comment-installer-gitea-devops-platform-using-docker-sur-debian-12

Gitea is an open-source code-hosting solution based on the Git platform. It is written in the Go language and can be installed on multiple operating systems, including Linux, macOS, Windows, and architectures like amd64, i386, ARM, and others. It includes a repository file editor, issue tracking, pull requests, user management, notifications, built-in wiki, LFS Support, Git hooks, and much more.

It is a lightweight application. Therefore, it can be installed on low-powered systems. If you are looking for a self-hosted Git platform with a smaller memory platform, you should check out Gitea.

This article will cover installing and configuring Gitea on a Debian 12 server and setting up your first Git repository. Gitea can be installed from source, binary, a docker package, or a package. For our tutorial, we will install it using Docker.

Prerequisites

- A server running Debian 12.
- A non-root user with sudo privileges.
- A Fully Qualified Domain Name (FQDN) like `gitea.example.com` pointing to your server.
- Make sure your server has swap storage enabled if you are on a server with 1GB RAM.
- Make sure everything is updated.

  ```
  $ sudo apt update && sudo apt upgrade
  ```

- A few essential packages are required before we proceed ahead. Some of these will already be installed on your server.

  ```
  $ sudo apt install curl wget nano software-properties-common dirmngr apt-transport-https ca-certificates lsb-release debian-archive-keyring gnupg2 ufw unzip -y
  ```

Step 1 - Configure Firewall

The first step is to configure the firewall. Debian comes with ufw (Uncomplicated Firewall) by default.

Check if the firewall is running.

```
$ sudo ufw status
```

You will get the following output.

```
Status: inactive
```

Allow SSH port so that the firewall doesn't break the current connection upon enabling it.

```
$ sudo ufw allow OpenSSH
```

Allow HTTP and HTTPS ports as well.

```
$ sudo ufw allow http
$ sudo ufw allow https
```

Enable the Firewall

```
$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
```

Check the status of the firewall again.

```
$ sudo ufw status
```

You should see a similar output.

```
Status: active

To                         Action      From
--                         ------      ----
OpenSSH                    ALLOW       Anywhere
80/tcp                     ALLOW       Anywhere
443                        ALLOW       Anywhere
OpenSSH (v6)               ALLOW       Anywhere (v6)
80/tcp (v6)                ALLOW       Anywhere (v6)
443 (v6)                   ALLOW       Anywhere (v6)
```

Step 2 - Install Docker and Docker Compose

Debian 12 ships with an older version of Docker. To install the latest version, first, import the Docker GPG key.

```
$ curl -fsSL https://download.docker.com/linux/debian/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker.gpg
```

Create a Docker repository file.

```
$ echo \
  "deb [arch="$(dpkg --print-architecture)" signed-by=/usr/share/keyrings/docker.gpg] https://download.docker.com/linux/debian \
  "$(. /etc/os-release && echo "$VERSION_CODENAME")" stable" | \
  sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
```

Update the system repository list.

```
$ sudo apt update
```

Install the latest version of Docker.

```
$ sudo apt install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
```

Verify that it is running.

```
$ sudo systemctl status docker
? docker.service - Docker Application Container Engine
     Loaded: loaded (/lib/systemd/system/docker.service; enabled; preset: enabled)
     Active: active (running) since Sat 2023-11-18 07:13:39 UTC; 10s ago
TriggeredBy: ? docker.socket
       Docs: https://docs.docker.com
   Main PID: 1891 (dockerd)
      Tasks: 8
     Memory: 27.2M
        CPU: 338ms
     CGroup: /system.slice/docker.service
             ??1891 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock
```

By default, Docker requires root privileges. If you want to avoid using `sudo` every time you run the `docker` command, add your username to the `docker` group.

```
$ sudo usermod -aG docker $(whoami)
```

You will need to log out of the server and back in as the same user to enable this change or use the following command.

```
$ su - ${USER}
```

Confirm that your user is added to the Docker group.

```
$ groups
navjot sudo users docker
```

Step 3 - Create a Git user

In order for the users to be able to access the host via SSH, you will need to create a separate `git` user on the host. Run the following command to create the `git` user.

```
$ sudo adduser --system --shell /bin/bash --gecos 'Git Version Control' --group --disabled-password --home /home/git git
```

Let us go through all the options and flags in the above command for a better understanding.

- `--system` - creates a system user instead of a regular user. System users are for running system services and cannot be used for interactive logins.
- `--shell /bin/bash` - sets the login shell for the system user to the Bash shell.
- `--gecos 'Git Version Control'` - sets a descriptive field for the user. It is optional and can be skipped but is useful if your system has a lot of users.
- `--group` - creates a group with the same name as the user.
- `--disabled-password` - disables password-based login for the user which helps secure the account.
- `--home /home/git` - sets the home directory for the user to `/home/git` which stores the user's files and configuration.
- `git` - specifies the username. Here we are using `git` as the username for the account.

You will get the following output once you run the command.

```
Adding system user `git' (UID 105) ...
Adding new group `git' (GID 111) ...
Adding new user `git' (UID 105) with group `git' ...
Creating home directory `/home/git' ...
```

Note the values of the variables UID and GID which we will need in the next step. In our case, UID is 105 and GID is 111.

Step 4 - Configure and Install Gitea

Configure System Timezone

You can check your system's current time zone by the following command.

```
$ timedatectl
               Local time: Sat 2023-11-18 07:15:53 UTC
           Universal time: Sat 2023-11-18 07:15:53 UTC
                 RTC time: Sat 2023-11-18 07:15:53
                Time zone: Etc/UTC (UTC, +0000)
System clock synchronized: yes
              NTP service: active
          RTC in local TZ: no
```

You can see that the system is set to GMT or UTC timezone. If you live in an area with a different timezone or want to change it, use the following command to do that.

```
$ sudo timedatectl set-timezone Asia/Kolkata
```

Check the timezone again.

```
$ timedatectl
               Local time: Sat 2023-11-18 12:46:29 IST
           Universal time: Sat 2023-11-18 07:16:29 UTC
                 RTC time: Sat 2023-11-18 07:16:29
                Time zone: Asia/Kolkata (IST, +0530)
System clock synchronized: yes
              NTP service: active
          RTC in local TZ: no
```

You can see that the timezone has been updated to IST, which is GMT+5:30.

