

Assignment 2

Due: 18 August 2021 @ 23:59:59 UTC-4

Grade: 5% of final mark

Description:

In this assignment you will set up an instant messaging service using Mattermost. The rationale for using it is that it is Open Source, has a large user and developer base, and the documentation is very comprehensive. It also supports multiple database backends, which will help familiarize you with PostgreSQL as an RDBMS (as opposed to Assignment 1 that used MySQL with OTRS).

This assignment will also demonstrate that you do not need to sacrifice your data or privacy in order to have secure communications with friends, colleagues, and family. You can set up your own tools and avoid getting locked into proprietary platforms, and avoid advertising.

The instructions to install Mattermost are available here: <https://docs.mattermost.com/install/install-debian.html>

Package download here:

<https://releases.mattermost.com/5.36.1/mattermost-5.36.1-linux-amd64.tar.gz>

DO NOT PROCEED UNTIL READING THROUGH ALL OF THIS ASSIGNMENT.

Requirements:

There are four main requirements that must be met to achieve full marks on this assignment:

1. PostgreSQL is installed, with a 'mattermost' database, and 'mmuser' user.
2. Mattermost is installed and running, with a 'mattermost' system user and group on your VM. Mattermost should be configured with systemd to run automatically on server startup.
3. nginx will be used to proxy requests to Mattermost. You will need to stop and disable Apache, and then install and configure nginx to forward traffic to Mattermost.

4. All traffic to/from Mattermost will be encrypted using TLS. You will need to procure, install, and configure nginx with a Let's Encrypt issued certificate.

Let's Encrypt has been selected as the CA because it is free and is trusted by all major browsers and TLS clients. Their mission is to make encryption ubiquitous and usable for the majority of sites on the web.

Evaluation Criteria:

Requirement	Test case	Grade
PostgreSQL is installed and an mmuser and mattermost database are setup	<pre>ps -e grep postgres postgres=# \du mmuser postgres=# \l mattermost</pre>	1
Mattermost is installed and can connect to PostgreSQL. Your VM has a mattermost user and group	<pre>ps -e grep mattermost getent passwd mattermost getent group mattermost systemctl list-unit-files grep mattermost</pre>	1
Nginx is installed and proxying request to Mattermost on your VM	<pre>ps -e grep nginx sudo lsof -i :80 sudo lsof -i :443 grep 'proxy_pass http://backend' /etc/nginx/sites-enabled/mattermost</pre>	2
TLS/SSL encryption*	https://###.itec2210.ca/ is usable with a web browser (where ### is your student number)	1

* Those who are up for a challenge may opt to create your own root CA, intermediate, and end user certificate chain.

Errata (read these before proceeding):

1. You will need to stop Apache and MySQL on your VM. Use `systemctl stop...` for each service. Recall the commands that you used with OTRS to start/restart.

2. Ensure that you follow the **PostgreSQL** specific instructions if you come to a section with different options for the database.

- Note the Debian instructions say to edit
/etc/postgresql/9.4/main/pg_hba.conf - the file that you need to edit on
Ubuntu 18.04 is /etc/postgresql/10/main/pg_hba.conf

3. When you reach the [Configuring Mattermost Server](#) section, set your Site URL to the DNS name that points to your VM. For example, if your student number is 123456, then your Site URL will be 123456.itec2210.ca.

Under the 'Listen Address' field, set the address to 127.0.0.1:8065. You will need to restart Mattermost after doing that using the systemctl command from the documentation.

Once you restart Mattermost, it will be unavailable until you finish the Nginx steps.

4. You do not need to complete the SMTP portion of the documentation.

5. When you are instructed to use an IP address like 10.10.10.2 or the like in nginx or PostgreSQL, use the localhost IP, 127.0.0.1. This will ensure Mattermost, PostgreSQL and nginx are all communicating locally instead of via the public interface for your VM.

6. Your domain_name (in nginx) or Site URL in Mattermost will be something like 12345.itec2210.ca, where you substitute your student number for 12345. This ensures that DNS points to your VM.

7. When you are editing config.json to configure PostgreSQL, the DataSource line will look like this (copy and paste **INCLUDING THE FINAL COMMA!!!**):

"DataSource":

"postgres://mmuser:mmuser-password@127.0.0.1:5432/mattermost?
?sslmode=disable&connect_timeout=10",

8. Once you finish the **Configuring Mattermost Server** section, skip to [Installing NGINX Server](#). Install and configure it, then stop at Step 3 of **To configure NGINX as a proxy**.

Follow the note there and proceed to the [Configuring NGINX with SSL and HTTP/2](#) page to finish the installation.

9. There undoubtedly are other issues. Please reach out via Mattermost and I'll be happy to help.