Performance Description

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Introduction

EPLAN Software & Service develops CAE solutions and advises companies in the optimization of their engineering processes. Customers profit from increases in efficiency in the production creation process through standardized procedures, automated processes and consistent workflows. EPLAN supplies customized concepts for system introduction, setup as well as made-to-measure integration into the IT / PLM system landscape – on the basis of standard engineering solutions.

The service portfolio furthermore encompasses customizing, consulting and training. The development of individual and standardized interfaces to ERP, PDM and PLM ensures data consistency in the product creation. Consistent customer orientation, global support and innovative development and interface competence are factors in success. EPLAN belongs to the Friedhelm Loh Group and thus stands for continuity and investment security.

Optimized engineering processes are our promise. – Customized and practical.

We Develop Solutions for More Efficiency

Globalized markets, higher cost and time pressure as well as increasing competition place pressure on companies to permanently work more efficiently. As the only way to meet the challenges in their branch and achieve their ambitious targets such as leadership in innovation, worldwide growth and operational excellence.

In the pursuit of these targets unused potentials are often found in particular in engineering that have an effect on the entire process of product development process.

Under the motto "EPLAN – efficient engineering" the company has been developing practice-oriented engineering solutions and individual concepts for optimizing engineering processes for its customers for more than 30 years. EPLAN advises companies with the aim of perfectly synchronizing processes, reducing project durations and lowering engineering costs.
More than 45,000 customers of various sizes and from different branches nowadays rely on EPLAN and its products daily to secure their competitiveness and the future of their company in the long term.

Ensure that you have a decisive head start against your competitors and increase the efficiency of the engineering processes in your company sustainably!

**EPLAN Platform – Your Key to Success**

The EPLAN Platform interconnects expert systems for the various disciplines such as electrical, fluid power and E-I&C engineering as well as enclosure manufacturing. Thus all applications are supplied with the same basic data and editing functions, ensuring high project quality and a mechatronical working method.

**EPLAN Electric P8**

EPLAN Electric P8 is a CAE software solution for designing, documenting and managing electrical-engineering automation projects.

**EPLAN Fluid**

EPLAN Fluid is a CAE software solution for designing and documenting fluid-plants in the fields of hydraulics, pneumatics, cooling and lubrication.

**EPLAN Preplanning Professional**

EPLAN Preplanning Professional is a CAE software solution for the technical pre-planning of machines and plants. The software supports graphical and database-based working methods with data transfer to the interdisciplinary detailed planning. Individual system configuration allows flexible customizing to established engineering processes.

**EPLAN Preplanning P&ID**

EPLAN Preplanning P&ID is a CAE software solution for creating plant overviews, PFDs (Process Flow Diagrams) and P&IDs (Piping and Instrumentation Diagrams) for process-engineering machines and plants.

The described functionalities are only available for certain module packages.
EPLAN Pro Panel

EPLAN Pro Panel is a CAE software solution for configuring and validating enclosures and switch gears in 3D including the provision of data for material logistics and production integration.

EPLAN Smart Wiring

EPLAN Smart Wiring is a browser-based software solution for the requirements of manual wiring.

Whether DT, connecting point, cross-section, color, wire length, termination processing or exact routing track: All the required information for wiring is made available in 100% digital form and visualized. The visualization references the 3D layout and the results of the virtual wiring in EPLAN Pro Panel.

EPLAN Harness proD

EPLAN Harness proD is a CAE software solution for efficient designing and documenting of cables and wire harnesses in 3D / 2D, from a digital prototype to the creation of complete production documents.

EPLAN Engineering Configuration One

The use of EPLAN Engineering Configuration One (EEC One) is the first step into the world of automated Excel-based schematic generation for electrical engineering and fluid power on the basis of predefined standards such as EPLAN macros, value sets, variants.

EPLAN Engineering Configuration

EPLAN Engineering Configuration Professional (EEC Professional) is a type of "central control unit" that forms the bridge between mechanical engineering, electrical engineering and control technology as well as documentation. A modular system and a set of rules allow variant management in machine and plant engineering.
EPLAN Data Portal

Integrated, web-based data platform for the provision of up-to-date device data of leading component manufacturers for direct use in the configuration with EPLAN software solutions.

Our software is conceived as an integrated system and connects all disciplines.

Note:
The scope of service contained in this performance description applies solely for the product "EPLAN Preplanning Professional" with all extension modules and add-ons.