Create Gitea Directories

Create the directory for Gitea.

```
$ mkdir ~/gitea-docker
```

Switch to the Gitea directory.

```
$ cd ~/gitea-docker
```

Create directories for storing Gitea data and PostgreSQL databases.

```
$ mkdir {gitea,postgres}
```

Configure Gitea Docker Compose File

Create and open the Docker Compose file for editing.

```
$ nano docker-compose.yml
```

Paste the following code in it. Paste the UID and GID values generated earlier.

```
services:
  server:
    image: gitea/gitea:1.21.0
    container_name: gitea
    environment:
      - USER_UID=105
      - USER_GID=111
      - GITEA__database__DB_TYPE=postgres
      - GITEA__database__HOST=db:5432
      - GITEA__database__NAME=gitea
      - GITEA__database__USER=gitea
      - GITEA__database__PASSWD=gitea
    restart: always
    networks:
      - gitea
    volumes:
      - ./gitea:/data
      - /home/git/.ssh/:/data/git/.ssh
      - /etc/timezone:/etc/timezone:ro
      - /etc/localtime:/etc/localtime:ro
    ports:
      - "3000:3000"
      - "2221:22"
    depends_on:
      - db

  db:
    image: postgres:15
    restart: always
    environment:
      - POSTGRES_USER=gitea
      - POSTGRES_PASSWORD=gitea
      - POSTGRES_DB=gitea
    networks:
      - gitea
    volumes:
      - ./postgres:/var/lib/postgresql/data

networks:
  gitea:
    external: false
```

Save the file by pressing **Ctrl + X** and entering **Y** when prompted.

We are using the UID (User Identifier) and GID (Group Identifier) values for the user we created in the previous step.

The above Docker Compose file deploys two containers - one for Gitea and one for PostgreSQL. We have added a few environment variables to configure the database details. To connect the PostgreSQL database to the Gitea container, we have specified the host as the name of the PostgreSQL service in the file.

The port parameters `"3000:3000"` and `"2221:22"` specifies the port mapping where the left port denotes the host port and the right port denotes the container port. Gitea uses port 3000 for its web service, which is what we have exposed to the server too. For SSH, our system is already using port 22 for logging purposes. Therefore, we specify a custom port to perform SSH operations. In our case, we are using port 2221. This port also needs to be opened via your firewall, which we already did in step 1 of this tutorial.

Both, Gitea and the PostgreSQL containers are connected via a common internal Docker network named `gitea`. The volume mounts will automatically create `gitea` and `postgres` directories in the current folder when you start your Docker installation. The user ID specified in the compose file is what the Gitea container will use to create the `gitea` directory. On the other hand, the PostgreSQL container will be managed by the user `systemd-coredump` which is the default behavior. You can change that behavior, but it is not necessary.

Customize your Gitea Installation

You can customize your Gitea installation by adding an app.ini file to the `~/gitea-docker/gitea/gitea/conf` directory. After the installation, this file can be edited from inside the container from the `/data/gitea/conf/app.ini` location. You can use the sample ini file from Gitea's Github repository for reference.

Install Gitea

Run the following command to launch Gitea containers.

```
$ docker compose up -d
```

Check the status of the containers to ensure they are running properly.

```
$ docker ps
CONTAINER ID   IMAGE               COMMAND                  CREATED          STATUS          PORTS                                                                          NAMES
3b5ce50a04fe   gitea/gitea:1.21.0  "/usr/bin/entrypoint…"   43 seconds ago   Up 42 seconds   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp, 0.0.0.0:2221->22/tcp, :::2221->22/tcp   gitea
0908cb9ec3b7   postgres:15         "docker-entrypoint.s…"   43 seconds ago   Up 42 seconds   5432/tcp                                                                       gitea-docker-db-1
```

You can also use the following command to check the status.

```
$ docker compose ps
NAME                IMAGE                COMMAND                                    SERVICE   CREATED              STATUS              PORTS
gitea               gitea/gitea:1.21.0   "/usr/bin/entrypoint /bin/s6-svscan /etc/s6"   server    About a minute ago   Up About a minute   0.0.0.0:3000->3000/tcp, :::3000->3000/tcp, 0.0.0.0:2221->22/tcp, :::2221->22/tc
gitea-docker-db-1   postgres:15          "docker-entrypoint.sh postgres"            db        About a minute ago   Up About a minute   5432/tcp
```

Step 5 - Install Nginx

Debian 12 ships with an older version of Nginx. To install the latest version, you need to download the official Nginx repository.

Import Nginx's signing key.

```
$ curl https://nginx.org/keys/nginx_signing.key | gpg --dearmor \
    | sudo tee /usr/share/keyrings/nginx-archive-keyring.gpg >/dev/null
```

Add the repository for Nginx's stable version.

```
$ echo "deb [signed-by=/usr/share/keyrings/nginx-archive-keyring.gpg] \
http://nginx.org/packages/debian `lsb_release -cs` nginx" \
    | sudo tee /etc/apt/sources.list.d/nginx.list
```

Update the system repositories.

```
$ sudo apt update
```

Install Nginx.

```
$ sudo apt install nginx
```

Verify the installation. On Debian systems, the following command will only work with `sudo`.

```
$ sudo nginx -v
nginx version: nginx/1.24.0
```

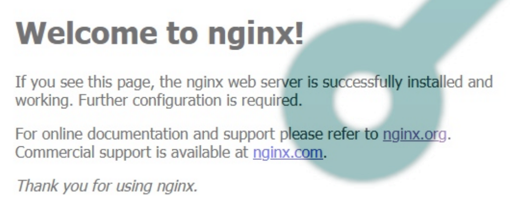
Start the Nginx server.

```
$ sudo systemctl start nginx
```

Check the service status.

```
$ sudo systemctl status nginx
? nginx.service - nginx - high performance web server
     Loaded: loaded (/lib/systemd/system/nginx.service; enabled; preset: enabled)
     Active: active (running) since Sat 2023-11-18 15:47:20 IST; 1s ago
       Docs: https://nginx.org/en/docs/
    Process: 4225 ExecStart=/usr/sbin/nginx -c /etc/nginx/nginx.conf (code=exited, status=0/SUCCESS)
   Main PID: 4226 (nginx)
      Tasks: 2 (limit: 2315)
     Memory: 1.8M
        CPU: 7ms
     CGroup: /system.slice/nginx.service
             ??4226 "nginx: master process /usr/sbin/nginx -c /etc/nginx/nginx.conf"
             ??4227 "nginx: worker process"
```

Open your server's IP address in your web browser. You should see the following page which means your server is up and running.



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Step 6 - Install SSL

We need to install Certbot to generate the SSL certificate. You can either install Certbot using Debian's repository or grab the latest version using the Snapd tool. We will be using the Snapd version.

Debian 12 comes doesn't come with Snapd installed. Install Snapd package.

```
$ sudo apt install snapd
```

Run the following commands to ensure that your version of Snapd is up to date.

```
$ sudo snap install core && sudo snap refresh core
```

Install Certbot.

```
$ sudo snap install --classic certbot
```

Use the following command to ensure that the Certbot command can be run by creating a symbolic link to the `/usr/bin` directory.

```
$ sudo ln -s /snap/bin/certbot /usr/bin/certbot
```

Verify if Certbot is functioning correctly.

```
$ certbot --version
certbot 2.7.4
```

Generate the SSL certificate.

```
$ sudo certbot certonly --nginx --agree-tos --no-eff-email --staple-ocsp --preferred-challenges http -m name@example.com -d gitea.example.com
```

The above command will download a certificate to the `/etc/letsencrypt/live/gitea.example.com` directory on your server.

