Install MySQL database server

1. Create a directory "software" in your home directory and download the MySQL Yum repository from dev.mysgl.com.

wget http://dev.mysql.com/get/mysql57-community-release-el7-9.noarch.rpm
A:

2. Install the Yum repository from the file that you downloaded. sudo yum localinstall mysql57-community-release-el7-9.noarch.rpm

```
[pranay@localhost software]$ sudo yum localinstall mysql57-community-release-el7-9.noarch.rpm
Loaded plugins: fastestmirror
Examining mysql57-community-release-el7-9.noarch.rpm: mysql57-community-release-el7-9.noarch
Marking mysql57-community-release-el7-9.noarch.rpm to be installed
Resolving Dependencies
 -> Running transaction check
--> Package mysql57-community-release.noarch 0:el7-9 will be installed
-> Finished Dependency Resolution
Dependencies Resolved
Package
                                         Arch
                                                           Version
                                                                             Repository
                                                                                                                                         Size
          Installing:
mysql57-community-release
                                                           el7-9
                                                                                                                                        8.6 k
Transaction Summary
Install 1 Package
Total size: 8.6 k
```

```
Installed:
   mysql57-community-release.noarch 0:el7-9

Complete!
[pranay@localhost software]$
```

3. Install MySQL. sudo yum install mysql-community-server

A:

```
[pranay@localhost software]$ sudo yum install mysql-community-server
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: centos.excellmedia.net
 * extras: centos.excellmedia.net
 * updates: centos.excellmedia.net
                                                                                                            3.6 kB 00:00:00
2.9 kB 00:00:00
2.6 kB 00:00:00
2.6 kB 00:00:00
base
extras
mysql-connectors-community
mysql-tools-community
mysql57-community
                                                                                                            2.6 kB
                                                                                                                    00:00:00
                                                                                                            2.9 kB
                                                                                                                     00:00:00
updates
(1/3): mysql-tools-community/x86_64/primary_db
                                                                                                             92 kB
                                                                                                                    00:00:00
(2/3): mysql-connectors-community/x86_64/primary_db
                                                                                                             99 kB 00:00:00
(3/3): mysql57-community/x86_64/primary_db
                                                                                                            340 kB 00:00:00
```

4. Start the MySQL server. sudo systemctl start mysqld.service

A:

```
[pranay@localhost software]$ systemctl start mysqld.service
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-units ===
Authentication is required to manage system services or units.
Multiple identities can be used for authentication:
1. App Developer1 (app1)
2. my main area (pranay)
Choose identity to authenticate as (1-2): 2
Password:
===== AUTHENTICATION COMPLETE ===
```

- 5. The first time you start MySQL, the superuser account 'root'@'localhost' is created and a temporary password is generated for it. This password need to be changed now.
- 6. Obtain the root password that was generated when you started MySQL for the first time. sudo grep 'temporary password' /var/log/mysqld.log 5 and 6 a:

```
[pranay@localhost software]$ sudo grep 'temporary password' /var/log/mysqld.log
[sudo] password for pranay:
2023-05-27T14:03:58.751965Z 1 [Note] A temporary password is generated for root@localhost: =Q(BF=Zaf8pQ
[pranay@localhost software]$
```

7. Login with the password that you obtained from the previous step. mysql -u root -p A:

```
[pranay@localhost software]$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with; or \g.
Your MySQL connection id is 2
Server version: 5.7.42

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

mysql>
```

8. Change the root password. At the mysql prompt, type the following command. Be sure to replace << Password>> with the password that you want to use. New Password should to contain at least one upper case letter, one lower case letter, one digit, and one special

character, and that the total password length is at least 8 characters. mysql> ALTER USER 'root'@'localhost' IDENTIFIED BY '<<Password>>';

A:

```
mysql> ALTER USER 'root'@'localhost' IDENTIFIED BY
Query OK, 0 rows affected (0.00 sec)
mysql>
```

9. Create the Mattermost user 'mmuser'. Replace <<mmuser-password>> with the password that you want to set mysql> create user 'mmuser'@'%' identified by '<<mmuser-password>>';

A:

```
mysql> create user'mmuser'@'%'identified by'Security555!!';
Query OK, 0 rows affected (0.00 sec)
mysql>
```

 Create the Mattermost database. mysql> create database mattermost;

A:

```
mysql> create database mattermost;
Query OK, 1 row affected (0.01 sec)
mysql>
```

11. Grant access privileges to the user 'mmuser'.
mysql> grant all privileges on mattermost.* to 'mmuser'@'%';

A:

```
mysql> grant all privileges on mattermost.* to 'mmuser'@'%';
Query OK, 0 rows affected (0.00 sec)
```

