Lewe Labs

LeweAuto

LeweAuto is a web-based fleet management application for vehicle data, fueling, charging and service history.

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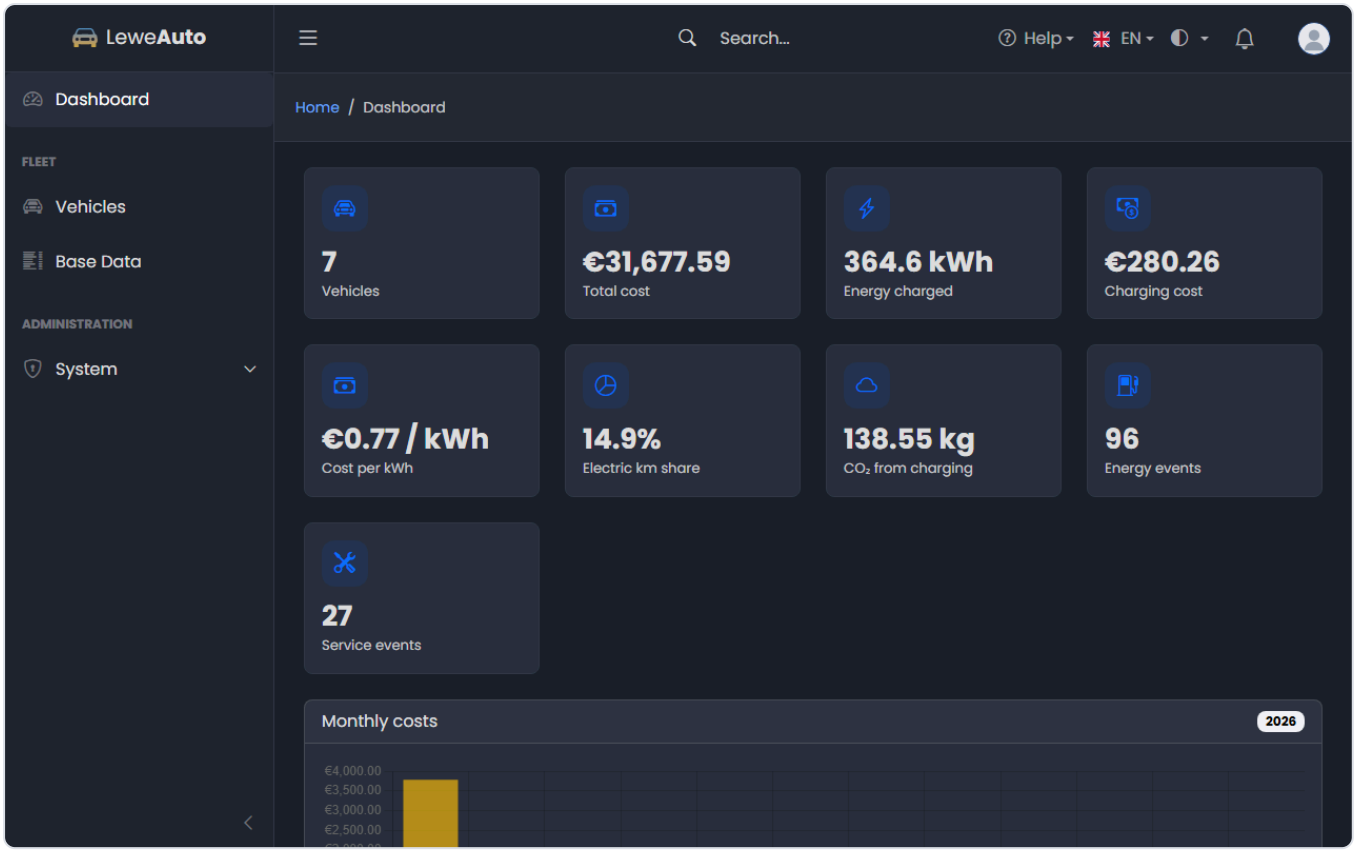
LeweAuto User Manual



LeweAuto keeps vehicle master data, assignments and public visibility in one place. Drivers and fleet users record fueling, charging, service and fixed-cost events. Agents manage vehicles and reference data. Administrators manage accounts, roles, groups, settings and the license.

Features

- **Vehicle records** with manufacturer, model, plate, VIN, body, color, drive, fuel type, dates, prices and notes
- **Electric vehicles** with battery capacity, state of health, range, consumption, charging power, connectors and equipment
- **Fueling and charging events** with consumption, price, station, provider, tariff, state of charge, charging losses and temperature
- **Service events** with workshop, cost and optional battery health readings
- **Fixed costs** for insurance, taxes, leasing, wallboxes and other recurring or one-off costs, including income such as a THG premium

- **Vehicle dashboards** with cost, consumption, charging and battery-health charts for the current year and all time
- **Fleet dashboard** with annual cost, energy, electric distance share and CO_2 estimates
- **Documents** attached to a vehicle, such as invoices, reports and photos
- **Vehicle history PDF** and an **ADAC purchase contract** prefilled with the vehicle data
- **Access control** with roles, groups, granular permissions, assignments and public visibility
- **Local, LDAP and OIDC login** with TOTP two-factor authentication
- **Audit log**, notification email and four interface languages (English, German, Spanish and French)
- **Dark and light mode**, configurable units and an optional license-managed trial

Who is this manual for?

You are...	Start here
A driver or fleet user	Quick Start Guide and User Guide
A fleet agent	Vehicles and Base Data
An administrator	Administration and License

> *i* What you can see and do depends on your role and the permissions granted to it. If a menu entry or button described in this manual is missing for you, ask your administrator.

Where to find things

- **Dashboard** - annual fleet statistics and monthly costs
- **Vehicles** - search the fleet, open a vehicle and record events
- **Base Data** - manufacturers, countries, drives, fuel types, service types, fixed-cost types, charging providers and tariffs
- **Administration** - users, groups, roles, permissions, settings and the audit log

- **Profile** - your account, avatar, language, theme, units and security

The interface uses relative links and works both at a domain root and in a sub-folder. The language, theme and units can be set per user; everything else is managed by an administrator.

License

LeweAuto is proprietary, source-available software by Lewe Labs. The license terms are in the `LICENSE` file of the installation. The application itself shows its current license state in **Settings** → **License**; this page explains what the states mean.

Trial and activation

Without a license key the installation runs as a **14-day trial**. Everything works during the trial, but administrators see a banner with the remaining days.

To activate LeweAuto:

1. Open **Settings** → **License**
2. Enter the license key and click **Save key**
3. Click **Activate** to register the domain of this installation with the license server

If the license allows several installations, every activation uses one place. When the maximum is reached, the oldest registration is replaced. Use **Deregister** before moving the installation to another server; the place then becomes free again. **Check now** asks the license server for the current state. This also happens automatically every 30 minutes.

> ⚠ The license is bound to the domain. An installation reached through another host name, for example `localhost` or an alias, is checked against that host and may show a different state.

License states

State	Meaning
Active	The license is valid for this installation.
Trial	No key yet; the 14-day trial is running.
Pending	The key is valid, but the domain is not registered yet. Activate it.
Expired	The license period is over. A 14-day grace period follows.
Blocked	The license was blocked. There is no grace period; the installation switches to limited mode.
Unregistered	The domain is not registered for this key.
Invalid	The license server rejected the key.
Unavailable	The license server could not be reached. The last known state stays in force.
Trial over	The trial has ended without a valid license.

When the license server is unreachable, LeweAuto fails open and keeps the last known state. A new check follows after five minutes.

Grace period and limited mode

If the license becomes invalid, unregistered, pending or expired, a **14-day grace period** starts. Everything still works, but administrators see a warning banner. When the grace period ends, the installation switches to **limited mode**.

In limited mode:

- The **audit log cannot be viewed** (entries are still written)
- **Self-registration** creates no accounts (the setting is kept)
- **Two-factor authentication cannot be set up** (existing factors keep working and `force_2fa` has no effect)

- **New uploads** of vehicle images, vehicle documents and avatars are refused (existing files are still served)
- No new records beyond these limits can be created:
  - **1 vehicle**
  - **10 fueling and charging events combined**, **10 service events** and **10 fixed costs**
  - **5 entries per base-data table**
  - **20 users without the Administrator role**

Existing records can still be edited and deleted. Nothing is lost: all features return as soon as a valid license is activated.

Locked installations

Set `LICENSE_LOCK=1` in the `.env` file to lock the installation instead of switching to limited mode. After an expired, blocked or trial-over state, only administrators can log in; everybody else sees the maintenance page. Use this when the installation must stop working without a license.

Where to manage the license

Administrators with the `manage_license` permission open **Settings** → **License**. The panel shows the product, customer, company, expiry date, registered installations and the last check. If the license server connection is not configured, the panel says that `LICENSE_SERVER` or `LICENSE_SECRET` is missing.

See Administration → License for the operational details.

Support

Before you ask

1. Check this manual, especially Login and Registration, Vehicles and Settings.
2. Ask your administrator whether your role or group is missing a permission.
3. Check the **About** page in LeweAuto for the installed version and its release information.

Contact

Your administrator configures the support address in **Settings** → **Application**. Use that address for account problems, missing access and questions about your installation.

You can also report reproducible software problems through GitHub Issues (https://github.com/glewe/leweauto/issues). Please include:

- The LeweAuto version from the **About** page
- What you did, what you expected and what happened
- The exact error message, if there is one
- Your browser and operating system

> ⚠ Never send passwords, license keys, two-factor secrets or personal vehicle data in a public issue.

Installation and upgrades

End users install and upgrade LeweAuto with the `INSTALL.md` file that ships with the distribution. Configuration lives in `.env.<target>` at the installation root. Keep `TWOFA_ENCRYPTION_KEY` safe and never change it after users have enrolled two-factor authentication.

The bundled `install.php` guides you through the database connection and writes the initial configuration. After an upgrade, follow the upgrade steps in `INSTALL.md`

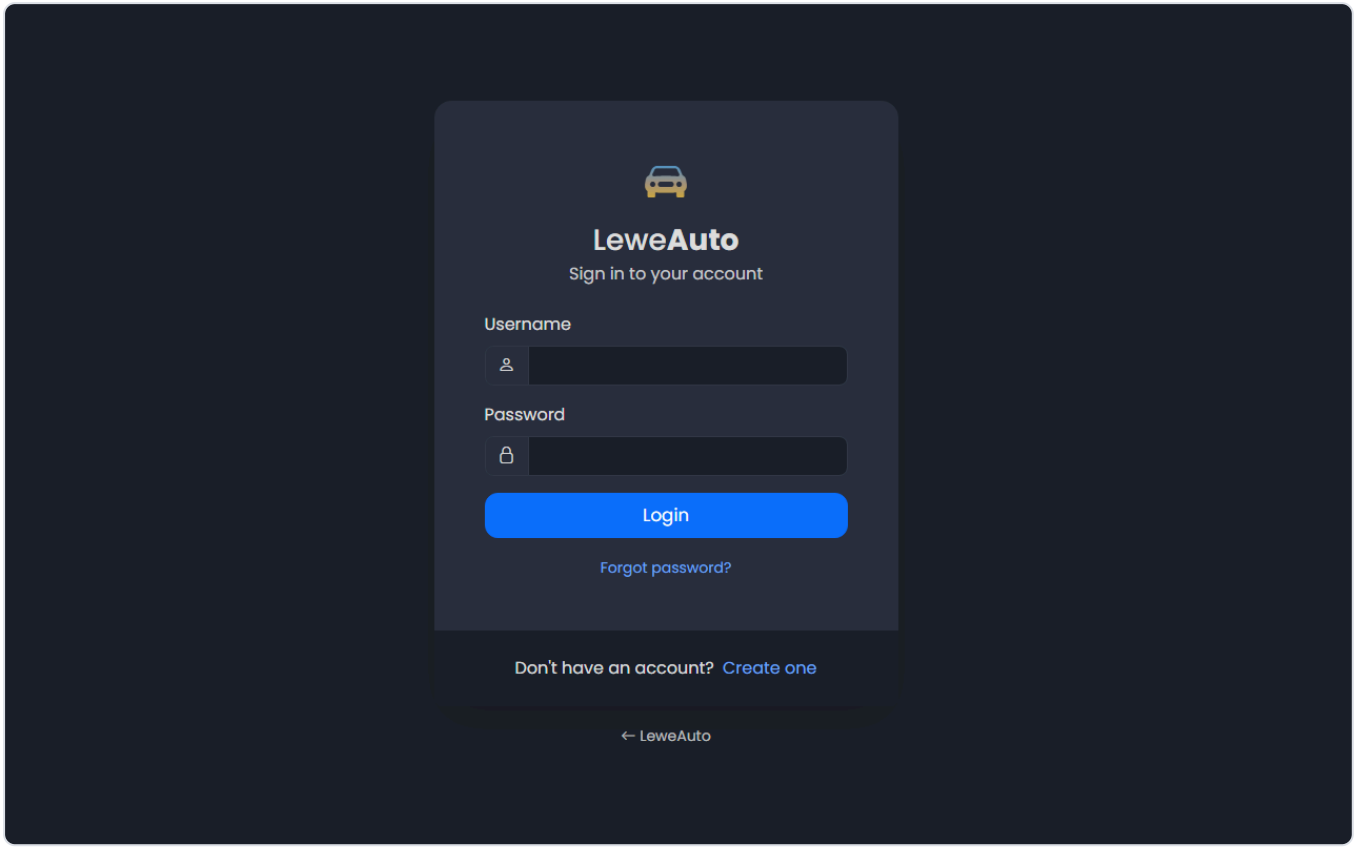
before you open the application.

Quick Start Guide

This guide takes you from the first login to a complete vehicle record in a few minutes.

1. Sign in

Open LeweAuto in your browser and sign in with your username and password. If you do not have an account, use **Create one** when self-registration is enabled, or ask your administrator.

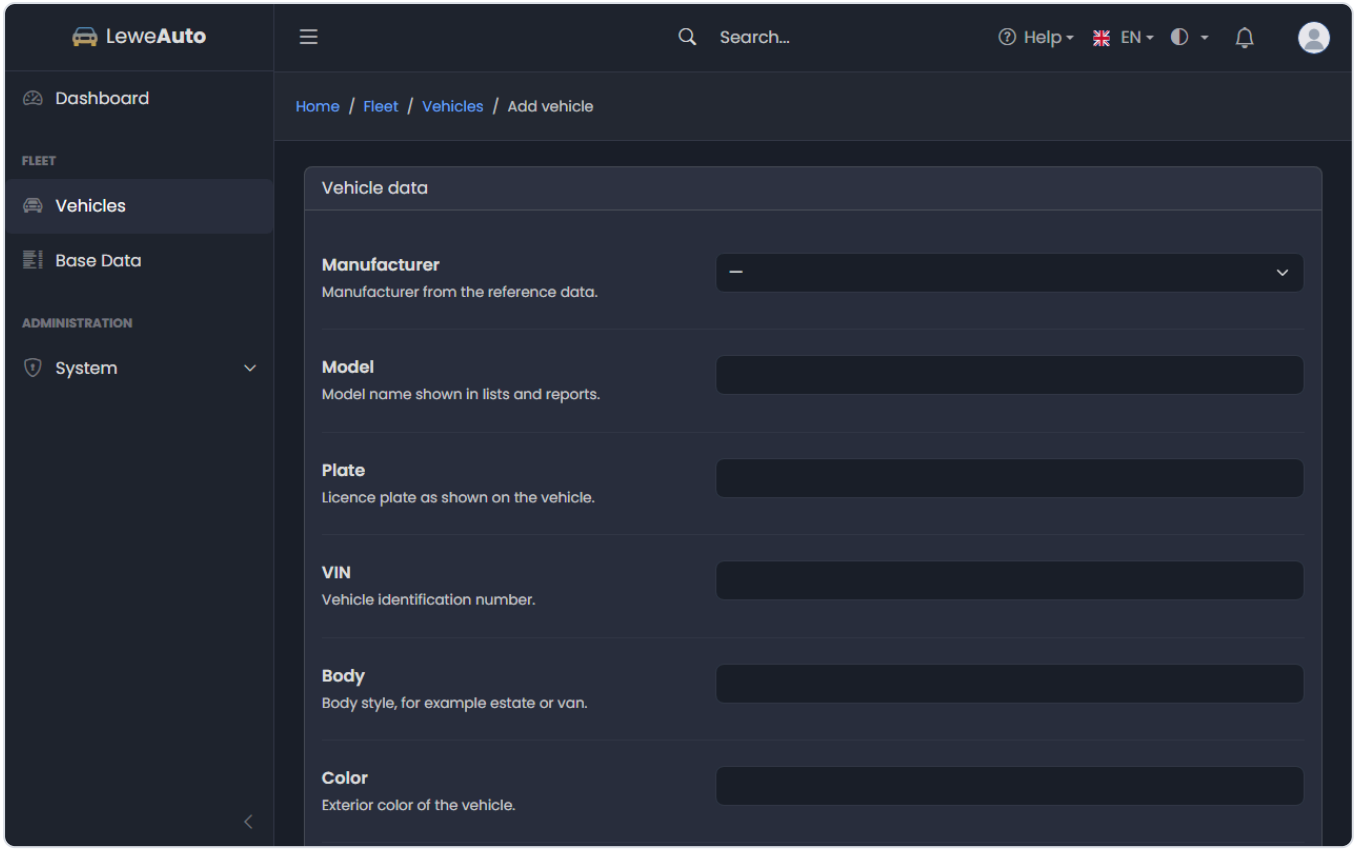


See Login and Registration. If your administrator requires a second factor, keep your authenticator app ready.

2. Add a vehicle

Open **Vehicles** in the sidebar and click **Add vehicle**. Select the manufacturer, enter the model and plate, and fill in as much of the vehicle data as you can. For an

electric vehicle, also enter the battery capacity, range and charging power.

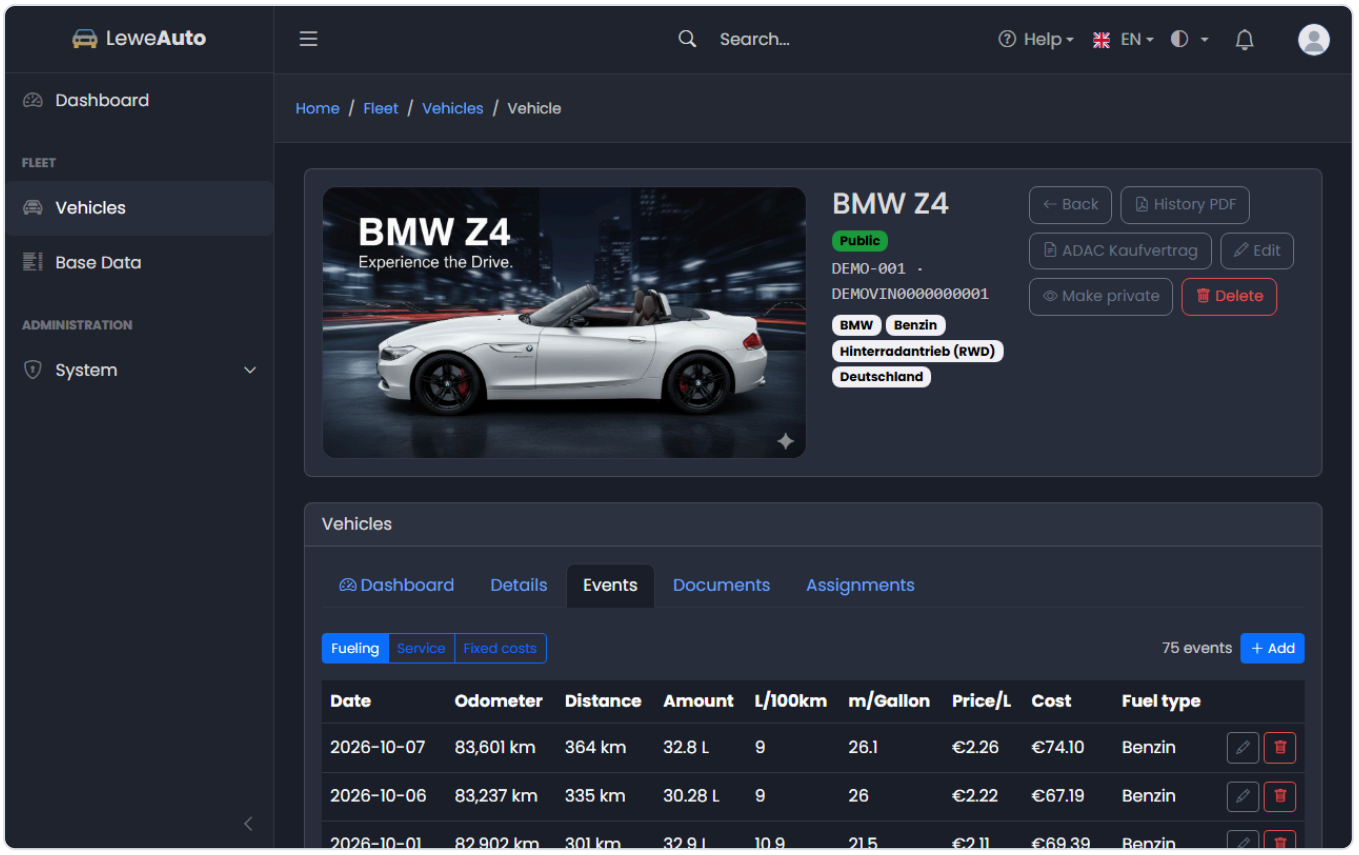


Save the vehicle. The vehicle detail page opens. See Create Vehicle.

3. Record your first event

Open the **Events** tab and choose the event type:

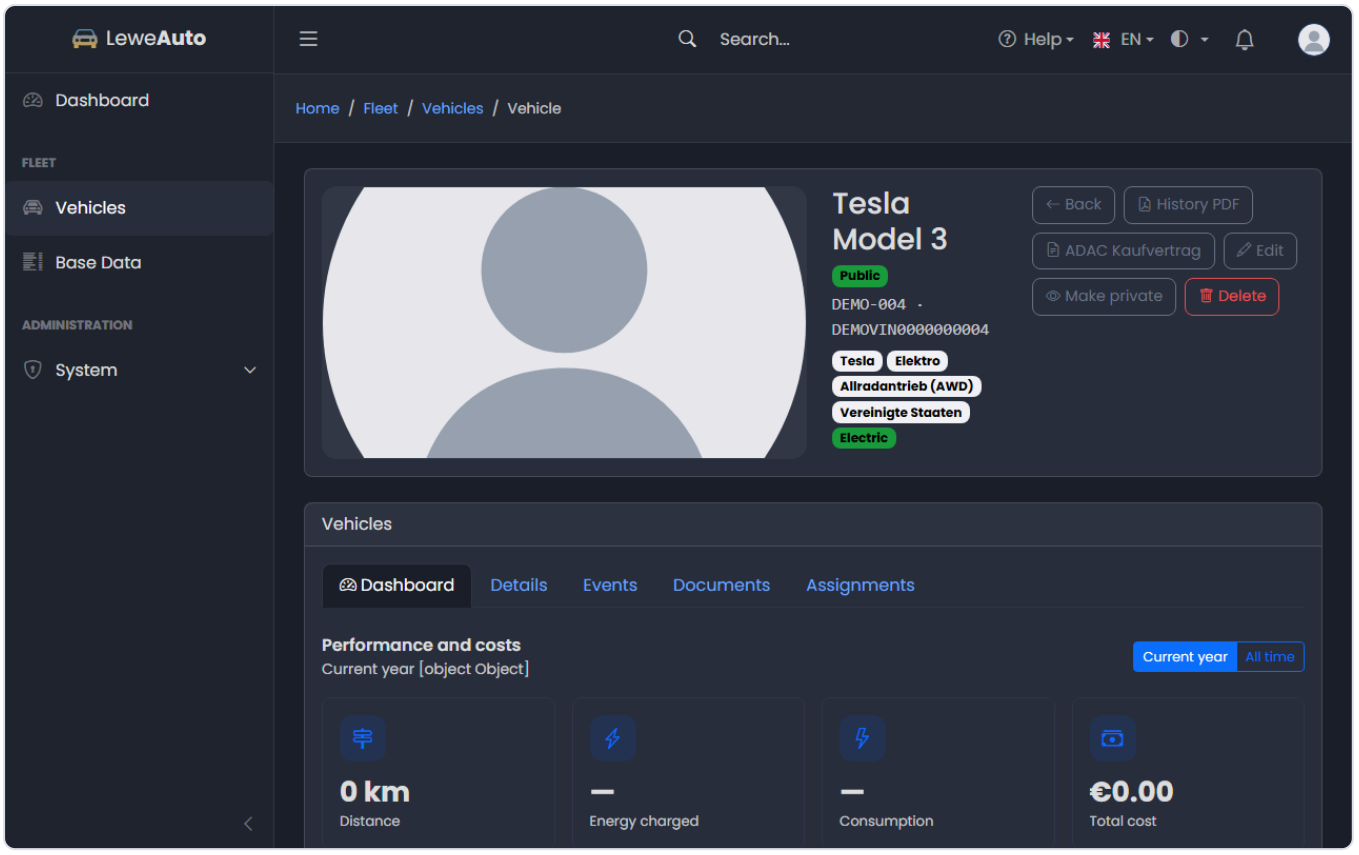
- **Fueling** for petrol, diesel, gas or other fuels
- **Charging** for electric energy, including provider, tariff and state of charge
- **Service** for inspections, repairs and battery checks
- **Fixed costs** for insurance, taxes, leasing and similar costs



Click **Add**, fill in the date, odometer and amount or cost and save. The vehicle dashboard and fleet dashboard update immediately. See Fueling Events and Charging Events.

4. Review the dashboards

Open a vehicle and use the **Dashboard** tab to see consumption, cost per distance, fixed costs and, for electric vehicles, charging statistics and battery health.



The fleet **Dashboard** aggregates all vehicles you may see for the current year and compares monthly costs. See Vehicle Dashboard and Dashboard.

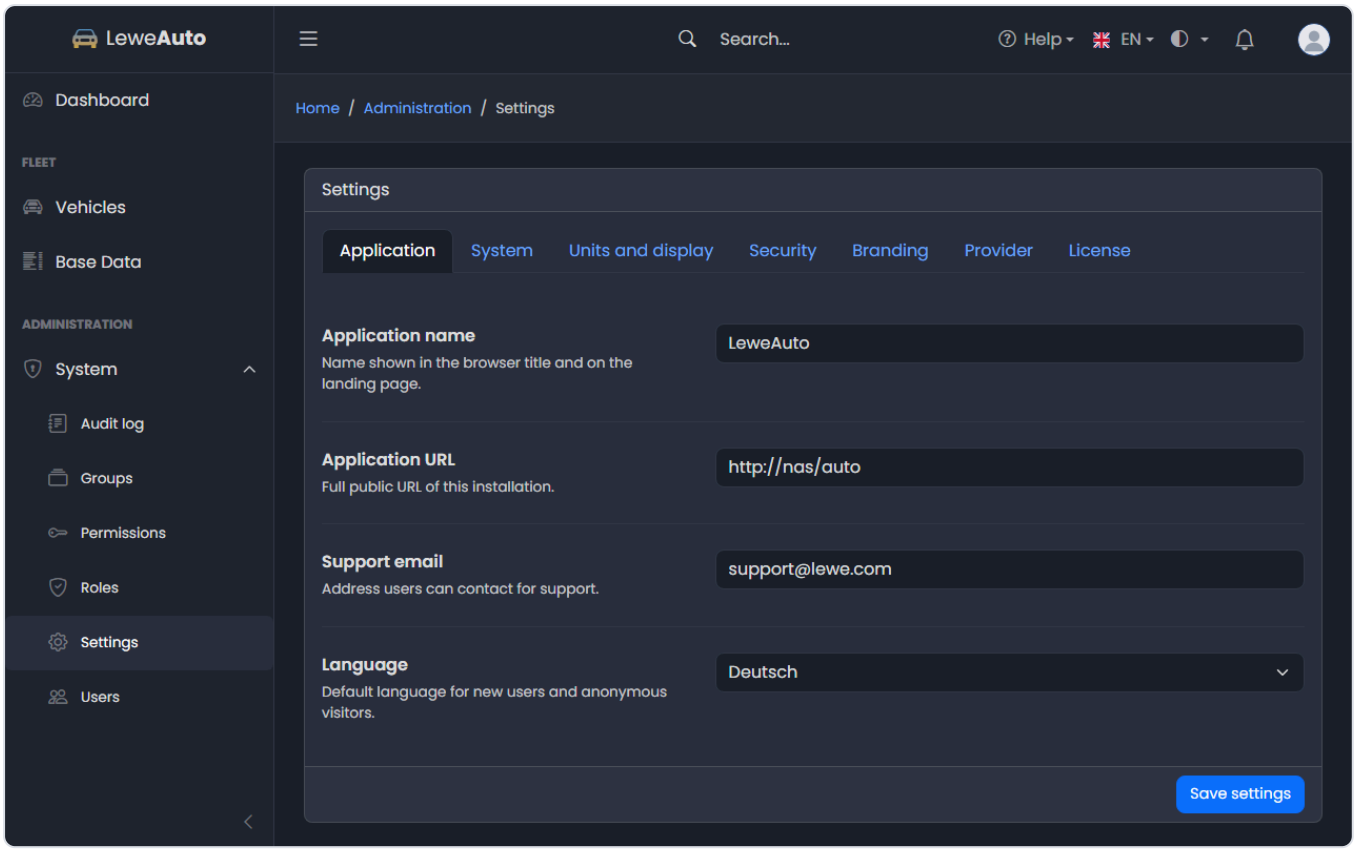
5. For administrators: set up the system

1. Settings: application name, URL, language, units, security, branding and license
2. Users, Roles and Permissions: who may do what
3. Groups: organise users and share vehicle access
4. Base Data: manufacturers, countries, drives, fuel types and other selection lists
5. License: activate the installation and check its state

> Vehicle visibility and edit rights are controlled by permissions, assignments and the public flag. A user with `view_vehicle` sees public vehicles and the vehicles assigned to them directly or through a group.

