-updates 1.19.2-2ubuntu0.2 amd64 [upgradable from:
1.19.2-2ubuntu0.1]
libkrb5support0/jammy-updates 1.19.2-2ubuntu0.2 amd64 [upgradable from:
1.19.2-2ubuntu0.1]
libldap-2.5-0/jammy-updates 2.5.14+dfsg-0ubuntu0.22.04.2 amd64 [upgradable
from: 2.5.13+dfsg-0ubuntu0.22.04.1]
libldap-common/jammy-updates 2.5.14+dfsg-0ubuntu0.22.04.2 all [upgradable
from: 2.5.13+dfsg-0ubuntu0.22.04.1]
libmbim-glib4/jammy-updates 1.28.0-1~ubuntu20.04.1 amd64 [upgradable from:
1.26.2-1build1]
libmbim-proxy/jammy-updates 1.28.0-1~ubuntu20.04.1 amd64 [upgradable from:
1.26.2-1build1]
libmm-glib0/jammy-updates 1.20.0-1~ubuntu22.04.1 amd64 [upgradable from:
1.18.6-1]
libnetplan0/jammy-updates 0.105-0ubuntu2~22.04.3 amd64 [upgradable from:
0.105-0ubuntu2~22.04.1]
libnss-systemd/jammy-updates 249.11-0ubuntu3.9 amd64 [upgradable from:
249.11-0ubuntu3.7]
libpam-systemd/jammy-updates 249.11-0ubuntu3.9 amd64 [upgradable from:
249.11-0ubuntu3.7]
libqmi-glib5/jammy-updates 1.32.0-1ubuntu0.22.04.1 amd64 [upgradable from:
1.30.4-1]
libqmi-proxy/jammy-updates 1.32.0-1ubuntu0.22.04.1 amd64 [upgradable from:
1.30.4-1]
libsasl2-2/jammy-updates 2.1.27+dfsg2-3ubuntu1.2 amd64 [upgradable from:
2.1.27+dfsg2-3ubuntu1.1]
libsasl2-modules-db/jammy-updates 2.1.27+dfsg2-3ubuntu1.2 amd64 [upgradable
from: 2.1.27+dfsg2-3ubuntu1.1]
libsasl2-modules/jammy-updates 2.1.27+dfsg2-3ubuntu1.2 amd64 [upgradable
from: 2.1.27+dfsg2-3ubuntu1.1]
libsystemd0/jammy-updates 249.11-0ubuntu3.9 amd64 [upgradable from:
249.11-0ubuntu3.7]
libudev1/jammy-updates 249.11-0ubuntu3.9 amd64 [upgradable from:
249.11-0ubuntu3.7]
libxtables12/jammy-updates 1.8.7-1ubuntu5.1 amd64 [upgradable from:
1.8.7-1ubuntu5]
mdadm/jammy-updates 4.2-0ubuntu2 amd64 [upgradable from: 4.2-0ubuntu1]
modemmanager/jammy-updates 1.20.0-1~ubuntu22.04.1 amd64 [upgradable from:
1.18.6-1]
netplan.io/jammy-updates 0.105-0ubuntu2~22.04.3 amd64 [upgradable from:
0.105-0ubuntu2~22.04.1]
open-vm-tools/jammy-updates 2:12.1.5-3~ubuntu0.22.04.1 amd64 [upgradable
from: 2:12.1.0-1~ubuntu0.22.04.1]
python3-apport/jammy-updates 2.20.11-0ubuntu82.5 all [upgradable from:
2.20.11-0ubuntu82.4]
python3-problem-report/jammy-updates 2.20.11-0ubuntu82.5 all [upgradable
from: 2.20.11-0ubuntu82.4]
python3-software-properties/jammy-updates 0.99.22.7 all [upgradable from:
0.99.22.5]
python3-tz/jammy-updates 2022.1-1ubuntu0.22.04.1 all [upgradable from:
2022.1-1ubuntu0.22.04.0]
```

```
software-properties-common/jammy-updates 0.99.22.7 all [upgradable from:
0.99.22.5]
systemd-hwe-hwdb/jammy-updates 249.11.3 all [upgradable from: 249.11.2]
systemd-sysv/jammy-updates 249.11-0ubuntu3.9 amd64 [upgradable from:
249.11-0ubuntu3.7]
systemd-timesyncd/jammy-updates 249.11-0ubuntu3.9 amd64 [upgradable from:
249.11-0ubuntu3.7]
systemd/jammy-updates 249.11-0ubuntu3.9 amd64 [upgradable from:
249.11-0ubuntu3.7]
tcpdump/jammy-updates 4.99.1-3ubuntu0.1 amd64 [upgradable from:
4.99.1-3build2]
tzdata/jammy-updates 2023c-0ubuntu0.22.04.2 all [upgradable from:
2023c-0ubuntu0.22.04.0]
ubuntu-advantage-tools/jammy-updates 27.14.4~22.04 amd64 [upgradable from:
27.13.5~22.04.1]
ubuntu-drivers-common/jammy-updates 1:0.9.6.2~0.22.04.3 amd64 [upgradable
from: 1:0.9.6.1]
udev/jammy-updates 249.11-0ubuntu3.9 amd64 [upgradable from:
249.11-0ubuntu3.7]
update-notifier-common/jammy-updates 3.192.54.6 all [upgradable from:
3.192.54.5]
user@svr1:~$
```

```
user@svr1:~$ sudo apt upgrade
```

```
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages will be upgraded:
  apparmor apport apt apt-utils bind9-dnsutils bind9-host bind9-libs distro-
info-data dpkg fwupd fwupd-signed iptables
  isc-dhcp-client isc-dhcp-common libapparmor1 libapt-pkg6.0 libfwupd2
libfwupdplugin5 libgssapi-krb5-2 libip4tc2
  libip6tc2 libk5crypto3 libkrb5-3 libkrb5support0 libldap-2.5-0 libldap-
common libmbim-glib4 libmbim-proxy
  libmm-glib0 libnetplan0 libnss-systemd libpam-systemd libqmi-glib5 libqmi-