Generate a **Diffie-Hellman group** certificate.

```
$ sudo openssl dhparam -dsaparam -out /etc/ssl/certs/dhparam.pem 4096
```

Check the Certbot renewal scheduler service.

```
$ sudo systemctl list-timers
```

You will find `snap.certbot.renew.service` as one of the services scheduled to run.

```
NEXT                        LEFT          LAST                        PASSED       UNIT                      ACTIVATES
-----------------------------------------------------------------------------------------------------------------------------
Sat 2023-11-18 18:41:45 IST 2h 49min left Sat 2023-11-18 12:22:34 IST 3h 29min ago apt-daily.timer           apt-daily.service
Sat 2023-11-18 20:40:00 IST 4h 47min left -                           -            snap.certbot.renew.timer  snap.certbot.renew.service
Sun 2023-11-19 00:00:00 IST 8h left       -                           -            dpkg-db-backup.timer      dpkg-db-backup.service
```

Do a dry run of the process to check whether the SSL renewal is working fine.

```
$ sudo certbot renew --dry-run
```

If you see no errors, you are all set. Your certificate will renew automatically.

Step 7 - Configure Nginx

Run the following command to add a configuration file for your site.

```
$ sudo nano /etc/nginx/conf.d/gitea.conf
```

Paste the following code in the editor.

```
# Connection header for WebSocket reverse proxy
map $http_upgrade $connection_upgrade {
    default upgrade;
    ""      close;
}

map $remote_addr $proxy_forwarded_elem {

    # IPv4 addresses can be sent as-is
    ~^[0-9.]+$ "for=$remote_addr";

    # IPv6 addresses need to be bracketed and quoted
    ~^[0-9A-Fa-f:.]+$ "for=\"[$remote_addr]\"";

    # Unix domain socket names cannot be represented in RFC 7239 syntax
    default "for=unknown";
}

map $http_forwarded $proxy_add_forwarded {

   # If the incoming Forwarded header is syntactically valid, append to it
    "~^(,[ \\t]*)*([!#$%&'*+.^_`|~0-9A-Za-z-]+=([!#$%&'*+.^_`|~0-9A-Za-z-]+|\"([\\t \\x21\\x23-\\x5B\\x5D-\\x7E\\x80-\\xFF]|\\\\[\\t \\x21-\\x7E\\x80-\\xFF])*\"))?(;([!#$%&'*+.^_`|~0-9A-Za-z-]+=([!#$%&'*+.^_`|~0-9A-Za-

    # Otherwise, replace it
    default "$proxy_forwarded_elem";
}

# Redirect all non-encrypted to encrypted
server {
    listen 80;
    listen [::]:80;
    server_name gitea.example.com;
    return 301 https://$host$request_uri;
}

server {
    listen 443 ssl http2;
    listen [::]:443 ssl http2;

    server_name gitea.example.com;

    ssl_certificate     /etc/letsencrypt/live/gitea.example.com/fullchain.pem;
    ssl_certificate_key /etc/letsencrypt/live/gitea.example.com/privkey.pem;
    ssl_trusted_certificate /etc/letsencrypt/live/gitea.example.com/chain.pem;
    ssl_session_timeout 1d;
    ssl_session_cache shared:MozSSL:10m;
    ssl_session_tickets off;
    ssl_stapling on;
    ssl_stapling_verify on;
    ssl_dhparam /etc/ssl/certs/dhparam.pem;
    resolver 1.1.1.1 1.0.0.1 [2606:4700:4700::1111] [2606:4700:4700::1001] 8.8.8.8 8.8.4.4 [2001:4860:4860::8888] [2001:4860:4860::8844] valid=60s;
    resolver_timeout 2s;

    ssl_protocols TLSv1.2 TLSv1.3;
    ssl_ciphers ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-ECDSA-CHACHA20-POLY1305:ECDHE-RSA-CHACHA20-POLY1305:DHE-RSA-AES128-GCM-SHA256:DH

    access_log /var/log/nginx/gitea.access.log main;
    error_log  /var/log/nginx/gitea.error.log;

    tcp_nopush on;

    # security headers
    add_header X-XSS-Protection "1; mode=block" always;
    add_header X-Content-Type-Options "nosniff" always;
    add_header Referrer-Policy "no-referrer-when-downgrade" always;
    add_header Content-Security-Policy "default-src 'self' http: https: ws: wss: data: blob: 'unsafe-inline'; frame-ancestors 'self';" always;
    add_header Permissions-Policy "interest-cohort=()" always;

    # . files
    location ~ /\.(?!well-known) {
        deny all;
    }

    location / {
        client_max_body_size 100M;
        proxy_pass  http://localhost:3000;
        proxy_http_version 1.1;
        proxy_cache_bypass $http_upgrade;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection $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;
        proxy_set_header X-Forwarded-Port $server_port;
        proxy_set_header Forwarded $proxy_add_forwarded;
        proxy_connect_timeout 60s;
        proxy_send_timeout 60s;
        proxy_read_timeout 60s;
    }
}
```

Once finished, press **Ctrl + X** to close the editor and press **Y** when prompted to save the file.

Open the file `/etc/nginx/nginx.conf` for editing.

```
$ sudo nano /etc/nginx/nginx.conf
```

Add the following line before the line `include /etc/nginx/conf.d/*.conf;`.

```
server_names_hash_bucket_size 64;
```

Save the file by pressing **Ctrl + X** and entering **Y** when prompted. Test the Nginx configuration.

```
$ sudo nginx -t
```

You should see the following output indicating your configuration is correct.

