

BookStack @SLES16 (openSUSE v16.1) (with Internet access)

Let's deploy BookStack web application to the Internet reachable environment:

- Solution: BookStack ([www](#), [github](#))
- Resources: VM in the laptop lab.
- Stack:
 - mbp7d0x2: openSUSE 16.1 + nginx + MariaDB

Create VM.

Preparations:

```
sudo su
zypper install \
  tmux \
  git \
  php \
  php-gd \
  php-zip \
  php-mysqlnd \
  php8-cli \
  php8-phar \
  php8-curl \
  php8-fileinfo \
  php8-mbstring \
  php8-pdo \
  php8-mysql \
```

Install MariaDB and perform recommended post-install

```
zypper install mariadb-server  
  
systemctl enable --now mariadb  
systemctl status mariadb
```

Secure the fresh setup

```
mariadb-secure-installation
```

```
mbp7dox2:/home/anton # mariadb-secure-installation
```

```
NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB  
SERVERS IN PRODUCTION USE! PLEASE READ EACH STEP CAREFULLY!
```

```
In order to log into MariaDB to secure it, we'll need the current  
password for the root user. If you've just installed MariaDB, and  
haven't set the root password yet, you should just press enter here.
```

```
Enter current password for root (enter for none):
```

```
OK, successfully used password, moving on...
```

```
Setting the root password or using the unix_socket ensures that nobody  
can log into the MariaDB root user without the proper authorisation.
```

```
You already have your root account protected, so you can safely answer 'n'.
```

```
Switch to unix_socket authentication [Y/n]
```

```
Enabled successfully!
```

```
Reloading privilege tables..
```

```
... Success!
```

```
You already have your root account protected, so you can safely answer 'n'.
```

```
Change the root password? [Y/n]
```

```
New password:
```

```
Re-enter new password:
```

```
Password updated successfully!
```

```
Reloading privilege tables..
```

```
... Success!
```

```
By default, a MariaDB installation has an anonymous user, allowing anyone  
to log into MariaDB without having to have a user account created for  
them. This is intended only for testing, and to make the installation  
go a bit smoother. You should remove them before moving into a  
production environment.
```

```
Remove anonymous users? [Y/n]
```

```
... Success!
```

```
Normally, root should only be allowed to connect from 'localhost'. This  
ensures that someone cannot guess at the root password from the network.
```

```
Disallow root login remotely? [Y/n]
```

```
... Success!
```

```
By default, MariaDB comes with a database named 'test' that anyone can  
access. This is also intended only for testing, and should be removed  
before moving into a production environment.
```

```
Remove test database and access to it? [Y/n]
```

```
- Dropping test database...
```

```
... Success!
```

```
- Removing privileges on test database...
```

```
... Success!
```

```
Reloading the privilege tables will ensure that all changes made so far  
will take effect immediately.
```

```
Reload privilege tables now? [Y/n]
```

```
... Success!
```

```
Cleaning up...
```

```
All done! If you've completed all of the above steps, your MariaDB  
installation should now be secure.
```

```
Thanks for using MariaDB!
```

```
mbp7dox2:/home/anton #
```

Create database and application user

```
export db_pass="Very-Strong-Password123"

mariadb -u root --execute="CREATE DATABASE bookstack;"
mariadb -u root --execute="CREATE USER 'bookstack'@'localhost' IDENTIFIED BY '${db_pass}';"
mariadb -u root --execute="GRANT ALL ON bookstack.* TO 'bookstack'@'localhost'; FLUSH PRIVILEGES;"
```

Verify freshly created user can login

```
mariadb -u bookstack -p
```

```
mbp7dox2:/home/anton # mariadb -u bookstack -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 19
Server version: 11.8.6-MariaDB MariaDB package

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]> SHOW DATABASES;
+-----+
| Database |
+-----+
| bookstack |
| information_schema |
+-----+
2 rows in set (0.001 sec)

MariaDB [(none)]> USE bookstack;
Database changed
MariaDB [bookstack]>
```

Setup nginx, enable SSL

```
zypper install nginx
systemctl enable --now nginx
systemctl status nginx
ss -ntap | grep nginx
```

```
LISTEN 0 511 0.0.0.0:80 0.0.0.0:*
users:(("nginx",pid=14387,fd=6),("nginx",pid=14386,fd=6))
LISTEN 0 511 [::]:80 [::]:* users:(("nginx",pid=14387,fd=7),("nginx",pid=14386,fd=7))
```