Administration

Administrators keep the installation running: they manage accounts, roles, groups and base data, configure the application and watch over the license and the audit log.



What lives where

Area	Purpose
System	Users, groups, roles, permissions, settings, audit log, license and authentication
Base Data	Manufacturers, countries, drives, fuel types, service types, fixed-cost types, charging providers and tariffs
Profile	Your own account, avatar, preferences and two-factor authentication

Who may administer what

The built-in **Administrator** role always holds every permission, including permissions added later. The **Agent** role manages vehicles and base data but not users, roles, settings or the license. The **User** role records events on assigned vehicles and can edit or delete only the events they created. The **Public** role represents an anonymous visitor and holds no permissions in the standard installation.

Custom roles and groups can add or remove individual permissions. See Permissions for the full list and the ownership rules that apply on top of permissions.

> The **Administration** section and its menu entries appear only for users with the matching permissions. In the built-in roles these are the Administrator role (everything) and the Agent role (Base Data). If you are missing a menu entry, your role or group lacks the permission for it. Ask an administrator rather than changing your own roles.

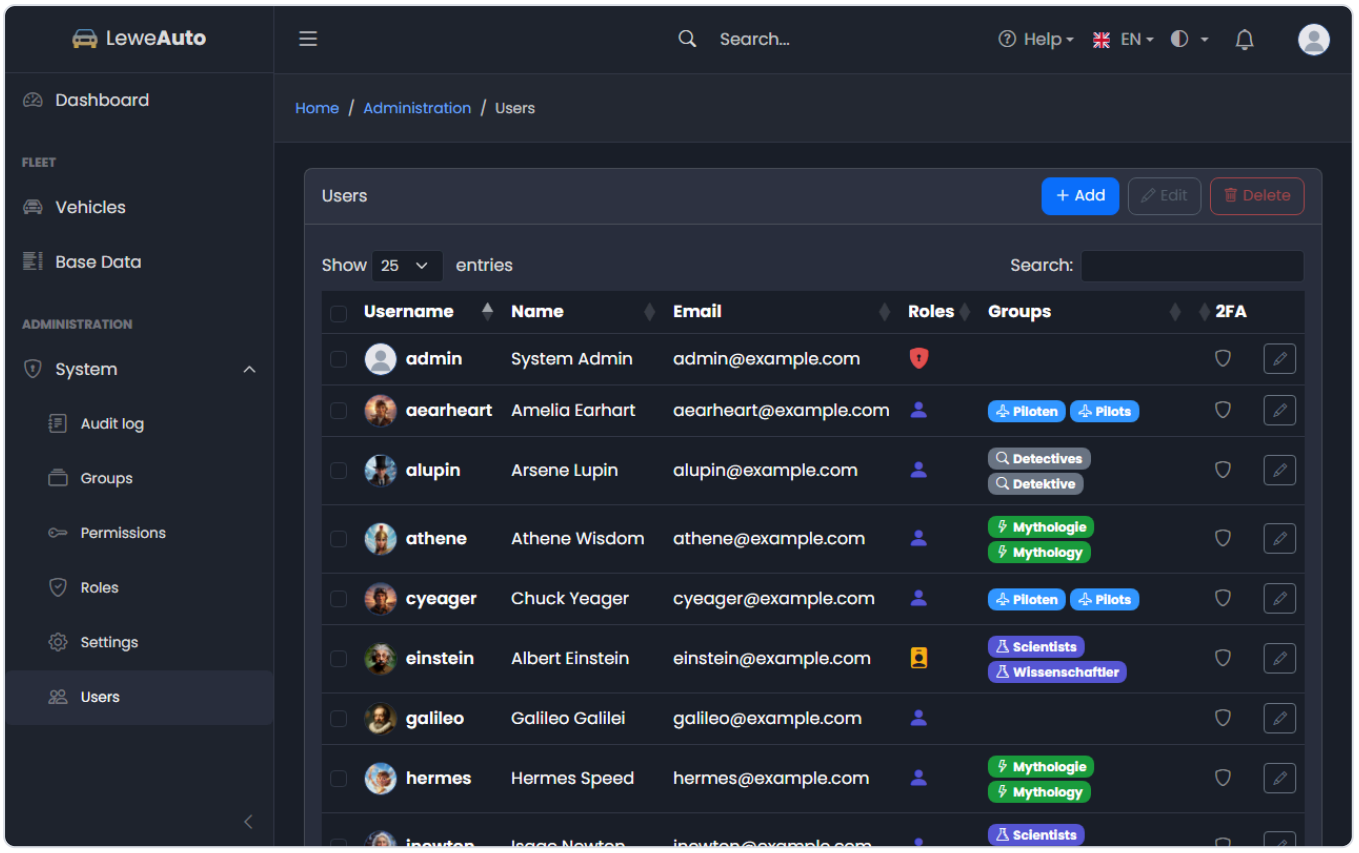
Typical setup order

1. Configure Settings: application name, URL, support email, language, timezone and units.
2. Add Base Data before you create vehicles and events, because the forms select from it.
3. Create Users, then Roles and Groups.
4. Assign vehicles to users and groups on the vehicle page or in the vehicle editor.
5. Activate the License and check the Audit Log.

> Keep at least one administrator account with a working password and two-factor method. The built-in `admin` account always authenticates against the LeweAuto database, even when LDAP or OIDC is enabled.

System

The System area is available to administrators. It groups accounts, access control, application-wide configuration and the security record.



Page	What it covers
Users	Create, edit and anonymise accounts; assign roles and groups
Roles	Built-in and custom roles and their permissions
Groups	Organise users, grant permissions and share vehicle access
Permissions	The building blocks behind roles and groups
Settings	Application, system, units, security, branding, provider and license
Audit Log	Search, inspect and export security-relevant events
License	Activate, check and deregister the installation
LDAP Authentication	Authenticate users against a directory server
OIDC Authentication	Single sign-on with an OpenID Connect provider

Access model

A user receives permissions from three sources:

1. **Roles** assigned directly to the user
2. **Groups** the user belongs to
3. The built-in **Administrator** role, which always holds every permission

The union of these permissions is what the user may do. On top of permissions, ownership rules apply to events: a user who may edit events can only change their own events unless they hold `assign_vehicle` (agents and administrators) and therefore manage the whole fleet.

Vehicle visibility is separate from permissions. A user with `view_vehicle` sees:

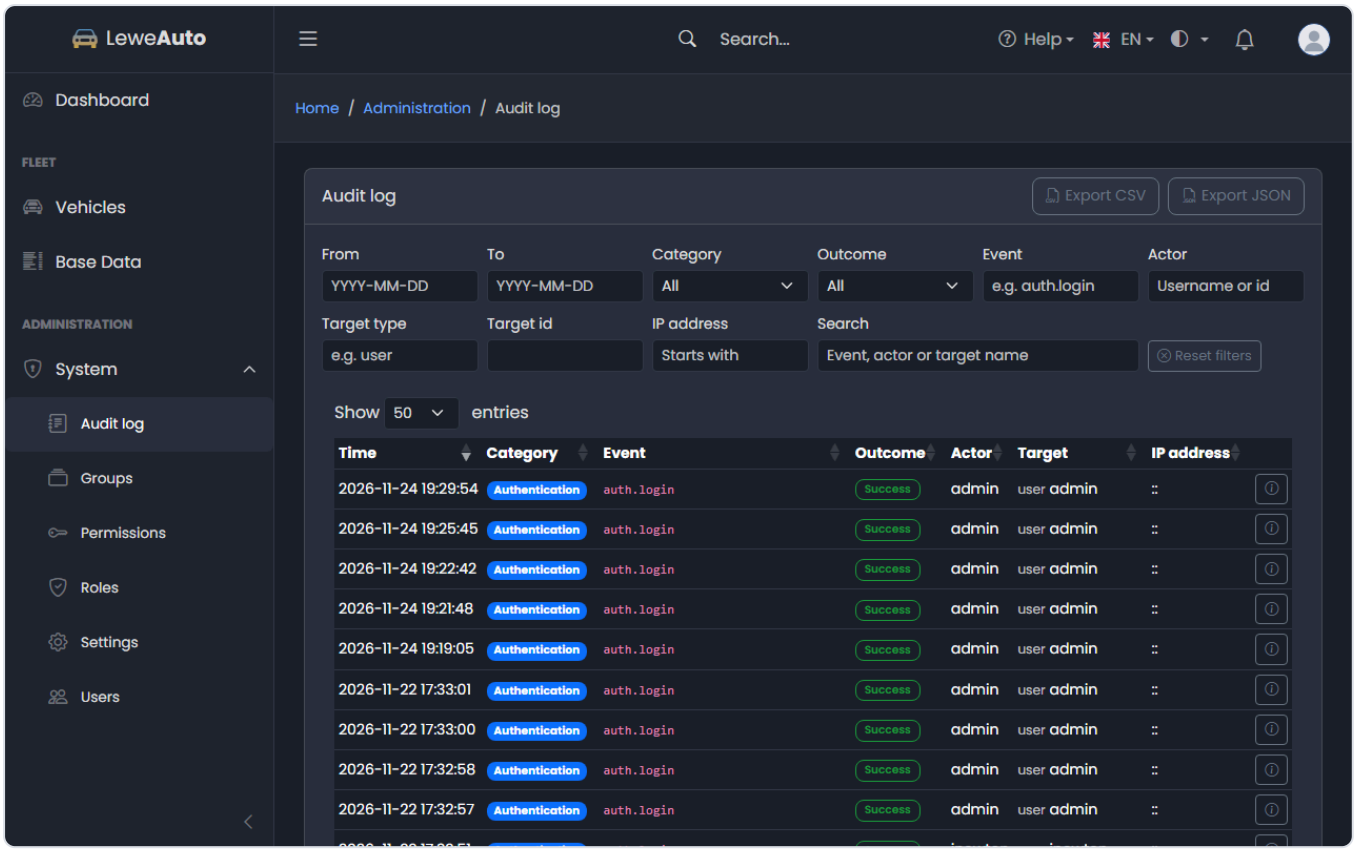
- **Public** vehicles
- Vehicles assigned to them directly
- Vehicles assigned to one of their groups

Administrators and users with `assign_vehicle` see and manage every vehicle.

> ⚠️ Changing roles, groups or permissions affects the next request, not only the next login. Review access before you hand out an account.

Audit Log

Administration → **System** → **Audit Log** is the security record of the installation. Open it with `view_audit_log`; the Administrator role has it.



What is recorded

Every security-relevant change is written with time, actor, category, event name, outcome, target, IP address, browser and request id. Categories include:

- **Authentication** - logins, logouts, failed logins, password resets and two-factor changes
- **Users** - account creation, edits, deletions and password changes
- **Configuration** - settings and branding changes
- **Data** - vehicle, event, document and base-data changes
- **Security** - permissions, roles, groups and assignments
- **Audit log** - exports
- **Email** - notification and delivery events
- **Other** - events that do not fit the categories above

Entries store before and after values where it makes sense. Passwords, secrets, tokens and two-factor data are masked as `***`.

Filter and inspect

Use the filters above the table:

- **From / To** - inclusive date range
- **Category** and **Outcome** - success or failure
- **Event** - exact event name such as `auth.login`
- **Actor** - username or user id
- **Target type / id** - the affected object
- **IP address** - matches the start of the address
- **Search** - free text across event, actor and target

Click a row to open the entry. The modal shows the full details, the request id and a field-by-field comparison of old and new values.

Export

Export CSV and **Export JSON** download every entry that matches the current filters, without paging. CSV uses UTF-8 with a byte order mark and protects spreadsheet cells from formula injection with a leading apostrophe. Exporting is itself recorded as an audit event.

Retention and availability

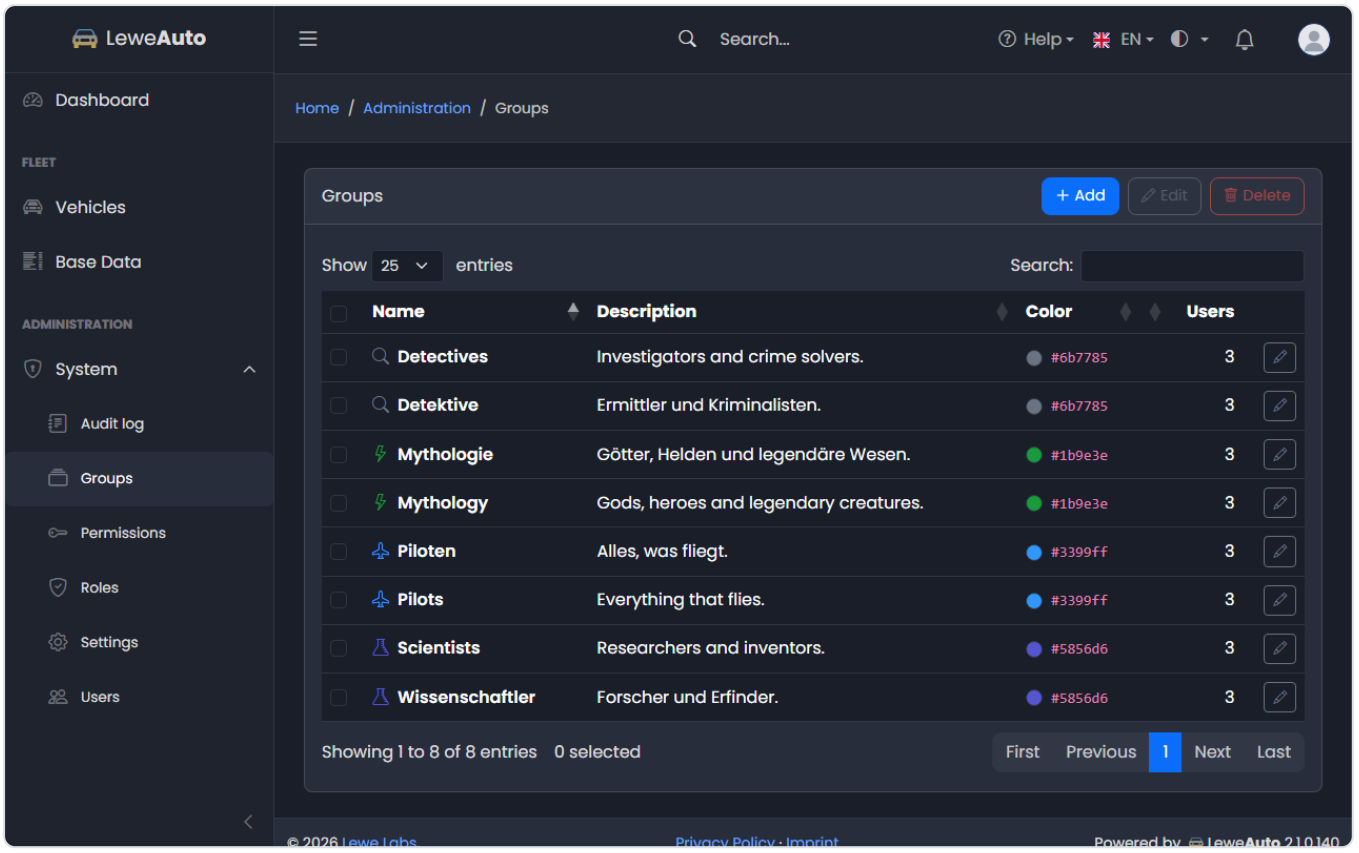
The retention period is set in Settings → Security. Older entries are removed automatically.

In the limited license mode the audit log **cannot be viewed**; entries are still written and become visible again after a valid license is activated. See License.

⚠️ The audit log can contain personal data such as usernames, email addresses, IP addresses and browser details. Export it only for a legitimate purpose, store it securely and delete it when it is no longer needed.

Groups

Administration → **System** → **Groups** organises users and shares access. A group can grant permissions and can be assigned to vehicles, which makes those vehicles visible to every member.



What a group does

A group is both:

- a **permission bundle** - every member receives the group's permissions in addition to their roles
- an **access target** - a vehicle assigned to the group is visible to all members with `view_vehicle`

A user can belong to several groups. The permissions are combined; there are no deny rules.

Create a group

1. Click **Add group**
2. Enter a unique name (at most 50 characters) and an optional description
3. Pick a color and an optional Bootstrap Icons class such as `bi-people`
4. Select permissions
5. Select the users who belong to the group
6. Save

The group then appears in the vehicle assignment dialog and in the user form.

Assign vehicles

Vehicle assignments happen in one of two places:

- **Vehicle** → **Assignments** tab - click **Manage** and select users and groups
- **Vehicle** → **Edit** → **Assignments** tab - select the users and groups and save

Assigned users see the vehicle even when it is not public. Removing the last assignment hides a private vehicle from that user again.

Delete a group

A group can only be deleted when it has no members and is not assigned to any vehicle. Remove the users and vehicle assignments first. The group's permissions and links are removed with it.

Example

Group	Permissions	Vehicles
Pool cars	`view_vehicle`, `view_event`, `create_event`	Pool vehicles, assigned to the group
Workshop	`view_vehicle`, `view_event`, `create_event`, `edit_event`	All service vehicles
Management	`view_vehicle`, `view_dashboard`	Company cars

> *i* Groups are additive. A user in **Pool cars** and **Management** receives the union of both permission sets and sees the vehicles of both groups.

LDAP Authentication

LeweAuto can authenticate users against an LDAP directory such as OpenLDAP or Active Directory. LDAP is **authentication only**: accounts, roles, groups and vehicle assignments stay in LeweAuto and nothing is copied from the directory.

How it works

- Set `LDAP_YES=1` in `.env.<target>` to enable LDAP for all users.
- The built-in `admin` account always authenticates against the LeweAuto database, so an administrator can still sign in when the directory is unavailable.
- Users must already exist in LeweAuto. The username must match the attribute configured in `LDAP_USER_ATTR` (`uid` by default, or `sAMAccountName` with `LDAP_ADS=1`).
- The login page tells users that LDAP authentication is active.
- Password changes and password resets for external accounts are handled by the directory, not by LeweAuto.

Configuration

```
LDAP_YES=1
LDAP_ADS=0
LDAP_HOST=ldap.example.com
LDAP_PORT=389
LDAP_PASS=secret_password
LDAP_DIT=cn=read-only-admin,dc=example,dc=com
LDAP_SBASE=dc=example,dc=com
LDAP_TLS=0
LDAP_CHECK_ANONYMOUS_BIND=0
LDAP_SEARCH_BIND=0
LDAP_USER_ATTR=uid
LDAP_TIMEOUT=5
```

Variable	Meaning
`LDAP_ADS`	`1` for Active Directory; defaults the user attribute to `sAMAccountName`
`LDAP_DIT` / `LDAP_PASS`	Bind account used to search the directory
`LDAP_SBASE`	Search base
`LDAP_TLS`	`0` none, `1` STARTTLS on `LDAP_PORT` (usually 389), `2` implicit TLS/LDAPS (usually 636)
`LDAP_CHECK_ANONYMOUS_BIND`	Test an anonymous bind before the real bind
`LDAP_SEARCH_BIND`	Bind as the user after the search instead of only searching
`LDAP_USER_ATTR`	Attribute that holds the username
`LDAP_TIMEOUT`	Network timeout in seconds

Do not put comments on the same line as a value. Keep these settings in `.env` so they survive upgrades.

Test the connection

The test tool accepts a flag:

```
npm run test:auth -- --ldap
```

This checks the directory login in addition to the local tests.

> ⚠ LDAP is disabled for the `admin` account on purpose. Keep a working local administrator password even when the whole team uses the directory.

License

Administration → **System** → **Settings** → **License** is the operational license panel. Open it with `manage_license`; the built-in Administrator role has it.

Activate the installation

1. Enter the license key in **License key**
2. Click **Save key**
3. Click **Activate**

Activation registers the current domain with the license server. A pending license becomes active. If the maximum number of installations is reached, the oldest registration is replaced.

Deregister domain removes this installation from the license, for example before moving to another server. The place becomes free for another installation. The license stops being valid for this installation until it is registered again.

Check now asks the license server for the current state. The application also checks automatically every 30 minutes and caches the result in the settings table. When the server is unreachable, the last known state stays in force and the next check follows after five minutes.

What the panel shows

- Product and license key
- Customer and company
- Expiry date and days left
- Registered installations (`used of max`)
- Domain of this installation
- Last check and the last server error, if any

Configuration

The license connection is configured in `.env.<target>`:

```
LICENSE_SERVER=https://lewelic.lewe.com
LICENSE_ITEM=LeweAuto
LICENSE_SECRET=your-license-secret
LICENSE_LOCK=0
```

`install.php` writes `LICENSE_SERVER` and `LICENSE_ITEM`. `LICENSE_SECRET` is part of your license information. The same key can be pasted into the panel; the panel stores it in the settings table.

If the panel says the connection is not set up, `LICENSE_SERVER` or `LICENSE_SECRET` is missing.

States and behavior

State	Behavior
Active	Full functionality
Trial	14 days full functionality with an administrator banner
Pending	14-day grace period, then limited mode unless activated
Expired	14-day grace period, then limited mode
Unregistered	14-day grace period, then limited mode
Invalid	14-day grace period, then limited mode
Blocked	Limited mode immediately, no grace period
Unavailable	Last known state stays in force
Trial over	Limited mode

Grace periods give administrators time to react. A **blocked** license is deliberate and skips the grace period.

In limited mode the following are switched off:

- Viewing the audit log (entries are still written)

- Self-registration (the setting is kept)
- New two-factor setups (existing factors keep working)
- New uploads (existing files are still served)

New records are limited to 1 vehicle, 10 fueling and charging events combined, 10 service events, 10 fixed costs, 5 entries per base-data table and 20 users without the Administrator role. Existing records can still be edited and deleted.

Locked installations

Set `LICENSE_LOCK=1` in the `.env` file to lock instead of limiting. After an expired, blocked or trial-over state, only administrators can log in; everybody else sees the maintenance page. This is the strict option for installations that must stop without a license.

> ⚠️ Do not change `LICENSE_SECRET` or the domain without re-activating. The license is bound to the domain, so a test under `localhost` or an alias is checked against that host and may show a different state.

OIDC Authentication

LeweAuto supports OpenID Connect (OIDC) single sign-on with providers such as Keycloak, Entra ID or Authentik. OIDC is **authentication only**: accounts, roles, groups and vehicle data stay in LeweAuto.

How it works

- Set `OIDC_YES=1` in `.env.<target>` to enable SSO. Local and LDAP login are then disabled for everyone except `admin`.
- The user's LeweAuto **username must equal the `preferred_username` claim** of the provider.
- The first successful login binds the provider's `sub` claim to the account. Later logins must use the same subject.
- Users must already exist in LeweAuto. The admin account always authenticates locally.
- The login page shows a **Sign in with SSO** button and explains that local login is restricted.
- Password changes and resets for SSO accounts are handled by the provider.

The flow uses state, nonce and PKCE, validates the ID token signature, issuer, audience, expiry and nonce, and hands the login page a one-time code. The state is valid for ten minutes and can only be used once.

Configuration

```
OIDC_YES=1
OIDC_PROVIDER_URL=https://keycloak.example.com/realms/leweauto
OIDC_CLIENT_ID=leweauto
OIDC_CLIENT_SECRET=your-client-secret
OIDC_REDIRECT_URI=https://auto.example.com/api/auth/oidc/callback
OIDC_TIMEOUT=5
OIDC_VERIFY_TLS=1
```

Variable	Meaning
`OIDC_PROVIDER_URL`	Issuer URL; the discovery document is read from it
`OIDC_CLIENT_ID`	Client registered with the provider
`OIDC_CLIENT_SECRET`	Client secret
`OIDC_REDIRECT_URI`	Must match the provider registration, ending in `/api/auth/oidc/callback`
`OIDC_TIMEOUT`	Network timeout in seconds
`OIDC_VERIFY_TLS`	`1` verifies the provider certificate (default); `0` is for testing only

The provider client needs the **authorization code** flow with PKCE and the scopes `openid profile`.

Test the connection

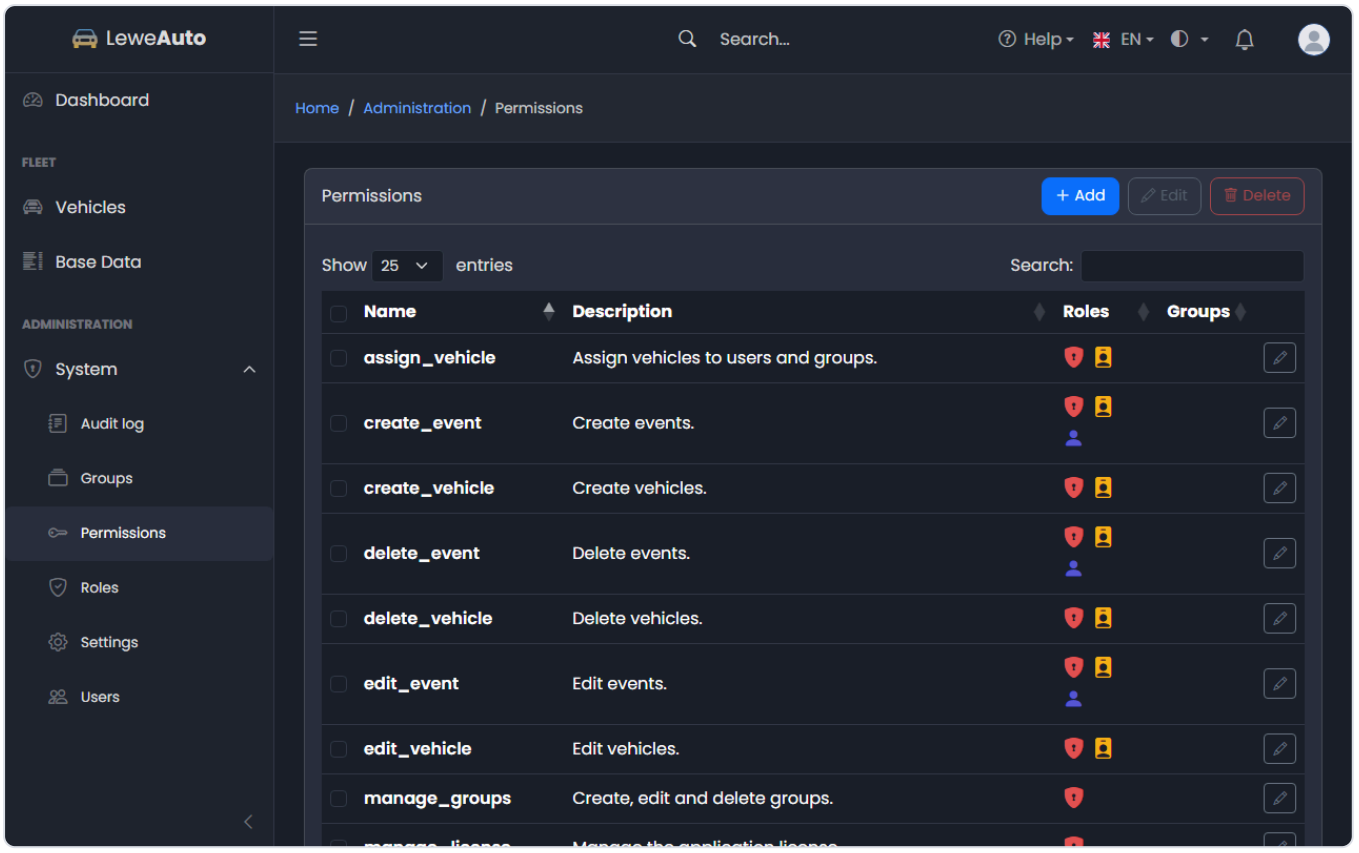
```
npm run test:auth -- --oidc
```

This checks the start of the OIDC flow. The full callback needs a provider client whose redirect URI points at the installation, for example `http://nas/auto/api/auth/oidc/callback` in the development environment.

> ⚠ OIDC disables local login for everyone except `admin`. Make sure the `admin` password is known and the account is not deleted before you enable it.

Permissions

Administration → **System** → **Permissions** lists the building blocks that roles and groups grant. Open it with `manage_permissions`; the Administrator role always holds every permission.



The permission list

Permission	Allows
`view_vehicle`	View public vehicles and vehicles assigned to the user or their groups
`create_vehicle`	Create vehicles
`edit_vehicle`	Edit vehicles, images, documents and vehicle details
`delete_vehicle`	Delete vehicles and their events
`assign_vehicle`	Assign vehicles to users and groups; also unlocks fleet-wide management
`publish_vehicle`	Set or clear the public flag of a vehicle
`view_event`	View fueling, charging, service and fixed-cost events
`create_event`	Create events on assigned vehicles
`edit_event`	Edit own events on assigned vehicles (all events with `assign_vehicle`)
`delete_event`	Delete own events on assigned vehicles (all events with `assign_vehicle`)
`manage_lookups`	Manage base data
`manage_users`	Create, edit and delete users
`manage_roles`	Create, edit and delete roles
`manage_groups`	Create, edit and delete groups
`manage_permissions`	Assign permissions to roles and groups; manage permission entries
`manage_settings`	Change application settings
`view_audit_log`	Open and export the audit log
`manage_license`	Manage the application license

Permission	Allows
`view_dashboard`	Open the fleet dashboard

How permissions combine

A user's permissions are the union of:

- every role assigned to the user
- every group the user belongs to
- nothing else

There are no deny rules. The built-in Administrator role always has every permission, including permissions added later.