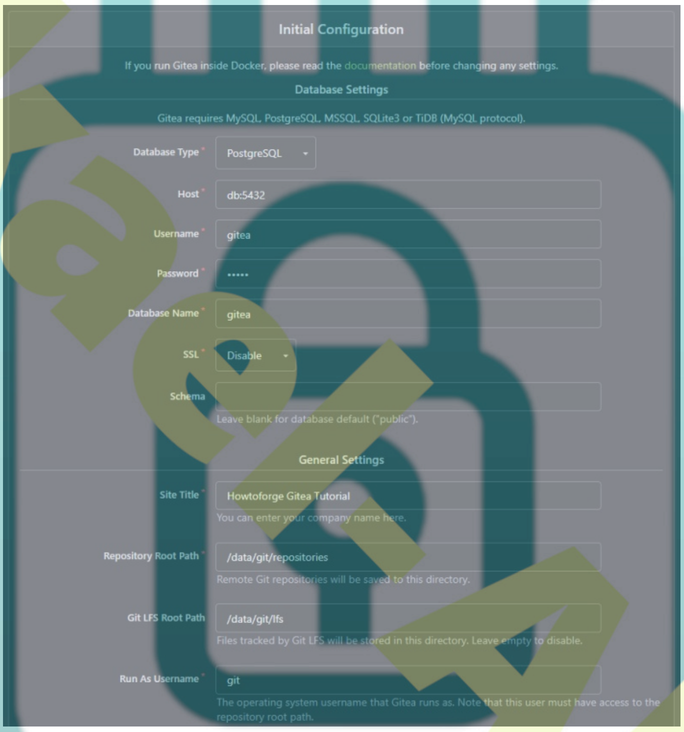
```
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
```

Reload the Nginx service.

```
$ sudo systemctl reload nginx
```

Step 8 - Access and Set up Gitea

Visit the URL `https://gitea.example.com` in your browser, and the following installation screen shall appear.



Initial Configuration

If you run Gitea inside Docker, please read the documentation before changing any settings.

Database Settings

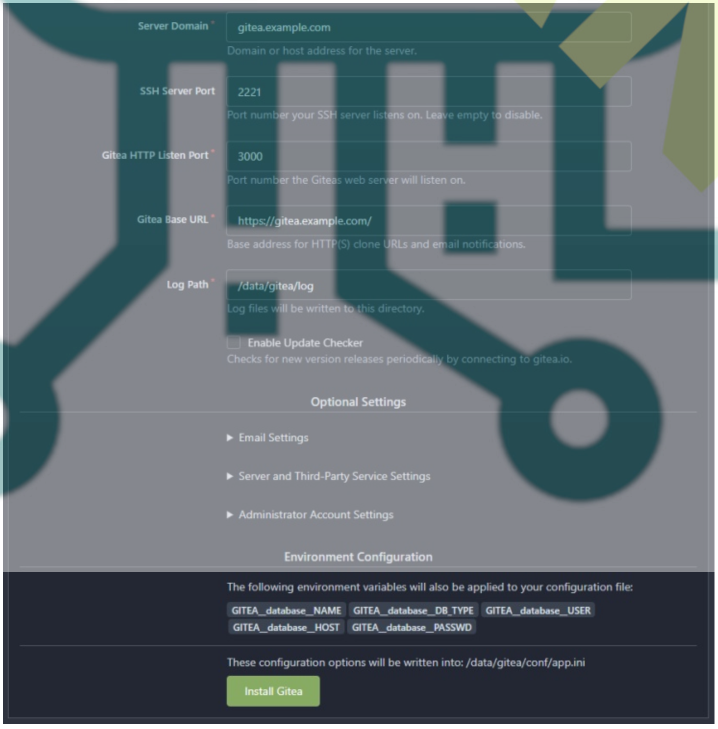
Gitea requires MySQL, PostgreSQL, MSSQL, SQLite3 or TiDB (MySQL protocol).

Database Type *	PostgreSQL
Host *	db:5432
Username *	gitea
Password *	•••••
Database Name *	gitea
SSL *	Disable
Schema	Leave blank for database default ("public").

General Settings

Site Title *	Howtoforge Gitea Tutorial You can enter your company name here.
Repository Root Path *	/data/git/repositories Remote Git repositories will be saved to this directory.
Git LFS Root Path	/data/git/lfs Files tracked by Git LFS will be stored in this directory. Leave empty to disable.
Run As Username *	git The operating system username that Gitea runs as. Note that this user must have access to the repository root path.

Most of the fields will be pre-filled for you based on the values from the Docker compose file.



Server Domain *	gitea.example.com Domain or host address for the server.
SSH Server Port	2221 Port number your SSH server listens on. Leave empty to disable.
Gitea HTTP Listen Port *	3000 Port number the Giteas web server will listen on.
Gitea Base URL *	https://gitea.example.com/ Base address for HTTP(S) clone URLs and email notifications.
Log Path *	/data/gitea/log Log files will be written to this directory.

☐ Enable Update Checker
Checks for new version releases periodically by connecting to gitea.io.

Optional Settings

▶ Email Settings

▶ Server and Third-Party Service Settings

▶ Administrator Account Settings

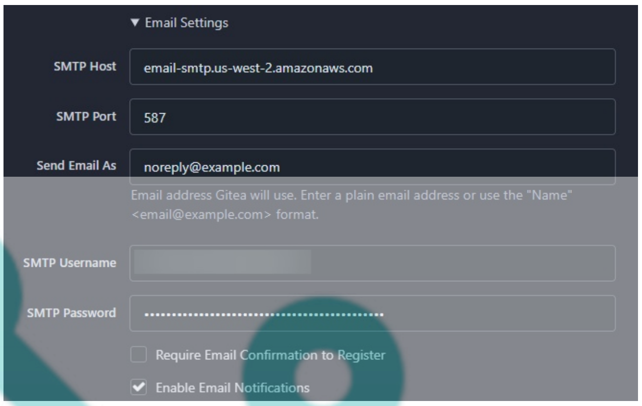
Environment Configuration

The following environment variables will also be applied to your configuration file:
GITEA__database__NAME GITEA__database__DB_TYPE GITEA__database__USER GITEA__database__HOST GITEA__database__PASSWD

These configuration options will be written into: /data/gitea/conf/app.ini

Enter `gitea.example.com` as the **Server Domain** and `https://gitea.example.com` as the **Gitea Base URL**. Change the value for the **SSH Server Port** from 22 to 2221. Leave the remaining settings as it is.

If you want to use mail features, you can add your SMTP server details. Expand the **Email Settings** section of the page and enter values as shown in the screenshot. Make sure to include your SMTP port with the hostname as shown. For our tutorial, we are using the Amazon SES service. You can use any SMTP service of your choice.



▼ Email Settings

SMTP Host: email-smtp.us-west-2.amazonaws.com

SMTP Port: 587

Send Email As: noreply@example.com

Email address Gitea will use. Enter a plain email address or use the "Name" <email@example.com> format.