proxy libsasl2-2 libsasl2-modules
  libsasl2-modules-db libsystemd0 libudev1 libxtables12 mdadm modemmanager
netplan.io open-vm-tools python3-apport
  python3-problem-report python3-software-properties python3-tz software-
properties-common systemd systemd-hwe-hwdb
  systemd-sysv systemd-timesyncd tcpdump tzdata ubuntu-advantage-tools
ubuntu-drivers-common udev
  update-notifier-common
59 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Need to get 22.7 MB of archives.
After this operation, 1,428 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Answer the prompt:

```
Do you want to continue? [Y/n] Y
```

The Upgrading Output follows:

```
Get:1 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnss-
systemd amd64 249.11-0ubuntu3.9 [133 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libsystemd0 amd64 249.11-0ubuntu3.9 [318 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 systemd-
timesyncd amd64 249.11-0ubuntu3.9 [31.2 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 systemd-
sysv amd64 249.11-0ubuntu3.9 [10.5 kB]
Get:5 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libpam-
systemd amd64 249.11-0ubuntu3.9 [203 kB]
Get:6 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 systemd
amd64 249.11-0ubuntu3.9 [4,581 kB]
Get:7 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 udev
amd64 249.11-0ubuntu3.9 [1,557 kB]
Get:8 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libudev1
amd64 249.11-0ubuntu3.9 [77.1 kB]
Get:9 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libapparmor1 amd64 3.0.4-2ubuntu2.2 [39.2 kB]
Get:10 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libxtables12 amd64 1.8.7-1ubuntu5.1 [31.2 kB]
Get:11 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 iptables
amd64 1.8.7-1ubuntu5.1 [455 kB]
Get:12 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libip6tc2 amd64 1.8.7-1ubuntu5.1 [20.2 kB]
Get:13 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libip4tc2 amd64 1.8.7-1ubuntu5.1 [19.8 kB]
Get:14 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libapt-
pkg6.0 amd64 2.4.9 [906 kB]
Get:15 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dpkg
amd64 1.21.1ubuntu2.2 [1,239 kB]
Get:16 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apt
amd64 2.4.9 [1,379 kB]
Get:17 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apt-
utils amd64 2.4.9 [211 kB]
Get:18 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ubuntu-
drivers-common amd64 1:0.9.6.2~0.22.04.3 [58.4 kB]
Get:19 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 update-
notifier-common all 3.192.54.6 [185 kB]
Get:20 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 open-vm-
tools amd64 2:12.1.5-3~ubuntu0.22.04.1 [742 kB]
Get:21 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libk5crypto3 amd64 1.19.2-2ubuntu0.2 [86.3 kB]
Get:22 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libkrb5support0 amd64 1.19.2-2ubuntu0.2 [32.3 kB]
Get:23 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
```

```
libkrb5-3 amd64 1.19.2-2ubuntu0.2 [357 kB]
Get:24 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libgssapi-krb5-2 amd64 1.19.2-2ubuntu0.2 [145 kB]
Get:25 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 distro-
info-data all 0.52ubuntu0.4 [4,986 B]
Get:26 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 isc-
dhcp-client amd64 4.4.1-2.3ubuntu2.4 [235 kB]
Get:27 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 isc-
dhcp-common amd64 4.4.1-2.3ubuntu2.4 [45.0 kB]
Get:28 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
netplan.io amd64 0.105-0ubuntu2~22.04.3 [92.9 kB]
Get:29 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libnetplan0 amd64 0.105-0ubuntu2~22.04.3 [103 kB]
Get:30 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 tzdata
all 2023c-0ubuntu0.22.04.2 [349 kB]
Get:31 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ubuntu-