Create of self-signed certificates and Enable SSL

We have local running environment (virtualized local VM) and will use self-signed certificate in this scenario), alternatively, point cert and key accordingly.

```
sudo su
export dir="/data/certs/"
export fqdn="dox.$(hostname)"
echo ${fqdn}

mkdir -p ${dir}/${fqdn}/current/
mkdir -p ${dir}/${fqdn}/archive/

openssl req -x509 \
  -nodes \
  -days 365 \
  -newkey rsa:2048 \
  -subj "/C=FI/ST=State/L=City/O=Home/OU=IT/CN=${fqdn}" \
  -out ${dir}/${fqdn}/current/${fqdn}.crt \
  -keyout ${dir}/${fqdn}/current/${fqdn}.key

ls -la ${dir}/${fqdn}/current/
```



```
listen 80;

server_name mbp7dox2;
access_log /var/log/nginx/mbp7dox2.access.log;
error_log /var/log/nginx/mbp7dox2.error.log;

return 301 https://$host$request_uri;
}

server {
    listen 443 ssl;

    server_name _;
    access_log /var/log/nginx/mbp7dox2.access.log;
    error_log /var/log/nginx/mbp7dox2.error.log;

    root /usr/share/nginx/html;

    ssl_certificate "/data/certs/mbp7dox2/current/mbp7dox2.crt";
    ssl_certificate_key "/data/certs/mbp7dox2/current/mbp7dox2.key";

    ssl_session_cache shared:SSL:1m;
    ssl_session_timeout 10m;
    ssl_ciphers PROFILE=SYSTEM;
    ssl_prefer_server_ciphers on;

}
```

SELinux

```
! TODO:fix context
```

Test config and reload it:

```
nginx -t
nginx -s reload
ss -ntap | grep nginx
```

```
mbp7dax2:/etc/nginx/vhosts.d #
mbp7dax2:/etc/nginx/vhosts.d #
mbp7dax2:/etc/nginx/vhosts.d # ss -ntap
State Recv-Q Send-Q Local Address:Port Peer Address:Port Process
LISTEN 0 4096 0.0.0.0:443 0.0.0.0:* users:(("nginx",pid=3906,fd=9),("nginx",pid=3904,fd=9))
LISTEN 0 20 127.0.0.1:3306 0.0.0.0:* users:(("mysql",pid=3031,fd=24))
LISTEN 0 328 0.0.0.0:22 0.0.0.0:* users:(("sshd",pid=1047,fd=0))
LISTEN 0 100 0.0.0.0:25 0.0.0.0:* users:(("master",pid=1118,fd=13))
LISTEN 0 4096 0.0.0.0:80 0.0.0.0:* users:(("nginx",pid=3906,fd=8),("nginx",pid=3904,fd=8))
ESTAB 0 0 10.211.55.9:22 10.211.55.2:62418 users:(("sshd-session",pid=2339,fd=7),("sshd-session",pid=2337,fd=7))
LISTEN 0 328 [*:*]22 [*:*] users:(("sshd",pid=1047,fd=7))
mbp7dax2:/etc/nginx/vhosts.d #
mbp7dax2:/etc/nginx/vhosts.d #
mbp7dax2:/etc/nginx/vhosts.d #
```

Test it, requesting to show headers only, '-k' - will skip cert checks, as they will fail for not matching the CN (common name). Using local address to avoid DNS lookup.

```
curl -I https://127.0.0.1 -k
```

```
mbp7dax2:/etc/nginx/vhosts.d # curl -I https://127.0.0.1 -k
HTTP/1.1 404 Not Found
Server: nginx/1.27.2
Date: Tue, 09 Jun 2026 09:37:04 GMT
Content-Type: text/html
Content-Length: 153
Connection: keep-alive
mbp7dax2:/etc/nginx/vhosts.d #
```

Open firewall (create security policies to pass the traffic in)

```
firewall-cmd --add-service=http --permanent
firewall-cmd --add-service=https --permanent
firewall-cmd --reload
firewall-cmd --list-all
```

Foundation is done. We can proceed with application setup.

Install PHP-FPM

```
zypper install php-fpm
```

```
systemctl enable --now php-fpm
systemctl status php-fpm
```

We need to know, where PHP-FPM is listening, to point requests correctly from webserver below:

```
fgrep -irn listen /etc/php8/fpm/
```

```
mbp7dox2:/etc/nginx/vhosts.d # vi /etc/php8/fpm/php-fpm.d/www.conf
mbp7dox2:/etc/nginx/vhosts.d # fgrep -irn listen /etc/php8/fpm/
/etc/php8/fpm/php-fpm.d/www.conf:10;; - 'listen' (unixsocket)
/etc/php8/fpm/php-fpm.d/www.conf:35;; 'ip.add.re.ss:port' - to listen on a TCP socket to a specific IPv4 address on
/etc/php8/fpm/php-fpm.d/www.conf:37;; '[ip:6:addr:ess]:port' - to listen on a TCP socket to a specific IPv6 address on
/etc/php8/fpm/php-fpm.d/www.conf:39;; 'port' - to listen on a TCP socket to all addresses
/etc/php8/fpm/php-fpm.d/www.conf:41;; '/path/to/unix/socket' - to listen on a unix socket.
/etc/php8/fpm/php-fpm.d/www.conf:43:listen = 127.0.0.1:9000
/etc/php8/fpm/php-fpm.d/www.conf:45;; Set listen(2) backlog.
/etc/php8/fpm/php-fpm.d/www.conf:47;;listen.backlog = 511
/etc/php8/fpm/php-fpm.d/www.conf:55;;listen.owner = wwwrun
/etc/php8/fpm/php-fpm.d/www.conf:56;;listen.group = www
```

port 9000 we shall be using and not local file socket

```
/etc/php8/fpm/php-fpm.d/www.conf:43:listen = 127.0.0.1:9000
```

