## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is Tekla Model Sharing</td>
<td>5</td>
</tr>
<tr>
<td>1.1 Prerequisites for Tekla Model Sharing</td>
<td>6</td>
</tr>
<tr>
<td>1.2 Tekla Model Sharing licenses</td>
<td>7</td>
</tr>
<tr>
<td>1.3 How Tekla Model Sharing uses the sharing service</td>
<td>7</td>
</tr>
<tr>
<td>1.4 Cache service for Tekla Model Sharing</td>
<td>9</td>
</tr>
<tr>
<td>1.4.1 Install a cache service for Tekla Model Sharing</td>
<td>9</td>
</tr>
<tr>
<td>1.4.2 Troubleshoot the cache service installation</td>
<td>11</td>
</tr>
<tr>
<td>1.5 User roles in Tekla Model Sharing</td>
<td>11</td>
</tr>
<tr>
<td>2. Start sharing a model in Tekla Model Sharing</td>
<td>14</td>
</tr>
<tr>
<td>2.1 Join a shared model in Tekla Model Sharing</td>
<td>15</td>
</tr>
<tr>
<td>2.2 Share your model changes in Tekla Model Sharing</td>
<td>16</td>
</tr>
<tr>
<td>2.2.1 Write out</td>
<td>17</td>
</tr>
<tr>
<td>2.2.2 Read in</td>
<td>17</td>
</tr>
<tr>
<td>2.3 Detect sharing changes and view sharing history in Tekla Model Sharing</td>
<td>18</td>
</tr>
<tr>
<td>2.3.1 Sharing change detection</td>
<td>19</td>
</tr>
<tr>
<td>2.3.2 Sharing history</td>
<td>21</td>
</tr>
<tr>
<td>2.4 Object locks, drawing locks, and privileges in Tekla Model Sharing</td>
<td>21</td>
</tr>
<tr>
<td>2.4.1 Object locks</td>
<td>21</td>
</tr>
<tr>
<td>2.4.2 Drawing locks</td>
<td>23</td>
</tr>
<tr>
<td>2.4.3 Privileges</td>
<td>24</td>
</tr>
<tr>
<td>2.5 Create a baseline for a model in Tekla Model Sharing</td>
<td>24</td>
</tr>
<tr>
<td>2.6 Exclude a model from the sharing service in Tekla Model Sharing</td>
<td>25</td>
</tr>
<tr>
<td>2.7 Convert a shared model to a multi-user model in Tekla Model Sharing</td>
<td>27</td>
</tr>
<tr>
<td>2.8 Information on shared models in Tekla Model Sharing</td>
<td>28</td>
</tr>
<tr>
<td>2.9 Information on users and sharing actions in Tekla Model Sharing</td>
<td>29</td>
</tr>
<tr>
<td>3. What is shared in Tekla Model Sharing</td>
<td>31</td>
</tr>
<tr>
<td>3.1 Tekla Model Sharing settings</td>
<td>35</td>
</tr>
<tr>
<td>3.2 Exclude files and folders from Tekla Model Sharing</td>
<td>37</td>
</tr>
<tr>
<td>3.3 Collect model history in Tekla Model Sharing</td>
<td>38</td>
</tr>
<tr>
<td>4. Best practices in Tekla Model Sharing</td>
<td>40</td>
</tr>
<tr>
<td>4.1 How different object types work in shared models</td>
<td>40</td>
</tr>
<tr>
<td>4.2 How object IDs work in shared models</td>
<td>42</td>
</tr>
<tr>
<td>4.3 How to share catalog updates without creating new objects</td>
<td>42</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------</td>
</tr>
<tr>
<td>4.4 How to share Organizer data</td>
<td>43</td>
</tr>
<tr>
<td>4.5 Backing up shared models</td>
<td>44</td>
</tr>
<tr>
<td>4.6 Restoring shared models</td>
<td>44</td>
</tr>
<tr>
<td>5 Disclaimer</td>
<td>45</td>
</tr>
</tbody>
</table>
1 What is Tekla Model Sharing

Tekla Model Sharing enables efficient global collaborative modeling within one 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.

With Tekla Model Sharing you can work locally and share the model changes globally. For example, one Tekla Model Sharing team of users can work in New York, one in London and one in Bangkok. They all contribute to the same model, working around the globe during their office hours in different time zones while the model keeps building up all the time.

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 (page 7). You can check the status of the service at any time.

To easily share your model changes, write out them to the sharing service. When you want to update your model with the changes made by other users, read in the changes from the sharing service.
Even though the changes are shared over the Internet, you do not need to be connected to the sharing service all the time. You need to be online only when you want to write out or read in the changes. This enables offline work if your Internet connection is not always available.

With Tekla Model Sharing you can

- **invite (page 14)** other users to your shared models
- **join (page 15)** someone else’s shared models
- **share (page 16)** model changes

**NOTE** Tekla Model Sharing requires a single-user model.

A model cannot be simultaneously shared and used in multi-user mode. If you want to start using multi-user mode as a means to share your model instead of Tekla Model Sharing, you need to first exclude your local version of the model from the sharing service and then convert (page 26) 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.

**See also**

Prerequisites for Tekla Model Sharing (page 6)
User roles in Tekla Model Sharing (page 11)

### 1.1 Prerequisites for Tekla Model Sharing

Before you can start using Tekla Model Sharing and share your models, the following prerequisites need to be met:

- **Internet connection**
  
  You need to establish a connection to the Tekla Model Sharing service (page 7) to perform any model sharing actions.
  
  - TCP port 443 (the default HTTPS) outbound must be open.
    
    If an HTTP proxy is used, it must support HTTP 1.1.

- **Trimble Identity**
  
  All sharing actions require authentication, and the authentication is done with Trimble Identity username and password.
  
  **If you do not have** a Trimble Identity, go to the **Log in** dialog box.
• **License (page 7)**

All sharing actions require a valid Tekla Model Sharing license. Tekla Model Sharing licenses are tied to users’ Trimble Identities. The organization’s administrator assigns and manages the licenses in the Tekla Online Admin Tool.

### 1.2 Tekla Model Sharing licenses

Tekla Model Sharing requires a valid Tekla Model Sharing license.

Tekla Model Sharing licenses are assigned and managed in the [Tekla Online Admin Tool](#). To obtain a Tekla Model Sharing license, contact your organization's administrator. For details about model sharing licenses, see [Managing Tekla accounts and Tekla Model Sharing licenses](#).

Tekla Model Sharing uses **enterprise type licenses** that are purchased as a yearly subscription. The license use is limited to a maximum number of concurrent users.

Users can work on a shared model offline without reserving a license. A license is reserved when a user starts a Tekla Model Sharing operation. The license is released within three hours after the user logs out of Tekla Structures by shutting down Tekla Structures. Licenses can be temporarily assigned outside of your organization to any users.

The configuration, type and maintenance status of your Tekla Structures license has no effect on your Tekla Model Sharing license. Keep track of the number of licenses and users as well as your license expiration dates to ensure continued service.

**See also**

Start sharing a model in Tekla Model Sharing (page 14)

### 1.3 How Tekla Model Sharing uses the sharing service

When you start to share a model using Tekla Model Sharing, the model is connected to the cloud-based sharing service.

- To send model changes to the sharing service, you need to [write out](#).
- To fetch other users' model changes from the sharing service, you need to [read in](#).

When you read in other users’ changes, the updates to your local version of the shared model are delivered to you as incremental packets. This means that when you read in, the data that is fetched from the sharing service is merged...
with the data on your computer. You need to read in all shared changes before you can write out your own changes to the sharing service.

Note that there is no central model in the sharing service as such, only a model instance that consists of a model baseline and incremental updates. You cannot open the model in the sharing service or access any files.

The image below shows how the model data is stored to the sharing service. Each user fetches the model data from the sharing service to their local versions of the model when they read in. User authentication is based on Trimble Identity.

NOTE If there are several Tekla Model Sharing users in the same office, we recommend you to install a separate cache service. The cache service is recommended especially in regions where the download speed may be limited. The use of cache service reduces the download effort and enables faster download times.