Ownership on top of permissions

Permissions are not the only check. Events also enforce ownership:

- A user without `assign_vehicle` can create events only on vehicles **assigned to them** (directly or through a group). A public vehicle that is not assigned can be viewed but not used for events.
- A user without `assign_vehicle` can edit or delete only events **they created** on assigned vehicles.
- A user with `assign_vehicle` (agents and administrators) can manage all events on all visible vehicles.

Vehicle visibility likewise combines permissions, assignments and the public flag. See Vehicles.

Create and delete permissions

Custom permissions can be added for documentation or future use, but they only have an effect where the application checks their name. Deleting a permission removes it from all roles and groups immediately. Treat deletions as permanent and review the affected roles first.

> ⚠️ The permission names are used by the application code. Renaming an existing permission breaks the checks that rely on it. Add a new permission instead of renaming a built-in one.

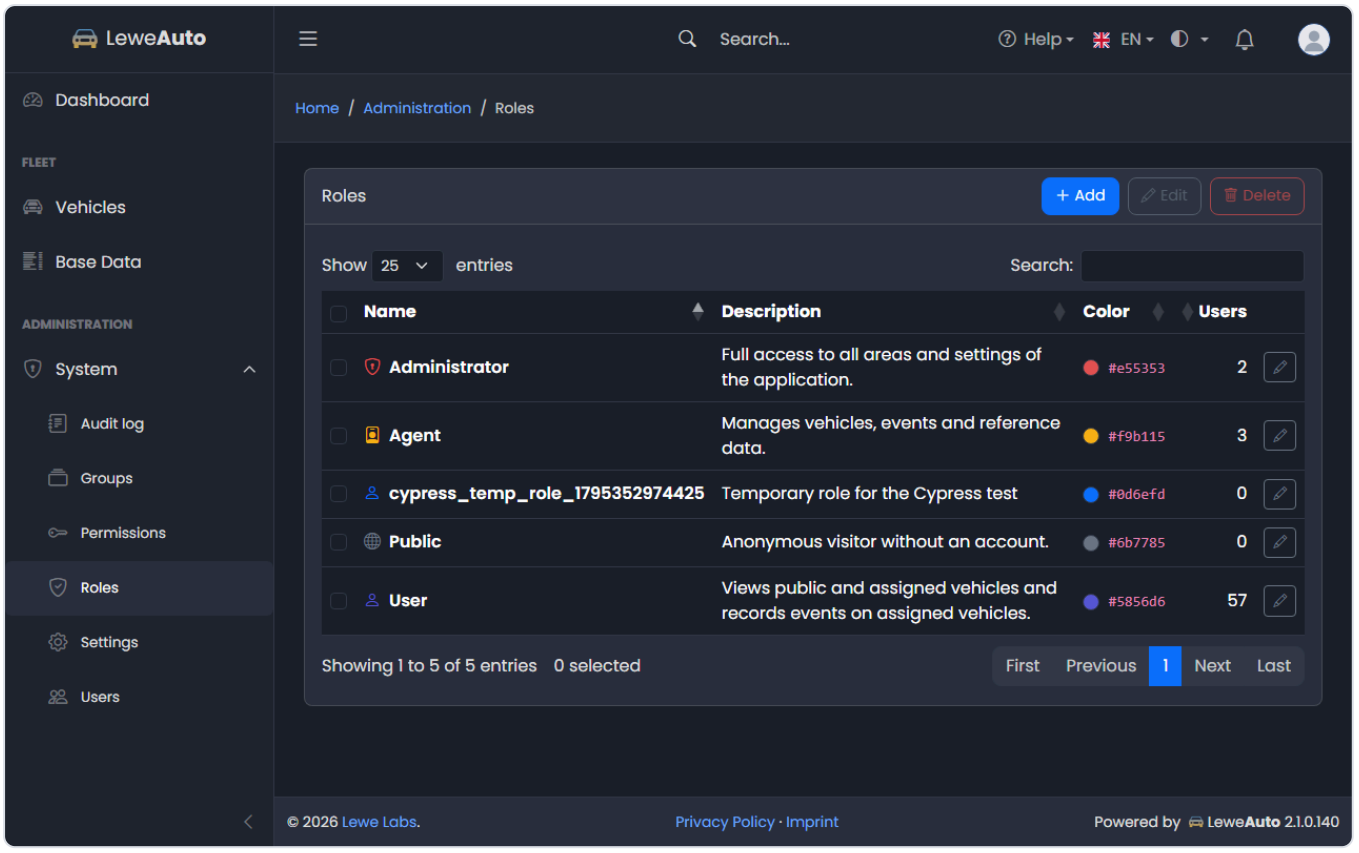
Recommended starting points

- **User**: `view_vehicle`, `view_event`, `create_event`, `edit_event`, `delete_event`, `view_dashboard`
- **Agent**: the User permissions plus `create_vehicle`, `edit_vehicle`, `delete_vehicle`, `assign_vehicle`, `publish_vehicle`, `manage_lookups`
- **Administrator**: everything

These match the built-in roles. Adjust them only when you understand the ownership rules above.

Roles

Administration → **System** → **Roles** defines what kinds of users can do. A role is a named bundle of permissions; users receive one or more roles.



Built-in roles

Role	Purpose
Administrator	Full access to every area. Automatically holds every permission, including new ones.
Agent	Manages vehicles, events and base data; no users, settings or license.
User	Views public and assigned vehicles and records events on assigned vehicles.
Public	Anonymous visitor without an account. Holds no permissions in the standard installation.

Built-in roles cannot be renamed or deleted. Their permissions can be adjusted, except that the Administrator role always keeps every permission.

Create a role

1. Click **Add role**
2. Enter a unique name (at most 50 characters) and an optional description
3. Pick a color and an optional Bootstrap Icons class such as `bi-person-badge`
4. Select the permissions the role should grant
5. Save

The role appears in the user form immediately. Users who already have the role receive the changed permissions on their next request.

Edit and delete

Use the row actions to edit a role. The permission checkboxes show every permission in the installation. The Administrator role lists them as fixed.

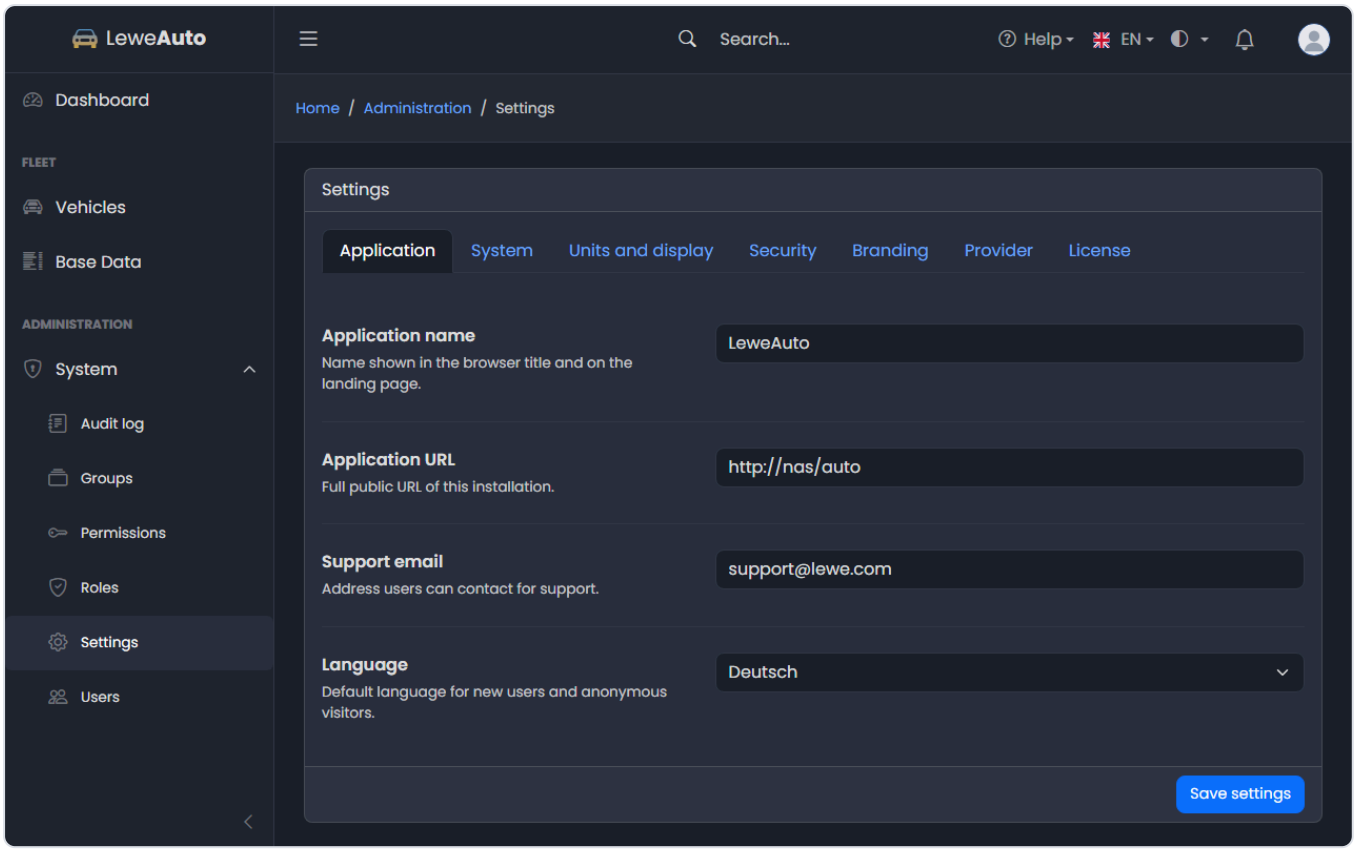
A role can only be deleted when no user holds it. Built-in roles cannot be deleted at all. Deleting a custom role removes its permission links; the users themselves are kept.

Prefer small, purpose-built roles over one large role. For example, create a **Fleet manager** role with vehicle, event and base-data permissions instead of granting the Agent role to everyone.

Removing a permission takes effect immediately and can lock people out of pages they are using. Check the Permissions page before you change a widely used role.

Settings

Administration → **System** → **Settings** holds application-wide defaults. Open it with `manage_settings`; the built-in Administrator role has it. Changes apply to everyone at the next request and are written to the audit log.



The form has seven tabs and one **Save settings** button. Nothing is saved until you click it.

Application

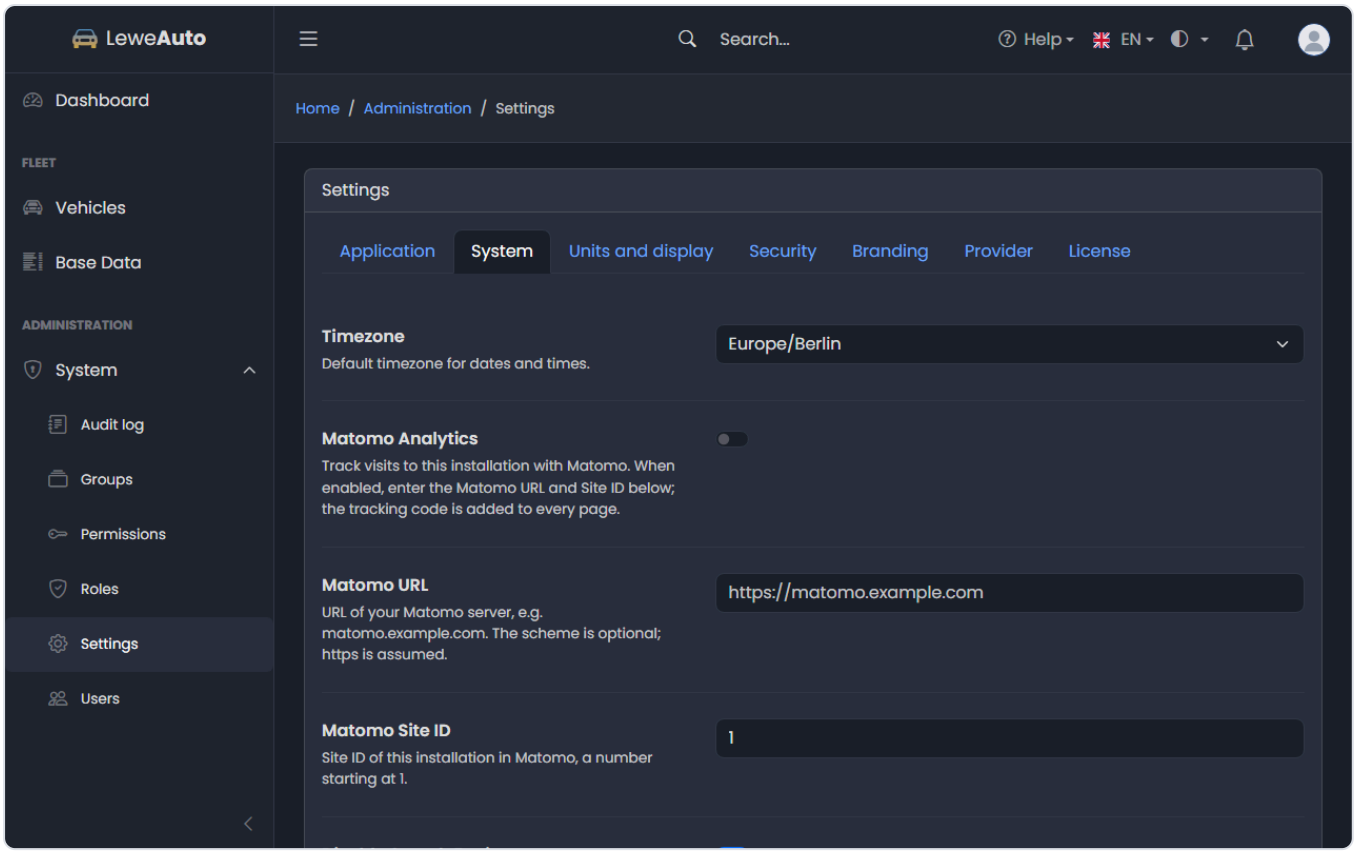
Setting	Effect
Application name	Browser title and heading, at most 50 characters
Application URL	Full public URL, used in emails and for links
Support email	Address shown to users who need help
Language	Default for new users and anonymous visitors; English, German, Spanish or French

Users can override the language in their Profile.

System

Setting	Effect
Timezone	Default for dates and times
Matomo Analytics	Adds tracking code to every page when enabled
Matomo URL / Site ID	Server and site number; the scheme is optional and `https` is assumed
Disable Search Engines	Sends `noindex` instructions to search engine robots
Disable Caching	Sends no-cache headers to avoid stale pages
Debug Mode	Writes debug information to the browser console
Under Maintenance	Only administrators can log in; everybody else sees the maintenance page

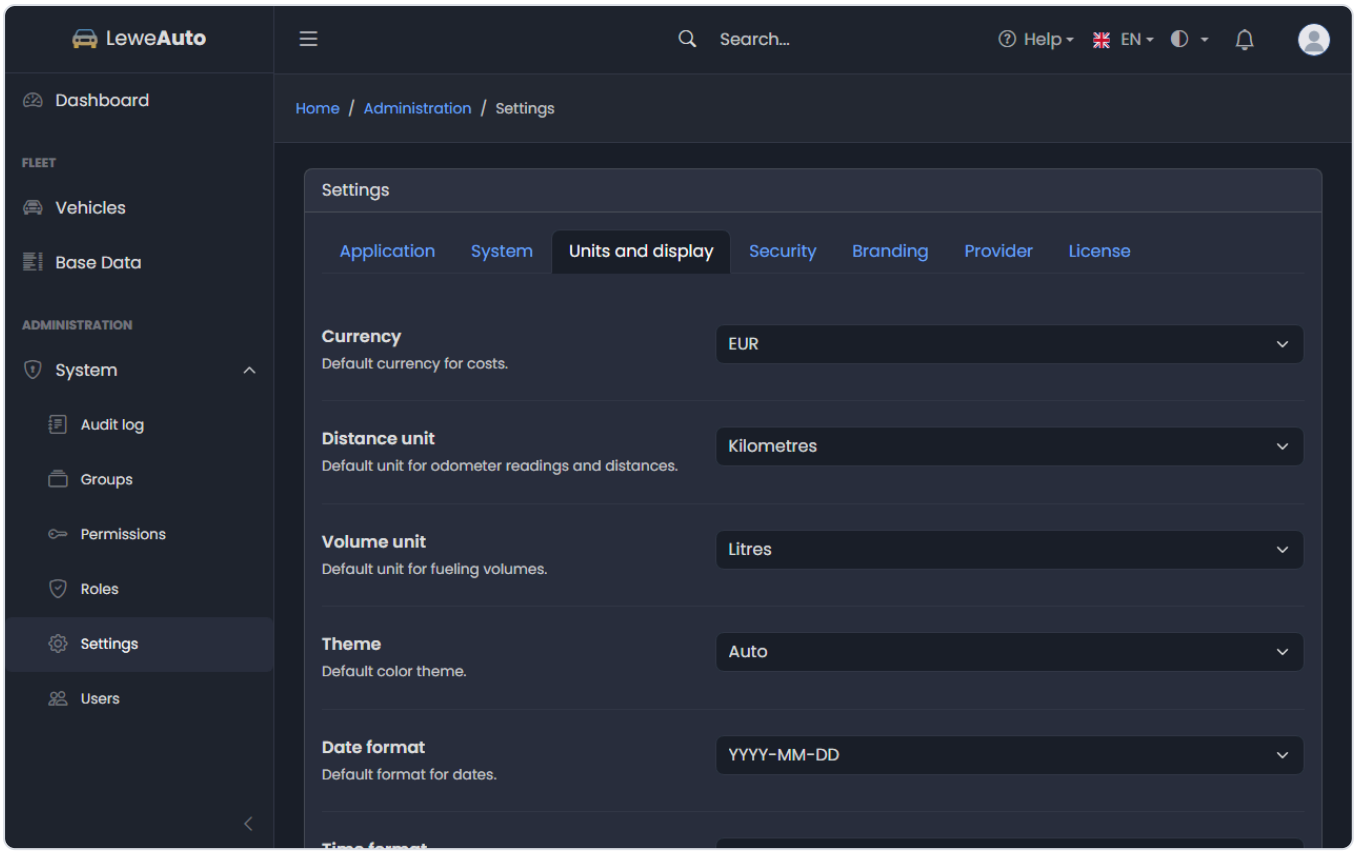
⚠ Turn **Under Maintenance** off after an upgrade. While it is on, users cannot record events or open the application.



Units and display

Setting	Options
Currency	EUR or USD
Distance	Kilometres or miles
Volume	Litres, US gallons or UK gallons
Theme	Auto, light or dark
Date format	`YYYY-MM-DD`, `DD.MM.YYYY` or `MM/DD/YYYY`
Time format	24-hour or 12-hour

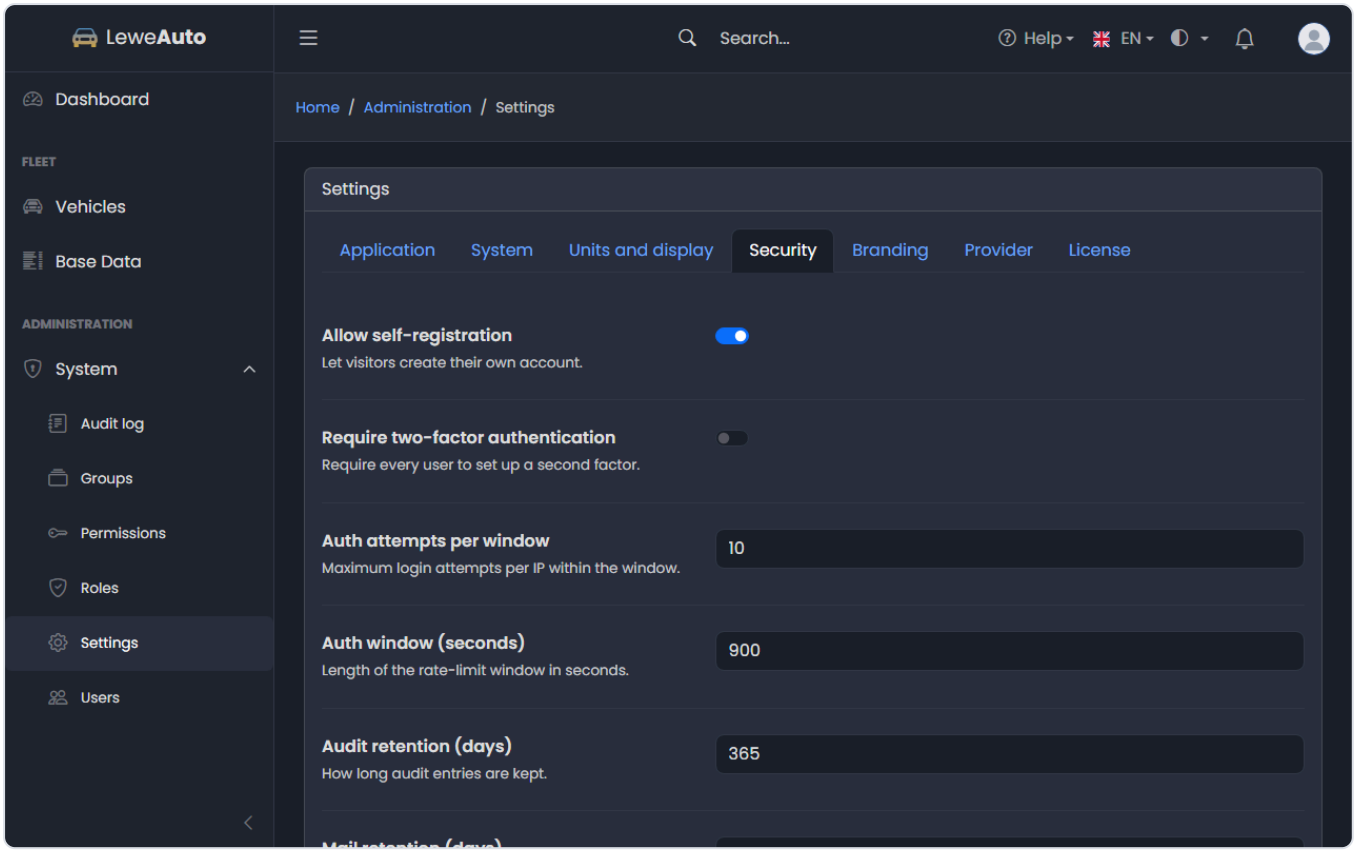
The defaults are used for new users and for anonymous pages. Every user can override language, theme, currency, distance, volume, timezone, date and time format in their own profile.



Security

Setting	Effect
Allow self-registration	Visitors can create an account from the login page
Require two-factor authentication	Every user must set up a second factor before continuing
Auth attempts per window	Failed logins and password-reset requests per IP; `0` disables the limit
Auth window (seconds)	Length of the rate-limit window
Audit retention (days)	How long audit entries are kept
Mail retention (days)	How long queued notification email is kept
Admin page size	Rows per page in administration lists (5-100)

Set **Require two-factor authentication** only after every administrator has enrolled, otherwise they are locked out until they set it up. The `admin` account can still log in locally, and `DISABLE_ADMIN_2FA=1` in the `.env` file is an emergency override.

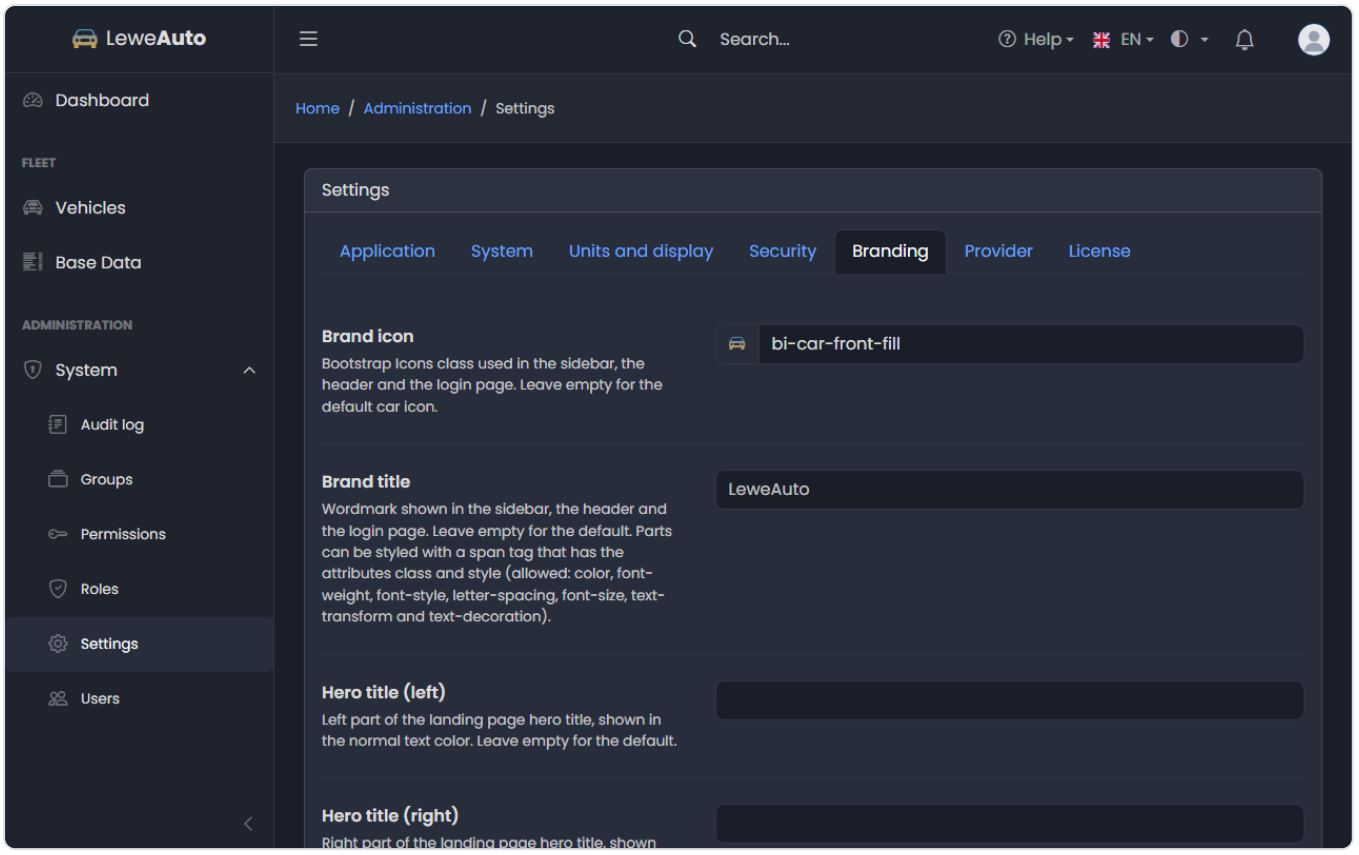


Branding

The Branding tab changes the sidebar, header, login page and landing page without code changes:

- **Brand icon** - a Bootstrap Icons class such as `bi-car-front-fill`
- **Brand title** - the wordmark; parts can be styled with `<span class>` and a small set of inline styles
- **Hero title (left / right)** - the two halves of the landing page headline
- **Hero subtitle** - the text below it
- **Copyright company** - shown in the landing page footer, with the current year
- **Copyright link** - optional URL for the company name

Leave a field empty to use the built-in default.



Provider

The Provider tab supplies the controller information for the privacy policy and the provider information for the imprint:

- Contact name and address, one line each
- Phone number in international format
- Email address
- Website starting with `http://` or `https://`

Empty optional fields are hidden on the public pages. Keep this information current; it is legally relevant.

License

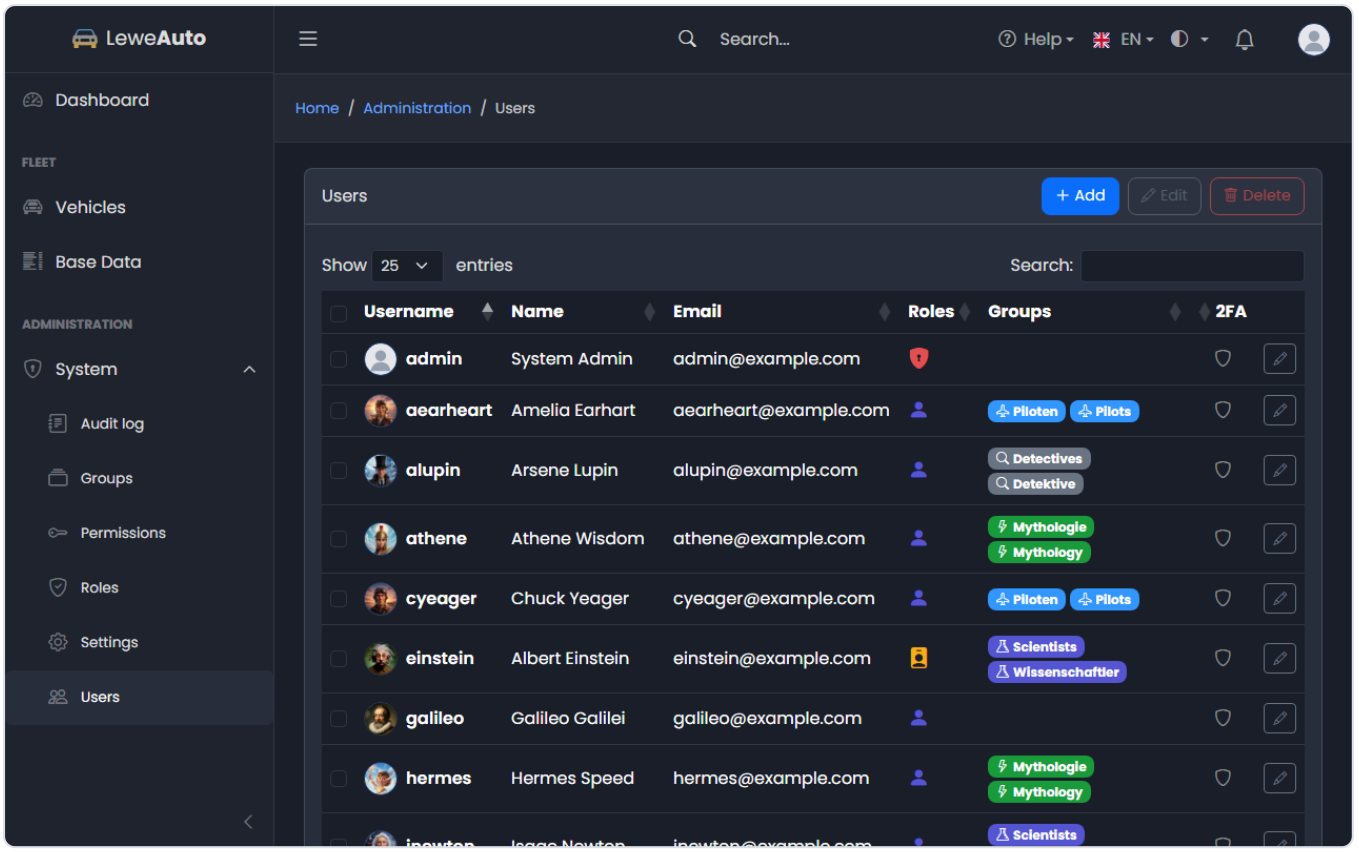
The License tab shows the current state and lets you save a key, activate the domain, deregister it and check the server. See License.

