



# Tekla Structures

## Tekla Model Sharing Guide



Product version 21.0  
March 2015

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# 1 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 Singapore. 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 service that is provided by Tekla. When a model is shared, it is connected to the cloud-based sharing service. You can then easily share your changes by *writing out* them to the sharing service. When you want to update your model with the changes done by other users, you do it by *reading 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 the offline work if your Internet connection is not always available.

With Tekla Model Sharing you can

- invite other users to your shared models
- join someone else's shared models
- share model changes



Model sharing requires a single-user model.

A model cannot be simultaneously shared and used in multi-user mode. If you want to use a shared model in multi-user mode, you need to exclude the model from sharing and convert it to a multi-user model.

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**See also** [Prerequisites for Tekla Model Sharing on page 4](#)  
[How Tekla Model Sharing uses the sharing service on page 5](#)  
[User roles in Tekla Model Sharing on page 9](#)

[Starting to share a model in Tekla Model Sharing on page 10](#)

## 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 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.
  - For optimal performance, TCP port 9354 outbound must be open.
- Tekla Account

All sharing actions require authentication, and the authentication is done with Tekla Account username, password, and organization.

If you do not have a Tekla Account, contact your local administrator.
- License

All sharing actions require a valid Tekla Model Sharing license.

**See also** [Tekla Model Sharing licensing on page 4](#)

[How Tekla Model Sharing uses the sharing service on page 5](#)

## 1.2 Tekla Model Sharing licensing

Tekla Model Sharing requires a valid Tekla Model Sharing license.

In addition, you need to have a valid Tekla Account that is associated with a Tekla validated organization.

Tekla Model Sharing licenses are tied to users' Tekla Accounts. Tekla Account enables user authentication that is needed for all Tekla Model Sharing actions. The authentication is done with Tekla Account username, password, and organization.

Based on the Tekla Account information, the company administrator can assign and manage Tekla Model Sharing licenses in the Tekla Account Admin Tool. To obtain a Tekla Model Sharing license and have your Tekla Account added to your company organization, contact your local administrator.



If your company has a valid maintenance agreement, you can request free Tekla Model Sharing evaluation licenses.

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For more information, see [Tekla Model Sharing](#) and [Tekla Account](#).

**See also** [Prerequisites for Tekla Model Sharing on page 4](#)  
[How Tekla Model Sharing uses the sharing service on page 5](#)

### 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 that is provided by Tekla.

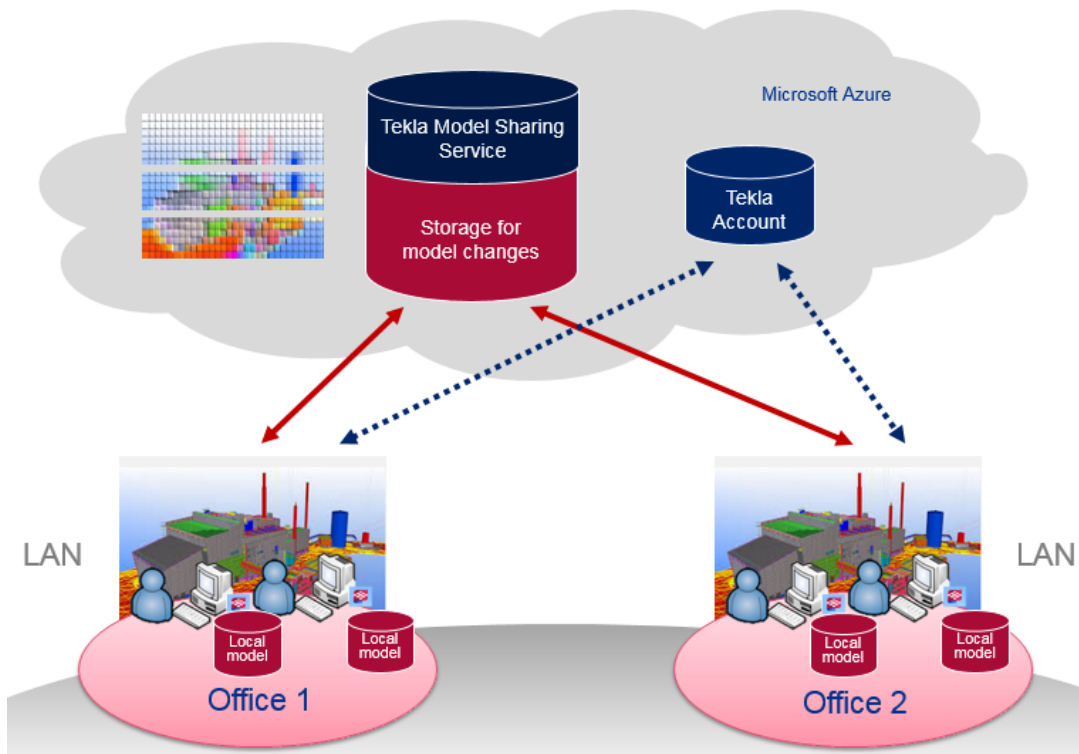
To send model changes to the sharing service and to fetch other users' model changes from the sharing service, you

