Overview: 3
Set up: 3
Standalone: 3
Distributed 3
2.2.1 Web Server: 4
2.2.2 DB Server 4
2.2.3 Voice Server 4
3.Document Structure 4
3.1 System Requirements 5
3.1.1 Operating System 5
3.1.1.1 System ULIMITS 7
3.1.1.2 Update System packages 11
3.1.2 Database (My SQL) 14
3.1.3 Web Server (NGINX) 17
3.1.4 PHP (CLI) 20
3.1.4.1 Remove Existing PHP 20
3.1.4.2 Add the Ondrej PPA Repository. 20
3.1.4.3 Install PHP 8.1 with Nginx 22
3.1.4.4 Install PHP Extensions 24
3.1.5 Asterisk: 27
3.2 Software Configurations 47
3.2.1 NGINX 47
3.2.2 PHP 8.1 (CLI) 58
3.2.3 MySQL 64
3.3 Open SSL Installation (Mandatory for Web soft Phone) 69
Configure SSL for Asterisk HTTP: 76
Enable the Web softphone Over Public Internet: 78
Steps for Distributed Application architecture 79

Database Server (MySQL): 79
Installation. 89
Step 1 – Download the Application 89
Step 2 – Go to download path 89
Step 3 – Configure the product and customer details. 90
Step 4: Product Installation using bash 95
Step 5: Sample Configurations: 99

Overview:

Welcome to the step-by-step installation guide for ConVox CCS Version 4.0.2. This comprehensive guide is designed to assist you in setting up and configuring the new version of ConVox CCS 4.0.2 with ease. This document will provide clear instructions to ensure the 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 like no of users, dialing modes, call volume etc..... Properly preparing your environment is crucial for a smooth installation process.

Set up:

Standalone:

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

Distributed

In this model each software service can be installed in a single server or combination of any 2 or more services can be installed in one server.

Combination 1: Web (Server 1) | DB (Server 2) | Voice 1 (Server 3) | Voice 2 (Server 4 - Optional) | Voice 3 (Server 5 - optional).

Combination 2: Web + DB (Server 1) | Voice 1 (Server 2)

Combination 3: Web + Voice (Server 1) | DB (Server 2)

Combination 4: Web + Voice (Server 1) | DB + Voice (Server 2)

Below is the list of services that need to be installed for each server component based on server type (Web/DB/Voice) are listed below Based on combination of set up model choose the required services need to install.

Application files need to be deployed among all the servers irrespective of set up model.

2.2.1 Web Server:

- Operating System cli
- NGINX
- PHP cli
- PERL

2.2.2 DB Server

- Operating System cli
- NGINX
- PHP cli
- My SQL
- PERL

2.2.3 Voice Server

- Operating System cli
- NGINX
- PHP cli
- Perl
- Asterisk

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 CCS 4.0.2

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

Installation: Provides detailed step-by-step instructions for installing ConVox CCS 4.0.2 including the software services. This section is the core of the document.

Configuration: Guides you through the initial configuration of ConVox CCS 4.0.2 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 4.0.2 further.

3.1 System Requirements

- Operating System: **Ubuntu 20.04.6 LTS**
- Database: **Mysql Version:8.0.39-0ubuntu0.20.04.1**
- Perl Version: **5.30.0**
- PHP Version: **PHP Version:8.1.29**
- Calling Service: **20.8.1 (PJSIP)**
- Web Server: **nginx/1.18.0 (Ubuntu)**
- Screen: **Screen version 4.09.00 (GNU) 30-Jan-22**
- SOX: **SoX v14.4.2**
- Jobs: **Crontab**

3.1.1 Operating System

Install the Ubuntu 20.04.6 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 pls 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/narsing# lsb_release -a
```

OR

```
root@dtel:/home/narsing# cat /etc/lsb-release
```

Below is the screenshot of sample output.

```
root@CCS-Softphone34:/home/sarfraz# lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 20.04.6 LTS
Release:        20.04
Codename:       focal
```

```
root@CCS-Softphone34:/home/sarfraz# cat /etc/lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=20.04
DISTRIB_CODENAME=focal
DISTRIB_DESCRIPTION="Ubuntu 20.04.6 LTS"
```

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

```
root@dtel:/home/narsing# date
```

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

```
root@dtel:/home/narsing# sudo timedatecti set-timezone Asia/Kolkata
```

```
root@dtel:/home/narsing# date
```

```
root@dtel:/home/narsing# date
Fri May 17 01:37:47 AM UTC 2024
root@dtel:/home/narsing# sudo timedatectl set-timezone Asia/Kolkata
root@dtel:/home/narsing# date
Fri May 17 07:08:08 AM IST 2024
```

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

```
root@dtel:/home/narsing# vim /etc/hostname
```

```
root@dtel: /home/narsing
CCS-softphone-34
~
```

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 (Web/DB/Voice).

```
root@dtel:/home/narsing# ulimit -a
```

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

```
root@dtel: /home/narsing        Administrator: Windows Power
root@dtel:/home/narsing# 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) 15000
max locked memory           (kbytes, -l) 494520
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) 15000
virtual memory              (kbytes, -v) unlimited
file locks                          (-x) unlimited
root@dtel:/home/narsing#
```

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

```
root@dtel:/home/narsing# vim /etc/security/limits.conf
```

```
root@dtel: /home/narsing
root@dtel:/home/narsing# 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
```

root@dtel: /home/narsing

```
#@student        -       maxlogins
*       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:/home/narsing# reboot now
```

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

```
root@CCS-softphone-34:/home/narsing# ulimit -a
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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-softphone-34:/home/narsing#
```

3.1.1.2 Update System packages

```
root@CCS-softphone-34:/home/narsing# sudo apt update
```

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

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo apt update
Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1,678 kB]
Fetched 1,907 kB in 3s (623 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
18 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@CCS-softphone-34:/home/narsing#
```

root@CCS-softphone-34: /home/narsing# sudo apt upgrade

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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:
```

root@CCS-softphone-34: /home/narsing# sudo apt-get install build-essential

Below the sample screenshots for your reference

```
root@CCS-softphone-34: /hor

root@CCS-softphone-34:/home/narsing# 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++ g++-1
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 libc-dev-b
  libdpkg-perl libfakeroot libfile-fcntllock-perl libfontconfig1 libgcc-11-dev lib
  libmpc3 libnsl-dev libquadmath0 libstdc++-11-dev libtiff5 libtirpc-dev libtsan0
  manpages-dev rpcsvc-proto
Suggested packages:
  bzip2-doc cpp-doc gcc-11-locales debian-keyring g++-multilib g++-11-multilib gcc
  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 fonts-dejav
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libatomic1 libc-dev-b
  libdpkg-perl libfakeroot libfile-fcntllock-perl libfontconfig1 libgcc-11-dev lib
  libmpc3 libnsl-dev libquadmath0 libstdc++-11-dev libtiff5 libtirpc-dev libtsan0
  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
```

```
Pending kernel upgrade

Newer kernel available

The currently running kernel version is 5.15.0-106-generic which is not the expected kernel version 5.15.0-107-generic.

Restarting the system to load the new kernel will not be handled automatically, so you should consider rebooting.

<Ok>
```

```
Running kernel seems to be up-to-date.

Restarting services...
 systemctl restart packagekit.service udisks2.service 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-softphone-34:/home/narsing#
```

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

```
root@CCS-softphone-34:/home/narsing# sudo apt install net-tools
```

3.1.2 Database (My SQL)

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

```
root@CCS-softphone-34:/home/narsing# sudo apt update
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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-softphone-34:/home/narsing#
```

```
root@CCS-softphone-34:/home/narsing# sudo apt upgrade
```

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

```
root@CCS-softphone-34:/home/narsing# sudo apt-get purge 'mysql*'
```

```
root@CCS-softphone-34:/home/narsing# sudo apt-get purge mariadb*
```

To install My SQL 8 execute below commands

```
root@CCS-softphone-34:/home/narsing# sudo apt install mysql-server
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo apt install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-
  libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-htm
  libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client-8.0 m
  mysql-server-core-8.0
Suggested packages:
  libdata-dump-perl libipc-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tinyca
The following NEW packages will be installed:
  libcgi-fast-perl libcgi-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-
  libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-htm
  libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client-8.0 m
  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 [7,212
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-core-8.0 amd
```

```
Scanning linux images...

Running kernel seems to be up-to-date.

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-softphone-34:/home/narsing#
```

```
root@CCS-softphone-34:/home/narsing# mysql -V
```

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

```
root@CCS-Softphone34:/home/sarfraz# mysql -V
mysql  Ver 8.0.39-0ubuntu0.20.04.1 for Linux on x86_64 ((Ubuntu))
root@CCS-Softphone34:/home/sarfraz#
```

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

```
root@CCS-softphone-34:/home/narsing# mysql
```

```
root@CCS-Softphone34:/home/sarfraz# mysql [redacted]
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 272402
Server version: 8.0.39-0ubuntu0.20.04.1 (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>
```

3.1.3 Web Server (NGINX)

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

```
root@CCS-softphone-34:/home/narsing# sudo systemctl stop apache2
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl disable apache2
```

```
root@CCS-softphone-34:/home/narsing# sudo apt purge apache2 apache2-utils
```

```
root@CCS-softphone-34:/home/narsing# sudo apt autoremove
```

```
root@CCS-softphone-34:/home/narsing# sudo apt clean
```

```
root@CCS-softphone-34:/home/narsing# dpkg -l | grep apache2
```

Below is the sample screenshot for your reference.

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo systemctl stop apache2
Failed to stop apache2.service: Unit apache2.service not loaded.
root@CCS-softphone-34:/home/narsing# sudo systemctl disable apache2
Failed to disable unit: Unit file apache2.service does not exist.
root@CCS-softphone-34:/home/narsing# 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-softphone-34:/home/narsing# 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-softphone-34:/home/narsing# sudo apt clean
root@CCS-softphone-34:/home/narsing# dpkg -l | grep apache2
root@CCS-softphone-34:/home/narsing#
```

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

```
root@CCS-softphone-34:/home/narsing# sudo apt install nginx
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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-h
  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-h
  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 ngin
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libn
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libn
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libn
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libn
```

```
root@CCS-softphone-34:/home/narsing# sudo apt-get install nginx-extras
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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
  libnginx-mod-http-fancyindex libnginx-mod-http-geoip libnginx-mod-htt
  libnginx-mod-http-uploadprogress libnginx-mod-http-upstream-fair libn
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
  libnginx-mod-http-fancyindex libnginx-mod-http-geoip libnginx-mod-htt
  libnginx-mod-http-uploadprogress libnginx-mod-http-upstream-fair libn
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
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64
```

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

```
root@CCS-softphone-34:/home/narsing# sudo systemctl status nginx
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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 Fri 2024-05-17 08:35:57 IST; 1min 53s ago
       Docs: man:nginx(8)
    Process: 6402 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
    Process: 6403 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Main PID: 6404 (nginx)
      Tasks: 5 (limit: 4500)
     Memory: 13.3M
        CPU: 168ms
     CGroup: /system.slice/nginx.service
             ├─6404 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─6405 "nginx: worker process" "" "" "
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo apt update
Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Fetched 229 kB in 2s (140 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-softphone-34:/home/narsing# 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-softphone-34:/home/narsing#
```

```
root@CCS-softphone-34:/home/narsing# sudo apt install ca-certificates apt-transport-https
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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 a
Fetched 1,510 B in 1s (2,126 B/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 81114 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@CCS-softphone-34:/home/narsing# sudo apt install software-properties-common
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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-softphone-34:/home/narsing#
```

Next, add the Ondrej PPA.

```
root@CCS-softphone-34:/home/narsing# sudo add-apt-repository ppa:ondrej/php
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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 inclu
versions.php) for Supported Ubuntu Releases (https://wiki.ubuntu.com/Releases) are provided. D
won't be provided.

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

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
2. If you are using apache2, you are advised to add ppa:ondrej/apache2
3. If you are using nginx, you are advised to add ppa:ondrej/nginx-mainline
   or ppa:ondrej/nginx

PLEASE READ: If you like my work and want to give me a little motivation, please consider dona

WARNING: add-apt-repository is broken with non-UTF-8 locales, see
https://github.com/oerdnj/deb.sury.org/issues/56 for workaround:

# LC_ALL=C.UTF-8 add-apt-repository ppa:ondrej/php
More info: https://launchpad.net/~ondrej/+archive/ubuntu/php
Adding repository.
Press [ENTER] to continue or Ctrl-c to cancel.
Adding deb entry to /etc/apt/sources.list.d/ondrej-ubuntu-php-jammy.list
Adding disabled deb-src entry to /etc/apt/sources.list.d/ondrej-ubuntu-php-jammy.list
Adding key to /etc/apt/trusted.gpg.d/ondrej-ubuntu-php.gpg with fingerprint 14AA40EC0831756756
Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
```

3.1.4.3 Install PHP 8.1 with Nginx

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

```
root@CCS-softphone-34:/home/narsing# sudo apt install php8.1 php8.1-fpm
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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 php8.1-cli php8.1-common php8.1-fpm php8.1-opcache ph
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/main amd64
Get:2 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64
Get:3 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64
Get:4 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64
Get:5 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64
Get:6 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64
```

```
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...

Running kernel seems to be up-to-date.

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-softphone-34:/home/narsing#
```