advantage-tools amd64 27.14.4~22.04 [171 kB]
Get:32 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apparmor
amd64 3.0.4-2ubuntu2.2 [595 kB]
Get:33 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 bind9-
host amd64 1:9.18.12-0ubuntu0.22.04.1 [52.4 kB]
Get:34 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 bind9-
dnsutils amd64 1:9.18.12-0ubuntu0.22.04.1 [157 kB]
Get:35 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 bind9-
libs amd64 1:9.18.12-0ubuntu0.22.04.1 [1,240 kB]
Get:36 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 tcpdump
amd64 4.99.1-3ubuntu0.1 [501 kB]
Get:37 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-
problem-report all 2.20.11-0ubuntu82.5 [11.1 kB]
Get:38 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-
apport all 2.20.11-0ubuntu82.5 [88.9 kB]
Get:39 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apport
all 2.20.11-0ubuntu82.5 [133 kB]
Get:40 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 fwupd
amd64 1.7.9-1~22.04.3 [2,562 kB]
Get:41 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libfwupdplugin5 amd64 1.7.9-1~22.04.3 [191 kB]
Get:42 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libfwupd2 amd64 1.7.9-1~22.04.3 [106 kB]
Get:43 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libmbim-
proxy amd64 1.28.0-1~ubuntu20.04.1 [6,130 B]
Get:44 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libmbim-
glib4 amd64 1.28.0-1~ubuntu20.04.1 [191 kB]
Get:45 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libmm-
glib0 amd64 1.20.0-1~ubuntu22.04.1 [263 kB]
Get:46 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libqmi-
proxy amd64 1.32.0-1ubuntu0.22.04.1 [6,072 B]
Get:47 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libqmi-
glib5 amd64 1.32.0-1ubuntu0.22.04.1 [772 kB]
Get:48 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 fwupd-
```

```
signed amd64 1.51.1~22.04.1+1.4-0ubuntu0.1 [30.3 kB]
Get:49 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libsasl2-modules-db amd64 2.1.27+dfsg2-3ubuntu1.2 [20.5 kB]
Get:50 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libsasl2-2 amd64 2.1.27+dfsg2-3ubuntu1.2 [53.8 kB]
Get:51 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libldap-2.5-0 amd64 2.5.14+dfsg-0ubuntu0.22.04.2 [183 kB]
Get:52 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libldap-
common all 2.5.14+dfsg-0ubuntu0.22.04.2 [15.8 kB]
Get:53 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
libsasl2-modules amd64 2.1.27+dfsg2-3ubuntu1.2 [68.8 kB]
Get:54 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mdadm
amd64 4.2-0ubuntu2 [464 kB]
Get:55 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
modemmanager amd64 1.20.0-1~ubuntu22.04.1 [1,094 kB]
Get:56 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64
software-properties-common all 0.99.22.7 [14.1 kB]
Get:57 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-
software-properties all 0.99.22.7 [28.8 kB]
Get:58 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-
tz all 2022.1-1ubuntu0.22.04.1 [30.7 kB]
Get:59 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 systemd-
hwe-hwdb all 249.11.3 [2,908 B]
Fetched 22.7 MB in 9s (2,603 kB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
(Reading database ... 74047 files and directories currently installed.)
Preparing to unpack .../libnss-systemd_249.11-0ubuntu3.9_amd64.deb ...
Unpacking libnss-systemd:amd64 (249.11-0ubuntu3.9) over (249.11-0ubuntu3.7)
...
Preparing to unpack .../libsystemd0_249.11-0ubuntu3.9_amd64.deb ...
Unpacking libsystemd0:amd64 (249.11-0ubuntu3.9) over (249.11-0ubuntu3.7) ...
Setting up libsystemd0:amd64 (249.11-0ubuntu3.9) ...
(Reading database ... 74047 files and directories currently installed.)
Preparing to unpack .../0-systemd-timesyncd_249.11-0ubuntu3.9_amd64.deb ...
Unpacking systemd-timesyncd (249.11-0ubuntu3.9) over (249.11-0ubuntu3.7) ...