- write out
- read in

When you read in other users' changes, the updates to 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.

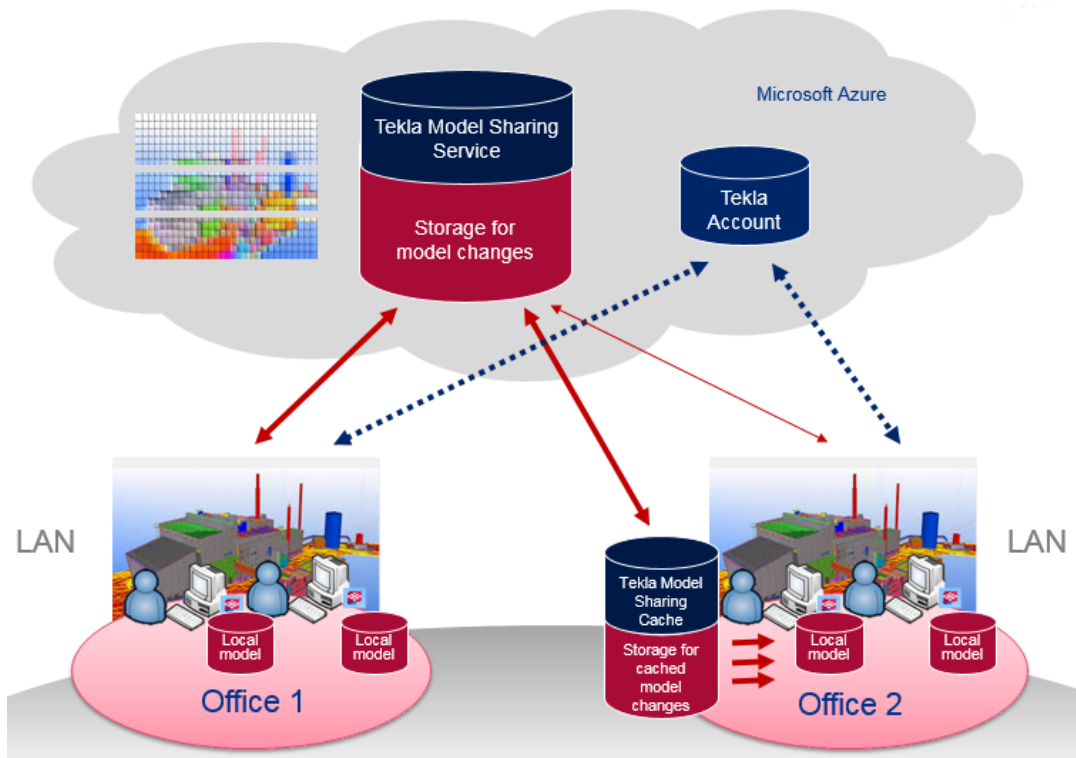
**Sharing service setup** The model data is stored to the sharing service. Each user fetches the model data from the sharing service when they read in. User authentication is done with Tekla Account.