See also

Prerequisites for Tekla Model Sharing (page 6)
Start sharing a model in Tekla Model Sharing (page 14)
1.4 Cache service for Tekla Model Sharing

If there are several Tekla Model Sharing users in the same office, we recommend you to install a separate Tekla Model Sharing Cache service. The cache service is recommended especially in regions where the download speed may be limited. The use of cache service reduces the download effort and enables faster download times.

Tekla Model Sharing Cache service downloads model data from the Tekla Model Sharing service (page 7) and stores it in the file system and then caches it inside a LAN. The first user who reads in a packet from the sharing service loads it to the cache, and the next user gets the data faster from the cache inside the LAN than from the sharing service through the Internet.

Note that the cache is not used for packets that are written out.

The image below shows how the model data is stored to the sharing service and used with the Tekla Model Sharing Cache service.

Install a cache service for Tekla Model Sharing

Software and system requirements for a cache installation:

- Windows Server 2008 R2, or later
• .NET Framework 4.5.1

1. Ensure you have an active Windows computer or a server with enough disk space to store the cached model data.

2. Download the Tekla Model Sharing Cache service installation file from Tekla Downloads.

3. Run the installation file and follow the steps in the installation wizard to complete the installation.
   - The default cache folder is ..\TeklaModelSharingCache. If needed, you can change the folder destination.
     Ensure that the destination folder has enough disk space for the estimated usage of the service. The required disk space can vary from a few gigabytes to terabytes, depending on the amount of Tekla Model Sharing users and the size of the models.
   - The default TCP/IP port number for the cache service is 9998.
     Use this port number when you configure Tekla Structures client workstations to use the cache. This port is the main communication and control channel to the cache service.
   - The default TCP/IP port number for internal communication is 9001.
     This port is automatically fetched from the cache service, and it is used for the actual data transfer.

4. Check that the Tekla Model Sharing Cache service has started.

NOTE If you later need to modify the installation, re-run the TeklaModelSharingCacheService.exe installation file and select Repair. You can then change the previously set cache folder or port numbers.

Alternatively, if you are used to editing configuration files, you can use the cache service configuration file TmsConfiguration.xml in ..\ProgramData\Tekla\ModelSharingCache\ to modify the cache installation. Modify the TmsConfiguration.xml file using any standard text editor, for example, Microsoft Notepad or an XML editor. Open the text editor as administrator by right-clicking and selecting Run as administrator. This ensures that the file can be saved in the same location from where it was opened.

What is Tekla Model Sharing Cache service for Tekla Model Sharing
• Locate **Tekla Model Sharing Cache** from the Windows services by using, for example, the Computer Management console compmgmt.msc or the Services management console services.msc.

• Use Windows Event Viewer to verify that there are no errors from the service and that there are Information messages showing that the service has started.

5. Configure Tekla Structures client workstations to use the cache.

   In Tekla Structures, on the **File** menu, click **Sharing --> Sharing settings**.

   In the **Sharing settings** dialog box:

   • **Name** is the name of the computer on which the cache is installed. To check the computer name, click **Windows Control Panel --> System and Security --> System**.

   • **Port** is the cache service port number that you have set when you installed the cache service. The default value is 9998.

### Troubleshoot the cache service installation

If you cannot connect to the service from Tekla Structures:

• Ensure that the **Tekla Model Sharing** Windows Service is running.

• Ensure sure that the firewalls do not block TCP/IP ports configured to Tekla Structures, for example 9001 or 9998 when you use the default ports.

If the service does not start:

• Check the Windows Event Viewer’s Application Log for possible errors.

### 1.5 User roles in Tekla Model Sharing

When you start sharing your model in Tekla Model Sharing, you become the **Owner** of the model. The **Owner** can invite other users and give them one of the four different roles. The role defines the user’s permission level to the model.

The four different user roles in Tekla Model Sharing are **Owner**, **Editor**, **Project viewer** and **Viewer**.

Note that your permission to the shared model is removed when you detach the model from the sharing using one the following methods:

• using the **Exclude from sharing** command

• upgrading to the next Tekla Structures version

• using the **Save as** command to save the model.
<table>
<thead>
<tr>
<th>Role</th>
<th>Access level</th>
</tr>
</thead>
</table>
| As an **Owner** you can | • read in other users' changes and write out your own changes to the sharing service  
• invite new users  
• list other users and change their roles  
• remove users from the model  
• remove the model instance and all the model related data from the sharing service  
• change the model code and description properties  
As an **Owner** you can select the roles when you invite users to a shared model, or any time during a project. If you change the role of a user in **File menu --> Sharing --> Users**, you can send a notification e-mail to the user. If you include a short message in the e-mail, all the invited users and the users whose role has been changed receive the same message.  
There can be several **Owners** within one model. The **Owner** who has started to share the model can give the **Owner** role to any selected user. |
| As an **Editor** you can | • read in other users' changes and write out your own changes to the sharing service  
• edit the model  
• list other users |
| As a **Project viewer** you can | • read in other users' changes and write out your own changes to the sharing service  
• view the model but you cannot modify the model objects  
• list other users  
With the **Project viewer** role you cannot  
• modify user-defined attributes that affect numbering  
• insert and modify grids  
• import and update models that would create, for example, beams and other objects  
Note that when you open the model in the **Project viewer** role, Tekla Structures restart is required. |
<table>
<thead>
<tr>
<th>Role</th>
<th>Access level</th>
</tr>
</thead>
</table>
| As a **Viewer** you can | • read in other users' changes but you cannot write out any changes to the sharing service  
|              | • view the model but you cannot modify the model objects                      |

Note that when you open the model in the **Viewer** role, Tekla Structures restart is required.

**See also**

- Information on users and sharing actions in Tekla Model Sharing (page 29)
- Start sharing a model in Tekla Model Sharing (page 14)
- What is shared in Tekla Model Sharing (page 31)
Before you can start sharing your models in Tekla Model Sharing, you need to be logged in with your Trimble Identity in Tekla Structures. If you are not logged in, the Trimble Identity log in dialog box opens.

1. Open a single-user model you want to share.
2. On the File menu, click Sharing --> Start sharing. The Start sharing dialog box opens.
3. If needed, enter a Code and a Description for the model.
   • Code can be, for example, a site number, a project number, or an accounting number.
   • Add Description according to your company conventions.
4. Invite other users to share your model by entering their e-mail addresses to the Invite users box and set their user role (page 11) either to Editor, Owner, Project viewer, or Viewer.
   You can add several users at one go. Separate the e-mail addresses with semicolons. If you add several users at one go, they all get the same user role. The role can be changed later.
5. Click the Add button to add the users to the model.
6. Select whether to send a notification e-mail to the invited users. Select the Send e-mail notification to user check box and write a message to the invited users, if needed.
7. Click the Start button to start sharing your model.
   The model is saved and written out to the sharing service (page 7).
Next time you open the model, you can open it

- on the **Welcome** page when you open Tekla Structures. Either click the **Shared models** button on the **All models** tab, or select the shared model from the list of models. Shared models have the cloud icon 🌁.
- in **File menu --> Open**.

**See also**

- Join a shared model in Tekla Model Sharing (page 15)
- Share your model changes in Tekla Model Sharing (page 16)
- Information on users and sharing actions in Tekla Model Sharing (page 29)

### 2.1 Join a shared model in Tekla Model Sharing

When someone using Tekla Model Sharing has invited you to join a shared Tekla Structures model, you will receive an invitation e-mail.

The e-mail contains information about the model, the used environment and your user role (page 11). The user role is your level of permission to the model. You can join a model at any stage of sharing, and as many times you need.

