

Installation Docker

Beschreibung:

Firefly III installation via Docker

Voraussetzungen:

```
apt install curl docker.io docker-compose
```

Installation Docker instanz:

Projekt Verzeichnis anlegen

```
mkdir -p /root/firefly3/nginx
```

Certfilescrip anlegen und ausführen

```
nano /root/firefly3/generate_cert.sh
```

```
#!/bin/bash
CERT_DIR="/root/firefly3/nginx/ssl"
mkdir -p $CERT_DIR

openssl req -x509 -nodes -days 36500 -newkey rsa:2048 \
  -keyout $CERT_DIR/key.pem -out $CERT_DIR/cert.pem \
  -subj "/C=US/ST=Example/L=Example/O=Example/CN=example.com"
```

ausführbar machen

```
chmod +x /root/firefly3/generate_cert.sh
```

Ausführen

```
cd /root/firefly3
./generate_cert.sh
```

Nun die nginx-config

```
nano /root/firefly3/nginx-proxy.conf
```

Inhalt:

```
events {
    worker_connections 1024;
}

http {
    server {
        listen 80;
        return 301 https://$host$request_uri;
    }

    server {
        listen 443 ssl;
        ssl_certificate /etc/nginx/ssl/cert.pem;
        ssl_certificate_key /etc/nginx/ssl/key.pem;

        location / {
            proxy_pass http://app:8080;
            proxy_set_header X-Forwarded-Proto $scheme;
            proxy_set_header X-Forwarded-Host $host;
            proxy_set_header X-Forwarded-Server $host;
            proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
            proxy_set_header Host $host;
            # This line is optional and may help in some cases.
            # proxy_set_header X-Forwarded-Port $server_port;
            client_max_body_size 64M;
            proxy_read_timeout 300s;
        }
    }
}
```