**Sharing service setup with Tekla Model Sharing Cache**

If needed, you can install a separate Tekla Model Sharing Cache service to be used with the Tekla Model Sharing service. With the Tekla Model Sharing Cache service you can benefit from faster packet download times in regions where the download speed may be limited.

With the cache service, the model data is stored to the sharing service and then cached 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. Thus, if you have a narrow bandwidth to the Internet, using the cache service reduces the download effort and enables faster download times.



The cache is not used for packets that are written out.

- See also** [Prerequisites for Tekla Model Sharing on page 4](#)  
[Tekla Model Sharing licensing on page 4](#)  
[Installing a cache service for Tekla Model Sharing on page 7](#)  
[Sharing your model changes in Tekla Model Sharing on page 12](#)

## Installing a cache service for Tekla Model Sharing

Tekla Model Sharing Cache service downloads model data from the Tekla Model Sharing service and stores it in the file system. Using Tekla Model Sharing Cache service with Tekla Model Sharing you can benefit from faster packet download times in regions where the download speed may be limited.

Software and system requirements:

- Windows Server 2008 R2, or later
  - .NET Framework 4.5.1
1. Download the Tekla Model Sharing Cache service installation file from Tekla Downloads.

2. Double-click the `TeklaModelSharingCacheService.exe` installation file to run the installation.
3. 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.

Make sure 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 port for the cache service is 9998.
- The default TCP port for internal communication is 9001.

If the ports cause conflicts or other problems because of other services or a firewall, you can change the ports to some other ports.

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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, 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, Windows 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.

- 
4. Check that the Tekla Model Sharing Cache service has started.
    - 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 there are Information messages showing that the service has started.

#### Troubleshooting tips

If you cannot connect to the service from Tekla Structures:

- Make sure that the **Tekla Model Sharing Cache** Windows Service is running.
- Make sure that firewalls do not block ports 9001 or 9998, if you use the default ports.

If the service does not start:

- Check the Windows Event Viewer's Application Log for possible errors.

See also [How Tekla Model Sharing uses the sharing service on page 5](#)



## 1.4 User roles in Tekla Model Sharing

When you start to share 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 three different roles. The role defines the user's permission level to the model.

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

- 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, 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 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
  - list other users
- As a **Viewer** you can
  - read in other users' changes but you cannot write out any changes to the sharing service

**See also** [User information and access rights in Tekla Model Sharing on page 16](#)


[Starting to share a model in Tekla Model Sharing on page 10](#)

[What is shared in Tekla Model Sharing on page 21](#)

# 2 Starting to share a model in Tekla Model Sharing

Before you can start sharing your models in Tekla Model Sharing, you need to be logged in with your Tekla Account in Tekla Structures. If you are not logged in, the Tekla Account log in dialog box opens and prompts you to enter your username and password.

To start share a model:

1. Click **File** --> **Sharing** --> **Start Sharing** , or  .  
The **Start Sharing** dialog box opens.
2. If needed, enter a **Code** and **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.
3. Invite other users to share your model by entering their e-mail addresses to the **Invite users** box and set their access level either to **Editor**, **Owner**, or **Viewer**.
4. Click the **Add** button to add the user to the model.
5. 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.
6. Click **Start** to start sharing your model.  
The model is saved and written out to the sharing service.

**See also** [User roles in Tekla Model Sharing on page 9](#)  
[Joining a shared model in Tekla Model Sharing on page 10](#)  
[Sharing your model changes in Tekla Model Sharing on page 12](#)  
[Prerequisites for Tekla Model Sharing on page 4](#)  
[Tekla Model Sharing licensing on page 4](#)

## 2.1 Joining a shared model in Tekla Model Sharing

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


The e-mail contains information about the model, the used environment and your role. The role is your level of permission to the model.

