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1. Overview

Welcome to the step-by-step installation guide for ConVox Messaging Console(CMC). This comprehensive guide is designed to assist you in setting up and configuring ConVox Messaging Console(CMC) with ease. This document will provide clear instructions to ensure a successful installation of the product.

Before You Begin

Before you proceed with the installation, please ensure that your system meets the minimum requirements outlined

in the system requirements section. This includes the necessary software prerequisites. Please refer the hardware list document for server/hardware requirements based on different components. Properly preparing your environment is crucial for a smooth installation process.

2. Set up

2.1. Standalone

In this model, you need to install all the software services (MySQL, PHP, NGINX, perl) in a single server. Follow the instructions mentioned to proceed further.

3. Document Structure

This document is structured into several sections, each covering a specific aspect of the installation process. To ensure a successful installation, it is recommended to follow these sections sequentially. Here's an overview of what each section covers:

System Requirements: Lists the software requirements for ConVox Messaging Console(CMC)

Pre-Installation Preparation: Outlines any preparatory steps required before you begin the installation.

Installation: Provides detailed step-by-step instructions for installing ConVox Messaging Console(CMC) including the software services. This section is the core of the document.

Configuration: Guides you through the initial configuration of ConVox Messaging Console(CMC) after installation, ensuring it is set up according to your needs.

Testing: Includes instructions for testing the software to verify that it has been installed and configured correctly.

Troubleshooting: Offers solutions to common issues that may arise during the

installation process. **Conclusion:** Summarizes the installation process and encourages

you to explore ConVox Messaging Console(CMC) further.

3.1. System Requirements

Operating System: **Ubuntu 22.04.4 LTS**

Database: **mysql Ver 8.0.36-0 ubuntu0.22.04.1 for Linux on x86_64 ((Ubuntu))**

PHP Version: **PHP 8.1.28 (cli)**

Web Server: **NGNIX 1.18.0 (Ubuntu)**

Perl: **Perl 5, version 34, subversion 0 (v5.34.0)**

Screen: **Screen version 4.09.00 (GNU) 22-may-24**

Jobs : Crontab**3.1.1. Operating System**

Install the Ubuntu 22.04 CLI LTS version by selecting the Ubuntu server from bootable drive image. Make sure server time and time zone is selected correctly during the installation. For the detailed steps please refer to Ubuntu cli installation document.

Make the required changes in network/Proxy and perform the disk partitioning. Create the user, Login & Perform the basic checklist after installation.

Check the Ubuntu Version using the below command

```
root@dtel:/home/dtel# lsb_release-a
```

Below is the screenshot of sample output.

```
root@dtel:/home/dtel# lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 22.04.4 LTS
Release:        22.04
Codename:       jammy
root@dtel:/home/dtel# |
```

Make sure date & time, time zone of the server are correctly configured/updated.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# date
```

If date, time & zone not matched with current zone then please execute the below commands to set the date, time & zone.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo timedatectl set-timezone Asia/Kolkata
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# date
```

```
root@dtel:/home/dtel#  
root@dtel:/home/dtel#  
root@dtel:/home/dtel# date  
Tue May 14 08:09:39 AM UTC 2024  
root@dtel:/home/dtel# sudo timedatectl set-timezone Asia/Kolkata  
root@dtel:/home/dtel# date  
Tue May 14 01:41:47 PM IST 2024  
root@dtel:/home/dtel# |
```

Change the system/server name as per the purpose of the server like ex: ProductName-Ver-Type-IP.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# vim /etc/hostname
```

```
🛡️ 2 root@dtel: /home/dtel ×  
CCS-331|13-37  
~
```

Server Name will be changed once server is rebooted. We will reboot the server once other details are configured.

3.1.1.1. System ULIMITS

Execute the following commands to set the soft and hard limit for all servers (CMC server).

```
root@dtel-Standard-PC-i440EX-PIIX-1996:/home/dtel# ulimit-a
```

Below the screenshot of sample output of default system ULIMITs for reference.

```
root@dtel:/home/dtel# ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size (blocks, -c) 0
data seg size (kbytes, -d) unlimited
scheduling priority (-e) 0
file size (blocks, -f) unlimited
pending signals (-i) 31292
max locked memory (kbytes, -l) 1015864
max memory size (kbytes, -m) unlimited
open files (-n) 1024
pipe size (512 bytes, -p) 8
POSIX message queues (bytes, -q) 819200
real-time priority (-r) 0
stack size (kbytes, -s) 8192
cpu time (seconds, -t) unlimited
max user processes (-u) 31292
virtual memory (kbytes, -v) unlimited
file locks (-x) unlimited
root@dtel:/home/dtel# |
```

Edit the below file and update the limits as per the below.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# vim /etc/security/limits.conf
```

```
* hard core unlimited
* hard data unlimited
* hard fsize unlimited
* hard sigpending unlimited
* hard nofile 999999
* hard msgqueue unlimited
* hard nproc unlimited
* hard memlock unlimited
* hard locks unlimited
* hard stack 100240
* soft core unlimited
* soft data unlimited
* soft fsize unlimited
* soft sigpending unlimited
* soft nofile 999999
* soft msgqueue unlimited
* soft nproc unlimited
* soft memlock unlimited
* soft locks unlimited
* soft stack 100240
root hard core unlimited
root hard data unlimited
root hard fsize unlimited
root hard sigpending unlimited
root hard nofile 999999
```

```
root    hard msgqueue unlimited
root    hard  nproc     unlimited
root    hard  memlock   unlimited
root    hard  locks     unlimited
root    hard  stack     100240
root    soft   core     unlimited
root    soft   data     unlimited
root    soft   fsize    unlimited
root    soft  sigpending unlimited
root    soft  nofile   999999
root    soft msgqueue unlimited
root    soft  nproc     unlimited
root    soft  memlock   unlimited
root    soft  locks     unlimited
root    soft  stack     100240
```

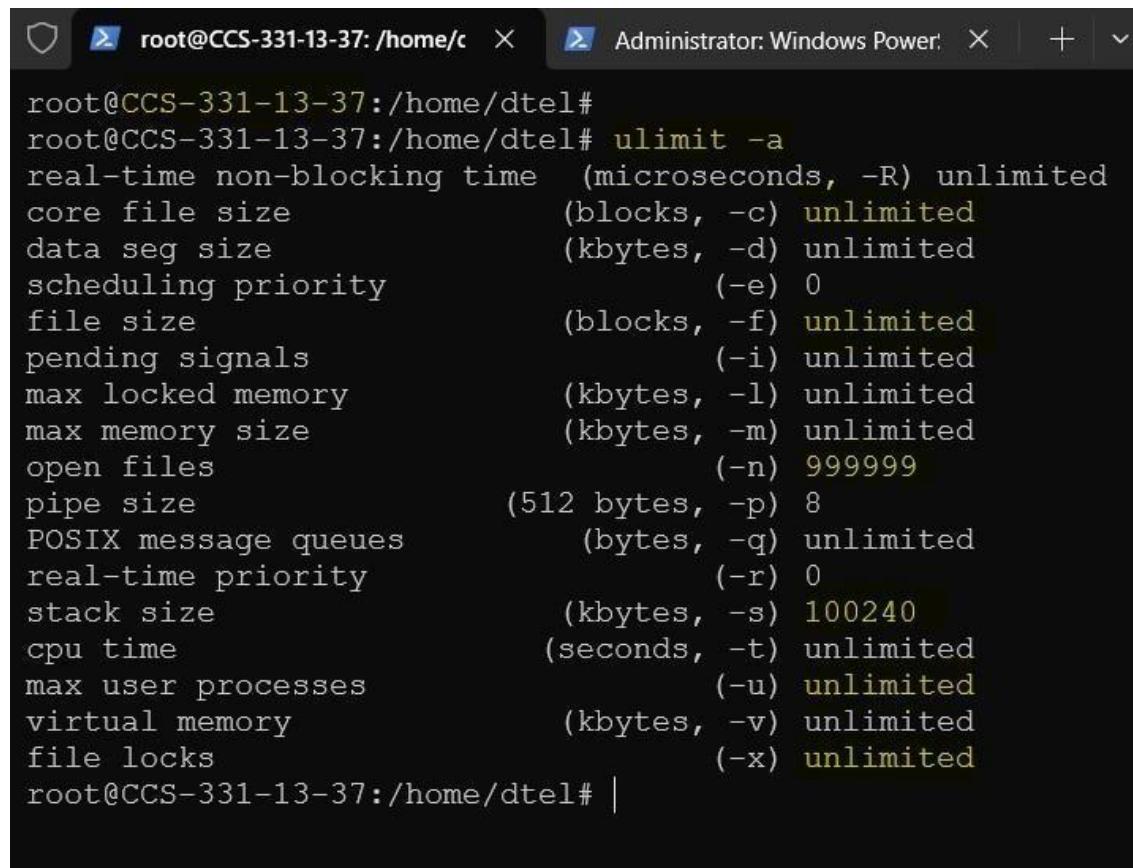
```
#@student      -      maxlogins      4
*      hard   core      unlimited
*      hard   data      unlimited
*      hard   fsize     unlimited
*      hard   sigpending unlimited
*      hard   nofile    999999
*      hard   msgqueue  unlimited
*      hard   nproc     unlimited
*      hard   memlock   unlimited
*      hard   locks     unlimited
*      hard   stack     100240
*      soft   core      unlimited
*      soft   data      unlimited
*      soft   fsize     unlimited
*      soft   sigpending unlimited
*      soft   nofile    999999
*      soft   msgqueue  unlimited
*      soft   nproc     unlimited
*      soft   memlock   unlimited
*      soft   locks     unlimited
*      soft   stack     100240
root  hard   core      unlimited
root  hard   data      unlimited
root  hard   fsize     unlimited
root  hard   sigpending unlimited
root  hard   nofile    999999
root  hard   msgqueue  unlimited
root  hard   nproc     unlimited
root  hard   memlock   unlimited
root  hard   locks     unlimited
root  hard   stack     100240
root  soft   core      unlimited
root  soft   data      unlimited
root  soft   fsize     unlimited
root  soft   sigpending unlimited
root  soft   nofile    999999
root  soft   msgqueue  unlimited
root  soft   nproc     unlimited
root  soft   memlock   unlimited
root  soft   locks     unlimited
root  soft   stack     100240
```