.env Datei erstellen

```
nano /root/firefly3/.env
```

Inhalt, Datenbank Passwörter, Emaildaten und App URL anpassen.

```
# You can leave this on "local". If you change it to production most console commands will ask for extra
confirmation.
# Never set it to "testing".
APP_ENV=production

# Set to true if you want to see debug information in error screens.
APP_DEBUG=false

# This should be your email address.
# If you use Docker or similar, you can set this variable from a file by using SITE_OWNER_FILE
# The variable is used in some errors shown to users who aren't admin.
SITE_OWNER=mail@example.com

# The encryption key for your sessions. Keep this very secure.
# Change it to a string of exactly 32 chars or use something like `php artisan key:generate` to generate it.
# If you use Docker or similar, you can set this variable from a file by using APP_KEY_FILE
#
# Avoid the "#" character in your APP_KEY, it may break things.
#
APP_KEY=SomeRandomStringOf32CharsExactly

# Firefly III will launch using this language (for new users and unauthenticated visitors)
# For a list of available languages: https://github.com/firefly-iii/firefly-iii/blob/main/config/firefly.php#L123
#
# If text is still in English, remember that not everything may have been translated.
DEFAULT_LANGUAGE=de_DE

# The locale defines how numbers are formatted.
# by default this value is the same as whatever the language is.
DEFAULT_LOCALE=equal

# Change this value to your preferred time zone.
# Example: Europe/Amsterdam
# For a list of supported time zones, see https://en.wikipedia.org/wiki/List\_of\_tz\_database\_time\_zones
```

```
TZ=Europe/Berlin
```

```
# TRUSTED_PROXIES is a useful variable when using Docker and/or a reverse proxy.
```

```
# Set it to ** and reverse proxies work just fine.
```

```
TRUSTED_PROXIES=*
```

```
# The log channel defines where your log entries go to.
```

```
# Several other options exist. You can use 'single' for one big fat error log (not recommended).
```

```
# Also available are 'syslog', 'errorlog' and 'stdout' which will log to the system itself.
```

```
# A rotating log option is 'daily', creates 5 files that (surprise) rotate.
```

```
# A cool option is 'papertrail' for cloud logging
```

```
# Default setting 'stack' will log to 'daily' and to 'stdout' at the same time.
```

```
LOG_CHANNEL=stack
```

```
# Log level. You can set this from least severe to most severe:
```

```
# debug, info, notice, warning, error, critical, alert, emergency
```

```
# If you set it to debug your logs will grow large, and fast. If you set it to emergency probably
```

```
# nothing will get logged, ever.
```

```
APP_LOG_LEVEL=notice
```

```
# Audit log level.
```

```
# The audit log is used to log notable Firefly III events on a separate channel.
```

```
# These log entries may contain sensitive financial information.
```

```
# The audit log is disabled by default.
```

```
#
```

```
# To enable it, set AUDIT_LOG_LEVEL to "info"
```

```
# To disable it, set AUDIT_LOG_LEVEL to "emergency"
```

```
AUDIT_LOG_LEVEL=emergency
```

```
#
```

```
# If you want, you can redirect the audit logs to another channel.
```

```
# Set 'audit_stdout', 'audit_syslog', 'audit_errorlog' to log to the system itself.
```

```
# Use audit_daily to log to a rotating file.
```

```
# Use audit_papertrail to log to papertrail.
```

```
#
```

```
# If you do this, the audit logs may be mixed with normal logs because the settings for these channels
```

```
# are often the same as the settings for the normal logs.
```

```
AUDIT_LOG_CHANNEL=
```

```
#
```

```
# Used when logging to papertrail:
# Also used when audit logs log to papertrail:
#
PAPERTRAIL_HOST=
PAPERTRAIL_PORT=