Preparing to unpack .../1-systemd-sysv_249.11-0ubuntu3.9_amd64.deb ...
Unpacking systemd-sysv (249.11-0ubuntu3.9) over (249.11-0ubuntu3.7) ...
Preparing to unpack .../2-libpam-systemd_249.11-0ubuntu3.9_amd64.deb ...
Unpacking libpam-systemd:amd64 (249.11-0ubuntu3.9) over (249.11-0ubuntu3.7)
...
Preparing to unpack .../3-systemd_249.11-0ubuntu3.9_amd64.deb ...
Unpacking systemd (249.11-0ubuntu3.9) over (249.11-0ubuntu3.7) ...
Preparing to unpack .../4-udev_249.11-0ubuntu3.9_amd64.deb ...
Unpacking udev (249.11-0ubuntu3.9) over (249.11-0ubuntu3.7) ...
Preparing to unpack .../5-libudev1_249.11-0ubuntu3.9_amd64.deb ...
Unpacking libudev1:amd64 (249.11-0ubuntu3.9) over (249.11-0ubuntu3.7) ...
Setting up libudev1:amd64 (249.11-0ubuntu3.9) ...
(Reading database ... 74047 files and directories currently installed.)
Preparing to unpack .../0-libapparmor1_3.0.4-2ubuntu2.2_amd64.deb ...
Unpacking libapparmor1:amd64 (3.0.4-2ubuntu2.2) over (3.0.4-2ubuntu2.1) ...
```

```
Preparing to unpack .../1-libxtables12_1.8.7-1ubuntu5.1_amd64.deb ...
Unpacking libxtables12:amd64 (1.8.7-1ubuntu5.1) over (1.8.7-1ubuntu5) ...
Preparing to unpack .../2-iptables_1.8.7-1ubuntu5.1_amd64.deb ...
Unpacking iptables (1.8.7-1ubuntu5.1) over (1.8.7-1ubuntu5) ...
Preparing to unpack .../3-libip6tc2_1.8.7-1ubuntu5.1_amd64.deb ...
Unpacking libip6tc2:amd64 (1.8.7-1ubuntu5.1) over (1.8.7-1ubuntu5) ...
Preparing to unpack .../4-libip4tc2_1.8.7-1ubuntu5.1_amd64.deb ...
Unpacking libip4tc2:amd64 (1.8.7-1ubuntu5.1) over (1.8.7-1ubuntu5) ...
Preparing to unpack .../5-libapt-pkg6.0_2.4.9_amd64.deb ...
Unpacking libapt-pkg6.0:amd64 (2.4.9) over (2.4.8) ...
Setting up libapt-pkg6.0:amd64 (2.4.9) ...
(Reading database ... 74047 files and directories currently installed.)
Preparing to unpack .../dpkg_1.21.1ubuntu2.2_amd64.deb ...
Unpacking dpkg (1.21.1ubuntu2.2) over (1.21.1ubuntu2.1) ...
Setting up dpkg (1.21.1ubuntu2.2) ...
dpkg-db-backup.service is a disabled or a static unit not running, not
starting it.
(Reading database ... 74047 files and directories currently installed.)
Preparing to unpack .../archives/apt_2.4.9_amd64.deb ...
Unpacking apt (2.4.9) over (2.4.8) ...
Setting up apt (2.4.9) ...
(Reading database ... 74047 files and directories currently installed.)
Preparing to unpack .../apt-utils_2.4.9_amd64.deb ...
Unpacking apt-utils (2.4.9) over (2.4.8) ...
Preparing to unpack .../ubuntu-drivers-
common_1%3a0.9.6.2~0.22.04.3_amd64.deb ...
Unpacking ubuntu-drivers-common (1:0.9.6.2~0.22.04.3) over (1:0.9.6.1) ...
Preparing to unpack .../update-notifier-common_3.192.54.6_all.deb ...
Unpacking update-notifier-common (3.192.54.6) over (3.192.54.5) ...
Preparing to unpack .../open-vm-tools_2%3a12.1.5-3~ubuntu0.22.04.1_amd64.deb
...
Unpacking open-vm-tools (2:12.1.5-3~ubuntu0.22.04.1) over
(2:12.1.0-1~ubuntu0.22.04.1) ...
Preparing to unpack .../libk5crypto3_1.19.2-2ubuntu0.2_amd64.deb ...
Unpacking libk5crypto3:amd64 (1.19.2-2ubuntu0.2) over (1.19.2-2ubuntu0.1)
...
Setting up libk5crypto3:amd64 (1.19.2-2ubuntu0.2) ...