Reboot the server after saving the changes and check whether all the limits are applied.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# reboot now
```

After reboot system name should change and new limits should be applied when you re-connect

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# ulimit -a
```



```
root@CCS-331-13-37:/home/dtel#
root@CCS-331-13-37:/home/dtel# ulimit -a
real-time non-blocking time  (microseconds, -R) unlimited
core file size              (blocks, -c) unlimited
data seg size               (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                   (blocks, -f) unlimited
pending signals              (-i) unlimited
max locked memory           (kbytes, -l) unlimited
max memory size             (kbytes, -m) unlimited
open files                  (-n) 999999
pipe size                   (512 bytes, -p) 8
POSIX message queues        (bytes, -q) unlimited
real-time priority          (-r) 0
stack size                  (kbytes, -s) 100240
cpu time                    (seconds, -t) unlimited
max user processes          (-u) unlimited
virtual memory               (kbytes, -v) unlimited
file locks                  (-x) unlimited
root@CCS-331-13-37:/home/dtel# |
```

3.1.2. Update System packages

Upgrade the current system packages to move forward and also install the essential packages like net-tools and build essentials using below command

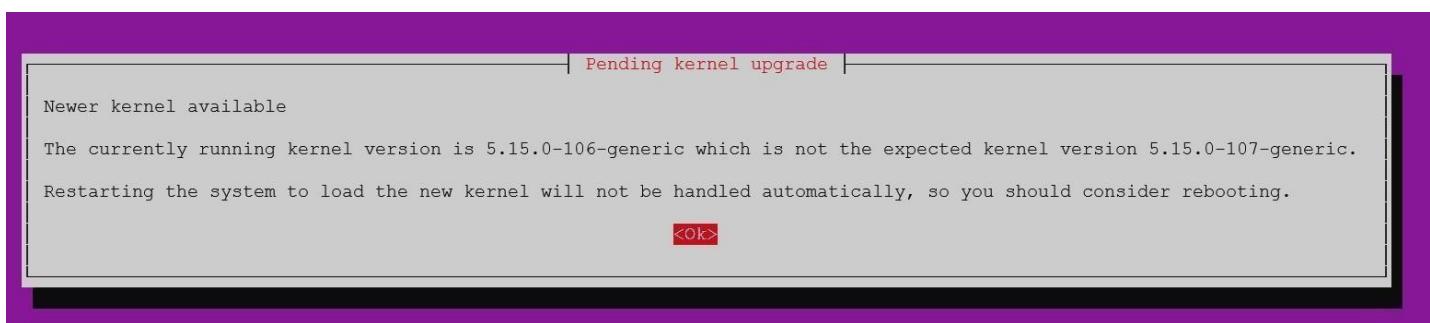
```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt update
```

```
root@CCS-331-13-37:/home/dtel# sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following NEW packages will be installed:
  linux-headers-5.15.0-107 linux-headers-5.15.0-107-generic linux-image-5.15.0-107-g
  linux-modules-extra-5.15.0-107-generic ubuntu-pro-client
The following packages have been kept back:
  python3-update-manager update-manager-core
The following packages will be upgraded:
  apt apt-utils cloud-init coreutils dpkg ethtool landscape-common libapt-pkg6.0 lib
  linux-headers-generic linux-image-generic snapd tcpdump ubuntu-advantage-tools ubu
19 upgraded, 6 newly installed, 0 to remove and 2 not upgraded.
Need to get 146 MB of archives.
After this operation, 584 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 coreutils amd64 8
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libapt-pkg6.0 amd
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dpkg amd64 1.21.1
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apt amd64 2.4.12
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apt-utils amd64 2
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 update-notifier-c
Get:7 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ubuntu-advantage-
Get:8 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ubuntu-pro-client
Get:9 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ubuntu-pro-client
```

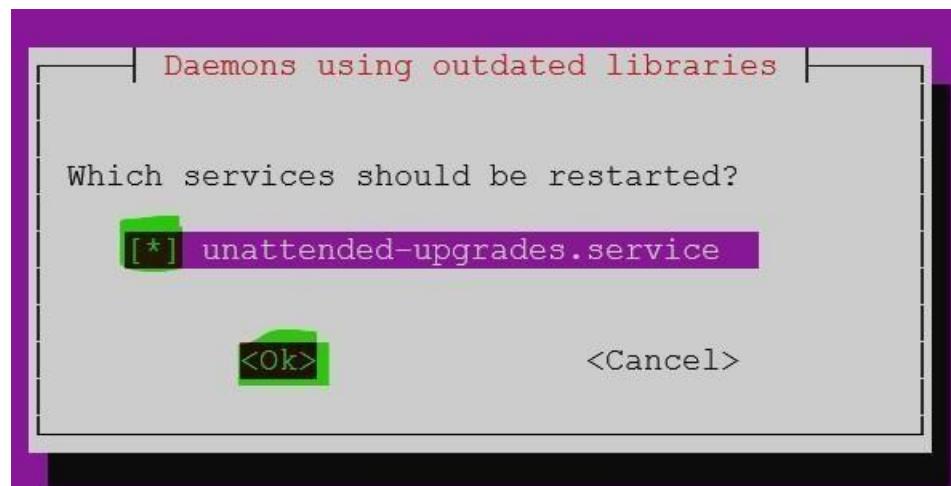
```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt-get install build-essential
```

Below the sample screenshots for your reference

```
root@CCS-331-13-37:/home/dtel# sudo apt-get install build-essential
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bzip2 cpp cpp-11 dpkg-dev fakeroot fontconfig-config fonts-dejavu-core g
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 li
  libdpkg-perl libfakeroot libfile-fcntllock-perl libfontconfig1 libgcc-11
  libmpc3 libnsl-dev libquadmath0 libstdc++-11-dev libtiff5 libtirpc-dev l
  manpages-dev rpcsvc-proto
Suggested packages:
  bzip2-doc cpp-doc gcc-11-locales debian-keyring g++-multilib g++-11-mult
  gcc-11-multilib glibc-doc bzr libgd-tools libstdc++-11-doc make-doc
The following NEW packages will be installed:
  build-essential bzip2 cpp cpp-11 dpkg-dev fakeroot fontconfig-config fon
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 li
  libdpkg-perl libfakeroot libfile-fcntllock-perl libfontconfig1 libgcc-11
  libmpc3 libnsl-dev libquadmath0 libstdc++-11-dev libtiff5 libtirpc-dev l
  manpages-dev rpcsvc-proto
0 upgraded, 52 newly installed, 0 to remove and 2 not upgraded.
Need to get 63.8 MB of archives.
After this operation, 208 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libc-de
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 linux-1
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libcrypt-dev am
Get:4 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 rpcsvc-proto am
```



Use spacebar to select/unselect the options & tab for switching between option selections, OK & Cancel



```
Setting up libc-devtools (2.35-0ubuntu3.7) ...
Setting up g++-11 (11.4.0-1ubuntu1~22.04) ...
Setting up g++ (4:11.2.0-1ubuntu1) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up build-essential (12.9ubuntu3) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.7) ...
Scanning processes...
Scanning candidates...
Scanning linux images...
```

