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Formata Tracker

Installation and Administration Guide

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About this document

This guide covers installation, initial configuration, verification, updating, backup and restore, removal and troubleshooting of Formata Tracker version 1.0 on the customer's server.

It is written for an administrator experienced with Linux and PostgreSQL. Commands are given for Ubuntu 24.04 LTS; the directories `/opt/formata/core`, `/opt/formata/crm-app` and `/opt/formata/tracker-app` are examples and may be changed.

1. General information

The program runs on the Formata platform server version 1.7. It consists of:

- the server part of the platform: the `crm_server` executable, the web client (the `web` directory) and the system database schema `sql/schema.sql`;
- modules of the Formata CRM application that the tracker uses as common shell components (the `crm-app` directory);
- the tracker application (the `tracker-app` directory): SQL files (the `sql` directory), the apply script `apply.sh`, the start script `run.sh` and the stop script `stop.sh`, a sample service file `crm-tracker.service`, the demonstration data reset script `reset_demo.sh`, the check script `check.sh` and the end-to-end test `t_tracker.py`.

Tracker data is stored in a separate PostgreSQL schema (by default `tracker` in the `crm_fusion` database). The server reaches it through the `search_path` parameter of the connection string, so several Formata applications can work in one database in different schemas.

Default names:

Object	Default name
Database	`crm_fusion`
Tracker schema	`tracker`
Database role that owns the tables	`crm`
Database role for scripts	`crm_script`
systemd service (example)	`crm-tracker`
TCP port	set by the `CRM_PORT` parameter

2. Environment requirements

- Operating system: Ubuntu 24.04 LTS or Ubuntu 22.04 LTS, administrator rights (sudo), access to the package repositories during installation.
- Hardware for a pilot installation: 2–4 CPU cores, 4–8 GB of RAM; disk space according to the size of the database and attachments.
- PostgreSQL as shipped with the operating system (version 16 on Ubuntu 24.04) with the `pgcrypto` extension.
- Build tools and libraries of the Formata platform: a C++17 compiler (GCC), CMake 3.20 or later, pkg-config, libpqxx, nlohmann-json, cpp-httplib, pybind11, Python 3 headers, hiredis, OpenSSL. The packages are installed by the platform installation script, except `libhiredis-dev` and `libssl-dev`, which must be installed beforehand.
- The `psql` client on the server from which the application is applied.

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- A reverse proxy with TLS (for example nginx) for user access over HTTPS.
- HTTPS access to the vendor's account server `accounts.new-imobile.com` for licence activation and checks.
- For the Gitea integration: network access from the Gitea server to the tracker address.
- Workstations: a Chromium-based browser (Google Chrome, Microsoft Edge).

3. Installation

3.1. Installing the Formata platform

1. Unpack the server part of the platform into `/opt/formata/core`, the CRM modules into `/opt/formata/crm-app` and the tracker application into `/opt/formata/tracker-app`.
2. Install the packages that the installation script does not cover, and run the script:

```
sudo apt-get update
sudo apt-get install -y libhiredis-dev libssl-dev
cd /opt/formata/core
sudo CRM_PREFIX=/opt/formata/core bash install.sh
```

The script installs operating-system packages, creates the `crm` role and the `crm_fusion` database, builds the executable `build/crm_server` and creates the `formata` operating-system account. The steps of the script are described in detail in the Formata platform administration guide.

1. Enable the `pgcrypto` extension, change the password of the `crm` role and create the role for scripts:

```
sudo -u postgres psql -d crm_fusion -c "CREATE EXTENSION IF NOT EXISTS pgcrypto"
sudo -u postgres psql -c "ALTER ROLE crm PASSWORD '<owner-password>'"
sudo -u postgres psql -v pw="'<script-password>'" -f /opt/formata/core/deploy/role_bootstr
    ap.sql
```

> **Note.** The password that the platform installation script sets for the `crm` role is publicly known. Change it before going into production.

1. The platform service `crm-fusion` created by the script works with the default schema. If the server is meant for the tracker only, stop and disable that service: `sudo systemctl disable --now crm-fusion`.

3.2. Applying the tracker application

```
cd /opt/formata/tracker-app
TRK_PGDB=crm_fusion TRK_PGUSER=crm TRK_PGPASSWORD='<owner-password>' \
  TRK_SCHEMA=tracker CRM_APP_DIR=/opt/formata/crm-app \
  CRM_CORE_SCHEMA=/opt/formata/core/sql/schema.sql \
  TRK_ADMIN_PW='<admin-password>' bash apply.sh
```

The script creates the schema and applies to it the platform system schema, the required CRM modules and the tracker SQL files (tables, functions, default dictionaries, forms, scripts, menu, translations), then grants the `crm_script` role rights on the objects of the schema. At the end it prints the number of forms, queries, scripts, projects, issues and wiki pages. The script can be run again: dictionary entries are matched by code, and the administrator's changes to the default dictionaries are kept.