(Reading database ... 74049 files and directories currently installed.)
Preparing to unpack .../libkrb5support0_1.19.2-2ubuntu0.2_amd64.deb ...
Unpacking libkrb5support0:amd64 (1.19.2-2ubuntu0.2) over (1.19.2-2ubuntu0.1)
...
Setting up libkrb5support0:amd64 (1.19.2-2ubuntu0.2) ...
(Reading database ... 74049 files and directories currently installed.)
Preparing to unpack .../libkrb5-3_1.19.2-2ubuntu0.2_amd64.deb ...
Unpacking libkrb5-3:amd64 (1.19.2-2ubuntu0.2) over (1.19.2-2ubuntu0.1) ...
Setting up libkrb5-3:amd64 (1.19.2-2ubuntu0.2) ...
(Reading database ... 74049 files and directories currently installed.)
Preparing to unpack .../libgssapi-krb5-2_1.19.2-2ubuntu0.2_amd64.deb ...
Unpacking libgssapi-krb5-2:amd64 (1.19.2-2ubuntu0.2) over
(1.19.2-2ubuntu0.1) ...
```

```
Setting up libgssapi-krb5-2:amd64 (1.19.2-2ubuntu0.2) ...
(Reading database ... 74049 files and directories currently installed.)
Preparing to unpack .../00-distro-info-data_0.52ubuntu0.4_all.deb ...
Unpacking distro-info-data (0.52ubuntu0.4) over (0.52ubuntu0.2) ...
Preparing to unpack .../01-isc-dhcp-client_4.4.1-2.3ubuntu2.4_amd64.deb ...
Unpacking isc-dhcp-client (4.4.1-2.3ubuntu2.4) over (4.4.1-2.3ubuntu2.3) ...
Preparing to unpack .../02-isc-dhcp-common_4.4.1-2.3ubuntu2.4_amd64.deb ...
Unpacking isc-dhcp-common (4.4.1-2.3ubuntu2.4) over (4.4.1-2.3ubuntu2.3) ...
Preparing to unpack .../03-netplan.io_0.105-0ubuntu2~22.04.3_amd64.deb ...
Unpacking netplan.io (0.105-0ubuntu2~22.04.3) over (0.105-0ubuntu2~22.04.1)
...
Preparing to unpack .../04-libnetplan0_0.105-0ubuntu2~22.04.3_amd64.deb ...
Unpacking libnetplan0:amd64 (0.105-0ubuntu2~22.04.3) over
(0.105-0ubuntu2~22.04.1) ...
Preparing to unpack .../05-tzdata_2023c-0ubuntu0.22.04.2_all.deb ...
Unpacking tzdata (2023c-0ubuntu0.22.04.2) over (2023c-0ubuntu0.22.04.0) ...
Preparing to unpack .../06-ubuntu-advantage-tools_27.14.4~22.04_amd64.deb
...
Unpacking ubuntu-advantage-tools (27.14.4~22.04) over (27.13.5~22.04.1) ...
Preparing to unpack .../07-apparmor_3.0.4-2ubuntu2.2_amd64.deb ...
Unpacking apparmor (3.0.4-2ubuntu2.2) over (3.0.4-2ubuntu2.1) ...
Preparing to unpack .../08-bind9-host_1%3a9.18.12-0ubuntu0.22.04.1_amd64.deb
...
Unpacking bind9-host (1:9.18.12-0ubuntu0.22.04.1) over (1:9.18.1-1ubuntu1.3)
...
Preparing to unpack .../09-bind9-
dnsutils_1%3a9.18.12-0ubuntu0.22.04.1_amd64.deb ...
Unpacking bind9-dnsutils (1:9.18.12-0ubuntu0.22.04.1) over
(1:9.18.1-1ubuntu1.3) ...
Preparing to unpack .../10-bind9-libs_1%3a9.18.12-0ubuntu0.22.04.1_amd64.deb
...
Unpacking bind9-libs:amd64 (1:9.18.12-0ubuntu0.22.04.1) over
(1:9.18.1-1ubuntu1.3) ...
Preparing to unpack .../11-tcpdump_4.99.1-3ubuntu0.1_amd64.deb ...
Unpacking tcpdump (4.99.1-3ubuntu0.1) over (4.99.1-3build2) ...
Preparing to unpack .../12-python3-problem-
report_2.20.11-0ubuntu82.5_all.deb ...
Unpacking python3-problem-report (2.20.11-0ubuntu82.5) over
(2.20.11-0ubuntu82.4) ...
Preparing to unpack .../13-python3-apport_2.20.11-0ubuntu82.5_all.deb ...
