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1 Tekla Structures installation for administrators

You can install Tekla Structures on a workstation by either downloading the software and environments from Tekla Downloads, or by centralized installation using MSI packages.

Installation from DVD is available in China. For other countries, DVD installation is available on demand only.

In addition to installing Tekla Structures on a local workstation, you also need to install a license server. If you only use one license of Tekla Structures, you can install the license server on the same computer as Tekla Structures.

If your company takes part in external projects, or if more than one user works with the same model within the company, we recommend that you use Tekla Model Sharing. With Tekla Model Sharing, the users in your company can work with the same shared model, offline and with high performance, and synchronize the changes with other team members even in a low-speed network. Tekla Model Sharing requires a separate subscription. You can view and manage your company's shared models with Tekla Model Sharing Management Console.

1.1 Installation requirements

Operating system
Tekla Structures installation requires that the operating system of the computer is one of the following:

• Windows 7 SP1 64-bit
• Windows 8.1 64-bit
• Windows 10 64-bit

If the operating system is not one of these, the installation is cancelled. The installation also requires that Microsoft .NET Framework 4.5.1 or newer is
installed on the computer. The installation of .NET Framework 4.5.1 is included in the Tekla Structures installation package, and it is executed if needed.

**Hardware recommendations**

For information on recommended hardware, see [Tekla Structures 2017 Hardware recommendations](#).

### 1.2 Installing Tekla Structures

You can install Tekla Structures software and environments from [Tekla Downloads](#). To have the latest software in use, we recommend that you install the latest service pack of Tekla Structures. Service packs include improvements and fixes to the latest, or a previous main or intermediate Tekla Structures version. Service packs are available for all users with a valid maintenance contract.

**NOTE**

You need to install Tekla Structures with administrator rights.

When you use centralized installation to install Tekla Structures on the client computers, the end users do not necessarily need administrator rights.

Tekla Structures installation wizard has detailed instructions about the installation. For more information, see also [Install Tekla Structures](#).

### 1.3 Centralized installation of Tekla Structures

Installing Tekla Structures centrally across the company network saves time in a large company when there are many Tekla Structures users.

Centralized installation allows you to run the Tekla Structures installation silently in the background so that the users do not see the installation wizard dialog boxes. For detailed information on centralized installation, see [Centralized distribution of Tekla Structures 2017](#).

### 1.4 Installing the license server

**FlexNet licensing system**

Tekla Structures uses a licensing system called FlexNet Publisher License Management (FlexNet), a system provided by Flexera Software. The FlexNet licensing system is activation-based, which means that hardware locks or passwords are not required. Instead, a floating license system is used where the license is stored on a license server.
When a user starts Tekla Structures, the program checks for an available license from the license server and uses that license. When the user exits Tekla Structures, the license becomes available for other users. For offline use, the user can borrow a license from the server and then return it later.

In an activation-based licensing system, the following tasks need to be performed before users can start using Tekla Structures:

- Install and set up a license server on a computer.
- Save the entitlement certificate and activate the licenses.
- Connect each client computer with Tekla Structures to the license server.

**NOTE** Remember to take a backup of your license entitlements.

For more information, see Tekla Structures licensing system.

**Operating system**

The server that is used as the Tekla Structures license server does not have to be very efficient or have maximum performance capability. However, it is important to ensure that the server hardware is reliable, and to maintain the server system carefully. See Tekla Structures 2017 Hardware recommendations for information on operating systems and virtual machine platforms.

For more detailed information on how to set up the license server, see Installing Tekla Structures license server and Checklist for the Tekla Structures license server administrator.

Useful information on the FlexNet system can be found in the documents provided with the installation and in Tekla Downloads. The following introductions are available:

- **FlexNet License Administration Guides** by Flexera Software are general guides that contain, for example, instructions on how to create user groups and manage access rights:
  - C:\TeklaStructures\License\Server\fnp_LicAdmin.pdf
  - C:\TeklaStructures\License\Server\LicenseAdministration.pdf

**Using multiple license servers in one company**

You may want to spread your license pool on several servers in your company. You may have offices in many cities, each office with its own license server, or you may simply want to divide the license pool if there is server downtime.
For example, you can divide your total license entitlement on several servers simply by activating one half of your licenses on one server and the other half of the licenses on another server. This way, if there is a maintenance break on one of the servers, you can advise your users to obtain the license from the other server.

You can also configure Tekla Structures to check licenses from several servers:

1. In Tekla Structures, open a model and click **File --> Settings --> Change license server.**
2. In the **Server address** box, give the port@host addresses of the license servers separated with a semicolon (;).
3. Click **OK.**
   
The updates will take place the next time you start Tekla Structures.
NOTE  Defining several license servers may slow down the starting of Tekla Structures. Therefore, we do not recommend defining more than two servers in the **Connect to license server** dialog box.

Monitor license usage

You can monitor the usage of Tekla Structures in your company based on the licensing information. The tool for monitoring the license usage is called **LMTOOLS**, and it is delivered with the Tekla Structures license server. The license server statistics area on the **Statistics** tab displays information about the license use. For more information, see Tekla Structures License Administration Tool options and settings.