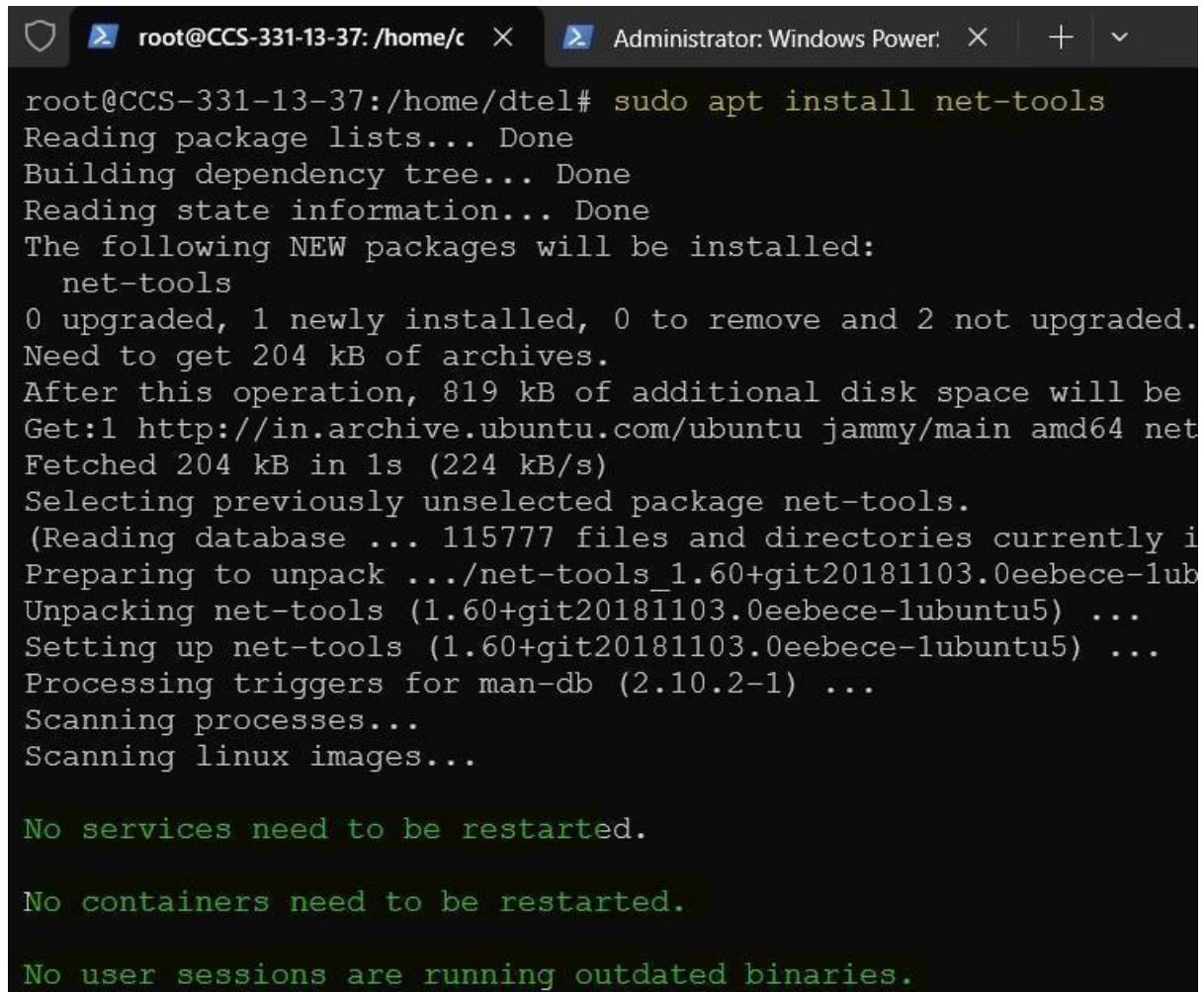
```
Restarting services...
systemctl restart unattended-upgrades.service
```

```
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.
root@CCS-331-13-37:/home/dtel# |
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install net-tools
```



```
root@CCS-331-13-37:/home/dtel# sudo apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 204 kB of archives.
After this operation, 819 kB of additional disk space will be
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 net
Fetched 204 kB in 1s (224 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 115777 files and directories currently i
Preparing to unpack .../net-tools_1.60+git20181103.0eebece-1ub
Unpacking net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Setting up net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Processing triggers for man-db (2.10.2-1) ...
Scanning processes...
Scanning linux images...

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.
```

3.1.3. Database (My SQL)

Login as root user and execute following commands to uninstall existing My SQL (if any version Pre-installed with OS).

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt update
```

```
root@CCS-331-13-37:/home/dtel# sudo apt update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1,460 kB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [251 kB]
Get:6 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [3 kB]
Hit:8 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:9 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1,676 kB]
Get:10 http://in.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [311 kB]
Get:11 http://in.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [3 kB]
Fetched 8,345 kB in 11s (769 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
2 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@CCS-331-13-37:/home/dtel# |
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt upgrade
```

Execute the below commands to remove the existing mysql if any installed

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt-get purge 'mysql*' |
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt-get purge mariadb*
```

To install My SQL 8 execute below commands

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install mysql-server |
```

```
root@CCS-331-13-37:/home/dtel# sudo apt install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcgifast-perl libcgipm-perl libclone-perl libencode-locale-perl libevent-pthreads-2
  libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-
  libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client-8.
  mysql-server-core-8.0
Suggested packages:
  libdata-dump-perl libipc-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tiny
The following NEW packages will be installed:
  libcgifast-perl libcgipm-perl libclone-perl libencode-locale-perl libevent-pthreads-2
  libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-
  libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client-8.
  mysql-server-8.0 mysql-server-core-8.0
0 upgraded, 28 newly installed, 0 to remove and 2 not upgraded.
Need to get 29.5 MB of archives.
After this operation, 243 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 mysql-common all 5.8+1.0.8 [7,
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-core-8.0
g:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-8.0 [164
g:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-server-8.0 [164
```

```
done!
update-alternatives: using /var/lib/mecab/dic/ipadic-utf8 to provide /var/lib/mecab/dic/de
Setting up libhtml-parser-perl:amd64 (3.76-1build2) ...
Setting up libhttp-message-perl (6.36-1) ...
Setting up mysql-server-8.0 (8.0.36-0ubuntu0.22.04.1) ...
update-alternatives: using /etc/mysql/mysql.cnf to provide /etc/mysql/my.cnf (my.cnf) in a
Renaming removed key_buffer and myisam-recover options (if present)
mysqld will log errors to /var/log/mysql/error.log
mysqld is running as pid 16412
Created symlink /etc/systemd/system/multi-user.target.wants/mysql.service → /lib/systemd/s
Setting up libcgipm-perl (4.54-1) ...
Setting up libhtml-template-perl (2.97-1.1) ...
Setting up mysql-server (8.0.36-0ubuntu0.22.04.1) ...
Setting up libcgifast-perl (1:2.15-1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.7) ...
Scanning processes...
Scanning linux images...

No services need to be restarted.

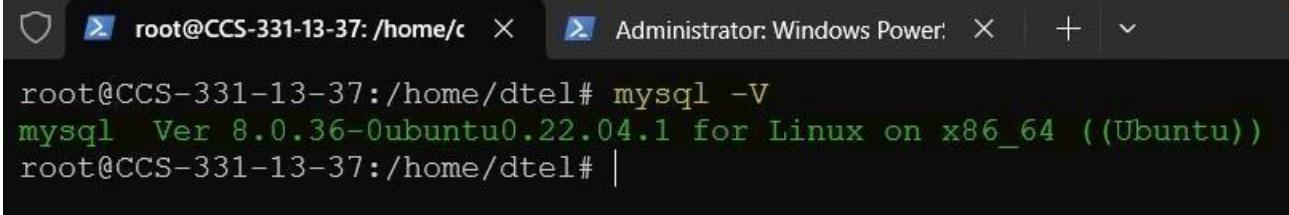
No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@CCS-331-13-37:/home/dtel# |
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# mysql -V
```

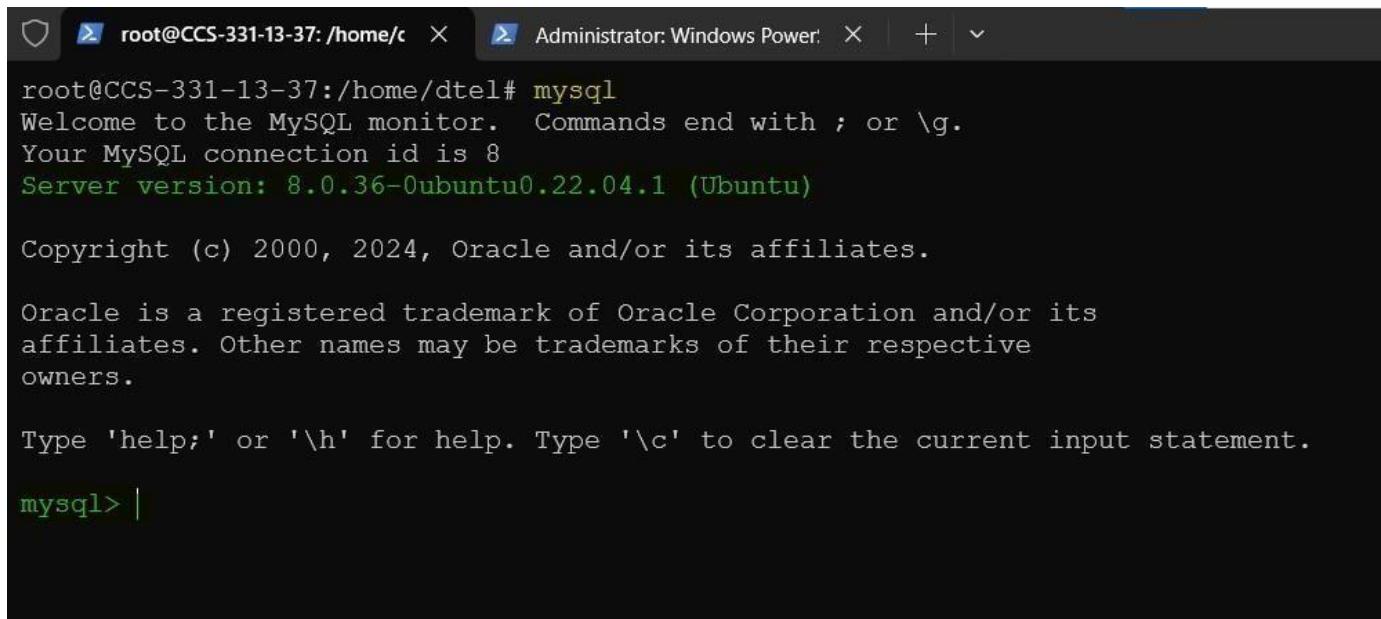
The console should display My SQL Server version: 8.0.36-0ubuntu0.22.04.1 (Ubuntu)