You can join model at any stage of sharing, and as many times you need.

To join a shared model:

1. Make sure that you have a Tekla Account.

If you do not yet have an account, contact your local administrator.

2. In Tekla Structures, click **File** --> **Sharing** --> **Shared Models** , or  .

The **Shared Models** dialog box opens.

3. In **Save in** select the location where to save a local copy of the model on your computer.
4. From the **Shared models** list, select the model you have been invited to.  
You find the name of the model in the e-mail.
5. Click **Join**.

When you join the model:




- Tekla Structures checks that the local copy 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.
6. From the list of available updates, select an update or a baseline that you want to join.  
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.  
  
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.
  7. Start working with the model.

**See also** [List of shared models in Tekla Model Sharing on page 14](#)  
[User roles in Tekla Model Sharing on page 9](#)  
[User information and access rights in Tekla Model Sharing on page 16](#)  
[Creating a baseline for a model in Tekla Model Sharing on page 17](#)

## 2.2 Sharing your model changes in Tekla Model Sharing

When you want to share your changes with other users who are working with the model, send your changes to the sharing service by writing them out.

When you want 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.

To	Do this
Write out changes	<p>1. Click <b>File --&gt; Sharing --&gt; Write Out</b> , or  .</p> <p>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.</p> <p>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, 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.</p> <p>If one of the users who shares the model has selected the <b>Enable write out revision comment</b> setting in the <b>Sharing Settings</b> dialog box, you can enter a code or a comment for the update that you are writing out.</p> <p>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.</p> <p>2. Continue working with the model.</p> <hr/> <p> If several users modify the same objects at the same time, the model will contain the changes by the user who first wrote the changes out.</p>
Read in changes	<p>1. Click <b>File --&gt; Sharing --&gt; Read In</b> , or  .</p> <p>Tekla Structures displays the <b>Show Model Sharing Changes</b> dialog box. It lists the changes according to how they affect the model. Note that deleted objects are not listed or visualized.</p> <p>If there are no shared changes after your last read in, the <b>No new shared data available</b> status bar message is displayed.</p> <p>When you read in, the updates to the shared model are delivered as incremental packets that only include the changed data. You need to</p>

To	Do this
	<p>read in all shared changes before you can again write out your own changes to the sharing service.</p> <p>2. Continue working with the model.</p>



If you encounter problems with sharing, you can check the `modelsharing.log` file, located in the current model folder. Read the file from bottom to top and try to identify the source of the problem.

- See also** [Showing changes in Tekla Model Sharing after reading in on page 13](#)  
[What is shared in Tekla Model Sharing on page 21](#)  
[Excluding files and folders from Tekla Model Sharing on page 25](#)  
[Conflict handling and limitations in Tekla Model Sharing on page 30](#)  
[Collecting model history in Tekla Model Sharing on page 28](#)

## 2.3 Showing changes in Tekla Model Sharing after reading in

After you have updated your model by reading in the changes from the sharing service, the **Show Model Sharing Changes** dialog box is displayed.

