

# Matrix Synapse with Tor on Arch Linux - Setup Guide

## 1. Install Dependencies

```
sudo pacman -Syu
sudo pacman -S synapse tor postgresql nginx python-pip

# Enable and initialize PostgreSQL
sudo -iu postgres
initdb --locale en_US.UTF-8 -D /var/lib/postgres/data
exit
sudo systemctl enable --now postgresql

# Create database and user
sudo -iu postgres
psql
CREATE USER synapse_user WITH PASSWORD 'securepassword';
CREATE DATABASE synapse ENCODING 'UTF8' LC_COLLATE='C' LC_CTYPE='C' template=template0
OWNER synapse_user;
\q
exit
```

## 2. Configure Synapse

```
sudo synapse_homeserver --server-name youronion.onion --config-path /etc/synapse

# Edit homeserver.yaml
sudo nano /etc/synapse/homeserver.yaml

# In the file, set:
server_name: youronion.onion
public_baseurl: http://youronion.onion/
database:
  name: psycopg2
  args:
    user: synapse_user
    password: securepassword
    database: synapse
    host: 127.0.0.1
    port: 5432

# Optionally allow registration
enable_registration: true
```

### 3. Setup Tor Hidden Service

```
sudo nano /etc/tor/torrc
```

```
# Add:
```

```
HiddenServiceDir /var/lib/tor/synapse_onion/
```

```
HiddenServicePort 8008 127.0.0.1:8008
```

```
# Restart Tor
```

```
sudo systemctl enable --now tor
```

```
# Get onion address
```

```
sudo cat /var/lib/tor/synapse_onion/hostname
```

### 4. Start Synapse

```
sudo systemctl enable --now synapse
```

```
# Check logs
```

```
journalctl -xeu synapse
```

### 5. (Optional) Host Element Web Client

You can skip this and use <https://app.element.io> via Tor Browser.

In Element:

Advanced -> Use custom server -> Homeserver: <http://youronion.onion>

### 6. Security Tips

- Change default passwords
- Block unnecessary ports on clearnet
- Monitor logs
- Use CAPTCHA if registration is enabled