1. **On the File menu, click Sharing --> Browse shared models.**
   - The **Shared models** dialog box opens.
2. **In Save in**, browse for the location where you want to save your local version of the model.
   - If you later want to join the same model again, you need to save a new local version of the model on your computer. If you use the same name for the model, the local versions of the model need to be saved in different locations on your computer, because you cannot have two or more models of the same name in the same folder.
3. **From the Shared models list, select the model you have been invited to.**
   - You find the name of the model in the invitation e-mail.
4. **Click the Join button.**
   - When you join the model:
     - Tekla Structures checks that the local version of the model does not already exists in the selected folder. A warning message is displayed if the selected folder already contains the model. In that case, you need to browse for a different folder where to save the model.
     - Tekla Structures checks the environment you are using and displays a message if you are using a different environment than the shared
model. We recommend that all users within the same shared model use the same environment.

The Available updates list opens.

5. From the list of available updates, select an update or a baseline (page 24) that you want to join.

You can select any baseline, which is a snapshot of the model state on a certain date, or update to join, not only the latest. Selecting a baseline is beneficial if you join the model when there already are many changes made. Joining a baseline instead of an update is also faster.

By joining an earlier baseline or update you can go back in the model history, and, for example, check the model state on a certain date.

6. Start working with the model and share your model changes (page 16).

When you read in, only incremental update packets (page 31) are fetched from the sharing service.

Next time you open the model, you can open it

• on the Welcome page when you open Tekla Structures. Either click the Shared models button on the All models tab, or select the shared model from the list of models. Shared models have the cloud icon.

• in File menu --> Open.

See also

Start sharing a model in Tekla Model Sharing (page 14)
Information on shared models in Tekla Model Sharing (page 27)
Information on users and sharing actions in Tekla Model Sharing (page 29)

2.2 Share your model changes in Tekla Model Sharing

After you have modified your local version of the Tekla Model Sharing model, you can share your changes with other users who are working with the model.

To share your changes with other users, send your changes to the sharing service by writing them out.

To update your model with the changes done by other users, fetch the changes from the sharing service by reading them in. You always need to read in the most current changes to a model before you can write out.
Write out

1. On the **File** menu, click **Sharing** --> **Write out**, or click on the Quick Access Toolbar.

The **Write out** button shows a green arrow when there are no packets that need to be read in before you can write out. You can write out changes immediately.

The **Write out** button shows a gray arrow when there are packets that need to be read in before you can write out changes.

When you write out, Tekla Structures saves the model, creates a packet of the model changes, writes out the changes to the sharing service and saves the model again.

Only new or changed data is written out. If you attempt to write out your changes, but some other user has shared some changes earlier and you have not yet read in all the available updates, you are asked to read in first. If there is no new data to be read in, Tekla Structures writes out your changes to the sharing service immediately.

If one of the users who shares the model has selected the **Enable write out revision comment** option in the **Sharing settings (page 35)** dialog box, you can enter a code or a comment for the update that you are writing out.

If you delete objects and share the deletion to the sharing service, the deletion is shared with other users, and the deleted objects cannot be recovered.

2. Continue working with the model.

   Note that if several users modify the same objects at the same time, the model will contain the changes by the user who first wrote out the changes.

   If you want to automate the write out process, you can use **Sharing Automation Tool** from the **Applications and components** catalog. The tool first reads in and then tries to write out the changes until it succeeds.

Read in

1. On the **File** menu, click **Sharing** --> **Read in**, or click on the Quick Access Toolbar.
The **Read in** button shows the number of packets that are available to be read in.

If one of the users who shares the model has selected the **Show available updates when reading in** option in the **Sharing settings (page 35)** dialog box, the **Available updates** list opens after you have clicked the **Read in** button.

The dialog box lists all the available packets. You can read in the changes packet-by-packet, if you want to check the model changes in phases. If you want to receive all the updates at once, you can select the latest packet and all the previous packets are read in as well.

When you read in, the updates to the shared model are delivered as incremental packets that only include the changed data. You need to read in all shared changes before you can again write out your own changes to the sharing service.

If you have selected the **Show changes after read in** option in the **Sharing settings (page 35)** dialog box, a list of sharing changes opens at the bottom pane after the selected packets are read in. The list shows the changes according to how they affect the model.

2. **Continue working with the model.**

---

**NOTE** If you encounter problems with sharing, check the sharing related **log files** in the current model folder and in ..\Users\<user>\AppData\Local\Tekla DataSharing for troubleshooting.

**See also**

- What is shared in Tekla Model Sharing (page 31)
- Detect sharing changes and view sharing history in Tekla Model Sharing (page 18)
- Exclude files and folders from Tekla Model Sharing (page 37)
- Best practices in Tekla Model Sharing (page 40)
- Collect model history in Tekla Model Sharing (page 38)

## 2.3 Detect sharing changes and view sharing history in Tekla Model Sharing

To see how the model has been changing and who has shared their model changes, use the sharing change detection and sharing history to see what kind of changes the model includes.
Sharing change detection

After you have read in (page 16) the model changes from the sharing service (page 7), you can check the changes included in the packets in more detail. A list of sharing changes is shown at the bottom pane of Tekla Structures. The changes are visualized with colors both in the changes list and in the model.

<table>
<thead>
<tr>
<th>To</th>
<th>Do this</th>
</tr>
</thead>
</table>
| Open the changes list | Do one of the following:  
  - On the Quick Access Toolbar, click the **Show read in changes** button.  
  - Click **File menu** --> **Sharing** --> **Show read in changes**.  
  - To automatically show the list after each read in, select the **Show changes after read in** option in **File menu** --> **Sharing** --> **Sharing settings**. |

| View changes in the list | Click the separate tabs to see the changes according to how they affect the model. The changes are divided to the following tabs: **Physical objects**, **Other objects**, **Drawings**, **Options**, **Attribute definitions**, **Model folder files**, and **UDA changes**.  
  The changes are visualized with colors in the list.  
  Deleted objects are listed in the changes list but they do not have any information available in the **Name** column.  
  The **UDA changes** tab includes user-defined attributes that have a definition included in the environment.db file. Reference objects are detected as changed if there are physical or material changes.  
  Tabs do not exist if there are no items on the tab. If the tab content becomes empty because of filtering, the tab is not shown. |

| View changes in the model | Select the **Select objects in model view** check box and a row in the list to highlight the changed objects in the model. The changes are visualized with colors in the model. Deleted objects are not visualized in the model.  
  - Added objects = green  
  - Modified objects = yellow  
  - Conflicting objects = orange  
  - Existing objects that have not been modified by another user = gray |
<table>
<thead>
<tr>
<th>To</th>
<th>Do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter changes in the list</td>
<td>On each tab, you can filter the changes in every column. Click the filter icon and select how to filter the changes.</td>
</tr>
<tr>
<td>Edit the filter</td>
<td>Click the filter icon and select a filter from the filter list. Name of the selected filter is visible on the bottom left corner of the list.</td>
</tr>
<tr>
<td></td>
<td>If you right-click the filter icon, you can, for example, sort the columns.</td>
</tr>
<tr>
<td></td>
<td>To edit the filter, right-click the filter icon and select Filter editor. The Filter editor dialog box opens and you can create or edit the filter as needed.</td>
</tr>
<tr>
<td>Zoom to changed objects in the model</td>
<td>Select the Zoom to selected check box and a row in the list to zoom to the changed object in the model.</td>
</tr>
<tr>
<td>Search for specific changes</td>
<td>Type a search word to the search box on the bottom right corner of the list.</td>
</tr>
</tbody>
</table>
| Move the changes list somewhere else on the screen | You can  
  • move the list around the screen  
  • drag the list to a second screen  
  • dock the list to the bottom pane or to the side pane of Tekla Structures.                                                       |
|                                        | The list has icon in the side pane. If you drag the list to a second screen, click the icon to return the list to the main screen.    |
Sharing history

After you have read in and written out (page 16) model changes, you can check the sharing history of the model. The Sharing history dialog box shows all your read in and write out events, and the packets included in each event. You can check the sharing history event-by-event, and see how the model has evolved by the changes made by other users.