The described functionalities are only available for certain module packages.
Basic Engineering with EPLAN Preplanning

EPLAN Preplanning P&ID and EPLAN Preplanning Professional provide functions on the basis of the EPLAN platform functions that allow new and innovative methods in the field of pre-planning.

The engineering process of a machine / higher-level function consists of individual phases through which the concept is adjusted and specified from initial rough drafts and ideas, until all documents and information have been created that are necessary for the manufacture and construction of the machine.

Pre-planning and draft planning (Basic Engineering) represent very early project phases where concepts are worked out for the technical scope of machines / higher-level functions and estimates are done on initial quantity structures. The goal is to determine the concept that is most advantageous technically speaking, and to define the defaults for the subsequent detailed planning (Detail Engineering).

Typical tasks in pre-planning are amongst others:

- Defining and describing of machine / plant areas for dividing into meaningful structures and units.
- Creating of first graphical overviews as a general planning basis.
- Defining of "rough placeholders" for functions or items that cannot be defined in detail at this point.
- Definition and estimate of initial quantity structures (drives / sensors, PLC inputs and outputs, etc.)
- Creation of first bills of materials for supporting the calculation and detection of long-term items.

Nowadays, this task is often processed in separate systems (graphic tools, spreadsheets / databases, text processing for specifications) that offer only rudimentary or no interfaces at all to the design tool used for the detailed planning. The lack of data consistency and the frequent lack of support through engineering functionalities in these separate systems result in massive extra work and poor quality in the engineering work.
Use

With EPLAN Preplanning you can carry out the first planning activities for the technical aspects of the process, machine and plant automation at an early stage in the EPLAN platform. The integration of basic engineering in the design engineering with EPLAN ensures reduced effort in the engineering process while simultaneously increasing the project quality thanks to the data consistency.

In addition EPLAN Preplanning provides a simple introduction into this new planning method on the basis of the EPLAN platform thanks to its flexible workflow support. In combination with further EPLAN products such as EPLAN Electric P8 or EPLAN Fluid the schematic generation and detailing of the plant can also be carried out in EPLAN in the further course of the project.

The core features of EPLAN Preplanning are explained individually in the following chapters. However, it is beyond the scope of this document to provide all details. If you have any further questions – particularly on details you don't find in this description – just contact us at info@eplan.help.

Monheim, September 2016

Product Management
EPLAN Software & Service GmbH & Co. KG
EPLAN Preplanning

Look & Feel

The system provides an intuitive user interface. Windows-compatible operation with functionalities such as Tooltips, toolbars, drag & drop and Online Help allow beginners and occasional users to get to grips quickly.

Users can easily adapt the interface including window arrangement and toolbars to their needs and wishes. The settings can be saved and retrieved as workspaces as needed.

This allows users to focus easily on their actual work – engineering – as the user interface customized to their tasks allows efficient and rapid project planning.

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In addition to the default input boxes for properties, configurable properties are also available to which the users can assign their own names and predefined values. This allows terms and default values that are established in a company to also be used in EPLAN Preplanning. Rapid familiarization and the implementation of company-specific standards are thus possible.

**Workflow & Integration**

The system can be configured extensively by means of settings to meet the needs of the user, company, and project. The result: The workflow is accelerated and the required work result achieved efficiently.

You also have access to an extensive online didactic help system which provides efficient work support.

Functionalities for backing up data, archiving, and sending projects via e-mail ensure the necessary security and transparency of work results. A compression function removes the non-essential data from a project, if desired, to reduce the storage medium load, to simplify data maintenance and, if necessary, to protect your company know-how when projects are passed on.

Data formats, such as TXT, CSV, XLS, XML, PDF and DXF / DWG with layers and blocks are available as interfaces for exchange with Microsoft Office products and CAD programs.

The possibility of using existing data beyond engineering and the provision of documents are the basis for simple service and maintenance processes.

The program can be integrated into the existing added value chain. The information and work flow can be automated using scripts or API in the "NET" environment. An active automatic exchange of information simplifies integration into PDM and ERP systems. And this comprehensive approach doesn't just help project engineers to achieve the correct result faster – other departments such as Materials Management, Production, Controlling, and Sales also benefit from transparent IT processes.

The described functionalities are only available for certain module packages.
Project Settings

EPLAN Preplanning can be customized to the individual demands and requirements of the user through the project settings.

Using the project-related settings, you specify the properties in a project such as for example the settings for the identification of PCT loops.

You can also configure the work environment user-specifically, adapting the program's functionality to the working method of each user.

The settings enable you to adapt the system's appearance and behavior to individual working methods and specifications.