# Database credentials. Make sure the database exists. I recommend a dedicated user for Firefly III
# For other database types, please see the FAQ: https://docs.firefly-iii.org/references/faq/install/#i-want-to-use-sqlite
# If you use Docker or similar, you can set these variables from a file by appending them with _FILE
# Use "pgsql" for PostgreSQL
# Use "mysql" for MySQL and MariaDB.
# Use "sqlite" for SQLite.
DB_CONNECTION=mysql
DB_HOST=db
DB_PORT=3306
DB_DATABASE=firefly
DB_USERNAME=firefly
DB_PASSWORD=secret_firefly_password
MYSQL_PASSWORD=secret_firefly_password
MYSQL_RANDOM_ROOT_PASSWORD=yes
MYSQL_USER=firefly
MYSQL_DATABASE=firefly
MARIADB_ROOT_PASSWORD=secret_firefly_password

# leave empty or omit when not using a socket connection
DB_SOCKET=

# MySQL supports SSL. You can configure it here.
# If you use Docker or similar, you can set these variables from a file by appending them with _FILE
MYSQL_USE_SSL=false
MYSQL_SSL_VERIFY_SERVER_CERT=true
# You need to set at least of these options
MYSQL_SSL_CAPATH=/etc/ssl/certs/
MYSQL_SSL_CA=
MYSQL_SSL_CERT=
MYSQL_SSL_KEY=
MYSQL_SSL_CIPHER=

# PostgreSQL supports SSL. You can configure it here.
```

```
# If you use Docker or similar, you can set these variables from a file by appending them with _FILE
PGSQL_SSL_MODE=prefer
PGSQL_SSL_ROOT_CERT=null
PGSQL_SSL_CERT=null
PGSQL_SSL_KEY=null
PGSQL_SSL_CRL_FILE=null

# For postgresql 15 and up, setting this to public will no longer work as expected, because the
# 'public' schema is without grants. This can be worked around by having a super user grant those
# necessary privileges, but in security conscious setups that's not viable.
# You will need to set this to the schema you want to use.
PGSQL_SCHEMA=public

# If you're looking for performance improvements, you could install memcached or redis
CACHE_DRIVER=file
SESSION_DRIVER=file

# If you set either of the options above to 'redis', you might want to update these settings too
# If you use Docker or similar, you can set REDIS_HOST_FILE, REDIS_PASSWORD_FILE or
# REDIS_PORT_FILE to set the value from a file instead of from an environment variable

# can be tcp or unix. http is not supported
REDIS_SCHEME=tcp

# use only when using 'unix' for REDIS_SCHEME. Leave empty otherwise.
REDIS_PATH=

# use only when using 'tcp' or 'http' for REDIS_SCHEME. Leave empty otherwise.
REDIS_HOST=127.0.0.1
REDIS_PORT=6379

# Use only with Redis 6+ with proper ACL set. Leave empty otherwise.
REDIS_USERNAME=
REDIS_PASSWORD=

# always use quotes and make sure redis db "0" and "1" exists. Otherwise change accordingly.
REDIS_DB="0"
REDIS_CACHE_DB="1"

# Cookie settings. Should not be necessary to change these.
```

```
# If you use Docker or similar, you can set COOKIE_DOMAIN_FILE to set
# the value from a file instead of from an environment variable
# Setting samesite to "strict" may give you trouble logging in.
COOKIE_PATH="/"
COOKIE_DOMAIN=
COOKIE_SECURE=false
COOKIE_SAMESITE=lax

# If you want Firefly III to email you, update these settings
# For instructions, see: https://docs.firefly-iii.org/how-to/firefly-iii/advanced/notifications/#email
# If you use Docker or similar, you can set these variables from a file by appending them with _FILE
MAIL_MAILER=log
MAIL_HOST=null
MAIL_PORT=2525
MAIL_FROM=changeme@example.com
MAIL_USERNAME=null
MAIL_PASSWORD=null
MAIL_ENCRYPTION=null
MAIL_SENDMAIL_COMMAND=

#
# If you use self-signed certificates for your SMTP server, you can use the following settings.
#
MAIL_ALLOW_SELF_SIGNED=false
MAIL_VERIFY_PEER=true
MAIL_VERIFY_PEER_NAME=true

# Other mail drivers:
# If you use Docker or similar, you can set these variables from a file by appending them with _FILE
MAILGUN_DOMAIN=
MAILGUN_SECRET=

# If you are on EU region in mailgun, use api.eu.mailgun.net, otherwise use api.mailgun.net
# If you use Docker or similar, you can set this variable from a file by appending it with _FILE
MAILGUN_ENDPOINT=api.mailgun.net

# If you use Docker or similar, you can set these variables from a file by appending them with _FILE
MANDRILL_SECRET=
SPARKPOST_SECRET=
MAILERSEND_API_KEY=
```