12. Log out of MySQL(use exit)

A:

```
mysql> exit
Bye
[pranay@localhost software]$
```

13. Set MySQL to start automatically when the machine starts. sudo systemctl enable mysqld

```
[pranay@localhost software]$ sudo systemctl enable mysqld
[sudo] password for pranay:
[pranay@localhost software]$
```

Install Mattermost server

1. Go to the directory "software" in your home directory and download the latest version of the Mattermost Server wget

https://releases.mattermost.com/6.6.1/mattermost-6.6.1-linux-amd64.tar.gz

A:

2. Extract the Mattermost Server files. tar -xvzf *.gz

Α.

```
[pranay@localhost software]$ sudo tar -xvzf *.gz
[sudo] password for pranay:
mattermost/
mattermost/bin/
mattermost/bin/mattermost
mattermost/bin/mmctl
mattermost/logs/
mattermost/prepackaged_plugins/
mattermost/prepackaged_plugins/mattermost-plugin-antivirus-v0.1.2-linux-amd64.tar.gz
mattermost/prepackaged_plugins/mattermost-plugin-antivirus-v0.1.2-linux-amd64.tar.gz.sig
mattermost/prepackaged_plugins/mattermost-plugin-autolink-v1.2.2-linux-amd64.tar.gz
mattermost/prepackaged_plugins/mattermost-plugin-autolink-v1.2.2-linux-amd64.tar.gz.sig
mattermost/prepackaged_plugins/mattermost-plugin-aws-SNS-v1.2.0-linux-amd64.tar.gz
mattermost/prepackaged_plugins/mattermost-plugin-aws-SNS-v1.2.0-linux-amd64.tar.gz.sig
mattermost/prepackaged_plugins/mattermost-plugin-calls-v0.4.8-linux-amd64.tar.gz
mattermost/prepackaged_plugins/mattermost-plugin-calls-v0.4.8-linux-amd64.tar.gz.sig
mattermost/prepackaged_plugins/mattermost-plugin-channel-export-v1.0.0-linux-amd64.tar.gz
mattermost/prepackaged_plugins/mattermost-plugin-channel-export-v1.0.0-linux-amd64.tar.gz.sig
mattermost/prepackaged_plugins/mattermost-plugin-custom-attributes-v1.3.0-linux-amd64.tar.gz
mattermost/prepackaged_plugins/mattermost-plugin-custom-attributes-v1.3.0-linux-amd64.tar.gz.sig
mattermost/prepackaged_plugins/mattermost-plugin-github-v2.0.1-linux-amd64.tar.gz
mattermost/prepackaged_plugins/mattermost-plugin-github-v2.0.1-linux-amd64.tar.gz.sig
mattermost/prepackaged_plugins/mattermost-plugin-gitlab-v1.3.0-linux-amd64.tar.gz
mattermost/prepackaged_plugins/mattermost-plugin-gitlab-v1.3.0-linux-amd64.tar.gz.sig
```

3. Move the extracted file to the /opt directory. sudo $\ensuremath{\mathsf{mv}}$ mattermost /opt

```
[pranay@localhost software]$ sudo mv mattermost /opt
[pranay@localhost software]$ cd /opt
[pranay@localhost opt]$ ls
mattermost
```

4. /opt/mattermost is referred as the Mattermost directory. Create the storage directory for files(/opt/mattermost/data)

```
[pranay@localhost mattermost]$ sudo mkdir data
[sudo] password for pranay:
[pranay@localhost mattermost]$ ls
bin config ENTERPRISE-EDITION-LICENSE.txt i18n manifest.txt prepackaged_plugins templates
client data fonts logs NOTICE.txt README.md
```

5. Create a system user and group called mattermost that will run this service, and set the ownership and permissions to the mattermost directory including child directories and files (TODO: Identify the commands you need to use for this) (Note: Make sure you Provide the executable permission for the whole Mattermost directory)

A:

```
[pranay@localhost ~]$ sudo useradd --system --user-group mattermost
[pranay@localhost ~]$ id mattermost
uid=997(mattermost) gid=994(mattermost) groups=994(mattermost)
[pranay@localhost ~]$ sudo chown -R mattermost:mattermost /opt/mattermost
[sudo] password for pranay:
[pranay@localhost ~]$ sudo chmod -R g+w /opt/mattermost
[pranay@localhost ~]$
```