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

```
root@CCS-softphone-34:/home/narsing# sudo systemctl status php8.1-fpm
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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 Fri 2024-05-17 12:58:22 IST; 3min 50s ago
       Docs: man:php-fpm8.1(8)
    Process: 14118 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=
   Main PID: 14114 (php-fpm8.1)
     Status: "Processes active: 0, idle: 2, Requests: 0, slow: 0, Traffic: 0req/sec"
      Tasks: 3 (limit: 4500)
     Memory: 7.2M
        CPU: 151ms
     CGroup: /system.slice/php8.1-fpm.service
             ├─14114 "php-fpm: master process (/etc/php/8.1/fpm/php-fpm.conf)" "" "" "
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo apt install php8.1-curl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  php8.1-curl
0 upgraded, 1 newly installed, 0 to remove and 6 not upgraded.
Need to get 38.7 kB of archives.
After this operation, 147 kB of additional disk space will be used.
Get:1 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php8.1-curl am
Fetched 38.7 kB in 2s (24.0 kB/s)
Selecting previously unselected package php8.1-curl.
(Reading database ... 81274 files and directories currently installed.)
Preparing to unpack .../php8.1-curl_8.1.28-1+ubuntu22.04.1+deb.sury.org+1_amd64.deb ...
Unpacking php8.1-curl (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
Setting up php8.1-curl (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...

Creating config file /etc/php/8.1/mods-available/curl.ini with new version
Processing triggers for php8.1-fpm (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
Processing triggers for php8.1-cli (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
Scanning processes...
Scanning linux images...
```

```
root@CCS-softphone-34:/home/narsing# sudo apt install php8.1-mbstring
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo apt install php8.1-mbstring
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libonig5
The following NEW packages will be installed:
  libonig5 php8.1-mbstring
0 upgraded, 2 newly installed, 0 to remove and 6 not upgraded.
Need to get 659 kB of archives.
After this operation, 1,730 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/main amd64 libonig5 amd64
Get:2 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64
Fetched 659 kB in 3s (258 kB/s)
Selecting previously unselected package libonig5:amd64.
(Reading database ... 81283 files and directories currently installed.)
Preparing to unpack .../libonig5_6.9.7.1-2build1_amd64.deb ...
Unpacking libonig5:amd64 (6.9.7.1-2build1) ...
Selecting previously unselected package php8.1-mbstring.
Preparing to unpack .../php8.1-mbstring_8.1.28-1+ubuntu22.04.1+deb.sury.
Unpacking php8.1-mbstring (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
Setting up libonig5:amd64 (6.9.7.1-2build1) ...
Setting up php8.1-mbstring (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
```

```
root@CCS-softphone-34:/home/narsing# sudo apt install php8.1-xml
```

```
Administrator: Windows Powe
No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@CCS-softphone-34:/home/narsing# sudo apt install php8.1-xml
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  php8.1-xml
0 upgraded, 1 newly installed, 0 to remove and 6 not upgraded.
Need to get 123 kB of archives.
After this operation, 497 kB of additional disk space will be used.
Get:1 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php8.1-xml amd64 8.1.28-1+ubuntu22.04.1+deb.sury.org+1 [123 kB]
Fetched 123 kB in 1s (99.1 kB/s)
Selecting previously unselected package php8.1-xml.
(Reading database ... 81297 files and directories currently installed.)
Preparing to unpack .../php8.1-xml_8.1.28-1+ubuntu22.04.1+deb.sury.org+1_amd64.deb ...
Unpacking php8.1-xml (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...
Setting up php8.1-xml (8.1.28-1+ubuntu22.04.1+deb.sury.org+1) ...

Creating config file /etc/php/8.1/mods-available/dom.ini with new version

Creating config file /etc/php/8.1/mods-available/simplexml.ini with new version

Creating config file /etc/php/8.1/mods-available/xml.ini with new version

Creating config file /etc/php/8.1/mods-available/xmlreader.ini with new version

Creating config file /etc/php/8.1/mods-available/xmlwriter.ini with new version
```

```
root@CCS-softphone-34:/home/narsing# sudo apt install php8.1-imap
```

```
Administrator: Windows Powe
root@CCS-softphone-34:/home/narsing# sudo apt install php8.1-imap
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libc-client2007e mlock
Suggested packages:
  uw-mailutils
The following NEW packages will be installed:
  libc-client2007e mlock php8.1-imap
0 upgraded, 3 newly installed, 0 to remove and 6 not upgraded.
Need to get 693 kB of archives.
After this operation, 1,638 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 mlock amd64 8:2007f~dfsg-7build1 [12.2 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libc-client2007e amd64 8:2007f~dfsg-7build1 [645 kB]
Get:3 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php8.1-imap amd64 8.1.28-1+ubuntu22.04.1+deb.sury.org+1 [36.4 kB]
Fetched 693 kB in 1s (510 kB/s)
Selecting previously unselected package mlock.
(Reading database ... 81316 files and directories currently installed.)
Preparing to unpack .../mlock_8%3a2007f~dfsg-7build1_amd64.deb ...
Unpacking mlock (8:2007f~dfsg-7build1) ...
Selecting previously unselected package libc-client2007e.
```

Restart your PHP service post successfully installing above extensions.

```
root@CCS-softphone-34:/home/narsing# sudo systemctl restart php8.1-fpm
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl status php8.1-fpm
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl restart php8.1-fpm
root@CCS-softphone-34:/home/narsing# 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 Sat 2024-05-18 08:26:31 IST; 16s ago
       Docs: man:php-fpm8.1(8)
    Process: 20725 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=>
   Main PID: 20721 (php-fpm8.1)
     Status: "Processes active: 0, idle: 2, Requests: 0, slow: 0, Traffic: 0req/sec"
      Tasks: 3 (limit: 4500)
     Memory: 9.2M
        CPU: 176ms
     CGroup: /system.slice/php8.1-fpm.service
             ├─20721 "php-fpm: master process (/etc/php/8.1/fpm/php-fpm.conf)" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "
             ├─20723 "php-fpm: pool www" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" >
             └─20724 "php-fpm: pool www" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" >

May 18 08:26:31 CCS-softphone-34 systemd[1]: Starting The PHP 8.1 FastCGI Process Manager...
May 18 08:26:31 CCS-softphone-34 systemd[1]: Started The PHP 8.1 FastCGI Process Manager.
lines 1-17/17 (END)
```

3.1.5 Asterisk:

Execute the commands below to start installing the asterisk 20. 8.1, GIT, Subversion

```
root@CCS-softphone-34:/home/narsing# sudo apt install wget build-essential git autoconf subversion pkg-config libtool
```

```
root@CCS-softphone-34:/home/narsing# sudo apt install wget build-essential git autoconf  subversion pkg-config libtool
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
build-essential is already the newest version (12.9ubuntu3).
wget is already the newest version (1.21.2-2ubuntu1).
wget set to manually installed.
git is already the newest version (1:2.34.1-1ubuntu1.10).
git set to manually installed.
The following additional packages will be installed:
  automake autotools-dev libapr1 libaprutil1 libltdl-dev libltdl7 libserf-1-1 libsvn1 libutf8proc2 m4
Suggested packages:
  autoconf-archive gnu-standards autoconf-doc gettext libtool-doc gfortran | fortran95-compiler gcj-jdk m4-doc db5.3-util libapache2-mod-svn
  subversion-tools
The following NEW packages will be installed:
  autoconf automake autotools-dev libapr1 libaprutil1 libltdl-dev libltdl7 libserf-1-1 libsvn1 libtool libutf8proc2 m4 pkg-config subversion
0 upgraded, 14 newly installed, 0 to remove and 6 not upgraded.
Need to get 4,232 kB of archives.
After this operation, 17.5 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 m4 amd64 1.4.18-5ubuntu2 [199 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 autoconf all 2.71-2 [338 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 autotools-dev all 20220109.1 [44.9 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 automake all 1:1.16.5-1.3 [558 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libapr1 amd64 1.7.0-8ubuntu0.22.04.1 [108 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libaprutil1 amd64 1.6.1-5ubuntu4.22.04.2 [92.8 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libltdl7 amd64 2.4.6-15build2 [39.6 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libltdl-dev amd64 2.4.6-15build2 [169 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libserf-1-1 amd64 1.3.9-10ubuntu2 [50.0 kB]
```

```
root@CCS-331-13-37:/home/dtel# sudo apt -y install curl libnewt-dev libssl-dev libncurses5-dev libsqlite3-dev build-essential libjansson-dev libxml2-dev uuid-dev
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo apt -y install curl libnewt-dev libssl-dev libncurses5-dev libsqlite3-dev build-essential libjansson-dev libxml2-d
ev uuid-dev
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
build-essential is already the newest version (12.9ubuntu3).
curl is already the newest version (7.81.0-1ubuntu1.16).
curl set to manually installed.
The following additional packages will be installed:
  icu-devtools libicu-dev libncurses-dev libpng-dev libpng-tools libslang2-dev libxml2 zlib1g-dev
Suggested packages:
  icu-doc ncurses-doc sqlite3-doc libssl-doc
The following NEW packages will be installed:
  icu-devtools libicu-dev libjansson-dev libncurses-dev libncurses5-dev libnewt-dev libpng-dev libpng-tools libslang2-dev libsqlite3-dev libssl-dev
  libxml2-dev uuid-dev zlib1g-dev
The following packages will be upgraded:
  libxml2
1 upgraded, 14 newly installed, 0 to remove and 5 not upgraded.
Need to get 18.1 MB of archives.
After this operation, 73.7 MB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 icu-devtools amd64 70.1-2 [197 kB]
Get:2 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 libxml2 amd64 2.9.14+dfsg-0.1+ubuntu22.04.1+deb.sury.org+1 [839 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libicu-dev amd64 70.1-2 [11.6 MB]
```

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

```
Running kernel seems to be up-to-date.

Restarting services...
 systemctl restart nginx.service packagekit.service php8.1-fpm.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-softphone-34:/home/narsing#
```

```
root@CCS-softphone-34:/home/narsing# sudo add-apt-repository universe
```

```
root@CCS-softphone-34: /hor

root@CCS-softphone-34:/home/narsing# sudo add-apt-repository universe
Adding component(s) 'universe' to all repositories.
Press [ENTER] to continue or Ctrl-c to cancel.
Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:5 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy InRelease
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1,678 kB]
Fetched 1,907 kB in 3s (607 kB/s)
Reading package lists... Done
root@CCS-softphone-34:/home/narsing#
```

```
root@CCS-softphone-34:/home/narsing# sudo apt update
```

```
root@CCS-softphone-34:/home/narsing# sudo apt upgrade
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo apt update
Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:5 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
5 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@CCS-softphone-34:/home/narsing# 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:
  libabsl20210324 libaom3 libavif13 libdav1d5 libde265-0 libgav1-0 libheif1 libx265-199 libyuv0
The following packages have been kept back:
  python3-update-manager update-manager-core
The following packages will be upgraded:
  libgd3 libpcre2-8-0 libpcre3
3 upgraded, 9 newly installed, 0 to remove and 2 not upgraded.
Need to get 5,447 kB of archives.
After this operation, 27.8 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 libabsl20210324 amd64 0~20210324.2-2 [387 kB]
Get:2 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 libpcre3 amd64 2:8.45-1+ubuntu
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libaom3 amd64 3.3.0-1 [1,748 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libdav1d5 amd64 0.9.2-1 [463 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libgav1-0 amd64 0.17.0-1build1 [336 kB]
Get:6 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 libpcre2-8-0 amd64 10.42-3+ubu
Get:7 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libyuv0 amd64 0.0~git20220104.b91df1a-2 [
Get:8 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libavif13 amd64 0.9.3-3 [69.5 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 libde265-0 amd64 1.0.8-1ubuntu0.3
Get:10 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libx265-199 amd64 3.5-2 [1,170 kB]
Get:11 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 libgd3 amd64 2.3.3-9+ubuntu22
Get:12 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libheif1 amd64 1.12.0-2build1 [196 kB]
```

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

```
Running kernel seems to be up-to-date.

Restarting services...
 /etc/needrestart/restart.d/dbus.service
 /etc/needrestart/restart.d/systemd-manager
 systemctl restart cron.service fwupd.service irqbalance.service ModemManager.service multipathd.service networkd-dispatcher.service nginx.service packageki
t.service php8.1-fpm.service polkit.service ssh.service systemd-journald.service systemd-logind.service systemd-networkd.service systemd-resolved.service sy
stemd-timesyncd.service systemd-udevd.service udisks2.service unattended-upgrades.service upower.service user@1001.service
Job for user@1001.service failed because the control process exited with error code.
See "systemctl status user@1001.service" and "journalctl -xeu user@1001.service" for details.

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-softphone-34:/home/narsing#
```

Download and install the asterisk 20 using the commands below.

```
root@CCS-softphone-34:/home/narsing# cd /usr/src
```

```
root@CCS-softphone-34:/home/narsing# sudo curl -O https://downloads.asterisk.org/pub/telephony/asterisk/old-releases/asterisk-20.8.1.tar.gz
```

```
root@dtel:/home/sarfraz# cd /usr/src/
root@dtel:/usr/src# sudo curl -O https://downloads.asterisk.org/pub/telephony/asterisk/old-releases/asterisk-20.8.1.tar.gz
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 26.9M  100 26.9M    0     0  4787k      0  0:00:05  0:00:05 --:--:-- 6516k
root@dtel:/usr/src# ls
asterisk-                 linux-headers-5.4.0-198          linux-headers-5.4.0-200
asterisk-20.8.1.tar.gz    linux-headers-5.4.0-198-generic  linux-headers-5.4.0-200-generic
```