Firefly III can send you the following messages.

SEND_ERROR_MESSAGE=true

These messages contain (sensitive) transaction information:

SEND_REPORT_JOURNALS=true

Set this value to true if you want to set the location of certain things, like transactions.

Since this involves an external service, it's optional and disabled by default.

ENABLE_EXTERNAL_MAP=false

#

Enable or disable exchange rate conversion.

#

ENABLE_EXCHANGE_RATES=false

Set this value to true if you want Firefly III to download currency exchange rates

from the internet. These rates are hosted by the creator of Firefly III inside

an Azure Storage Container.

Not all currencies may be available. Rates may be wrong.

ENABLE_EXTERNAL_RATES=false

The map will default to this location:

MAP_DEFAULT_LAT=51.983333

MAP_DEFAULT_LONG=5.916667

MAP_DEFAULT_ZOOM=6

#

Some objects have room for an URL, like transactions and webhooks.

By default, the following protocols are allowed:

http, https, ftp, ftps, mailto

#

To change this, set your preferred comma separated set below.

Be sure to include http, https and other default ones if you need to.

#

VALID_URL_PROTOCOLS=

#

Firefly III authentication settings

#

```
#
# Firefly III supports a few authentication methods:
# - 'web' (default, uses built in DB)
# - 'remote_user_guard' for Authelia etc
# Read more about these settings in the documentation.
# https://docs.firefly-iii.org/how-to/firefly-iii/advanced/authentication/
#
# LDAP is no longer supported :(
#
AUTHENTICATION_GUARD=web

#
# Remote user guard settings
#
AUTHENTICATION_GUARD_HEADER=REMOTE_USER
AUTHENTICATION_GUARD_EMAIL=

#
# Firefly III generates a basic keypair for your OAuth tokens.
# If you want, you can overrule the key with your own (secure) value.
# It's also possible to set PASSPORT_PUBLIC_KEY_FILE or PASSPORT_PRIVATE_KEY_FILE
# if you're using Docker secrets or similar solutions for secret management
#
PASSPORT_PRIVATE_KEY=
PASSPORT_PUBLIC_KEY=

#
# Extra authentication settings
#
CUSTOM_LOGOUT_URL=

# You can disable the X-Frame-Options header if it interferes with tools like
# Organizr. This is at your own risk. Applications running in frames run the risk
# of leaking information to their parent frame.
DISABLE_FRAME_HEADER=false

# You can disable the Content Security Policy header when you're using an ancient browser
# or any version of Microsoft Edge / Internet Explorer (which amounts to the same thing really)
# This leaves you with the risk of not being able to stop XSS bugs should they ever surface.
```

```
# This is at your own risk.
DISABLE_CSP_HEADER=false

# If you wish to track your own behavior over Firefly III, set valid analytics tracker information here.
# Nobody uses this except for me on the demo site. But hey, feel free to use this if you want to.
# Do not prepend the TRACKER_URL with http:// or https://
# The only tracker supported is Matomo.
# You can set the following variables from a file by appending them with _FILE:
TRACKER_SITE_ID=
TRACKER_URL=

#
# Firefly III supports webhooks. These are security sensitive and must be enabled manually first.
#
ALLOW_WEBHOOKS=false

#
# The static cron job token can be useful when you use Docker and wish to manage cron jobs.
# 1. Set this token to any 32-character value (this is important!).
# 2. Use this token in the cron URL instead of a user's command line token that you can find in /profile
#
# For more info: https://docs.firefly-iii.org/how-to/firefly-iii/advanced/cron/
#
# You can set this variable from a file by appending it with _FILE
#
STATIC_CRON_TOKEN=PLEASE_REPLACE_WITH_32_CHAR_CODE

# You can fine tune the start-up of a Docker container by editing these environment variables.
# Use this at your own risk. Disabling certain checks and features may result in lots of inconsistent data.
# However if you know what you're doing you can significantly speed up container start times.
# Set each value to true to enable, or false to disable.

# Check if the SQLite database exists. Can be skipped if you're not using SQLite.
# Won't significantly speed up things.
DKR_CHECK_SQLITE=true

# Leave the following configuration vars as is.
# Unless you like to tinker and know what you're doing.
APP_NAME=FireflyIII
BROADCAST_DRIVER=log
```

```
QUEUE_DRIVER=sync
CACHE_PREFIX=firefly
PUSHER_KEY=
IPINFO_TOKEN=
PUSHER_SECRET=
PUSHER_ID=
DEMO_USERNAME=
DEMO_PASSWORD=

#
# Disable or enable the running balance column data
# Please disable this. It's a very experimental feature.
#
USE_RUNNING_BALANCE=false

#
# The v2 layout is very experimental. If it breaks you get to keep both parts.
# Be wary of data loss.
#
FIREFLY_III_LAYOUT=v1

#
# Which Query Parser implementation to use for the search engine and rules
# 'new' is experimental, 'legacy' is the classic one
#
QUERY_PARSER_IMPLEMENTATION=new

#
# Please make sure this URL matches the external URL of your Firefly III installation.
# It is used to validate specific requests and to generate URLs in emails.
#
APP_URL=http://localhost
```

docker-compose Datei erstellen

```
nano /root/firefly3/docker-compose.yml
```

Inhalt

services:

app:

image: fireflyiii/core:latest
hostname: app
container_name: firefly_iii_core
restart: always

volumes:

- ./firefly_iii_upload:/var/www/html/storage/upload

env_file: .env

networks:

- firefly_iii

ports:

- 8080:8080

depends_on:

- db

import:

image: benkl/firefly-iii-fints-importer

volumes:

- ./data/configurations:/app/configurations

ports:

- 8081:8080

networks:

- firefly_iii

db:

image: mariadb:10.5
hostname: db
container_name: firefly_iii_db
restart: always

env_file: .env

networks:

- firefly_iii

volumes:

- ./firefly_iii_db:/var/lib/mysql

cron:

#

To make this work, set STATIC_CRON_TOKEN in your .env file or as an environment variable

The STATIC_CRON_TOKEN must be *exactly* 32 characters long

#

```
image: alpine
restart: always
container_name: firefly_iii_cron
env_file: .env
command: sh -c "
  apk add tzdata && \
  ln -fs /usr/share/zoneinfo/$$TZ /etc/localtime && \
  echo \"0 3 * * * wget -qO- http://app:8080/api/v1/cron/$$STATIC_CRON_TOKEN;echo\"
  | crontab - && \
  crond -f -L /dev/stdout"
networks:
  - firefly_iii
depends_on:
  - app

nginx:
  image: nginx:stable
  container_name: nginx-proxy
  volumes:
    - ./nginx-proxy.conf:/etc/nginx/nginx.conf:ro
    - ./nginx/ssl:/etc/nginx/ssl
  ports:
    - "80:80"
    - "443:443"
  depends_on:
    - app
  networks:
    - firefly_iii
  restart: always

networks:
  firefly_iii:
    driver: bridge
```

Der ertse start kann ein bisschen dauern bis zu ca 3 minuten. Einfach in den logs beobachten.
Aber erstmal starten

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

Nun in die logs reinschauen

```
docker-compose logs app
```

Ausgabe zum schluss:

```
firefly_iii_core | FireflyIII\Console\Commands\Upgrade\UpgradesDatabase::callInitialCommands()
firefly_iii_core |
firefly_iii_core | [✓] Encryption keys have been created, nice!
firefly_iii_core | [2025-09-02 17:58:31] production.ERROR: SQLSTATE[HY000] [2002] php_network_getaddresses:
getaddrinfo for db failed: Name or service not known (Connection: mysql, SQL: select * from `configuration`
where `name` = db_version and `deleted_at` is null and `configuration`.`deleted_at` is null limit 1)
firefly_iii_core | [2025-09-02 17:58:31] production.ERROR: SQLSTATE[HY000] [2002] php_network_getaddresses:
getaddrinfo for db failed: Name or service not known (Connection: mysql, SQL: select * from `configuration`
where `name` = ff3_version and `deleted_at` is null and `configuration`.`deleted_at` is null limit 1)
firefly_iii_core | [i] Updated version.
firefly_iii_core | [✓] No security alerts for version 6.3.2
firefly_iii_core |
firefly_iii_core |
firefly_iii_core |      _____
firefly_iii_core | | ____()  /_||  |  |  |  |
firefly_iii_core | | |  _ _ _ _ | | |  _  | | | |
firefly_iii_core | | _|||'_/_\ _||| | | | | |
firefly_iii_core | | | | | | /| | | | |  | | | | |
firefly_iii_core | | |  | | | \_ | | | | | \, |  |  |  |  |
firefly_iii_core |      _/ |
firefly_iii_core |      |_/
firefly_iii_core | "Doesn't look like anything to me."
firefly_iii_core |
firefly_iii_core | +-----+
firefly_iii_core | |
firefly_iii_core | | Thank you for installing Firefly III, v6.3.2! |
firefly_iii_core | | There are no extra installation instructions. |
firefly_iii_core | | Firefly III should be ready for use. |
firefly_iii_core | |
firefly_iii_core | | Did you know you can support the development of Firefly III? |
firefly_iii_core | | You can donate in many ways, like GitHub Sponsors or Patreon. |
firefly_iii_core | | For more information, please visit https://bit.ly/donate-to-Firefly-III |
firefly_iii_core | |
firefly_iii_core | +-----+
firefly_iii_core | [02-Sep-2025 17:58:33] NOTICE: fpm is running, pid 385
firefly_iii_core | [02-Sep-2025 17:58:33] NOTICE: ready to handle connections
firefly_iii_core | ☐ NGINX + PHP-FPM is running correctly.
```

Nun Konto erstellen über <https://ip>



Firefly III

Neues Benutzerkonto anlegen

E-Mail Adresse



Passwort



Passwort (wiederholen)



Passwortsicherheit überprüfen [?](#)

Register

[Ich möchte mich anmelden](#)

[Passwort vergessen](#)

Nach dem Login ein Bankkonto anlegen.