<table>
<thead>
<tr>
<th>To</th>
<th>Do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open the sharing history</td>
<td>On the File menu, click Sharing --&gt; Sharing history.</td>
</tr>
<tr>
<td>Check the read in and write out events</td>
<td>Click the Collapse all button to see all your read in or write out events and their date and time.</td>
</tr>
<tr>
<td>Check the packet information</td>
<td>Click the Expand all button to see all the packets in each read in or write out event.</td>
</tr>
<tr>
<td>The packet number, the person who wrote out</td>
<td>The packet number, the person who wrote out the packet and the packet upload date and time is shown.</td>
</tr>
<tr>
<td>View the model changes included in a single event</td>
<td>Select the event and click the Show changes button.</td>
</tr>
<tr>
<td>A list of model changes is displayed at the bottom pane of Tekla Structures.</td>
<td></td>
</tr>
</tbody>
</table>

See also

What is shared in Tekla Model Sharing (page 31)
Best practices in Tekla Model Sharing (page 40)

2.4 Object locks, drawing locks, and privileges in Tekla Model Sharing

You can use object locks, drawing locks, and privileges to control user access and editing rights to the shared model objects and the shared drawings.

Object locks

You can lock assemblies and model objects to prevent accidental modification and numbering of objects. This is useful when there are multiple organizations working with the same shared model, and the organizations want to prevent changes to their own organization objects and drawings.

Different organizations can lock model objects so that only the users within the same organization can modify the objects. Users in one organization can
change the status of their own locks on the assembly and on the cast unit level, or on the model object level.

NOTE The organization information is based on the Windows user account, not on the Trimble Identity.

Set the default organization lock status

You can automatically set the default lock status for all new assemblies and cast units when they are created. Additionally, when you start to share the model, the default lock status is set for all assemblies and cast units that do not yet have any lock status. Use the advanced option XS_OBJECTLOCK_DEFAULT to set the default lock status. The default lock status can be ORGANIZATION or NO.

To set the default organization lock status for all new assemblies and cast units:

1. On the File menu, click Settings --> Advanced options --> Modeling properties.
2. Set the advanced option XS_OBJECTLOCK_DEFAULT to ORGANIZATION.
3. Click OK.

   All new assemblies and cast units are locked for your organization, and their lock status in the Object locks dialog box is For others. Only users within the same organization can modify the objects in the assembly.

Change the assembly and object lock statuses

To change the assembly and object lock statuses:

1. On the Manage tab, click Locks.
   The Object locks dialog box opens.
2. Select the objects in the model.
   The object selection can be done on the assembly level or on the cast unit level, or on the object level. Use the Assemblies and All object types options and the Sub-objects check box to define the level of selection.
3. Click the Add objects button to add the assemblies, cast units, or the objects to the list.
   Once the objects are on the list, you can check their Object type, Name and Locked status.
4. To change the status of the locks, select the assemblies or objects in the list or in the model, and a new lock value from the list at the bottom of the dialog box, and click Set.
   The lock status is changed.
### How the object locks are set vs What is locked

<table>
<thead>
<tr>
<th>How the object locks are set</th>
<th>What is locked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly is set to <strong>Organization</strong> (the <strong>Locked</strong> status is <strong>For others</strong>) and the objects in the assembly are set to <strong>No</strong>.</td>
<td>Assembly and the objects in the assembly are locked for my organization, and users in my organization can modify the assembly or the objects in the assembly. Users in other organizations cannot modify the assembly or the objects in the assembly. Assembly and the objects in the assembly are green in the model.</td>
</tr>
<tr>
<td>Assembly is set to <strong>Yes</strong> and the objects in the assembly are set to <strong>No</strong>.</td>
<td>Assembly and the objects in the assembly are locked for all users, no one can modify the object. Assembly and the objects in the assembly are red in the model. It is not possible to delete, modify or number the assembly or the object.</td>
</tr>
<tr>
<td>Assembly is set to <strong>No</strong> and the objects in the assembly are set to <strong>No</strong>.</td>
<td>Assembly or the objects in the assembly do not have any locks, anyone can modify the objects. Assembly and the objects in the assembly are green in the model.</td>
</tr>
</tbody>
</table>

If you want to clear the list, click the **Reset data** button.

You can use the following template fields in report templates to report the lock statuses: `ASSEMBLY.OBJECT_LOCKED`, `ASSEMBLY.OWNER_ORGANIZATION` and `ASSEMBLY.LOCK_PERMISSION`.

In addition, you can use the object representation to visualize the locks. When you share the object representations, other members in the project can visually check the lock statuses.

### Drawing locks

You can lock drawings to prevent accidental modifications and to reserve drawings for editing. If a drawing is locked and the lock is shared, other users cannot make any changes to the drawing.

To lock a drawing for editing:

1. **Read in (page 16)** all the model changes.
2. Open the **Drawing list**, select the drawing and click the **Lock On** button.
   - The **Locked By** column in the **Drawing list** shows the user who has locked the drawing.
3. Write out (page 16) to share the drawing lock information.
4. To edit the drawing, open the drawing locks.
5. Edit the drawing as needed.
6. Write out to share the updated drawings.

Privileges
The person who has created the model, or anyone in the same organization, can control certain access rights to the model using privileges. In practice, the privileges of the model are controlled via the privileges.inp file.

By modifying the privileges.inp file you can control the access to
- modify user-defined attributes
- modify numbering settings
- save standard files

To change the access rights:
1. Close the model.
2. Open the privileges.inp file in any text editor.
3. Change the desired settings and save the privileges.inp file to your model folder.
4. Re-open the model.
5. Write out (page 16) to share the privileges information.

See also
Start sharing a model in Tekla Model Sharing (page 14)
User roles in Tekla Model Sharing (page 11)

2.5 Create a baseline for a model in Tekla Model Sharing
If you are Owner of a model in Tekla Model Sharing, and you want to keep a record of the current progress of the model or to make the model faster to join for a new user, you can create a new starting point for the model in the sharing service. This new starting point is achieved by creating a baseline.
Baseline is a snapshot of the current state of the model. When you create a baseline, a full model is always written out to the sharing service. We recommend Owner to create a new baseline when a new user has been invited to the model.

1. On the File menu, click Sharing --> Create baseline.
2. Enter a code or a comment, if entering revision comments has been enabled in the Sharing settings (page 35) dialog box.

A full model is written out (page 16) to the sharing service. Files and folders that have been excluded from the sharing are not included in the baseline.

If you need to read in while you are creating the baseline, you need to repeat the Create baseline command after you have read in other users' changes.

3. If needed: Invite someone to join (page 15) the model.

When the new user joins the model, the Available updates list opens.

The user can then select a baseline or an update to join. The Available updates list shows all the baselines and the updates after the latest baseline. You can select any baseline or update to join, not only the latest. By joining an earlier baseline or update you can go back in the model history, and, for example, check the model state on a certain date.

Joining a baseline is beneficial for users who join the model when there already are many changes made. Joining a baseline instead of an update is also faster.

After joining a model, only incremental update packets are read in from the sharing service (page 7).

See also
User roles in Tekla Model Sharing (page 11)
Start sharing a model in Tekla Model Sharing (page 14)

2.6 Exclude a model from the sharing service in Tekla Model Sharing

If needed, you can exclude yourself and your local version of the model from the sharing service.

When you exclude a model, your local version of the model is no longer connected to the sharing service and you cannot share your changes anymore. However, the model instance still exists in the sharing service and other users can continue working with the model normally.

NOTE After you have excluded your local version of the model from the sharing service, you cannot merge the excluded model back to the
original shared model. The excluded model is completely new and it has no connection to the model in the sharing service.

All users, regardless of their user role (page 11) (Owner, Editor, Project viewer, Viewer), can exclude their local version of the model from the sharing service.

1. On the File menu, click Sharing --> Exclude from sharing.
   A confirmation message is displayed.

2. Click Continue.
   Your local version of the model is disconnected from the sharing service, and you cannot write out or read in (page 16) changes anymore.
   The model automatically becomes a single-user model.

After you have excluded your local version of the model from the sharing service you can

• continue working with the model in single-user mode.
• start working with the model in multi-user mode (page 26).
• start working with the model again in Tekla Model Sharing.