Unpacking python3-apport (2.20.11-0ubuntu82.5) over (2.20.11-0ubuntu82.4)
...
Preparing to unpack .../14-apport_2.20.11-0ubuntu82.5_all.deb ...
Unpacking apport (2.20.11-0ubuntu82.5) over (2.20.11-0ubuntu82.4) ...
Preparing to unpack .../15-fwupd_1.7.9-1~22.04.3_amd64.deb ...
Unpacking fwupd (1.7.9-1~22.04.3) over (1.7.9-1~22.04.1) ...
Preparing to unpack .../16-libfwupdplugin5_1.7.9-1~22.04.3_amd64.deb ...
Unpacking libfwupdplugin5:amd64 (1.7.9-1~22.04.3) over (1.7.9-1~22.04.1) ...
Preparing to unpack .../17-libfwupd2_1.7.9-1~22.04.3_amd64.deb ...
Unpacking libfwupd2:amd64 (1.7.9-1~22.04.3) over (1.7.9-1~22.04.1) ...
Preparing to unpack .../18-libmbim-proxy_1.28.0-1~ubuntu20.04.1_amd64.deb
```

```
...
Unpacking libmbim-proxy (1.28.0-1~ubuntu20.04.1) over (1.26.2-1build1) ...
Preparing to unpack .../19-libmbim-glib4_1.28.0-1~ubuntu20.04.1_amd64.deb
...
Unpacking libmbim-glib4:amd64 (1.28.0-1~ubuntu20.04.1) over (1.26.2-1build1)
...
Preparing to unpack .../20-libmm-glib0_1.20.0-1~ubuntu22.04.1_amd64.deb ...
Unpacking libmm-glib0:amd64 (1.20.0-1~ubuntu22.04.1) over (1.18.6-1) ...
Preparing to unpack .../21-libqmi-proxy_1.32.0-1ubuntu0.22.04.1_amd64.deb
...
Unpacking libqmi-proxy (1.32.0-1ubuntu0.22.04.1) over (1.30.4-1) ...
Preparing to unpack .../22-libqmi-glib5_1.32.0-1ubuntu0.22.04.1_amd64.deb
...
Unpacking libqmi-glib5:amd64 (1.32.0-1ubuntu0.22.04.1) over (1.30.4-1) ...
Preparing to unpack .../23-fwupd-
signed_1.51.1~22.04.1+1.4-0ubuntu0.1_amd64.deb ...
Unpacking fwupd-signed (1.51.1~22.04.1+1.4-0ubuntu0.1) over
(1.51~22.04.1+1.2-3ubuntu0.2) ...
Preparing to unpack .../24-libsasl2-modules-
db_2.1.27+dfsg2-3ubuntu1.2_amd64.deb ...
Unpacking libsasl2-modules-db:amd64 (2.1.27+dfsg2-3ubuntu1.2) over
(2.1.27+dfsg2-3ubuntu1.1) ...
Preparing to unpack .../25-libsasl2-2_2.1.27+dfsg2-3ubuntu1.2_amd64.deb ...
Unpacking libsasl2-2:amd64 (2.1.27+dfsg2-3ubuntu1.2) over
(2.1.27+dfsg2-3ubuntu1.1) ...
Preparing to unpack .../26-
libldap-2.5-0_2.5.14+dfsg-0ubuntu0.22.04.2_amd64.deb ...
Unpacking libldap-2.5-0:amd64 (2.5.14+dfsg-0ubuntu0.22.04.2) over
(2.5.13+dfsg-0ubuntu0.22.04.1) ...
Preparing to unpack .../27-libldap-
common_2.5.14+dfsg-0ubuntu0.22.04.2_all.deb ...
Unpacking libldap-common (2.5.14+dfsg-0ubuntu0.22.04.2) over
(2.5.13+dfsg-0ubuntu0.22.04.1) ...
Preparing to unpack .../28-libsasl2-
modules_2.1.27+dfsg2-3ubuntu1.2_amd64.deb ...
Unpacking libsasl2-modules:amd64 (2.1.27+dfsg2-3ubuntu1.2) over
(2.1.27+dfsg2-3ubuntu1.1) ...
Preparing to unpack .../29-mdadm_4.2-0ubuntu2_amd64.deb ...
Unpacking mdadm (4.2-0ubuntu2) over (4.2-0ubuntu1) ...
Preparing to unpack .../30-modemmanager_1.20.0-1~ubuntu22.04.1_amd64.deb ...
Unpacking modemmanager (1.20.0-1~ubuntu22.04.1) over (1.18.6-1) ...