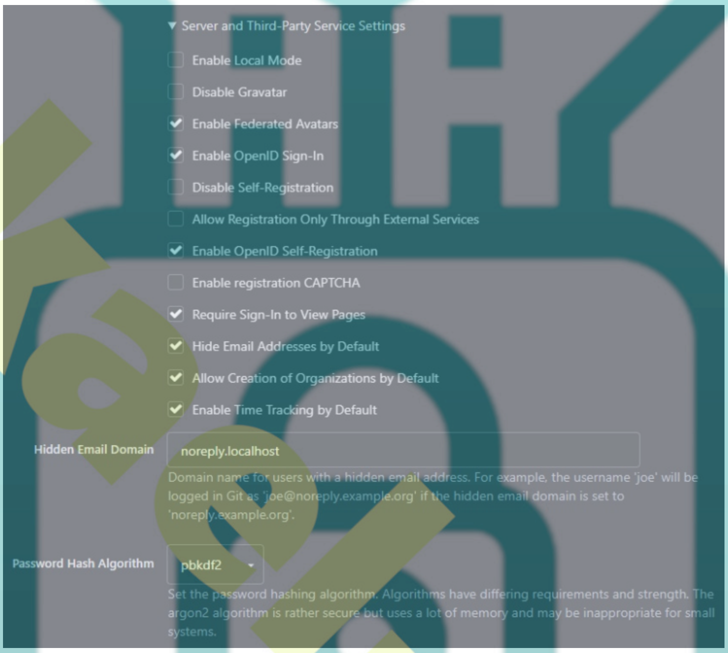
SMTP Username: [redacted]

SMTP Password: ••

☐ Require Email Confirmation to Register

✓ Enable Email Notifications

There are a few more settings you should check out before installing. To change them, expand the **Server and Third-Party Service Settings** section of the page.



▼ Server and Third-Party Service Settings

☐ Enable Local Mode

☐ Disable Gravatar

✓ Enable Federated Avatars

✓ Enable OpenID Sign-In

☐ Disable Self-Registration

☐ Allow Registration Only Through External Services

✓ Enable OpenID Self-Registration

☐ Enable registration CAPTCHA

✓ Require Sign-In to View Pages

✓ Hide Email Addresses by Default

✓ Allow Creation of Organizations by Default

✓ Enable Time Tracking by Default

Hidden Email Domain: noreply.localhost

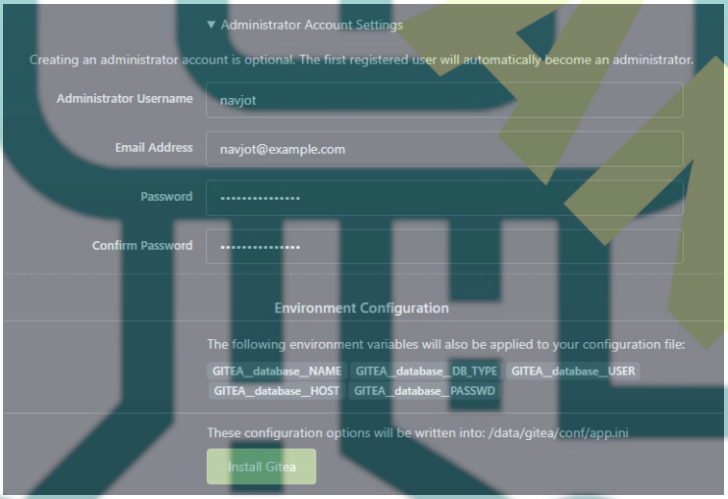
Domain name for users with a hidden email address. For example, the username 'joe' will be logged in Git as 'joe@noreply.example.org' if the hidden email domain is set to 'noreply.example.org'.

Password Hash Algorithm: pbkdf2

Set the password hashing algorithm. Algorithms have differing requirements and strength. The argon2 algorithm is rather secure but uses a lot of memory and may be inappropriate for small systems.

Change the settings as per your requirement. We have enabled the option **Hide Email Addresses by Default** to ensure greater privacy and **Require Sign-in to View Pages** to keep our Git site private. If you don't want people to register an account, enable the **Disable Self-Registration** option.

Last but not least, set up your administrator account. Expand the **Administrator Account Settings** section of the page and fill in the required values.



▼ Administrator Account Settings

Creating an administrator account is optional. The first registered user will automatically become an administrator.

Administrator Username: navjot

Email Address: navjot@example.com

Password: •••••••••••••••

Confirm Password: •••••••••••••••

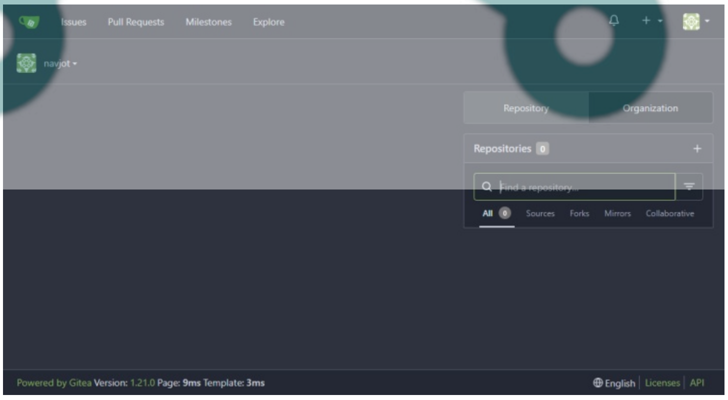
Environment Configuration

The following environment variables will also be applied to your configuration file:

GITEA__database__NAME GITEA__database__DB_TYPE GITEA__database__USER GITEA__database__HOST GITEA__database__PASSWD

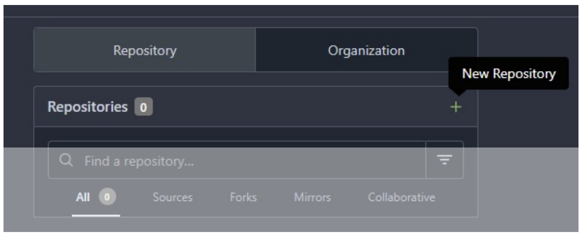
These configuration options will be written into: /data/gitea/conf/app.ini

Click the **Install Gitea** button when finished to complete the installation. You will be redirected to the Gitea dashboard. If, for some reason, you get a 502 error, refresh the page.

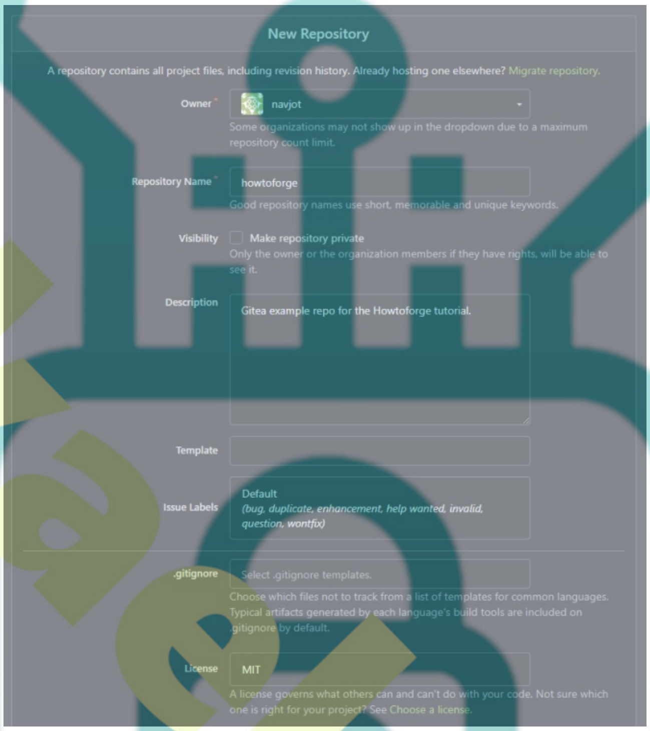


Step 8 - Create First Repository

Let us create our first repository. To do that, click the **+ sign** on the dashboard.