Pflichtfelder

Name

N26 Bank

Währung

Euro (€)



Dies ist die Standardwährung für dieses Konto.

Fertig.

Bankkonto Importer Konfigurieren:

Wir haben in unserem Docker setup, den Container für Bankabgleich gleich mit eingebaut.
Die Konfiguration ist aufzurufen über <http://ip:8081>

Choose data source

Configuration

Manually fill out the configuration form

Choose a method to configure the importer. You can either select a configuration file that you created previously, or you can use the configuration form.

Submit

Nun die Bankdaten ausfüllen:

URL rausbekommen und Bankunterstützung:

Hier eine [Liste aller Banken mit FinTS-Zugang](#)

Die URL bekommen wir mittels einen python tools raus Namens German Bank FinTS Url Finder:
ist per pip zu installieren

PIP Linux:

```
sudo apt install python3.11-venv
mkdir fintsurl
cd fintsurl
python -m venv .
source bin/activate
pip3 install fints-url
```

PIP Windows

```
pip install fints-url
oder
pip3 install fints-url
```

Benutzung:

-b ist die BLZ zum beispiel ing Diba

```
fints-url -b 50010517
```

Ausgabe:

```
fints-url -b 50010517  
https://fints.ing.de/fints
```

Nun brauchen wir noch den Access token aus dem Profil

Profil info@hacker-net.de

Einstellungen Kommandozeilen-Authentifizierungsschlüssel **OAuth** Daten löschen und vernichten

OAuth-Clients Neuen Client erstellen

Sie haben noch keine OAuth-Clients erstellt.

Wenn Sie einen externen Authentifizierungsanbieter wie Authelia verwenden, funktionieren OAuth Clients nicht. Sie können ausschließlich persönliche Zugriffstoken verwenden.

Neuen Client erstellen

Persönliche Zugangs-Tokens Neuen Schlüssel erstellen

Sie haben keine persönlichen Zugangsschlüssel erstellt.