Extract the downloaded zip file and execute the commands below to start the installation of asterisk 20.

```
root@CCS-softphone-34:/usr/src# sudo tar xvf asterisk-20.8.1.tar.gz
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src# sudo tar xvf asterisk-20-current.tar.gz
asterisk-20.8.1/
asterisk-20.8.1/.cleancount
asterisk-20.8.1/.gitignore
asterisk-20.8.1/.lastclean
asterisk-20.8.1/.version
asterisk-20.8.1/BSDmakefile
asterisk-20.8.1/BUGS
asterisk-20.8.1/CHANGES.md
asterisk-20.8.1/COPYING
asterisk-20.8.1/CREDITS
asterisk-20.8.1/ChangeLogs/
asterisk-20.8.1/ChangeLogs/ChangeLog-20.3.0.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.3.1.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.4.0.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.5.0.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.5.1.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.5.2.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.6.0.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.7.0.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.8.0.md
asterisk-20.8.1/ChangeLogs/ChangeLog-20.8.1.md
asterisk-20.8.1/ChangeLogs/historical/
asterisk-20.8.1/ChangeLogs/historical/CHANGES
asterisk-20.8.1/ChangeLogs/historical/ChangeLog
asterisk-20.8.1/LICENSE
asterisk-20.8.1/Makefile
```

```
root@CCS-softphone-34:/usr/src# cd asterisk-20*/
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo contrib/scripts/get_mp3_source.sh
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src# cd asterisk-20*/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo contrib/scripts/get_mp3_source.sh
A    addons/mp3
A    addons/mp3/layer3.c
A    addons/mp3/interface.c
A    addons/mp3/MPGLIB_TODO
A    addons/mp3/mpg123.h
A    addons/mp3/mpglib.h
A    addons/mp3/decode_ntom.c
A    addons/mp3/MPGLIB_README
A    addons/mp3/common.c
A    addons/mp3/huffman.h
A    addons/mp3/tabinit.c
A    addons/mp3/Makefile
A    addons/mp3/README
A    addons/mp3/decode_i386.c
A    addons/mp3/dct64_i386.c
Exported revision 204.
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo contrib/scripts/install_prereq install
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo contrib/scripts/install_prereq install
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  aptitude-common libboost-iostreams1.74.0 libcwidget4 libsigc++-2.0-0v5 libxapian30
Suggested packages:
  apt-xapian-index aptitude-doc-en | aptitude-doc debtags tasksel libcwidget-dev xapian-tools
The following NEW packages will be installed:
  aptitude aptitude-common libboost-iostreams1.74.0 libcwidget4 libsigc++-2.0-0v5 libxapian30
0 upgraded, 6 newly installed, 0 to remove and 2 not upgraded.
Need to get 4,083 kB of archives.
After this operation, 19.5 MB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 aptitude-common all 0.8.13-3ubuntu1 [1,719 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libboost-iostreams1.74.0 amd64 1.74.0-14ubuntu3 [245 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libsigc++-2.0-0v5 amd64 2.10.4-2ubuntu3 [12.1 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libcwidget4 amd64 0.5.18-5build1 [306 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libxapian30 amd64 1.4.18-4 [701 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 aptitude amd64 0.8.13-3ubuntu1 [1,100 kB]
Fetched 4,083 kB in 3s (1,379 kB/s)
```

```
The following NEW packages will be installed:
  alsa-topology-conf{a} alsa-ucm-conf{a} binutils-dev bison comerr-dev{a} doxygen flex fontconfig{a} fonts-liberation{a} freetds-common{a} freetds-dev
  gir1.2-gmime-3.0{a} gir1.2-ical-3.0{a} graphviz krb5-multidev{a} libann0{a} libasound2{a} libasound2-data{a} libasound2-dev libblkid-dev{a}
  libbluetooth-dev libbluetooth3{a} libbsd-dev{a} libc-client2007e-dev libcairo2{a} libcap-dev libcdt5{a} libcfg-dev libcfg7{a} libcgraph6{a}
  libclang-cpp14{a} libclang1-14{a} libcodec2-1.0{a} libcodec2-dev libcorosync-common-dev libcorosync-common4{a} libcpg-dev libcpg4{a} libct4{a}
  libcurl4-openssl-dev libdatrie1{a} libdb-dev{a} libdb5.3-dev{a} libdeflate-dev{a} libedit-dev libevent-2.1-7{a} libffi-dev{a} libfftw3-bin{a}
  libfftw3-dev libfftw3-double3{a} libfftw3-long3{a} libfftw3-quad3{a} libfftw3-single3{a} libfl-dev{a} libfl2{a} libflac-dev{a} libflac8{a}
  libglib2.0-dev{a} libglib2.0-dev-bin{a} libgmime-3.0-0{a} libgmime-3.0-dev libgraphite2-3{a} libgsml{a} libgsml-dev libgssrpc4{a} libgts-0.7-5{a}
  libgts-bin{a} libgvc6{a} libgvpr2{a} libharfbuzz0b{a} libical-dev libical3{a} libice6{a} libiksemel-dev libiksemel3{a} libjack-jackd2-0{a}
  libjack-jackd2-dev libjbig-dev{a} libjpeg-dev{a} libjpeg-turbo8-dev{a} libjpeg8-dev{a} libkadm5clnt-mit12{a} libkadm5srv-mit12{a} libkdb5-10{a}
  liblab-gamut1{a} libldap-dev libldap2-dev libllvm14{a} liblua5.2-0{a} liblua5.2-dev liblzma-dev{a} libmd-dev{a} libmount-dev{a} libmysqlclient-dev
  libmysqlclient21{a} libneon27{a} libneon27-dev libnetsnmptrapd40{a} libnspr4-dev{a} libnss3-dev{a} libodbc2{a} libodbccr2{a} libodbcinst2{a}
  libogg-dev libogg0{a} libopus-dev{a} libopus0{a} libosptk-dev libosptk4{a} libpam0g-dev{a} libpango-1.0-0{a} libpangocairo-1.0-0{a}
  libpangoft2-1.0-0{a} libpathplan4{a} libpci-dev{a} libpcre16-3{a} libpcre2-16-0{a} libpcre2-32-0{a} libpcre2-dev{a} libpcre2-posix3{a}
  libpcre3-dev{a} libpcre32-3{a} libpcrecpp0v5{a} libpixman-1-0{a} libpkgconf3{a} libpopt-dev libportaudio2{a} libportaudiocpp0{a} libpq-dev libpq5{a}
  libqb-dev{a} libqb100{a} libradcli-dev libradcli4{a} libreadline-dev{a} libresample1{a} libresample1-dev libsamplerate0{a} libselinux1-dev{a}
  libsensors-config{a} libsensors-dev{a} libsensors5{a} libsepol-dev{a} libsm6{a} libsndfile1{a} libsndfile1-dev libsnmp-base{a} libsnmp-dev
  libsnmp-perl{a} libsnmp40{a} libspandsp-dev libspandsp2{a} libspeex-dev libspeex1{a} libspeexdsp-dev libspeexdsp1{a} libsrtp2-1{a} libsrtp2-dev
  libsybdb5{a} libthai-data{a} libthai0{a} libtiff-dev{a} libtiffxx5{a} libtool-bin{a} libudev-dev{a} libunbound-dev libunbound8{a} liburiparser-dev
  liburiparser1{a} libvorbis-dev libvorbis0a{a} libvorbisenc2{a} libvorbisfile3{a} libwrap0-dev{a} libxaw7{a} libxcb-render0{a} libxcb-shm0{a}
  libxmu6{a} libxrender1{a} libxslt1-dev libxt6{a} libzstd-dev{a} pkgconf portaudio19-dev unixodbc-common{a} unixodbc-dev x11-common{a} xmlstarlet
The following packages will be REMOVED:
  pkg-config{a}
0 packages upgraded, 188 newly installed, 1 to remove and 2 not upgraded.
```

```
Running kernel seems to be up-to-date.

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.

##############################################
## install completed successfully
##############################################
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
```

You should get a success message at the end:

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo ./configure
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo ./configure --prefix=/usr --libdir=/usr/lib64
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo ./configure
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether the compiler supports GNU C... yes
checking whether gcc accepts -g... yes
checking for gcc option to enable C11 features... none needed
checking for stdio.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
checking for strings.h... yes
checking for sys/stat.h... yes
config.status: creating autoconfig.h
configure: Menuselect build configuration successfully completed

                .$$$$$$$$$$$$$$$$=..
            .$7$7..           .7$$7:.
          .$$:.                  ,$7.7
        .$7.     7$$$$            .$$77
     ..$$.       $$$$$             .$$$7
    ..7$   .?.   $$$$$   .?.        7$$$.
   $.$.   .$$$7. $$$$7 .7$$$.       .$$$.
 .777.   .$$$$$$77$$$77$$$$$7.       $$$,
 $$$~      .7$$$$$$$$$$$$$7.        .$$$.
.$$7          .7$$$$$$$7:           ?$$$.
$$$           ?7$$$$$$$$$$I         .$$$7
$$$        .7$$$$$$$$$$$$$$$$       :$$$.
$$$        $$$$$$7$$$$$$$$$$$$     .$$$.
$$$         $$$   7$$$7  .$$$     .$$$.
$$$$              $$$$7          .$$$.
7$$$7             7$$$$        7$$$
 $$$$$                         $$$
  $$$$7.                        $$   (TM)
   $$$$$$$.            .7$$$$$$  $$
     $$$$$$$$$$$$7$$$$$$$$$.$$$$$$
       $$$$$$$$$$$$$$$$.

configure: Package configured for:
configure: OS type  : linux-gnu
configure: Host CPU : x86_64
configure: build-cpu:vendor:os: x86_64 : pc : linux-gnu :
configure: host-cpu:vendor:os: x86_64 : pc : linux-gnu :
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make menuselect
```

```
root@CCS-softphone-34: /usr,
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make menuselect
CC="cc" CXX="g++" LD="" AR="" RANLIB="" CFLAGS="" LDFLAGS="" make -C menuselect CONFIGURE_SILENT="--silent" makeopts
make[1]: Entering directory '/usr/src/asterisk-20.8.1/menuselect'
make[1]: 'makeopts' is up to date.
make[1]: Leaving directory '/usr/src/asterisk-20.8.1/menuselect'
CC="cc" CXX="g++" LD="" AR="" RANLIB="" CFLAGS="" LDFLAGS="" make -C menuselect CONFIGURE_SILENT="--silent" cmenuselect
make[1]: Entering directory '/usr/src/asterisk-20.8.1/menuselect'
gcc -g -D_GNU_SOURCE -Wall -Wno-deprecated-declarations -DHAVE_NCURSES -I/usr/include/libxml2   -c -o menuselect.o menuselect.c
gcc -g -D_GNU_SOURCE -Wall -Wno-deprecated-declarations -DHAVE_NCURSES   -c -o strcompat.o strcompat.c
gcc -g -D_GNU_SOURCE -Wall -Wno-deprecated-declarations -DHAVE_NCURSES     -c -o menuselect_curses.o menuselect_curses.c
gcc  -o cmenuselect menuselect.o strcompat.o menuselect_curses.o -lncurses  -ltinfo  -lxml2
make[1]: Leaving directory '/usr/src/asterisk-20.8.1/menuselect'
CC="cc" CXX="g++" LD="" AR="" RANLIB="" CFLAGS="" LDFLAGS="" make -C menuselect CONFIGURE_SILENT="--silent" nmenuselect
make[1]: Entering directory '/usr/src/asterisk-20.8.1/menuselect'
gcc -g -D_GNU_SOURCE -Wall -Wno-deprecated-declarations -DHAVE_NCURSES    -c -o menuselect_newt.o menuselect_newt.c
gcc  -o nmenuselect menuselect.o strcompat.o menuselect_newt.o -lnewt  -lxml2
make[1]: Leaving directory '/usr/src/asterisk-20.8.1/menuselect'
CC="cc" CXX="g++" LD="" AR="" RANLIB="" CFLAGS="" LDFLAGS="" make -C menuselect CONFIGURE_SILENT="--silent" gmenuselect
make[1]: Entering directory '/usr/src/asterisk-20.8.1/menuselect'
make[1]: Nothing to be done for 'gmenuselect'.
make[1]: Leaving directory '/usr/src/asterisk-20.8.1/menuselect'
make[1]: Entering directory '/usr/src/asterisk-20.8.1'
CC="cc" CXX="g++" LD="" AR="" RANLIB="" CFLAGS="" LDFLAGS="" make -C menuselect CONFIGURE_SILENT="--silent" makeopts
make[2]: Entering directory '/usr/src/asterisk-20.8.1/menuselect'
make[2]: 'makeopts' is up to date.
make[2]: Leaving directory '/usr/src/asterisk-20.8.1/menuselect'
Generating input for menuselect ...
```

Use arrow keys to navigate and enter key to select. On Add-ons select chan_ooh323 and format_mp3 as shown below: -

```
Asterisk Module and Build Option Selection

Add-ons (See README-addons.txt)        --- Extended ---
Applications                           [*] chan_mobile
Bridging Modules                       [*] chan_ooh323
Call Detail Recording                  [*] format_mp3
Channel Event Logging                  [ ] res_config_mysql
Channel Drivers
Codec Translators
Format Interpreters
Dialplan Functions
PBX Modules
Resource Modules
Test Modules
Compiler Flags
Utilities
AGI Samples
Core Sound Packages
Music On Hold File Packages
Extras Sound Packages
```

On Core Sound Packages, select the formats of Audio packets like below: -

```
Asterisk Module and I

  Add-ons (See README-addons.txt)          --- Core ---
  Applications                           [*] CORE-SOUNDS-EN-WAV
  Bridging Modules                       [*] CORE-SOUNDS-EN-ULAW
  Call Detail Recording                  [*] CORE-SOUNDS-EN-ALAW
  Channel Event Logging                  [*] CORE-SOUNDS-EN-GSM
  Channel Drivers                        [*] CORE-SOUNDS-EN-G729
  Codec Translators                      [*] CORE-SOUNDS-EN-G722
  Format Interpreters                    [*] CORE-SOUNDS-EN-SLN16
  Dialplan Functions                     [*] CORE-SOUNDS-EN-SIREN7
  PBX Modules                            [*] CORE-SOUNDS-EN-SIREN14
  Resource Modules                       [ ] CORE-SOUNDS-EN_AU-WAV
  Test Modules                           [ ] CORE-SOUNDS-EN_AU-ULAW
  Compiler Flags                         [ ] CORE-SOUNDS-EN_AU-ALAW
  Utilities                              [ ] CORE-SOUNDS-EN_AU-GSM
  AGI Samples                            [ ] CORE-SOUNDS-EN_AU-G729
  Core Sound Packages                    [ ] CORE-SOUNDS-EN_AU-G722
  Music On Hold File Packages            [ ] CORE-SOUNDS-EN_AU-SLN16
  Extras Sound Packages                  [ ] CORE-SOUNDS-EN_AU-SIREN7
                                         [ ] CORE-SOUNDS-EN_AU-SIREN14
                                         [ ] CORE-SOUNDS-EN_GB-WAV
                                         [ ] CORE-SOUNDS-EN_GB-ULAW
                                         [ ] CORE-SOUNDS-EN_GB-ALAW
                                         [ ] CORE-SOUNDS-EN_GB-GSM
                                         [ ] CORE-SOUNDS-EN_GB-G729
                                         [ ] CORE-SOUNDS-EN_GB-G722
                                         [ ] CORE-SOUNDS-EN_GB-SLN16
                                         [ ] CORE-SOUNDS-EN_GB-SIREN7

  English (Australian Accent), WAV format

      Depends on: N/A
```

For Music on Hold, select the following minimal modules: -

```
root@CCS-softphone-34: /usr/

Asterisk Module and

Add-ons (See README-addons.txt)          --- Core ---
Applications                           [*] MOH-OPSOUND-WAV
Bridging Modules                       [*] MOH-OPSOUND-ULAW
Call Detail Recording                  [*] MOH-OPSOUND-ALAW
Channel Event Logging                  [*] MOH-OPSOUND-GSM
Channel Drivers                        [ ] MOH-OPSOUND-G729
Codec Translators                      [ ] MOH-OPSOUND-G722
Format Interpreters                    [*] MOH-OPSOUND-SLN16
Dialplan Functions                     [*] MOH-OPSOUND-SIREN7
PBX Modules                            [*] MOH-OPSOUND-SIREN14
Resource Modules
Test Modules
Compiler Flags
Utilities
AGI Samples
Core Sound Packages
Music On Hold File Packages
Extras Sound Packages
```

```
Asterisk Module and Build Op

Add-ons (See README-addons.txt)          --- Core ---
Applications                           [*] EXTRA-SOUNDS-EN-WAV
Bridging Modules                       [*] EXTRA-SOUNDS-EN-ULAW
Call Detail Recording                  [*] EXTRA-SOUNDS-EN-ALAW
Channel Event Logging                  [*] EXTRA-SOUNDS-EN-GSM
Channel Drivers                        [ ] EXTRA-SOUNDS-EN-G729
Codec Translators                      [ ] EXTRA-SOUNDS-EN-G722
Format Interpreters                    [*] EXTRA-SOUNDS-EN-SLN16
Dialplan Functions                     [*] EXTRA-SOUNDS-EN-SIREN7
PBX Modules                            [*] EXTRA-SOUNDS-EN-SIREN14
Resource Modules                       [ ] EXTRA-SOUNDS-EN_GB-WAV
Test Modules                           [ ] EXTRA-SOUNDS-EN_GB-ULAW
Compiler Flags                         [ ] EXTRA-SOUNDS-EN_GB-ALAW
Utilities                              [ ] EXTRA-SOUNDS-EN_GB-GSM
AGI Samples                            [ ] EXTRA-SOUNDS-EN_GB-G729
Core Sound Packages                    [ ] EXTRA-SOUNDS-EN_GB-G722
Music On Hold File Packages            [ ] EXTRA-SOUNDS-EN_GB-SLN16
Extras Sound Packages                  [ ] EXTRA-SOUNDS-EN_GB-SIREN7
                                       [ ] EXTRA-SOUNDS-EN_GB-SIREN14
                                       [ ] EXTRA-SOUNDS-FR-WAV
                                       [ ] EXTRA-SOUNDS-FR-ULAW
                                       [ ] EXTRA-SOUNDS-FR-ALAW
                                       [ ] EXTRA-SOUNDS-FR-GSM
                                       [ ] EXTRA-SOUNDS-FR-G729
                                       [ ] EXTRA-SOUNDS-FR-G722
                                       [ ] EXTRA-SOUNDS-FR-SLN16
                                       [ ] EXTRA-SOUNDS-FR-SIREN7