- 6. Set up the database driver in the file /opt/mattermost/config/config.json. Open the file as root in a text editor and make the following changes:
- 6.1 Set "DriverName" to "mysql"
- 6.2 Set "DataSource" to the following value, replacing <mmuser-password> and <host-name-or-IP> with the appropriate values.
- "<mmuser>:<mmuser-password>@tcp(<host-name-or-IP>:3306)/mattermost? charset=utf8mb 4,utf8&writeTimeout=30s"
- 6.3 Also set "SiteURL" to the full base URL of the site (e.g. "http://localhost").

```
"ServiceSettings": {
    "SiteURL": "http://localhost",
    "WebsocketURL": "",
    "LicenseFileLocation": "".
```

```
"SqlSettings": {
   "DriverName": "msql",
   "DataSource": "mmuser:Security555!!@tcp(192.168.56.101:3306)/mattermost?charset=utf8mb4,utf8&writeTimeout=30s",
   "DataSourceReplicas": [],
   "DataSourceSearchReplicas": [],
   "MaxIdleConns": 20,
   "ConnMaxLifetimeMilliseconds": 3600000,
   "ConnMaxIdleTimeMilliseconds": 300000,
```

- 7. Test the Mattermost server to make sure everything works.
- 7.1 Change to the mattermost directory:
- 7.2 Start the Mattermost server(bin/mattermost) as the user mattermost(TODO: Identify the commands you need to use for this)

When the server starts, it shows some log information and the text Server is listening on :8065. You can stop the server by pressing CTRL+C in the terminal window.

```
[pranay@localhost config]$ sudo vi config.json
[pranay@localhost config]$ cd ../
[pranay@localhost mattermost]$ sudo -u mattermost ./bin/mattermost
{"timestamp":"2023-05-29 17:46:24.178 Z","level":"info","msg":"Server is initializing...","caller":"app/server.go:259","go_version":"
gol.16.7"}
{"timestamp":"2023-05-29 17:46:24.179 Z","level":"info","msg":"Pinging SQL","caller":"sqlstore/store.go:218","database":"master"}
{"timestamp":"2023-05-29 17:46:24.341 Z","level":"info","msg":"Pinging SQL","caller":"sqlstore/store.go:218","database":"master"}
{"timestamp":"2023-05-29 17:46:24.341 Z","level":"warn","msg":"could not receive the schema version from systems table","caller":"sql
store/upgrade.go:119", "error":"sql: no rows in result set"}
{"timestamp":"2023-05-29 17:46:30.674 Z","level":"info","msg":"The database schema version has been set","caller":"sqlstore/upgrade.g
o:137","version*:"6.6.1.1}
{"timestamp":"2023-05-29 17:46:31.001 Z","level":"error","msg":"License key from https://mattermost.com required to unlock enterprise
features.", "caller":"app/license.go:147", "error":"resource: License id: "}
{"timestamp":"2023-05-29 17:46:31.025 Z","level":"info","msg":"Starting websocket hubs", "caller":"app/web_hub.go:93","number_of_hubs"
:2}
{"timestamp":"2023-05-29 17:46:31.041 Z", "level":"info","msg":"Loaded system translations", "caller":"il8n/il8n.go:93","for locale":"e
n","from locale":"/opt/mattermost/il8n/en.json'}
{"timestamp":"2023-05-29 17:46:31.086 Z","level":"info","msg":"Current version is 6.6.1 (6.6.1/Wed Apr 27 17:29:30 UTC 2022/3161c1al8
6595cc371830c4e651002377d4e77cc/6185d9ea2cb7954b153c280f91cedb1lae92930f)","caller":"app/server.go:561","current_version":"6.6.1","bu
ild_number":"6.8519ea2cb7954b153c280f91cedb1lae92930f")
"caller":"3161c1a186595cc371830c4e651002377d4e77cc/c185d9ea2cb7954b153c280f91cedb1lae92930f")
"caller":"3161c1a186595cc371830c4e651002377d4e77ccc,"build_hash_e
nterprise":"6185d9ea2cb7954b153c280f91cedb1lae92930f")
```

{"timestamp":"2023-05-29 17:47:11.579 Z","level":"info","msg":"Server is listening on [::]:8065","caller":"app/server.go:1282","addre ss":"[::]:8065"}

- 8. Set up Mattermost to use the systemd init daemon which handles supervision of the Mattermost process.
- 8.1 Create the Mattermost configuration file: /etc/systemd/system/mattermost.service
- 8.2 Open the configuration file, and copy the following lines into the file:

Α:

```
[pranay@localhost ~]$ cd /etc/systemd/system
[pranay@localhost system]$ ls
basic.target.wants
dbus-org.freedesktop.nm-dispatcher.service
default.target
default.target
default.target.wants
[pranay@localhost system]$ sudo touch mattermost.service
[pranay@localhost system]$ ls
basic.target.wants
dbus-org.freedesktop.nm-dispatcher.service
[pranay@localhost system]$ ls
basic.target.wants
dbus-org.freedesktop.nm-dispatcher.service
default.target
default.target
default.target
default.target
default.target
default.target
default.target
default.target
default.target.wants
fpranay@localhost system]$ sudo vi mattermost.service
[pranay@localhost system]$
```

9. Set the configuration file permissions such that the owner of the file has read and write access, while the group members and other users on the system only have read access (TODO: Identify the permission value you need to use for this)

(TODO: Identify the command you need to use for 10,11,12) mattermost is the service name A·

```
[pranay@localhost system]$ sudo chmod 644 mattermost.service
[pranay@localhost system]$ s -ltr
total 12
drwxr-xr-x. 2 root root 44 Apr 30 2020 system-update.target.wants
drwxr-xr-x. 2 root root 32 Apr 30 2020 getty.target.wants
drwxr-xr-x. 2 root root 28 Apr 30 2020 default.target.wants
drwxr-xr-x. 2 root root 35 Apr 30 2020 sockets.target.wants
drwxr-xr-x. 2 root root 35 Apr 30 2020 sockets.target.wants
drwxr-xr-x. 2 root root 35 Apr 30 2020 basic.target.wants
drwxr-xr-x. 2 root root 32 Apr 30 2020 basic.target.wants
drwxr-xr-x. 2 root root 32 Apr 30 2020 basic.target.wants
drwxr-xr-x. 2 root root 48 Apr 30 2020 basic.target.wants
drwxr-xr-x. 2 root root 57 Apr 30 2020 default.target.wants
drwxr-xr-x. 2 root root 58 Apr 30 2020 basic.target.wants
drwxr-xr-x. 2 root root 58 Apr 30 2020 default.target.wants
drwxr-xr-x. 2 root root 58 Apr 30 2020 wroolsd.service.requires
drwxr-xr-x. 2 root root 58 Apr 30 2020 vroolsd.service.requires
drwxr-xr-x. 2 root root 37 Apr 30 2020 default.target.yants
lrwxrwxrwx. 1 root root 58 Apr 30 2020 dev-virtio\x2dports-org.qemu.guest_agent.0.device.wants
lrwxrwxrwx. 1 root root 279 May 27 14:03 multi-user.target.wants
-rw-r-----. 1 640 root 299 May 29 17:59 mattermost.service
```

- 10. Reload the systemd services.
- 11. Set Mattermost service to start on boot.
- 12. Start the Mattermost server.
- 13. Verify that Mattermost is running curl http://localhost:8065

You should see the HTML that's returned by the Mattermost server.

Answer for 10 -13 a :

```
[pranay@localhost system]$ systemctl daemon-reload
==== AUTHENTICATING FOR org.freedesktop.systemd1.reload-daemon ===
Authentication is required to reload the systemd state.
Multiple identities can be used for authentication:

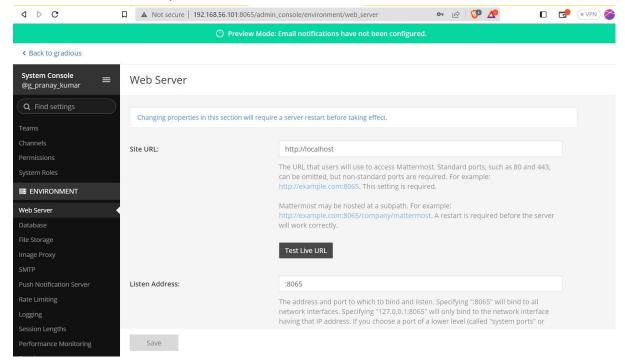
1. App Developer1 (appl)
2. my main area (pranay)
Choose identity to authenticate as (1-2): 2
Password:
==== AUTHENTICATION COMPLETE ===
[pranay@localhost system]$ sudo systemctl enable mattermost.service
Created symlink from /etc/systemd/system/multi-user.target.wants/mattermost.service to /etc/systemd/system/mattermost.service.
[pranay@localhost system]$ sudo systemctl start mattermost.service
[pranay@localhost system]$ curl http://localhost:8065
</doctype html>-thml lang="en"><head>-meta charset="utf-8"><meta name="viewport" content="width=device-width,initial-scale=1, maximum-scale=1, user-scalable=0"><meta name="robots" content="noindex, nofollow"><meta name="referrer" content="no-referrer"><meta name="romat-dete ction" content="delephone=no">ink rel="icon" type="image/png" href="/static/images/favicon-default-16x16.png" sizes="lóx16"
>>link rel="icon" type="image/png" href="/static/images/favicon-default-16x16.png" sizes="lóx16"
>yion/favicon-default-64x64.png" sizes="64x64">link rel="icon" type="image/png" href="/static/images/favicon/favicon-default-96x96.png" sizes="32x32">link rel="icon" type="image/png" href="/static/images/favicon/favicon-default-96x96.png" sizes="32x32">
```

