Installing Katzenpost

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The section provides an overview of how to download Katzenpost, set up a development environment, build the code, install the Katzenpost binaries, and configure the components.

Requirements

An up-to-date Debian [https://www.debian.org] or Ubuntu [https://ubuntu.com] Linux system is assumed as the build and hosting environment for all Katzenpost server-side components. Required packages include the following:

- git
- gcc
- build-essential
- libc-dev-bin

Obtain the Katzenpost code

Complete the following steps to set up a local Katzenpost git repository.

- 1. Clone Katzenpost.
 - \$ git clone git@github.com:katzenpost/katzenpost.git
- 2. Get the latest tagged commit of the Katzenpostwith the following commands.

```
$ git fetch --tags
$ tag=$(git describe --tags `git rev-list --tags --max-count=1`)
$ git checkout $tag
```

Install the latest Go version

Download the latest version of the Go programming language from https://go.dev/dl and unzip it in a suitable location. As root, set the necessary environment variables:

```
# export PATH=$PATH:/<your Go location>/bin
# export GO111MODULE=on
# export CGO_CFLAGS_ALLOW="-DPARAMS=sphincs-shake-256f"
```

The go/bin path must be included in your user \$PATH environment variable.

Note

Do not use the Debian/Ubuntu golang packages. They are probably too old.

Build server components

To build a Katzenpost server component, navigate to the directory containing its source code and run **go build**. The paths shown are relative to the Katzenpost repository root.

Table 1. Server component directories

Component	Source code directory	Binary
Mix, gateway, or service node	server/cmd/server/	server
Directory authority	authority/cmd/ dirauth/	dirauth

Build clients

The Katzenpost client components are useful for testing an operational mixnet. To build them, navigate to the directory containing each component's source code and run **go build**. The paths shown are relative to the Katzenpost repository root.

Note

The Katzen [https://github.com/katzenpost/katzen] chat client is under development and not currently functional. For more information about the clients generally, see Clients [https://katzenpost.network/docs/admin_guide/components.html#intro-client].

Table 2. Client directories

Component	Source code directory	Binary or application
Ping	ping/	ping
Fetch	authority/cmd/fetch/	fetch
Status	Obtain from GitHub repository katzenpost/status [https://github.com/katzenpost/status].	status.py
Worldmap	Obtain from GitHub repository katzenpost/worldmap [https://github.com/katzenpost/worldmap]	

Install the server components

To install the server binaries, run the following commands from the katzenpost repository root.

- # cp server/cmd/server/server /usr/local/bin/katzenpost-mixserver
- # cp authority/cmd/dirauth/dirauth /usr/local/bin/katzenpost-authority

Create service accounts

Create a service account account for each of the node types that you deploy.

To create a service user for a directory authority.

```
# adduser \
    --disabled-login \
    --disabled-password \
    --system \
    --group \
    --home /var/lib/katzenpost-authority \
    katzenpost-authority
```

To create a service user for a mix, gateway, or service node.

```
# adduser \
    --disabled-login \
    --disabled-password \
    --system \
    --group \
    --home /var/lib/katzenpost-mixserver \
    katzenpost-mixserver
```

Create configuration files

The best way currently to construct a node configuration file is to use one of the samples in Appendix: Configuration files from the Docker test mixnet [https://katzenpost.network/docs/admin_guide/docker-config-appendix.html], and to modify it based on the published component parameters [https://katzenpost.network/docs/admin_guide/components.html], combined with attention to the latest state of the code tree. Bear in mind that the IP *address:port* scheme used in the Docker image is specific to that container environment, and is not transferable to a production network without modification.

Katzenpost currently has no configuration automation tool that is ready for general use.

Configure systemd

EOF

If you are running your Katzenpost components under systemd [https://systemd.io/], create and install a systemd service file for each node type that you plan to deploy. The following scripts are examples of how to do this.

To create a systemd service file for a directory authority.

```
#!/bin/bash -x
cat << EOF > /etc/systemd/system/katzenpost-mixserver.service
Description=Katzenpost Mix Server
After=network.target
[Service]
IPAccounting=yes
Type=simple
User=katzenpost-mixserver
WorkingDirectory=/var/lib/katzenpost-mixserver
ExecStart=/usr/local/bin/katzenpost-mixserver -f /etc/katzenpost-mixserver/katz
PrivateTmp=yes
NoNewPrivileges=yes
# RestartSec=5
Restart=on-failure
[Install]
WantedBy=default.target
```

To create a systemd service file for a mix, gateway, or service node.

```
#!/bin/bash -x
cat << EOF > /etc/systemd/system/katzenpost-authority.service
[Unit]
Description=Katzenpost Authority
After=network.target
[Service]
Type=simple
IPAccounting=yes
User=katzenpost-authority
WorkingDirectory=/var/lib/katzenpost-authority
ExecStart=/usr/local/bin/katzenpost-authority -f /etc/katzenpost-authority/auth
PrivateTmp=yes
NoNewPrivileges=yes
Restart=on-failure
[Install]
WantedBy=default.target
```

Generate keys

The first time that you run a server binary directly or using systemd, identity and encryption keys are automatically generated and installed if they are not already present. The key location is specified by the value of <code>DataDir</code> in the <code>[Server]</code> section of the configuration. For configuration parameter details, see Components and configuration of the Katzenpost mixnet [https://katzenpost.network/docs/admin_guide/components.html]. For server binary commandline options, see the Quick-start guide [https://katzenpost.network/docs/admin_guide/quickstart.html].

Once the keys are in place, restart the server to begin operations.