**OpenEMR Installation Sequence Commands**

1. **Update and Upgrade Ubuntu Server**

sudo apt-get update

sudo apt-get upgrade

1. **Install LAMP Stack**
   * Install Apache, MySQL, PHP, and dependencies:

sudo apt-get install apache2 mysql-server php libapache2-mod-php php-mysql php-gd php-xml php-mbstring php-json php-zip php-soap php-curl

* + Secure MySQL installation:

sudo mysql\_secure\_installation

1. **Create MySQL Database and User for OpenEMR**
   * Access MySQL:

sudo mysql -u root -p

* + Create a database and user (replace [yourusername] and P@ssw0rd):

sql

CREATE DATABASE openemr;

CREATE USER '[yourusername]'@'localhost' IDENTIFIED BY 'P@ssw0rd';

GRANT ALL PRIVILEGES ON openemr.\* TO '[yourusername]'@'localhost';

FLUSH PRIVILEGES;

EXIT;

1. **Download and Extract OpenEMR**
   * Download OpenEMR 6.0.0:

wget https://sourceforge.net/projects/openemr/files/OpenEMR%20Current/6.0.0/openemr-6.0.0.tar.gz

* + Extract and move files:

tar -xvzf openemr-6.0.0.tar.gz

sudo mv openemr-6.0.0 /var/www/html/openemr

sudo chown -R www-data:www-data /var/www/html/openemr

sudo chmod -R 755 /var/www/html/openemr

1. **Configure Apache**
   * Create a new Apache configuration file:

sudo nano /etc/apache2/sites-available/openemr.conf

* + Add the following (replace [yourmtuemailaddress] and [vmipaddress]):

<VirtualHost \*:80>

ServerAdmin [yourmtuemailaddress]

DocumentRoot /var/www/html/openemr

ServerName [vmipaddress]

ErrorLog ${APACHE\_LOG\_DIR}/error.log

CustomLog ${APACHE\_LOG\_DIR}/access.log combined

</VirtualHost>

* + Enable the site and restart Apache:

sudo a2ensite openemr

sudo a2dissite 000-default

sudo a2enmod rewrite

sudo systemctl restart apache2

1. **Complete OpenEMR Installation via Web GUI**
   * Open a browser and navigate to http://[vmipaddress].
   * Follow the on-screen setup wizard, noting all usernames and passwords.

**Helpful Steps in Securing OpenEMR on Virtual Machine using Ubuntu Server**

1. **Update and Upgrade Ubuntu Server**
   * Open the terminal and run:

sudo apt-get update

sudo apt-get upgrade

1. **Enable Automatic Security Updates**
   * Install the package:

sudo apt-get install unattended-upgrades

* + Enable automatic updates:

sudo dpkg-reconfigure --priority=low unattended-upgrades

1. **Configure a Firewall**
   * Install UFW (Uncomplicated Firewall):

sudo apt-get install ufw

* + Allow HTTP, HTTPS, and SSH traffic:

sudo ufw allow http

sudo ufw allow https

sudo ufw allow ssh

* + Enable the firewall:

sudo ufw enable

1. **Secure Apache**
   * Edit the Apache security configuration file:

sudo nano /etc/apache2/conf-available/security.conf

* + Modify the following lines for enhanced security:

ServerTokens Prod

ServerSignature Off

TraceEnable Off

Header set X-Content-Type-Options: "nosniff"

Header set X-Frame-Options: "sameorigin"

Header set X-XSS-Protection: "1; mode=block"

Header set X-Robots-Tag: "none"

Header set X-Download-Options: "noopen"

Header set X-Permitted-Cross-Domain-Policies: "none"

* + Save and exit (Ctrl+X, Y, Enter).
  + Enable the new security headers and restart Apache:

sudo a2enconf security

sudo systemctl restart apache2

1. **Use Strong Passwords**
   * Ensure all OpenEMR user accounts have strong, unique passwords.
2. **Optional: Configure Regular Backups**
   * Set up automated backups for OpenEMR files and the database.
3. **Keep OpenEMR Updated**
   * Regularly check for and apply OpenEMR updates to ensure security patches are in place.