English (British Accent), WAV format
```

You can change other configurations you see fit. When done, save and exit then install Asterisk with selected modules.

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make
CC="cc" CXX="g++" LD="" AR="" RANLIB="" CFLAGS="" LDFLAGS="" make -C menuselect CONFIGURE_SILENT="--silent" makeopts
make[1]: Entering directory '/usr/src/asterisk-20.8.1/menuselect'
make[1]: 'makeopts' is up to date.
make[1]: Leaving directory '/usr/src/asterisk-20.8.1/menuselect'
   [CC] astcanary.c -> astcanary.o
   [LD] astcanary.o -> astcanary
   [CC] astdb2sqlite3.c -> astdb2sqlite3.o
   [CC] hash/hash.c -> hash/hash.o
   [CC] hash/hash_bigkey.c -> hash/hash_bigkey.o
   [CC] hash/hash_buf.c -> hash/hash_buf.o
   [CC] hash/hash_func.c -> hash/hash_func.o
   [CC] hash/hash_log2.c -> hash/hash_log2.o
   [CC] hash/hash_page.c -> hash/hash_page.o
   [CC] hash/ndbm.c -> hash/ndbm.o
   [CC] btree/bt_close.c -> btree/bt_close.o
```

```
DateTime.o ooh323c/src/decode.o ooh323c/src/dlist.o ooh323c/src/encode.o ooh323c/src/errmgmt.o ooh323c/src/memheap.o ooh323c/src/
nnels.o ooh323c/src/ooh245.o ooh323c/src/ooports.o ooh323c/src/ooq931.o ooh323c/src/ooCapability.o ooh323c/src/ooSocket.o ooh323c
eventHandler.o ooh323c/src/ooCalls.o ooh323c/src/ooStackCmds.o ooh323c/src/ooh323.o ooh323c/src/ooh323ep.o ooh323c/src/printHandl
ooh323c/src/ooTimer.o ooh323c/src/h323/H235-SECURITY-MESSAGESDec.o ooh323c/src/h323/H235-SECURITY-MESSAGESEnc.o ooh323c/src/h323/
/h323/H323-MESSAGESDec.o ooh323c/src/h323/H323-MESSAGESEnc.o ooh323c/src/h323/MULTIMEDIA-SYSTEM-CONTROL.o ooh323c/src/h323/MULTIM
h323c/src/h323/MULTIMEDIA-SYSTEM-CONTROLEnc.o ooh323cDriver.o -> chan_ooh323.so
   [CC] format_mp3.c -> format_mp3.o
   [CC] mp3/common.c -> mp3/common.o
   [CC] mp3/dct64_i386.c -> mp3/dct64_i386.o
   [CC] mp3/decode_ntom.c -> mp3/decode_ntom.o
   [CC] mp3/layer3.c -> mp3/layer3.o
   [CC] mp3/tabinit.c -> mp3/tabinit.o
   [CC] mp3/interface.c -> mp3/interface.o
   [LD] format_mp3.o mp3/common.o mp3/dct64_i386.o mp3/decode_ntom.o mp3/layer3.o mp3/tabinit.o mp3/interface.o -> format_mp3.so
Building Documentation For: channels pbx apps codecs formats cdr cel bridges funcs tests main res addons
 +--------- Asterisk Build Complete ---------+
 + Asterisk has successfully been built, and +
 + can be installed by running:              +
 +                                           +
 +               make install                +
 +-------------------------------------------+
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make install
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make install
CC="cc" CXX="g++" LD="" AR="" RANLIB="" CFLAGS="" LDFLAGS="" make -C menuselect CONFIGURE_SILENT="--silent" makeopts
make[1]: Entering directory '/usr/src/asterisk-20.8.1/menuselect'
make[1]: 'makeopts' is up to date.
make[1]: Leaving directory '/usr/src/asterisk-20.8.1/menuselect'
Installing modules from channels...
Installing modules from pbx...
Installing modules from apps...
Installing modules from codecs...
codec_opus: Remote package version 20.0_1.3.0 (263680)
codec_opus: Downloading https://downloads.digium.com/pub/telephony/codec_opus/asterisk-20.0/x86-64/codec_opus-20.0_1.3.
v/codec_opus-20.0_1.3.0-x86_64.tar.gz
codec_opus: Installing.
codec_opus: Installed.
codec_silk: Remote package version 20.0_1.0.3 (262147)
codec_silk: Downloading https://downloads.digium.com/pub/telephony/codec_silk/asterisk-20.0/x86-64/codec_silk-20.0_1.0.
v/codec_silk-20.0_1.0.3-x86_64.tar.gz
codec_silk: Installing.
codec_silk: Installed.
```

```
asterisk-moh-opsound-siren14-2.03.tar.  100%[=========================

2024-05-18 13:30:16 (1.90 MB/s) - `asterisk-moh-opsound-siren14-2.03.

make[1]: Leaving directory '/usr/src/asterisk-20.8.1/sounds'
find rest-api -name "*.json" | while read x; do \
        /usr/bin/install -c -m 644 $x "/var/lib/asterisk/rest-api" ;
done
 +---- Asterisk Installation Complete -------+
 +                                            +
 +     YOU MUST READ THE SECURITY DOCUMENT    +
 +                                            +
 + Asterisk has successfully been installed. +
 + If you would like to install the sample   +
 + configuration files (overwriting any      +
 + existing config files), run:              +
 +                                            +
 + For generic reference documentation:      +
 +     make samples                           +
 +                                            +
 + For a sample basic PBX:                   +
 +     make basic-pbx                         +
 +                                            +
 +                                            +
 +------------------  or  ---------------------+
 +                                            +
 + You can go ahead and install the asterisk +
 + program documentation now or later run:   +
 +                                            +
 +                 make progdocs              +
 +                                            +
 + **Note** This requires that you have      +
 + doxygen installed on your local system    +
 +--------------------------------------------+
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# |
```

You can optionally install documentation: -

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make progdocs
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make progdocs
Generating C-API documentation. This will take a while.
Generation complete. Any warnings are in ./doxygen.log.
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# |
```

Finally, install configs and samples: -

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make samples
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make samples
Installing adsi config files...
/usr/bin/install -c -d "/etc/asterisk"
Installing configs/samples/asterisk.adsi
Installing configs/samples/telcordia-1.adsi
Installing other config files...
Installing file configs/samples/acl.conf.sample
Installing file configs/samples/adsi.conf.sample
Installing file configs/samples/aeap.conf.sample
Installing file configs/samples/stir_shaken.conf.sample
Installing file configs/samples/test_sorcery.conf.sample
Installing file configs/samples/udptl.conf.sample
Installing file configs/samples/unistim.conf.sample
Installing file configs/samples/users.conf.sample
Installing file configs/samples/voicemail.conf.sample
Installing file configs/samples/xmpp.conf.sample
Updating asterisk.conf
/usr/bin/install -c -d "/var/spool/asterisk/voicemail/default/1234/INBOX"
build_tools/make_sample_voicemail "//var/lib/asterisk" "//var/spool/asterisk"
Installing file phoneprov/000000000000.cfg
Installing file phoneprov/000000000000-directory.xml
Installing file phoneprov/000000000000-phone.cfg
Installing file phoneprov/polycom_line.xml
Installing file phoneprov/polycom.xml
Installing file phoneprov/snom-mac.xml
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make config
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo ldconfig
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo make config
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo ldconfig
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
```

Login and check the Asterisk console: -

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# pkill -9 asterisk
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# safe_asterisk
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# asterisk -vvvvvvr
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# pkill -9 asterisk
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# safe_asterisk
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# asterisk -vvvvvvvvvvvvvvvvvr
Asterisk 20.8.1, Copyright (C) 1999 - 2022, Sangoma Technologies Corporation and others.
Created by Mark Spencer <markster@digium.com>
Asterisk comes with ABSOLUTELY NO WARRANTY; type 'core show warranty' for details.
This is free software, with components licensed under the GNU General Public
License version 2 and other licenses; you are welcome to redistribute it under
certain conditions. Type 'core show license' for details.
=========================================================================
Connected to Asterisk 20.8.1 currently running on CCS-softphone-34 (pid = 82866)
CCS-softphone-34*CLI>
CCS-softphone-34*CLI>
CCS-softphone-34*CLI>
```

If Asterisk is not starting, it might be due to missing SSL library files. You need to set the path for these libraries to ensure Asterisk starts correctly. Use the following commands to locate the Asterisk SSL modules and set the path

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# locate libasteriskssl.so.1
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# locate libasteriskssl.so.1
/usr/lib/libasteriskssl.so.1
/usr/src/asterisk-20.8.1/main/libasteriskssl.so.1
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# locate libasteriskpj.so.2
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# locate libasteriskpj.so.2
/usr/lib/libasteriskpj.so.2
/usr/src/asterisk-20.8.1/main/libasteriskpj.so.2
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
```

Use the following commands to create symbolic links for the required Asterisk SSL and PJ libraries.

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# ln -s /usr/lib64/libasteriskssl.so.1 /lib/x86_64-linux-gnu
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# ln -s /usr/lib64/libasteriskpj.so.2 /lib/x86_64-linux-gnu
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# ln -s /usr/lib64/libasteriskssl.so.1 /lib/x86_64-linux-gnu
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# ln -s /usr/lib64/libasteriskpj.so.2 /lib/x86_64-linux-gnu
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
```

To verify set path details, use the below command

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# ldd /usr/sbin/asterisk | grep libasteriskssl.so.1
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# ldd /usr/sbin/asterisk | grep libasteriskpj.so.2
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# ldd /usr/sbin/asterisk | grep libasteriskssl.so.1
        libasteriskssl.so.1 => /lib/libasteriskssl.so.1 (0x00007fe3ab9f2000)
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# ldd /usr/sbin/asterisk | grep libasteriskpj.so.2
        libasteriskpj.so.2 => /lib/libasteriskpj.so.2 (0x00007fac71a5a000)
root@CCS-softphone-34:/usr/src/asterisk-20.8.1#
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# pkill -9 asterisk
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# safe_asterisk
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# asterisk -vvvvvvvvvvr
```

```
root@CCS-softphone-34: /usr/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# asterisk -vvvvvvvvvvr
Asterisk 20.8.1, Copyright (C) 1999 - 2022, Sangoma Technologies Corporation and others.
Created by Mark Spencer <markster@digium.com>
Asterisk comes with ABSOLUTELY NO WARRANTY; type 'core show warranty' for details.
This is free software, with components licensed under the GNU General Public
License version 2 and other licenses; you are welcome to redistribute it under
certain conditions. Type 'core show license' for details.
=========================================================================
Connected to Asterisk 20.8.1 currently running on CCS-softphone-34 (pid = 117695)
CCS-softphone-34*CLI>
```

3.16 Perl, SOX and GIT

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

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# cd /home/narsing/
```

root@CCS-softphone-34:/home/narsing# sudo apt install git sox screen perl

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# cd /home/narsing/
root@CCS-softphone-34:/home/narsing#
root@CCS-softphone-34:/home/narsing# 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]
```

root@CCS-softphone-34:/home/narsing# perl -v

root@CCS-softphone-34:/home/narsing# git –version

root@CCS-softphone-34:/home/narsing# sox –version

root@CCS-softphone-34:/home/narsing# screen -v

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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-softphone-34:/home/narsing# git --version
git version 2.34.1
root@CCS-softphone-34:/home/narsing# sox --version
sox:      SoX v14.4.2
root@CCS-softphone-34:/home/narsing# screen -v
Screen version 4.09.00 (GNU) 30-Jan-22
root@CCS-softphone-34:/home/narsing#
```

3.1.7 Perl Modules:

Following Perl modules are needed 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,6 asterisk-perl-0.08.tar.gz

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

```
root@CCS-softphone-34:/home/narsing# sudo apt install cpanminus
```

```
root@CCS-softphone-34:/home/narsing# sudo cpan Asterisk::AGI
```

```
root@CCS-softphone-34:/home/narsing# cpanm -i Digest::MD5
```

```
root@CCS-softphone-34:/home/narsing# cpanm -i Digest::SHA1
```

```
root@CCS-softphone-34:/home/narsing# cpanm -i Net::Telnet
```

```
root@CCS-softphone-34:/home/narsing# cpanm -i Net::MySQL
```

```
root@CCS-softphone-34:/home/narsing# cpanm -i Time: HiRes
```

```
root@CCS-softphone-34:/home/narsing# sudo apt-get install libasterisk-agi-perl
```

```
root@CCS-softphone-34:/home/narsing# cpanm -i LWP::UserAgent
```

```
root@CCS-softphone-34:/home/narsing# sudo apt-get install libswitch-perl
```

```
root@CCS-softphone-34:/home/narsing# apt install libdbd-mysql-perl
```

```
root@CCS-softphone-34:/home/narsing# cpanm -i DBD::mysql
```

```
root@CCS-softphone-34:/home/narsing# cpanm Date::Parse
```

```
root@CCS-softphone-34:/home/narsing# cpanm -i LWP::Protocol::https
```

```
root@CCS-softphone-34:/home/narsing# cpan
```

```
cpan[1]> install JSON
```

```
cpan[2]> exit
```

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

```
root@CCS-softphone-34:/home/narsing# 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@CCS-softphone-34:/home/narsing# vim /etc/nginx/nginx.conf
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# vim /etc/nginx/nginx.conf
```

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

http {



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


	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 300;
	fastcgi_send_timeout 300;
	fastcgi_read_timeout 300;

#Buffer Size related changed added
	client_body_buffer_size 128k;
	client_max_body_size 100m;
	client_header_buffer_size 1k;
	large_client_header_buffers 4 32k;
```

```
#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 off;

#PROXY SETTINGS
        proxy_read_timeout 300;
        proxy_connect_timeout 300;

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

        ##
        # SSL Settings
        ##

        ssl_protocols TLSv1 TLSv1.1 TLSv1.2 TLSv1.3; # Dropping SSLv3, ref: POODLE
        ssl_prefer_server_ciphers on;

        ##
        # Logging Settings
        ##

        access_log /var/log/nginx/access.log;
        #error_log /var/log/nginx/error.log;

        ##
        # Gzip Settings
        ##

        gzip on;
         gzip_proxied any;
```

```
        gzip_comp_level 6;
        gzip_buffers 16 8k;
        gzip_http_version 1.1;
       # gzip_types text/plain text/css application/json application/javascript
text/xml application/xml application/xml+rss text/javascript;

include /etc/nginx/conf.d/*.conf;
       include /etc/nginx/sites-enabled/*;


}
```

```
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 300;
        fastcgi_send_timeout 300;
        fastcgi_read_timeout 300;

#Buffer Size related changed added
        client_body_buffer_size 128k;
        client_max_body_size 100m;
        client_header_buffer_size 1k;
        large_client_header_buffers 4 32k;

#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 off;

#PROXY SETTINGS
        proxy_read_timeout 300;
        proxy_connect_timeout 300;

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

        ##
        # SSL Settings
        ##

        ssl_protocols TLSv1 TLSv1.1 TLSv1.2 TLSv1.3; # Dropping SSLv3, ref: POODLE
        ssl_prefer_server_ciphers on;

        ##
        # Logging Settings
        ##

        access_log /var/log/nginx/access.log;
        #error_log /var/log/nginx/error.log;

        ##
        # Gzip Settings
        ##

        gzip on;

        # gzip_vary on;
        # gzip_proxied any;
        # gzip_comp_level 6;
        # gzip_buffers 16 8k;
        # gzip_http_version 1.1;
        # gzip_types text/plain text/css application/json application/javascript text/xml application/xml application/xml+rss text/javascript;

        ##
        # Virtual Host Configs
        ##

        include /etc/nginx/conf.d/*.conf;
        include /etc/nginx/sites-enabled/*;
```