Saving and troubleshooting

- The save button applies all tabs at once. If one value is invalid, nothing is saved and the affected field is marked.
- Unit changes affect display and input; stored values are kept in metric and converted on output.
- Changes to the application name and branding appear after a page reload.
- If the application is unreachable after a change, check **Under Maintenance**, the application URL and the web server configuration.

Users

Administration → **System** → **Users** manages the accounts of the installation. Open it with the `manage_users` permission; the built-in Administrator role always has it.



The user list

The list shows the username, name, email, roles, groups and whether two-factor authentication is enabled. Use the search field to filter by name, username or email. Select rows to delete several accounts at once, or use the row actions to edit an account.

The **Add user** button opens the account form. The edit form has two tabs: **Account** and **Avatar**.

Create an account

Field	Rule
Username	3-50 characters: letters, digits, underscore, dot and hyphen. Unique and cannot be changed.
Email	Valid address, at most 100 characters, unique. Used for notification email.
First name	Optional, at most 50 characters.
Last name	Optional, at most 50 characters.
Password	At least 8 characters. Not used for accounts that authenticate through LDAP or OIDC.
Roles	One or more roles. The roles supply permissions.
Groups	Optional. Groups add permissions and vehicle access.

The account receives an **Account created** email when mail is configured. For an account that authenticates through LDAP or OIDC, LeweAuto stores no local password and the form explains which external method is used.

> *i* The username of an LDAP or OIDC account must match the external identity. LDAP uses the configured `LDAP_USER_ATTR` (for example `uid` or `sAMAccountName`); OIDC uses the `preferred_username` claim. Create the account in LeweAuto first; nothing is imported automatically.

Edit an account

The **Account** tab changes the email, name, roles, groups and, for local accounts, the password. Leave the password field empty to keep the current password. Changing a password sends a **Password was changed** email and invalidates the user's other sessions.

The **Avatar** tab sets the image shown in the header. You can pick one of the bundled avatars or upload a square PNG, JPG, GIF or WEBP file up to 1 MB. Uploads are refused in the limited license mode.

Administrators can reset a user's second factor from the account form. The user has to set it up again on the next login. See Two Factor Authentication.

Delete an account

Deleting an account **anonymises** it. The username and email are replaced, personal fields and avatars are cleared, the password becomes unusable and active sessions and reset tokens are removed. The user's vehicles and events are kept.

- The built-in `admin` account cannot be deleted.
- You cannot delete your own account.
- At least one user must keep the Administrator role.

Deletion is recorded in the Audit Log.

Authentication methods

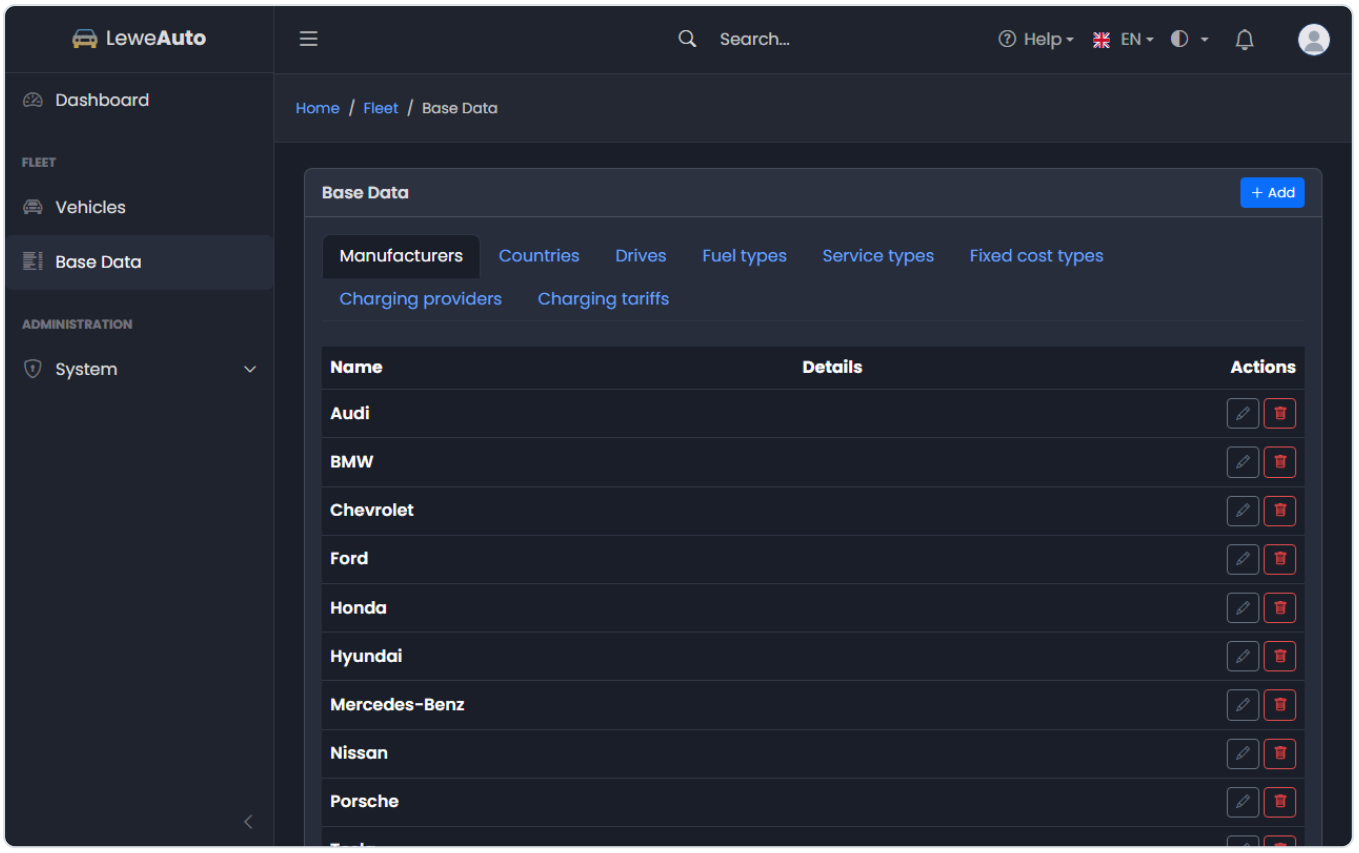
The authentication method follows the configuration, not the account:

- **Local**: username and password from the LeweAuto database
- **LDAP**: directory authentication for every user except `admin`
- **OIDC**: single sign-on for every user except `admin`

The `admin` account always authenticates locally so that an administrator can still sign in when the external provider is unavailable. See LDAP Authentication and OIDC Authentication.

Base Data

Fleet → **Base Data** holds the selection lists used by the vehicle and event forms. Open it with `manage_lookups`; the Agent and Administrator roles have it.



Tabs

Tab	Used for
Manufacturers	Vehicle manufacturer and logo
Countries	Country of registration and provider country
Drives	Drive type such as front, rear or all-wheel
Fuel Types	Fuel and energy classification, including EV and PHEV
Service Types	Type of a service event
Fixed Cost Types	Category of a fixed cost such as insurance or tax
Charging Providers	Charge point operator, utility, EMP or OEM
Charging Tariffs	Prices and fees of a provider's tariff

Add, edit and delete

Click **Add** to create an entry in the active tab. The dialog shows only the fields that apply to that tab. Every entry has a name; many have a description or additional details.

Deleting is only possible when the entry is **not in use**. If a vehicle or event still references it, LeweAuto refuses the deletion and asks you to reassign the record first. This protects the history of your fleet.

> Create the base data before vehicles and events. The selection fields are populated from these tables, and a missing entry cannot be added from the vehicle form.

Limited license mode

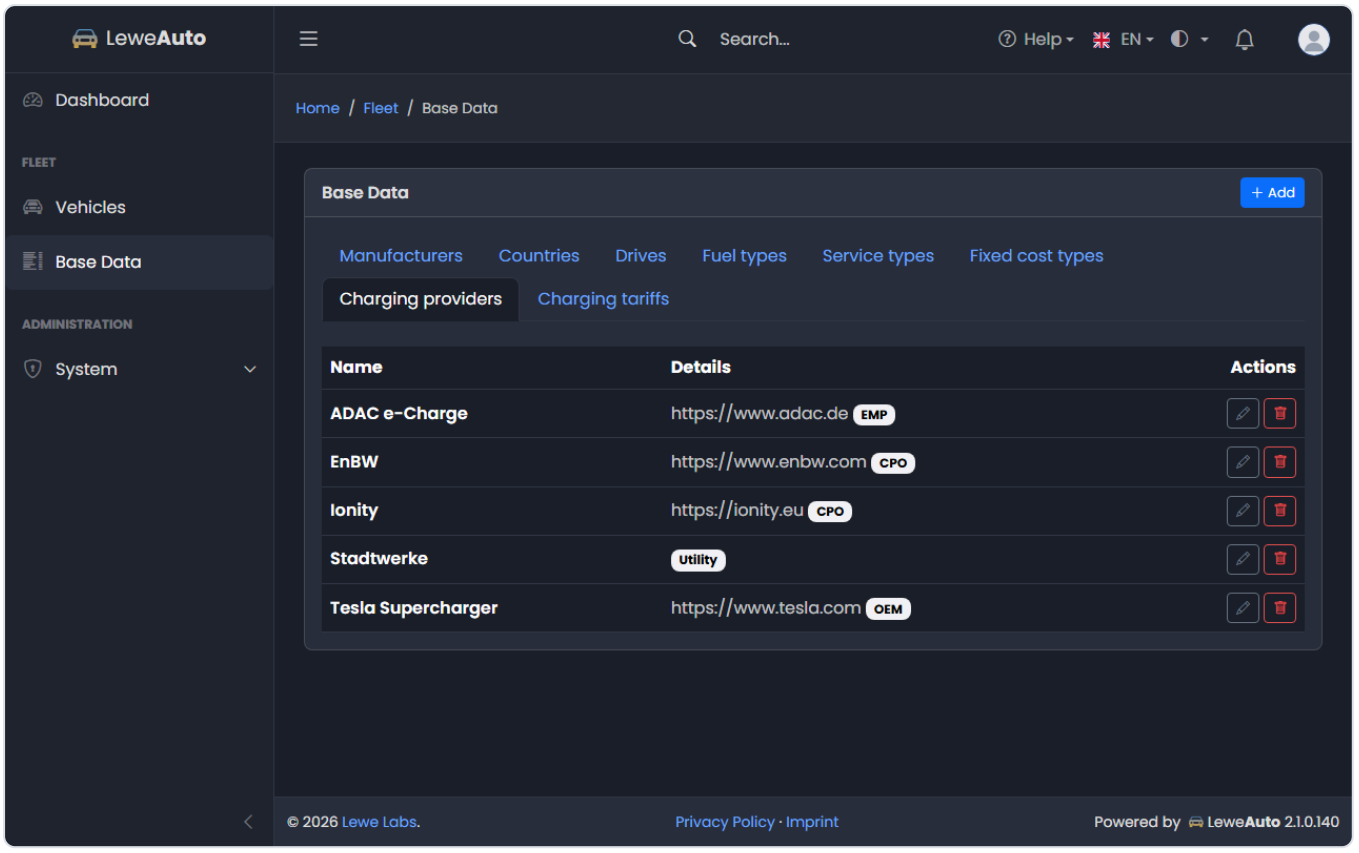
In the limited license mode each table may hold at most **5 entries** and no new entries can be added beyond that. Existing entries can still be edited and deleted.

See License.

> The connector types used for electric vehicles (Type 2, CCS2, CHAdeMO and others) ship with the installation and are selected in the vehicle form. They are not edited through the Base Data page.

Charging Providers

Fleet → Base Data → Charging Providers lists the companies that operate charging points or sell charging services. Charging events and charging tariffs select a provider from this list.



Fields

Field	Meaning
Name	Provider name, at most 191 characters. Unique.
Provider kind	**Utility**, **CPO** (charge point operator), **EMP** (mobility provider) or **OEM**
Country	Optional country from the Countries list
Website	Optional URL, at most 255 characters
Description	Optional extra detail, at most 4000 characters

Use in charging events

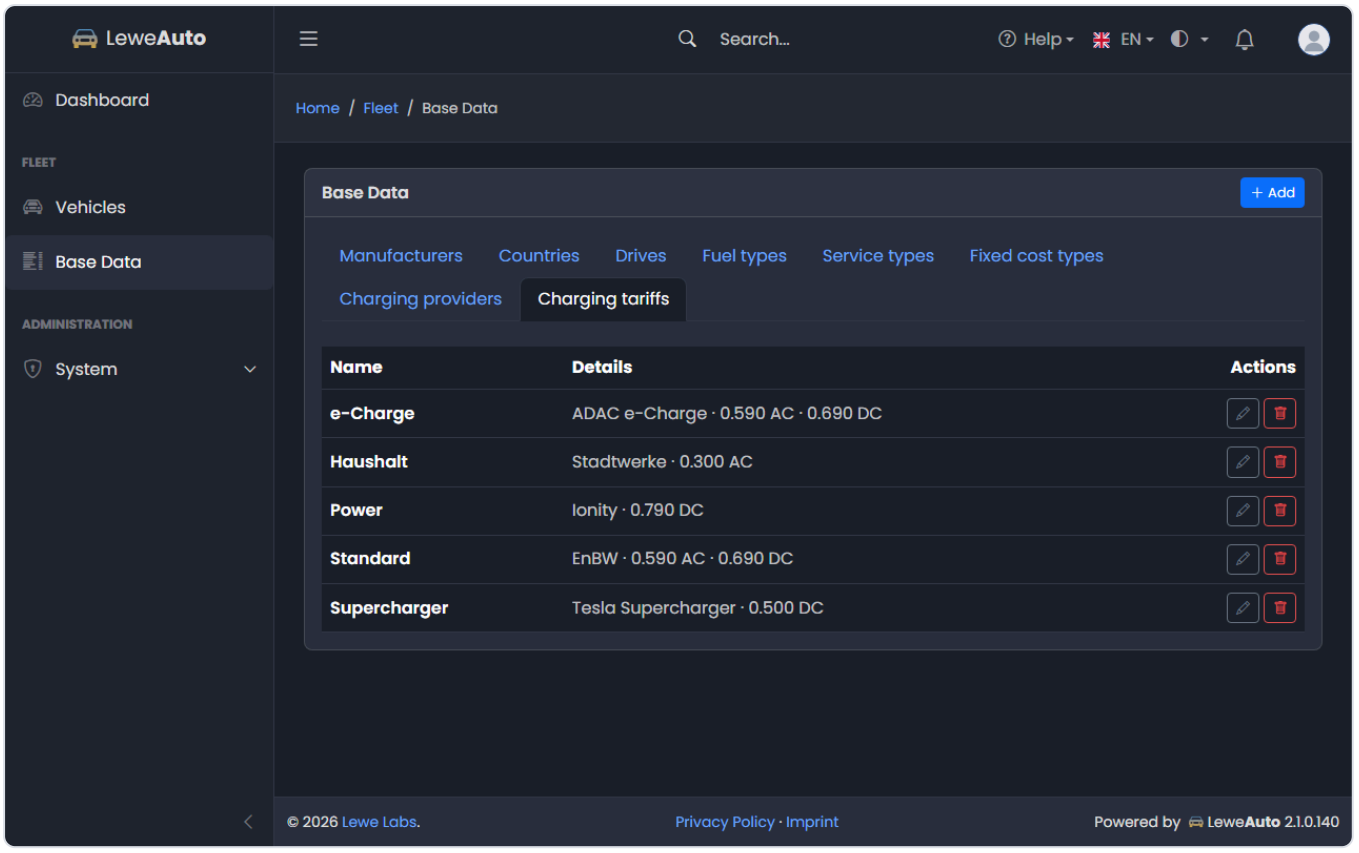
The charging event form selects the provider. The provider and its tariff are used for the charging cost statistics, the provider cost chart and the charging history. A public vehicle's charging history hides provider and location hints from users who only see the public record.

An entry that is used by a charging event or tariff cannot be deleted.

Create the provider before its tariffs. A tariff always belongs to one provider.

Charging Tariffs

Fleet → Base Data → Charging Tariffs describes the prices and fees of a charging provider. A charging event can select a tariff for reporting and analysis.



Fields

Field	Meaning
Name	Tariff name, at most 191 characters. Unique.
Provider	The provider that offers the tariff. Required.
AC price per kWh	Optional alternating-current price
DC price per kWh	Optional direct-current price
Monthly fee	Optional recurring fee
Blocking fee per min	Optional fee for occupying a charger after charging
Currency	Three-letter code, default `EUR`
Valid from / to	Optional validity dates; `to` must not be before `from`
Description	Optional extra detail, at most 4000 characters

Prices and fees must not be negative. The price per kWh on a charging event is calculated from the energy and the total cost; the tariff itself is a reference for reporting and the provider cost chart.

An entry that is used by a charging event cannot be deleted.

Name tariffs after their actual product, for example **EnBW mobility+ ADAC**, and keep the validity dates current. Expired tariffs can stay in the list so old events keep their reference.

Countries

Fleet → **Base Data** → **Countries** provides the countries used for vehicle registration and charging providers.

Fields

Field	Meaning
Name	Country name, at most 191 characters. Unique.
Flag code	Optional two-letter country code used for the flag, for example `de`, `fr`, `us`.

The flag code is stored in lower case. The application can show the matching flag next to the country where it displays registration data.

Behavior

- Used by the vehicle form (country of registration) and the charging provider form.
- An entry that is in use cannot be deleted.
- An empty flag code is allowed; the country is then shown without a flag.

> Use ISO 3166-1 alpha-2 codes. Examples: `de` Germany, `at` Austria, `ch` Switzerland, `nl` Netherlands, `us` United States.

Drives

Fleet → **Base Data** → **Drives** lists the drive types used in the vehicle form.

Fields

Field	Meaning
Name	Drive name, at most 191 characters. Unique.

Typical entries are **Front-wheel drive**, **Rear-wheel drive** and **All-wheel drive**. The vehicle form shows them in the **Drive** selection field.

An entry that is used by a vehicle cannot be deleted. Renaming it updates every vehicle that references it.

Keep the list short and consistent. The drive is shown in the vehicle details and in the history PDF.

Fixed Cost Types

Fleet → **Base Data** → **Fixed Cost Types** classifies fixed costs such as insurance, taxes, leasing and charging equipment.

Fields

Field	Meaning
Name	Fixed cost type name, at most 191 characters. Unique.
Description	Optional extra detail, at most 4000 characters

The vehicle picks a type when a fixed cost is recorded. The type is used in the vehicle dashboard's **Fixed costs by type** chart and in the history PDF.

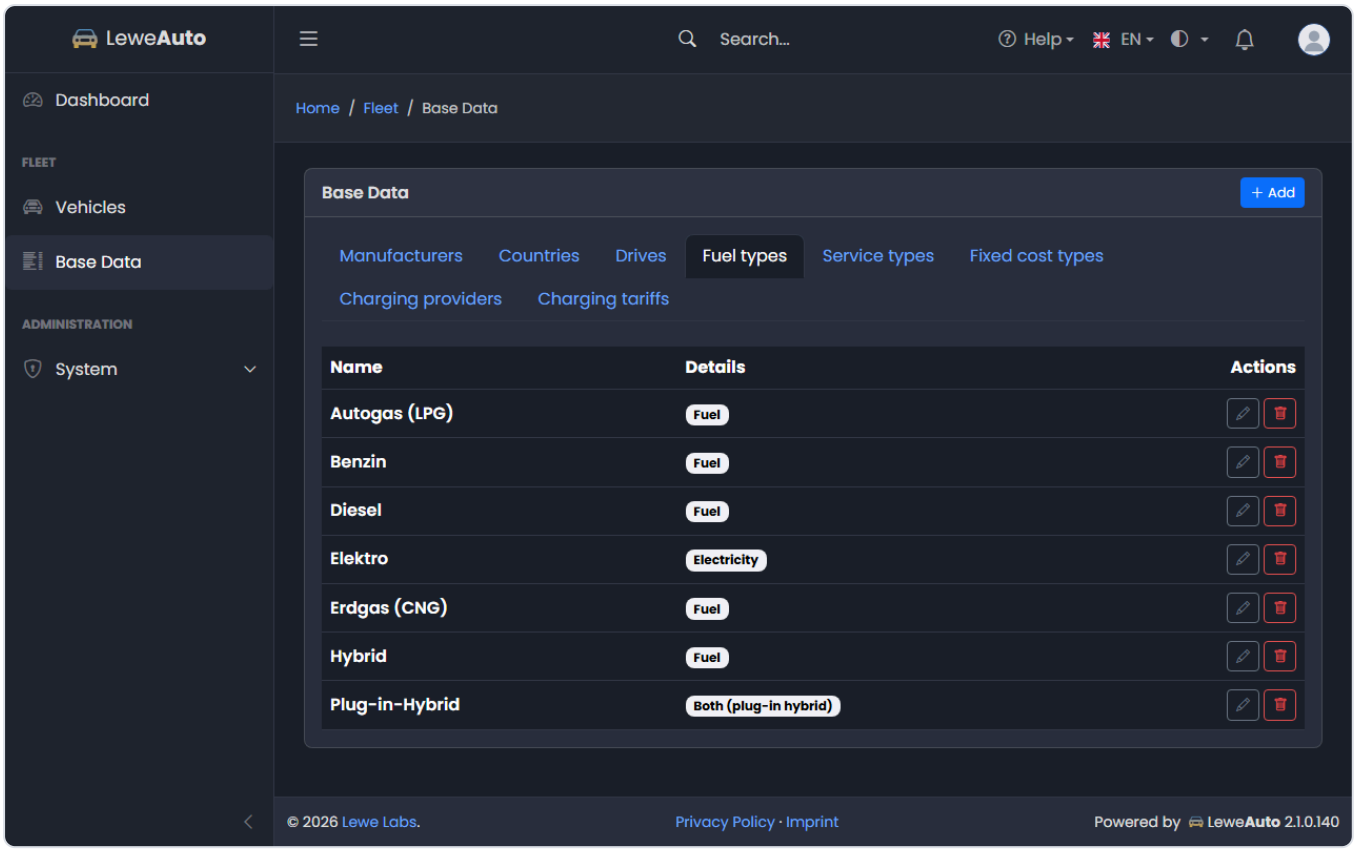
Typical entries are **Insurance**, **Vehicle tax**, **Leasing**, **Financing**, **Wallbox**, **Charging subscription**, **Battery leasing**, **Inspection**, **Parking** and **THG premium**.

An entry that is in use cannot be deleted. Renaming it updates the label in existing fixed costs.

Fixed costs have a **direction**: expense or income. A THG premium or a refund is recorded as income, so it reduces the total cost without needing a negative amount.

Fuel Types

Fleet → **Base Data** → **Fuel Types** defines the energy sources a vehicle can use. The **Energy kind** classifies the entry for electric vehicles.



Fields

Field	Meaning
Name	Fuel or energy name, at most 191 characters. Unique.
Energy kind	**Fuel**, **Electricity** or **Both (plug-in hybrid)**
Description	Optional extra detail, at most 4000 characters

How the energy kind is used

- **Fuel** - petrol, diesel, LPG, CNG, hydrogen and similar. The vehicle shows fueling events.

- **Electricity** - battery electric vehicles. The vehicle shows charging events, the EV dashboard and the battery health section.
- **Both (plug-in hybrid)** - plug-in hybrids. The vehicle shows both fueling and charging events and the EV dashboard.

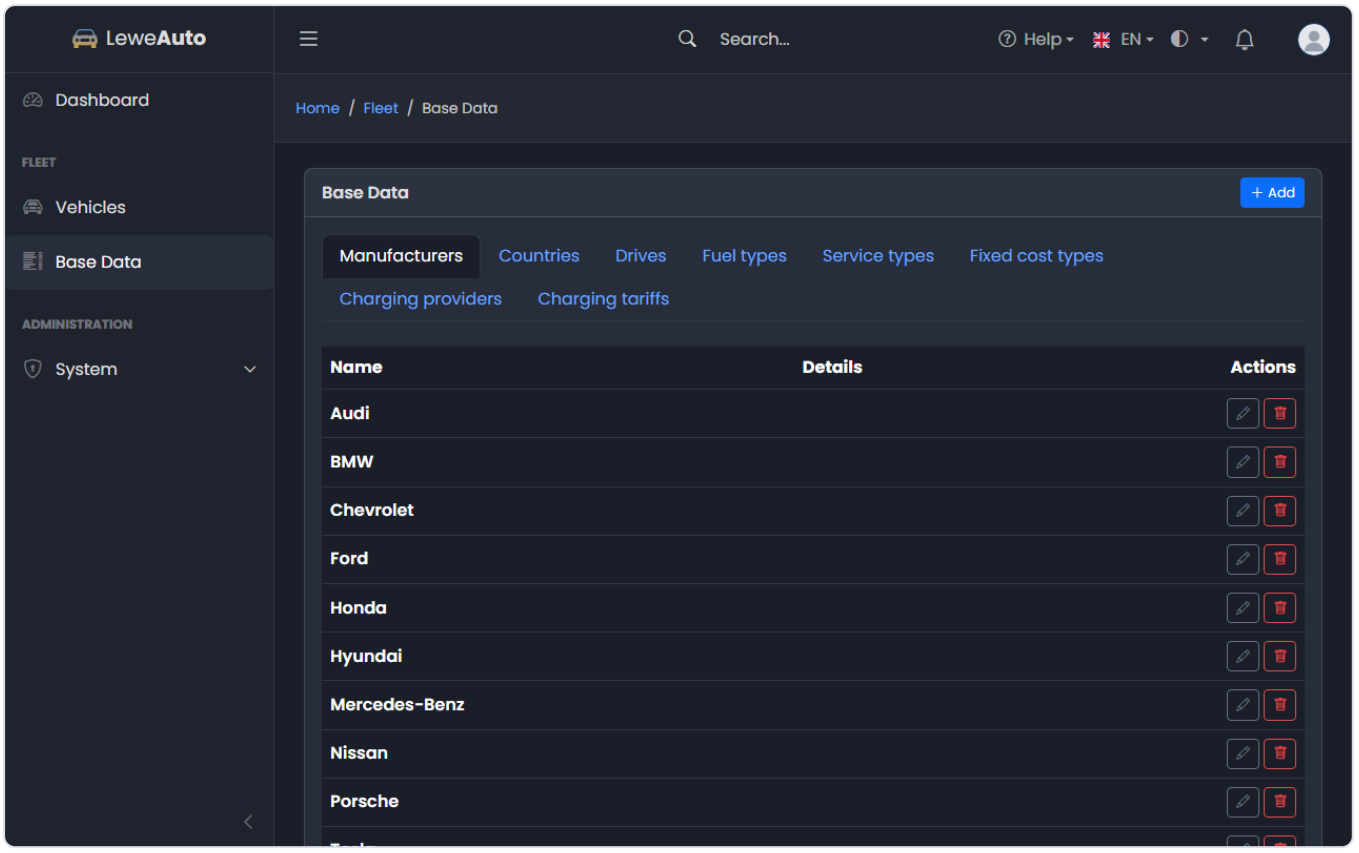
The energy kind also drives the **EV** and **PHEV** badges in the fleet list and the electric distance share on the dashboard.

> ⚠️ Changing the energy kind of an existing fuel type changes how every vehicle with that fuel type is treated. The vehicle's events are kept, but the available event tabs and dashboard sections may change.

An entry that is in use cannot be deleted.

Manufacturers

Fleet → Base Data → Manufacturers lists the vehicle manufacturers. The vehicle form uses it, and the fleet list can filter by manufacturer.



Fields

Field	Meaning
Name	Manufacturer name, at most 191 characters. Unique.
Image path	Optional logo path below `assets/img`, for example `assets/img/manufacturers/bmw.png`.

The image is shown where the application displays manufacturer logos. Leave it empty to use text only.