```
root@CCS-331-13-37:/home/dtel# mysql -V
mysql Ver 8.0.36-0ubuntu0.22.04.1 for Linux on x86_64 ((Ubuntu))
root@CCS-331-13-37:/home/dtel# |
```

Login to the MySQL console using below command to verify the login status.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# mysql -u root -p
```



```
root@CCS-331-13-37:/home/dtel# mysql
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.36-0ubuntu0.22.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> |
```

3.1.4. Web Server (NGINX)

Remove the existing Apache service from Ubuntu using below commands. This can be ignored if no Apache found in the server.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl stop apache2
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl disable apache2
```

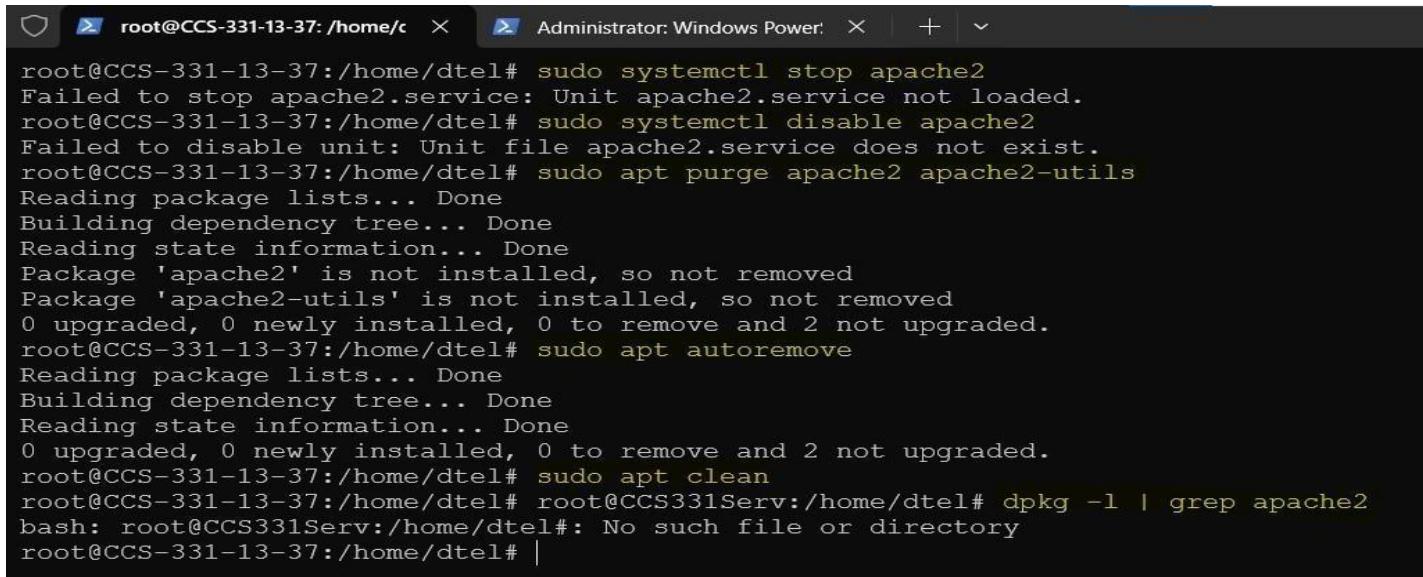
```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt purge apache2 apache2-utils
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt autoremove
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt clean
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# dpkg-l | grep apache2
```

Below the sample screenshot for your reference.



```
root@CCS-331-13-37:/home/dtel# sudo systemctl stop apache2
Failed to stop apache2.service: Unit apache2.service not loaded.
root@CCS-331-13-37:/home/dtel# sudo systemctl disable apache2
Failed to disable unit: Unit file apache2.service does not exist.
root@CCS-331-13-37:/home/dtel# sudo apt purge apache2 apache2-utils
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Package 'apache2' is not installed, so not removed
Package 'apache2-utils' is not installed, so not removed
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
root@CCS-331-13-37:/home/dtel# sudo apt autoremove
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
root@CCS-331-13-37:/home/dtel# sudo apt clean
root@CCS-331-13-37:/home/dtel# root@CCS331Serv:/home/dtel# dpkg -l | grep apache2
bash: root@CCS331Serv:/home/dtel#: No such file or directory
root@CCS-331-13-37:/home/dtel# |
```

Make sure apache is removed and execute the below commands to install the NGINX in Ubuntu

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install nginx
```

```

root@CCS-331-13-37:/home/dtel# sudo apt install nginx
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2
  nginx-common nginx-core
Suggested packages:
  fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2
  nginx nginx-common nginx-core
0 upgraded, 9 newly installed, 0 to remove and 2 not upgraded.
Need to get 697 kB of archives.
After this operation, 2,395 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx-common all 1.18.0-6ubuntu14.4 [40.0 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-geoip2 amd64 1.18.0-6ubuntu14.4 [11.9 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-image-filter amd64 1.18.0-6ubuntu14.4 [15.4 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-xslt-filter amd64 1.18.0-6ubuntu14.4 [13.7 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-mail amd64 1.18.0-6ubuntu14.4 [45.7 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-stream amd64 1.18.0-6ubuntu14.4 [72.9 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-stream-geoip2 amd64 1.18.0-6ubuntu14.4 [10.1 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx-core amd64 1.18.0-6ubuntu14.4 [484 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx amd64 1.18.0-6ubuntu14.4 [3,872 B]
Fetched 697 kB in 2s (290 kB/s)
Preconfiguring packages ...

```

root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt-get install nginx-extras

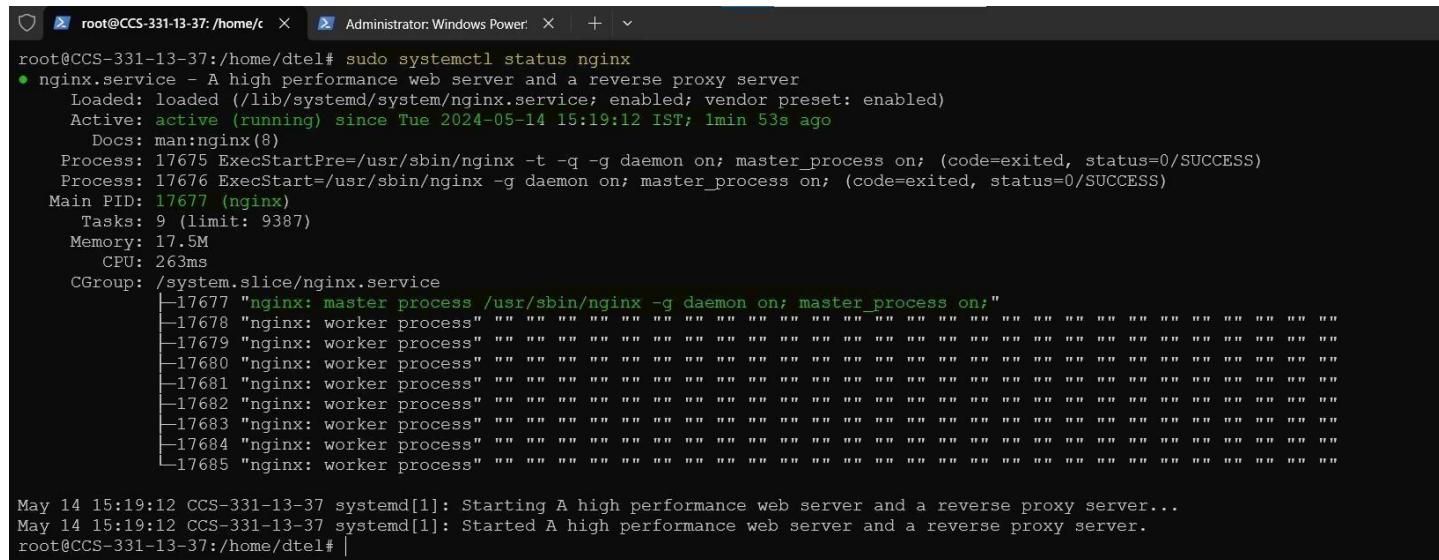
```

root@CCS-331-13-37:/home/dtel# sudo apt-get install nginx-extras
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  geoip-database libgeoip1 libnginx-mod-http-auth-pam libnginx-mod-http-cache-purge libnginx-mod-http-dav-ext libnginx-mod-http-echo
  libnginx-mod-http-fancyindex libnginx-mod-http-geoip libnginx-mod-http-headers-more-filter libnginx-mod-http-perl libnginx-mod-http-subs-filter
  libnginx-mod-http-uploadprogress libnginx-mod-http-upstream-fair libnginx-mod-nchan libnginx-mod-stream-geoip
Suggested packages:
  geoip-bin nginx-doc
The following packages will be REMOVED:
  nginx-core
The following NEW packages will be installed:
  geoip-database libgeoip1 libnginx-mod-http-auth-pam libnginx-mod-http-cache-purge libnginx-mod-http-dav-ext libnginx-mod-http-echo
  libnginx-mod-http-fancyindex libnginx-mod-http-geoip libnginx-mod-http-headers-more-filter libnginx-mod-http-perl libnginx-mod-http-subs-filter
  libnginx-mod-http-uploadprogress libnginx-mod-http-upstream-fair libnginx-mod-nchan libnginx-mod-stream-geoip nginx-extras
0 upgraded, 16 newly installed, 1 to remove and 2 not upgraded.
Need to get 4,025 kB of archives.
After this operation, 12.3 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
0% [Waiting for headers]