To view which licenses are currently in use, you need to have administrator rights and take the following steps on your license server:

1. Go to **Tekla Structures Licensing --> LMTOOLS** through the **Start** menu or **Start screen**, depending on your Windows operating system.
2. On the **Utilities** tab, define which license server you want to monitor. Type *tekla* in the **Vendor Name** box and your license server port@host definition in the **Path** box.
3. Click **Override Path**.
4. On the **Server Status** tab, click **Perform Status Enquiry**. You will now receive a listing of how many licenses and which configurations are activated on the server, and how many of the licenses are in use at the moment of enquiry.
The status enquiry functionality uses abbreviations of Tekla Structures configurations. You can find the description of the abbreviations in your entitlement certificate or in Tekla Structures License Administration Tool.

For a comprehensive description of the status enquiry syntax, see LMTOOLS options and settings used in Tekla Structures licensing.

1.5 Tekla Structures multi-user server

Multi-user mode allows several users to access the same model simultaneously. Multi-user mode is suitable for local teams with projects where the team members work in the same location, and do not necessarily have an Internet connection.

The multi-user model consists of a single master model. Each user can access this model and open a local view of the model. The local view is called a working model. Any changes a user makes to the working model are local and not visible to other users until the working model is saved to the master model. The multi-user system can contain several client computers, where users work on their working models. The master model can be located anywhere in the network, including any of the client computers.

A Tekla Structures multi-user system runs on a TCP/IP network and consists of:

- Tekla Structures multi-user server computer running xs_server.exe (started by the AlwaysUp utility)
- A file server computer containing the master model
- Client computers running Tekla Structures

The image below shows one possible configuration of the multi-user system.
The multi-user server is a separate installation that is available in Tekla Downloads.

For instructions on how to install the multi-user server and on how to run the multi-user server as a service, see Multi-user system.

**NOTE** When more than one user is working within the same model in different locations and at different time, use Tekla Model Sharing instead of the multi-user mode.

### 1.6 Installing .tsep packages

Tekla Structures extension packages, .tsep packages, are Tekla Structures extensions or additional environment content installers. .tsep packages are available for download in Tekla Warehouse.

You can install .tsep packages in three different ways.

**Direct installation**

1. Double-click the .tsep installer that you have downloaded.
2. The **Tekla Structures extension manager** dialog box opens with the name of the extension that is going to be installed.

   By default .tsep installers are opened with **Tekla Structures extension manager**. Some .tsep installers are run directly from Tekla Warehouse with the **Insert into model** option.

3. Select the Tekla Structures versions to which you want to import and click the **Import** button. The next time you start Tekla Structures, the extension is automatically installed, and it is shown in **Tekla Structures extension manager**.

**NOTE** If the .tsep installer is not set to open with **Tekla Structures extension manager** by default, you can set it manually. Right-click on the .tsep installer and select **Properties**. In **Opens with**, select **Change** and browse to TsepFileDispatcherLauncher.

---

**Installation in Tekla Structures extension manager**

You can also install a .tsep installer from **Tekla Structures extension manager** in Tekla Structures.

1. In the **Applications & components** catalog, click **Manage extensions** --> **Extension manager** to open **Tekla Structures extension manager**.
2. Click **Import** and browse to the .tsep installer that you want to install.
3. Click **Open**.
   
   The imported .tsep is installed the next time you start Tekla Structures. It is shown in **Tekla Structures extension manager**, and is ready for use in the **Applications & components** catalog.

**Centralized installation**

You can centrally install a batch of .tsep installers across company workstations. This method is meant for system administrators.

By default, the .tsep installers waiting for installation are stored in \ProgramData\Tekla Structures\<version>\Extensions\To be installed. To install centrally, you need to copy the .tsep installers to the %XSDATADIR%\Extensions\To be installed folder. Create the \To be installed folder if it does not exist yet.

When Tekla Structures starts, it will check the available .tsep installers from the \To be installed folder and install the installers automatically.

- The installed .tsep installers are stored in the %XSDATADIR%\Extensions \Installed folder.
- The invalid .tsep installers are uninstalled and moved to the %XSDATADIR%\Extensions\Invalid installations folder.
• The cancelled .tsep installers are stored in %XSDATADIR%\Extensions \Cancelled installations.

**Copying .tsep installers**

We recommend that you use ROBOCOPY from the command prompt (cmd.exe) to copy the .tsep installers. More information on ROBOCOPY can be found on the Microsoft website, for example.

The basic syntax for ROBOCOPY is: robocopy <Source> <Destination> [<File>[ ...]] [<Options>]

For example, to copy .tsep installers:

robocopy "\Server1\prod\TeklaStructures\2017\Environments_TSEP" "C:\ProgramData\Tekla Structures\2017\Extensions\To be installed" *.tsep

This command will take all .tsep installers from the \Server1 network directory and copy them to the local user's \To be installed folder.

**Centralized uninstallation**

You can uninstall .tsep packages in batches by creating an empty file without an extension, with the name RemoveExtensionOnStartup, in \ProgramData\Tekla Structures\<version>\Extensions\Installed\ [Extension_To_Be_Uninstalled]. The extensions are removed the next time Tekla Structures is started.