Structure Settings and Planning Objects

Structuring in the pre-planning is effected by means of so-called "segments". These are differentiated into structure segments and planning objects.

Structure segments

Structure segments are used to structure machines and plants and specify a project structure. Parts of the identification structure can thus be predefined. A structure segment can stand for one or more structure identifiers (for example higher-level function or mounting location) in the detailed planning. The future project structure results from the structure identifiers.

Planning objects

Planning objects define a part of a machine / plant in the pre-planning. They describe one device each and reference the functions of a device. In this content a device represents a functionality of a machine / plant (for example the motor of a conveyor belt). Each planning object may represent only one device.
PCT loops

PCT loops are managed in parallel to general planning objects and behave similarly to these. Macros can be stored at PCT loops, but not parts or function templates. A PCT loop can be either a loop or a consumer. PCT loops have the following properties: Technical facility Measurand Processing function Number.

Segment definitions

The segment definition specifies the type of a segment (i.e., of a structure segment or planning object), like a function definition defines the type of a function. The segment definition is a predefinition of the segments available to the system. It determines which segments can be used in the project and what the standard behavior of these segments is.

Segment templates

You can predefined all the relevant data for a segment in a segment template. These predefined data can be used repeatedly when creating new structure segments, planning objects, etc. Through the assignment of a segment template the data defined there are transferred to the segment so that you no longer have to enter the data individually at each segment. The data of the assigned segment template can be displayed at the segments.

Segment templates are stored on a per-project basis. Each segment template has a unique identifying name, a description and a segment definition. The segment template furthermore disposes of all the properties of a segment with the same segment definition.

Editing in a Table

Using table editing, different objects on different project pages can be edited together in a single dialog.

The properties of the selected objects are shown in the convenient form of a table and can be edited in blocks, e.g. renamed or numbered. The data from the objects is copied and pasted to other programs, edited there and then pasted back.

The described functionalities are only available for certain module packages.
The functionality allows rapid and well structured editing of large amounts of data at a central point.

**Editing Data Externally**

EPLAN Preplanning supports bulk processing and data exchange in a neutral format through the functionality for external editing of project data with MS Excel. Transfer of the data is effected through individual templates (so-called schemes).

Here you can specify which data from segments, planning objects and segment templates are to be taken into consideration during external editing. You can export the respective data to edit them at another workstation without having to use EPLAN Preplanning. However, you can also start the external application to modify the data and reimport them directly into EPLAN Preplanning.

This facilitates simplified batch data processing with the look and feel of other applications. Data can be modified automatically in external programs using scripts and similar functions. Rapid and automatic editing of the project data reduces your project working periods at simultaneously increasing the quality of your plant documentation.

New data, for example segments or planning objects, can also be generated in the EPLAN Platform through external editing of the data. The newly generated functions can then by dragged-and-dropped easily into the planning from the navigators.

**Engineering Aids**

In order to inform the user about the editing status of his projects EPLAN Preplanning provides the option execute check runs through the message management. The properties defined in the project can be checked via theses check runs and status messages can be displayed in the message management. Missing entries can be displayed visually in the pre-planning navigator at the object or be filtered via the filter technique.

The scheme technique in the check runs can be used to adapt the definition of the project status to different project phases (with different required data).
Copy Functions

Several copy functions are available in the pre-planning navigator to facilitate simple and rapid entry and passing on of project data.

The plant objects (plants, PCT loops, PCT loop elements) can be duplicated and moved in the plant structure through the functionalities "Copy", "Cut", "Paste" or by using Drag & Drop. The subordinate objects and structures are taken into consideration respectively in the process.

In addition, the data stored in the property groups at the PCT loops can be copied into the Clipboard of the operating system. From there they can be inserted at other PCT loops, so that the major part of the entries (describing similar PLC loops on the basis of a template PCT loop) can be rationalized. The PCT loop data copied into the Clipboard can, for example, also be inserted into a Microsoft® Excel spreadsheet, edited there and then be pasted back to EPLAN Preplanning via the Clipboard.

The various copy functions allow the designing process to be accelerated through the repeated use of plant parts that are already defined. The usage of standards is simplified and the quality of the designing results is increased through the repeated usage of tried and tested plant parts.

Multi-user

Multiple users can edit one project simultaneously in multi-user operation. Please contact EPLAN Support with regard to the hardware requirements for multi-user operation. We can advise you specifically according to your individual requirements.

