FX-PROJECT ®

OPEN SOURCE

Version 24

fx-project Open Source - Info
TECHNICAL SPECIFICATIONS

Table of contents

1 General

fx-project version 24, as of October 2024

1.1 Brief Description

Detailed technical specifications about the main programs and functionalities of fx-project.

Unless otherwise described, instructions always refer to the Ultimate version of fx-project, as it includes all functionalities.

1.2 Imprint

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1 Technical specifications

1.1 PHP

PHP 8.3.x: http://www.php.net

Extension packages encoded with
ionCube Encoder 14.x for PHP 8.3+   http://www.ioncube.com

Compatible with SSL encryption

Standard PHP libraries used:

- calendar
- curl
- iconv
- mbstring
- openssl
- sockets
- gd/gd2

Used standard PHP libraries for database:

- pgsql   (for PostgreSQL)
- sqlsrv   (for Microsoft SQL Server)

Optional PHP libraries:

- chartdir   (for ChartDirector V7.1)

Code generated with PHP: HTML 5 + JavaScript

fx-project consists of approx. 600 PHP module files (source code size approx. 12 MB,
i.e. on average at 35 bytes per code line this corresponds to approx. 360,000 code lines)

1.2 JavaScript/AJAX

JavaScript as a framework for handling the program control functions and/or direct interactions on the screen. There is a main JavaScript file with about **18,500** lines of code (500 KB), as well as 23 dynamically reloaded JavaScript files for special program functions.

Calling the individual PHP program functions, actions and/or popups etc. using AJAX (Asynchronous JavaScript and XML), thus only the affected screen areas are changed and not the complete page. No flickering (e.g. white screen) during the loading process.

1.3 CSS

6 standard UID's (= User Interface Designs), but in program function creation of arbitrary designs possible - branding.

1.4 Databases

Supported databases:

- PostgreSQL
- Microsoft SQL Server

Database statistics values of fx-project open source version 24:

100 Standard tables,
including 12 SYSTEM, 51 DATA, 13 INDIVIDUAL and 24 HISTORY tables.

- SYSTEM tables contain system relevant fx-project data, e.g. mask definitions, table definitions or similar.
- DATA tables contain pure client-relevant data, e.g. user data, appointment data, time data or similar.
- INDIVIDUAL tables are a hybrid of SYSTEM and DATA tables, i.e. these contain client-relevant data, as well as general data for each client, e.g. lookup values, project categories or similar.
- HISTORY tables are automatically generated copies of important tables in which the record history (INSERT, UPDATE or DELETE) of each entry is logged.

125 Standard indexes
23,377 Standard database entries

The installation, update or patching is based on a target/actual comparison, i.e. all required changes to the database are generated and executed dynamically. This means that any older version of fx-project can be updated immediately to the latest version without installing intermediate versions.

Relational database system, i.e. the data is stored in flat tables (= relations). All data is redundancy-free, i.e. dependent data is only linked to the corresponding other table by a unique ID.

1.5 Email

Use of SMTP socket connections for sending e-mails, thus individually adaptable to security requirements of the SMTP mail server used.

Alternatively, the standard PHP email function can be used.

1.6   Installation

Program installation required only on server. Client requires only commercially available browser with JavaScript enabled (e.g. Chrome, Edge, Firefox, Opera, Safari, ...).

Operating system independent, i.e. any operating system can be used on which subsequent components can be installed (e.g. Linux, Unix, Windows or similar)

Installation on server required:

> ➢ Web server (e.g. Apache)
> ➢ PHP 8.3 with corresponding integrated standard libraries
> ➢ ionCube Loader
> ➢ Database (PostgreSQL or Microsoft SQL Server)

1.7   Security

Password fields are already encrypted on the client side before they are sent. The decryption takes place only on the server side in fx-project.

The optional 2FA (2-Factor-Authentication) provides an additional security layer for the logon process - no installation of 3rd party software needed.

Automatic project monitoring so that multiple users cannot make project changes to the same project at the same time, overwriting each other's data.

1.8   Special features

Own session handling, i.e. without activated session in PHP executable. Furthermore, several fx-project windows can be open at the same time in the browser without interfering with each other.

Informal action of fields, i.e. all executed changes are submitted immediately after each field change and not as in the traditional method (POST) by submitting the whole form at a kick on the button.

Advantage:

> ➢ Speed, since only really changed content is transmitted and thus the transmission size is significantly reduced.
> ➢ Changes immediately available, thus more fail-safe.
> ➢ Interactivity, i.e. immediate reaction to changes possible.
> ➢ Program processing directly after clicking the button, since data does not have to be transferred first, but is already currently stored on the server.

Multilingual through "DataDictionary" database structure, i.e. new language can be added simply by adding the corresponding data in the database. There is a ready-made interface for this.