```

Please check the status of NGINX and make sure it is running.

rroot@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl status nginx



```
root@CCS-331-13-37:/home/dtel# sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
  Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
  Active: active (running) since Tue 2024-05-14 15:19:12 IST; 1min 53s ago
    Docs: man:nginx(8)
 Process: 17675 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Process: 17676 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 17677 (nginx)
   Tasks: 9 (limit: 9387)
  Memory: 17.5M
     CPU: 263ms
    CGroup: /system.slice/nginx.service
            ├─17677 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
            ├─17678 "nginx: worker process" " "
            ├─17679 "nginx: worker process" " "
            ├─17680 "nginx: worker process" " "
            ├─17681 "nginx: worker process" " "
            ├─17682 "nginx: worker process" " "
            ├─17683 "nginx: worker process" " "
            ├─17684 "nginx: worker process" " "
            └─17685 "nginx: worker process" " "

May 14 15:19:12 CCS-331-13-37 systemd[1]: Starting A high performance web server and a reverse proxy server...
May 14 15:19:12 CCS-331-13-37 systemd[1]: Started A high performance web server and a reverse proxy server.
root@CCS-331-13-37:/home/dtel# |
```

3.1.5. PHP (CLI)

3.1.5.1. Remove Existing PHP

Uninstall the existing PHP packages installed if any installed during the OS installation or come out as out of box as service.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt-get purge 'php*' |
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt-get purge php-common*
```

3.1.5.2. Add the Ondrej PPA Repository

Update your Ubuntu system packages and install some dependencies as shown below.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt update |
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt upgrade |
```

```
root@CCS-331-13-37:/home/dtel# sudo apt update
Hit:1 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Hit:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
2 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@CCS-331-13-37:/home/dtel# sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  python3-update-manager update-manager-core
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
root@CCS-331-13-37:/home/dtel# |
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install ca-certificates apt-transport-https
```

```
root@CCS-331-13-37:/home/dtel# sudo apt install ca-certificates apt-transport-https
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20230311ubuntu0.22.04.1).
ca-certificates set to manually installed.
The following NEW packages will be installed:
  apt-transport-https
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 1,510 B of archives.
After this operation, 170 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 apt-transport-https all 2.4.12 [1,510 B]
Fetched 1,510 B in 5s (297 B/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 116600 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_2.4.12_all.deb ...
Unpacking apt-transport-https (2.4.12) ...
Setting up apt-transport-https (2.4.12) ...
Scanning processes...
Scanning linux images...
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install software-properties-common
```

```
root@CCS-331-13-37:/home/dtel# sudo apt install software-properties-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
software-properties-common is already the newest version (0.99.22.9).
software-properties-common set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
root@CCS-331-13-37:/home/dtel# |
```

Next, add the Ondrej PPA.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo add-apt-repository ppa:ondrej/php
root@CCS-331-13-37:/home/dtel# sudo add-apt-repository ppa:ondrej/php

PPA publishes dbgsym, you may need to include 'main/debug' component
Repository: 'deb https://ppa.launchpadcontent.net/ondrej/php/ubuntu/ jammy main'
Description:
Co-installable PHP versions: PHP 5.6, PHP 7.x, PHP 8.x and most requested extensions are
versions.php) for Supported Ubuntu Releases (https://wiki.ubuntu.com/Releases) are provi
won't be provided.

Debian oldstable and stable packages are provided as well: https://deb.sury.org/#debian-

You can get more information about the packages at https://deb.sury.org

IMPORTANT: The <foo>-backports is now required on older Ubuntu releases.

BUGS&FEATURES: This PPA now has a issue tracker:
https://deb.sury.org/#bug-reporting

CAVEATS:
1. If you are using php-gearman, you need to add ppa:ondrej/pkg-gearman
```

3.1.5.3. Install PHP 8.1 with Nginx

Install the PHP and PHP-FPM using the below commands.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install php8.1 php8.1-fpm
```

```
root@CCS-331-13-37:/home/dtel# sudo apt install php8.1 php8.1-fpm
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  php-common php8.1-cli php8.1-common php8.1-opcache php8.1-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  php-common php8.1-cli php8.1-common php8.1-fpm php8.1-opcache php8.1-readline
0 upgraded, 7 newly installed, 0 to remove and 6 not upgraded.
Need to get 4,870 kB of archives.
After this operation, 21.2 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy amd64 php-common all 2:94+ubuntu22.04.1+deb.sury.org+2 [16.7 kB]
Get:2 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy main amd64 php8.1-common 8.1.28-1+ubuntu22.04.1+deb.sury.org+1 [724 kB]
10% [2 php8.1-common 440 kB/724 kB 61%]
```

```
Creating config file /etc/php/8.1/mods-available/tokenizer.ini with new version
Setting up php8.1-readline (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...

Creating config file /etc/php/8.1/mods-available/readline.ini with new version
Setting up php8.1-opcache (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...

Creating config file /etc/php/8.1/mods-available/opcache.ini with new version
Setting up php8.1-cli (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
update-alternatives: using /usr/bin/php8.1 to provide /usr/bin/php (php) in auto mode
update-alternatives: using /usr/bin/phar8.1 to provide /usr/bin/phar (phar) in auto mode
update-alternatives: using /usr/bin/phar.phar8.1 to provide /usr/bin/phar.phar (phar.phar) in auto mode

Creating config file /etc/php/8.1/cli/php.ini with new version
Setting up php8.1-fpm (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...

Creating config file /etc/php/8.1/fpm/php.ini with new version
Created symlink /etc/systemd/system/multi-user.target.wants/php8.1-fpm.service → /lib/systemd/system/php8.1-fpm.service.
Setting up php8.1 (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for php8.1-cli (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
Processing triggers for php8.1-fpm (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
Scanning processes...
Scanning linux images...

No services need to be restarted.

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.
root@CCS-331-13-37:/home/dtel# |
```

The PHP-FPM service should start automatically. You can verify this using below command.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl status php8.1-fpm
```

```
root@CCS-331-13-37:/home/dtel# sudo systemctl status php8.1-fpm
● php8.1-fpm.service - The PHP 8.1 FastCGI Process Manager
   Loaded: loaded (/lib/systemd/system/php8.1-fpm.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2024-05-14 15:44:12 IST; 2min 52s ago
     Docs: man:php-fpm8.1(8)
  Process: 25143 ExecStartPost=/usr/lib/php/php-fpm-socket-helper install /run/php/php-fpm.sock /etc/php/8.1/fpm/pool.d/www.conf 81 (code=exited, status=0)
 Main PID: 25139 (php-fpm8.1)
    Status: "Processes active: 0, idle: 2, Requests: 0, slow: 0, Traffic: 0req/sec"
       Tasks: 3 (limit: 9387)
      Memory: 7.2M
        CPU: 144ms
       CGroup: /system.slice/php8.1-fpm.service
           ├─25139 "php-fpm: master process (/etc/php/8.1/fpm/php-fpm.conf)"
           ├─25141 "php-fpm: pool www"
           └─25142 "php-fpm: pool www"

May 14 15:44:12 CCS-331-13-37 systemd[1]: Starting The PHP 8.1 FastCGI Process Manager...
May 14 15:44:12 CCS-331-13-37 systemd[1]: Started The PHP 8.1 FastCGI Process Manager.
lines 1-17/17 (END)
```

3.1.5.4. Install PHP Extensions

PHP extensions are libraries that extend the functionality of PHP. These extensions exist as packages and can be installed as follows:

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install php8.1-[extension-name]
```

Install following extensions for ConVox Messaging Console application.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install php8.1-mysql
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install php8.1-curl
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install php8.1-mbstring
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install php8.1-xml
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo apt install php8.1-imap
```

Restart your PHP service post successfully installing above extensions.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl restart php8.1-fpm
```

```
rroot@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl status php8.1-fpm
```

```
root@CCS-331-13-37:/home/c X + ▾
root@CCS-331-13-37:/home/dtel# sudo systemctl restart php8.1-fpm
root@CCS-331-13-37:/home/dtel# sudo systemctl status php8.1-fpm
● php8.1-fpm.service - The PHP 8.1 FastCGI Process Manager
   Loaded: loaded (/lib/systemd/system/php8.1-fpm.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2024-05-14 16:03:44 IST; 6s ago
     Docs: man:php-fpm@8.1(8)
 Process: 28957 ExecStartPost=/usr/lib/php/php-fpm-socket-helper install /run/php/php-fpm.sock /etc/php/8.1/fpm/pool.d/www.conf 81 (code=exited, status=0)
 Main PID: 28954 (php_fpm@8.1)
   Status: "Ready to handle connections"
      Tasks: 3 (limit: 9387)
     Memory: 9.2M
        CPU: 188ms
       CGroup: /system.slice/php8.1-fpm.service
           ├─28954 "php-fpm: master process (/etc/php/8.1/fpm/php-fpm.conf)"
           ├─28955 "php-fpm: pool www"
           └─28956 "php-fpm: pool www"

May 14 16:03:43 CCS-331-13-37 systemd[1]: Starting The PHP 8.1 FastCGI Process Manager...
May 14 16:03:44 CCS-331-13-37 systemd[1]: Started The PHP 8.1 FastCGI Process Manager.
[lines 1-17/17 (END)]
```