Enter the repository details. Select the Default Issue label by choosing from the dropdown menu. Select an appropriate license for your repository.



New Repository

A repository contains all project files, including revision history. Already hosting one elsewhere? Migrate repository.

Owner: navjot

Some organizations may not show up in the dropdown due to a maximum repository count limit.

Repository Name: howtoforge

Good repository names use short, memorable and unique keywords.

Visibility: Make repository private

Only the owner or the organization members if they have rights, will be able to see it.

Description: Gitea example repo for the Howtoforge tutorial.

Template:

Issue Labels: Default (bug, duplicate, enhancement, help wanted, invalid, question, wontfix)

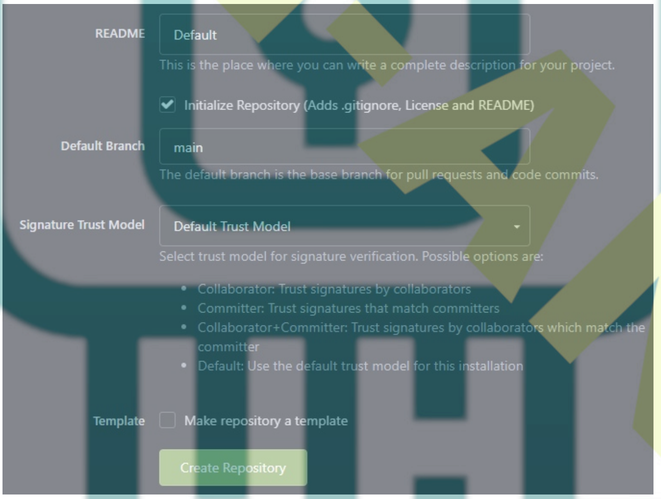
.gitignore: Select .gitignore templates.

Choose which files not to track from a list of templates for common languages. Typical artifacts generated by each language's build tools are included on .gitignore by default.

License: MIT

A license governs what others can and can't do with your code. Not sure which one is right for your project? See Choose a license.

Select the default branch for your repository.



README: Default

This is the place where you can write a complete description for your project.

✓ Initialize Repository (Adds .gitignore, License and README)

Default Branch: main

The default branch is the base branch for pull requests and code commits.

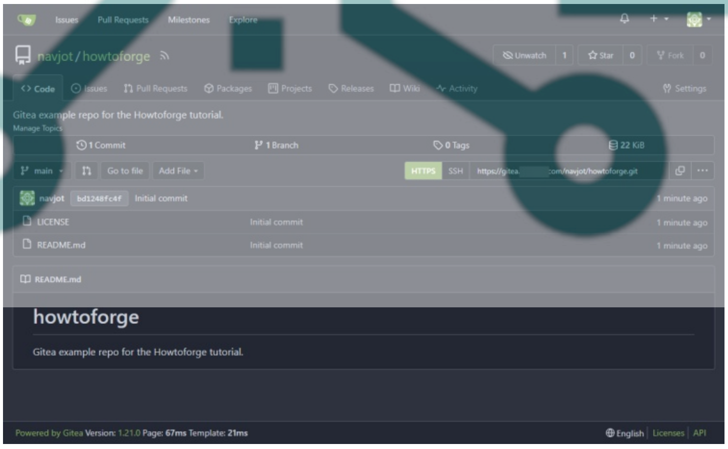
Signature Trust Model: Default Trust Model

Select trust model for signature verification. Possible options are:

- Collaborator: Trust signatures by collaborators
- Committer: Trust signatures that match committers
- Collaborator+Committer: Trust signatures by collaborators which match the committer
- Default: Use the default trust model for this installation

Template: Make repository a template

Once satisfied, click the **Create repository** button to create your first repository on your Gitea installation. You will be redirected to your repository home.



Gitea example repo for the Howtoforge tutorial.

Manage Topics

1 Commit · 1 Branch · 0 Tags · 22 KiB

main · Go to file · Add File · HTTPS · SSH · https://gitea.[redacted].com/navjot/howtoforge.git

navjot bd1248fc4f Initial commit		1 minute ago
LICENSE	Initial commit	1 minute ago
README.md	Initial commit	1 minute ago

README.md

howtoforge

Gitea example repo for the Howtoforge tutorial.

Powered by Gitea Version: 1.21.0 Page: 67ms Template: 21ms · English · Licenses · API

Step 9 - Set up SSH

Let us set up SSH to use with our newly created repository.

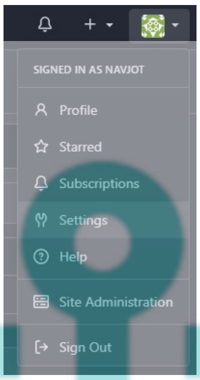
For our tutorial, we will use a local PC with Ubuntu pre-installed. However, the commands should work on any OS terminal without much change.

Create a new SSH key to use with Gitea on your local PC.

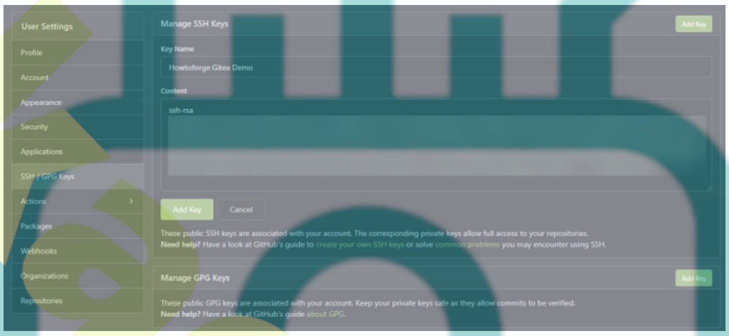
```
$ ssh-keygen -f ~/.ssh/gitea-demo -t rsa -b 4096 -C "HowtoForge Gitea Demo" -q -N "yourpassphrase"
```

Enter a strong passphrase in place of the placeholder in the command above. This will create an SSH key at `~/.ssh/gitea-demo` location.

Next, open your Gitea profile settings as shown by clicking the dropdown menu on your profile image and selecting the **Settings** option.



Next, switch to the **SSH/GPG Keys** tab on the page.