**1.7 Upgrading Tekla Structures**

If you already have an older version of Tekla Structures installed on your computer, you can use Migration Wizard to copy the personal settings to the new version. With the Migration Wizard you can choose to copy any of the following settings and values:

• user.ini file

• Registry values, such as:
When you customize Tekla Structures, for example, add or change drawing or report templates and catalog entries, we strongly recommend that you create project and firm folders for the customized files. This is useful if you want to store the files for future use, or if you want to retain them when you install a new release.

Tekla Structures does not replace files in the project and firm folders when you install a new release. You can retain your customized files without having to copy and paste, or export and import from the previous versions. This makes upgrading faster and easier. If you have customized previous Tekla Structures versions without using firm or project folders, you will need to transfer the customized information to the next Tekla Structures version.

Before taking a new Tekla Structures version into use, always test that the old company settings work.

TIP If you want to copy the settings later, you can start Migration Wizard manually by double-clicking the MigrationWizard.exe in the \Tekla Structures <version>\nt\bin\applications\Tekla\Migrations folder. You can select the version from which the settings are copied and the version to which the settings are copied.

1.8 Folder structure

Folder structure on local computer

See Tekla Structures installation folders for information on how the folder structure on the local computer is set up.

Company folder structure

We recommend using a central file folder for storing the models and setup files for the company-specific settings and the project-specific settings. Tekla Structures then reads the settings from the central file server. When upgrading to a new Tekla Structures version, or updating the company logo, for example, the files only need to be replaced in one place. This way taking backups and upgrading is easier.

For more information, see Project and firm folders.

Backup

As all valuable information and work your company stores, it is also important to take backups of the model folders, and firm and project settings. If your company has a system for taking automatic scheduled backups, schedule your system to take the backups at night time, outside working hours to prevent
any possible conflicts in the model. Do not forget to also take a backup of the license entitlements.

**Virus protection**

Virus protection software has sometimes caused problems in saving models and drawings to the model folder. These problems may occur especially if you have your model saved on a network drive. We strongly recommend that you add Tekla Structures into the safe list of your antivirus system, and to set up your virus protection in a way that actions in your model folder are not blocked or scanned.
2 Tekla Structures setup guidelines for administrators

Tekla Structures administrator is the person responsible for ensuring that the company standards are used and set up in Tekla Structures. The following sections explain how you can customize Tekla Structures.

2.1 Customizing Tekla Structures

Each new version of Tekla Structures introduces new features and functionalities to improve the overall process used for completing a project. Tekla Structures has multiple environments to suit the needs and requirements of specific markets. Many features are localized in each Tekla Structures version. Most of the changes in versions are focused on making the default saved attributes more consistent, organized, simplified, and practical.

Your local technical team is dedicated to improving your knowledge and experience of each new version. The team aims at enhancing your user experience of Tekla Structures by performing tasks that have been identified as essential by the existing users, new users, and potential users.

Before you start customizing Tekla Structures to suit the needs of your company and your projects, collect the needed information, such as drawing standards, used profiles, grades and materials, company logos, and naming conventions.

The overall localization of Tekla Structures can be divided into four different layers:

- Tekla Structures environment
- Company-level settings
- Project-level settings
- Multi-user settings

The three last ones are mainly managed by company administrators.
Setting up the standard that a company uses, and the standards that a specific project needs will make the designing process much more efficient because the end user can concentrate on the design process.

**Tekla Warehouse**

Tekla Warehouse has a lot of additional content, such as application tools and environment content. Tekla Warehouse offline offering that comes as an option with Tekla Structures installation has all the catalog content of environments, such as profiles, bolts, materials, and reinforcement. You can access those inside Tekla Structures via **Quick Launch**.

![Tekla Warehouse: local content](image)

In Tekla Warehouse, you can find the catalog content under **Tekla Structures collections**. From there all catalog content is installed into the currently open model. If you did not install the offline content with the Tekla Structures installation, you can later search for the needed area-specific offline collections from the online Tekla Warehouse, and install them. The content is in .tsep packages that are installed when opening Tekla Structures.

You can also create a local collection for your company, and share it for your organization in your internal network. You can manage the access rights on the folder and collection level in the collections.json file on each user’s computer. Copy the file to the same location on each user’s computer. The file is located in `C:\Users\Public\Public Documents\Tekla\Tekla Warehouse\collections.json`.

The image below shows an example of the collection paths with four Tekla Structures collections:

```json
{
    "collections":
    [
        "\\Server1\Tekla Warehouse\OfflineContent\austria",
        "\\Server1\Tekla Warehouse\OfflineContent\brazil",
        "\\Server1\Tekla Warehouse\OfflineContent\china",
        "\\Server1\Tekla Warehouse\OfflineContent\czech"
    ]
}
```

In Tekla Warehouse the collections are found after mapping under **My collections** --> **Local and network collections**.
2.2 Overview of environments, roles and licenses

Tekla Structures is one product that has many different configurations. The licenses you have determine which configurations you can use.

A Tekla Structures environment is set up for the materials, grades, profiles, drawing settings, component settings, .ini file settings that are used in a specific market. There are 33 different environments in Tekla Structures. By choosing a specific environment when starting Tekla Structures you will get the settings for that market. When installing Tekla Structures, you can select the environments that you want to use. You can add missing environments later.