Script variables:

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Variable	Default	Purpose
`TRK_PGDB`	`crm_fusion`	Database name
`TRK_PGHOST`, `TRK_PGPORT`	`127.0.0.1`, `5432`	PostgreSQL server address
`TRK_PGUSER`, `TRK_PGPASSWORD`	`crm`, `crm`	Owner role and its password
`TRK_SCHEMA`	`tracker`	Tracker schema
`CRM_APP_DIR`	`../crm-app`	Directory of the CRM modules
`CRM_CORE_SCHEMA`	—	Path to the platform's `sql/schema.sql`
`TRK_ADMIN_PW`	—	Password of the `admin` account (stored as a hash)
`TRK_DEMO`	`0`	`1` loads demonstration data
`TRK_DEMO_LANG`	—	`en` loads the demonstration data in English

Note. Demonstration data (`TRK_DEMO=1`) is loaded into an empty schema only: if the schema already has projects, loading is skipped. The data includes eight employee accounts; the password of each equals its login. Do not load demonstration data on a production installation.

3.3. Service parameters

Create the directories for attachments and service files, and a parameter file readable by root only:

```
sudo mkdir -p /var/lib/formata/tracker/uploads /var/lib/formata/tracker/aot /etc/formata
sudo chown -R formata:formata /var/lib/formata/tracker
sudo touch /etc/formata/tracker.env
sudo chmod 600 /etc/formata/tracker.env
```

Contents of `/etc/formata/tracker.env`:

```
CRM_PORT=8106
CRM_DB=host=127.0.0.1 dbname=crm_fusion user=crm password=<owner-password> options='-csear
    ch_path=tracker,public'
CRM_SCRIPT_DB=host=127.0.0.1 dbname=crm_fusion user=crm_script password=<script-password>
    options='-csearch_path=tracker,public'
CRM_WEB=/opt/formata/core/web
CRM_AOT_DIR=/var/lib/formata/tracker/aot
CRM_UPLOAD_DIR=/var/lib/formata/tracker/uploads
CRM_DB_POOL=4
CRM_PY_WORKERS=2
CRM_INSTANCE=tracker
```

The `search_path` parameter in the connection string is mandatory: the server uses it to find the tracker tables. The last element, `public`, is needed for the `pgcrypto` extension. The server keeps its service files, including the licence state, in the `CRM_AOT_DIR` directory.

The service file `/etc/systemd/system/crm-tracker.service` (the `crm-tracker.service` file in the kit is a sample):

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```
[Unit]
Description=Formata Tracker
After=network-online.target postgresql.service
Wants=network-online.target

[Service]
Type=simple
User=formata
WorkingDirectory=/opt/formata/tracker-app
EnvironmentFile=/etc/formata/tracker.env
ExecStart=/opt/formata/core/build/crm_server
Restart=on-failure
RestartSec=5

[Install]
WantedBy=multi-user.target
```

```
sudo systemctl daemon-reload
sudo systemctl enable --now crm-tracker
```

3.4. Reverse proxy

The server accepts requests over HTTP only. Users reach it through a reverse proxy with TLS. Example for nginx:

```
server {
    listen 443 ssl;
    server_name tracker.example.org;
    ssl_certificate     /etc/ssl/certs/tracker.example.org.pem;
    ssl_certificate_key /etc/ssl/private/tracker.example.org.key;
    client_max_body_size 256m;