Let's see which user and group is owning the php.

```
fgrep -irn user /etc/php8/fpm/ | grep -v \;
fgrep -irn group /etc/php8/fpm/ | grep -v \;
```

```
mbp7dox2:/etc/nginx/vhosts.d # fgrep -irn user /etc/php8/fpm/ | grep -v \;
/etc/php8/fpm/php-fpm.d/www.conf:23:user = wwwrun
/etc/php8/fpm/php.ini:754:user_dir =
/etc/php8/fpm/php.ini:1183:mysql.default_user =
mbp7dox2:/etc/nginx/vhosts.d # fgrep -irn group /etc/php8/fpm/ | grep -v \;
/etc/php8/fpm/php-fpm.d/www.conf:23:group = www
mbp7dox2:/etc/nginx/vhosts.d #
```

these are

```
user=wwwrun
group=www
```

Let's see which user and group nginx is running with

```
fgrep -irn user /etc/nginx/
ss -ntap | grep nginx
```

```
mbp7dox2:/etc/nginx/vhosts.d # vi /etc/nginx/nginx.conf
mbp7dox2:/etc/nginx/vhosts.d # ss -ntap | grep nginx
LISTEN 0      4096      0.0.0.0:443      0.0.0.0:*      users:(("nginx",pid=3906,fd=9),("nginx",pid=3904,fd=9))
LISTEN 0      4096      0.0.0.0:80      0.0.0.0:*      users:(("nginx",pid=3906,fd=8),("nginx",pid=3904,fd=8))
mbp7dox2:/etc/nginx/vhosts.d #
```

- "Aha!". Let's change PHP-FPM be run as `nginx`

```
vi /etc/php8/fpm/php-fpm.d/www.conf
```

Should be like this, using `nginx` user:

```
; user = wwwrun
user = nginx
; group = www
group = nginx
```

```
; user = wwwrun
user = nginx
; group = www
group = nginx
```

Remember to restart the service

```
systemctl restart php-fpm
```

Install Composer and make available globally.

ref to

```
https://getcomposer.org/download/
```

as a normal user, not root

```
mkdir -p ~/utils/composer
cd ~/utils/composer/

php -r "copy('https://getcomposer.org/installer', 'composer-setup.php');"
```

```
php -r "if (hash_file('sha384', 'composer-setup.php') ===  
'c8b085408188070d5f52bcfe4ecfbee5f727afa458b2573b8eaaf77b3419b0bf2768dc67c86944da1544f06fa544fd  
47') { echo 'Installer verified'.PHP_EOL; } else { echo 'Installer corrupt'.PHP_EOL; unlink('composer-setup.php');  
exit(1); }"
```

```
anton@mbp7dox2:~/utils/composer> php -r "copy('https://getcomposer.org/installer', 'composer-setup.php');"  
anton@mbp7dox2:~/utils/composer>  
anton@mbp7dox2:~/utils/composer> php -r "if (hash_file('sha384', 'composer-setup.php') === 'c8b085408188070d5f52bcfe4ecfbee5f727afa458b2573b8e  
aaf77b3419b0bf2768dc67c86944da1544f06fa544fd47') { echo 'Installer verified'.PHP_EOL; } else { echo 'Installer corrupt'.PHP_EOL; unlink('compo  
ser-setup.php'); exit(1); }"  
Installer verified  
anton@mbp7dox2:~/utils/composer>
```

```
php composer-setup.php
```

```
php -r "unlink('composer-setup.php');"
```

```
php composer.phar
```

```
sudo mv composer.phar /usr/local/bin/composer
```



```
whoami
sudo su

# privileged user (you)
export pu="anton"

export host="$(hostname)"
export app="dox.${host}"
export dir="/var/www/${app}"
echo ${dir}

mkdir -p ${dir}

# permit privileged user to own app directory
chown -R ${pu}:${pu} ${dir}
exit

# as privileged user, not as root
export host="$(hostname)"
export app="dox.${host}"
export dir="/var/www/${app}"
cd ${dir}
```