The described functionalities are only available for certain module packages.
Projects

Creating Projects

Machine and plant data are managed project-specifically in EPLAN Preplanning and are stored in a (project-specific) database. Actions such as the creation and opening of projects are controlled through simple file selection dialogs. Optionally the "EPLAN Project Management" extension module provides a comfortable project management that offers extended functionalities for simple access to projects and realizes cross-network management of complete project directories.

Even during the continual standardization in E-I&C technology it is still usual to create individual documentations. Numerous factory standards exist in addition to valid standards such as DIN, IEC etc. For the user this means that, depending on the customer, individual configurations for properties, devices, symbols, forms etc. have to be used time and again.

EPLAN Preplanning supports you in this working method in that new projects can be created on the basis of templates. Once projects have been created in accordance with the respective customer requirements, it is possible to use these as the template for new projects. Tedious queries, manual checks of the observance of specifications, and errors or misunderstandings through non-standard documentation are avoided.

Project Master Data

The master data pertaining to the project, such as segment templates and forms are stored directly in the project.

This ensures that the project is complete and consistent in itself when it is passed on or data is backed up. At the same time bi-directional synchronization between the project and the master data pool for forms and symbol libraries makes it possible to keep data in projects synchronized with the central company standard.

You can therefore monitor and control the master data used and the entire project can e.g. be adapted as needed to current standards.
Pre-planning Navigator

The central pre-planning dialog of the EPLAN Platform is the new pre-planning navigator. This dialog displays and manages the segments of the pre-planning defined in a project. By using so-called "pre-planning macros" as well as copying and moving existing segments via Drag & Drop, you can create and edit machine / higher-level function structures rapidly and simply. Alternatively, EPLAN offers you the option to also work directly in the graphical editor in pre-planning.

Edit PCT loops

A further method of starting project editing in EPLAN Preplanning is to enter the PCT loops (loops and consumers). Editing is also carried out in the pre-planning navigator. The special representation of these PCT loops is divided into two sections in order to ensure a better overview: Header data and freely definable PLC loop properties. The header data include, amongst others, the complete PI code / KKS code, the PCT loop number, the designation of the PCT loops and a multi-line remark. Further information for the schematic documentation can also be placed in combination with EPLAN Electric P8 directly at the PCT loop.

The describing properties for the PCT loops in the section can be defined freely with regard to the contents and quantity and subdivided into categories. Value ranges can be assigned to the individual properties. These can later be chosen from a list during project planning. This functionality can be used to standardize the terms used for the PCT loop description and their spelling, and thus to standardize the documentation generated from the data.

Schematic Macro

Macros can be assigned to the PCT loops for schematic generation with EPLAN Electric P8 or EPLAN Fluid.

When the schematic is created using EPLAN Electric P8 or EPLAN Fluid, the macro serves as a Typical. On the basis of this optional template the schematic is created in standardized form and therefore makes it possible to create uniform schematic documentation in partially automated form.
Further flexibility at the use of macros is provided by the so-called variant and placeholder technology.

Pages

The program can use a wide variety of page formats to display the actual page sizes. A scale can be assigned to the page to allow mechanical dimensions. This allows documents to be planned and printed on a wide range of page formats.

External Documents

Documents in different formats (*.XLS, *.DOC, *.PDF, Internet links, etc.) can be integrated as so-called external documents. The complete documentation therefore includes information created using different tools. The system therefore provides central access and avoids the need for time-consuming searches to find and compile documents.

External documents can be linked with objects defined in EPLAN Preplanning simply. To this purpose the links to the files are entered in the "Documents / Pages" tab.

The plant documentation can be upgraded by means of external documents (for example, device specifications directly from the manufacturer in PDF format, operating instructions, etc.). This means that important device information can be accessed directly already during the project planning phase, but also later on during commissioning and maintenance of the place.
Editing Devices

The device technology of process, machine and plant automation is defined below the PCT loops described above. Devices can initially be kept manufacturer-neutral in EPLAN Preplanning as planning objects and then be specified later in the course of planning.

The device data that are required for basic engineering and – in combination with EPLAN Electric P8 – for detailed engineering are entered at the planning object. This includes specifications about the device type, the required mounting data, the calculation values and additional remarks. In addition, further data fields can be added to the device data. These are preset in the project settings and can be extended or modified later on at any time.

All the data are centrally accessible. The association of the devices to a PCT loop is managed automatically. The project data are represented clearly structured in a tree structure and facilitate project planning for the user, while ensuring transparency.

Hook-ups

Hook-ups can stored in the parts management at assemblies of the "Hook-up" type. Within these assemblies all the mounting parts can be defined into hook-ups. Hook-ups can be linked with mounting diagrams as graphical macros for detailing.