The blank project listed in the environments is an empty platform for your own environment or project settings. It includes standard parametric profiles, undefined bolt, material and rebar grades, basic drawing layouts and so on, which you can complement from your own firm or project folders and Tekla Warehouse.
Some environments give you the opportunity to select a role when logging in. The role is independent from the licenses that are used. The purpose of the roles is to make the user interface and settings clearer, easier and faster for the user's tasks.

In practice, this means that settings, filters, reports and the user interface is set up for the role the user has. For example, preloaded settings in a property dialog box that are not relevant for the role, are not shown making the list of options shorter and clearer.

Role selection is primarily meant to be configured by Trimble and reseller localization personnel, and be part of the Tekla Structures installation package. However, advanced users and Tekla Structures system administrators can also create their own roles inside their company organization. Additional environment offering is available in the Tekla Warehouse offline and online collections. Note that you need to have a Trimble Identity for downloading or installing from the online collections. For more information, see Trimble Identity for Tekla Online services
2.3 **Folder structure**

Tekla Structures software and environments are separated into different locations due to the requirements for Windows certification. By default, the files are installed in the following folders:

- **Software** is installed under the \Program Files\Tekla Structures folder.
- **Environments and extensions** are installed under the \ProgramData\Tekla Structures folder.
- **User settings** are installed under the \Users\<username>\AppData\Local\Tekla Structures folder.

**NOTE** If you have an earlier version of Tekla Structures installed on your computer before installing Tekla Structures 2017, the files will be installed according to the existing structure.

2.4 **Project and firm folders**

Project and firm folders are meant for storing the customized files. For any company, we strongly recommend setting up firm and/or project folders on a shared file server accessible to all users. Having the hierarchy of project and firm folders will make updating company settings, ensuring that everyone uses the same settings in a project, and upgrading to a newer version of Tekla Structures much easier.

All the settings that are used on the company level (for example, company logo and drawing standards) should be stored in a firm folder and all the settings used on a specific project should be stored in the corresponding project folder. Property files are always saved in the \attributes folder under the current model folder, like, \TeklaStructuresModels\<my_building>\attributes. These files should then be copied to the project or the firm folder.

To use the saved settings in a firm and a project folder, set the path to the folder by using the **XS_PROJECT** and **XS_FIRM** advanced options. These advanced options should be put in the initialization, .ini, files. You can have several different .ini files. You can define in the Tekla Structures shortcut which .ini files to run and which settings to apply.
One of the most important advantages of using firm and project folders is that Tekla Structures does not replace files in the project and firm folders when you install a new version. This means that you retain your customized files without having to cut and paste, or export and import from previous versions. This makes upgrading to a newer version of Tekla Structures easier. When you store files in one place, it is also easier to update the settings and ensure that everyone in a project uses the same settings.

**Example:**

In the current project, 123_project_ABC, you have set up the properties for the concrete column, and saved them as column_ABC. To make these saved settings available for everyone working in the 123_project_ABC project, copy column_ABC.ccl from the \attributes folder under the model folder to the \123_project_ABC project folder on your file server. Ensure that everyone in the project has the correct path for the XS_PROJECT advanced option in the .ini file.

For more information, see Project and firm folders and Files and folders in Tekla Structures.

### 2.5 Folder search order

When you open a model, Tekla Structures searches for the associated files in specific folders in a set order. It is important that you place the files in the correct folders. Once Tekla Structures finds the associated files, it stops searching. This means that the files that have the same name but are located lower down the search order are ignored.

The basic folder search order is the following:

<table>
<thead>
<tr>
<th>Folder</th>
<th>Defined by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model folder</td>
<td>Currently open model</td>
</tr>
<tr>
<td>Project</td>
<td>XS_PROJECT</td>
</tr>
<tr>
<td>Firm</td>
<td>XS_FIRM</td>
</tr>
<tr>
<td>System</td>
<td>XS_SYSTEM</td>
</tr>
</tbody>
</table>

You can define more than one system folder. To do this, enter the file paths of the folders separated by semicolons as the value for the XS_SYSTEM advanced option, for example: set XS_SYSTEM=%XSDATADIR%environments\usimp\system_steel;%XSDATADIR%environments\usimp\system_common.

There are some exceptions to this search order. The exceptions are listed in Folder search order.

**NOTE** Do not store customized files in the system folder. Tekla Structures replaces these files when you install a new version.
2.6 Initialization files

Initialization files (.ini) are used for launching Tekla Structures. They can contain many advanced options that you can use to configure Tekla Structures for different standards and your own style of working. Tekla Structures automatically creates the necessary .ini files during installation. The number of .ini files it creates depends on how many country-specific environments you choose to install.

Why are .ini files needed?

There are numerous settings to be made when Tekla Structures starts. Advanced options are used to determine the appearance and the behavior of Tekla Structures, for example, the language used, behavior of part marks on drawings, and the location of your model folder. Advanced options are set through the .ini files. The different .ini files and what they do, and how they are related to each other are described below.

Different types of .ini files

The default reading order of the .ini files is as shown in the image below:

1. **teklastructures.ini**
   
   Initializes the settings needed for Tekla Structures to run.
   