Manage SSH Keys

Key Name: Howtoforge Gitea Demo

Content: ssh-rsa [redacted]

These public SSH keys are associated with your account. The corresponding private keys allow full access to your repositories.
Need help? Have a look at GitHub's guide to create your own SSH keys or solve common problems you may encounter using SSH.

Manage GPG Keys

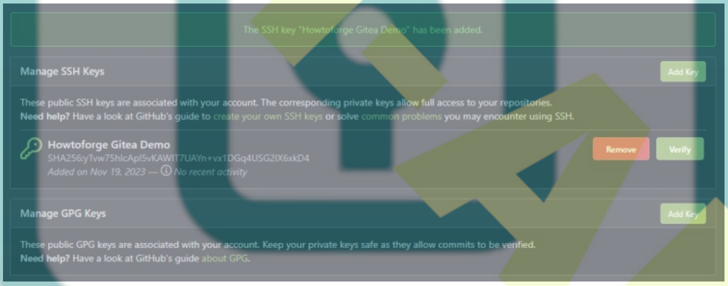
These public GPG keys are associated with your account. Keep your private keys safe as they allow commits to be verified.
Need help? Have a look at GitHub's guide about GPG.

Add a name for your SSH key. Go back to the terminal on your local PC and run the following command to output the public key for Gitea.

```
$ cat ~/.ssh/gitea-demo.pub
```

Copy the resulting output and paste it back into the Content box on the SSH keys page of Gitea.

Click the **Add Key** button to finish adding the key.



The SSH key "Howtoforge Gitea Demo" has been added.

Manage SSH Keys

These public SSH keys are associated with your account. The corresponding private keys allow full access to your repositories.
Need help? Have a look at GitHub's guide to create your own SSH keys or solve common problems you may encounter using SSH.

Howtoforge Gitea Demo
SHA256:yTvw75hlcApl5vKAWIT7UAYn+vx1DGq4USG2IX6xkD4
Added on Nov 19, 2023 — No recent activity

Manage GPG Keys

These public GPG keys are associated with your account. Keep your private keys safe as they allow commits to be verified.
Need help? Have a look at GitHub's guide about GPG.

Go back to your local PC and set up the SSH agent to remain active for 1 hour.

```
$ eval $(ssh-agent -t 3600)
```

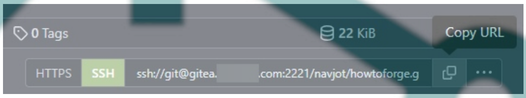
Add the newly created SSH key to the SSH agent.

```
$ ssh-add ~/.ssh/gitea-demo
Enter passphrase for /home/navjot/.ssh/gitea-demo:
Identity added: /home/navjot/.ssh/gitea-demo (HowtoForge Gitea Demo)
```

You will be prompted for your passphrase.

Step 10 - Clone Repository using SSH

Let us clone the newly created repository using SSH. Visit the repository page again and copy the SSH URL after selecting the **SSH** option.



It should look like the following.

```
ssh://git@gitea.example.com:2221/navjot/howtoforge.git
```

Run the following command on your local PC to clone the repository using SSH.

```
$ git clone ssh://git@gitea.example.com:2221/navjot/howtoforge.git
Cloning into 'howtoforge'...
The authenticity of host '[gitea.example.com]:2221 ([128.199.48.13]:2221)' can't be established.
ED25519 key fingerprint is SHA256:H7t5hNmEpZkYC9u3sXbA1mnGXCnoqaUZGL+gpAG9uNs.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '[gitea.example.com]:2221' (ED25519) to the list of known hosts.
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (4/4), done.
```

You will be prompted to add the host credentials. Enter `yes` to proceed with cloning the repository.

You will see the cloned repository on your system.

```
$ ls
howtoforge
```

Switch to the directory.

```
$ cd howtoforge
```

Check the Git status of the newly cloned repository. For this, you should have Git installed on your local PC.

```
$ git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
```

This concludes that SSH is working perfectly.

Step 11 - Testing First Commit

Now that we have set up our first repository, it's time to make some changes and commit them back.

Let us update the `README.md` file. On your local PC, open the readme file for editing.

```
$ nano README.md
```

Edit the file and when finished, save it by pressing **Ctrl + X** and entering **Y** when prompted.

Check the Git status again.

```
$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   README.md

no changes added to commit (use "git add" and/or "git commit -a")
```

This shows that the Readme file has been edited but not committed. Add the file to prepare it for commit.

```
$ git add README.md
```

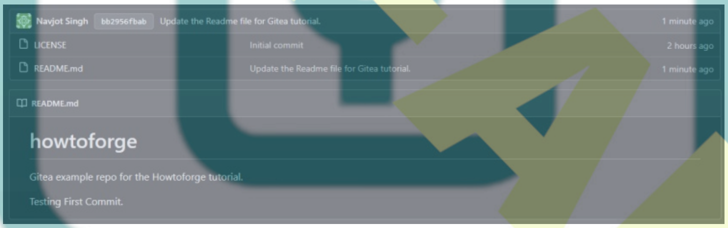
Commit the file.

```
$ git commit -m "Update the Readme file for Gitea tutorial."
[main bb2956f] Update the Readme file for Gitea tutorial.
 1 file changed, 3 insertions(+), 1 deletion(-)
```

Push the file to your Gitea Server.

```
$ git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 378 bytes | 378.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
remote: . Processing 1 references
remote: Processed 1 references in total
To ssh://gitea.example.com:2221/navjot/howtoforge.git
   bd1248f..bb2956f  main -> main
```

To confirm, go back to the Gitea repository page.



Navjot Singh bb2956fbab Update the Readme file for Gitea tutorial. 1 minute ago

LICENSE	Initial commit	2 hours ago
README.md	Update the Readme file for Gitea tutorial.	1 minute ago

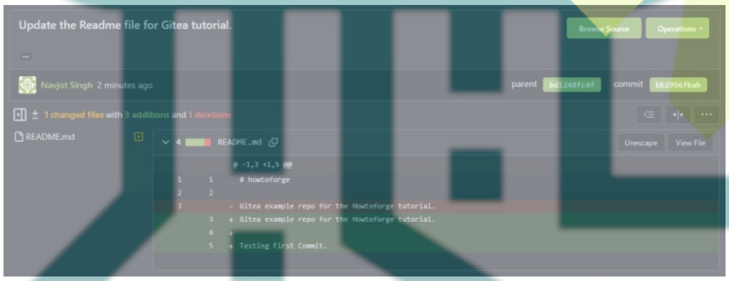
README.md

howtoforge

Gitea example repo for the Howtoforge tutorial.

Testing First Commit.

You can notice that the Readme file has been updated, and the latest commit message is also shown. To view the changes, click on the commit message, and you can view the following page with differences.



Update the Readme file for Gitea tutorial.