Behavior

- The name appears in the vehicle form and in the vehicle list.
- An entry that is used by a vehicle cannot be deleted.
- Renaming an entry updates every vehicle that references it.

Use the official spelling and a consistent logo size. The logo path is relative to the application root; an invalid path simply shows no image.

Service Types

Fleet → **Base Data** → **Service Types** classifies service events such as inspections, repairs and battery checks.

Fields

Field	Meaning
Name	Service type name, at most 191 characters. Unique.
Description	Optional extra detail, at most 4000 characters

The vehicle picks a service type when a service event is recorded. The type appears in the event list and in the vehicle history PDF.

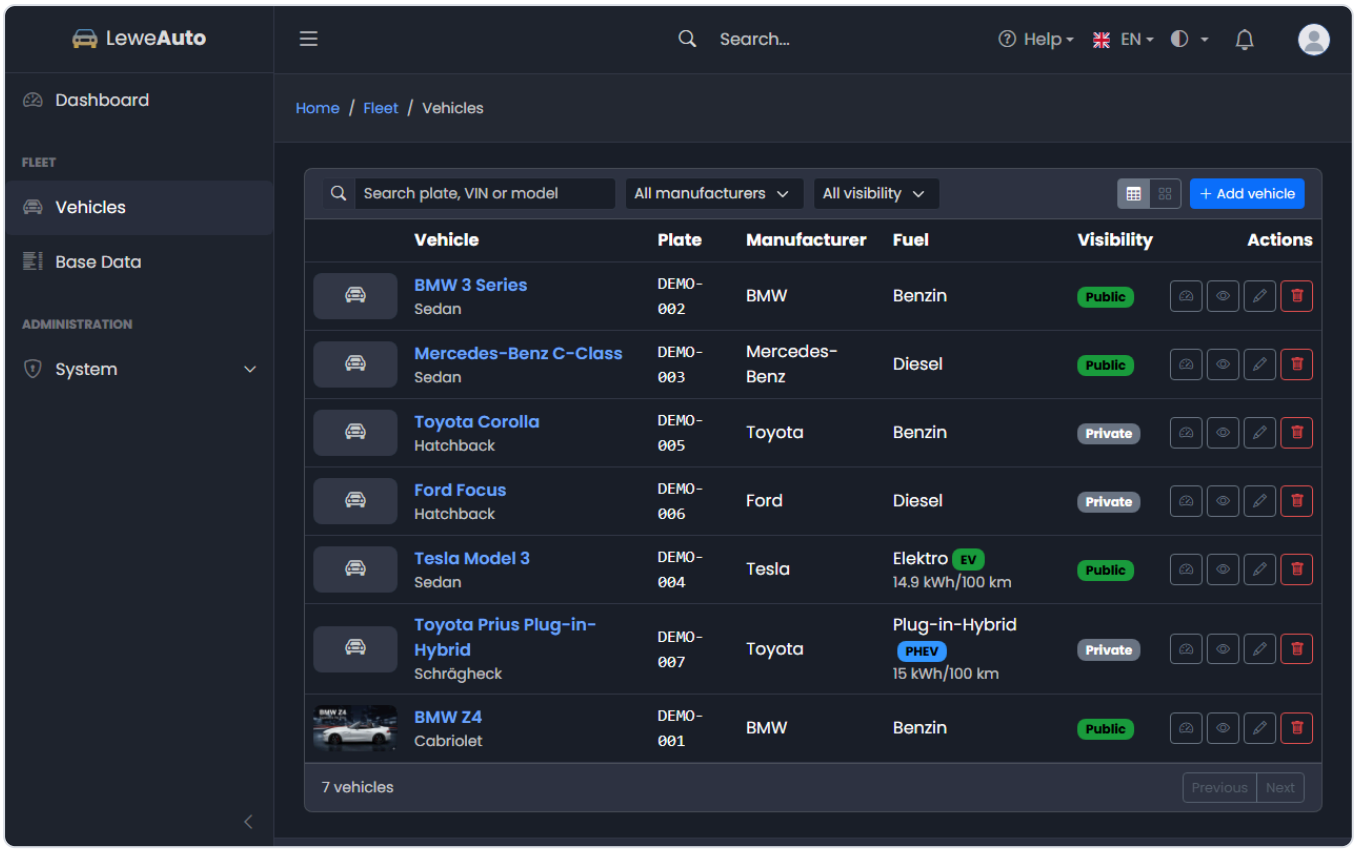
Typical entries are **Inspection**, **Oil change**, **Repair**, **Tyre change**, **Body work** and **Battery check**.

An entry that is in use cannot be deleted. Renaming it updates the label in the existing events.

Use a **Battery check** type for services that include a state-of-health reading. This makes the readings easy to find on the EV dashboard.

User Guide

This guide covers everyday work with LeweAuto: signing in, reviewing the fleet, working with a vehicle and recording events.



What you can see

A user with the standard **User** role can:

- view **public** vehicles and vehicles **assigned** to them or their groups
- record **fueling, charging, service and fixed-cost events** on assigned vehicles
- **edit and delete their own events** on assigned vehicles
- open the fleet dashboard

Users with `assign_vehicle` (typically the **Agent** role or higher) see and manage all vehicles and all events. Administrators also manage users, settings, base data and the license.

Pages

Page	Purpose
Login and Registration	Sign in, reset a password, create an account
Two Factor Authentication	Protect the account with a TOTP code
Dashboard	Annual fleet statistics and monthly costs
Vehicles	Search the fleet and open a vehicle
Profile	Account, avatar, preferences, password and security
Dark Mode	Light and dark appearance
Language	Interface language
Email Notifications	Which messages LeweAuto sends
About and Releases	Version and release information

Navigation

The sidebar groups the application into **Fleet** and **Administration**. The top bar has a global search, help, the language switch, the theme switch and your avatar menu.

Item	Takes you to
Dashboard	Fleet statistics and monthly costs
Vehicles	Vehicle list
Base Data	Reference lists (requires `manage_lookups`)
System	Users, groups, roles, permissions, settings and audit log (administrators)
Profile	Account, avatar, preferences, password and two-factor setup
About	Version, credits and release information

Visibility and assignments

Vehicles are **public** or **private**:

- **Public** vehicles are visible to every signed-in user.
- **Private** vehicles are visible only to assigned users and groups.
- **Assigned** users see a vehicle even when it is private.
- Only users with `assign_vehicle` can change assignments; only users with `publish_vehicle` can change the public flag.

Seeing a vehicle and working on it are different things. A public vehicle that is not assigned can be viewed, but events can only be created on **assigned** vehicles.

> If a vehicle or menu entry is missing, you may not have the permission or the vehicle may not be assigned to you. Ask your administrator rather than using another account.

Events and ownership

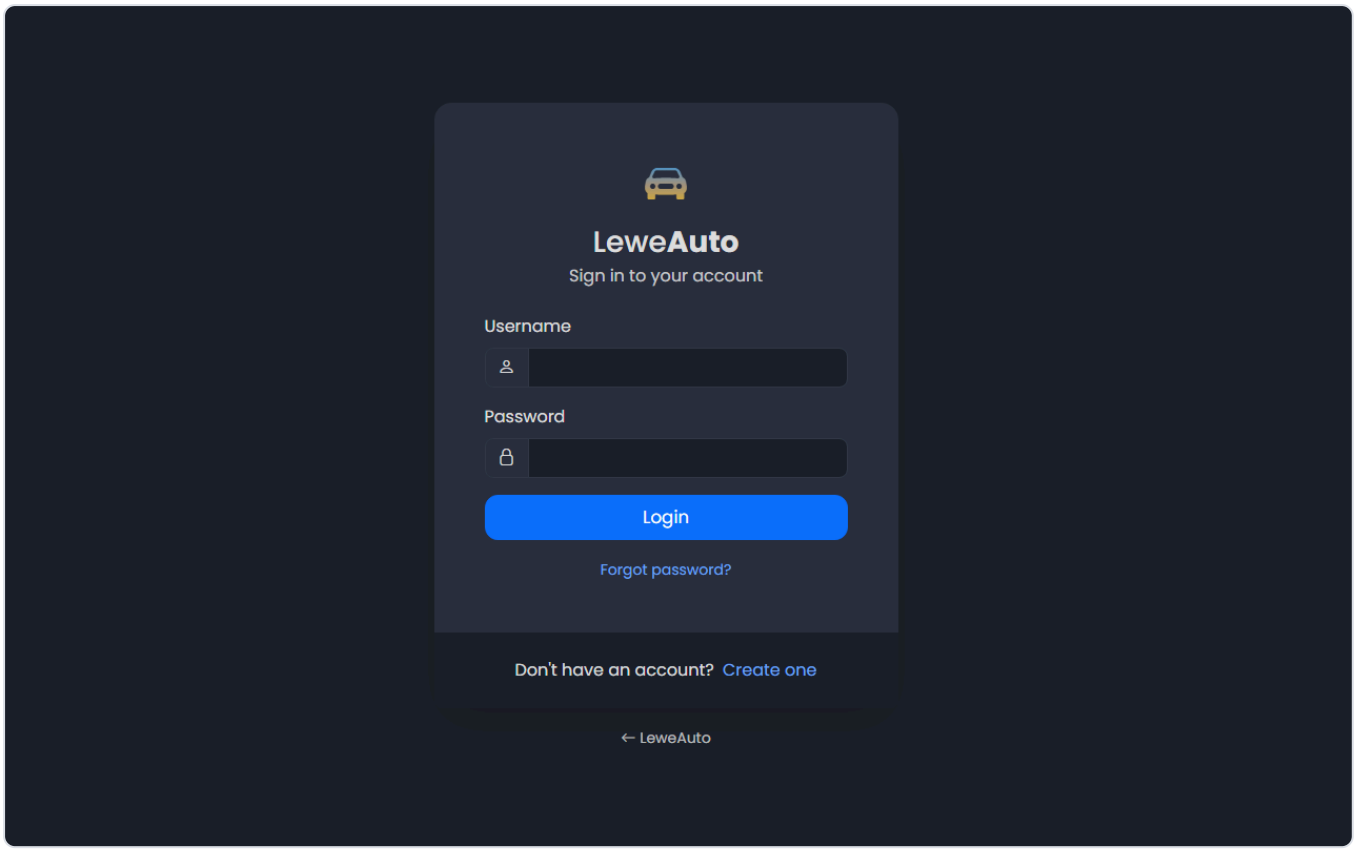
The Events tab has one sub-tab per event type: **Fueling**, **Charging**, **Service** and **Fixed costs**. The charging tab only appears for electric and plug-in hybrid vehicles.

Users without `assign_vehicle` can edit and delete only **their own** events on assigned vehicles. Agents and administrators can manage all events on all visible vehicles. Each event records who created it, and the audit log records every change.

> Record the odometer with every event. LeweAuto uses consecutive odometer readings to calculate distance and consumption between events, which feeds the vehicle dashboard.

Login and Registration

Open LeweAuto in a browser and use the login page. The login method depends on the administrator's configuration.



Sign in

1. Enter your **username** and **password**
2. Click **Login**

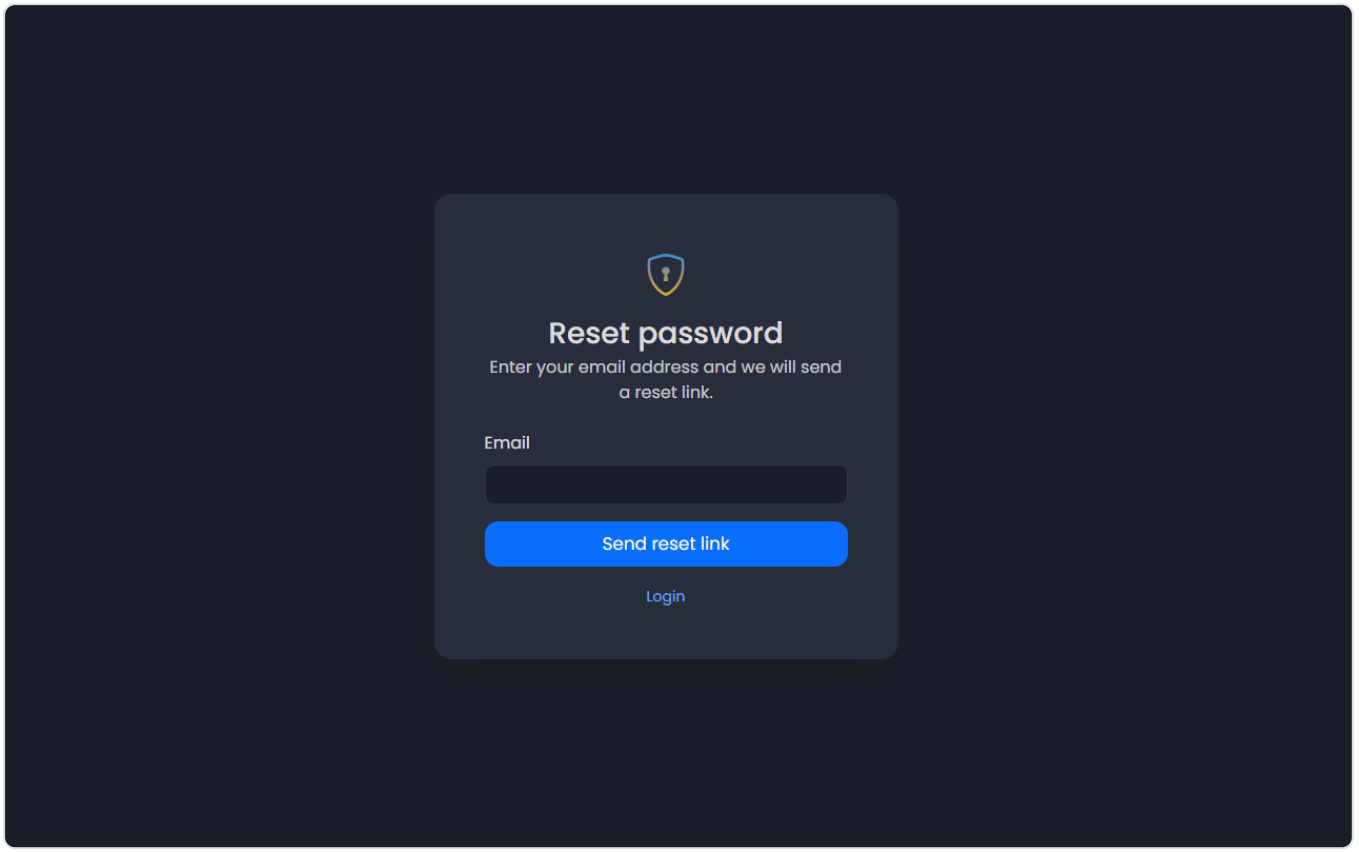
The session is kept in an HttpOnly cookie. The default lifetime is two hours (`SESSION_EXPIRATION=7200`); after that you have to sign in again. **Log out** in the avatar menu ends the session immediately.

> If the administrator enabled LDAP, the login page says **LDAP authentication is active**. If OIDC is enabled, use **Login with SSO**. The `admin` account always logs in with a local password.

Forgot password

1. Click **Forgot password?**
2. Enter the email address of your account
3. Click **Send reset link**

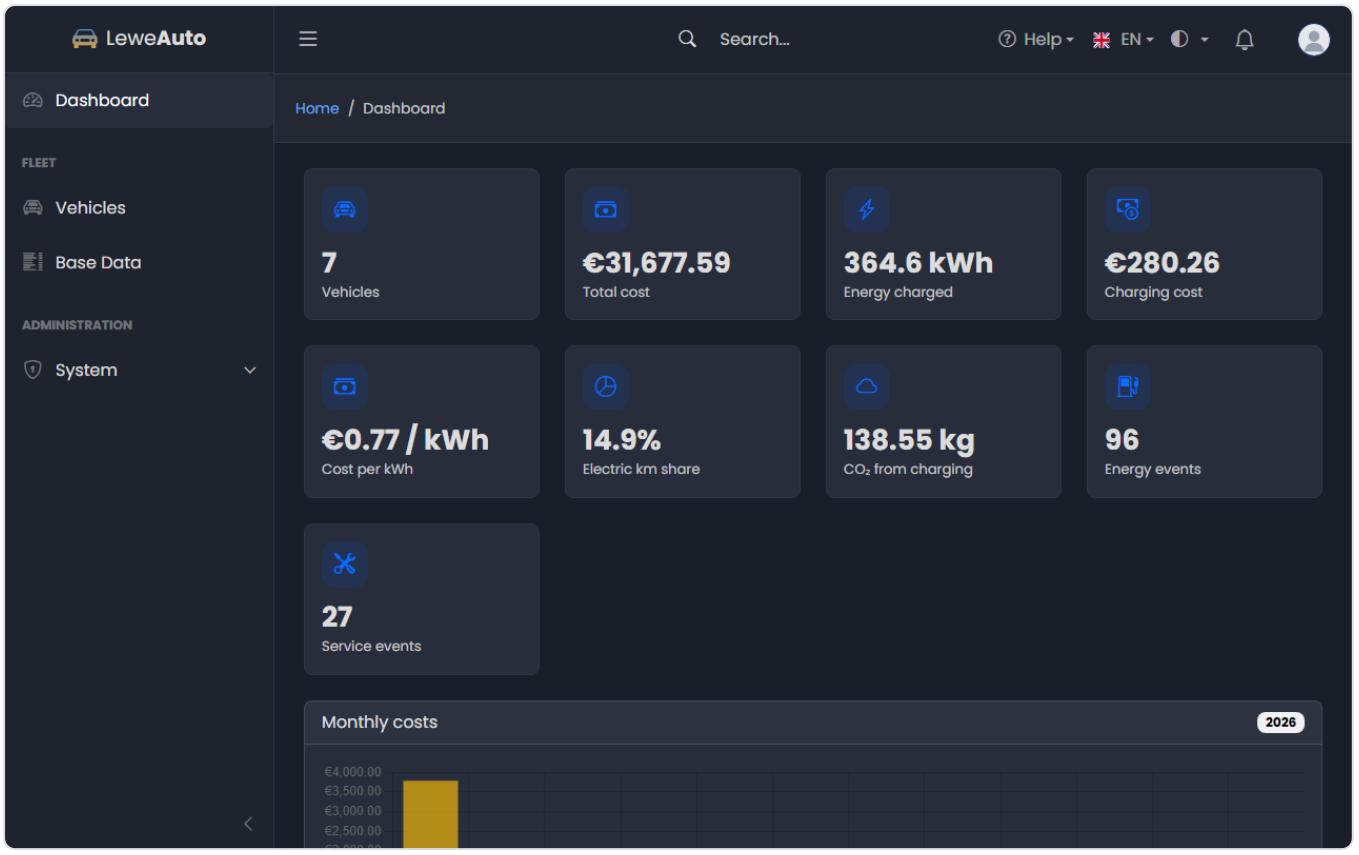
If the address belongs to a **local** account, LeweAuto sends a link that is valid for **one hour** and can be used once. The page always shows the same message, so it does not reveal whether an address is registered. Accounts that authenticate through LDAP or OIDC have their password managed by the provider and do not receive a reset link.



Open the link, enter the new password twice and click **Set new password**. The password must have at least 8 characters. A **Password was changed** email follows.

Create an account

Self-registration is **enabled by default**. The administrator can switch it off; when it is off, the login page has no **Create one** link.



Field	Rule
Username	3-50 characters: letters, digits, underscore, dot and hyphen. Unique.
Email	Valid address, at most 100 characters, unique.
Password	At least 8 characters; both password fields must match.

A new account receives the **User** role. An administrator can change the roles and groups later. Self-registration is disabled when LDAP or OIDC is active and in the limited license mode.

Login protection

Wrong passwords and repeated requests are counted per client address. With the default settings, after **10 attempts within 15 minutes** the address receives HTTP 429 until the window has passed. The administrator can change the limit in Settings or switch it off with `0`.

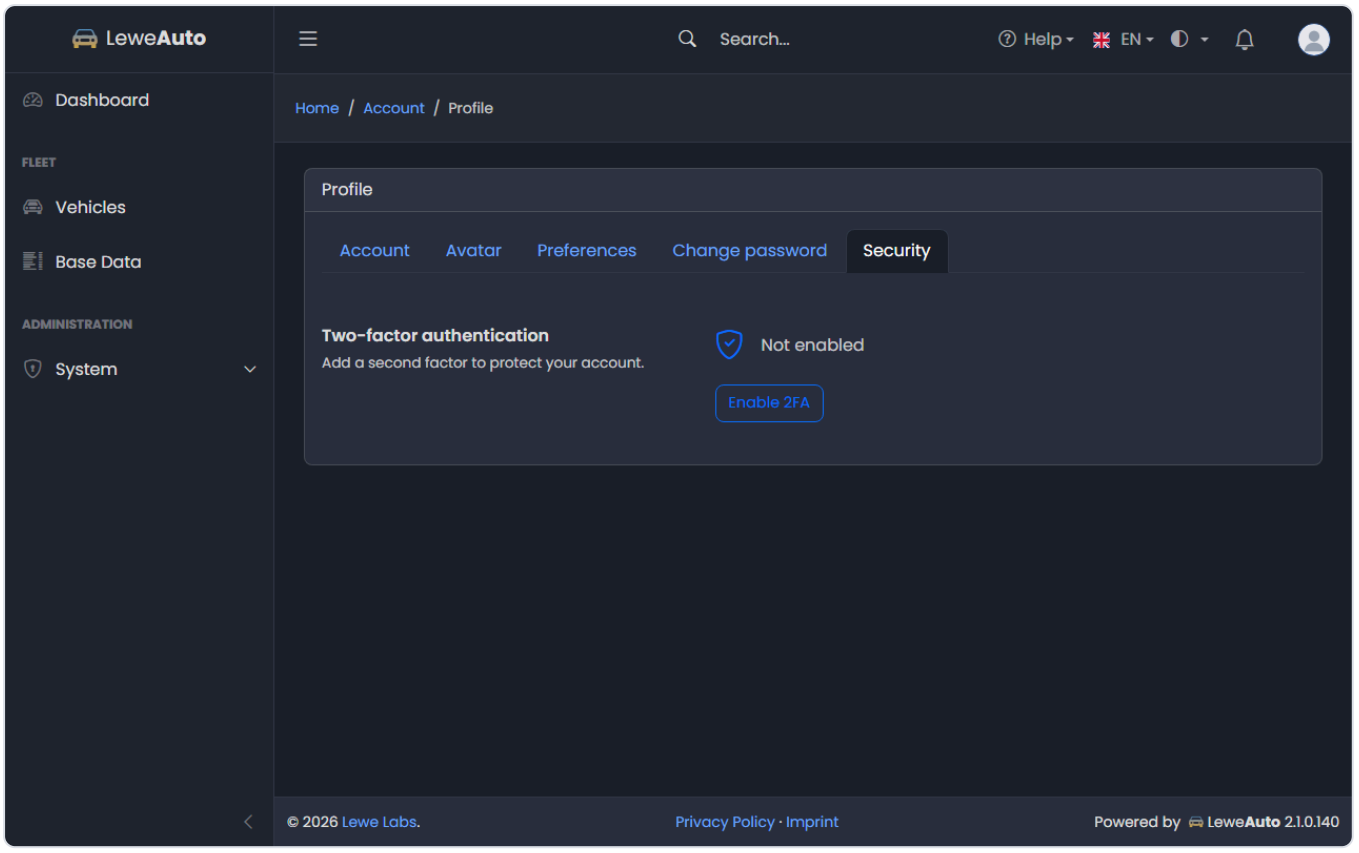
The login form uses a CSRF token. Requests from another site cannot reuse your session. Do not keep a login page open indefinitely; reload it if a login attempt fails unexpectedly.

Troubleshooting

Problem	What to do
"Invalid credentials"	Check the username and password. LDAP/OIDC users need the provider account.
No reset email	Check the spam folder; the account may be external, or mail is not configured.
"Too many attempts"	Wait for the rate-limit window or ask an administrator.
Login page says maintenance	Only administrators may sign in. Ask an administrator when it ends.
Session ends quickly	The session lifetime or the server clock may be misconfigured.
Two-factor code rejected	Check the device clock; TOTP codes depend on accurate time.

Two Factor Authentication

Two-factor authentication (2FA) adds a one-time code to the password. LeweAuto uses TOTP (RFC 6238): 6 digits, a new code every 30 seconds, compatible with any authenticator app.



Enable 2FA

1. Open **Profile** → **Security**
2. Click **Enable 2FA**
3. Scan the QR code with your authenticator app, or enter the secret manually
4. Enter the current 6-digit code
5. Click **Verify**

The setup is confirmed only when the code matches. The secret is stored encrypted and tied to your account. Enabling or disabling 2FA sends a **Two-factor authentication changed** email.

Sign in with 2FA

After the password step, LeweAuto asks for the code. The pending login is valid for **5 minutes**; if it expires, start the login again. A code is accepted only once and only after the last accepted step, so a used code cannot be replayed.

Disable 2FA

Open **Profile** → **Security**, click **Disable 2FA** and enter your current password. Disabling requires the password even when you are already signed in.

If you lose the authenticator

- Ask an administrator to reset the second factor for your account. The admin edit form has a **Reset 2FA** action.
- The next login starts the setup again.
- If an administrator loses their own device, the `DISABLE_ADMIN_2FA=true` environment setting lets every administrator sign in without a code. Use it as an emergency measure, then reset the factor and set the value back to `false`.

> ⚠ LeweAuto does not issue recovery codes. Keep a second device enrolled in the same authenticator app or make sure another administrator can reset your factor. Check that the device clock is accurate; TOTP depends on it.

Attempt limits

Failed codes are counted. A user is blocked after **5 failed codes within 5 minutes**; an IP address is blocked after **20 failed codes within 15 minutes**. The block lasts as long as the window, counted from the last failure.

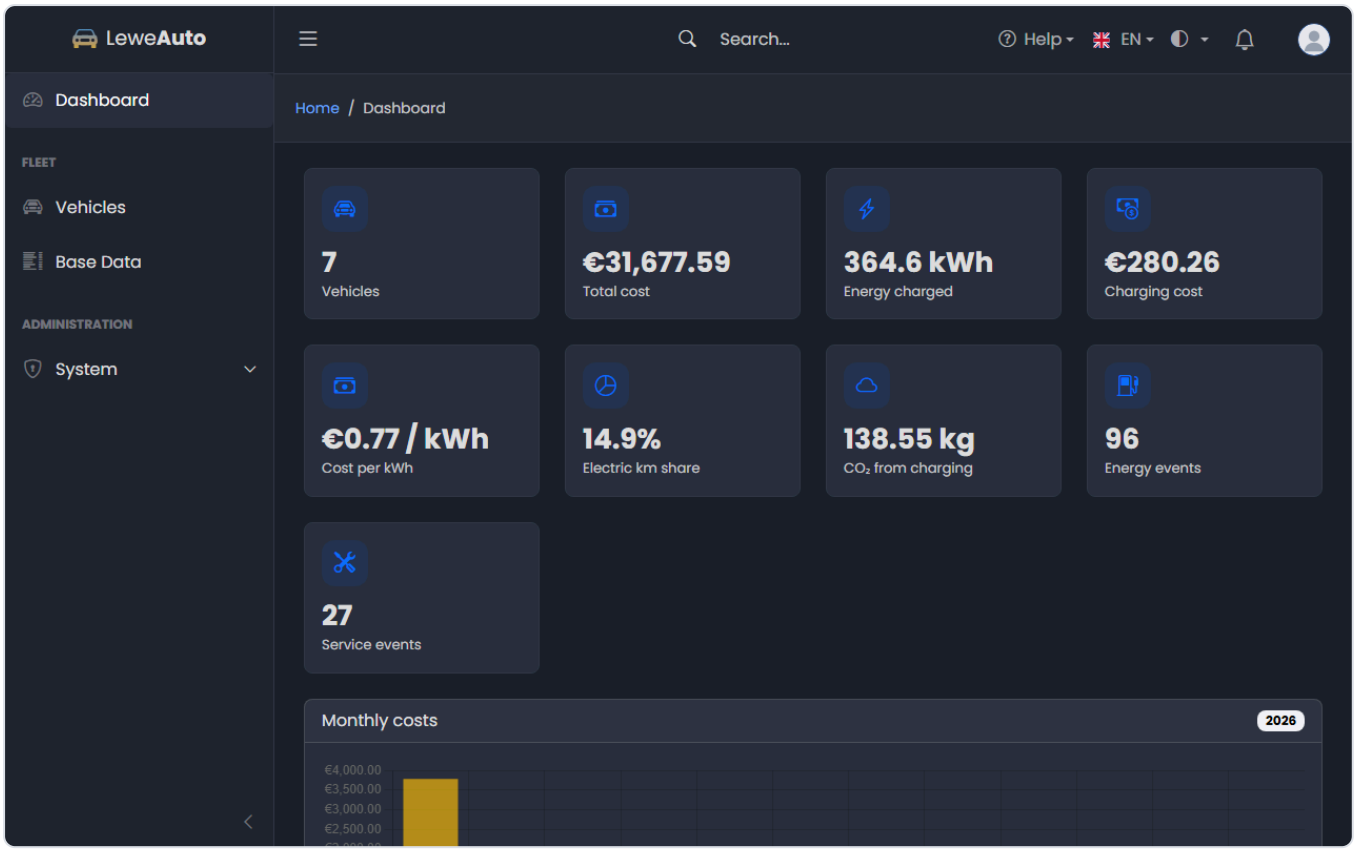
Administrator settings

- **Require two-factor authentication** in Settings forces every user to set up 2FA.
- Users who already enabled 2FA keep it when the setting is turned off.