Preparing to unpack .../31-software-properties-common_0.99.22.7_all.deb ...
Unpacking software-properties-common (0.99.22.7) over (0.99.22.5) ...
Preparing to unpack .../32-python3-software-properties_0.99.22.7_all.deb ...
Unpacking python3-software-properties (0.99.22.7) over (0.99.22.5) ...
Preparing to unpack .../33-python3-tz_2022.1-1ubuntu0.22.04.1_all.deb ...
Unpacking python3-tz (2022.1-1ubuntu0.22.04.1) over
(2022.1-1ubuntu0.22.04.0) ...
Preparing to unpack .../34-systemd-hwe-hwdb_249.11.3_all.deb ...
Unpacking systemd-hwe-hwdb (249.11.3) over (249.11.2) ...
```

```
Setting up libip4tc2:amd64 (1.8.7-1ubuntu5.1) ...
Setting up tcpdump (4.99.1-3ubuntu0.1) ...
Installing new version of config file /etc/apparmor.d/usr.bin.tcpdump ...
Setting up libapparmor1:amd64 (3.0.4-2ubuntu2.2) ...
Setting up apt-utils (2.4.9) ...
Setting up bind9-libs:amd64 (1:9.18.12-0ubuntu0.22.04.1) ...
Setting up python3-problem-report (2.20.11-0ubuntu82.5) ...
Setting up libip6tc2:amd64 (1.8.7-1ubuntu5.1) ...
Setting up distro-info-data (0.52ubuntu0.4) ...
Setting up update-notifier-common (3.192.54.6) ...
update-notifier-download.service is a disabled or a static unit not running,
not starting it.
update-notifier-motd.service is a disabled or a static unit not running, not
starting it.
Setting up libsasl2-modules:amd64 (2.1.27+dfsg2-3ubuntu1.2) ...
Setting up libfwupd2:amd64 (1.7.9-1~22.04.3) ...
Setting up isc-dhcp-client (4.4.1-2.3ubuntu2.4) ...
Installing new version of config file /etc/apparmor.d/sbin.dhclient ...
Setting up libnetplan0:amd64 (0.105-0ubuntu2~22.04.3) ...
Setting up fwupd-signed (1.51.1~22.04.1+1.4-0ubuntu0.1) ...
Setting up systemd (249.11-0ubuntu3.9) ...
Setting up libldap-common (2.5.14+dfsg-0ubuntu0.22.04.2) ...
Setting up python3-apport (2.20.11-0ubuntu82.5) ...
Setting up netplan.io (0.105-0ubuntu2~22.04.3) ...
Setting up libsasl2-modules-db:amd64 (2.1.27+dfsg2-3ubuntu1.2) ...
Setting up tzdata (2023c-0ubuntu0.22.04.2) ...

Current default time zone: 'Etc/UTC'
Local time is now:      Mon Jun 19 01:42:14 UTC 2023.
Universal Time is now:  Mon Jun 19 01:42:14 UTC 2023.
Run 'dpkg-reconfigure tzdata' if you wish to change it.

Setting up apparmor (3.0.4-2ubuntu2.2) ...
Reloading AppArmor profiles
Skipping profile in /etc/apparmor.d/disable: usr.sbin.rsyslogd
Setting up python3-software-properties (0.99.22.7) ...
Setting up systemd-timesyncd (249.11-0ubuntu3.9) ...
Setting up udev (249.11-0ubuntu3.9) ...
Setting up libxtables12:amd64 (1.8.7-1ubuntu5.1) ...
Setting up libsasl2-2:amd64 (2.1.27+dfsg2-3ubuntu1.2) ...
Setting up systemd-hwe-hwdb (249.11.3) ...
Setting up open-vm-tools (2:12.1.5-3~ubuntu0.22.04.1) ...
Installing new version of config file /etc/vmware-tools/tools.conf.example
...
Setting up libmm-glib0:amd64 (1.20.0-1~ubuntu22.04.1) ...
Setting up isc-dhcp-common (4.4.1-2.3ubuntu2.4) ...
Setting up ubuntu-advantage-tools (27.14.4~22.04) ...
Installing new version of config file /etc/apt/apt.conf.d/20apt-esm-
hook.conf ...
Installing new version of config file /etc/ubuntu-advantage/uaclient.conf
...
```

```
Installing new version of config file /etc/update-motd.d/91-contract-ua-esm-
status ...
Removing obsolete conffile /etc/update-motd.d/88-esm-announce ...
Setting up bind9-host (1:9.18.12-0ubuntu0.22.04.1) ...