    location = /metrics { deny all; }
    location / {
        proxy_pass http://127.0.0.1:8106/;
        proxy_http_version 1.1;
        proxy_set_header Host $host;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
        proxy_buffering off;
        proxy_read_timeout 3600s;
    }
}
```

Buffering is switched off and the read timeout is long because the notification channel keeps its connection open.

4. Initial configuration

1. Activate the licence. The licence state is shown on the sign-in page below the sign-in box. Enter the email address of the licence owner in Licence owner email and click Send code, then enter the code you receive in Code from the email and the licence key from your account at https://new-imobile.com, and click Activate. Without activation the program runs in trial mode for 30 days.
2. Sign in as `admin` with the password set by the `TRK_ADMIN_PW` variable. In Form designer, under App shell → Login screen, clear Show demo-login hint and fill in Brand / title and Tagline.
3. In Employees, create the employees' accounts; give the tracker administrator role to those who configure the tracker and the project lead role to those who create projects and wiki spaces.

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4. Describe the organisational structure in Departments, Teams and Access groups.
5. Review the supplied workflows, issue types, work types and filter templates; change them or add your own if needed.
6. Create projects, grant access (a project role for an employee, an access group or a team) and create wiki spaces.

4.1. Gitea integration

1. In Link with Gitea, switch the integration on. The webhook secret is generated automatically and shown in this section (the section is available to the tracker administrator only); the New secret button replaces it.
2. In the Gitea repository settings, add a webhook: URL `https://<tracker address>/api/inbound/gitea`, content type `application/json`, the secret from the tracker, events: push, branch creation and deletion, pull request.
3. After the first event the repository appears, enabled, in the tracker's list of repositories; link it to a project or disable it if needed.
4. In the workflow, set the "event → status" rules (Gitea automation).

The tracker sends nothing to Gitea and stores no Gitea credentials.

5. Verification

- `curl -s http://127.0.0.1:8106/healthz` — the service responds and reports the build version of the platform.
- Sign in as `admin` and open Issues, Board, Wiki spaces and Dashboards — the forms open without errors.
- In Issues, run the query string `resolved is empty` — the list of open issues is shown.
- For a full check on a separate temporary schema, use the `check.sh` script: it applies the application from scratch twice (to check re-application), starts a temporary server instance, checks the form references, the permissions of the script role and the platform's System check, runs the end-to-end test `t_tracker.py` and then drops the temporary schema.

6. Updating

There is no automatic update. A new version is delivered as a new set of files:

1. Back up the database and the attachment directory.
2. Replace the platform files and, if needed, rebuild the executable with the platform installation script.
3. Replace the `tracker-app` directory and run `apply.sh` again with the same variables, without `TRK_DEMO`.
4. Restart the service: `sudo systemctl restart crm-tracker`.

Re-applying updates the tracker's forms, queries, scripts, functions and translations. Changes made in the designer to the stock tracker forms and scripts are replaced by the vendor's version; the customer's own forms and scripts, the dictionaries and the data are kept.

7. Backup and restore

The program has no built-in backup tools. Back up the tracker schema and the attachment directory:

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```
pg_dump -h 127.0.0.1 -U crm -d crm_fusion -n tracker -Fc -f tracker-$(date +%F).dump
tar -czf tracker-uploads-$(date +%F).tgz -C /var/lib/formata/tracker uploads
```

The platform system tables (user accounts, forms, dictionary) are in the same schema and are included in the backup. Restore with the service stopped:

```
sudo systemctl stop crm-tracker
psql -h 127.0.0.1 -U crm -d crm_fusion -c "DROP SCHEMA tracker CASCADE"
pg_restore -h 127.0.0.1 -U crm -d crm_fusion tracker-<date>.dump
sudo tar -xzf tracker-uploads-<date>.tgz -C /var/lib/formata/tracker
sudo systemctl start crm-tracker
```

After the restore, run `psql … -f sql/90_grants.sql` again from the `tracker-app` directory with the `search_path` of the tracker schema to give the `crm_script` role its rights back.

8. Removal

```
sudo systemctl disable --now crm-tracker
sudo rm /etc/systemd/system/crm-tracker.service /etc/formata/tracker.env
psql -h 127.0.0.1 -U crm -d crm_fusion -c "DROP SCHEMA tracker CASCADE"
sudo rm -rf /var/lib/formata/tracker /opt/formata/tracker-app
```

The Formata platform and the database are removed as described in the platform administration guide.

9. Troubleshooting

- Service journal: `journalctl -u crm-tracker -n 200`.
- Form script errors and access denials are written to the platform action log (the `sys_audit` table).
- System check in Form designer checks forms, queries and scripts for errors in their definitions.

Typical failures:

Symptom	Cause and action
Tracker forms do not open; the server reports `нет запроса` (no such query)	The `CRM_DB` connection string has no `search_path` with the tracker schema — add it and restart the service
Nobody except the administrator can sign in	The licence is not activated or has expired, or there are more active accounts than paid seats — check the licence state on the sign-in page
The system is read-only	The server has not reached the vendor's account server for longer than the permitted period — check access to `accounts.new-imobile.com`
A form script fails with a table access error	The `crm_script` role has no rights on new objects — run `apply.sh` again
Gitea events do not arrive	The integration is switched off, the secret does not match (response 401 or 403), or the Gitea server cannot reach the tracker address
Notifications do not appear at once	The reverse proxy buffers the notification channel — switch buffering off

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Document history

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