- In the limited license mode nobody can **set up** a new factor; existing factors keep working and `force_2fa` has no effect.
- `TWOFA_ENCRYPTION_KEY` encrypts the secrets. Back it up and never change it after users have enrolled, otherwise the stored secrets become unreadable.

Dashboard

Dashboard is the fleet overview. It aggregates the vehicles you may see for the **current year** and shows the monthly cost development.



Statistics

Tile	Meaning
Vehicles	Number of vehicles in scope for you
Total cost	Fueling and charging costs plus service costs plus fixed costs
Energy charged	Electric energy from charging events
Charging cost	Cost of the charging events
Cost per kWh	Charging cost divided by the charged energy
Electric km share	Share of distance driven electrically, based on the energy kind of the vehicle and events
CO_2 from charging	Estimate from charged energy and the grid intensity
Fueling events	Number of fueling and charging records
Service events	Number of service records

The fleet dashboard counts a fixed cost in the month of its **start date**. The vehicle dashboard spreads it over its whole period.

Monthly costs

The bar chart stacks **fuel**, **charging**, **service** and **fixed costs** for each month of the current year. Hover a bar to see the exact amounts. The table below the chart lists the total per month. Costs are converted to your preferred currency with the stored exchange rates.

Scope and permissions

The dashboard follows the same visibility rules as the fleet list:

- Users with `assign_vehicle` see all vehicles.
- Other users see **public** vehicles and vehicles **assigned** to them or their groups.

A user without `view_dashboard` does not see the dashboard entry.

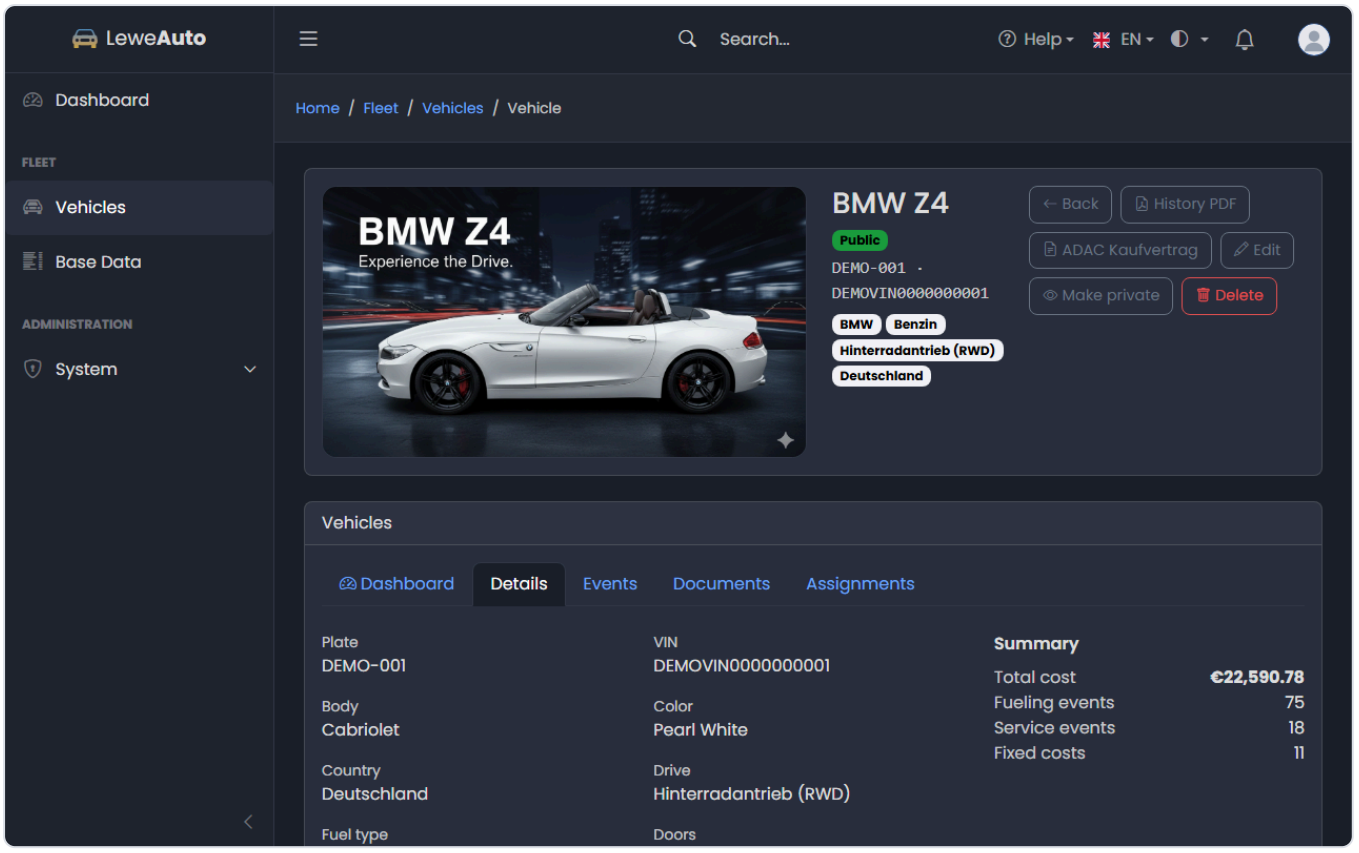
Preferences that change the display

Open Profile to change the currency, distance, volume, date/time format and theme. Stored values stay metric; the display converts them. The default units are administrator settings under Settings → Units and display. The CO_2 grid intensity is part of the installation configuration.

> If a tile is empty or zero, check that the relevant events exist in the current year and that the vehicle is in your scope. An event in another year does not appear on this dashboard.

Vehicles

A vehicle is the centre of LeweAuto. It holds the master data, the events and the documents, and it feeds the dashboards.



Tabs of a vehicle

Tab	Content
Dashboard	KPIs and charts for the current year and all time, including battery health for EVs
Details	Vehicle data and a summary of the most important figures
Events	Fueling, charging, service and fixed-cost records
Documents	Uploaded files such as invoices, reports and photos
Assignments	Users and groups that may see and use the vehicle

Header actions

Action	Permission	Effect
History PDF	`view_vehicle`	Opens a sale-ready PDF with the vehicle data and its event history
ADAC Kaufvertrag	`view_vehicle`	Downloads a prefilled ADAC purchase contract for this vehicle
Edit	`edit_vehicle`	Opens the vehicle form, image and assignments
Make public / private	`publish_vehicle`	Changes whether all signed-in users can see the vehicle
Delete	`delete_vehicle`	Deletes the vehicle **and all its events and documents**

The public/private badge next to the title shows the current visibility. A private vehicle is visible to assigned users and groups only.

Visibility

A user with `view_vehicle` sees:

- every **public** vehicle
- every vehicle **assigned** to them directly
- every vehicle assigned to one of their **groups**

Administrators and users with `assign_vehicle` see all vehicles. Seeing a vehicle does not automatically allow recording events; events require an assignment (or `assign_vehicle`).

Related pages

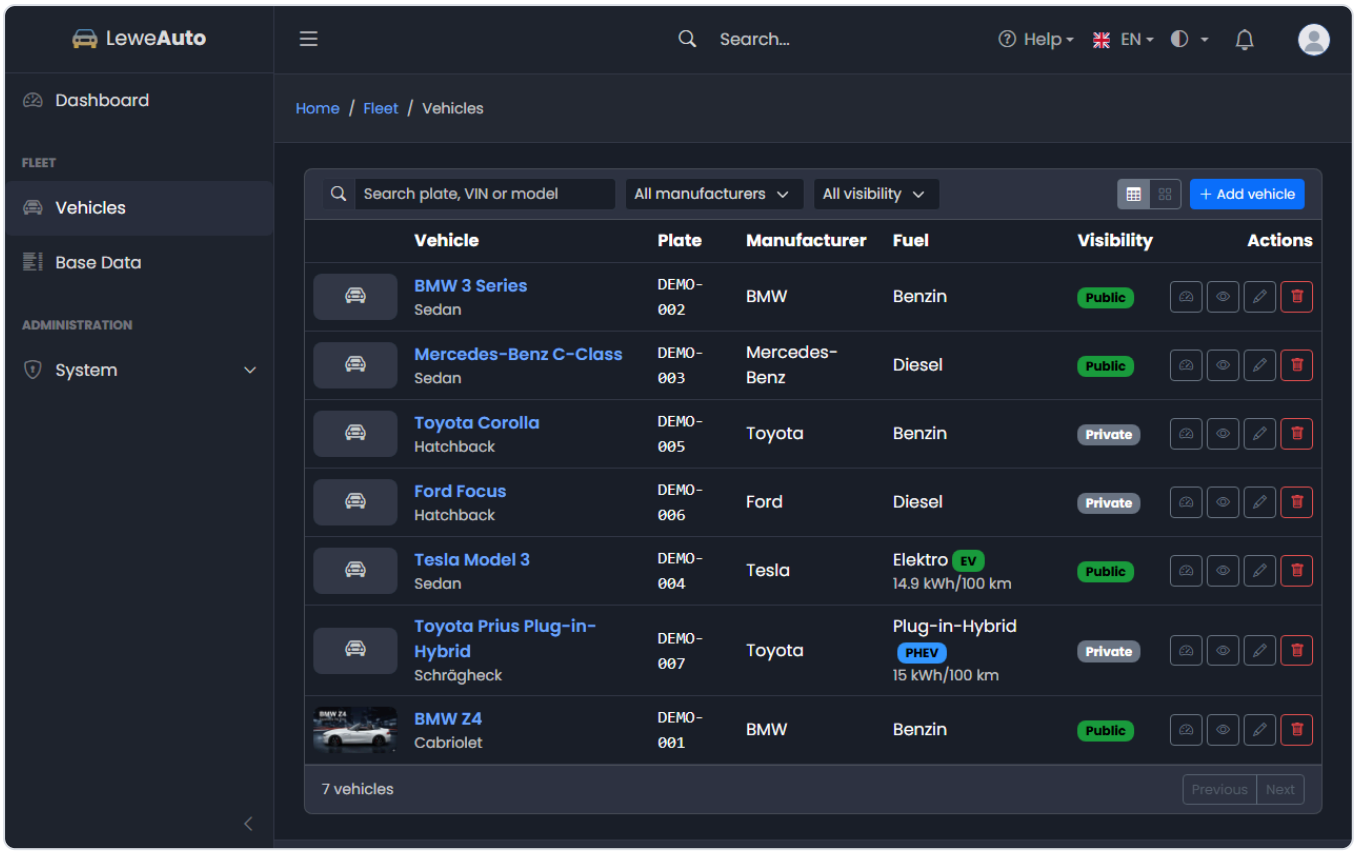
- List Vehicles
- Create Vehicle

- Vehicle Detail
- Vehicle Dashboard
- Fueling Events
- Charging Events
- Service Events
- Fixed Costs
- Documents
- Vehicle History PDF
- ADAC Contract

Fill in the vehicle data first. The more accurate the battery, fuel and purchase data, the more meaningful the dashboard, the history PDF and the ADAC contract become.

List Vehicles

Vehicles in the sidebar shows the fleet you may access.



Search and filter

Control	Matches
Search	Plate, VIN or model (case-insensitive; starts searching as you type)
Manufacturer	One manufacturer from the base data
Visibility	**Public** or **Private**

The list refreshes immediately when you type or change a filter. **Add vehicle** is only shown with `create_vehicle`.

Table and card view

Use the two buttons at the right of the toolbar to switch between:

- **Table** - image, vehicle, plate, manufacturer, fuel and EV/PHEV badge, visibility, actions
- **Cards** - a compact tile per vehicle with image, plate, visibility and fuel

The choice is not stored; the page opens in table view.

Pagination

The footer shows the number of vehicles that match the filters. **Previous** and **Next** move through the pages of 20 vehicles. The buttons are disabled at the ends.

Row actions

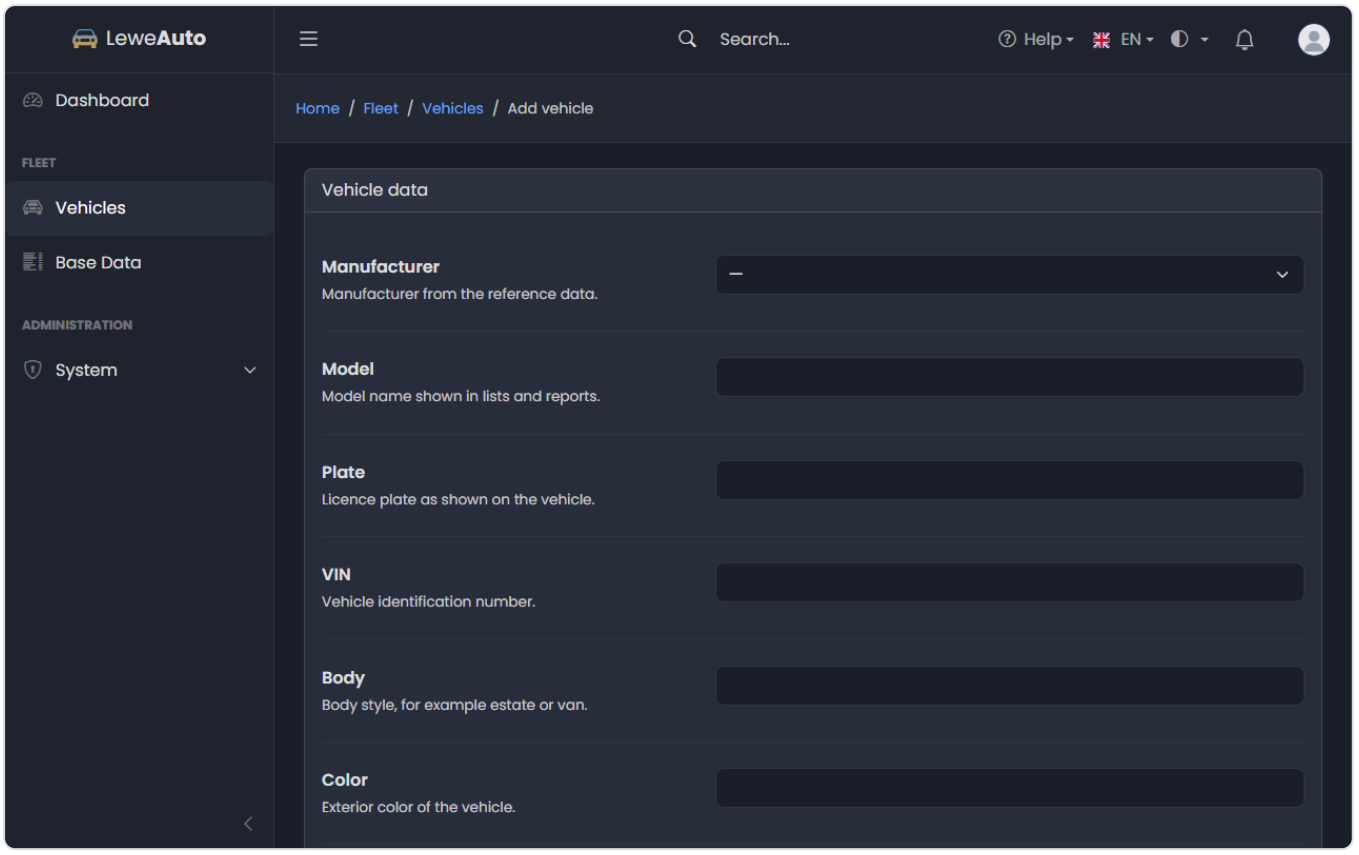
Action	Effect
Vehicle name	Opens the vehicle dashboard
Dashboard icon	Opens the vehicle dashboard directly
Open	Opens the vehicle detail page
Delete	Deletes the vehicle and its events (requires `delete_vehicle`)

Deleting asks for confirmation and cannot be undone. Documents that are no longer used by any vehicle are removed with it.

Search by VIN when the plate is unknown or when several vehicles share a model name. The search covers the VIN as well as the plate and model.

Create Vehicle

Vehicles → **Add vehicle** creates a vehicle record. The button requires `create_vehicle`.



Vehicle data

Field	Notes
Manufacturer	From Base Data
Model	Free text, at most 255 characters
Plate	Licence plate as shown on the vehicle
VIN	Vehicle identification number
Body	Body style, for example estate or van
Color	Exterior color
Country	Country of registration from base data
Drive	Drive type from base data
Fuel type	Energy source; its **energy kind** decides which extra fields appear
Public vehicle	Visible to every signed-in user, not only to assigned users
Doors / Seats	Numbers, not negative
Production date	Date the vehicle was built
Purchase date	Date the vehicle was purchased
Purchase price	In your preferred currency; stored in EUR with the exchange rate
Purchase odometer	Reading at purchase in your distance unit
Notes	Internal notes, at most 4000 characters

Fuel and plug-in hybrid fields

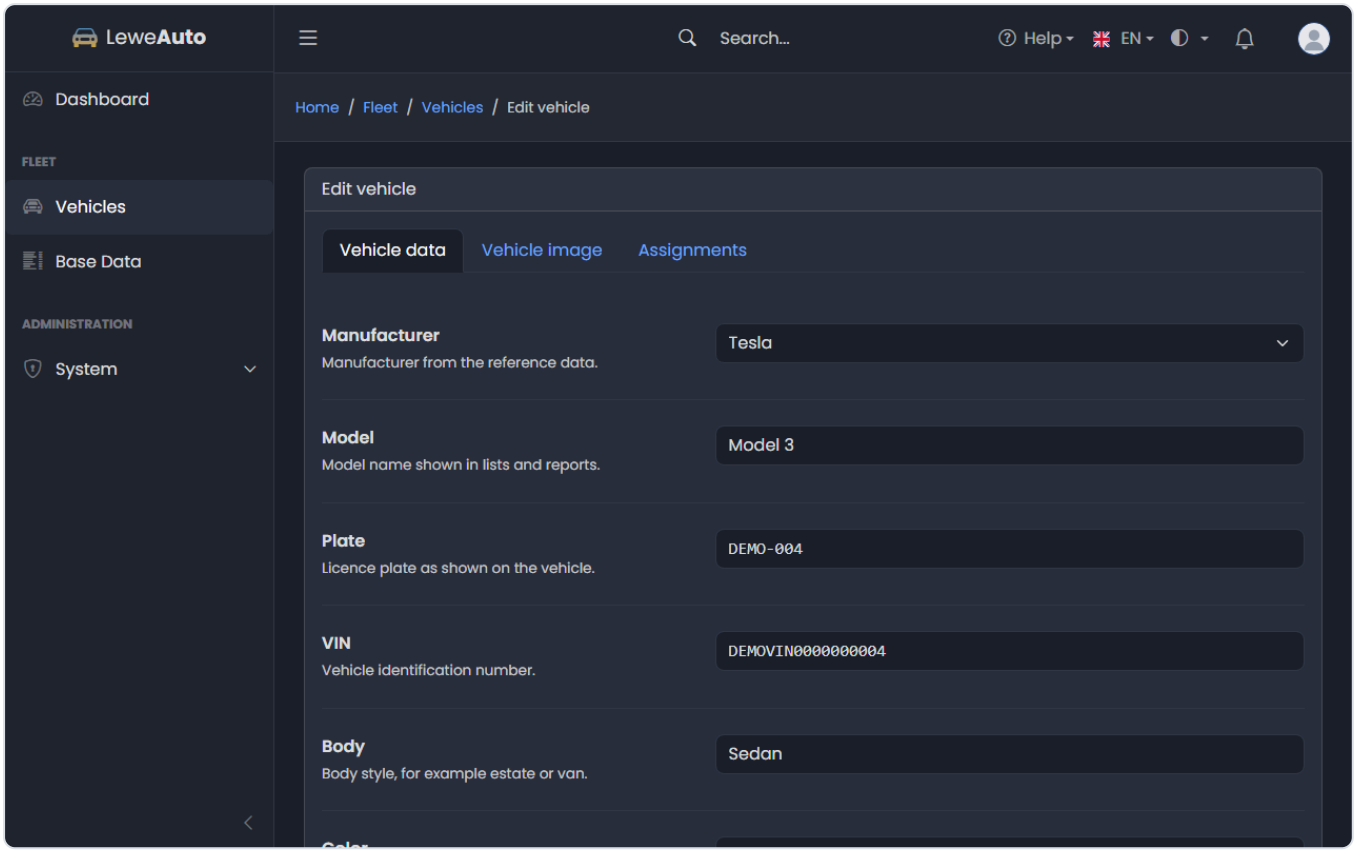
For a fuel or PHEV vehicle the form adds:

- **Engine displacement (ccm)**
- **Engine power (hp)**

Electric and plug-in hybrid fields

For an electric or PHEV vehicle the form adds:

- **Power (kW)**
- **Battery capacity (kWh)** and **usable battery capacity (kWh)** - usable must not exceed gross
- **Battery state of health (%)** - 0 to 100
- **WLTP range**, **EPA range**, **real-world range**, **consumption**
- **Maximum AC charging power**, **maximum DC charging power**, **onboard charger**
- **Connector type** - one or more from the built-in connector list
- **Battery type** (for example LFP, NMC or NCA), **battery warranty (years / km)**
- **Heat pump**, **V2L**, **V2H**



The fields of the other energy kind are hidden and are not saved. Switching the fuel type hides them and clears them on save.

Validation

- Numeric fields must not be negative.
- Battery SoH must be between 0 and 100.
- Usable battery capacity must not be greater than the gross capacity.
- Dates must be valid and are entered in the date format from your profile.
- The purchase price and odometer are converted from your preferred units into the stored metric base.

Creation is limited to **20 vehicles per hour** per user. The limit protects the API from accidental bulk creation.

After saving

LeweAuto opens the new vehicle. The form and this page do not yet offer an image or assignments; open **Edit** for those:

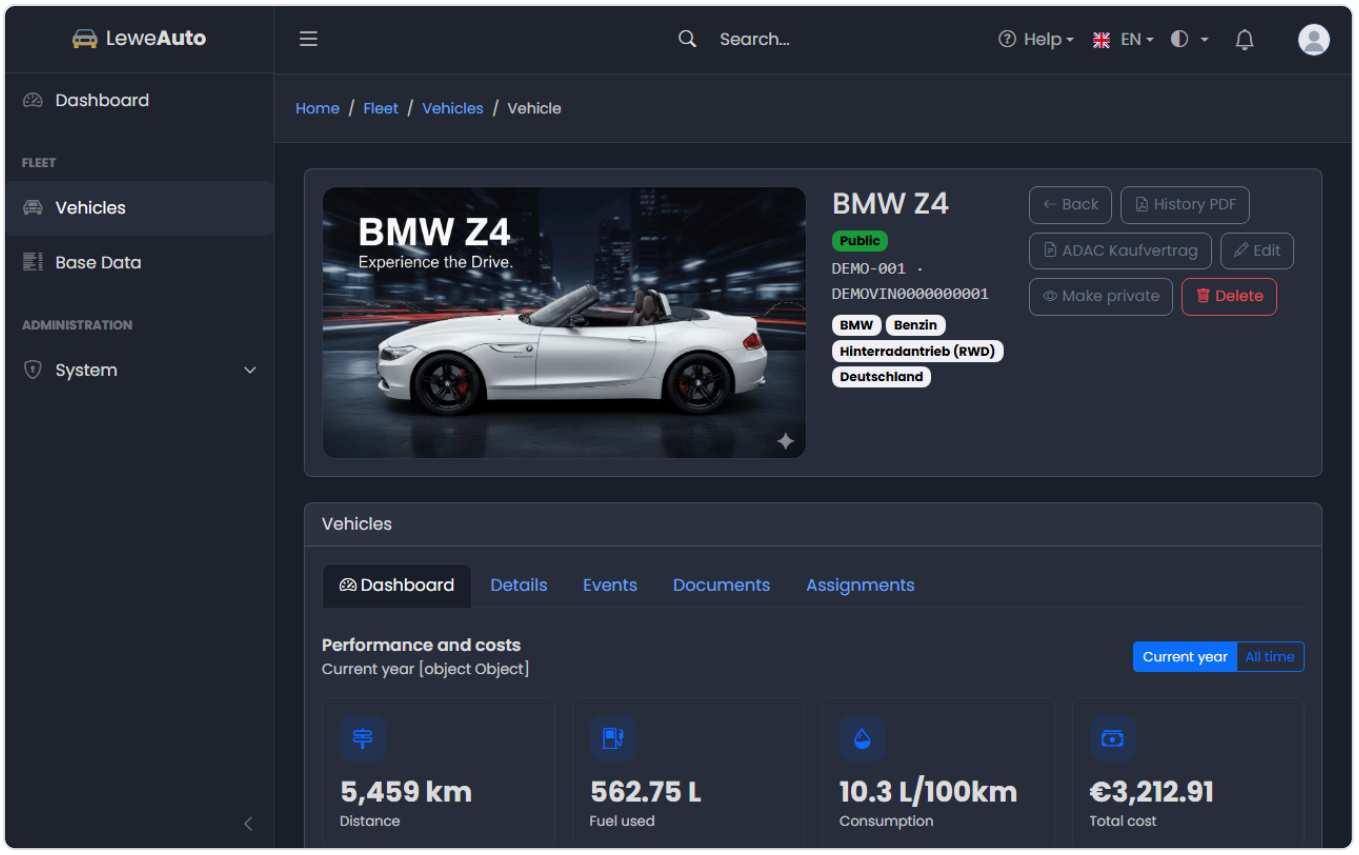
- **Vehicle image** – PNG, JPG, GIF or WEBP up to 1 MB; selecting a file uploads it immediately
- **Assignments** – select users and groups and save; assigned users see the vehicle even when it is private

See Vehicle Detail for the header actions and tabs.

> Load the base data first. Manufacturers, countries, drives, fuel types and connector types must exist before they can be selected. Assign the vehicle after saving so that drivers can record events.

Vehicle Detail

Open a vehicle from the vehicle list. The detail page is the home of the vehicle.



Header

The header shows the vehicle image, the title (manufacturer and model), the plate and VIN, the visibility badge and badges such as **EV** or **PHEV**. The action buttons depend on your permissions:

Button	Permission	What it does
History PDF	`view_vehicle`	Opens a sale-ready PDF with vehicle data, charts and events
ADAC Kaufvertrag	`view_vehicle`	Downloads a prefilled ADAC purchase contract
Edit	`edit_vehicle`	Opens the vehicle form with image and assignments
Make public/private	`publish_vehicle`	Toggles visibility for all signed-in users
Delete	`delete_vehicle`	Deletes the vehicle with all events and documents

Only users with `edit_vehicle` or `delete_vehicle` see the corresponding buttons. The public/private toggle is a separate permission (`publish_vehicle`).

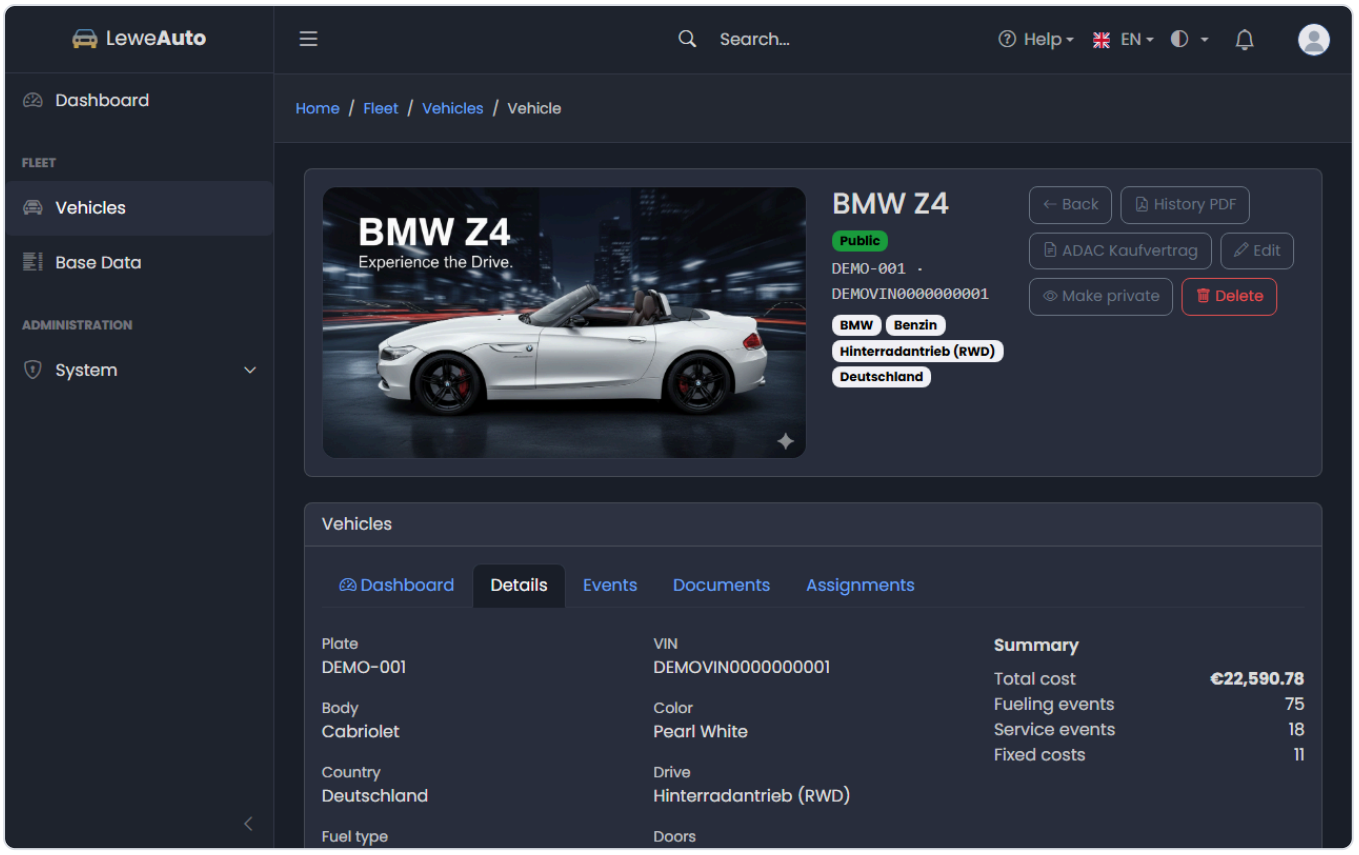
Tabs

Dashboard

The default tab. Shows the KPIs and charts for the vehicle. Use **Current year** and **All time** to change the period. See Vehicle Dashboard.