Create application-specific configuration file in the webserver

```
sudo su
export host="$(hostname)"
export app="dox.${host}"
export dir="/var/www/${app}"

cat << _EOF_ > /etc/nginx/vhosts.d/${app}.conf
server {
    listen 443 ssl;

    server_name ${app};

    access_log /var/log/nginx/${app}_access.log;
    error_log /var/log/nginx/${app}_error.log;

    ssl_certificate "/data/certs/${app}/current/${app}.cert";
```

```
ssl_certificate_key "/data/certs/${app}/current/${app}.key";

ssl_protocols TLSv1.2;
ssl_prefer_server_ciphers on;
ssl_session_cache shared:SSL:1m;
ssl_session_timeout 10m;
ssl_ciphers PROFILE=SYSTEM;

root ${dir}/BookStack/public;
index index.php;

client_max_body_size 1G;
fastcgi_buffers 64 4K;

location / {
    try_files $uri $uri/ /index.php?$query_string;
}

location ~ \.php(?:$|/) {
    fastcgi_split_path_info ^(.+\.(php|\.+))$;
    include fastcgi_params;
    fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
    fastcgi_param PATH_INFO $fastcgi_path_info;
    fastcgi_pass 127.0.0.1:9000;
}

location ~* \.(?:jpg|jpeg|gif|bmp|ico|png|css|js|swf)$ {
    expires 30d;
    access_log off;
}

location ~ ^/(?:\.htaccess|data|config|db_structure\.xml|README) {
    deny all;
}

}
_EOF_
```

Verify

```
ls -la /etc/nginx/vhosts.d/${app}.conf
```

Prepare hostnames to match certificates CNs (for local usage)

```
vi /etc/hosts
```

```
127.0.0.1 localhost mbp7dox2 dox.mbp7dox2
```

Test and reload the webserver:

```
nginx -t
nginx -s reload

export host="$(hostname)"
export app="dox.${host}"
echo ${app}

curl https://${app} -k
```

Installation of BookStack application

Change directory before cloning the repo. As a normal user, not root

```
export host="$(hostname)"
export app="dox.${host}"
export dir="/var/www/${app}/"

cd ${dir}
pwd
```

```
/var/www/dox.lt58dox1
```

Clone repo

```
git clone https://github.com/BookStackApp/BookStack.git --branch release --single-branch
```

```
ls -la
```

```
anton@mbp7dox2:/var/www/dox.mbp7dox2>
anton@mbp7dox2:/var/www/dox.mbp7dox2> git clone https://github.com/BookStackApp/BookStack.git --branch release --single-branch
Cloning into 'BookStack'...
remote: Enumerating objects: 76161, done.
remote: Counting objects: 100% (585/585), done.
remote: Compressing objects: 100% (418/418), done.
remote: Total 76161 (delta 223), reused 397 (delta 167), pack-reused 75576 (from 3)
Receiving objects: 100% (76161/76161), 50.91 MiB | 522.00 KiB/s, done.
Resolving deltas: 100% (55683/55683), done.
anton@mbp7dox2:/var/www/dox.mbp7dox2>
anton@mbp7dox2:/var/www/dox.mbp7dox2>
anton@mbp7dox2:/var/www/dox.mbp7dox2>
anton@mbp7dox2:/var/www/dox.mbp7dox2> ls -la
total 0
drwxr-xr-x. 1 anton anton 18 Jun 9 12:04 .
drwxr-xr-x. 1 root root 24 Jun 9 11:55 ..
drwxr-xr-x. 1 anton anton 714 Jun 9 12:06 BookStack
anton@mbp7dox2:/var/www/dox.mbp7dox2>
anton@mbp7dox2:/var/www/dox.mbp7dox2>
```

Build an application

```
cd Bookstack
```

```
which composer
```

```
composer update
```

```
composer install --no-dev
```

Should be built successfully:

```
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack> composer install --no-dev
> @php -r "!file_exists('bootstrap/cache/services.php') || @unlink('bootstrap/cache/services.php');"
Installing dependencies from lock file
Verifying lock file contents can be installed on current platform.
Nothing to install, update or remove
Generating optimized autoload files
> Illuminate\Foundation\ComposerScripts::postAutoloadDump
> @php artisan package:discover --ansi

 [INFO] Discovering packages.

laravel/socialite ..... DONE
laravel/tinker ..... DONE
nesbot/carbon ..... DONE
nunomaduro/termwind ..... DONE
socialiteproviders/manager ..... DONE

62 packages you are using are looking for funding.
Use the `composer fund` command to find out more!
> @php artisan cache:clear

 [INFO] Application cache cleared successfully.

> @php artisan view:clear

 [INFO] Compiled views cleared successfully.

anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack>
```