Save the changes, verify the changes and restart the NGINX service.

```
root@CCS-softphone-34:/home/narsing# sudo systemctl restart nginx
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo systemctl restart nginx
root@CCS-softphone-34:/home/narsing#
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl status nginx
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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 Mon 2024-05-20 07:48:45 IST; 2min 40s ago
       Docs: man:nginx(8)
    Process: 117846 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
    Process: 117849 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Main PID: 117850 (nginx)
      Tasks: 5 (limit: 4500)
     Memory: 14.6M
        CPU: 210ms
     CGroup: /system.slice/nginx.service
             ├─117850 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─117851 "nginx: worker process" "" "" "
```

```
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;
```

```
root@CCS-softphone-34:/home/narsing# vim /etc/nginx/sites-enabled/default
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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 / {

 trx files Suri Suri/ @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 172.16.13.147; #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 and close the file

To configure the PR limits

Step 1: Create the Override Directory

Systemd services can have custom overrides in a separate directory. You can create this directory if it doesn't already exist.

mkdir -p /etc/systemd/system/nginx.service.d

```
root@dtel:/home/ahmed# mkdir -p /etc/systemd/system/nginx.service.d
root@dtel:/home/ahmed# vi /etc/systemd/system/nginx.service.d/override.conf
```

Step 2: Create the override.conf File and below lines

vi /etc/systemd/system/nginx.service.d/override.conf

[Service]

LimitNOFILE=65535

LimitNPROC=65535

```
[Service]
LimitNOFILE=65535
LimitNPROC=65535
~
~
~
```

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

```
root@CCS-softphone-34:/home/narsing#  sudo systemctl daemon-reload
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl restart nginx
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl status nginx
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo systemctl restart nginx
root@CCS-softphone-34:/home/narsing# 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 Mon 2024-05-20 08:08:24 IST; 1min 16s ago
       Docs: man:nginx(8)
    Process: 117876 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
    Process: 117879 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Main PID: 117880 (nginx)
      Tasks: 5 (limit: 4500)
     Memory: 13.5M
        CPU: 214ms
     CGroup: /system.slice/nginx.service
             ├─117880 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─117881 "nginx: worker process" "" "" "
```

To confirm that the limits have been applied, use the following command:

```
root@CCS-softphone-34:/home/narsing# sudo systemctl show nginx | grep -i limit
```

This will show the configured limits for nginx. You should see LimitNOFILE set to 65535, if the override was successful.

```
MemoryLimit=infinity
ManagedOOMMemoryPressureLimit=0
LimitCPU=infinity
LimitCPUSoft=infinity
LimitFSIZE=infinity
LimitFSIZESoft=infinity
LimitDATA=infinity
LimitDATASoft=infinity
LimitSTACK=infinity
LimitSTACKSoft=8388608
LimitCORE=infinity
LimitCORESoft=0
LimitRSS=infinity
LimitRSSSoft=infinity
LimitNOFILE=10000
LimitNOFILESoft=10000
LimitAS=infinity
LimitASSoft=infinity
LimitNPROC=11343
LimitNPROCSoft=11343
LimitMEMLOCK=65536
LimitMEMLOCKSoft=65536
LimitLOCKS=infinity
LimitLOCKSSoft=infinity
LimitSIGPENDING=11343
LimitSIGPENDINGSoft=11343
LimitMSGQUEUE=819200
LimitMSGQUEUESoft=819200
LimitNICE=0
LimitNICESoft=0
LimitRTPRIO=0
LimitRTPRIOSoft=0
LimitRTTIME=infinity
LimitRTTIMESoft=infinity
LogRateLimitIntervalUSec=0
LogRateLimitBurst=0
StartLimitIntervalUSec=10s
StartLimitBurst=5
StartLimitAction=none
```

3.2.2 PHP 8.1 (CLI)

For Web Application execution, the 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@CCS-softphone-34:/home/narsing# sudo vim /etc/php/8.1/fpm/php.ini
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo vim  /etc/php/8.1/fpm/php.ini
```

[PHP]

short_open_tag = On

upload_max_filesize = 100M

post_max_size = 100M

memory_limit = 512M

max_execution_time = 600

max_input_vars = 3000

max_input_time = 1000

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 whic
; generally recommended that <?php
; should be disabled, as enabling i
; documents, however this remains s
; 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 execution time of each script, in seconds
; https://php.net/max-execution-time
; Note: This directive is hardcoded to 0 for the CLI SAPI
max_execution_time = 600

; Maximum amount of time each script may spend parsing request data. It's a good
; idea to limit this time on productions servers in order to eliminate unexpectedly
; long running scripts.
; Note: This directive is hardcoded to -1 for the CLI SAPI
; 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 may be accepted
max_input_vars = 3000
```

```
; Maximum size of POST data that PHP will accept.
; Its value may be 0 to disable the limit. It is ignored if POST data reading
; is disabled through enable_post_data_reading.
; https://php.net/post-max-size
post_max_size = 100M
```

```
; Maximum amount of memory a script may consume
; https://php.net/memory-limit
memory_limit = 512M
```

```
;upload_tmp_dir =

; Maximum allowed size for uploaded files.
; https://php.net/upload-max-filesize
upload_max_filesize = 100M

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

To Configure the PR limits.

Step 1: Create the Override Directory

Systemd services can have custom overrides in a separate directory. You can create this directory if it doesn't already exist.

mkdir -p /etc/systemd/system/php8.1-fpm.service.d

```
root@dtel:/home/ahmed# mkdir -p /etc/systemd/system/php8.1-fpm.service.d
root@dtel:/home/ahmed# vi /etc/systemd/system/php8.1-fpm.service.d/override.conf
```

Step 2: Create the override.conf File and below lines

vi /etc/systemd/system/php8.1-fpm.service.d/override.conf

[Service]

LimitNOFILE=65535

LimitNPROC=65535

```
[Service]
LimitNOFILE=65535
LimitNPROC=65535
~
~
~
```

Open the below file:

```
root@CCS-softphone-34:/home/narsing# vi /etc/php/8.1/fpm/pool.d/www.conf
```

Do the following changes:

pm.max_children = 50

pm.start_servers = 5

pm.min_spare_servers = 5

pm.max_spare_servers = 10

How to do the changes:

You have a server with **16 GB RAM**, and you allocate:

- **2 GB** for the operating system and other services (like MySQL or Nginx).
- **14 GB (14,500 MB)** for PHP-FPM.
- Each PHP-FPM child process consumes approximately **50 MB** of memory.

Formula:
\text{pm.max_children} = \frac{\text{Effective Available Memory}}{\text{Memory per Child Process}}

Example:
\text{pm.max_children} = \frac{14,500}{50} approx 290 max (R and D)

1. pm.max_children increased to 100 to allow more simultaneous PHP processes.
2. pm.start_servers set to 20 to have more processes ready to handle requests upon startup.
3. pm.min_spare_servers set to 20 to ensure there are always a minimum number of idle processes available.
4. pm.max_spare_servers set to 30 to limit the number of idle processes, optimizing memory

```
root@CCS-softphone-34:/home/narsing# sudo systemctl daemon-reload
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl restart php8.1-fpm
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl status php8.1-fpm
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl restart php8.1-fpm
root@CCS-softphone-34:/home/narsing# 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 Mon 2024-05-20 08:19:53 IST; 24s ago
       Docs: man:php-fpm8.1(8)
    Process: 117963 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
   Main PID: 117958 (php-fpm8.1)
     Status: "Processes active: 0, idle: 2, Requests: 0, slow: 0, Traffic: 0req/sec"
      Tasks: 3 (limit: 4500)
     Memory: 9.8M
        CPU: 203ms
     CGroup: /system.slice/php8.1-fpm.service
             ├─117958 "php-fpm: master process (/etc/php/8.1/fpm/php-fpm.conf)" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "
             ├─117961 "php-fpm: pool www" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "
             └─117962 "php-fpm: pool www" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "

May 20 08:19:38 CCS-softphone-34 systemd[1]: Stopping The PHP 8.1 FastCGI Process Manager...
May 20 08:19:46 CCS-softphone-34 systemd[1]: php8.1-fpm.service: Deactivated successfully.
May 20 08:19:46 CCS-softphone-34 systemd[1]: Stopped The PHP 8.1 FastCGI Process Manager.
May 20 08:19:46 CCS-softphone-34 systemd[1]: php8.1-fpm.service: Consumed 6.549s CPU time.
May 20 08:19:46 CCS-softphone-34 systemd[1]: Starting The PHP 8.1 FastCGI Process Manager...
May 20 08:19:53 CCS-softphone-34 systemd[1]: Started The PHP 8.1 FastCGI Process Manager.
lines 1-21/21 (END)
```

To confirm that the limits have been applied, use the following command:

```
root@CCS-softphone-34:/home/narsing# sudo systemctl show php8.1-fpm | grep -i limit
```

This will show the configured limits for php8.1-fpm. You should see LimitNOFILE set to 65535, if the override was successful.

```
MemoryLimit=infinity
ManagedOOMMemoryPressureLimit=0
LimitCPU=infinity
LimitCPUSoft=infinity
LimitFSIZE=infinity
LimitFSIZESoft=infinity
LimitDATA=infinity
LimitDATASoft=infinity
LimitSTACK=infinity
LimitSTACKSoft=8388608
LimitCORE=infinity
LimitCORESoft=0
LimitRSS=infinity
LimitRSSSoft=infinity
LimitNOFILE=10000
LimitNOFILESoft=10000
LimitAS=infinity
LimitASSoft=infinity
LimitNPROC=11343
LimitNPROCSoft=11343
LimitMEMLOCK=65536
LimitMEMLOCKSoft=65536
LimitLOCKS=infinity
LimitLOCKSSoft=infinity
LimitSIGPENDING=11343
LimitSIGPENDINGSoft=11343
LimitMSGQUEUE=819200
LimitMSGQUEUESoft=819200
LimitNICE=0
LimitNICESoft=0
LimitRTPRIO=0
LimitRTPRIOSoft=0
LimitRTTIME=infinity
LimitRTTIMESoft=infinity
LogRateLimitIntervalUSec=0
LogRateLimitBurst=0
StartLimitIntervalUSec=10s
StartLimitBurst=5
StartLimitAction=none
```

3.2.3 MySQL

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

```
root@CCS-softphone-34:/home/narsing# vim /etc/mysql/mysql.conf.d/mysqld.cnf
```

```
[mysqld]

user          = mysql
sql_mode = ALLOW_INVALID_DATES
local_infile = 1
event_scheduler=OFF
```

```
#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         = 64M
max_allowed_packet      = 64M
innodb_buffer_pool_size = 4G
innodb_log_file_size = 256M
thread_cache_size       = 116

myisam-recover-options  = BACKUP

max_connections         = 100000
table_open_cache        = 4096

log_error = /var/log/mysql/error.log

max_binlog_size   = 100M
```

Note: the below are the configurations:

1. key_buffer_size=Size of all MyISAM indexes on disk×1.5 (to 2, for growth)

2. innodb_buffer_pool_size=Total RAM×(0.6 to 0.8)

Ex: If your server has 16 GB of RAM: innodb_buffer_pool_size=16×0.75=12G

3. innodb_log_file_size= innodb_buffer_pool_size/ 4 to 8

Example: If innodb_buffer_pool_size = 4G: innodb_log_file_size= 4G/4 =1G

4. thread_cache_size= max_connections / 2

Example: If max_connections = 250: thread_cache_size=250/2 =125

```
#
# One can use all long options that the program supports.
# Run program with --help to get a list of available options and with
# --print-defaults to see which it would actually understand and use.
#
# For explanations see
# http://dev.mysql.com/doc/mysql/en/server-system-variables.html

# Here is entries for some specific programs
# The following values assume you have at least 32M ram

[mysqld]
#
# * Basic Settings
#
user            = mysql
sql_mode = ALLOW_INVALID_DATES
local_infile = 1
wait_timeout=28800
event_scheduler=OFF
# 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 slave, this should be
# changed. Ref https://dev.mysql.com/doc/refman/8.0/en/server-system-variables.html#sysvar_tmpdir
# tmpdir                = /tmp
#
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
#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
#
# * Fine Tuning
#
key_buffer_size         = 64M
max_allowed_packet    = 64M
innodb_buffer_pool_size = 4G
innodb_log_file_size = 256M
thread_cache_size       = 116

# thread_stack          = 256K

# thread_cache_size       = -1

# This replaces the startup script and checks MyISAM tables if needed
# the first time they are touched
myisam-recover-options  = BACKUP

max_connections        = 100000
table_open_cache       = 4096

#
# * Logging and Replication
#
# Both location gets rotated by the cronjob.
#
# Log all queries
# Be aware that this log type is a performance killer.
# general_log_file        = /var/log/mysql/query.log
# general_log             = 1
#
# Error log - should be very few entries.
#
log_error = /var/log/mysql/error.log
#
# Here you can see queries with especially long duration
# slow_query_log          = 1
# slow_query_log_file     = /var/log/mysql/mysql-slow.log
# long_query_time = 2
# log-queries-not-using-indexes
#
# The following can be used as easy to replay backup logs or for replication.
# note: if you are setting up a replication slave, see README.Debian about
#       other settings you may need to change.
# server-id               = 1
# log_bin                         = /var/log/mysql/mysql-bin.log
# binlog_expire_logs_seconds      = 2592000
max_binlog_size   = 100M
# binlog_do_db            = include_database_name
# binlog_ignore_db        = include_database_name
```

```
root@CCS-softphone-34:/home/narsing# vim /etc/sysctl.conf
```

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)

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# 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
```

To Configure the PR limits.

Step 1: Create the Override Directory

Systemd services can have custom overrides in a separate directory. You can create this directory if it doesn't already exist.

mkdir -p /etc/systemd/system/mysql.service.d

```
root@dtel:/home/ahmed# mkdir -p /etc/systemd/system/mysql.service.d
root@dtel:/home/ahmed# vi /etc/systemd/system/mysql.service.d/override.conf
```

Step 2: Create the override.conf File and below lines

vi /etc/systemd/system/mysql.service.d/override.conf

[Service]

LimitNOFILE=65535

LimitNPROC=65535

```
[Service]
LimitNOFILE=65535
LimitNPROC=65535
~
~
~
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl daemon-reload
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl restart mysql
```

```
root@CCS-softphone-34:/home/narsing# sudo systemctl status mysql
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# sudo systemctl restart mysql
root@CCS-softphone-34:/home/narsing# sudo systemctl status mysql
● mysql.service - MySQL Community Server
     Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)
     Active: active (running) since Mon 2024-05-20 08:34:13 IST; 5s ago
    Process: 117984 ExecStartPre=/usr/share/mysql/mysql-systemd-start pre (code=exited, status=0/SUCCESS)
   Main PID: 117992 (mysqld)
     Status: "Server is operational"
      Tasks: 38 (limit: 4500)
     Memory: 385.2M
        CPU: 2.249s
     CGroup: /system.slice/mysql.service
             └─117992 /usr/sbin/mysqld

May 20 08:34:11 CCS-softphone-34 systemd[1]: Starting MySQL Community Server...
May 20 08:34:13 CCS-softphone-34 systemd[1]: Started MySQL Community Server.
root@CCS-softphone-34:/home/narsing#
```

To confirm that the limits have been applied, use the following command:

```
root@CCS-softphone-34:/home/narsing# sudo systemctl show mysql | grep -i limit
```

This will show the configured limits for mysql. You should see LimitNOFILE set to 65535, if the override was successful.