   The `teklastructures.ini` file in the `\bin` folder starts Tekla Structures. We recommend that you do not make any changes to this file.
2. env_global_default.ini
   Sets the global default settings.
   The env_<your_environment>.ini file is located in the Environments subfolder and it contains all the environment-specific settings. These files are set by your area office or reseller.

3. environment.ini
   Sets the environment-specific settings.

4. role.ini
   Sets the settings defined for a role.
   The role_<role>.ini file is located in the Environments subfolder and it contains the settings specific for a chosen role. For example, the role_Engineer.ini file in the Environments\uk folder contains all the settings for the Engineering role in the UK environment.

5. user.ini
   Sets the settings specified by the user.
   The user.ini file contains your personal settings. The advanced options in user.ini override those in other .ini files. For example, if you have set the same advanced option in an .ini file, in a file in the environments subfolder and the user.ini file, Tekla Structures uses the value in the user.ini file. The user.ini is located in the C:\Users\<user_name> \AppData\Local\Tekla Structures\<version>\UserSettings folder.

6. options.ini
   Sets the settings specified for the company/project/model.
   If there are several settings for the same advanced option, the later setting in the reading order overrules the previous one. This means that the settings in user.ini overrule the settings in env_global_default.ini, and the settings in user.ini can be overruled by the settings in options.ini.
   The lang_enu.ini is the initialization file for the English language settings. The file is located with the other installed languages in the Tekla Structures\<version>\nt\bin folder.
   We recommend that you make all your customizations in the options.ini file under the model folder, or in the user.ini file. This way the customizations are kept when you install the next version of Tekla Structures.
2.7 Setting advanced options in .ini files

Tekla Structures contains three kinds of advanced options: user-specific advanced options, system-specific advanced options, and model-specific advanced options.

**NOTE** Changing an advanced option value in .ini files located outside the model folder does not affect the existing models. You can only update the advanced options in the Advanced options dialog box or in the options.ini file located in the model folder, not from an options.ini file located in folders defined for the XS_FIRM or XS_PROJECT advanced option. The .ini files are also read when you open an existing model, but only new advanced options that do not exist in options_model.db or options_drawings.db are inserted, for example, such options that are not yet in the Advanced Options dialog box, but have been added in the software.

User-specific advanced options set your personal preferences, for example the appearance of the Tekla Structures window. Tekla Structures saves user-specific advanced option settings in the options_<your_username>.ini file, located in the C:\Users\<user_name>\AppData\Local\Tekla Structures\<version>\UserSettings folder.

The options.ini file contains the settings for model-specific advanced options. It is located in the current model folder. To share your settings with other people, copy the options.ini file to the system, project or firm folder.

The system-specific advanced options are stored in all other .ini files.

Setting advanced options

There are two methods for setting advanced options:

- The advanced options are grouped in different categories according to their usage in the Advanced Options dialog box. To access the dialog box, click File --> Settings --> Advanced options. See more in Advanced options reference.

- The .ini files are plain text files that can be edited with a text editor, for example Notepad. The settings will then be saved in the options.ini file under the model folder for the model that you have open. The settings can then easily be copy-pasted into another .ini file. See more in File storing options and advanced options.

We recommend that you only use one of these methods to set advanced options. The settings in the Advanced Options dialog box override those in the .ini files. Some advanced options need a Tekla Structures restart to activate the new setting.

To set an advanced option in the user.ini file:

1. Locate the user.ini file in the C:\Users\<user_name>\AppData \Local\Tekla Structures\<version>\UserSettings folder.
2. Select and right-click the `user.ini` file in Windows Explorer and click **Open with**. You can open the file in any standard text editor.

3. Check that the advanced option is set to the value you want. If it is, you can stop here.

4. To change or add the advanced option, on a new line, type `set`, add a space and the name of the advanced option followed by its value in a single line.
   
   Tekla Structures only reads lines in the initialization file that start with `set`, for example, `set %XS_DIR%=`C:\TeklaStructures\2017`

5. Save the `user.ini` file.

### 2.8 Creating shortcuts

To use the correct `.ini` files for a specific project, the easiest way is to create a shortcut for the project on the desktop. Shortcuts are used to start `teklastructures.exe` with the defined initializations.

1. Make a copy of the default shortcut: In the Windows **Start** menu or **Start screen**, find **Tekla Structures <version>**, then right-click the Tekla Structures <version>.

2. Select **Copy** from the pop-up menu.

3. Paste the shortcut to your desktop.

4. Select the shortcut and right-click.

5. Select **Properties** from the pop-up menu.

6. Modify the **Target** of the shortcut by adding the required project initializations to it.
For example, you can use the following parameters in shortcuts:

- `-i InitializationFile`: Initialization file to be read during startup, for example: `-i \MyServer\MyProject\Project1.ini`. You can repeat this parameter as many times as you need.

- `ModelToBeOpened`: Full path to the model to be opened automatically.