3.1.6. Perl, SOX and GIT

See below command to install the SOX, Perl and GIT services.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src# sudo apt install git sox screen perl
```

```
root@CCS-331-13-37:/usr/src/asterisk-20.7.0# sudo apt install git sox screen perl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
screen is already the newest version (4.9.0-1).
screen set to manually installed.
git is already the newest version (1:2.34.1-1ubuntu1.10).
perl is already the newest version (5.34.0-3ubuntu1.3).
perl set to manually installed.
The following additional packages will be installed:
  libopencore-amrnb0 libopencore-amrwb0 libsox-fmt-alsa libsox-fmt-base libsox3 libwavpack1
Suggested packages:
  libsox-fmt-all
The following NEW packages will be installed:
  libopencore-amrnb0 libopencore-amrwb0 libsox-fmt-alsa libsox-fmt-base libsox3 libwavpack1 sox
0 upgraded, 7 newly installed, 0 to remove and 2 not upgraded.
Need to get 617 kB of archives.
After this operation, 1,764 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libopencore-amrnb0 amd64 0.1.5-1 [94.8 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libopencore-amrwb0 amd64 0.1.5-1 [49.1 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 libsox3 amd64 14.4.2+git20190427-2+deb1~jammy1 [114 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 libsox-fmt-alsa amd64 14.4.2+git20190427-2+deb1~jammy1 [114 kB]
```

```
root@CCS-331-13-37:/usr/src/asterisk-20.7.0# perl -v
This is perl 5, version 34, subversion 0 (v5.34.0) built for x86_64-linux-gnu-thread-multi
(with 60 registered patches, see perl -V for more detail)

Copyright 1987-2021, Larry Wall

Perl may be copied only under the terms of either the Artistic License or the
GNU General Public License, which may be found in the Perl 5 source kit.

Complete documentation for Perl, including FAQ lists, should be found on
this system using "man perl" or "perldoc perl". If you have access to the
Internet, point your browser at http://www.perl.org/, the Perl Home Page.

root@CCS-331-13-37:/usr/src/asterisk-20.7.0# git --version
git version 2.34.1
root@CCS-331-13-37:/usr/src/asterisk-20.7.0# sox --version
sox:      SoX v14.4.2
root@CCS-331-13-37:/usr/src/asterisk-20.7.0# screen -v
Screen version 4.09.00 (GNU) 30-Jan-22
root@CCS-331-13-37:/usr/src/asterisk-20.7.0# |
```

3.1.7. Perl Modules

Following perl modules are need to install 1 Digest-MD5-2.36.tar, 2 Digest-SHA1-2.11.tar, 3 Net-Telnet-3.03.tar, 4 Net-MySQL-0.08.tar, 5 Time-HiRes-1.90.tar

To install the above packages execute the below commands by logging to cpanel.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src# cpanm -i Digest::MD5
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src# cpanm -i Digest::SHA1
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src# cpanm -i Net::Telnet
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src# cpanm -i Net::MySQL
```

```
-- root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src# cpanm -i Time::HiRes
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src/# apt install libdbd-mysql-perl
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src/# cpanm -i DBD::mysql
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src# cpanm Date::Parse
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src/# cpan
```

```
cpan[1]>install z
```

```
cpan[1]>exit
```

If you are using the AES encryption in API or any other module please install AES module. (Optional)

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/usr/src/# cpanm Crypt::OpenSSL::AES
```

3.2. Software Configurations

3.2.1. NGINX

Make the below configuration changes in mentioned path location files.

Edit /etc/nginx/nginx.conf and make the following changes.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# vim /etc/nginx/nginx.conf
```

```
root@CCS-331-13-37: /home/c X + | v
root@CCS-331-13-37:/home/dtel# vim /etc/nginx/nginx.conf|
```

```
events {
    worker_connections 2048;
    multi_accept on;
}

http {
    #Timeout error setting added
    fastcgi_buffers 8 16k;
    fastcgi_buffer_size 32k;
    fastcgi_connect_timeout 90;
    fastcgi_send_timeout 90;
    fastcgi_read_timeout 90;

    #Buffer Size related changed added
    client_body_buffer_size 80k;
    client_max_body_size 9m;
    client_header_buffer_size 1k;

    #Client Cache values are added
    open_file_cache max=1024 inactive=10s;
    open_file_cache_valid 60s;
    open_file_cache_min_uses 2;
```

```
open_file_cache_errors on;

#Access_log is set to Off
access_log off;
#access_log /var/log/nginx/access.log;
}
```

```
root@CCS-331-13-37: /home/c ~ + | ^

user www-data;
worker_processes auto;
pid /run/nginx.pid;
include /etc/nginx/modules-enabled/*.conf;

events {
    worker_connections 2048;
    multi_accept on;
}

http {

    ## 
    # Basic Settings
    ##

    sendfile on;
    tcp_nopush on;
    types_hash_max_size 2048;
    # server_tokens off;

    # server_names_hash_bucket_size 64;
    # server_name_in_redirect off;

    include /etc/nginx/mime.types;
    default_type application/octet-stream;

#Timeout error setting added
    fastcgi_buffers 8 16k;
    fastcgi_buffer_size 32k;
    fastcgi_connect_timeout 90;
    fastcgi_send_timeout 90;
    fastcgi_read_timeout 90;
#Buffer Size related changed added
    client_body_buffer_size 80k;
    client_max_body_size 9m;
    client_header_buffer_size 1k;
#Client Cache values are added
    open_file_cache max=1024 inactive=10s;
    open_file_cache_valid 60s;
    open_file_cache_min_use 2;
}
```

```
#Access_log is set to Off
    access_log off;
#access_log /var/log/nginx/access.log;
error_log /var/log/nginx/error.log;
```

Save the changes and restart the NGINX service.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl restart nginx
```

```
root@CCS-331-13-37:/home/dtel# vim /etc/nginx/nginx.conf
root@CCS-331-13-37:/home/dtel# sudo systemctl restart nginx
root@CCS-331-13-37:/home/dtel# |
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl status nginx
```

```
root@CCS-331-13-37:/home/dtel# sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
  Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
  Active: active (running) since Wed 2024-05-15 12:51:45 IST; 2min 39s ago
    Docs: man:nginx(8)
   Process: 131153 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Process: 131156 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 131157 (nginx)
    Tasks: 9 (limit: 9387)
   Memory: 20.4M
      CPU: 286ms
     CGroup: /system.slice/nginx.service
             ├─131157 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─131158 "nginx: worker process" ""
             ├─131159 "nginx: worker process" ""
             ├─131160 "nginx: worker process" ""
             ├─131161 "nginx: worker process" ""
             ├─131162 "nginx: worker process" ""
             ├─131163 "nginx: worker process" ""
             ├─131164 "nginx: worker process" ""
             └─131165 "nginx: worker process" ""