```
MemoryLimit=infinity
ManagedOOMMemoryPressureLimit=0
LimitCPU=infinity
LimitCPUSoft=infinity
LimitFSIZE=infinity
LimitFSIZESoft=infinity
LimitDATA=infinity
LimitDATASoft=infinity
LimitSTACK=infinity
LimitSTACKSoft=8388608
LimitCORE=infinity
LimitCORESoft=0
LimitRSS=infinity
LimitRSSSoft=infinity
LimitNOFILE=10000
LimitNOFILESoft=10000
LimitAS=infinity
LimitASSoft=infinity
LimitNPROC=11343
LimitNPROCSoft=11343
LimitMEMLOCK=65536
LimitMEMLOCKSoft=65536
LimitLOCKS=infinity
LimitLOCKSSoft=infinity
LimitSIGPENDING=11343
LimitSIGPENDINGSoft=11343
LimitMSGQUEUE=819200
LimitMSGQUEUESoft=819200
LimitNICE=0
LimitNICESoft=0
LimitRTPRIO=0
LimitRTPRIOSoft=0
LimitRTTIME=infinity
LimitRTTIMESoft=infinity
LogRateLimitIntervalUSec=0
LogRateLimitBurst=0
StartLimitIntervalUSec=10s
StartLimitBurst=5
StartLimitAction=none
```

3.3 Open SSL Installation (Mandatory for Web soft Phone)

SSL Certificate Requirement:

An SSL certificate is mandatory for running the Web Softphone module. If the customer does not require the ConVox Softphone, these steps can be skipped.

Installing a Self-Signed SSL Certificate

To install a self-signed SSL certificate using the OpenSSL module, follow the steps below. Alternatively, a purchased or free SSL certificate can be installed based on the customer's choice or hosting model.

For installing a purchased or free SSL certificate, follow the provider's instructions and ensure it is correctly configured for your Asterisk setup.

```
root@CCS-softphone-34:/home/narsing# sudo openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout /etc/ssl/private/nginx-selfsigned.key -out /etc/ssl/certs/nginx-selfsigned.crt
```

```
root@CCS-softphone-34:/home/narsing# sudo openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout /etc/ssl/private/nginx-selfsigned.key -out /etc/ssl/certs/nginx-selfsigned.crt
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:India
String too long, must be at most 2 bytes long
Country Name (2 letter code) [AU]:IN
State or Province Name (full name) [Some-State]:Telangana
Locality Name (eg, city) []:Hyderabad
Organization Name (eg, company) [Internet Widgits Pty Ltd]:Deepija Telecom Pvt Ltd
Organizational Unit Name (eg, section) []:Development
Common Name (e.g. server FQDN or YOUR name) []:Narsing
Email Address []:narsingrao@deepijatel.com
root@CCS-softphone-34:/home/narsing#
```

```
root@CCS-softphone-34:/home/narsing# sudo openssl dhparam -out /etc/nginx/dhparam.pem 4096
```

```
root@CCS-softphone-34:/home/narsing# vim /etc/nginx/snippets/self-signed.conf
```

```
ssl_certificate /etc/ssl/certs/nginx-selfsigned.crt;

 ssl_certificate_key /etc/ssl/private/nginx-selfsigned.key;
```

```
root@CCS-softphone-34: /hor
ssl_certificate /etc/ssl/certs/nginx-selfsigned.crt;
ssl_certificate_key /etc/ssl/private/nginx-selfsigned.key;
~
```

```
root@CCS-softphone-34:/home/narsing# vim /etc/nginx/snippets/ssl-params.conf
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# vim /etc/nginx/snippets/ssl-params.conf
```

```
ssl_protocols TLSv1.3;

ssl_prefer_server_ciphers on;

ssl_dhparam /etc/nginx/dhparam.pem;

ssl_ciphers EECDH+AESGCM:EDH+AESGCM;

ssl_ecdh_curve secp384r1;

ssl_session_timeout 10m;

ssl_session_cache shared:SSL:10m;

ssl_session_tickets off;

ssl_stapling on;

ssl_stapling_verify on;

resolver 8.8.8.8 8.8.4.4 valid=300s;

resolver_timeout 5s;

# Disable strict transport security for now. You can uncomment the following
# line if you understand the implications.
#add_header Strict-Transport-Security "max-age=63072000; includeSubDomains; preload";
#add_header X-Frame-Options DENY;
add_header X-Content-Type-Options nosniff;
add_header X-XSS-Protection "1; mode=block";
```

```
root@CCS-softphone-34: /hor
ssl_protocols TLSv1.3;
ssl_prefer_server_ciphers on;
ssl_dhparam /etc/nginx/dhparam.pem;
ssl_ciphers EECDH+AESGCM:EDH+AESGCM;
ssl_ecdh_curve secp384r1;
ssl_session_timeout  10m;
ssl_session_cache shared:SSL:10m;
ssl_session_tickets off;
ssl_stapling on;
ssl_stapling_verify on;
resolver 8.8.8.8 8.8.4.4 valid=300s;
resolver_timeout 5s;
# Disable strict transport security for now. You can uncomment the following
# line if you understand the implications.
#add_header Strict-Transport-Security "max-age=63072000; includeSubDomains; preload";
#add_header X-Frame-Options DENY;
add_header X-Content-Type-Options nosniff;
add_header X-XSS-Protection "1; mode=block";
~
~
```

```
root@CCS-softphone-34:/home/narsing# vim /etc/nginx/sites-available/default
```

```
server {

        listen 443 ssl default_server;

        listen [::] :443 ssl default_server;


  include snippets/self-signed.conf;

  include snippets/ssl-params.conf;

location /ws {

  proxy_pass http://127.0.0.1:8080;

  proxy_http_version 1.1;

  proxy_set_header Upgrade $http_upgrade;

  proxy_set_header Connection "upgrade";

      proxy_set_header Host $host;

      proxy_set_header X-Real-IP $remote_addr;
```

```
proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;

proxy_set_header X-Forwarded-Proto $scheme;

    }
```

```
#
server {
        listen 80 default_server;
        listen [::]:80 default_server;

        # SSL configuration
        #
        listen 443 ssl default_server;
        listen [::]:443 ssl default_server;

        include snippets/self-signed.conf;
        include snippets/ssl-params.conf;
```

```
        # Remove the Server header
        proxy_hide_header Server;

        location /ws {
        proxy_pass http://127.0.0.1:8080;
        proxy_http_version 1.1;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection "upgrade";
        proxy_set_header Host $host;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_set_header X-Forwarded-Proto $scheme;
       }

        # deny access to .htaccess files, if Apache's document root
        # concurs with nginx's one
        #
        #location ~ /\.ht {
        #        deny all;
        #}
}
```

```
root@CCS-softphone-34:/home/narsing# systemctl restart nginx
```

```
root@CCS-softphone-34:/home/narsing# systemctl status nginx
```

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# systemctl restart nginx
root@CCS-softphone-34:/home/narsing# 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 Mon 2024-05-20 12:43:48 IST; 7s ago
       Docs: man:nginx(8)
    Process: 118744 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
    Process: 118746 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Main PID: 118747 (nginx)
      Tasks: 5 (limit: 4500)
     Memory: 14.3M
        CPU: 228ms
     CGroup: /system.slice/nginx.service
             ├─118747 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─118748 "nginx: worker process" "" "" "
```

Configure SSL for Asterisk HTTP:

```
root@CCS-softphone-34:/home/narsing# cd /usr/src/asterisk-20.8.1/
```

```
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo contrib/scripts/ast_tls_cert -C 172.16.13.35 -O  "Deepija Telecom Pvt. Ltd." -b 2048 -d /etc/asterisk/keys
```

```
root@CCS-softphone-34:/home/narsing# cd /usr/src/asterisk-20.8.1/
root@CCS-softphone-34:/usr/src/asterisk-20.8.1# sudo contrib/scripts/ast_tls_cert -C 172.16.13.35 -O "Deepija Telecom Pvt. Ltd." -b 2048 -d /etc/asterisk/keys

No config file specified, creating '/etc/asterisk/keys/tmp.cfg'
You can use this config file to create additional certs without
re-entering the information for the fields in the certificate
Creating CA key /etc/asterisk/keys/ca.key
Enter PEM pass phrase:
Verifying - Enter PEM pass phrase:
Creating CA certificate /etc/asterisk/keys/ca.crt
Enter pass phrase for /etc/asterisk/keys/ca.key:
Creating certificate /etc/asterisk/keys/asterisk.key
Creating signing request /etc/asterisk/keys/asterisk.csr
Creating certificate /etc/asterisk/keys/asterisk.crt
Certificate request self-signature ok
subject=CN = 172.16.13.35, O = Deepija Telecom Pvt. Ltd.
Enter pass phrase for /etc/asterisk/keys/ca.key:
Combining key and crt into /etc/asterisk/keys/asterisk.pem
```

```
root@CCS-softphone-34:/home/narsing# vim /etc/asterisk/http.conf
```

```
[general]

servername=Asterisk

tisbindaddr=0.0.0.0:8089

bindaddr=0.0.0.0

bindport=8088

enabled=yes

enablestatic=yes

tisenable=yes

tiscertfile=/etc/asterisk/keys/asterisk.crt

tlsprivatekey=/etc/asterisk/keys/asterisk.key
```

```
[general]
servername=Asterisk
tlsbindaddr=0.0.0.0:8089
bindaddr=0.0.0.0
bindport=8088
enabled=yes
enablestatic=yes
tlsenable=yes
tlscertfile=/etc/asterisk/keys/asterisk.crt
tlsprivatekey=/etc/asterisk/keys/asterisk.key
```

```
root@CCS-softphone-34:/home/narsing# vim /etc/asterisk/rtp.conf
```

```
[general]

rtpstart=10000

rtpend=20000

rtpchecksums=no

dtmftimeout=3000

rtcpinterval=5000

strictrtp=no

icesupport=yes

stunaddr=stun.l.google.com:19302
```

```
[general]
rtpstart=10000
rtpend=20000
rtpchecksums=no
dtmftimeout=3000
rtcpinterval=5000
strictrtp=no
icesupport=yes
stunaddr=stun.l.google.com:19302


[ice_host_candidates]
;172.16.13.78=>103.167.216.253
~
~
~
~
~
~
~
```

If provided with a public IP, replace the below configuration in the above file.

[ice_host_candidates] 172.16.13.78 => 103.167.216.253 (local IP => public IP)

Enable the Web softphone Over Public Internet:

Need to replace the standard SSL paths of mapped domain name in respective paths of asterisk http & nginx servers then allow the following ports on firewall.

Firewall Allow Port:

****

To Allow Mysql

sudo ufw allow 3306

SSH:

sudo ufw allow 22

Web Server HTTP:

sudo ufw allow 80/tcp

Web Server HTTPS:

sudo ufw allow 443/tcp

Asterisk Port:

sudo ufw allow 5038/tcp

Asterisk WebSocket:

sudo ufw allow 8089/tcp

RTP Port:

sudo ufw allow 10000:65000/udp

Asterisk SIP:

sudo ufw allow 5060/udp

Steps for Distributed Application architecture

Database Server (MySQL):

```
root@CCS-softphone-34:/home/narsing# mysql -uroot -p
```

If the hosted model is distributed (i.e. Database, Web, Voice hosted in different servers). Need to provide the grant permissions on database. Login to the DB server terminal as root user and execute the commands below.

```
root@CCS-softphone-34: /hor
root@CCS-softphone-34:/home/narsing# mysql -uroot -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
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>
```

Note: To allow My SQL 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 'convox4'@'%' IDENTIFIED WITH mysql_native_password BY 'ConVox@4';

mysql> GRANT ALL ON convoxcces_global.* TO 'convox4'@'%';

mysql> GRANT ALL ON convoxcces_lead_mgmt.* TO 'convox4'@'%';

mysql> GRANT ALL ON convoxcces_txn_log.* TO 'convox4'@'%';

mysql> GRANT ALL ON convoxcces_dnc.* TO 'convox4'@'%';

mysql> GRANT ALL ON convoxcces_historical.* TO 'convox4'@'%';

mysql> GRANT ALL ON convoxcces_call_limits.* TO 'convox4'@'%';

mysql> FLUSH PRIVILEGES;
```

```
Database changed
mysql> CREATE USER 'convox4'@'%' IDENTIFIED WITH mysql_native_password BY 'ConVox@4';
Query OK, 0 rows affected (0.02 sec)

mysql> GRANT ALL ON convoxcces_global.* TO 'convox4'@'%';
Query OK, 0 rows affected (0.02 sec)

mysql> GRANT ALL ON convoxcces_lead_mgmt.* TO 'convox4'@'%';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON convoxcces_txn_log.* TO 'convox4'@'%';
Query OK, 0 rows affected (0.03 sec)

mysql> GRANT ALL ON convoxcces_dnc.* TO 'convox4'@'%';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON convoxcces_historical.* TO 'convox4'@'%';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON convoxcces_call_limits.* TO 'convox4'@'%';
Query OK, 0 rows affected (0.02 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)

mysql>
```

```
mysql> use mysql;

mysql> CREATE USER 'convox4'@'172.16.13.37' IDENTIFIED WITH

mysql_native_password BY 'ConVox@4';

mysql> GRANT ALL ON convoxcces_global.* TO 'convox4'@'172.16.13.37';

mysql> GRANT ALL ON convoxcces_lead_mgmt.* TO 'convox4'@'172.16.13.37';

mysql> GRANT ALL ON convoxcces_txn_log.* TO 'convox4'@'172.16.13.37';

mysql> GRANT ALL ON convoxcces_dnc.* TO 'convox4'@'172.16.13.37';

mysql> GRANT ALL ON convoxcces_historical.* TO 'convox4'@'172.16.13.37';

mysql> GRANT ALL ON convoxcces_call_limits.* TO 'convox4'@'172.16.13.37';

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.

```
mysql> use mysql;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> CREATE USER 'convox4'@'172.16.13.37' IDENTIFIED WITH mysql_native_password BY 'ConVox@4';
Query OK, 0 rows affected (0.06 sec)

mysql> GRANT ALL ON convoxcces_global.* TO 'convox4'@'172.16.13.37';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON convoxcces_lead_mgmt.* TO 'convox4'@'172.16.13.37';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON convoxcces_txn_log.* TO 'convox4'@'172.16.13.37';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON convoxcces_dnc.* TO 'convox4'@'172.16.13.37';
Query OK, 0 rows affected (0.01 sec)

mysql> GRANT ALL ON convoxcces_historical.* TO 'convox4'@'172.16.13.37';
Query OK, 0 rows affected (0.11 sec)

mysql> GRANT ALL ON convoxcces_call_limits.* TO 'convox4'@'172.16.13.37';
Query OK, 0 rows affected (0.03 sec)

mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.09 sec)
```