Creating missing directories

issue

```
#3 /var/www/dox.lt58dox1/BookStack/vendor/la...; PHP message: PHP Fatal error: Uncaught  
UnexpectedValueException: The stream or file "/var/www/dox.lt58dox1/BookStack/storage/logs/laravel.log"  
could not be opened in append mode: Failed to open stream: Permission denied
```

```
sudo su
```

```
export host="$(hostname)"  
export app="dox.${host}"  
export dir="/var/www/${app}/"
```

```
ls -la ${dir}/BookStack/storage/logs/
```

```
# Create an empty log and directory for views  
touch ${dir}/BookStack/storage/logs/laravel.log
```

```
chown nginx:nginx ${dir}/BookStack/storage/logs/laravel.log  
namei -mo ${dir}/BookStack/storage/logs/laravel.log
```

```
mbp7dox2:/var/www/dox.mbp7dox2/BookStack # namei -mo ${dir}/BookStack/storage/logs/laravel.log  
f: /var/www/dox.mbp7dox2//BookStack/storage/logs/laravel.log  
drwxr-xr-x root root /  
drwxr-xr-x root root var  
drwxr-xr-x root root www  
drwxr-xr-x anton anton dox.mbp7dox2  
drwxr-xr-x anton anton BookStack  
drwxr-xr-x anton anton storage  
drwxr-xr-x anton anton logs  
-rw-r--r-- nginx nginx laravel.log  
mbp7dox2:/var/www/dox.mbp7dox2/BookStack #
```

Configure application

Copy template, generate salt and configure .env

```
sudo su
```

```
export host="$(hostname)"
export app="dox.${host}"
export dir="/var/www/${app}"
cd ${dir}/BookStack/
pwd

cp .env.example .env
php artisan key:generate
```

Are you sure you want to run this command? Yes [Enter]

```
vi .env
```

Should be simple as

```
APP_KEY=base64:goKejWQsFFboBGOSF5+eti2Yv1auP4rXvxVbQ4lupgc=
APP_URL=https://dox.lt58dox1

DB_HOST=localhost
DB_DATABASE=bookstack
DB_USERNAME=bookstack
DB_PASSWORD=Very-Strong-Password123

# not in use
MAIL_DRIVER=smtp
MAIL_FROM_NAME="BookStack"
MAIL_FROM=bookstack@example.com
MAIL_HOST=localhost
MAIL_PORT=587
MAIL_USERNAME=null
MAIL_PASSWORD=null
MAIL_ENCRYPTION=null
```

Create database schema

```
php artisan migrate
```

```
anton@bpb7dox2:~$ cd /var/www/dox.mbp7dox2/
anton@bpb7dox2:/var/www/dox.mbp7dox2$ cd BookStack/
anton@bpb7dox2:/var/www/dox.mbp7dox2/BookStack$ php artisan migrate
```

APPLICATION IN PRODUCTION.

Are you sure you want to run this command?

Yes

Preparing database.