The combination of the mounting parts can be managed in the assembly and linked in the project with devices. These data are available in EPLAN Preplanning for documentation and calculation purposes.

These hook-ups can be generated automatically as the mounting documentation by using reports of the Assembly/Module overview type.

The plant data are recorded in integrated form on the basis of this consistent plant documentation, ensuring maximum transparency. Information is recorded centrally and the designer has an overview of the important aspects of the device data.
Calculation

Calculation values, such as the device price, mounting time, planning time and required energy, can be differentiated in EPLAN Preplanning.

The calculation values can be listed in corresponding reports. A individual project calculation is obtained by totaling up the individual columns. A detailed calculation on the basis of the PCT loops and device data is thus available to the user in EPLAN Preplanning. This calculation option can be independent of the manufacturer and type, if required.

Monitoring of the current device costs is possible in the individual project phases. Changes to the device configuration are taken into account directly. As the degree of detailing of the device data increases, so does the precision of the calculation. The costs for the device technology are transparent and are based on the current device configuration.

General Calculations

In forms and the reports generated as a result properties can be linked with each other through basic mathematical formulas and the values of a column can be added up. The calculation can be continued across several pages of a form through carrying forward. In addition, an option can be used to specify the currency as well in the column.

Displayed value units can be converted automatically to other units through the display format (for example Celsius <-> Fahrenheit).
Graphical Editor

The graphical editor of the EPLAN platform is available for the creation of hook-ups, general drawings and sketches. It can also be used to create graphical templates for forms and plot frames. In combination with EPLAN Electric P8 or EPLAN Fluid the graphical editor is used in detailed engineering to create the electrical engineering and fluid power schematics.

This gives the individual areas a uniform, transparent look and feel – and eases familiarization.

Hyperlinks to a document on the network or Internet can be inserted in the graphical editor. You can use this function to dynamically store further information in the documentation itself, so you can store notes on planning and maintenance exactly where they are needed.

The zoom and pan functions can be operated using the mouse wheel. The visible section can be moved and the schematic enlarged or reduced on screen. When moving the cursor and holding the middle mouse button down, the page contents are moved in the direction of movement.

Adapting the mouse functions to the working habits of the user ensures secure intuitive use of the graphical editor within a very short time.

Editing a Graphic

The graphical editor provides constructive support with snap points (e.g. end points, center of circle, intersection) for graphical interactions. Graphical elements can be stretched, scaled, and rotated. It is possible to insert image formats on the project pages.

A construction mode helps you to align graphical elements to specific points or place them at specific coordinates. This provides a modern, convenient, and user-friendly way to create and edit graphics.
Dimensioning

For dimensioning, there are functionalities for simple dimensions, continued dimensions, incremental dimensions, baseline dimensioning, angular dimensions, radius, and diameter. The dimensioning functions can be used to create norm-compliant mechanical designs and customer-specific drawings.

The representation of dimensions with regard to dimension lines, dimension line limiting, and formatting or moving the dimension value is user-definable. For non-scaled representations, the dimension value can also be edited manually. You can leave out dimension line limits to save space.

Layer Management

Different layers can be used in the drawing. Transparent management permits the creation and labeling of user-defined layers that operate as in CAD systems and control font sizes, colors, line thicknesses, line types, and the visibility of elements.

The layers simplify uniform representation of the elements in the schematic. Changes to these standards can be made easily and are immediately effective with a single operating step.
Forms and Reports

Graphical Lists

EPLAN Preplanning provides a form editor for the graphical representation of project data (creation of documents).

The form editor can be used to create templates for documents. On the basis of these documents the project data can be evaluated individually and processed in accordance with the requirements (documentation specifications of the customer, own factory standards). The manifold possibilities of data evaluation allow rapid and simple creation of high-quality project documentation.

Form Editor

The user can use the form editor to create graphical lists (form templates) on the basis of the individual requirements (for example specifications of a documentation guideline). The resulting forms serve as a template for reporting project data that can then also be managed in the project as documents.

Filter and sorting criteria are available to the user when reports are generated on the basis of the forms defined in the project. It is thus possible to specifically evaluate and report the required project data in the generally valid forms.

Once created, form templates can be used non-project-specifically. High-quality and meaningful reports form the basis for comprehensive plant documentation that can be created with EPLAN Preplanning at the click of a button.

The described functionalities are only available for certain module packages.
Extension Modules

EPLAN Project Management

The "EPLAN Project Management" extension module offers the option of cross-drive project management. To find existing projects via project management from other workstations, you can import the header data of the projects into a project management database.