Details

The full vehicle data and a summary of the most important figures. Electric vehicles also show the battery data, ranges, charging power and equipment.



The values reflect your preferred units. The stored data stays metric.

Events

The event records, grouped by type:

- **Fueling** - petrol, diesel, gas and similar
- **Charging** - electric energy, shown for electric and plug-in hybrid vehicles
- **Service** - inspections, repairs and battery checks
- **Fixed costs** - insurance, taxes, leasing and similar

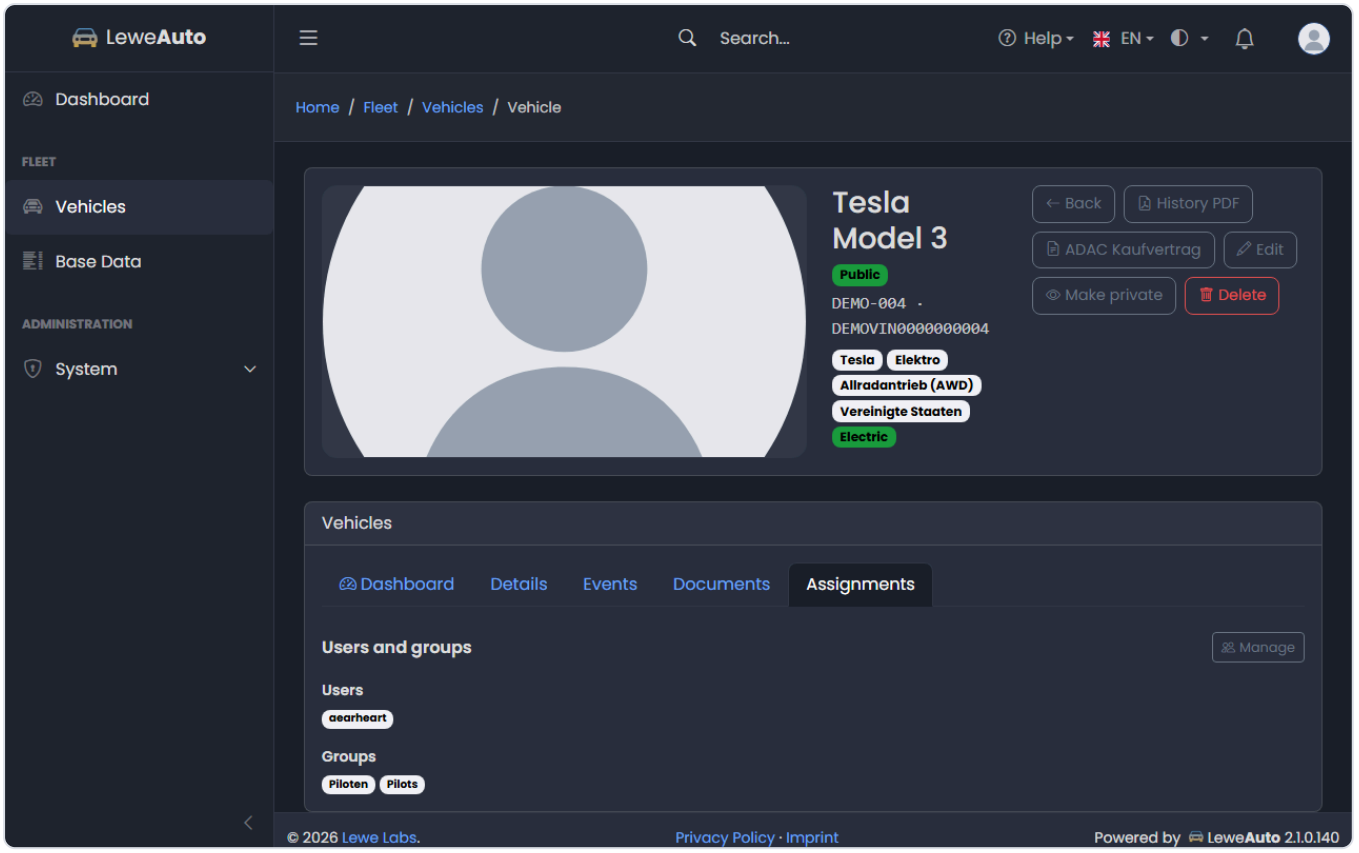
Each sub-tab has an **Add** button and row actions. See the event pages for the fields and rules.

Documents

Upload PDF, PNG, JPG, GIF, WEBP or TXT files up to 10 MB and open or delete them. See Documents.

Assignments

Shows the users and groups that may see the vehicle. Users with `assign_vehicle` can click **Manage** and change the selection.



Assignments work together with visibility:

- Every assigned user sees the vehicle, even when it is private.
- Every member of an assigned group sees the vehicle.
- Public vehicles are visible to everyone, assigned or not.
- Removing an assignment hides a private vehicle from that user.

Edit the vehicle

Edit opens the form in three tabs:

1. **Vehicle data** - the same fields as when creating the vehicle
2. **Vehicle image** - current image and upload (PNG, JPG, GIF or WEBP, up to 1 MB; uploads immediately)
3. **Assignments** - users and groups; saved with **Save vehicle**

Changes are recorded in the audit log.

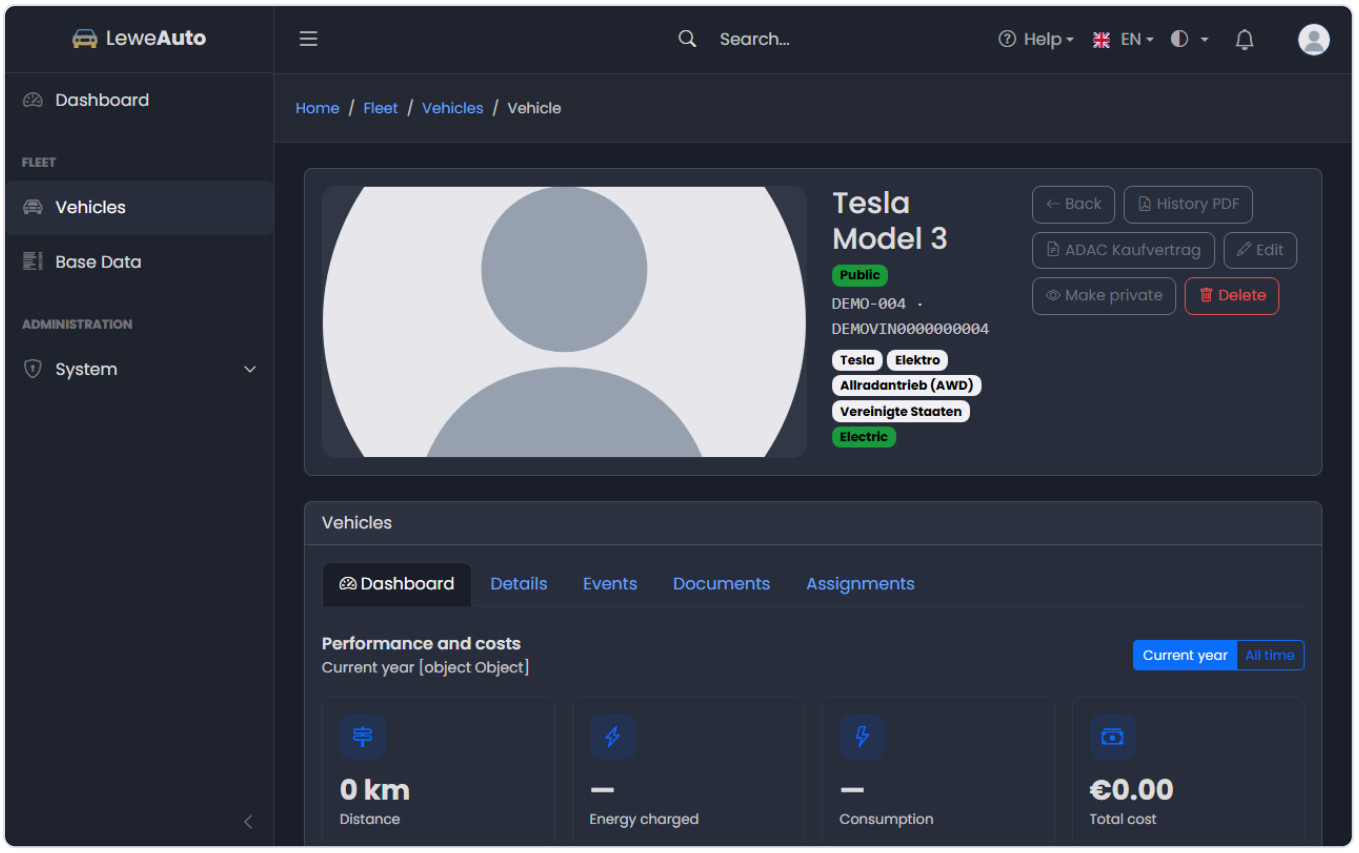
Delete the vehicle

Delete asks for confirmation and removes the vehicle **including all its events and documents**. This cannot be undone. Use the History PDF first if you need a record for your files.

> ⚠ Deleting a vehicle also deletes its fueling, charging, service and fixed-cost history. Export the history PDF before deleting a vehicle that is being sold or replaced.

Vehicle Dashboard

Open a vehicle and stay on the **Dashboard** tab. The vehicle dashboard shows performance, costs and battery data for the current year or all time.



Period

Use **Current year** and **All time**:

- **Current year** - one bucket per month from January to December
- **All time** - one bucket per calendar year

The label next to the toggle shows which year or period is displayed. The KPIs, charts and value panel all follow the selected period, except the purchase price, which is always the stored purchase price.

KPI cards

The cards depend on the energy kind of the vehicle:

Card	Meaning
Distance	Distance between the odometer readings of the events
Fuel used	Litres or gallons from fueling events
Energy charged	kWh from charging events
Consumption	L/100 km, MPG, kWh/100 km or mi/kWh, depending on the vehicle and units
Total cost	Fueling, charging, service and fixed costs
Cost per km / mi	Total cost divided by distance
Cost per kWh	Charging cost divided by charged energy
Avg charging power	Average power of the charging sessions
Avg charging duration	Average minutes per charging session
Avg SoC gain	Average increase in state of charge
Home charging share	Share of charging sessions at home
DC charging share	Share of DC fast-charging sessions
Charging losses	Energy into the battery versus energy billed
PV share	Share of solar energy in the charging sessions
CO_2 from charging	Estimate from charged energy and the grid intensity
Avg charging temperature	Average ambient or battery temperature during charging
Fixed cost / month	Fixed costs spread over the months in the period
Fixed cost / day	Fixed costs spread over the days in the period
Cost / month	Total cost divided by the months in the period

Charts

- **Cost trend** - stacked monthly or yearly bars for fuel, charging, service and fixed costs
- **Cost breakdown** - doughnut of purchase price, fuel, charging, service and fixed costs, with a table of the amounts
- **Driving and consumption** - distance bars with fuel and electric consumption lines
- **Value and fixed costs** - total cost so far, an estimated current value (purchase price reduced by 10 % per year) and the difference as total loss; below it, fixed costs grouped by type
- **Battery health** (EV) - state of health from service events that recorded it
- **Charging providers** (EV) - energy and cost per provider, with cost per kWh

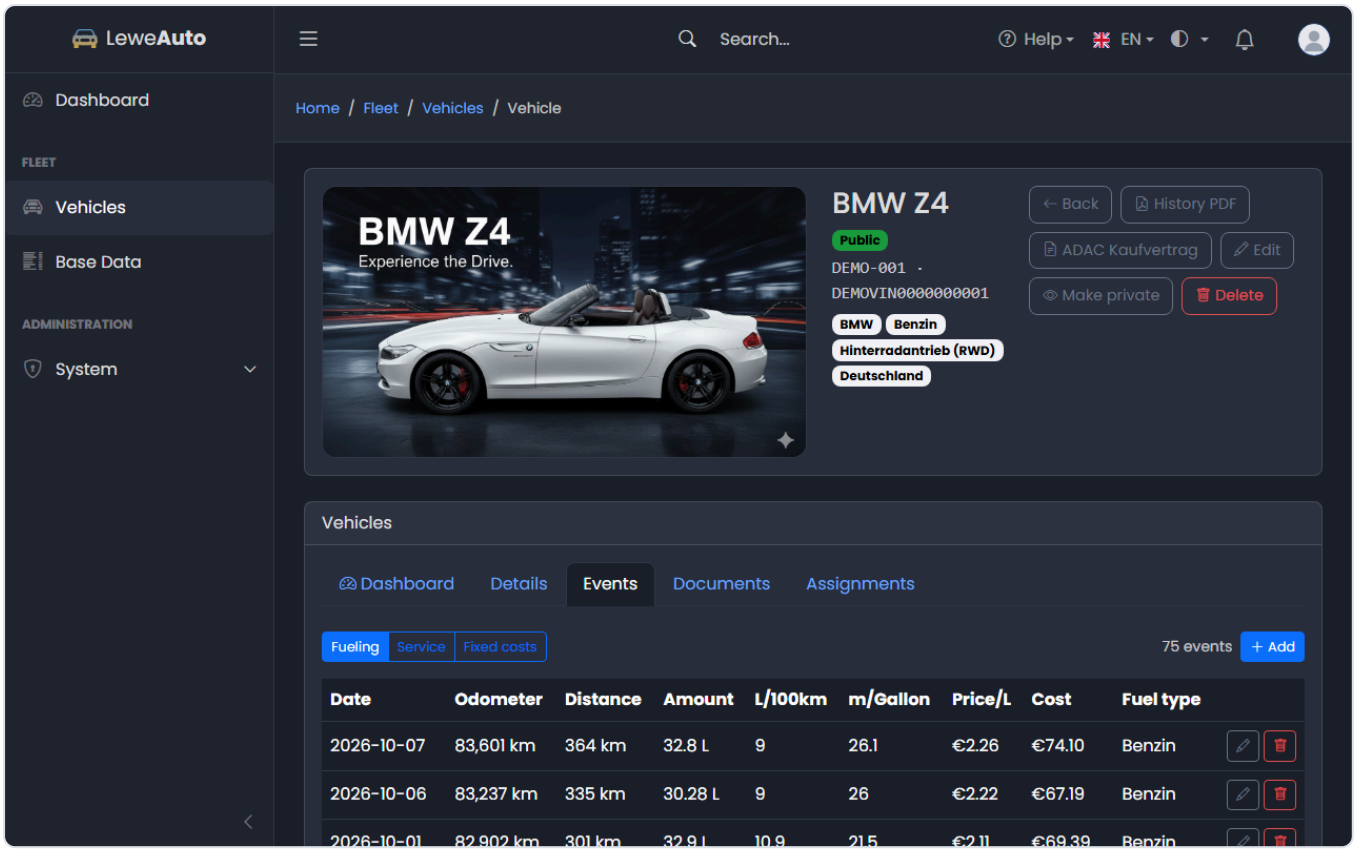
Where the numbers come from

- Distance is derived from consecutive odometer readings in the events.
- Consumption uses the distance between events of the same energy kind. For plug-in hybrids, fuel and electric consumption are calculated separately.
- Fixed costs are spread over the months they cover for the cards, the cost trend and the cost breakdown.
- The current value is an estimate, not a market valuation. It starts from the purchase price and loses 10 % per year, limited to 100 %.

A missing chart usually means there is no matching event in the selected period. Switch to **All time** to see older data, and check that the energy kind of the fuel type is correct.

Fueling Events

Record fuel purchases and other energy fill-ups on the **Events** → **Fueling** tab. For electric vehicles the same tab shows charging events; see Charging Events.



Fields

Field	Rule
Date	Required; date of the fueling
Odometer	Required; reading at the station
Amount	Required for fuel; litres or gallons, greater than zero
Cost	Required; total amount paid
Fuel type	From base data; for a PHEV choose a concrete fuel or electricity entry
Station	Optional; at most 255 characters
Notes	Optional; at most 4000 characters

For a **plug-in hybrid**, the vehicle's own fuel type has the energy kind **Both** and cannot be used for an event. Choose **Petrol**, **Diesel** or an **Electricity** entry so LeweAuto knows whether the record is a fuel fill-up or a charging session. The correct event fields appear after the selection.

Table

Column	Meaning
Date	Event date
Odometer	Reading in your distance unit
Distance	Distance since the previous event of the same vehicle
Amount	Fuel volume
L/100km	Consumption since the previous fuel event
m/Gallon	Consumption in miles per gallon
Price/L	Cost per litre or gallon
Cost	Total cost
Fuel type	Selected fuel

Consumption is calculated only when the previous odometer reading is lower than the current one. The first event therefore has no distance and no consumption.

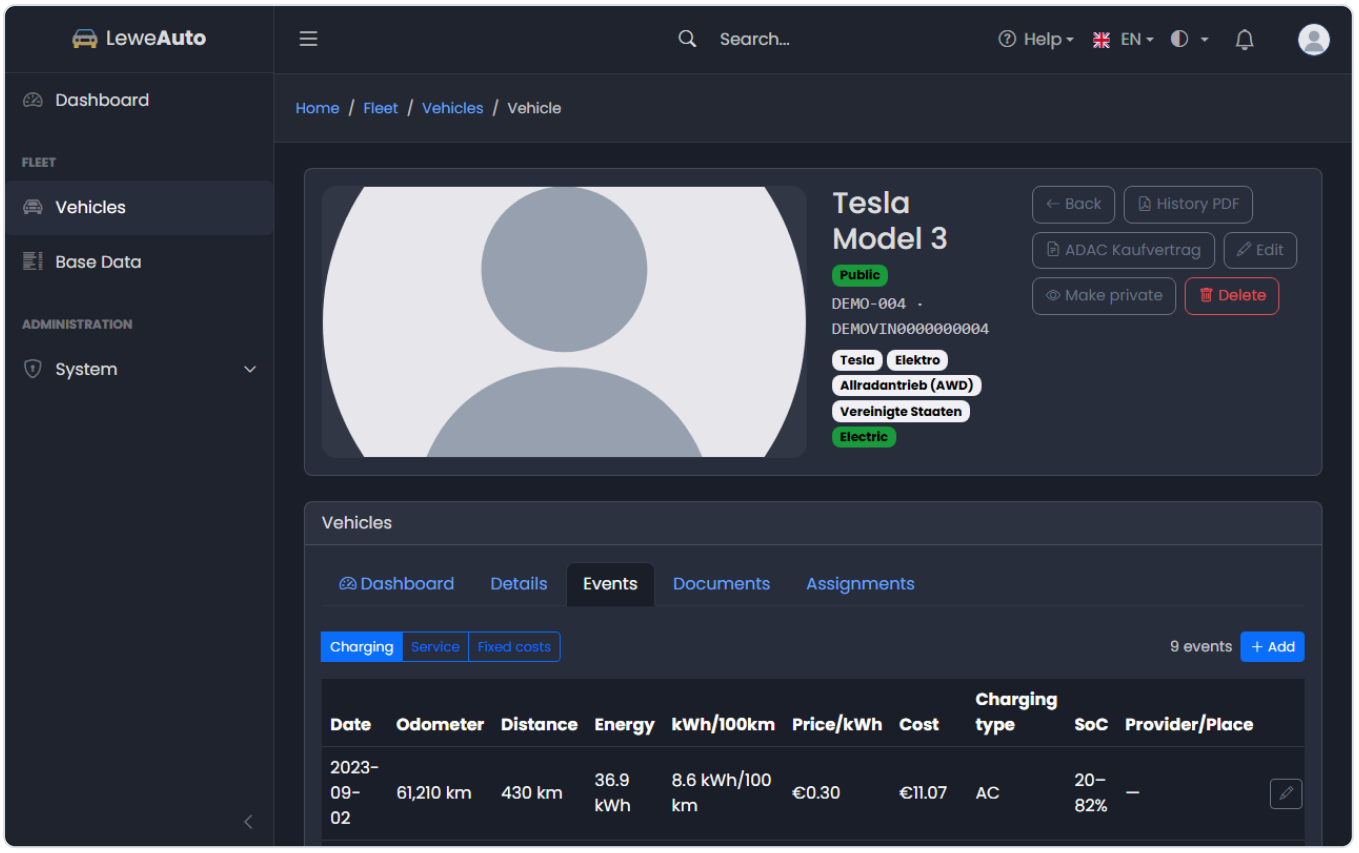
Rules and limits

- Cost and odometer must not be negative; the amount must be greater than zero.
- A user without `assign_vehicle` can create events only on **assigned** vehicles and can edit or delete only **their own** events.
- Each user may create at most **120 events per hour** across all event types.
- Every change is written to the audit log.

Record the odometer at every fill-up. Without consecutive readings, the distance and consumption columns and the dashboard consumption lines stay empty.

Charging Events

Record electric charging sessions on the **Events** → **Charging** tab of an electric or plug-in hybrid vehicle.



For a **plug-in hybrid**, choose an **Electricity** entry as the fuel type of the event. The PHEV fuel type itself cannot classify a session; the charging form only appears for electricity.

Fields

Field	Rule
Date	Required; date of the session
Odometer	Required; reading at the charger
Energy	Required; kWh taken from the charger, greater than zero
Energy into battery	Optional; kWh that reached the battery, not more than the energy
Cost	Required; total amount billed
Price per kWh	Calculated from cost and energy; read-only
Charging type	AC, DC or HPC
Charging power	Measured or reported power in kW
Charging duration	Minutes
State of charge at start	0-100 %
State of charge at end	0-100 %; not lower than the start value
Temperature	-50 to 60 °C
Provider	From the charging providers base data
Tariff	Optional; must belong to the selected provider
Location	Home, Work, Public AC, Public DC or Other
Connector	From the built-in connector list
Meter start / end	Optional meter readings in kWh
Idle fee / Parking fee	Optional non-negative amounts
Station	Optional name or place, at most 255 characters
Notes	Optional, at most 4000 characters

If you select a tariff without a provider, the provider is taken from the tariff. A tariff that belongs to a different provider is rejected.

Table

Column	Meaning
Date	Session date
Odometer	Reading in your distance unit
Distance	Distance since the previous charging event
Energy	Charged energy
kWh/100km	Electric consumption since the previous charging event
Price/kWh	Cost divided by energy
Cost	Total cost
Type	AC, DC or HPC
SoC	Start–end state of charge, for example `35-82%`
Provider/Place	Provider name or station

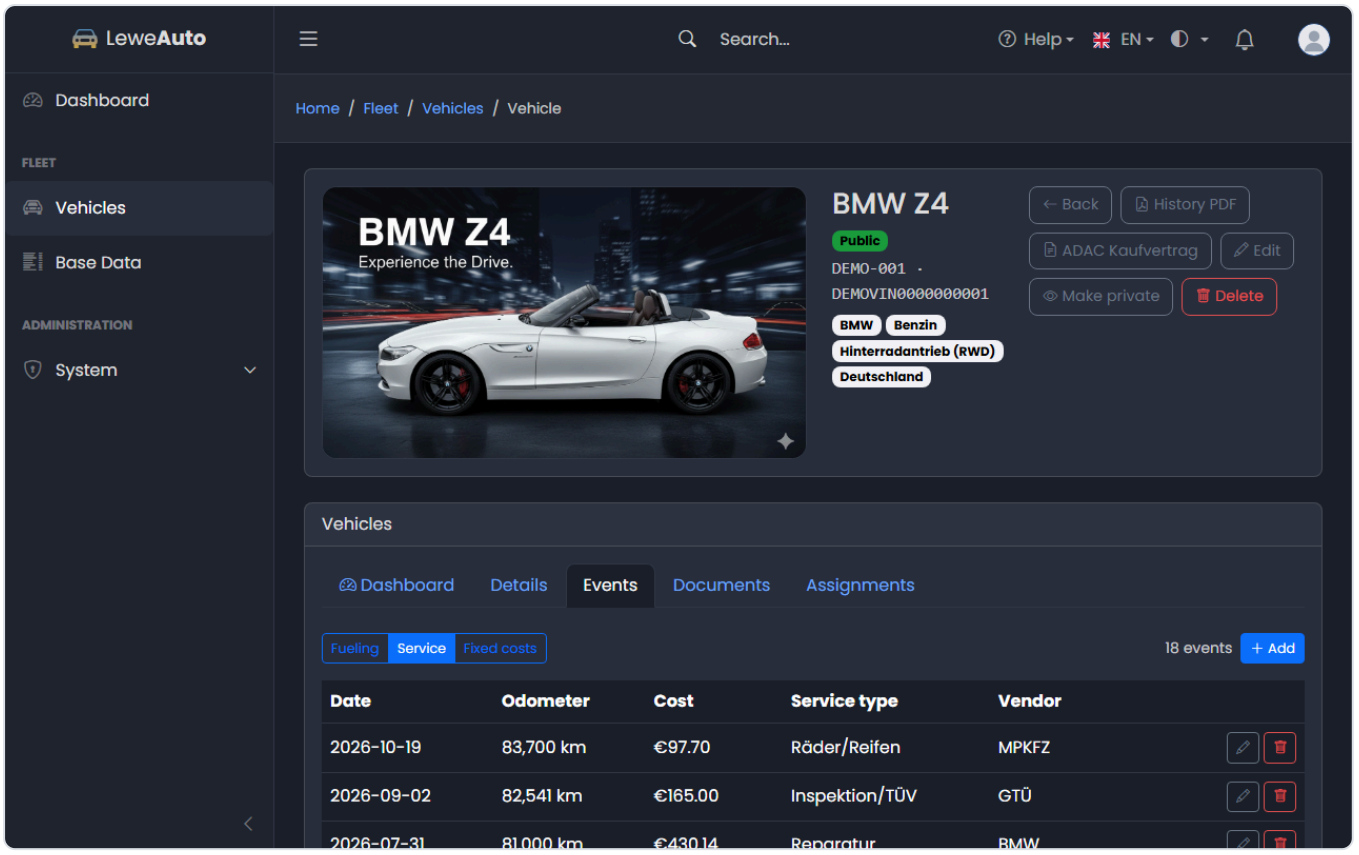
What the data feeds

- **Energy charged**, **charging cost**, **cost per kWh** and consumption on the dashboard
- **Home charging share**, **DC charging share**, **average charging power**, **average duration** and **average SoC gain**
- **Charging losses** when the energy into the battery is lower than the billed energy
- **Charging providers** table with energy, cost and cost per kWh
- **CO_2 from charging** when the grid intensity is configured

Fill in the state of charge and the energy into the battery when you can. Those values make the battery and loss statistics much more accurate. Use **Home** as the location for wallbox charging so the home charging share is meaningful.

Service Events

Record inspections, repairs and battery checks on the **Events** → **Service** tab.



Fields

Field	Rule
Date	Required; date of the service
Odometer	Required; reading at the workshop
Cost	Required; invoice amount
Service type	From the service types base data
Vendor	Workshop or supplier, at most 255 characters
Battery state of health	Optional, 0-100 %; adding it creates a point on the battery health chart
Usable battery capacity	Optional, kWh; recorded with the battery check
Description	What was done, at most 4000 characters
Notes	Optional internal notes, at most 4000 characters

Table

Column	Meaning
Date	Service date
Odometer	Reading in your distance unit
Cost	Invoice amount
Service type	Type, with `· SoH 92%` when a battery reading was recorded
Vendor	Workshop

Battery readings

Service events are the source of the **Battery health** chart on the vehicle dashboard. Each service event with a state-of-health value becomes a point. Add a reading after a workshop battery test to see the degradation over time. The latest reading also helps when you sell the vehicle.