Creating migration table 15.79ms DONE

Running migrations.

```
2014_10_12_000000_create_users_table ..... 204.89ms DONE
2014_10_12_100000_create_password_resets_table ..... 13.10ms DONE
2015_07_12_114933_create_books_table ..... 2.06ms DONE
2015_07_12_190027_create_pages_table ..... 2.32ms DONE
2015_07_13_172121_create_images_table ..... 1.98ms DONE
2015_07_27_172342_create_chapters_table ..... 2.05ms DONE
2015_08_08_200447_add_users_to_entities ..... 29.92ms DONE
2015_08_09_093534_create_page_revisions_table ..... 2.23ms DONE
2015_08_16_142133_create_activities_table ..... 2.28ms DONE
2015_08_29_105422_add_roles_and_permissions ..... 57.48ms DONE
2015_08_30_125859_create_settings_table ..... 2.12ms DONE
2015_08_31_175240_add_search_indexes ..... 0.01ms DONE
2015_09_04_165821_create_social_accounts_table ..... 10.59ms DONE
2015_09_05_164707_add_email_confirmation_table ..... 14.02ms DONE
2015_11_21_145609_create_views_table ..... 2.48ms DONE
2015_11_26_221857_add_entity_indexes ..... 80.26ms DONE
2015_12_05_145049_fulltext_weighting ..... 0.01ms DONE
2015_12_07_195238_add_image_upload_types ..... 13.86ms DONE
2015_12_09_195748_add_user_avatars ..... 3.33ms DONE
2016_01_11_210908_add_external_auth_to_users ..... 7.76ms DONE
2016_02_25_184030_add_slug_to_revisions ..... 14.36ms DONE
2016_02_27_120329_update_permissions_and_roles ..... 28.08ms DONE
2016_02_28_084200_add_entity_access_controls ..... 43.76ms DONE
2016_03_09_203143_add_page_revision_types ..... 7.93ms DONE
2016_03_13_082138_add_page_drafts ..... 7.70ms DONE
2016_03_25_123157_add_markdown_support ..... 7.04ms DONE
2016_04_09_100730_add_view_permissions_to_roles ..... 8.10ms DONE
2016_04_20_192649_create_joint_permissions_table ..... 49.77ms DONE
2016_05_06_185215_create_tags_table ..... 18.08ms DONE
2016_07_07_181521_add_summary_to_page_revisions ..... 3.40ms DONE
2016_09_29_101449_remove_hidden_roles ..... 11.61ms DONE
2016_10_09_142037_create_attachments_table ..... 10.89ms DONE
2017_01_21_163556_create_cache_table ..... 6.89ms DONE
2017_01_21_163602_create_sessions_table ..... 7.52ms DONE
2017_03_19_091553_create_search_index_table ..... 22.17ms DONE
2017_04_20_185112_add_revision_counts ..... 13.50ms DONE
2017_07_02_152834_update_db_encoding_to_utf8mb4 ..... 0.02ms DONE
2017_08_01_130541_create_comments_table ..... 17.69ms DONE
2017_08_29_102650_add_cover_image_display ..... 4.06ms DONE
2018_07_15_173514_add_role_external_auth_id ..... 8.09ms DONE
2018_08_04_115700_create_bookshelves_table ..... 57.81ms DONE
2019_07_07_112515_add_template_support ..... 8.88ms DONE
2019_08_17_140214_add_user_invites_table ..... 10.18ms DONE
2019_12_29_120917_add_api_auth ..... 15.27ms DONE
2020_08_04_111754_drop_joint_permissions_id ..... 13.25ms DONE
2020_08_04_131052_remove_role_name_field ..... 4.36ms DONE
2020_09_19_094251_add_activity_indexes ..... 8.82ms DONE
2020_09_27_210059_add_entity_soft_deletes ..... 14.49ms DONE
2020_09_27_210528_create_deletions_table ..... 16.58ms DONE
2020_11_07_232321_simplify_activities_table ..... 26.67ms DONE
2020_12_30_173528_add_ommed_by_field_to_entities ..... 37.50ms DONE
2021_01_30_225441_add_settings_type_column ..... 3.45ms DONE
2021_03_08_215138_add_user_slug ..... 9.15ms DONE
2021_05_15_173110_create_favourites_table ..... 10.95ms DONE
2021_06_30_173111_create_mfa_values_table ..... 10.24ms DONE
2021_07_03_085038_add_mfa_enforced_to_roles_table ..... 3.59ms DONE
2021_08_28_161743_add_export_role_permission ..... 0.97ms DONE
2021_09_26_044614_add_activities_ip_column ..... 4.91ms DONE
2021_11_26_070438_add_index_for_user_ip ..... 4.66ms DONE
2021_12_07_111343_create_webhooks_table ..... 21.49ms DONE
2021_12_13_152024_create_jobs_table ..... 7.78ms DONE
2021_12_13_152120_create_failed_jobs_table ..... 7.20ms DONE
2022_01_03_154041_add_webhooks_timeout_error_columns ..... 14.71ms DONE
2022_04_17_101741_add_editor_change_field_and_permission ..... 5.70ms DONE
2022_04_25_140741_update_polymorphic_types ..... 4.41ms DONE
2022_07_16_170051_drop_joint_permission_type ..... 21.71ms DONE
2022_08_17_092941_create_references_table ..... 21.43ms DONE
2022_09_02_082910_fix_shelf_cover_image_types ..... 0.17ms DONE
2022_10_07_091406_flatten_entity_permissions_table ..... 19.47ms DONE
2022_10_08_104202_drop_entity_restricted_field ..... 18.27ms DONE
2023_01_24_104625_refactor_joint_permissions_storage ..... 23.23ms DONE
2023_01_28_141230_copy_color_settings_for_dark_mode ..... 0.29ms DONE
2023_02_20_093655_increase_attachments_path_length ..... 6.02ms DONE
2023_02_23_200227_add_updated_at_index_to_pages ..... 4.71ms DONE
2023_06_10_071823_remove_guest_user_secondary_roles ..... 0.54ms DONE
2023_06_25_181952_remove_bookshelf_create_entity_permissions ..... 0.01ms DONE
2023_07_25_124945_add_receive_notifications_role_permissions ..... 1.03ms DONE
2023_07_31_104430_create_watches_table ..... 15.25ms DONE
2023_08_21_174248_increase_cache_size ..... 5.16ms DONE
2023_12_02_104541_add_default_template_to_books ..... 4.42ms DONE
2023_12_17_140913_add_description_html_to_entities ..... 11.51ms DONE
2024_01_01_104542_add_default_template_to_chapters ..... 5.40ms DONE
2024_02_04_141358_add_views_updated_index ..... 4.86ms DONE
2024_05_04_154409_rename_activity_relation_columns ..... 7.07ms DONE
2024_09_29_140340_ensure_editor_value_set ..... 0.65ms DONE
2024_10_29_114420_add_import_role_permission ..... 1.11ms DONE
2024_11_02_160700_create_imports_table ..... 6.84ms DONE
2024_11_27_171039_add_instance_id_setting ..... 1.78ms DONE
2025_01_29_180933_create_sort_rules_table ..... 2.66ms DONE
2025_02_05_150842_add_sort_rule_id_to_books ..... 3.76ms DONE
2025_04_18_215145_add_content_refs_and_archived_to_comments ..... 12.02ms DONE
2025_09_02_111542_remove_unused_columns ..... 12.19ms DONE
2025_09_15_132850_create_entities_table ..... 45.38ms DONE
2025_09_15_134701_migrate_entity_data ..... 2.53ms DONE
2025_09_15_134751_update_entity_relation_columns ..... 117.90ms DONE
2025_09_15_134813_drop_old_entity_tables ..... 7.47ms DONE
2025_10_18_163331_clean_user_id_references ..... 66.48ms DONE
2025_10_22_134507_update_comments_relation_field_names ..... 7.00ms DONE
2025_11_23_161812_create_slug_history_table ..... 18.78ms DONE
2025_12_15_140219_create_mention_history_table ..... 11.07ms DONE
2025_12_19_103417_add_views_viewable_type_index ..... 4.38ms DONE
```