May 15 12:51:45 CCS-331-13-37 systemd[1]: Starting A high performance web server and a reverse proxy server...
May 15 12:51:45 CCS-331-13-37 systemd[1]: Started A high performance web server and a reverse proxy server.
root@CCS-331-13-37:/home/dtel# |
```

3.2.2. Vulnerability Patches – NGINX

Please add/enable configurations as per the below suggestions to apply the patches related to VAPT Vulnerabilities on NGINX Level i.e. Web Interface.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# vim /etc/nginx/nginx.conf
```

```
root@CCS-331-13-37:/home/c X + v
root@CCS-331-13-37:/home/dtel# vim /etc/nginx/nginx.conf|
```

```
http{
    server_tokens off;

    #server_names_hash_bucket_size 64;
    server_name_in_redirect off;
}
```

```
http {
    ## 
    # Basic Settings
    ##

    sendfile on;
    tcp_nopush on;
    types_hash_max_size 2048;

    server_tokens off;

    # server_names_hash_bucket_size 64;
    | server_name_in_redirect off;

    include /etc/nginx/mime.types;
    default_type application/octet-stream;
```

```
rroot@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# vim /etc/nginx/sites-enabled/default
```

```
root@CCS-331-13-37:/home/c ~ + ▾
root@CCS-331-13-37:/home/dtel# vim /etc/nginx/nginx.conf
root@CCS-331-13-37:/home/dtel# vim /etc/nginx/sites-enabled/default|
```

```
server {
    server_name _; #update the domain name in server name when assigned for public IP
    index index.php index.html index.htm index.nginx-debian.html;

    location / {
        try_files $uri $uri/ @php;
    }

    location @php {
        rewrite ^/(.*)$ /$1.php last;
    }

    location ~ \.php$ {
        include snippets/fastcgi-php.conf;
        fastcgi_pass unix:/var/run/php/php8.1-fpm.sock;
        fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
        include fastcgi_params;
    }

    if ($request_uri ~ \.php($|\?) )
    {
        rewrite ^(.*)\.php$ $1 permanent;
    }

    location ~* \.(jpg|png|gif|js|css|php)$ {
        valid_referers 172.16.12.47; #Web Server IP
    }
}
```

```
if ($invalid_referer) {  
    return 403;  
}  
  
}  
  
add_header X-Powered-By "Nginx";  
add_header X-Content-Type-Options nosniff;  
add_header X-Frame-Options SAMEORIGIN;  
add_header X-XSS-Protection "1; mode=block";  
  
server_tokens off;  
server_name_in_redirect off;  
  
# Remove the Server header  
proxy_hide_header Server;  
  
}
```

```
root /var/www/html;

# Add index.php to the list if you are using PHP
index index.php index.html index.htm index.nginx-debian.html;

server_name _; #update the domain name in server name when assigned for public IP

location / {
    # First attempt to serve request as file, then
    # as directory, then fall back to displaying a 404.
    #try_files $uri $uri/ -404;
    try_files $uri $uri/ @php;
}
location @php {
    rewrite ^/(.*)$ /$1.php last;
}

# pass PHP scripts to FastCGI server
#
location ~ \.php$ {
    include snippets/fastcgi-php.conf;
    #
    # With php-fpm (or other unix sockets):
    fastcgi_pass unix:/run/php/php8.1-fpm.sock;
    fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
    include fastcgi_params;
    #
    # With php-cgi (or other tcp sockets):
    #fastcgi_pass 127.0.0.1:9000;
}
location ~* .(jpg|jpeg|png|gif|ico|css|js)$ {
    expires 30d;
}
```

```
if ($request_uri ~ \.php($|\?) )
{
    rewrite ^(.*)\.php$ $1 permanent;
}

location ~* \.(jpg|png|gif|js|css|php)$ {
    valid_referers 172.16.13.37; #Web Server IP
    if ($invalid_referer) {
        return 403;
    }
}

add_header X-Powered-By "Nginx";
add_header X-Content-Type-Options nosniff;
add_header X-Frame-Options SAMEORIGIN;
add_header X-XSS-Protection "1; mode=block";

server_tokens off;
server_name_in_redirect off;

# Remove the Server header
proxy_hide_header Server;
```

Save the changes and restart the nginx service using below command.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl restart nginx
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl status nginx
```

```
root@CCS-331-13-37:/home/dtel# sudo systemctl restart nginx
root@CCS-331-13-37:/home/dtel# sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
  Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
  Active: active (running) since Wed 2024-05-15 13:27:01 IST; 11s ago
    Docs: man:nginx(8)
   Process: 131241 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Process: 131243 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 131245 (nginx)
   Tasks: 9 (limit: 9387)
  Memory: 19.8M
     CPU: 262ms
    CGroup: /system.slice/nginx.service
            ├─131245 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
            ├─131246 "nginx: worker process"
            ├─131247 "nginx: worker process"
            ├─131248 "nginx: worker process"
            ├─131249 "nginx: worker process"
            ├─131250 "nginx: worker process"
            ├─131251 "nginx: worker process"
            ├─131252 "nginx: worker process"
            └─131253 "nginx: worker process"

May 15 13:27:01 CCS-331-13-37 systemd[1]: Starting A high performance web server and a reverse proxy server...
May 15 13:27:01 CCS-331-13-37 systemd[1]: Started A high performance web server and a reverse proxy server.
root@CCS-331-13-37:/home/dtel#
```

3.2.3. PHP 8.1 (CLI)

For Web Application execution, following values can be changed in PHP.ini file. For PHP 8.1 FPM with NGINX, The php.ini location will be in the following directory

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo vim /etc/php/8.1/fpm/php.ini
```

```
root@CCS-331-13-37:/home/dtel# sudo vim /etc/php/8.1/fpm/php.ini
```

[PHP]

short_open_tag = On

upload_max_filesize = 32M

post_max_size = 48M

memory_limit = 256M

max_execution_time = 600

max_input_vars = 3000

max_input_time = 1000

[browscap]

; https://php.net/browscap

browscap = /etc/php/8.1/fpm/php_browscap.ini

;The above line is required when need to add audit trail and required to configure only in web server. Not required for web and DB. Currently it is specific to BFL

```
engine = On

; This directive determines whether
; <? and ?> tags as PHP source which
; generally recommended that <?php
; should be disabled, as enabling it
; documents, however this remains safe.
; Note that this directive does not
; used regardless of this directive
; Default Value: On
; Development Value: Off
; Production Value: Off
; https://php.net/short-open-tag
short_open_tag = On

; The number of significant digits
; https://php.net/precision
precision = 14
```

```
; Maximum allowed size for uploaded files.
; https://php.net/upload-max-filesize
upload_max_filesize = 32M

; Maximum number of files that can be uploaded via a single request
max_file_uploads = 20
```

```
; Its value may be 0 to disable
; is disabled through enable_post_max_size
; https://php.net/post-max-size
post_max_size = 48M
```

```
; https://php.net/max-input-time
max_input_time = 1000
; Maximum input variable nesting level
; https://php.net/max-input-nesting-level
;max_input_nesting_level = 64

; How many GET/POST/COOKIE input variables
max_input_vars = 3000
; How many multipart body parts (components)
; can be accepted.
; Default Value: -1 (Sum of max_input_vars and max_input_size)
;max_multipart_body_parts = 1500

; Maximum amount of memory a script may consume
; https://php.net/memory-limit
memory_limit = 258M

; Note: This directive is hard-coded
max_execution_time = 600
; Maximum amount of time each script is allowed to run.
; idea to limit this time on production servers
; long running scripts.
; Note: This directive is hard-coded
; Default Value: -1 (Unlimited)
; Development Value: 60 (60 seconds)
; Production Value: 60 (60 seconds)
; https://php.net/max-input-time
max_input_time = 1000
; Maximum input variable nesting level
; https://php.net/max-input-nesting-level
;max_input_nesting_level = 64

; How many GET/POST/COOKIE input variables
max_input_vars = 3000
; How many multipart body parts (components)
; can be accepted.
; Default Value: -1 (Sum of max_input_vars and max_input_size)
;max_multipart_body_parts = 1500

; Maximum amount of memory a script may consume
; https://php.net/memory-limit
memory_limit = 258M
```

```
[browscap]
; https://php.net/browscap
;browscap = extra/browscap.ini
;browscap = /etc/php/8.1/fpm/php_browscap.ini
[Session]
```

The below changes are required only for BFL or where audit log is present

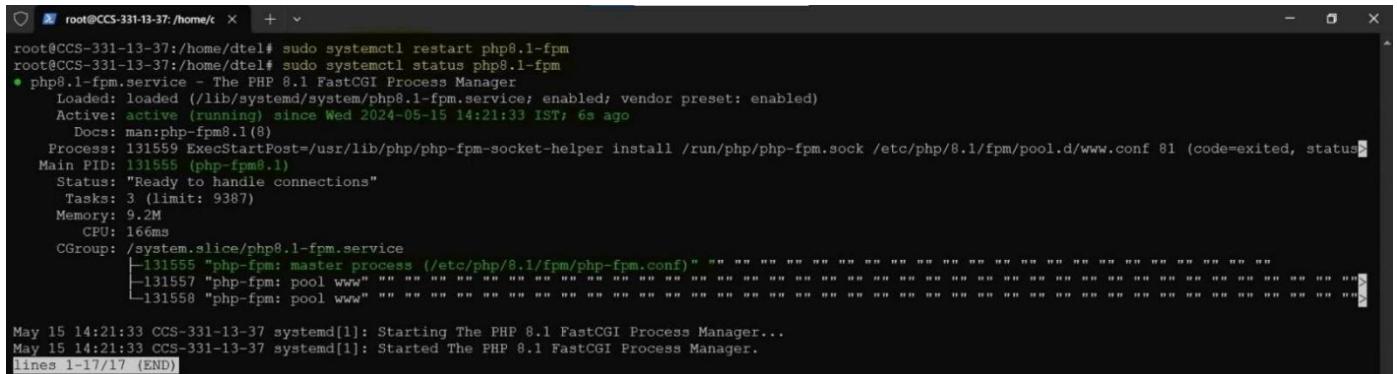
```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo vim /etc/php/8.1/cli/php.ini
```

```
[browscap]
; https://php.net/browscap
browscap = /etc/php/8.1/fpm/php_browscap.ini
```

Once you have modified your PHP settings you need to restart your PHP-FPM for the changes to take effect.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl restart php8.1-fpm
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo systemctl status php8.1-fpm
```



```
root@CCS-331-13-37:/home/dtel# sudo systemctl restart php8.1-fpm
root@CCS-331-13-37:/home/dtel# sudo systemctl status php8.1-fpm
● php8.1-fpm.service - The PHP 8.1 FastCGI Process Manager
  Loaded: loaded (/lib/systemd/system/php8.1-fpm.service; enabled; vendor preset: enabled)
  Active: active (running) since Wed 2024-05-15 14:21:33 IST; 6s ago
    Docs: man:php-fpm8.1(8)
   Process: 131559 ExecStartPost=/usr/lib/php/php-fpm-socket-helper install /run/php/php-fpm.sock /etc/php/8.1/fpm/pool.d/www.conf 81 (code=exited, status=0)
   Main PID: 131555 (php-fpm8.1)
      Status: "Ready to handle connections"
     Tasks: 3 (limit: 9387)
    Memory: 9.2M
       CPU: 166ms
      CGroup: /system.slice/php8.1-fpm.service
              ├─131555 "php-fpm: master process (/etc/php/8.1/fpm/php-fpm.conf)"
              ├─131557 "php-fpm: pool www"
              └─131558 "php-fpm: pool www"