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 Web Server (172.16.13.37) to Voice Server (172.16.13.38) then login to the voice server & Web server and execute below command.

```
root@CCS-softphone-34:/home/narsing# sudo chmod -R 777 /var/www
```

```
root@CCS-softphone-34:/home/narsing# sudo chmod -R 777 /var/www
```

```
root@CCS-softphone-34:/home/narsing# sudo chmod -R 777 /var/www
root@CCS-softphone-34:/home/narsing# ll -t /var/www/
total 100
drwxrwxrwx  3 root root  4096 May 21 08:17 html/
drwxrwxrwx  3 root root  4096 May 21 08:17 convox_sounds/
drwxrwxrwx 11 root root  4096 May 21 08:17 ./
drwxrwxrwx  3 root root  4096 May 21 08:17 convox_moh/
drwxrwxrwx  5 root root  4096 May 21 08:17 convox_agi/
drwxrwxrwx  2 root root  4096 May 21 08:17 database/
drwxrwxrwx  5 root root  4096 May 21 08:17 doc/
drwxrwxrwx  8 root root  4096 May 21 08:17 .git/
drwxrwxrwx  3 root root  4096 May 21 08:17 convox_perl/
drwxrwxrwx  2 root root  4096 May 21 08:17 asterisk/
-rwxrwxrwx  1 root root  3569 May 21 08:17 README.md*
-rwxrwxrwx  1 root root    75 May 21 08:17 convoxwebpanel.conf*
-rwxrwxrwx  1 root root 28832 May 21 08:17 install_ccs33_setup.sh*
-rwxrwxrwx  1 root root 13173 May 21 08:17 convox33.conf*
drwxr-xr-x 14 root root  4096 May 17 08:34 ../
root@CCS-softphone-34:/home/narsing#
```

Install ion Cube for PHP:

Download the latest version of ion cube loaders using the command below.

```
root@WebPhone-CCS-4-0-1:/home/narsing# wget http://downloads3.ioncube.com/loader_downloads/ioncube_loaders_lin_x86-64.tar.gz
```

```
root@WebPhone-CCS-4-0-1:/home/narsing# wget http://downloads3.ioncube.com/loader_downloads/ioncube_loaders_lin_x86-64.tar.gz
--2024-05-28 10:43:26--  http://downloads3.ioncube.com/loader_downloads/ioncube_loaders_lin_x86-64.tar.gz
Resolving downloads3.ioncube.com (downloads3.ioncube.com)... 52.217.72.235, 52.217.143.53, 54.231.159.29, ...
Connecting to downloads3.ioncube.com (downloads3.ioncube.com)|52.217.72.235|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 14825956 (14M) [application/x-tar]
Saving to: 'ioncube_loaders_lin_x86-64.tar.gz'

ioncube_loaders_lin_x86-64.tar.gz     100%[===================================================================>]  14.14M  3.95MB/s    in 5.4s

2024-05-28 10:43:32 (2.62 MB/s) - 'ioncube_loaders_lin_x86-64.tar.gz' saved [14825956/14825956]

root@WebPhone-CCS-4-0-1:/home/narsing#
```

```
root@WebPhone-CCS-4-0-1:/home/narsing# tar xzf ioncube_loaders_lin_x86-64.tar.gz -C /usr/local/
```

```
root@WebPhone-CCS-4-0-1:/home/narsing# cd /usr/local/ioncube/
```

```
root@WebPhone-CCS-4-0-1:/home/narsing# tar xzf ioncube_loaders_lin_x86-64.tar.gz -C /usr/local/
root@WebPhone-CCS-4-0-1:/home/narsing# cd /usr/local/ioncube/
root@WebPhone-CCS-4-0-1:/usr/local/ioncube#
```

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# ls
ioncube_loader_lin_4.1.so      ioncube_loader_lin_5.1.so      ioncube_loader_lin_5.5.so      ioncube_loader_lin_7.2.so      ioncube_loader_lin_8.2.so
ioncube_loader_lin_4.2.so      ioncube_loader_lin_5.1_ts.so   ioncube_loader_lin_5.5_ts.so   ioncube_loader_lin_7.2_ts.so   ioncube_loader_lin_8.2_ts.so
ioncube_loader_lin_4.3.so      ioncube_loader_lin_5.2.so      ioncube_loader_lin_5.6.so      ioncube_loader_lin_7.3.so      LICENSE.txt
ioncube_loader_lin_4.3_ts.so   ioncube_loader_lin_5.2_ts.so   ioncube_loader_lin_5.6_ts.so   ioncube_loader_lin_7.3_ts.so   loader-wizard.php
ioncube_loader_lin_4.4.so      ioncube_loader_lin_5.3.so      ioncube_loader_lin_7.0.so      ioncube_loader_lin_7.4.so      README.txt
ioncube_loader_lin_4.4_ts.so   ioncube_loader_lin_5.3_ts.so   ioncube_loader_lin_7.0_ts.so   ioncube_loader_lin_7.4_ts.so   USER-GUIDE.pdf
ioncube_loader_lin_5.0.so      ioncube_loader_lin_5.4.so      ioncube_loader_lin_7.1.so      ioncube_loader_lin_8.1.so      USER-GUIDE.txt
ioncube_loader_lin_5.0_ts.so   ioncube_loader_lin_5.4_ts.so   ioncube_loader_lin_7.1_ts.so   ioncube_loader_lin_8.1_ts.so
root@WebPhone-CCS-4-0-1:/usr/local/ioncube#
```

Use the below command to grep/search the php extensions directory.

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# php -i | grep extension_dir
```

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# php -i | grep extension_dir
extension_dir => /usr/lib/php/20210902 => /usr/lib/php/20210902
root@WebPhone-CCS-4-0-1:/usr/local/ioncube#
```

Copy the ion cube loader 8.1 so file to PHP extensions directory using the below commands.

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# cp ioncube_loader_lin_8.1.so /usr/lib/php/20210902/
```

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# cp ioncube_loader_lin_8.1_ts.so /usr/lib/php/20210902/
```

```
root@WebPhone-CCS-4-0-1: /
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# cp ioncube_loader_lin_8.1.so /usr/lib/php/20210902/
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# cp ioncube_loader_lin_8.1_ts.so /usr/lib/php/20210902/
root@WebPhone-CCS-4-0-1:/usr/local/ioncube#
```

Edit the below php.ini file related to NGINX –PHP FPM configuration and add the mentioned lines as suggested. This will help to load the ion cube library when page opened/executed on browser.

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# vim /etc/php/8.1/fpm/php.ini
```

```
root@WebPhone-CCS-4-0-1: /
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# vim /etc/php/8.1/fpm/php.ini
```

Add the below line to enable the ion cube.

```
zend_extension = /usr/lib/php/20210902/ioncube_loader_lin_8.1.so
```

```
root@WebPhone-CCS-4-0-1: /
;extension=sodium
;extension=sqlite3
;extension=tidy
;extension=xsl

;zend_extension=opcache
zend_extension = /usr/lib/php/20210902/ioncube_loader_lin_8.1.so

;;;;;;;;;;;;;;;;;;;
; Module Settings ;
;;;;;;;;;;;;;;;;;;;

[CLI Server]
; Whether the CLI web server uses ANSI color coding in its terminal output.
cli_server.color = On

[Date]
```

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# vim /etc/php/8.1/cli/php.ini
```

Edit the php.ini file below related to PHP CLI configuration and add the below mentioned line as suggested. This will help to load the ion cube library when PHP file executed through the terminal

```
root@WebPhone-CCS-4-0-1: /
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# vim /etc/php/8.1/cli/php.ini
```

```
zend_extension = /usr/lib/php/20210902/ioncube_loader_lin_8.1.so
```

```
root@WebPhone-CCS-4-0-1: /
;extension=xsl

;zend_extension=opcache
zend_extension = /usr/lib/php/20210902/ioncube_loader_lin_8.1.so

;;;;;;;;;;;;;;;;;;;
; Module Settings ;
;;;;;;;;;;;;;;;;;;;

[CLI Server]
; Whether the CLI web server uses ANSI color coding in its terminal output.
cli_server.color = On
```

Post the changes restart the PHP-FPM and NGINX services and make sure services are started post restart to proceed further.

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# sudo systemctl restart nginx
```

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# sudo systemctl restart php8.1-fpm
```

```
root@WebPhone-CCS-4-0-1: /
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# sudo systemctl restart nginx
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# sudo systemctl restart php8.1-fpm
root@WebPhone-CCS-4-0-1:/usr/local/ioncube#
```

```
root@CCS-331-13-37:/usr/local/ioncube# sudo systemctl status php8.1-fpm
```

```
root@CCS-331-13-37:/usr/local/ioncube# sudo systemctl status nginx
```

```
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# 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 2024-05-28 11:01:46 IST; 1min 28s ago
       Docs: man:php-fpm8.1(8)
    Process: 4888 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: 4885 (php-fpm8.1)
     Status: "Processes active: 0, idle: 2, Requests: 0, slow: 0, Traffic: 0req/sec"
      Tasks: 3 (limit: 4500)
     Memory: 9.6M
        CPU: 168ms
     CGroup: /system.slice/php8.1-fpm.service
             ├─4885 "php-fpm: master process (/etc/php/8.1/fpm/php-fpm.conf)" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "
             ├─4886 "php-fpm: pool www" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "
             └─4887 "php-fpm: pool www" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "

May 28 11:01:46 WebPhone-CCS-4-0-1 systemd[1]: Starting The PHP 8.1 FastCGI Process Manager...
May 28 11:01:46 WebPhone-CCS-4-0-1 systemd[1]: Started The PHP 8.1 FastCGI Process Manager.
root@WebPhone-CCS-4-0-1:/usr/local/ioncube# 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 2024-05-28 11:01:39 IST; 1min 45s ago
       Docs: man:nginx(8)
    Process: 4870 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
    Process: 4873 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Main PID: 4874 (nginx)
      Tasks: 5 (limit: 4500)
     Memory: 14.4M
        CPU: 220ms
     CGroup: /system.slice/nginx.service
             ├─4874 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─4875 "nginx: worker process" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "
             ├─4876 "nginx: worker process" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "
             ├─4877 "nginx: worker process" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "
             └─4878 "nginx: worker process" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "

May 28 11:01:39 WebPhone-CCS-4-0-1 systemd[1]: Starting A high performance web server and a reverse proxy server...
May 28 11:01:39 WebPhone-CCS-4-0-1 nginx[4870]: nginx: [warn] "ssl_stapling" ignored, issuer certificate not found for certificate "/etc/ssl/certs/nginx-se
May 28 11:01:39 WebPhone-CCS-4-0-1 nginx[4873]: nginx: [warn] "ssl_stapling" ignored, issuer certificate not found for certificate "/etc/ssl/certs/nginx-se
May 28 11:01:39 WebPhone-CCS-4-0-1 systemd[1]: Started A high performance web server and a reverse proxy server.
root@WebPhone-CCS-4-0-1:/usr/local/ioncube#
```

Check whether PHP ion cube loader extension is loaded into the PHP or not using the command below.

```
root@WebPhone-CCS-4-0-1:/home/narsing# php -v
```

```
root@WebPhone-CCS-4-0-1:/home/narsing# php -v
PHP 8.1.28 (cli) (built: Apr 22 2024 09:45:11) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.1.28, Copyright (c) Zend Technologies
    with the ionCube PHP Loader v13.0.3, Copyright (c) 2002-2024, by ionCube Ltd.
    with Zend OPcache v8.1.28, Copyright (c), by Zend Technologies
root@WebPhone-CCS-4-0-1:/home/narsing#
```

Pre-Installation Preparation:

Make sure all the required software services are installed listed above and required configurations made. Encrypt the ConVox CCS 4.0.2 package using GIT URL through the below URL.

ConVox CCS 4.0.2 GIT URL:
https://git.deepijatel.in/convoxccs/masterprojects/4.0.2.git

Open the Below URL in browser:

http://172.16.13.17/dtelhelp/support/home.php

Sign in with your support helpdesk credentials and navigate to GIT Encrypt. Then select PHP version as 8.1 & paste git project URL mentioned above and click on submit.

If the encryption is successful, you will get output like as shown in below screenshot. Copy the link and run the command as a root user in customer servers SSH terminal. This will download the application in zip format into the customer server.

Sample **(wget https://dtelhelp.deepija.com/RashmiB/4.0.2_682fb4b0.zip)**

For Product Information, Please Look into /. Product_information.txt file)

Before starting the installation, evaluate the following parameters.

- ★ **Hosting Model – Premises/Hybrid/Hosted.**
- ★ **Set up – Standalone/Distributed.**

Installation.

Step 1 – Download the Application

Download the ConVox CCS 4.0.2 application (Encrypted) using the above generated URL into the customer server.

```
root@WebPhone-CCS-4-0-1:/home/narsing# wget https://dtelhelp.deepija.com/RashmiB/4.0.2_682fb4b0.zip
```

Step 2 – Go to download path

Go to the location where your application is downloaded and unzip the application using the commands below.

```
root@WebPhone-CCS-4-0-1:/home/narsing# unzip 4.0.2_682fb4b0.zip
```

```
root@WebPhone-CCS-4-0-1: /
root@WebPhone-CCS-4-0-1:/home/narsing# unzip 4.0.1_682fb4b0.zip
Archive:  4.0.1_682fb4b0.zip
   creating: 4.0.1_682fb4b0_ENC/
   creating: 4.0.1_682fb4b0_ENC/convox_sounds/
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/sorry-invalidchoice.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/sorry-didnotgetthat.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/thankyou-saved.gsm
 extracting: 4.0.1_682fb4b0_ENC/convox_sounds/seconds.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/Recording.wav
   creating: 4.0.1_682fb4b0_ENC/convox_sounds/ConVox/
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/ConVox/3.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/ConVox/otp.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/ConVox/8.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/ConVox/InvalidOption.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/ConVox/6.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/ConVox/9.gsm
  inflating: 4.0.1_682fb4b0_ENC/convox_sounds/ConVox/AverageTime.gsm
```

```
root@WebPhone-CCS-4-0-1:/home/narsing# cd 4.0.2_682fb4b0_ENC/
```

```
root@WebPhone-CCS-4-0-1: /
root@WebPhone-CCS-4-0-1:/home/narsing# cd 4.0.1
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1#
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1# ls
asterisk  convox4.conf  convox_agi  convox_moh  convox_perl  convox_sounds  convoxwebpanel.conf  database  doc  html  README.md  setup.sh
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1#
```

Step 3 – Configure the product and customer details.

Make the changes to the following parameters by editing the file.