Setting up libfwupdplugin5:amd64 (1.7.9-1~22.04.3) ...
Setting up libmbim-glib4:amd64 (1.28.0-1~ubuntu20.04.1) ...
Setting up mdadm (4.2-0ubuntu2) ...
update-initramfs: deferring update (trigger activated)
Sourcing file `/etc/default/grub'
Sourcing file `/etc/default/grub.d/init-select.cfg'
Generating grub configuration file ...
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5314:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5314:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5327:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5327:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5340:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5340:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5353:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5353:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5416:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5416:
/usr/sbin/grub-probe
Found linux image: /boot/vmlinuz-5.15.0-75-generic
Found initrd image: /boot/initrd.img-5.15.0-75-generic
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5683:
/usr/sbin/grub-probe
File descriptor 3 (pipe:[38236]) leaked on vgs invocation. Parent PID 5683:
/usr/sbin/grub-probe
Warning: os-prober will not be executed to detect other bootable partitions.
Systems on them will not be added to the GRUB boot configuration.
Check GRUB_DISABLE_OS_PROBER documentation entry.
done
Setting up systemd-sysv (249.11-0ubuntu3.9) ...
Setting up ubuntu-drivers-common (1:0.9.6.2~0.22.04.3) ...
Setting up iptables (1.8.7-1ubuntu5.1) ...
Setting up libnss-systemd:amd64 (249.11-0ubuntu3.9) ...
Setting up libmbim-proxy (1.28.0-1~ubuntu20.04.1) ...
Setting up libldap-2.5-0:amd64 (2.5.14+dfsg-0ubuntu0.22.04.2) ...
Setting up software-properties-common (0.99.22.7) ...
Setting up apport (2.20.11-0ubuntu82.5) ...
apport-autoreport.service is a disabled or a static unit, not starting it.
```

```
Setting up python3-tz (2022.1-1ubuntu0.22.04.1) ...
Setting up libpam-systemd:amd64 (249.11-0ubuntu3.9) ...
Setting up bind9-dnsutils (1:9.18.12-0ubuntu0.22.04.1) ...
Setting up libqmi-glib5:amd64 (1.32.0-1ubuntu0.22.04.1) ...
Setting up libqmi-proxy (1.32.0-1ubuntu0.22.04.1) ...
Setting up modemmanager (1.20.0-1~ubuntu22.04.1) ...
Setting up fwupd (1.7.9-1~22.04.3) ...
fwupd-offline-update.service is a disabled or a static unit not running, not
starting it.
fwupd-refresh.service is a disabled or a static unit not running, not
starting it.
fwupd.service is a disabled or a static unit not running, not starting it.
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for dbus (1.12.20-2ubuntu4.1) ...
Processing triggers for initramfs-tools (0.140ubuntu13.1) ...
update-initramfs: Generating /boot/initrd.img-5.15.0-75-generic
Scanning processes...
Scanning candidates...
Scanning processor microcode...
Scanning linux images...

Running kernel seems to be up-to-date.

The processor microcode seems to be up-to-date.
```

A graphical option box opens:

```
Select which services from the list to restart.
```

Just accept the services that are preselected to restart by tabbing down to highlight the "OK" button, and press enter to continue with certain services being restarted.

```
Restarting services...
 systemctl restart irqbalance.service multipathd.service packagekit.service
polkit.service rsyslog.service ssh.service thermald.service udisks2.service
Service restarts being deferred:
 /etc/needrestart/restart.d/dbus.service
 systemctl restart networkd-dispatcher.service
 systemctl restart systemd-logind.service
 systemctl restart unattended-upgrades.service
 systemctl restart user@1000.service

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
user@svr1:~$
```

Summary of APT commands, or alternate apt-get commands, and their functions:

```
apt:            apt-get:             Function:

apt update   apt-get update        Update software repositories.
apt upgrade apt-get upgrade         Upgrade system software.
apt install apt-get install        Install an application.
apt remove   apt-get remove        Remove an application.
apt purge    apt-get purge        Remove an application and user
configuration files.
```

Apt has a few extra commands:

```
Command:                Function:

apt search        Search for a specific application.
apt edit-sources    Edit /etc/apt/sources.list file which contains all of
your software repositories. This is
                    really a shortcut command which opens a text editor.

apt list          List all of the installed applications.
apt show          List the details of an application, including any
dependencies.
```

Credit goes to TomsHardware.com for the explanation of the apt command and the basis of this Article.

To learn more about the specific usage of all of these apt commands

Please see: https://www.tomshardware.com/how-to/add-remove-linux-software-using-apt