If you would like to start working again with the excluded model in Tekla Model Sharing, you can either

• start sharing (page 14) the model and invite other users to join the model.
  If you start to share the model, the model is completely new and it has no connection to the previous model in the sharing service, even though the model retains its old name.

• join (page 15) the same model again in the Shared models dialog box in File menu --> Sharing --> Browse shared models.
  When you join the model, you can select a baseline or an update (page 24) to join.
  If you join the model again, you need to save a new local version of the model on your computer. If you do not change the name of the model, you may have several models that have the same name in the Shared models dialog box. All these local versions of the model need to be saved in different locations on your computer, because you cannot have two or more models of the same name in the same folder.
2.7 Convert a shared model to a multi-user model in Tekla Model Sharing

If needed, you can stop working with a shared model in Tekla Model Sharing and convert your local version of the model to a multi-user model.

A model cannot be simultaneously shared and used in multi-user mode. If you want to start using multi-user mode as a means to share your model instead of Tekla Model Sharing, you need to first exclude your local version of the model from the sharing service and then convert it to a multi-user model.

NOTE 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.

1. Exclude your local version of the shared model from the sharing service to make it a single-user model:
   a. Open the shared model that you want to convert to a multi-user model.
   b. On the File menu, click Sharing --> Exclude from sharing.
      A confirmation message is displayed.
   c. Click Continue.
      The model automatically becomes a single-user model.
      Your local version of the model is disconnected from the sharing service, and you cannot write out or read in changes anymore. However, the model instance still exists in the sharing service and other users can continue working with the model normally.

2. Convert the current single-user model to a multi-user model:
   a. On the File menu, click Sharing --> Convert to multi-user model.
   b. Enter the multi-user server name or select the name from the list in the Convert dialog box.
   c. Click Convert to multi-user model.
      The current model is converted to a multi-user model and you can start using the model in multi-user mode.

See also
Start sharing a model in Tekla Model Sharing (page 14)
2.8 **Information on shared models in Tekla Model Sharing**

When you want to join a shared model in Tekla Model Sharing, you select the model to join in the **Shared models** dialog box, in **File menu --> Sharing --> Shared models**.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service</strong></td>
<td>Sharing service that is being used.</td>
</tr>
<tr>
<td><strong>Save in</strong></td>
<td>Location where the local version of the model is saved on your computer. If you want to save to another location, click the <strong>Browse</strong> button.</td>
</tr>
<tr>
<td><strong>Shared models</strong></td>
<td>List of models that you have shared or have been shared with you.</td>
</tr>
<tr>
<td>• <strong>Show also hidden</strong></td>
<td>If you have hidden some models from the <strong>Shared models</strong> list, select the <strong>Show also hidden</strong> check box to see the full list of models that have been shared with you, or you have shared.</td>
</tr>
<tr>
<td>• <strong>Show shared models on this computer</strong></td>
<td>Select the <strong>Show shared models on this computer</strong> check box to see the models that you have locally saved on your computer.</td>
</tr>
<tr>
<td><img src="image" alt=" " /></td>
<td>Click to hide the model from the <strong>Shared models</strong> list. If you have many models on the list, it can be useful to hide the models you are not actively working with.</td>
</tr>
<tr>
<td><strong>Code</strong></td>
<td>Code of the model. The code can be, for example, a site number, a project number, or an accounting number.</td>
</tr>
<tr>
<td><strong>Name</strong></td>
<td>Name of the model.</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Description of the model.</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Environment of the model.</td>
</tr>
<tr>
<td><strong>From</strong></td>
<td>Person who has invited you to the shared model, or has changed your role the last.</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>Date when the sharing of the model was started.</td>
</tr>
<tr>
<td><strong>Your role</strong></td>
<td>Your role and your access level to the model. The options are <strong>Owner, Editor, Project viewer</strong>, or <strong>Viewer</strong>. Only <strong>Owner</strong> can change the roles of the other users.</td>
</tr>
<tr>
<td><img src="image" alt=" " /></td>
<td>If you are <strong>Owner</strong>, you can edit the <strong>Code</strong> and <strong>Description</strong> of the model.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td><img src="https://example.com" alt="Owner" /></td>
<td>If you are <strong>Owner</strong>, you can invite new users to the model, or remove existing users. If you are <strong>Editor</strong>, you can see which users have been invited or have joined the shared model.</td>
</tr>
<tr>
<td><img src="https://example.com" alt="Owner" /></td>
<td>If you are <strong>Owner</strong>, you can remove the model from the sharing service. This discontinues the sharing, and the users who have been working with the shared model cannot share changes anymore.</td>
</tr>
</tbody>
</table>
| ![Local copies of selected model on this computer](https://example.com) | When you select a model from the **Shared models** list, the model information is displayed here.  
- **Edited**  
- **Model**  
- ![Open](https://example.com) |  
- ![Remove](https://example.com) |  
- **The date when the local version of the model has been edited.**  
- **The location of the local version of the model on your computer.**  
- **Click ![Open](https://example.com) to open the selected local version of the model.**  
- **Click ![Remove](https://example.com) to remove the selected local version of the model from your computer.** |

See also
- **Join a shared model in Tekla Model Sharing (page 15)**
- **Start sharing a model in Tekla Model Sharing (page 14)**
- **Information on users and sharing actions in Tekla Model Sharing (page 29)**

### 2.9 Information on users and sharing actions in Tekla Model Sharing

When you want to check the Tekla Model Sharing users and the basic sharing actions on the model, or invite new users to the shared model, open the **Users** dialog box in **File menu --> Sharing --> Users**.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>Name of the user.</td>
</tr>
<tr>
<td><strong>E-mail</strong></td>
<td>E-mail address of the user.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Role</strong></td>
<td>Role of the user: <strong>Owner</strong>, <strong>Editor</strong>, <strong>Project viewer</strong>, or <strong>Viewer</strong>. When you start to share a model, you become <strong>Owner</strong> of the model and you can set other users’ roles. The roles can be changed later, if needed. Use the different roles to control the permission levels to the model. Note that there can be several <strong>Owners</strong> within one model.</td>
</tr>
<tr>
<td><strong>Joined</strong></td>
<td>Indicates whether the invited user has joined the model.</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>Date when the user has joined the model.</td>
</tr>
<tr>
<td><strong>By</strong></td>
<td>Person who invited the user or changed the user role the last.</td>
</tr>
<tr>
<td><strong>Last read in</strong></td>
<td>Date when the user last read in.</td>
</tr>
<tr>
<td></td>
<td>Number with the arrow down indicates the total number of update packets available in the sharing service. The number next to the arrow indicates how many of the packets the user has read in.</td>
</tr>
<tr>
<td><strong>Last write out</strong></td>
<td>Date when the user last wrote out.</td>
</tr>
<tr>
<td></td>
<td>Number with the arrow up indicates the total number of update packets available in the sharing service. The number next to the arrow indicates the number of the last packet that the user has written out.</td>
</tr>
<tr>
<td></td>
<td>Remove the selected user’s permission to the model. Only <strong>Owner</strong> can remove other users from the sharing service.</td>
</tr>
</tbody>
</table>

**See also**

- User roles in Tekla Model Sharing (page 11)
- Best practices in Tekla Model Sharing (page 40)
What is shared in Tekla Model Sharing

By default, all the model data is shared when you share a model in Tekla Model Sharing.

How data is shared in Tekla Model Sharing depends on the type of the shared data.

- Some data is shared incrementally.
  This means that only the new and changed data is shared. When you read in, the data that is fetched from the sharing service is merged to the data on your computer.
- Some data is shared, but it cannot be updated incrementally.
  When you read in, the data that is fetched from the sharing service overwrites the data on your computer.
- Some data is not shared.
  By default, Organizer data is not shared.
  However, you can use the Organizer import and export with Tekla Model Sharing to share the Organizer changes.