In project management, you can also view project-specific and cross-project information. Extensive functionalities enable ease of use – e.g., when revising, backing up, or filing off multiple projects.

Project properties can be processed in blocks in project management. You can also output a complete overview of the project header data from a project, and display the users currently working on the selected project if you wish.

These properties enable the continual re-use of existing (sub-)projects and avoid the need to plan projects entirely from scratch.

EPLAN Revision Management

Via the "EPLAN Revision Management" extension module, subsequent modifications of existing plants can be captured and documented automatically on the basis of a revision control. You can also access older versions of the project and mark the modified project pages with an approval stamp.

Revision markers can be generated in two ways:

If you have created a revision and continued working in this, changes are highlighted automatically (change tracking). When changes are made to a project page in a revision, the system identifies the changes as a draft. This is displayed graphically by a watermark on the project page. This mark is retained until the project page is closed. If you position the cursor over a modified object in a revision, a Tooltip is displayed containing information about the revision.

The described functionalities are only available for certain module packages.
Alternatively you can "freeze" a specific project state and compare it with another project state later. In this way, you can e.g. quickly identify which project pages have changed in order to start a new print order. You can specify in detail which properties should be compared. The settings are stored in a scheme. You can therefore create different schemes for different purposes and re-use settings once they have been specified.

If you have changed an object in a revision, then this is displayed with a graphical marker in the schematic.

The revision states created for a project can be output in revision overviews, which can be either printed or inserted into the current report as separate report pages.

Revision management fulfills the requirements regarding traceability of changes. Changes can be automatically identified, listed, graphically highlighted, and commented by the user. This makes working with revisions transparent and efficient.

**EPLAN Multi Language Translation**

Increasing globalization makes the ability to work confidently with foreign languages and output mono- or multilingual schematics essential. The "EPLAN Multi Language Translation" extension module provides this option, while allowing you to keep using your native language.

The program can represent Unicode characters. The texts are translated online automatically. The support of professional translation agencies can be integrated through data exchange via XML or in TXT format.
EPLAN User Rights Management

The workflow in the system can be administered easily, similar to the Windows rights management.

Using the "EPLAN User Rights Management" extension module, which is displayed in a tree structure, you can block dialogs, menu items, and toolbars in the user interface. The rights can be assigned blockwise to groups. If required, individual editing functions such as "Delete project" can be blocked specifically. If certain rights are revoked from a user, the associated menu items will be grayed out. In this way, the system only offers users the commands they need to perform their tasks.

This allows an administrator to configure the access rights and the menu structure. This avoids the user having to deal with menu items that they do not need. This increases the clarity of the program, and therefore improves the operating speed and allows the user to work more effectively.

The division of the processing steps is different in each company and depends on working methods, project, knowledge level of the user, etc. The users obtain their rights by belonging to one (or more) group(s). The permitted editing rights can be assigned to the user groups by the administrator. The groups give their assigned rights to all users in the group.

Both users as well as groups that have already been defined in a company can be transferred simply into the rights management by using Active Directory.

If the user logged on in Windows is set up as a system user, then the logon occurs automatically and the user does not need to enter his / her user name and password again.

If the rights management is to be used, the module has to be used at all the EPLAN workplaces in the company. This is the only method of ensuring that a user cannot circumvent the rights structure.

With rights management, users can be employed according to their abilities. Planning tasks can be distributed and controlled, and operating errors are avoided. Rights management also supports adherence to standardization rules.

The described functionalities are only available for certain module packages.
Interfaces

Data export

EPLAN Preplanning provides various freely configurable formats for the export of data. These formats can be stored for repeated usage through the scheme technique. The user can combine the data required for an export themselves and then export them into a free format such as TXT, CSV, XML or Excel.

Current project data can be provided simply to project participants who do not have an EPLAN Preplanning installation through the data export.

Filter and sorting criteria allow focusing on the project information relevant for a specific recipient. The project participants receive the specific information that they require in the context of their work.

Importing from Excel

EPLAN Preplanning provides a comfortable data import possibility for PCT loop and device data.

The data structures can be linked with each other through a dialog with assignment tables. Additional filters and options can detail the importing process further during importing.

In particular when a project is started by importing existing data, the Excel interface is the best choice in order to create an initial project structure in EPLAN Preplanning without redundant entry of data.