.ini files tell where things can be found and in which order, depending on the folder structure that the company has set up. See more in Create startup shortcuts with customized initializations.
2.9 Bypassing the login screen

You can bypass the login screen by using a separate .ini file where you set the following three advanced options:

- XS_DEFAULT_LICENSE to set the default license for a user role.
- XS_DEFAULT_ENVIRONMENT points to the environment-specific .ini file, for example %XSDATADIR%\environments\usimp\env_usimp.ini
- XS_DEFAULT_ROLE points to the role-specific .ini file, for example %XSDATADIR%\environments\usimp\role_Steel_Detailer.ini

Define the startup shortcut using the parameter -I (capital i), for example, -I %XSDATADIR%\environments\usimp\Bypass.ini. When you do this, an additional initialization file is read BEFORE the environment .ini.

The content of such a file could be, for example:

```plaintext
set XS_DEFAULT_LICENSE=FULL
set XS_DEFAULT_ENVIRONMENT=%XSDATADIR%\environments\usimp\env_US_imperial.ini
set XS_DEFAULT_ROLE=%XSDATADIR%\environments\usimp\role_Steel_Detailer.ini
```

See more in Create startup shortcuts with customized initializations.

2.10 User-defined attributes

User-defined attributes are attributes set to an object in a model or a drawing. These user-defined attributes can be used for many purposes, such as in
filters, drawings, reports, export, import, fabrication, erection, and revision handling.

You can create your own user-defined attributes that you need in your company, or for a specific project. The user-defined attributes can be numbers, text, lists, or dates. They can be set to be unique for an object or allowed to be copied; they can also be ignored by numbering or affect numbering.

The user-defined attributes are defined in objects.inp files. These files are located in different folders following the Tekla Structures folder setup, and they are merged together during startup. The objects.inp file reads the user-defined attributes in order from the folders listed below, starting from the model folder:

<table>
<thead>
<tr>
<th>Folder defined by advanced option</th>
<th>Advanced option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Current model folder</td>
</tr>
<tr>
<td>Project</td>
<td>XS_PROJECT (your defined project folder)</td>
</tr>
<tr>
<td>Firm</td>
<td>XS_FIRM (your defined firm folder)</td>
</tr>
<tr>
<td>System</td>
<td>XS_SYSTEM (your defined system folder)</td>
</tr>
<tr>
<td>inp</td>
<td>XS_INP (your defined inp folder)</td>
</tr>
</tbody>
</table>

The files are merged so that if there are user-defined attributes in any of the files, they are displayed in the user interface. Tekla Structures merges the files so that duplicate attributes are removed. If Tekla Structures encounters the
same attribute name in different objects.inp files, the attribute from the first read objects.inp file will be used.

If you need to have several objects.inp files in the same folder, you can use a suffix in the file name to use all the files. This enables having several objects_<suffix>.inp files in the same folder. The file name could be objects_preact.inp, for example.
3 Environment, company and project settings for administrators

3.1 Environment settings

Common settings
All settings and files that are the same in all environments are located in the \Tekla Structures\<version>\Environments\common folder. Files and settings that are specific to an environment are located in separate environment folders.

The env_global_default.ini file is also located in the \common folder. The file determines the standard settings, and it is the first file that is read. Other initialization files are read after this file, and if the other files contain the same settings, they will override the previous settings.

Country-specific settings
The country-specific settings are located in the environments folders, and they are localized by your local Trimble office/reseller. The folder structure of the environments can vary, but the same kind of settings exist. For example, the settings that are localized include profile database, material database, reports, selection filters, view filters, components and custom components, macros, user-defined attributes, and drawings settings.
3.2 Company settings

Company-level settings are mainly settings that are used throughout the company for all projects. These settings are set using XS_SYSTEM and XS_FIRM.

For a larger company with subsidiaries, the settings could be used as follows:

- **XS_SYSTEM** may contain multiple paths, and it points to general settings inside the company. These can be company logo, reports, printer settings, drawing settings, templates, for example. These are settings that very seldom change, and are stored on a server available for all. For example, if the company logo is updated, it only has to be replaced in one place.

- **XS_FIRM** points to the firm folder set up by the company, or a subsidiary. The folder contains all the company settings used at the particular office. These can be logos, drawing settings, templates, reports, or printer settings, for example.

- **XS_PROJECT** points to the project folder. The folder contains project settings, such as logos for contractors and fabricators, or drawing settings, for example.

For more information on the folder search order, see Folder search order.

You can also use the Tekla Warehouse company-specific collections online or offline, in your own network. Use Trimble Identity for downloading or installing from the online collections. See also Trimble Identity for Tekla Online services.

The offline collection access is managed with folder rights in your network, and on the collection level in the collections.json file on each user's computer.

```
"collections"
"\\server-A\\company\\Tekla Structures collection"
```

The collections.json file can be shared to selected persons by copying it to the C:\Users\Public\Documents\Tekla\Tekla Warehouse\ folder.

Model templates

You can save the desired settings in a model and use the model as a template when you create new models. This can be very useful if your company has different kinds of projects, such as, parking garages, office buildings, bridges, and industrial.

When you create a model template, always start by creating a new empty model. This is because old models that have been used in live projects cannot be completely cleaned. They may contain excess information that increases the size of the model even if you delete all objects and drawings from the model.

To create a model template:

1. Create a new model and give it a unique name.
2. Add in the model the desired profiles, custom components, and other necessary items.