**NOTE** Some of the catalog files that are located in the environment folders (rebar_database.inp, assdb.db, screwdb.db, matdb.bin, profdb.bin) are copied to the model folder when the sharing is started.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model database</td>
<td>Model database .db1 is shared incrementally.</td>
</tr>
<tr>
<td>Numbering database</td>
<td>Numbering database .db2 is shared, but it cannot be updated incrementally.</td>
</tr>
<tr>
<td></td>
<td>If you have modified the family numbering settings and you read in, you lose the changes if another user has</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>changed the family numbering settings</td>
<td>changed the family numbering settings and has written out. We recommend that one user updates and shares the numbering settings with other users by writing them out. In case the user needs to read in before writing out the numbering updates, it is important to check that the settings are as they were before starting to share them.</td>
</tr>
<tr>
<td></td>
<td>We recommend you to use the <strong>Numbering series of selected objects</strong> command on the <strong>Drawings &amp; reports</strong> tab when numbering. Create your model output, such as drawings, reports, NC files and IFC files, after a successful write out.</td>
</tr>
<tr>
<td>Model history database</td>
<td>Model history database history.db is shared incrementally.</td>
</tr>
<tr>
<td>Plan database</td>
<td>Plan databases .db3 are shared, but they cannot be updated incrementally. If you have imported a CIS/2 or a SDNF model and you read in, you lose the plan database changes if another user has imported the same CIS/2 or SDNF model and has written out.</td>
</tr>
<tr>
<td>Analysis model database</td>
<td>Analysis model database .db6 and analysis results model database .db5 are shared, but they cannot be updated incrementally. If you have modified an analysis model and you read in, you lose the analysis model changes if another user has changed the same analysis model and has written out.</td>
</tr>
<tr>
<td>Custom components and sketched profiles</td>
<td>Custom components and sketched profiles database xslib.db1 is shared incrementally.</td>
</tr>
<tr>
<td>Profile catalog</td>
<td>Shared model contains the profile catalog file profdb.bin. When you <strong>add</strong> and <strong>use</strong> a new profile definition in the shared model, the definition is shared the next time you write out. When another user reads in this new definition, the profdb.bin file in the user's model folder is updated to include the added definition. You can also update the profile catalog with new profile definitions without creating any new objects.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Reinforcing bar catalog</td>
<td>Shared model contains the reinforcing bar database <code>rebar_database.inp</code>. When you <strong>add</strong> and <strong>use</strong> a new reinforcing bar definition in the shared model, the definition is shared next time you write out. When another user reads in this new definition, the <code>rebar_database.inp</code> file in the user's model folder is updated to include the added definition. You can also update the reinforcing bar catalog with new reinforcing bar definitions without creating any new objects.</td>
</tr>
<tr>
<td>Bolt catalog</td>
<td>Shared model contains the bolt catalog file <code>screwdb.db</code> and the bolt assembly catalog file <code>assdb.db</code>. When you <strong>add</strong> and <strong>use</strong> a new bolt or bolt assembly definition in the shared model, the definition is shared the next time you write out. When another user reads in this new definition, the <code>profdb.bin</code> and <code>assdb.db</code> files in the user's model folder are updated to include the added definition. You can also update the bolt catalog and bolt assembly catalog with new bolt or bolt assembly definitions without creating any new objects.</td>
</tr>
<tr>
<td>Material catalog</td>
<td>Shared model contains the material catalog file <code>matdb.bin</code>. When you <strong>add</strong> and <strong>use</strong> a new material definition in the shared model, the definition is shared next time you write out. When another user reads in this new definition, the <code>matdb.bin</code> file in the user's model folder is updated to include the added definition. You can also update the material catalog with new material definitions without creating any new objects.</td>
</tr>
<tr>
<td>User-defined attribute (UDA) definitions</td>
<td>When a model is created, the user-defined attribute definitions are read from the <code>objects.inp</code> files and the definitions are stored to the <code>environment.db</code> database. Modified and added new attribute definitions are shared incrementally. New attribute definitions are added to the database automatically when the model is opened. If the current <code>objects.inp</code> file has a different definition than the <code>environment.db</code>, it is possible to take changes to use...</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>by clicking <strong>File menu</strong> --&gt; <strong>Diagnose &amp; repair</strong> --&gt; <strong>Diagnose and change attribute definitions</strong>. If the objects.inp file is in the model folder, it is shared as a file and it overrides the local objects.inp file when you read in.</td>
</tr>
<tr>
<td><strong>Options</strong></td>
<td>When a model is created, the options are read from the options.ini files and the model-specific options are stored to options_model.db and options_drawings.db databases. Model-specific options can be modified using the <strong>Options</strong> and <strong>Advanced Options</strong> dialog boxes. Model-specific option modifications are shared incrementally.</td>
</tr>
<tr>
<td></td>
<td>• Some of the options are of the type <strong>SYSTEM(ROLE)</strong>. These options are read from the .ini files and are not shared. It is possible to change <strong>SYSTEM(ROLE)</strong> model option to <strong>MODEL(ROLE)</strong> option and the drawing option to <strong>DRAWINGS(ROLE)</strong> option. The options are then stored to the options_model.db or options_drawings.db databases in the model folder, and the value is shared incrementally.</td>
</tr>
<tr>
<td></td>
<td>• Some of the options are of the type <strong>USER</strong>. These options are user-specific and they are not shared.</td>
</tr>
<tr>
<td></td>
<td>• Some of the options are of the type <strong>SYSTEM</strong>. These options are user-specific and they are not shared. It is possible to change a <strong>SYSTEM</strong> option to a <strong>MODEL(SYSTEM)</strong> option. If you change a <strong>SYSTEM</strong> option to <strong>MODEL(SYSTEM)</strong>, the changed value only works for the current model. These options are not shared.</td>
</tr>
<tr>
<td><strong>Other important files in the model folder</strong></td>
<td>The database ID range mapper file db.idrm and the library database ID range mapper file xslib.idrm are related to the handling of IDs. These files are needed, for example, to open drawings that have been created in single-user or multi-user modes.</td>
</tr>
<tr>
<td><strong>View sharing</strong></td>
<td>By default, views are not shared. Views are shared if they have a name, and the <strong>Share</strong> option in the <strong>View Properties</strong> dialog box is set to <strong>Shared</strong>. Note that when you join a model, you get all the model views but changes to the views are not shared if the <strong>Share</strong> option is set to <strong>Not Shared</strong>.</td>
</tr>
</tbody>
</table>

If you want to check the files that have been overwritten when you read in, click **File menu** --> **Sharing** --> **Open file backup folder**. You can then, for
example, copy the files back to your model or check the files for change detection.

See also
Best practices in Tekla Model Sharing (page 40)