In the case of a multiple import differences can be detected easily through a preview of results. This allows new, modified or deleted objects in the import file to be recognized both in the pre-planning as well as in the detail engineering in order to ensure consistent data maintenance.
DXF / DWG Drawing Import and Export

This format for exchanging data with the AutoCAD® world is used in particular in the mechanical CAD systems environment. This interface is implemented bi-directionally in EPLAN Preplanning so that, for example, CAD drawings can be read in as a template for forms and hook-ups and on the other hand lists, documents, drawings and sketches generated in EPLAN Preplanning can be exported into DXF / DWG format.

Importing of DXF / DWG data into EPLAN Preplanning and also exporting to DXF / DWG makes the global use of existing drawings possible. Repeated creation of drawings and sketches becomes superfluous when the engineering tools involved in the project can exchange data through this standardized CAD interface.

EPLAN API Extension

The "EPLAN API Extension" extension module allows you to control EPLAN externally through a programming interface or to extend and customize it customer-specifically. The program functions available in EPLAN are structured in modules. They can be addressed directly from other programs through the programming interface. It is also possible to integrate customer-specific extensions into the EPLAN user interface.

You generally only need a text editor and a ".NET Compiler" for this functionality. For development support, we recommend an integrated development environment such as "Visual Studio".

Languages supported by .NET can be used as programming languages. The code can be directly loaded, compiled, and executed in the system as a script.

The programming interface can be used to adapt the system very extensively to your requirements. Maximum integration is achieved in this way, reducing work processes and accelerating the workflow.

The described functionalities are only available for certain module packages.
EPLAN Preplanning P&ID

EPLAN Preplanning P&ID makes extensive editing functions available for the graphical and database-oriented creation of P&IDs – generally plant overviews.

- Process and instrumentation diagram
- Piping and instrumentation diagram
- Plant flow charts
- Instrumentation schemes.

On the basis of a symbol library you create these schematics as an integral component of the machine/plant documentation and can already record the plant data in the project database during the pre-planning phase.

The efficient graphical and macro functions of the EPLAN graphical editor support you in fast and reliable project planning. Autoconnecting can be used to define piping connections between the items and to automatically report the associated information and process data.

Parallel to the graphical placement of the PCT loops and devices in the P&ID, the planning objects (such as sensors, pumps, containers, etc.) are recorded in the pre-planning navigator and can be managed there in a tree structure. The association of the instruments and automation components to the individual PCT loops is also managed here.

Through the integration into the EPLAN Platform, the project data recorded in the course of the P&ID creation are available in the subsequent disciplines such as I&C technology (EPLAN Preplanning), fluid power (EPLAN Fluid) and electrical engineering (EPLAN Electric P8). The centralized data maintenance ensures that global information can be synchronized. This guarantees consistent, rapid and simple engineering also between departments.

As a central planning tool, the EPLAN platform offers unified support for the entire engineering process: From pre-planning in the higher-level function overview with EPLAN P&ID, through management and planning of the PCT loops in basic engineering with EPLAN Preplanning, to documentation of the automation technology in detailed engineering with EPLAN Fluid and EPLAN Electric P8.

The described functionalities are only available for certain module packages.
Hardware Requirements

Workstation

The computer platform is a PC with an Intel Core i5 or i7 or compatible processor. Rather select a high-speed computer with less CPU cores than a slower computer with more CPU cores.

Recommended workstation configuration

<table>
<thead>
<tr>
<th>Processor:</th>
<th>Multicore CPU, not older than 3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM:</td>
<td>8 GB¹</td>
</tr>
<tr>
<td>Hard disk:</td>
<td>500 GB</td>
</tr>
<tr>
<td>Monitor / graphics resolution:</td>
<td>2-screen solution 21&quot; or 16:10 graphics system with a resolution of 1680 x 1050</td>
</tr>
<tr>
<td>3D display:</td>
<td>Graphics card from ATI or Nvidia with the latest OpenGL driver ²</td>
</tr>
</tbody>
</table>

¹: Individual functions like PDF or DXF output require more memory in connection with large projects or very extensive graphics.

²: A graphics card comparable with an Nvidia Quadro 600 should be used when EPLAN Pro Panel is used.

Network

We recommend using a Microsoft Windows network.

| Net transfer rate of the server: | 1 Gbits/s |
| Net transfer rate of the client computer: | 100 Mbits/s |
| Recommended latency | < 1 ms |

The described functionalities are only available for certain module packages.
Multi-user

With regard to minimum requirements for multi-user operation, please contact EPLAN Support. We can advise you specifically according to your individual requirements.

Software Approvals

In the current Version 2.6 the programs of the EPLAN platform are only available as a 64-bit version.