3. Save and close the model.

4. Move the whole model folder to the location pointed by the `XS_MODEL_TEMPLATE_DIRECTORY` advanced option. By default, the advanced option points to the folder `\TeklaStructures\<version>\Environments\default\model_templates\`.

5. In the new model template folder, open the `TeklaStructuresModel.xml` file using any standard text editor.

6. Set the `<IsTemplate>` element to `TRUE`. The default value is `FALSE`.

7. Save the file.

You can also search for model templates in Tekla Warehouse. The image below shows an example of a model template in Tekla Warehouse.

The **Insert into model** button installs the model template directly in the folder pointed by `XS_MODEL_TEMPLATE_DIRECTORY`. You can immediately use the template when creating a new model.

**NOTE** We strongly recommend that you update your model templates in the Tekla Structures version upgrade. See Administrator's release notes: Model templates in version update for more detailed instructions.
Customizing reports and drawings

If your company already has graphical templates in the DXF, DWG, or DGN format, you can convert these templates to Tekla Structures templates. For detailed instructions on how to do this, see the information on AutoCAD and Microstation files in the Template Editor Help.

For information on how to create your own templates and reports, see the Template Editor Help, and Reports and Templates.

Cloning templates for drawings

You should consider cloning drawings when:

• There are several similar parts, assemblies, or cast units in the model.
• You need to produce single-part, assembly, or cast-unit drawings of similar parts, assemblies, or cast units.
• The drawings need a lot of manual editing.

For example, you can create a drawing for one truss, edit the drawing, and then clone it for similar trusses. Then you only need to modify the cloned drawings where the trusses differ.

The cloned drawing may contain more parts than the original drawing. Part properties, marks, associative notes and related text objects are cloned from a similar part in the original drawing.

Clone templates in Master Drawing Catalog

You can clone drawings by using the Master Drawing Catalog templates. A cloning template in the Master Drawing Catalog can also be used in other models. They can be used in projects that have the same kind of drawings.

To create cloning templates:

1. Select a drawing in the Drawing List.
2. Right-click and select Add to Master Drawing Catalog, and then fill in the required properties.

The cloning template can be found under Cloning templates in the Master Drawing Catalog. To use cloning templates in other models, open the Master Drawing Catalog in the model, click the button on the toolbar, and add the model where the templates are saved.

For more information on the Master Drawing Catalog and cloning templates, see Create drawings in Master Drawing Catalog.
3.3 Project settings

Create your own component folder

Usually, only a few different connections and components are used in a project. To ensure that everyone in the project uses the same components and finds the components faster, we recommend that you create a component folder of your own.

1. Click the Applications & components button in the side pane to open the Applications & components catalog.
2. Create a new group for the project: Right-click in the catalog and select New group.
3. Add components to the group: Select the components in the catalog, right-click and select Add to group. Then select the group to which the components are added. You can also drag the selected components to another group.
4. Hide the groups that you do not need: Select the group, right-click and select Hide/Unhide.

TIP In the Applications & components catalog, use the commands in Access advanced features > Catalog management to modify catalog definitions. For more information, see Applications & components catalog for administrators and XS_COMPONENT_CATALOG_ALLOW_SYSTEM_EDIT.

For more information on the Applications & components catalog, see How to use the Applications & components catalog.

Define project properties

Project information is needed many times during a project. Define the project information at the beginning of a project to make reports and drawings display the correct information automatically. You can also update the project properties during the project.

1. On the File menu, click Project properties.
2. Select Edit.
3. Define the project properties and click Apply to save your changes.

Create and modify templates and reports

You can modify existing reports and templates, or create your own templates by using Template Editor. To open Template Editor, click File menu --> Editors --> Template editor, or double-click an existing table in an open drawing to open the tool. For more information, see Template Editor User's Guide.
Set up printers

Tekla Structures uses Windows drivers to write the print data directly to the Windows print device interface. You can print drawings as PDF files, save them as plot files (.plt) for printing with printer/plotter, or print them on a selected printer. To print to several paper sizes, you need to modify the drawingsizes.dat file, see more in Configuration files used in printing. You can also change the line width of the printed drawings, see more in Print to a .pdf file, plot file (.plt) or printer and Line thickness in drawings.

You can affect the way Tekla Structures automatically names the .pdf files and plot files by using certain drawing-type-specific advanced options, see more in Customize print output file names.
4 Tekla Model Sharing and multi-user for administrators

4.1 Tekla Model Sharing

Tekla Model Sharing enables efficient global collaborative modeling within a shared Tekla Structures model. Tekla Model Sharing gives users the freedom to work with the same model at the same time in different locations and time zones.

In Tekla Model Sharing each user has a local version of the model on their computer, or on a network drive, and the model data is shared and synchronized over the Internet using a Microsoft Azure cloud sharing service. When a model is shared, it is connected to the cloud-based sharing service. You can check the status of the service at any time.

Tekla Model Sharing requires a valid Tekla Model Sharing license and a Trimble Identity which is part of a valid organization. Based on the Trimble Identity information, you can assign and manage Tekla Model Sharing licenses in the web-based Tekla Online Admin Tool. For more information, see Managing Trimble Identities and Tekla Model Sharing licenses.