### 3.1 Tekla Model Sharing settings

To modify the basic Tekla Model Sharing settings, use the options in the *Sharing settings* dialog box in **File menu --> Sharing --> Sharing settings**.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model folder file sharing</td>
<td>Click the <strong>Exclude</strong> button to define files or folders in the model folder that you do not want to share (page 37).</td>
</tr>
<tr>
<td><strong>Tekla Model Sharing cache</strong></td>
<td>You can set up a separate <em>Tekla Model Sharing Cache service (page 9)</em> to be used with the Tekla Model Sharing service. With the Tekla Model Sharing Cache service, the model data is stored to the sharing service and then cached inside a LAN. This set-up is useful especially if there are several Tekla Model Sharing users in the same location, or a narrow bandwidth to the Internet. Using a cache reduces the download effort. The first user who reads in a packet from the sharing service loads it to the cache, and the next user gets the data faster from the cache inside the LAN than from the sharing service through the Internet. The cache is not used for packets that are written out.</td>
</tr>
<tr>
<td><strong>Name and Port</strong></td>
<td>• <strong>Name</strong> is the name of the computer on which the cache is installed. To check the computer name, click <strong>Windows Control Panel --&gt; System and Security --&gt; System</strong>.</td>
</tr>
<tr>
<td></td>
<td>• <strong>Port</strong> is the cache service port number that you have set when you installed the cache service. The default value is 9998.</td>
</tr>
<tr>
<td></td>
<td>• Click the <strong>Set</strong> button to connect to the cache.</td>
</tr>
<tr>
<td></td>
<td>• Alternatively, you can set the advanced option <strong>XS_CLOUD_SHARING_PROXY</strong> to “name of the...”</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td><em>server</em>: <em>port</em> in a .ini file. This advanced option is user-specific.</td>
</tr>
<tr>
<td></td>
<td>To reset the cache settings in the dialog box to the ones defined in the .ini file, click the <strong>Reset</strong> button. If any .ini file has the advanced option defined, the settings appear in the dialog box.</td>
</tr>
<tr>
<td><strong>Show available updates when joining the model</strong></td>
<td>Select the check box to enable a list that shows all the available baselines and updates (page 24) when you join the model.</td>
</tr>
<tr>
<td></td>
<td>The <strong>Available updates</strong> list shows all the baselines and the updates after the latest baseline. You can select any of the available baselines or updates to join, not only the latest. By joining an earlier baseline or update you can go back in the model history, and, for example, check the model state on a certain date.</td>
</tr>
<tr>
<td></td>
<td>Alternatively, you can set the advanced option <strong>XS_SHARING_JOIN_SHOW_AVAILABLE_UPDATES</strong> to <strong>TRUE</strong> in a .ini file to enable the showing of updates. This advanced option is user-specific.</td>
</tr>
<tr>
<td><strong>Show available updates when reading in the changes</strong></td>
<td>Select the check box to enable a list that shows all the available updates (page 16) when you read in the model changes.</td>
</tr>
<tr>
<td></td>
<td>The <strong>Available updates</strong> list shows all the available updates. You can select any of the available updates to be read in, not only the latest. By reading in an earlier update you can go back in the model history, and, for example, check the model state on a certain date.</td>
</tr>
<tr>
<td></td>
<td>Alternatively, you can set the advanced option <strong>XS_SHARING_READIN_SHOW_AVAILABLE_VERSIONS</strong> to <strong>TRUE</strong> in a .ini file to enable the showing of updates. This advanced option is user-specific.</td>
</tr>
<tr>
<td><strong>Show changes after read in</strong></td>
<td>Select the check box to enable a list that shows the model changes (page 16) after you have read in. If you select the <strong>Only when conflicts exist</strong> option, the list is shown only when there are conflicts in the model after read in.</td>
</tr>
<tr>
<td><strong>Only when conflicts exist</strong></td>
<td>Alternatively, you can set the advanced options <strong>XS_SHARING_READIN_SHOW_CHANGEMANAGER</strong> and <strong>XS_SHARING_READIN_SHOW_CHANGEMANAGER_CONFLICTSONLY</strong> to <strong>TRUE</strong> in a .ini file to enable</td>
</tr>
</tbody>
</table>
### Table: Options and Description

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable write out revision comment</td>
<td>Select the check box to enable the entering of revision comments. When you write out, you can enter a revision comment and code in the comment dialog box. If you enable the revision comments, the comment dialog box is displayed for all the model users. Alternatively, you can set the advanced option XS_SAVE_WITH_COMMENT to TRUE in .ini files to enable the revision comment. This advanced option is model-specific.</td>
</tr>
<tr>
<td>Copy project folder files to model folder</td>
<td>Select whether the project or the firm folder files are copied to the model folder that you are going to share. Select the check boxes and click the Copy files button. We recommend you to copy the project and firm folder files. You can also select whether the copied project or firm folder files replace the existing files of the same name in the model folder. Individual files can be copied to a model folder at any time. The next time you write out, they are shared to all model users.</td>
</tr>
<tr>
<td>Copy firm folder files to model folder</td>
<td></td>
</tr>
<tr>
<td>Overwrite model folder files</td>
<td></td>
</tr>
</tbody>
</table>

See also

Best practices in Tekla Model Sharing (page 40)

### 3.2 Exclude files and folders from Tekla Model Sharing

By default, files and folders in the model folder are shared when you share a model in Tekla Model Sharing. If you do not want to share all of the model folder files or folders, you can select to exclude some of them from sharing. Note that some files are excluded automatically.

1. On the **File** menu, click **Sharing --> Settings**.
   The **Sharing settings** dialog box opens.
2. Click the **Exclude** button to see which files and folders in the model folder are excluded from sharing, and to exclude more files or folders.

Some of the files and folders are excluded automatically from sharing. These files and folders appear on the **Excluded model folder files and directories** list, and they cannot be removed from the list.

   a. If you want to exclude more folders or files, click the **Directory** or the **File** button.

   b. Select the folder or the file to be excluded.

      The excluded folders and files are added to the **Excluded model folder files and directories** list.

      If you exclude a folder, all its sub-folders and sub-files are also excluded from Tekla Model Sharing.

      You can exclude files in several ways. For example, if you have a file called **TeklaStructures.bbb**, and you use the following settings to exclude the files:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(x.x)</td>
<td><strong>TeklaStructures.bbb</strong> is excluded from sharing.</td>
</tr>
<tr>
<td>(x.*)</td>
<td>All the files with <strong>TeklaStructures.</strong> are excluded from sharing.</td>
</tr>
<tr>
<td>(*.x)</td>
<td>All the files with <strong>.bbb</strong> are excluded from sharing.</td>
</tr>
<tr>
<td>(<em>.</em>)</td>
<td>All the files from that folder, but not from its sub-folders, are excluded from sharing.</td>
</tr>
</tbody>
</table>

   c. If you want to remove the added folders or files from the list of excluded files, click **Remove**.

      You cannot remove a folder or a file that has been excluded automatically.

3. Click **OK** when you have finished selecting the excluded files.

**See also**

Tekla Model Sharing settings (page 35)

### 3.3 Collect model history in Tekla Model Sharing

Tekla Model Sharing collects model history on the actions in the shared model. Model history shows when the model has been changed, how the model has changed, and who has made the changes.

1. On the **File** menu, click **Settings** --> **Advanced Options** --> **Speed and Accuracy**.
2. Ensure that XS_COLLECT_MODEL_HISTORY is set to TRUE.
   Tekla Structures automatically sets XS_COLLECT_MODEL_HISTORY to TRUE when a model is shared.

3. Set XS_CLEAR_MODEL_HISTORY to FALSE.

4. Click OK.

5. To view model history, do one of the following:
   • On the ribbon, click ? and select an object in the model.
     The model history is shown in the Inquire Object dialog box.
     If the Enable write out revision comments option has been selected in the Sharing settings dialog box, the revision comments are displayed as well.
   • Create a model history report.
     a. On the Drawings & reports tab, click Reports.
     b. Select a report template that shows the model history.
        The name of the report template may vary in different environments. In the Default environment, the report template is called Q_Model_History_Report.
     c. Click Create from all to create a report on all the objects in a model, or select one or more objects in the model and click Create from selected to create a report from the selected objects.

See also
- Start sharing a model in Tekla Model Sharing (page 14)
- Tekla Model Sharing settings (page 35)
4 Best practices in Tekla Model Sharing

To keep shared models in good shape and to share your changes successfully, follow the Tekla Model Sharing best practices.

For general Tekla Model Sharing troubleshooting instructions, see Troubleshooting Tekla Model Sharing.

4.1 How different object types work in shared models

When several users modify the model at the same time in Tekla Model Sharing, conflicts may occur.

In general, all object types work similarly in Tekla Model Sharing. When you read in, the changes in the incoming packet override your local changes to the same object. In other words, if several users modify the same object, the user who first writes out the changes to the sharing service wins in conflicts.

Before you start to share models, agree on common ways of working.

For example,

- have users work on different areas of the model.
- check catalogs (page 31) so that they include all the needed definitions.
- check family numbering settings.

Family numbering settings are shared but cannot be incrementally updated. We recommend that one user first reads in all the packets, makes the updates and then shares the settings by writing them out. If the user needs to read in before writing out, it is important to check that the settings are as they were before starting to share them.
Give start numbers in wide ranges so that you do not run out of numbers within a numbering series, and that any numbering series does not overlap with another.

We recommend you to use the **Numbering series of selected objects** command on the **Drawings & reports** tab when numbering.