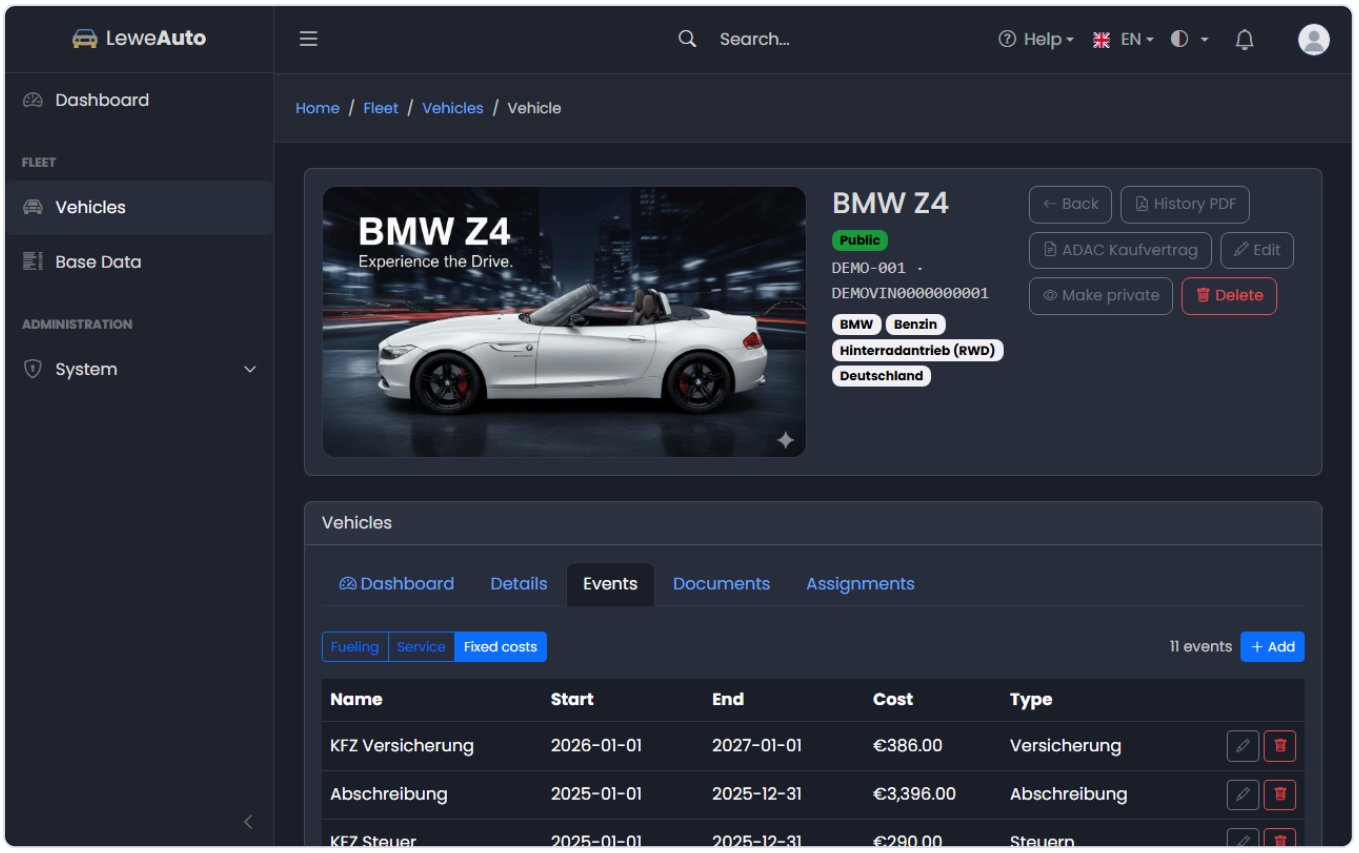
> Use a dedicated **Battery check** service type and keep the description short, for example `Annual battery test at 80,000 km`. The history PDF lists the service events with their type and vendor.

Ownership

Users without `assign_vehicle` can edit and delete only service events they created on assigned vehicles. Agents and administrators manage all service events. Every change is audited.

Fixed Costs

Record recurring and one-off costs that are not tied to a fill-up or a workshop visit: insurance, vehicle tax, leasing, financing, a wallbox, a charging subscription, parking or a THG premium.



Fields

Field	Rule
Name	Required, at most 255 characters
Fixed cost type	From the fixed-cost types base data
Direction	**Expense** or **Income**
Cost	Required; positive amount
Start date	Required; first day the cost applies
End date	Required; last day the cost applies; not before the start date
Description	Optional, at most 4000 characters

Use **Income** for money coming back, such as a THG premium or an insurance refund. The amount is entered as a positive number; the table and dashboards show it as a negative cost.

Table

Column	Meaning
Name	Cost name
Start	First day
End	Last day
Cost	Amount, negative for income
Type	Fixed cost type

How the period is used

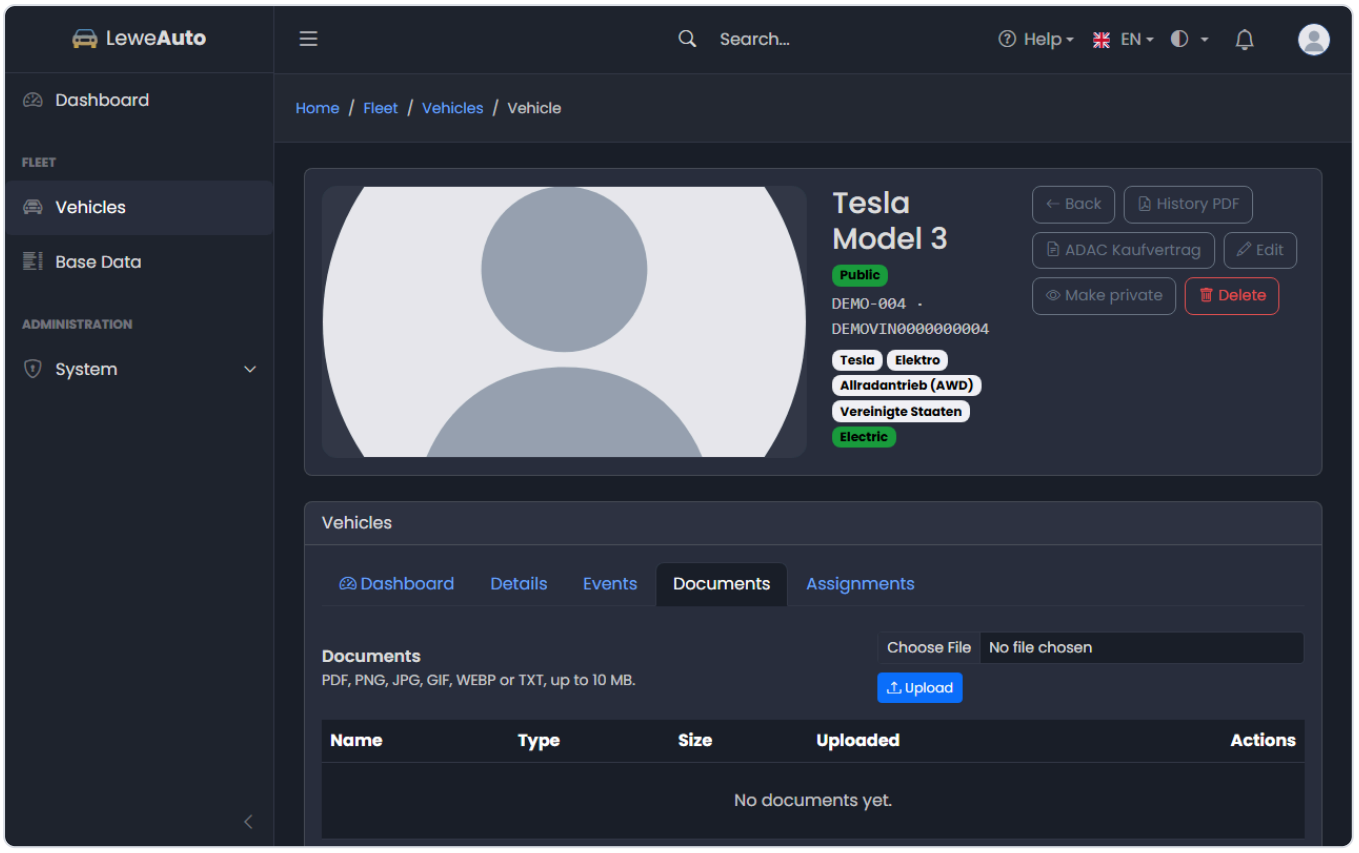
- The vehicle dashboard spreads the cost evenly over the days between start and end. The monthly and daily cards show the resulting burden.

- The fleet dashboard places the cost in the month of the **start date**. A yearly insurance premium therefore appears in full in its start month on the fleet chart.
- The cost breakdown and the fixed-costs-by-type list include the full amount.

Enter the actual contract period, not just the payment date. A 12-month insurance from 1 March to 28 February spreads correctly across the months on the vehicle dashboard, including the part in the next year.

Documents

The **Documents** tab attaches files to a vehicle: invoices, service reports, battery certificates, photos, insurance documents or a purchase contract.



Upload a document

1. Open the vehicle and go to **Documents**
2. Click **Choose file** and select a file
3. Click **Upload**

Allowed types are **PDF, PNG, JPG, GIF, WEBP and TXT**, up to **10 MB**. The type is detected from the file content, not from the file extension. A file that is not one of these types is rejected.

Uploading requires `edit_vehicle`. The file is stored under a random name and served through the API after a visibility check; it is never linked directly from the web root.

Document list

Column	Content
Name	Original file name
Type	MIME type
Size	File size
Uploaded	Date of upload
Actions	Open (inline) and delete

Clicking the name opens the document in a new tab when the browser supports the type. PDFs open in the browser's viewer; text files are shown as text.

Delete a document

The trash button asks for confirmation and removes the database record and the stored file. Deleting requires `edit_vehicle`. The deletion is written to the audit log.

Limits and license

- Uploads require a **valid license**. In limited mode the upload controls are disabled and a warning explains why. Existing documents remain readable.
- A vehicle can hold any number of documents; the limit is the storage space of the server.
- Deleting a vehicle deletes its documents.
- Documents are visible to everyone who may see the vehicle, including users who only have the public record.

⚠ Documents may contain personal data, invoices or addresses. Upload only what is needed for the vehicle history and remove documents that are no longer required.

Vehicle History PDF

The **History PDF** button downloads a sale-ready document with the vehicle data, its all-time dashboard and the complete event history. Every user who may see the vehicle can generate it.

What the PDF contains

1. **Top panel** - vehicle image (or a placeholder), title, plate, VIN, generated date
2. **Vehicle dashboard (all time)** - the cost, consumption and (for EVs) charging statistics
3. **Vehicle details** - manufacturer, model, body, color, fuel, drive, country, doors, seats, engine or battery data, equipment, dates, purchase price, notes
4. **Summary** - period covered, last odometer, distance recorded, total cost
5. **Event history** - every fueling, charging, service and fixed cost in chronological order, with date, type, details, odometer, amount and cost

The file is named `vehicle-history-<plate>-<yyyymmdd>.pdf` and is part of the installation's data. The document uses your **language**, **date format**, **currency**, **distance**, **volume** and **energy units**.

Generate the PDF

1. Open the vehicle
2. Click **History PDF**

The browser downloads the PDF. If the vehicle has no events, the event section says **No events recorded**. If the vehicle has no image, the placeholder **No image** appears.

When to use it

- Selling or trading in a vehicle
- Handing a company car back to the leasing company
- Keeping a record before deleting a vehicle
- Providing a service history to a buyer or insurer

Generate the PDF **before** deleting a vehicle. Deleting removes the vehicle, its events and its documents, and the history cannot be recreated.

The PDF can contain the plate, VIN, purchase price, private notes and service history. Treat it as personal data and share it only with people who need it.

ADAC Contract

ADAC Kaufvertrag downloads a German ADAC purchase contract as a fillable PDF and prefills the vehicle data. Every user who may see the vehicle can create it.

Create the contract

1. Open the vehicle
2. Click **ADAC Kaufvertrag**
3. The browser downloads `adac-kaufvertrag-<plate>.pdf`

The vehicle data is filled in the browser with the shipped PDF form. The template choice depends on the vehicle:

- **Combustion** – `adac-kaufvertrag-verbrenner.pdf`
- **Electric** – `adac-kaufvertrag-e-auto.pdf` or `adac-kaufvertrag-e-fahrzeug.pdf`

For an electric vehicle the contract marks the **drive battery as included**.

What is prefilled

- Manufacturer
- Model
- Plate
- VIN
- Total mileage (the highest odometer reading of the events, or the purchase odometer if there are none)
- Battery included (electric vehicles)

What stays blank

Deal-specific fields are intentionally left empty:

- Purchase price and payment terms
- Seller and buyer details
- Registration document number

- Date and place of the contract
- Signatures

Fill those in the PDF viewer or after downloading, then print or sign.

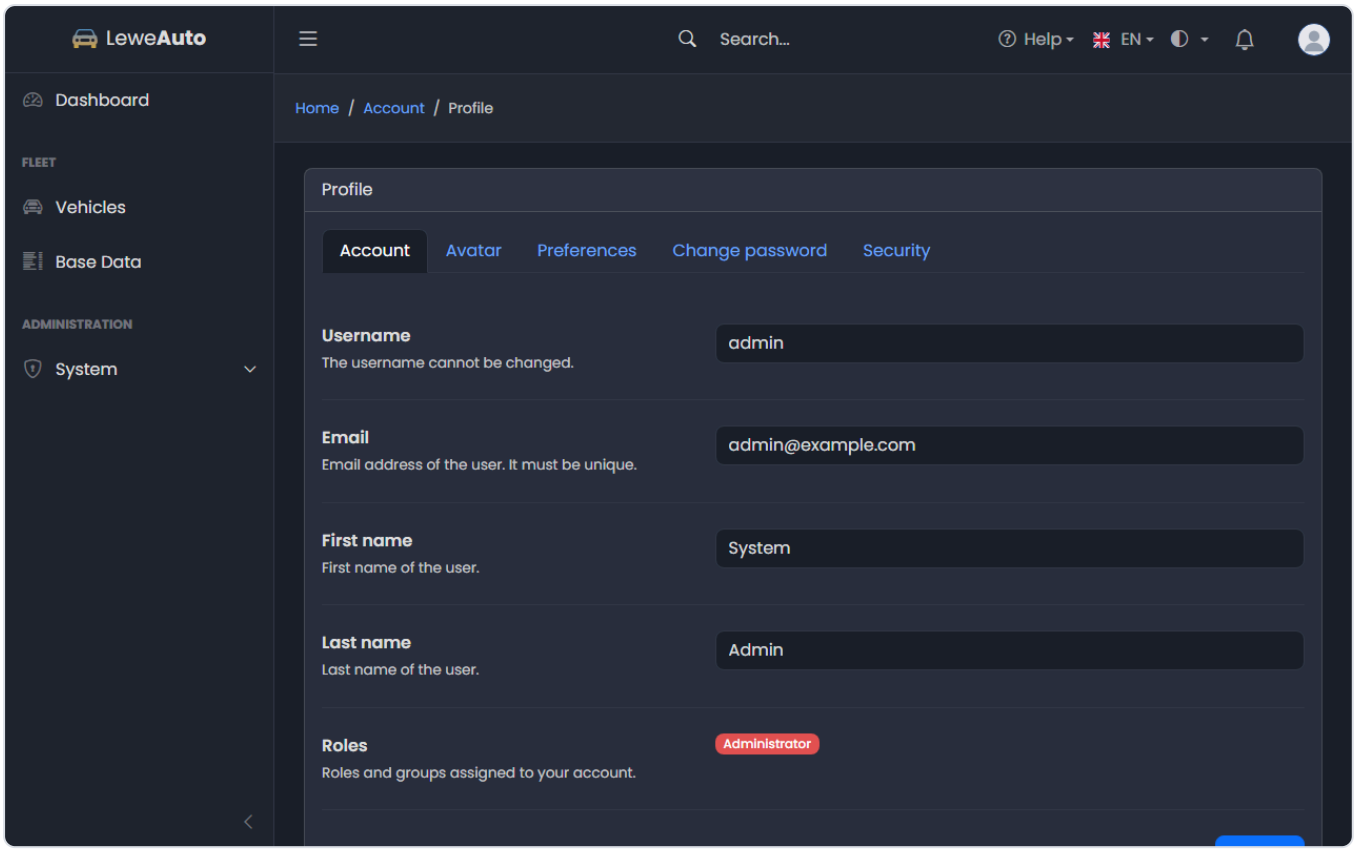
Templates

The templates live in the `uploads/` directory of the installation and are named as shown above. If the matching template is missing, LeweAuto shows **The ADAC contract template is not available.** and does not create a file.

> ⚠️ The generated contract is a template, not legal advice. Check that the prefilled vehicle data matches the papers, complete the deal-specific fields carefully, and keep a signed copy for your records. The PDF contains the plate, VIN and mileage; handle it as personal data.

Profile

Profile in the avatar menu holds your account, your display preferences and your security settings.



Account

The **Account** tab shows your username (read-only), the roles and groups assigned to you, and the fields you can change:

Field	Rule
Email	Valid address, unique, used for notification email
First name	Optional, at most 50 characters
Last name	Optional, at most 50 characters

Click **Update** to save. Changing the email address does not re-send the welcome mail.

Avatar

The avatar appears in the top navigation bar. Pick one of the bundled sample avatars or upload your own **PNG, JPG, GIF or WEBP up to 1 MB**; a square image works best. The image uploads immediately and is stored under a random name.

Preferences

The **Preferences** tab changes how LeweAuto shows data **for you**:

Setting	Options and effect
Language	English, German, Spanish, French or the system default
Theme	Auto (follows the operating system), light or dark
Currency	Display currency for costs; stored values stay in EUR
Distance	Kilometres or miles
Volume	Litres, US gallons or UK gallons
Timezone	Timezone for dates and times
Date format	`YYYY-MM-DD`, `DD.MM.YYYY` or `MM/DD/YYYY`
Time format	24-hour or 12-hour

Saving the language reloads the page. Saving the theme applies immediately. The conversions use the stored exchange rates and do not change the underlying data.

Change password

The **Security** tab contains the password form:

1. Enter your **current password**
2. Enter the **new password** twice (at least 8 characters)
3. Click **Update**

A password change signs out your **other sessions** and sends a **Password was changed** email. LDAP and OIDC accounts change their password at the provider; the form is not available for them.

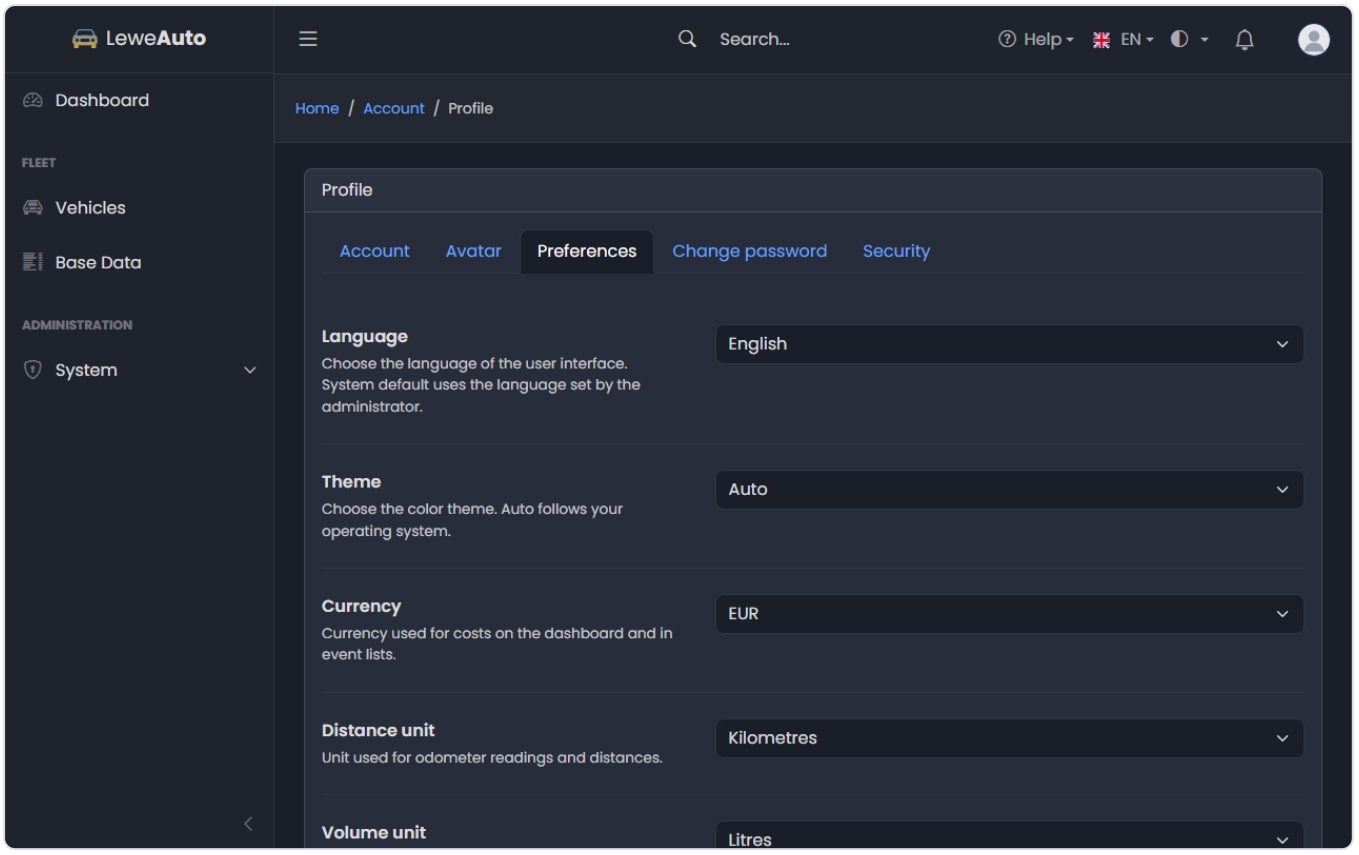
Two-factor authentication

The same tab shows whether 2FA is enabled and offers **Enable 2FA** or **Disable 2FA**. See Two Factor Authentication.

> Your preferences only affect your own account. The administrator sets the defaults for new users, anonymous pages and the license in Settings.

Dark Mode

LeweAuto has a light and a dark appearance based on Bootstrap 5.3 color modes.



Switch the theme

Use the half-circle icon in the top bar and choose:

- **Light** - always light
- **Dark** - always dark
- **Auto** - follow the operating system

The choice applies immediately and is stored in the browser. It does not change any data and does not need a page reload.

The same options are available in **Profile** → **Preferences** → **Theme**. The header switch and the profile setting share the same browser storage.

What changes

- Background, text, cards, tables and form controls use the theme's colors.
- Charts use their own color palettes; the chart area follows the page background.
- The login and public pages use the same theme.
- The theme is a display preference, not a security setting.

Auto follows the operating system setting and reacts to a change of the system theme on the next page load. If the page still looks light after a change, reload it.

For presentations and screenshots, **Dark** gives a consistent look. For printing, use the history PDF, which always uses a light print layout.

Language

LeweAuto is available in four languages:

- **English**
- **Deutsch** (German)
- **Français** (French)
- **Español** (Spanish)

Change the language

Use the flag menu in the top bar and pick a language. The page reloads and every label, button and message uses the new language.

The top-bar switch changes only the interface. The **History PDF** uses the language saved in your profile, so set it there if you want the PDF in a different language.

The language is stored in the browser. It is separate from the **administrator default** in Settings → Application: that default applies to new browsers and anonymous visitors until someone chooses a language.

You can also set your language in **Profile** → **Preferences**. The **System default** option stores no language for your account, so server-generated documents use the administrator's default; the interface itself keeps the language chosen in the top bar.

What is translated

- Navigation, page titles and buttons
- Form labels, descriptions and validation messages
- Dashboard labels and chart legends
- The **History PDF** (it uses the language saved in your profile)

What is not translated

- Data from base data, for example manufacturer names, fuel names or service types. They are shown as entered by the administrator.

- Vehicle models, notes, document names and free-text descriptions
- The **transactional emails**, which use fixed English text
- The ADAC contract, which is a German form

If a word looks wrong or is missing, the administrator can adjust the language file in the installation. Changes apply after a reload and must not break the JSON syntax.

Email Notifications

LeweAuto sends transactional email for account and vehicle changes. The messages are queued in the database and delivered after the request through the configured SMTP server. This page describes what is sent and what to check when mail does not arrive.

What is sent

Message	Trigger	Recipient
Password reset	A reset is requested for a local account	The account email
Account created	An administrator or the self-registration creates an account	The new account
Password changed	The user or an administrator changes a local password	The account email
Two-factor authentication changed	2FA is enabled or disabled	The account email
Vehicle assigned	A user is directly assigned to a vehicle	The assigned user

> Group assignments do not send a separate mail. Only the users that are added directly to the vehicle assignment list receive the **Vehicle assigned** message.

The message body contains the action, a link to the application and a security hint where useful. The links use the **Application URL** from Settings; an incorrect URL produces broken links.

> LeweAuto does **not** send marketing mail, event reminders or a daily digest. The bell icon in the header is not a message feed; account notices are delivered by email.

Configuration

Mail is configured in `.env.<target>`:

```
MAIL_HOST=smtp.example.com
MAIL_PORT=587
MAIL_USER=notifications@example.com
MAIL_PASS=your-smtp-password
MAIL_FROM=notifications@example.com
MAIL_ENCRYPTION=tls
```

- Without `MAIL_HOST` and `MAIL_FROM`, no mail is sent. The application still works.
- `MAIL_ENCRYPTION` is optional. Without it, port 465 uses implicit SSL and other ports use STARTTLS when the server offers it. Use `none` only for a trusted local relay.
- Messages from `example.com` and `.invalid` addresses are ignored on purpose. They belong to sample data and must not receive real mail.
- The sender should match the SMTP account, otherwise the server may reject the message.

Delivery and retention

The outbox is processed in small batches after a request. A temporary SMTP failure leaves the row for the next attempt. **Mail retention** in Settings → Security removes old queued messages.

Failed deliveries are recorded in the Audit Log under **Email**.

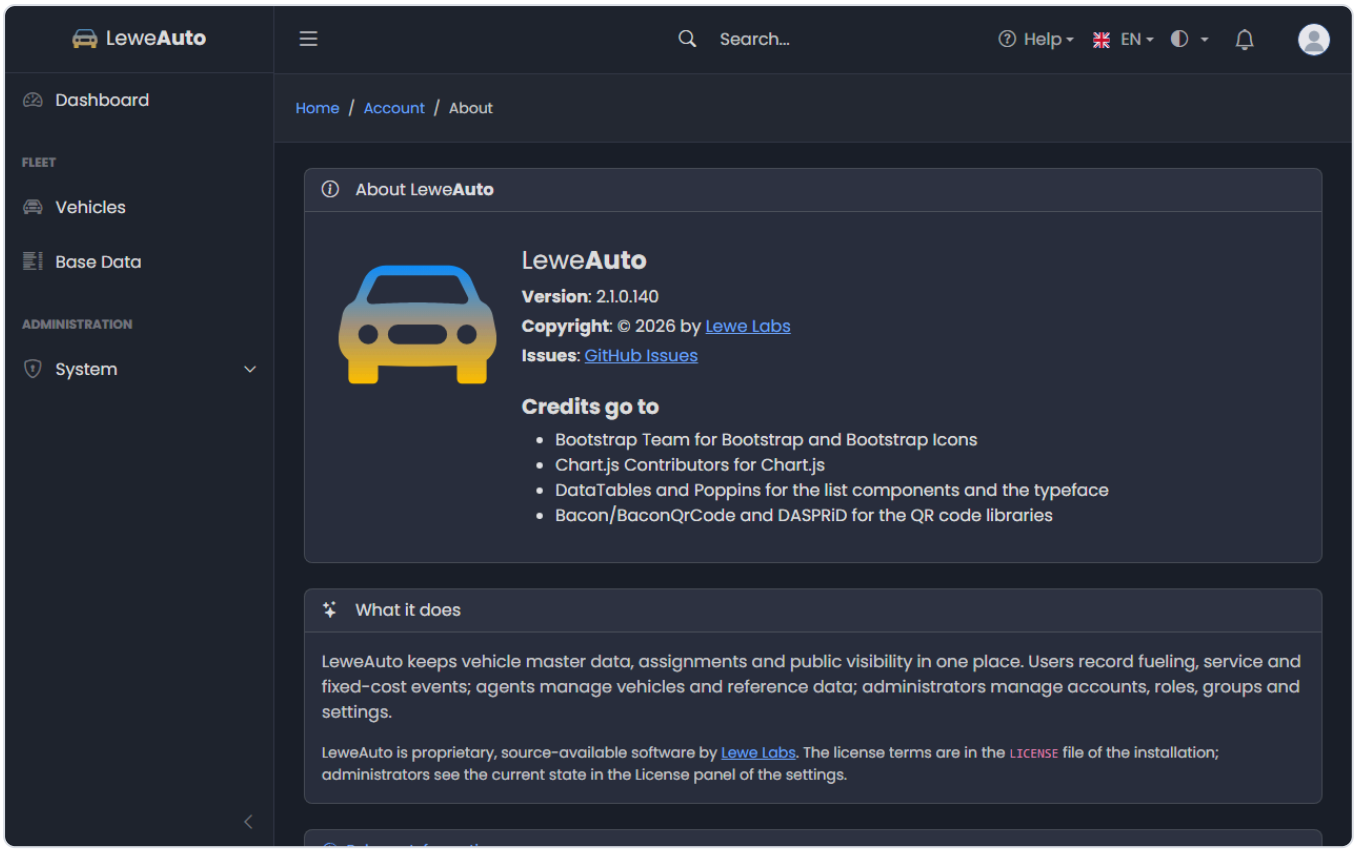
Troubleshooting

Problem	Check
No mail at all	`MAIL_HOST`, `MAIL_FROM`, credentials and the firewall
Mail in spam	SPF, DKIM and DMARC of the sending domain
Link points to the wrong host	**Application URL** in the settings
No mail for a user	The address; LDAP/OIDC accounts still receive notification email
Password reset for an external account	Reset happens at the provider; no LeweAuto reset mail is sent
Mail queue grows	SMTP errors in the audit log; retention cleans old rows

⚠ Email is not encrypted end to end. Do not put passwords, license keys or two-factor secrets in a notification or in a support mail.

About and Releases

About in the help menu shows the installed version, the credits, the license and the release information.



What the page shows

- The **application name** and installed version
- The **release date** and release notes from the installation's `releaseinfo.json`
- Links to the **privacy policy**, the **imprint** and the **support** address
- The copyright and the software license

The release information is read from the deployed file, so it always matches the version you are running.

When to use it

- Before a support request, to quote the exact version
- After an upgrade, to see what changed

- To reach the privacy policy and the imprint from any page

> If the version looks older than expected after an upgrade, the browser or the web server may still serve a cached page. Reload with `Ctrl+F5` and check **Disable Caching** in the settings.

Related

- Support
- License
- Settings