May 15 14:21:33 CCS-331-13-37 systemd[1]: Starting The PHP 8.1 FastCGI Process Manager...
May 15 14:21:33 CCS-331-13-37 systemd[1]: Started The PHP 8.1 FastCGI Process Manager.
lines 1-17/17 (END)
```

3.2.4. MySQL

For the remote access please make the changes in below configuration file and modify (This will open the mysqld.cnf file).

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# vim /etc/mysql/mysql.conf.d/mysqld.cnf
```



```
root@CCS-331-13-37:/home/dtel# vim /etc/mysql/mysql.conf.d/mysqld.cnf
root@CCS-331-13-37:/home/dtel#
```

```
[mysqld]
sql_mode = ALLOW_INVALID_DATES
local_infile = 1

#bind-address      = 127.0.0.1
bind-address      = 0.0.0.0
#mysqlx-bind-address = 127.0.0.1
mysqlx-bind-address = 0.0.0.0

key_buffer_size    = 16M
myisam-recover-options = BACKUP
max_connections    = 10000
log_error = /var/log/mysql/error.log
max_binlog_size = 100M
```

```
root@CCS-331-13-37:/home/c ~ + | v

#
# user          = mysql
# sql_mode = ALLOW_INVALID_DATES
#
# local_infile = 1

#
# pid-file      = /var/run/mysqld/mysqld.pid
# socket        = /var/run/mysqld/mysqld.sock
# port          = 3306
# datadir       = /var/lib/mysql

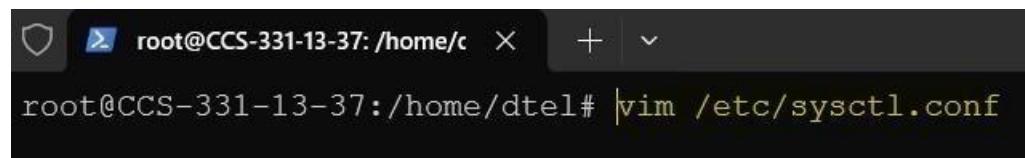
#
# If MySQL is running as a replication
# changed. Ref https://dev.mysql.com/doc/refman/5.7/en/replication.html
# tmpdir         = /tmp
#
# Instead of skip-networking the default
# localhost which is more compatible and
# bind-address    = 0.0.0.0
mysqld-bind-address = 0.0.0.0
#
# * Fine Tuning
#
key_buffer_size      = 16M
# max_allowed_packet = 64M
# thread_stack        = 256K
#
# thread_cache_size   = -1

#
# This replaces the startup script and
# the first time they are touched
myisam-recover-options = BACKUP

max_connections      = 1000
#
# table_open_cache    = 4000
#
#
```

To set the limits for timeout, recycle and reuse edit the /etc/sysctl.conf file and add the below lines. (This will open the systemctl.cnf file)

```
rroot@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# vim /etc/sysctl.conf
```



```
root@CCS-331-13-37: /home/c X + v
root@CCS-331-13-37: /home/dtel# vim /etc/sysctl.conf
```

```
net.ipv4.tcp_tw_reuse=1
net.ipv4.tcp_tw_recycle=1
net.ipv4.tcp_fin_timeout=10
```

```
# for what other values do
#kernel.sysrq=438
net.ipv4.tcp_tw_reuse=1
net.ipv4.tcp_tw_recycle=1
net.ipv4.tcp_fin_timeout=10
```

3.3. Steps for Application architecture

3.3.1. Database Server (MySQL)

Need to provide the grant permissions on database. Login to the DB server terminal as root user and execute below commands.

```
rroot@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# mysql -u root -p
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/var/www/html# mysql -u root -p  
Enter password:
```

Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 272046

Server version: 8.0.36-Ubuntu0.20.04.1 (Ubuntu)

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
mysql> |
```

Note: To allow MySQL database to connect from any remote host (i.e. any server within the network) please execute the below commands. Make sure you got Query OK message for each command.

```
mysql> use mysql;  
  
mysql> CREATE USER 'convox'@'localhost' IDENTIFIED WITH mysql_native_password BY 'Dtel@convox123';  
  
mysql> GRANT ALL PRIVILEGES ON *.* TO 'convox'@'localhost' WITH GRANT OPTION;  
  
mysql> FLUSH PRIVILEGES;
```

Note: To allow My SQL databases to connect from specific host (i.e. specific IP within the network) please execute the below commands. Make sure you got Query OK message for each command.

3.3.2. File Permissions (Across all the servers)

If application files are copied from one server to another server for deploying the application then provide following permissions in destination server.

Ex: Application is copied from Server (172.21.21.85) to Server (172.16.13.38)

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# sudo chmod-R 777 /var/www
```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/var/www/html# chmod -R 777 ConVoxCMC
root@dtel-Standard-PC-i440FX-PIIX-1996:/var/www/html# ll -t ConVoxCMC
total 980
drwxrwxrwx 13 dtel dtel 4096 May 20 19:17 Agent/
drwxrwxrwx 18 dtel dtel 4096 May 20 16:43 /
drwxrwxrwx 3 dtel dtel 4096 May 20 16:41 External/
drwxrwxrwx 3 root root 4096 May 17 14:04 Internal/
-rwxrwxrwx 1 dtel dtel 11923 May 15 18:38 index.php*
drwxrwxrwx 4 dtel dtel 4096 May 15 18:31 uploads/
drwxrwxrwx 4 dtel dtel 4096 May 15 11:30 Admin/
drwxrwxrwx 1 dtel dtel 4096 May 15 11:30 .htaccess
```

3.4. Pre-Installation Preparation

Make sure all the required software services are installed listed above and required configurations made.

Convox Messaging Console GIT URL:

https://git.deepijatel.in/convoxccs/masterprojects/convox-messaging-console/cmc_whatsapp_base/cmc_4.0.1.git

3.5. Installation

3.5.1. Configure the product and customer details.

Make the changes to following parameters by editing the file.

Edit and change the below parameters : **crm_account_id, product_code, company, host_ip, whatsapp_receive_server, whatsapp_sender_server,whatsapp_api_type** .

```
crm_account_id => ACC1722
product_code    => PCX3.3
company        => Deepija Telecom Pvt Ltd

host_name      => localhost
host_ip        => 172.16.13.37
db_ip          => localhost
db_name        => convoxcces_global
db_user         => convox33
db_pass         => ConVox@33
db_port         => 3306

#whatsapp receive message url
whatsapp_receive_server => https://h18.deepijatel.in/whatsapp/

#whatsapp send message url
whatsapp_sender_server => https://h18.deepijatel.in/

whatsapp_api_type => WATI
```

```
##### convox configuration details #####
crm_account_id    => ACC1722
product_code       => Convox Messaging Console
company           => Rejuvera Clinic

host_name          => localhost
host_ip            => 172.16.12.194
db_ip              => localhost
db_name            => convox_ntfct
db_user            => convox
db_pass            => Dtel@convox123
db_port            => 3306

convox_log         => /var/log/convox
convox_db_log      => /var/log/convox_dblogs

enable_perl_log    => Y
enable_html_log    => Y
enable_sticky_agent => Y

#whatsapp receive message url
whatsapp_receive_server => https://h96.deepijatel.in/whatsapp/
#whatsapp send message url
whatsapp_sender_server => https://h96.deepijatel.in/
#whatsappchat quick reply url path
whatsapp_quick_reply_path => ConVoxCMC/Admin/
#whatsapp report media url
whatsapp_media_path => ConVoxCMC/whatsapp/
#whatsapp upload media data url path
whatsapp_upload_media_path => ConVoxCMC/Agent/

whatsapp_api_type => WATI
```

3.5.2. Product Installation using bash

Run CMC_Software_Installation.sh file

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel/sh.CMC_Software_Installation.sh
```

3.5.3. Check List

Check for jobs added to crontab and Screens using below commands.

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel/3.3.1_875cd364_ENC# crontab -l
```

```
##### Start #####
* * * * /usr/share/convox/convox_screen.pl &> /dev/null

##### Close Agent Chats After 22 Hours#####

*/1 * * * * /var/www/perl/convox_clear_whatsapp_chat.pl

##### END #####

```

```
root@dtel-Standard-PC-i440FX-PIIX-1996:/home/dtel# screen-wipe
```

```
root@dtel:/home/dtel# screen -wipe
There are screens on:
    1203.convox-dmove-allcampaign    (05/16/2024 10:32:02 PM)          (Detached)
    1195.convox-whatsapp-dispatch   (05/16/2024 10:32:02 PM)          (Detached)
2 Sockets in /run/screen/S-root.
root@dtel:/home/dtel#
```

3.5.4. Screens List

Below is the list of screens which need to be activated .

To modify the services please go to **vim /etc/convox4.conf**

Screen Name	Web
SERVICE_convox-whatsapp-dispatch	Y
SERVICE_convox-dmove-allcampaign	Y

- Mark the service when required only. If service is not being used by customer then don't activate it.

— — —END— — — —