- agree whether pours will be used in the model and set **XS_ENABLE_POUR_MANAGEMENT** accordingly.

If users modify different properties of the same object, the end result is a combination of modifications.

- **Model objects**
  A shared modification to an object property overrides any other object property modification.

  For example, one user modifies a beam profile and writes out. Another user has modified the material of the same beam and reads in. The user who modified the beam material loses the changes, because the shared changes override the local changes to the same object.

- **Grids**
  If there is a conflict in sharing grids, grids are recreated using the original values that have been set in the grid properties. Any manually added grid lines are lost.

  For example, when two users modify a grid by adding extra grid lines and write out, the added grid lines disappear from the model when they read in.

- **User-defined attributes (UDAs)**
  A shared change to a user-defined attribute (UDA) overrides changes to the same UDA only.

  For example, a change in the **Comment** UDA overrides a change to the **Comment** UDA but not to the **Shorten** UDA.

  A shared change to a part does not override UDA changes and vice versa.

- **Part and the related component**
  A shared change to a part does not override component changes and vice versa.

- **Drawings**
  There can be duplicate drawings from the same part.

  For example, two users create drawings from the same part when they are working on their local versions of the shared model. When both users write out their changes, two drawings appear on the drawing list. Tekla Structures does not delete either of the drawings, and it does not merge the changes from the drawings. You need to visually check the drawings...
and decide which drawing to delete, or to use drawing locks (page 21) to prevent other users modifying the drawings.

- **Pours**
  If the pours are enabled in the model, do not disable the pours using XS_ENABLE_POUR_MANAGEMENT, especially in the middle of the project. The pours and pour breaks in the model and in the drawings may get invalid, and you may lose all pour-related modeling work.

- **Standard files for numbering setup**
  Standard files for numbering setup are not loaded automatically when you read in. If you want to take them in to use, you need to reload them after reading in.

**WARNING** If an object deletion has been written out to the sharing service, the object will be deleted in your model when you read in. This happens regardless of whether you have modified the object before reading in. Deleted objects remain deleted if the deletion has been shared. Deleted objects are not visualized when you read in.

---

### 4.2 How object IDs work in shared models

Tekla Structures objects have an identifier that is shown as an object GUID, Globally Unique Identifier, that is also used in Tekla Model Sharing.

This means that features that do not use GUIDs need to be changed to use GUIDs:

- Interoperability import/export actions:
  - FabTrol XML
  - ASCII
- All other applications, macros and report processes that rely on static IDs.

### 4.3 How to share catalog updates without creating new objects

Sometimes you may need to update catalogs with new definitions, such as new profiles, and share the changes without creating any objects with the new definitions.

To share catalog updates:

1. Ensure that all users on the shared model write out (page 16) their changes.
2. Read in (page 16) all the model changes.
3. Update the needed catalogs (page 31).
4. Create a new baseline (page 24).
5. Ensure that all users join (page 15) the created baseline.

After users have joined the baseline:

a. Ensure that users check that their settings for excluded files and folders (page 37) are up-to-date in File menu --> Sharing --> Sharing settings --> Exclude, or that they copy the FileSharing.ini file from the previous local version of the model in
   \TeklaStructuresModels\<model>\ModelSharing\Settings.

b. Ensure that users remove their previous local versions of the model.

4.4 How to share Organizer data

By default, Organizer data is not shared. However, you can use the Organizer import and export with Tekla Model Sharing to share the Organizer changes.

To share Organizer data:

1. Select a user who is responsible for the Organizer data. This is User A.
2. User A creates the Organizer data and exports the data to a model subfolder.
   
   Note that the selected folder cannot be the default ProjectOrganizer folder.
4. User B reads in (page 16) and notices that there is new data available.
5. User B opens Organizer and imports the data that User A has exported.

   The data appears as new in Organizer.
6. User B removes the old Organizer data and saves the model.
7. User A updates the Organizer data, exports the update and writes out.
8. User B reads in and imports the updated data to Organizer.

   The data appears as new in Organizer. User B removes the old data.
4.5 Backing up shared models

We recommend you to back up the models used in Tekla Model Sharing. In case there are problems with a shared model, it is possible to select any user’s local version of the model, or a model that has been backed up, and continue working using that model. Make sure that you have the complete backed up model in use and that the model folder includes, for example, drawings and different databases. This ensures that the model functions properly and you do not lose any data. If the backed up version of the model is old, reading in all the changes may take some time.

Back up your models according to your company conventions, for example, by using Windows Backup. You can also use the Save as --> Save and create backup copy command to create a backup copy of the model. The backup copy will have the same GUIDs as the original model.

Note that the Save As command cannot be used for backing up the model. If you use Save As, the model gets new IDs and it has no relation to the original model.

If you use the Save as command, the model history is not copied with the saved model.

4.6 Restoring shared models

If you have problems with the shared model, you can restore a previous version of the model, and start using that model in Tekla Model Sharing.

To take a previous version of the model into use:

1. Join (page 15) the model again.
2. Read in (page 16) the packets until you have reached the preferred level in the model history.
3. Exclude (page 25) the model from sharing.
4. Start sharing (page 14) and invite other users again to the model.

Ensure that all the users within the model start to use the restored version of the model.
5  Disclaimer

© 2017 Trimble Solutions Corporation and its licensors. All rights reserved.

This Software Manual has been developed for use with the referenced Software. Use of the Software, and use of this Software Manual are governed by a License Agreement. Among other provisions, the License Agreement sets certain warranties for the Software and this Manual, disclaims other warranties, limits recoverable damages, defines permitted uses of the Software, and determines whether you are an authorized user of the Software. All information set forth in this manual is provided with the warranty set forth in the License Agreement. Please refer to the License Agreement for important obligations and applicable limitations and restrictions on your rights. Trimble does not guarantee that the text is free of technical inaccuracies or typographical errors. Trimble reserves the right to make changes and additions to this manual due to changes in the software or otherwise.

In addition, this Software Manual is protected by copyright law and by international treaties. Unauthorized reproduction, display, modification, or distribution of this Manual, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the full extent permitted by law.

Tekla, Tekla Structures, Tekla BIMsight, BIMsight, Tekla Civil, Tedds, Solve, Fastrak and Orion are either registered trademarks or trademarks of Trimble Solutions Corporation in the European Union, the United States, and/or other countries. More about Trimble Solutions trademarks: http://www.tekla.com/tekla-trademarks. Trimble is a registered trademark or trademark of Trimble Inc. in the European Union, in the United States and/or other countries. More about Trimble trademarks: http://www.trimble.com/trademarks.aspx. Other product and company names mentioned in this Manual are or may be trademarks of their respective owners. By referring to a third-party product or brand, Trimble does not intend to suggest an affiliation with or endorsement by such third party and disclaims any such affiliation or endorsement, except where otherwise expressly stated.

Portions of this software:

D-Cubed 2D DCM © 2010 Siemens Industry Software Limited. All rights reserved.
Index

Tekla Model Sharing
   back up..................................................... 40
   baseline.................................................... 24
   best practices...........................................40
   cache........................................................7,9
   conflicts.................................................... 40
   drawing locks........................................... 21
   editor........................................................ 11
   excluding files and folders..................... 37
   excluding model...................................... 25
   introduction............................................... 5
   joining....................................................... 15
   licenses....................................................... 7
   limitations................................................ 40
   model history...........................................38
   multi-user model.....................................26
   object IDs..................................................40
   object locks.............................................. 21
   object types..............................................40
   organizer.................................................. 40
   owner........................................................ 11
   prerequisites.............................................. 6
   privileges.................................................. 21
   project viewer.......................................... 11
   read in....................................................... 16
   restore...................................................... 40
   settings..................................................... 35
   shared models.........................................27
   sharing changes.........................................18
   sharing history.........................................18
   sharing service...........................................7
   starting..................................................... 14
   user information........................................ 29
   user roles..................................................11
   viewer....................................................... 11
   what is shared......................................... 31
   write out................................................... 16