```
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.2# vim convox4.conf
```

```
root@WebPhone-CCS-4-0-1: /
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1# vim convox4.conf
```

Edit and change the below parameters: **crm_account_id, product_code, company, host_ip, ethernet_port, asterisk_version, operational_hours, Web RTC**

```
crm_account_id => ACC1722

product_code    => PCX4.0.2

company         => Deepija Telecom Pvt Ltd
```

host_name => localhost
host_ip => 172.16.13.37

db_ip => localhost

db_name => convoxcces_global

db_user => convox4

db_pass => ConVox@33

db_port => 3306

ethernet_port => ens18

asterisk_version => 20

operational_hours=> 08:30-21:00

enable_perl_log => N

enable_agi_log => N

enable_html_log => N

cleanup_app_log => 1

enable_call_status_api => N

enable_websoftphone =>N

enable_whatsapp => N

#WhatsApp API's

whatsapp_user_endpoint_sso => https://h18.deepijatel.in/ConVoxCMC/Internal/login_sso

whatsapp_user_logout_sso => https://h18.deepijatel.in/ConVoxCMC/Internal/logout_sso

whatsapp_user_handler_api => https://h18.deepijatel.in/ConVoxCMC/internal/users_handler_api

#Call Status API URL

call_status_url => https://example.com/call_status

To disable operation hours put the value as 0. To enable softphone to make it as Y

To enable whatsapp change it to Y

To enable Call Status API to change it to Y

```
root@dtel:/home/ahmed# ifconfig
ens18: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.16.12.192  netmask 255.255.255.0  broadcast 172.16.12.255
        inet6 fe80::be24:11ff:feb2:bd47  prefixlen 64  scopeid 0x20<link>
        ether bc:24:11:b2:bd:47  txqueuelen 1000  (Ethernet)
        RX packets 46389208  bytes 19310366467 (19.3 GB)
        RX errors 0  dropped 1660049  overruns 0  frame 0
        TX packets 5316650  bytes 3262088366 (3.2 GB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 6908357  bytes 1169630674 (1.1 GB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 6908357  bytes 1169630674 (1.1 GB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Based on the server IP take the ethernet port.

Replace the actual End points or URL of Whatsapp and call status API in respective paths when enabled.

```
root@WebPhone-CCS-4-0-1: /

######## convox configuration details ######
crm_account_id    => ACC1722
product_code      => PCX4.0.1
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
```

After taking the ethernet port based on the server IP configure that port in the ethernet pot column.

```
root@WebPhone-CCS-4-0-1: /

convox_log        => /var/log/convox
convox_core       => /var/www/convox_perl
convox_agi        => /var/www/convox_agi
convox_sounds     => /var/www/convox_sounds/ConVox
convox_web        => /var/www/html/ConVoxCCS
convox_monitor    => /var/spool/asterisk/monitor
convox_db_log     => /var/log/convox_dblogs

enable_perl_log   => N
enable_agi_log    => N
enable_html_log   => N
cleanup_app_log   => 1
```

```
root@WebPhone-CCS-4-0-1: /

enable_outbound_predictive => Y
enable_blended_predictive => Y
enable_outbound_preview => Y
enable_blended_preview => Y
enable_outbound_progressive => Y
enable_blended_progressive => Y
enable_request_api => N
enable_abandonedcalls_sms => N
enable_abandoned_calls => N
enable_remotelogin => Y
enable_missed_calls => N
enable_call_status_api => Y
enable_business_hours => N
enable_call_limits => N
server_type => http
enable_endcall_oncall => N
enable_public_ip => N
enable_cdr_data_push => N
enable_supervisor_dnc_approval => N
enable_websoftphone =>Y
enable_whatsapp => Y
```

```
root@WebPhone-CCS-4-0-1: /
remote_login_stations => 10

#WebSocket
websocket_port    => 8089

#Stun Address
stun_address      => stun.l.google.com:19302

#WhatsApp API's
whatsapp_user_endpoint_sso => https://h18.deepijatel.in/ConVoxCMC/Internal/login_sso
whatsapp_user_logout_sso => https://h18.deepijatel.in/ConVoxCMC/Internal/logout_sso
whatsapp_user_handler_api => https://h18.deepijatel.in/ConVoxCMC/Internal/users_handler_api

#Call Status API URL
call_status_url => https://example.com/call_status
```

Step 4: Product Installation using bash

Run setup.sh file to Install ConVoxCCS4.0.2 Application (While giving MySQL root password please remember to give same MySQL root password for all other servers only in case of distributed application)

```
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.2# bash setup.sh
```

```
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.2# bash

setup.sh setup.sh: Are you sure do you want to Install ConVoxCCS 4.0.1 Application [yes/no]?

yes

setup.sh: Enter MySQL root User Password

ConVox@4

No LSB modules are available.

2024-02-26 09:28:16 DEBUG Stopping MySQL Service

ConVoxCCS 4.0.1 Application Installed Successfully.

root@WebPhone-CCS-4-0-1:/home/narsing/4.0.2#
```

```
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1# ls
asterisk  convox4.conf  convox_agi  convox_moh  convox_perl  convox_sounds  convoxwebpanel.conf  database  doc  html  README.md  setup.sh
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1# bash setup.sh
```

```
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1# ls
asterisk  convox4.conf  convox_agi  convox_moh  convox_perl  convox_sounds  convoxwebpanel.conf  database  doc  html  README.md  setup.sh
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1# bash setup.sh
setup.sh: Are you sure do you want to Install ConVoxCCS 4.0.1 Application [yes/no]?
yes
setup.sh: Enter MySQL root User Password
ConVox@4
No LSB modules are available.
2024-06-06 23:21:06 DEBUG Stopping MySQL Service
ConVoxCCS 4.0.1 Application Installed Successfully.
root@WebPhone-CCS-4-0-1:/home/narsing/4.0.1#
```

Once the installation is successful through the terminal open the browser window for updating the license and server details.

Generate the License Key for displayed in account code and click on Next button to send enter the generated license key. Account code can be changed from /var/www/convox4.conf

Authentication

Step 2:

Your Authentication Key is : **VVV5CAEVXZLEW**

Enter key here :

wy+[redacted]HsV5jx74679731077048471715 7e44nxueKrBOnqkMfjL3310880700180500854
0854585498447860890 00TQEeA4ZAbxthFfa1493065414940254i;rVv+Dx5bMWQFUO7363
2891486301527667586885418446854017164SZb9nBAGhNDmzXT253014315878252gh6Q+
TR5FCoRy[redacted]
7eWVgGB4uTiYn4pKZWYzX0SEVu7mcUMj

SUBMIT

DeepijaTelecomPvtLtd - ConVo

Not secure 172.16.13.37/ConVoxCCS/index

ClickClub | React JS | Scaler | DTel | Collection of 13,000... | Adobe Acrobat Home

ConVox Call Center Solution

INSTALLATION SETTINGS

Server Type :	Normal Server	* No of Licenses :	10
* Installation Time :	2024-05-15 16:17:20	* Total PRI Channels :	30
* Station Series :	1001	* Station Context :	sip-agent

Normal Server

* Server IP :	172.16.13.37	* Server Web Port :	0

ADD

DeepijaTelecomPvtLtd - ConVo
Not secure 172.16.13.37/ConVoxCCS/index
ClickClub React JS Scaler DTel Collection of 13,000... Adobe Acrobat Home
ConVox
Call Center Solution
INSTALLATION SETTINGS
Server Type : Distributed Server
* No of Licenses : 10
* Installation Time : 2024-05-15 16:17:20
* Total PRI Channels : 30
* Station Series : 1001
* Station Context : sip-agent
Distributed Server
Database IP Details
* Database IP : 172.16.13.37
* Database Web Port : 0
Voice IP Details
Voice IP
IP Address
IP Web Port
No of Licenses
Voice IP1 172.16.13.111 0 30
Add DELETE
Web IP Details
Web IP
IP Address
IP Web Port
Web IP1 172.16.13.38 0
Add DELETE
ADD

DeepijaTelecomPvtLtd - ConVo
Not secure 172.16.13.37/ConVoxCCS/index
ClickClub React JS Scaler DTel Collection of 13,000... Adobe Acrobat Home
ConVox
Call Center Solution
AGENT
ADMINISTRATOR
SUPERVISOR
MIS

Step 5: Sample Configurations:

SNO	Station	Password	Context	Voice IP	WebRTC	Active	Action
1	1001	sE*257	pjsip-agent	172.16.13.37	Y	Y	
2	1002	Wt@168	pjsip-agent	172.16.13.37	N	Y	
3	1003	TWI423	pjsip-agent	172.16.13.37	Y	Y	
4	1004	mf#127	pjsip-agent	172.16.13.37	N	Y	
5	1005	kTI481	pjsip-agent	172.16.13.37	N	Y	
6	1006	Kel608	pjsip-agent	172.16.13.37	N	Y	
7	1007	WD@264	pjsip-agent	172.16.13.37	N	Y	
8	1008	Fa#853	pjsip-agent	172.16.13.37	N	Y	
9	1009	re@136	pjsip-agent	172.16.13.37	N	Y	
10	1010	PUi#894	pjsip-agent	172.16.13.37	N	Y	
11	1011	Hk*852	pjsip-agent	172.16.13.174	N	Y	
12	1012	nil326	pjsip-agent	172.16.13.174	N	Y	
13	1013	aA#496	pjsip-agent	172.16.13.174	N	Y	
14	1014	Kf5671	pjsip-agent	172.16.13.174	N	Y	
15	1015	Zb@528	pjsip-agent	172.16.13.174	N	Y	
16	1016	oz@172	pjsip-agent	172.16.13.174	N	Y	
17	1017	eN#094	pjsip-agent	172.16.13.174	N	Y	

Below is the sample trunk configuration for your reference using PJSIP?

```
[172.16.13.174]
type=aor
contact=sip:172.16.13.64

[172.16.13.174]
type=endpoint
context=from-pstn
disallow=all
allow=ulaw
```

```
aors=172.16.13.174
auth=172.16.13.174Auth

[172.16.13.174Auth]
type=auth
auth_type=userpass
password=
username=
```

Below is the sample screenshot:

For distributed systems, make sure you have added the voice and DB servers during the set up as mentioned in below screenshots.

Check List:

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

```
root@CCS-331-13-37: /home/dtel/3.3.1_875cd364_ENC# crontab -l
```

```
root@CCS-331-13-37: /home/c

root@CCS-331-13-37:/home/dtel/3.3.1_875cd364_ENC# crontab -l
####################  ConVox 3.2 ##################################

### FOR DIALING  ################################################

* * * * * /var/www/convox_perl/convox_screen.pl &> /dev/null

### FOR DELETING & REPAIRING BUFFER LOGS #########################

*/10 * * * * /var/www/convox_perl/convox_cleanup_buffer_logs.pl &> /dev/null

30 11,17 * * * /var/www/convox_perl/convox_repair_buffer_logs.pl &> /dev/null

############## Lead CRM Buffer to Lead CRM ####################
* 20-23 * * * /var/www/convox_perl/move_lead_crm_buffer_schedular.pl &> /dev/null
### FOR CHECKING & SENDING LICENSING EMAILS #######################

*/15 9-12 * * * php /var/www/html/ConVoxCCS/Support/license_notifications.php &> /dev/null

### FOR SHUTDOWN & RESTART SERVER ################################

#* * * * * for i in $(seq 15); do sh /var/www/convox_perl/convox_reboot_server.sh & sleep 4;

### SUDDEN SHUTDOWN SCRIPT #######################################

@reboot /var/www/convox_perl/convox_sudden_shutdown.pl  &> /dev/null

### APP DATABASE DUMP ############################################

#30 13  * * * sh /var/www/convox_perl/convox_app_database_backup.sh

### DBLOG TABLE BACKUP ###########################################

0 12 4,5 * * /var/www/convox_perl/convox_dblog_table_backup.pl &> /dev/null

##################Auto Email Report ##############################

* * * * * php /var/www/html/ConVoxCCS/Admin/Reports/All_mail_reports.php &> /dev/null

* * * * * php /var/www/html/ConVoxCCS/Admin/Utilities/Auto_Email.php &> /dev/null
```

```
root@CCS-331-13-37:/home/dtel# screen -wipe
```

```
root@CCS-331-13-37: /home/c
root@CCS-331-13-37:/home/dtel# screen -wipe
There are screens on:
        133785.convox-clear-calls       (05/15/2024 04:19:03 PM)        (Detached)
        133763.convox_upload_leads_spon (05/15/2024 04:19:03 PM)        (Detached)
        133755.convox-leads-reattempt   (05/15/2024 04:19:03 PM)        (Detached)
        133749.convox-progressive       (05/15/2024 04:19:03 PM)        (Detached)
        133740.convox_web_dnc_load_spon (05/15/2024 04:19:03 PM)        (Detached)
        133706.convox-manager-spon-send (05/15/2024 04:19:03 PM)        (Detached)
        133689.convox-move-application-logs     (05/15/2024 04:19:03 PM)        (Detached)
        133674.convox-spon      (05/15/2024 04:19:03 PM)        (Detached)
        133668.convox_web_leads_load_spon       (05/15/2024 04:19:03 PM)        (Detached)
        133644.convox-move-buffer-logs  (05/15/2024 04:19:02 PM)        (Detached)
        133638.convox-listen    (05/15/2024 04:19:02 PM)        (Detached)
        133632.convox_leads_load_spon   (05/15/2024 04:19:02 PM)        (Detached)
        133626.convox-preview   (05/15/2024 04:19:02 PM)        (Detached)
13 Sockets in /run/screen/S-root.
root@CCS-331-13-37:/home/dtel#
```

Screens List:

Below is the list of screens which need to be activated on each server. If the server type is standalone all the services need to be activated within the server. In case of distributed below table will be helpful.

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

Screen Name	Web	DB	Voice
SERVICE_convox-listen	N	N	Y
SERVICE_convox-manager_spon_send	N	N	Y
SERVICE_convox-spon	N	Y	N
SERVICE_convox-preview	N	Y	N
SERVICE_convox-progressive	N	Y	N
SERVICE_convox-leads-reattempt	N	Y	N
SERVICE_convox-lead-api	N	Y	N
SERVICE_convox-missed-leads	N	Y	N
SERVICE_convox-sms	N	Y	N
SERVICE_convox-email	Y	N	N
SERVICE_convox-debug-email	N	N	N

SERVICE_convox-move-buffer-logs	N	N	N
SERVICE_convox-move-application-logs	N	Y	N
SERVICE_convox-campaign-stats	N	N	N
SERVICE_convox-clear-calls	N	N	Y
SERVICE_convox-mysqld-log-permissions	Y	Y	N
SERVICE_license-sms	N	Y	N
SERVICE_license-email	Y	N	N
SERVICE_convox-reattempt-progressive-leads	N	Y	N
SERVICE_convox_call_status_spon	N	N	N
SERVICE_convox_call_recordings_blob_realtime	N	N	Y
SERVICE_convox_leads_pull_azure	N	Y	N
SERVICE_convox_leads_load_spon	N	Y	N
SERVICE_convox_dnc_pull_azure	N	Y	N
SERVICE_convox_dnc_load_spon	N	Y	N
SERVICE_convox_combined_cdr_data_collection	N	Y	N
SERVICE_convox_web_leads_load_spon	Y	N	N
SERVICE_convox_web_dnc_load_spon	Y	N	N

- Mark the service when required only. If the service is not being used by the customer, then don't activate it. Ex: leads_pull_Azure will not be used by all the customers by default.
- While activating the service make sure you are activating the relevant server in case of distribution.

**********THE END**********