Configure Mattermost server

Create the System Admin user and set up Mattermost for general use. This can be done from host windows machine

- 1. Open a browser and navigate to your Mattermost instance. For example http://192.168.56.101:8065.
- 2. Create the first team and user. The first user in the system has the system_admin role, which gives you access to the System Console.
- 3. To open the System Console, select the Product menu in the top-left corner of the navigation panel, then select System Console.
- 4. Set the site URL:
- 4.1 Open System Console > Environment > Web Server.
- 4.2 In the Site URL field, set the URL that users point their browsers at. For example, http://localhost

A: answer for all above questions



Installing NGINX server We use NGINX as proxy server for greater security and performance of Mattermost.

- 1. Create the file /etc/yum.repos.d/nginx.repo.
- 2. Open the file as root in a text editor and add the following contents
- 3. Install NGINX.

sudo yum install nginx.x86_64

A: answer for above 3 questions

```
pranay@localhost ~]$ sudo touch /etc/yum.repos.d/nginx.repo
[pranayelocalnost ~]$ sudo touch /etc/yum.repos.d/nginx.re

[sudo] password for pranay:

[pranayelocalhost ~]$ sudo vi /etc/yum.repos.d/nginx.repo

[pranayelocalhost ~]$ sudo yum install nginx.x86_64

Loaded plugins: fastestmirror

Loading mirror speeds from cached hostfile
  * base: centos.excellmedia.net
  * extras: centos.excellmedia.net
  * updates: centos.excellmedia.net
base
                                                                                                                                                                      3.6 kB
                                                                                                                                                                                    00:00:00
                                                                                                                                                                      2.9 kB
2.6 kB
                                                                                                                                                                                    00:00:00
 mysql-connectors-community
                                                                                                                                                                                    00:00:00
                                                                                                                                                                      2.6 kB
2.6 kB
2.9 kB
 mysql-tools-community
                                                                                                                                                                                   00:00:00
00:00:00
00:00:00
 mysql57-community
 nginx
                                                                                                                                                                                    00:00:00
nginx/x86 64/primary db
```

- 4. start NGINX. nginx is the service name
- 5. Set NGINX to start at system boot.
- 6. Verify that NGINX is running. curl http://localhost

A: answer for above 3 questions

Configure NGINX as a proxy for Mattermost server

1. Create a configuration file for Mattermost. (/etc/nginx/conf.d/mattermost) and copy the below content

A:

```
upstream backend {
   server 192.168.56.101:8065;
   keepalive 32;
proxy_cache_path /var/cache/nginx levels=1:2 keys_zone=mattermost_cache:10m max_size=3g inact
server {
  listen 80;
                192.168.56.101;
  server_name
location ~ /api/v[0-9]+/(users/)?websocket$ {
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection "upgrade";
        client_max_body_size 50M;
        proxy_set_header Host $http_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;
proxy_set_header X-Frame-Options SAMEORIGIN;
         proxy buffers 256 16k:
```

```
[pranay@localhost ~]$ sudo touch /etc/nginx/conf.d/mattermost
[pranay@localhost ~]$ sudo vi /etc/nginx/conf.d/mattermost
```

2. Remove the existing default config file(/etc/nginx/conf.d/default) (Note: change owner for the file /etc/nginx to nginx) (also change the owner of the file /var/cache/nginx to nginx) A:

```
[pranay@localhost conf.d]$ sudo rm -r /etc/nginx/conf.d/default.conf
[pranay@localhost conf.d]$ sudo chown nginx:nginx /etc/nginx
[pranay@localhost conf.d]$ sudo chown nginx:nginx /var/cache/nginx
[pranay@localhost conf.d]$
```

- 3. Enable the mattermost configuration. sudo In -s /etc/nginx/conf.d/mattermost /etc/nginx/conf.d/default.conf
- 4. Restart NGINX and Verify that you can see Mattermost through the proxy. curl http://localhost (if you get bad gateway error execute sudo sudo setsebool httpd can network connect 1)