Set least necessary permissions for application

```
export host="$(hostname)"
export app="dox.${host}"
export dir="/var/www/${app}"

# not inside app dir, but level up (not to be affected by itself)
vi fixperm-${app}.sh
```

```
#!/bin/bash

export host="$(hostname)"
export app="dox.${host}"
export dir="/var/www/${app}/BookStack/"

# privileged user
export pu="anton"

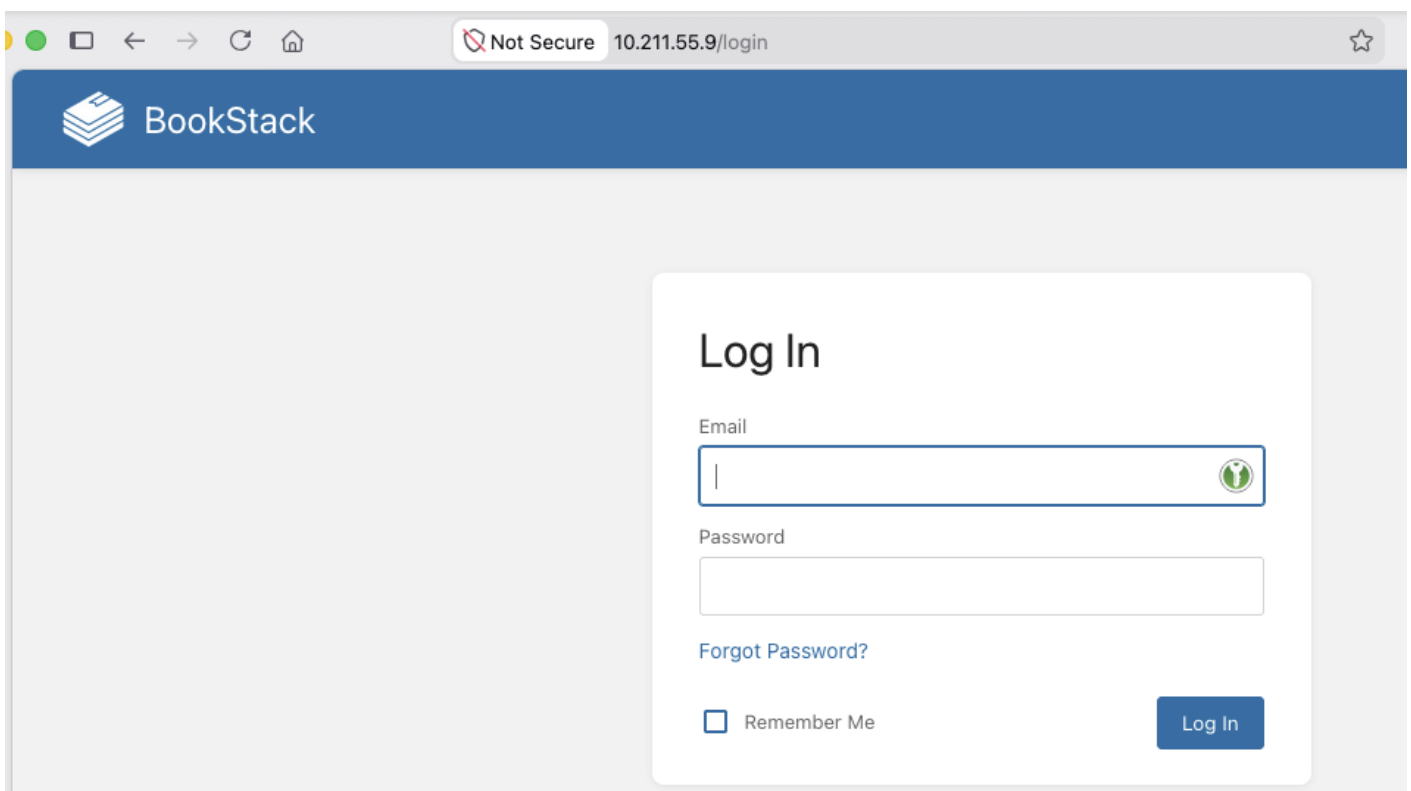
# webserver's user
export wsu="nginx"

chown -R ${wsu}:${pu} ${dir}
subdirs=("/storage/" "/bootstrap/cache/" "/public/uploads/")
for subdir in "${subdirs[@]}"; do
    echo "--[ subdir: ${subdir} ]--"
    chown -R ${wsu}:${pu} ${dir}/${subdir}
done
for subdir in "${subdirs[@]}"; do
    echo "--[ subdir: ${subdir} ]--"
    find ${dir}/${subdir} -type d -exec chmod 0770 {} \+
    find ${dir}/${subdir} -type f -exec chmod 0660 {} \+
done
```

```
chmod +x ./fixperm.sh
./fixperm.sh
```

```
mbp7dox2:/var/www/dox.mbp7dox2/BookStack # export host="$(hostname)"
mbp7dox2:/var/www/dox.mbp7dox2/BookStack # export app="dox.${host}"
mbp7dox2:/var/www/dox.mbp7dox2/BookStack # export dir="/var/www/${app}"
mbp7dox2:/var/www/dox.mbp7dox2/BookStack #
mbp7dox2:/var/www/dox.mbp7dox2/BookStack # vi fixperm.sh
mbp7dox2:/var/www/dox.mbp7dox2/BookStack # chmod +x ./fixperm.sh
mbp7dox2:/var/www/dox.mbp7dox2/BookStack #
mbp7dox2:/var/www/dox.mbp7dox2/BookStack #
mbp7dox2:/var/www/dox.mbp7dox2/BookStack #
mbp7dox2:/var/www/dox.mbp7dox2/BookStack # ./fixperm.sh
--[ subdir: ]--
--[ subdir: /storage/ ]--
--[ subdir: /bootstrap/cache/ ]--
--[ subdir: /public/uploads/ ]--
--[ subdir: ]--
--[ subdir: /storage/ ]--
--[ subdir: /bootstrap/cache/ ]--
--[ subdir: /public/uploads/ ]--
mbp7dox2:/var/www/dox.mbp7dox2/BookStack #
```