Operating systems

The EPLAN platform supports the 64-bit variants of the Microsoft operating systems Windows 7, Windows 8 / 8.1 and Windows 10. The EPLAN user interface language installed must be supported by the operating system. The Microsoft .NET framework 4.5.2 is required to operate the EPLAN platform.

The program is released for the following operating systems:

Workstation

- Microsoft Windows 7 SP1 (64 bit) Professional, Enterprise, Ultimate
- Microsoft Windows 8 (64 bit) Pro, Enterprise
- Microsoft Windows 8.1 (64 bit) Pro, Enterprise
- Microsoft Windows 10 (64 bit) Pro, Enterprise

Server

- Microsoft Windows Server 2008 R2 (64 bit)
- Microsoft Windows Server 2012 (64 bit)
- Microsoft Windows Server 2012 R2 (64 bit)
- Terminal Server with Citrix XenApp 7.6 and Citrix Desktop 7.6

The described functionalities are only available for certain module packages.
Microsoft products

Prerequisite for the creation of Microsoft Office file formats from EPLAN is a functioning installation of an Office version as approved by EPLAN on the PC.

- Microsoft Office 2010 (32 bit and 64 bit)*
- Microsoft Office 2013 (32 bit and 64 bit)*
- Microsoft Office 2016 (32-bit and 64-bit)*
- Microsoft Internet Explorer 10
- Microsoft Internet Explorer 11
- Microsoft Edge

*Depending on the selection of the databases for the parts management, the project management and the dictionary, the use of the 64 bit Office version is mandatory.

SQL Server (64-bit)

- Microsoft SQL-Server 2012
- Microsoft SQL-Server 2014

PDF Redlining

- Adobe Reader Version XI
- Adobe Acrobat Version XI Standard / Pro
- Adobe Reader Version DC
- Adobe Acrobat Version DC Standard / Pro

The described functionalities are only available for certain module packages.
EPLAN Preplanning Functional Overview

<table>
<thead>
<tr>
<th>Function range</th>
<th>Functionality</th>
<th>Preplanning P&amp;ID</th>
<th>Preplanning Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Graphical editor</strong></td>
<td>Create and edit pages of the type &quot;Pre-planning&quot; (graphical pre-planning)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Create and edit pages of the type &quot;P&amp;I diagram&quot;</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>Segments</strong></td>
<td>Structure segments</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>PCT loops and PCT loop functions</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Containers</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Planning objects</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td><strong>Pre-planning navigator</strong></td>
<td>Define structures</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Insert PCT loops</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Insert PCT loop functions</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Insert container</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Define PLC addresses</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Store macro at segments</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Change placeholders / value sets at a macro</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Specify templates at a segment</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Create pre-planning macros</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Insert pre-planning macros</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Import from Excel (1)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Placement of pre-planning pages</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Placement of macros and functions on schematic pages</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Generate schematics (semi-automatically)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Update detailed planning</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Reorganize structure</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Specify parts at a segment</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td><strong>Planning objects</strong></td>
<td>Edit, insert planning objects</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Generate planning object from part</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>
## Function range

<table>
<thead>
<tr>
<th>Function range</th>
<th>Functionality</th>
<th>Preplanning P&amp;ID</th>
<th>Preplanning Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Segment definitions</strong></td>
<td>Edit segment definitions</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>New: create segment definitions</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Assign user-defined properties</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Export and import</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td><strong>Segment templates</strong></td>
<td>User segment templates</td>
<td>+<strong>(1)</strong></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Edit segment templates</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Create segment templates</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Export and import</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td><strong>Reports</strong></td>
<td>Report segments</td>
<td>+<strong>(1)</strong></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Report segment templates</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Labeling</td>
<td>+<strong>(1)</strong></td>
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</tr>
</tbody>
</table>

(1) No planning objects

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## Licensing Overview

- **Standard functionality**
- **Optional extension module / add-on**
- **Not available**

<table>
<thead>
<tr>
<th>EPLAN Preplanning</th>
<th>Preplanning P&amp;ID</th>
<th>Preplanning Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional overview</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Parts management</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Graphical editor</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>EPLAN Revision Management</td>
<td>O</td>
<td>✓</td>
</tr>
<tr>
<td>EPLAN Multi Language Translation</td>
<td>O</td>
<td>✓</td>
</tr>
<tr>
<td>EPLAN Project Management</td>
<td>O</td>
<td>✓</td>
</tr>
<tr>
<td>EPLAN User Rights Management</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>EPLAN Preplanning P&amp;ID</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
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