You can view and manage all company-shared models with a web-based Management Console. Logging in requires Trimble Identity administrator rights.

Tekla Model Sharing cloud sharing service status is publicly available at Tekla Model Sharing Status. On this web-site, you can also find information about any service breaks.

For more information on how Tekla Model Sharing works, see

- What is Tekla Model Sharing
- Prerequisites for Tekla Model Sharing
- User roles in Tekla Model Sharing
- Tekla Model Sharing licenses
NOTE  Tekla Model Sharing requires a single-user model. A model cannot be simultaneously shared and used in the multi-user mode. If you want to start using multi-user mode to share your model instead of Tekla Model Sharing, you first need to exclude your local version of the model from the sharing service and then convert it to a multi-user model.

The excluded model has no connection to the original shared model in the sharing service. This means that if you exclude your local version of the model from the sharing service and start to use the model in multi-user mode, you cannot later merge the original shared model and the multi-user model.

4.2 Multi-user models

You can work on Tekla Structures models in either single-user or multi-user mode. Multi-user mode allows several users to access the same model at the same time. Several users can work on the same project and be aware of the others' progress, so that copying and merging models is not needed.

The multi-user model consists of a single master model that can be located anywhere in the network. Each user can access this model, and open their own local view of the model on a client computer. This local view is called a working model. Any changes that a user makes to the working model are local, and not visible to other users, until the working model is saved to the master model.

The multi-user model is locked during opening, saving, and numbering. When one of the users performs any of these operations, other users cannot perform them during that time. For more information, see How multi-user works.

NOTE  All users of the multi-user model should use the same settings and the same version and service pack of Tekla Structures.

Tekla Structures multi-user server runs as a service that is started automatically when you start the computer. You do not need to log in to the service. We recommend that you use the latest multi-user server version available regardless of the Tekla Structures version that you use.

Setting access rights to a multi-user model

You can protect user-defined attributes using privileges. You can also prevent your model and drawings from being accidentally modified by using the Locked user-defined attribute (UDA). You can use the UDA for parts (separately for beams, columns, and so on), bolts, welds, specific drawing types, project properties, and phase properties.

Using the Locked UDA and privileges together you can even restrict some users or organizations from modifying your model. For more information on access rights, see Access rights in multi-user mode.
The **Locked** UDA has three values: **Yes**, **No**, and **Organization**. When set to **Yes**, the object is locked and you cannot modify its properties. You can only change the object's user-defined attributes that do not affect numbering. If you try to modify a locked object, Tekla Structures displays the following warning message:

There are locked objects, see report. The operation could not be performed.

To add the lock attribute to the user interface, you need to add the following line in the object's section in the `objects.inp` file:

```plaintext
attribute("OBJECT_LOCKED", attribute("OBJECT_LOCKED",
"Locked:", option,"%s", none, none, "0.0", "0.0")
{ value("No", 1)
  value("Yes", 0)
  value("Organization", 0)
}
```

---

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Information sources for administrators

Trimble Identity
Tekla Online services use Trimble Identity for identification. In addition to Tekla services, you can use your Trimble Identity with several other Trimble services, such as Trimble Connect and SketchUp 3D Warehouse.

Trimble Identity provides single-sign-on access for Tekla Online services. You can sign in one service and then browse to another online service without a need to log in again, see the services landing page. Use Trimble Identity also when signing in to Tekla Structures, Tekla Model Sharing, and Tekla Field3D.

For more information, see Trimble Identity for Tekla Online services.

Tekla User Assistance
Tekla User Assistance collects all help and support material to one place. By default, all help content is online. You can access the Tekla Structures help material in Tekla User Assistance by pressing the F1 button in Tekla Structures. If you have a dialog box open, Tekla Structures takes you straight to the related topic. You can add useful help topics to your favorites or to your bookmarks, depending on the browser you use.

You can also use the help offline. Offline help installation packages are available in Tekla Downloads.

You can also access the help offline from the Tekla Structures File menu. We strongly recommend that you use the online help when possible as it is updated constantly.

The help is also available when Tekla Structures is not running. Depending on your Windows operating system, through the Start menu or Start screen, select the Tekla Structures <version> and click Documentation.

Readme
The Readme document is available in PDF format through the Windows Start menu or Start screen, depending on your Windows operating system. Select the Tekla Structures <version> and click Documentation. Readme contains
useful information on the Tekla Structures version, and links to Tekla Online services. Readme is available in 11 languages.

**Release notes and Administrator's release notes**

Release notes and Administrator's release notes are published in Tekla User Assistance for each new main and intermediate version of Tekla Structures. They contain very useful information that you can use when upgrading to a newer version of Tekla Structures.

Release notes contains information about the new features, improvements and fixes to existing features. Administrator's release notes contains useful information on how to localize and take the new Tekla Structures features into use.

**Tekla Discussion Forum**

Tekla Discussion Forum is a useful place to share experiences, ask questions, and discuss with advanced users. You need a Trimble Identity to log in.

**Tekla Structures trainings**

To use Tekla Structures to its full potential we strongly recommend users to attend training courses held by the local Trimble Solutions office/reseller.

**Your local support**

If you have a valid maintenance contract, you can e-mail or phone your local support for help.
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