Navjot Singh 2 minutes ago parent bd1248fc4f commit bb2956fbab

1 changed files with 3 additions and 1 deletions

README.md

```
4 README.md
@@ -1,3 +1,5 @@
  # howtoforge

- Gitea example repo for the Howtoforge tutorial.
+ Gitea example repo for the Howtoforge tutorial.
+
+ Testing First Commit.
```

This concludes our first commit for our repository. You can start working on your Gitea installation for your projects.

Step 12 - Backup and Restore Gitea

Gitea ships with a command line tool that can perform backup using a single command. To run the command line tool inside the docker container to perform the backup, run the following command.

```
$ docker exec -u git -it -w /app/gitea gitea bash -c '/usr/local/bin/gitea dump -c /data/gitea/conf/app.ini'
```

We are running the command as the same user as we created in step 3 and configured during the installation by using the flag `-u git` in the above command. The flag `-w /app/gitea` defines the folder inside the docker container where the backup file will be stored. The backup folder has to be chosen such that the `git` user has permission to write on it. Inside the docker container, there are only two such folders. One is the `/data` folder and the other one is the `/app/gitea` folder. We can't use the `/data` folder because the command line tool backs the entire data folder which goes into an indefinite loop if we use it as the destination which can fill your server space. Therefore, we can only store the backup in the `/app/gitea` folder.

The next thing in the command is the container name, `gitea`. After that, we specify the type of Linux shell that is used to execute the command inside the container. The flag `-c` specifies the command you need to run inside the container. And the command to be run is `/usr/local/bin/gitea dump -c /data/gitea/conf/app.ini` which runs the command line tool and specifies the location of the configuration file to go with it.

Once the command is run, you will see the following output.

```
2023/11/20 06:21:41 ...les/setting/cache.go:75:loadCacheFrom() [I] Cache Service Enabled
2023/11/20 06:21:41 ...les/setting/cache.go:90:loadCacheFrom() [I] Last Commit Cache Service Enabled
2023/11/20 06:21:41 ...s/setting/session.go:74:loadSessionFrom() [I] Session Service Enabled
2023/11/20 06:21:41 ...es/setting/mailer.go:237:loadMailerFrom() [I] Mail Service Enabled
```

```
2023/11/20 06:21:41 ...es/setting/mailer.go:259:loadNotifyMailFrom() [I] Notify Mail Service Enabled
2023/11/20 06:21:41 ...s/storage/storage.go:176:initAttachments() [I] Initialising Attachment storage with type: local
2023/11/20 06:21:41 ...les/storage/local.go:33:NewLocalStorage() [I] Creating new Local Storage at /data/gitea/attachments
2023/11/20 06:21:41 ...s/storage/storage.go:166:initAvatars() [I] Initialising Avatar storage with type: local
2023/11/20 06:21:41 ...les/storage/local.go:33:NewLocalStorage() [I] Creating new Local Storage at /data/gitea/avatars
2023/11/20 06:21:41 ...s/storage/storage.go:192:initRepoAvatars() [I] Initialising Repository Avatar storage with type: local
2023/11/20 06:21:41 ...les/storage/local.go:33:NewLocalStorage() [I] Creating new Local Storage at /data/gitea/repo-avatars
2023/11/20 06:21:41 ...s/storage/storage.go:186:initLFS() [I] Initialising LFS storage with type: local
2023/11/20 06:21:41 ...les/storage/local.go:33:NewLocalStorage() [I] Creating new Local Storage at /data/git/lfs
2023/11/20 06:21:41 ...s/storage/storage.go:198:initRepoArchives() [I] Initialising Repository Archive storage with type: local
2023/11/20 06:21:41 ...les/storage/local.go:33:NewLocalStorage() [I] Creating new Local Storage at /data/gitea/repo-archive
2023/11/20 06:21:41 ...s/storage/storage.go:208:initPackages() [I] Initialising Packages storage with type: local
2023/11/20 06:21:41 ...les/storage/local.go:33:NewLocalStorage() [I] Creating new Local Storage at /data/gitea/packages
2023/11/20 06:21:41 ...s/storage/storage.go:219:initActions() [I] Initialising Actions storage with type: local
2023/11/20 06:21:41 ...les/storage/local.go:33:NewLocalStorage() [I] Creating new Local Storage at /data/gitea/actions_log
2023/11/20 06:21:41 ...s/storage/storage.go:223:initActions() [I] Initialising ActionsArtifacts storage with type: local
2023/11/20 06:21:41 ...les/storage/local.go:33:NewLocalStorage() [I] Creating new Local Storage at /data/gitea/actions_artifacts
2023/11/20 06:21:41 cmd/dump.go:265:runDump() [I] Dumping local repositories... /data/git/repositories
2023/11/20 06:21:41 cmd/dump.go:306:runDump() [I] Dumping database...
2023/11/20 06:21:41 cmd/dump.go:318:runDump() [I] Adding custom configuration file from /data/gitea/conf/app.ini
2023/11/20 06:21:41 cmd/dump.go:334:runDump() [I] Custom dir /data/gitea is inside data dir /data/gitea, skipped
2023/11/20 06:21:41 cmd/dump.go:346:runDump() [I] Packing data directory.../data/gitea
2023/11/20 06:21:41 cmd/dump.go:430:runDump() [I] Finish dumping in file gitea-dump-1700441501.zip
```

Now, let's go through the restoration process. You should have a fresh new Docker installation of Gitea running. But don't go through the install process.

Log in to the Docker shell.

```
$ docker exec --user git -it gitea bash
```

Switch to the `app/gitea` directory.

```
$ cd app/gitea
```

Unzip the backup file.

```
$ unzip gitea-dump-1700441501.zip
```

Switch to the extracted directory.

```
$ cd gitea-dump-1700441501
```

Restore the `/data/gitea` folder.

```
$ mv data/* /data/gitea
```

Restore the repositories.

```
$ mv repos/* /data/git/gitea-repositories/
```

Correct the file permissions.

```
$ chown -R git:git /data
```

Regenerate the Git Hooks.

```
$ /usr/local/bin/gitea -c '/data/gitea/conf/app.ini' admin regenerate hooks
```

Exit the docker shell.

```
$ exit
```

Step 13 - Upgrade Gitea

Upgrading Gitea is a simple process.

Shut down and remove the existing containers. Since the data is saved outside the containers on the host, it will be retained.

```
$ cd ~/gitea-docker
$ docker compose down --remove-orphans
```

Open the `docker-compose.yml` file and change the version of the Gitea container. Next, pull the new Gitea image.

```
$ docker pull
```

Start the new containers.

```
$ docker compose up -d
```

Check the status.

```
$ docker ps
```

Conclusion

This concludes our tutorial where we installed Gitea Code Hosting Service using Docker on a Debian 12 server. We also installed the Nginx server to act as a proxy and exposed Gitea via a public URL using SSL. If you have any questions, post them in the comments below.