Neuen Schlüssel erstellen

Nun namen vergeben create anklicken

Schlüssel erstellen

×

Name

importer|

Schließen

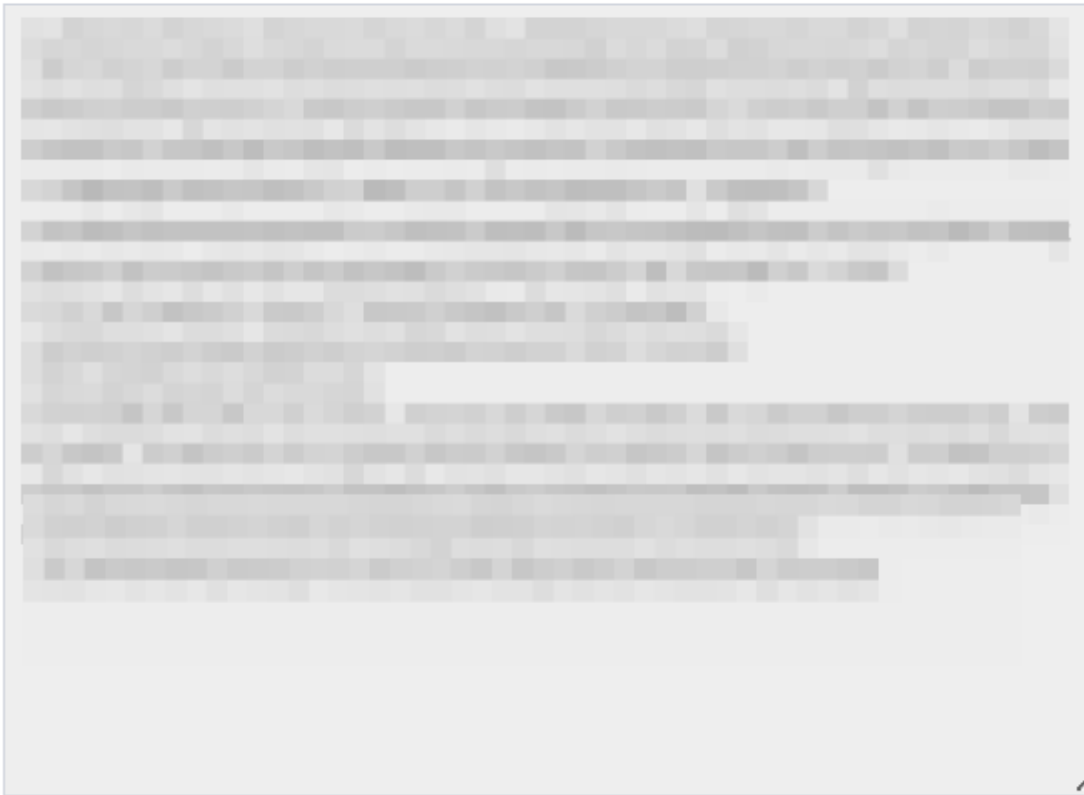
Create

Der Token wird nur einmal angezeigt also kopieren und gut wegpacken

Persönlicher Zugangs-Token



Hier ist Ihr neuer persönlicher Zugangsschlüssel. Dies ist das einzige Mal, dass er angezeigt wird, also verlieren Sie ihn nicht! Sie können diesen Token jetzt verwenden, um API-Anfragen zu stellen.



Schließen

Die URL von fierfly aber im Dockernetz hier

`http://app:8080`

Nun können wir die Daten ausfüllen und auf Submit klicken
DieURL für Dinaba hat sich geändert : <https://fints.ing.de/fints>

Enter account data

Bank Data

URL

`https://fints.ing-diba.de/fints`

URL to your banks FinTS api, e.g. `https://banking-dkb.s-fints-pt-dkb.de/fints30`

If you cannot find the correct URL for your bank, try out [this tool](#).

Do not add a trailing slash to the URL.

Bank-Code (BLZ)

`50010517`

E.g. 12030000

Username

`[REDACTED]`

Password

`*****`

This is NOT the PIN of your bank card!

Two-Factor Method

None (for ING-DiBa)

Choose an option that you know works for your bank.

Firefly III Data

Firefly III URL

`http://app:8080`

Input without a trailing /

Firefly III Personal Access Token

`[REDACTED]`

Regular Expression for Description Match

Match RegEx

If the transaction description matches this RegEx, then it should be replaced.

Any valid [PHP regex](#) will work.

Replace RegEx

You probably want to use [back references](#) here.

Submit

Nun wird gefragt mit welchem Bankkonto verknüpft werden soll.

Wenn im Online Banking mehrere Konten sind, das auswählen und dann das Konto in Firefly auswählen und den Zeitraum

Collect Statement anklicken.

WICHTIG! Das Enddatum merken, dann ein Tag danach wird das Start Datum fürs nächste mal!

Choose an account to import from and to

Bank Account

Firefly Account

Import start date

Import end date

Nun wird ein Auschnitt angezeigt und dann auf import klicken.

Your transactions

The following transactions will be imported to Firefly III.

Import transactions to FireflyIII

-4.9€ to ING
Kontofuehrungsentgelt 05/2025
-50€ to [REDACTED]
Fahrtkosten Werkstatt
-10€ to [REDACTED]
[REDACTED]
-1.49€ to ING
[REDACTED]
-4.9€ to ING
Kontofuehrungsentgelt 06/2025
[REDACTED]
[REDACTED]

Import erfolgreich dort ist ein Meega langerschlüssel den abspeichern.
Der kann dazu benutzt werden, damit beim nächsten start nicht wieder alles neu gemacht werden muss

Import finished

16 transactions have been sent to Firefly III.

You had to grant access to this importer using your TAN-mode. To use this granted access on subsequent imports, you can use this persistence string. It should be treated as a secret and can be used on the ison configuration file.

[REDACTED] jI10iJGaHBcU2VnbwUdFxISUJjQVxISUJQQXYzIjox0ntp0jA7czo1

Go back to start