Application is ready



Used space:

Minimal openSUSE16.1 + webservice + PHP-FPM + MariaDB

```
df -hT | sort
```

```
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack> vi .env
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack> date
Tue Jun 9 01:45:08 PM CEST 2026
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack> df -hT | sort
/dev/sda1      vfat      128M    12M   117M    9% /boot/efi
/dev/sda2      btrfs     62G     3.4G   57G     6% /
/dev/sda2      btrfs     62G     3.4G   57G     6% /boot/grub2/arm64-efi
/dev/sda2      btrfs     62G     3.4G   57G     6% /home
/dev/sda2      btrfs     62G     3.4G   57G     6% /opt
/dev/sda2      btrfs     62G     3.4G   57G     6% /root
/dev/sda2      btrfs     62G     3.4G   57G     6% /.snapshots
/dev/sda2      btrfs     62G     3.4G   57G     6% /srv
/dev/sda2      btrfs     62G     3.4G   57G     6% /usr/local
/dev/sda2      btrfs     62G     3.4G   57G     6% /var
devtmpfs      devtmpfs  4.0M     0    4.0M    0% /dev
efivarfs      efivarfs  104K     5.9K   99K     6% /sys/firmware/efi/efivars
Filesystem    Type      Size  Used Avail Use% Mounted on
tmpfs         tmpfs     1.0M     0    1.0M    0% /run/credentials/getty@tty1.service
tmpfs         tmpfs     1.0M     0    1.0M    0% /run/credentials/systemd-journald.service
tmpfs         tmpfs     1.5G     0    1.5G    0% /dev/shm
tmpfs         tmpfs     1.5G     0    1.5G    0% /tmp
tmpfs         tmpfs     297M    20K   297M    1% /run/user/1000
tmpfs         tmpfs     593M   944K   592M    1% /run
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack>
```

```
date
export dir="/var/www/${app}"
df -hT ${dir}
du -h ${dir} --max-depth=1
```

```
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack> date
Tue Jun 9 01:46:43 PM CEST 2026
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack> export dir="/var/www/${app}"
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack> df -hT ${dir}
Filesystem    Type      Size  Used Avail Use% Mounted on
/dev/sda2      btrfs     62G     3.4G   57G     6% /var
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack>
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack> du -h ${dir} --max-depth=1
199M    /var/www/dox.mbp7dox2
199M    /var/www/
anton@mbp7dox2:/var/www/dox.mbp7dox2/BookStack>
```

Revision #4

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