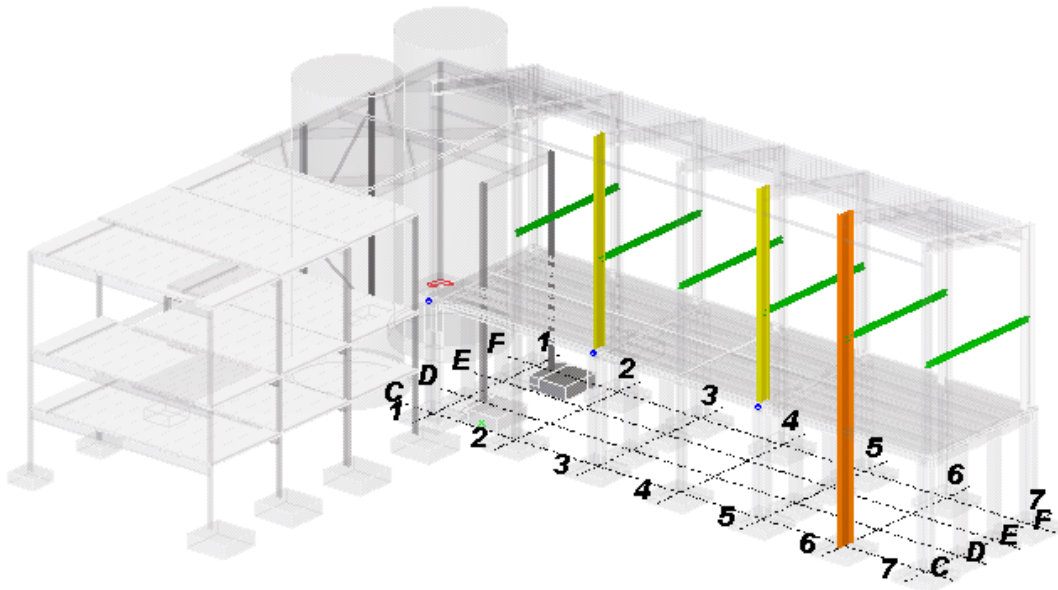
The **Show Model Sharing Changes** dialog box lists the changes according to how they affect the model. You can select which changes you want to view.

- **Added objects** shows the new objects that have been added to the model.
- **Modified objects** shows the objects that have been modified in the model.
- **Conflicting objects** shows the objects that have been modified by the user who reads in and by another user.
- **Assemblies only** shows the added or modified assemblies. In most cases, you do not need to see the individual added or modified objects, but the assembly level information is enough.

The changes are also visualized with colors in the model. When you select an item in the list, Tekla Structures highlights and zooms to the object in the model. If you do not want to zoom to the selected object, clear the **Zoom to selected objects** check box.

The table below lists the highlight colors used in the visualization.

Modified object	Highlight color
Added objects	green
Modified objects	yellow
Conflicting objects	orange
Existing objects	gray



Deleted objects are not listed or visualized.









To view the changes again, click **File --> Sharing --> Show Read In Changes** .

- See also** [Sharing your model changes in Tekla Model Sharing on page 12](#)  
[What is shared in Tekla Model Sharing on page 21](#)  
[Conflict handling and limitations in Tekla Model Sharing on page 30](#)

## 2.4 List of 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. You can also check which models you have joined earlier, and where you have saved the local copies of the shared models.

Option	Description
<b>Service</b>	Sharing service that is being used.
<b>Save in</b>	Location where the model is saved locally on your computer. If you want to save to another location, click the <b>Browse</b> button.
<b>Shared models</b>	List of models that you have shared or have been shared with you.
<ul style="list-style-type: none"> <li><b>Show also hidden</b></li> </ul>	<ul style="list-style-type: none"> <li>If you have hidden some models from the <b>Shared models</b> list, select the <b>Show also hidden</b> check box to see the full list of models that have been shared with you, or you have shared.</li> </ul>

Option	Description
<ul style="list-style-type: none"> <li>• <b>Show shared models on this computer</b></li> </ul>	<ul style="list-style-type: none"> <li>• Select the <b>Show shared models on this computer</b> check box to see the models that you have locally saved on your computer.</li> </ul>
	<p>Click to hide the model from the <b>Shared models</b> list.</p> <p>If you have many models on the list, it can be useful to hide the models you are not actively working with.</p>
<b>Code</b>	<p>Code of the model.</p> <p>The code can be, for example, a site number, a project number, or an accounting number.</p>
<b>Name</b>	Name of the model.
<b>Description</b>	Description of the model.
<b>Environment</b>	Environment of the model.
<b>From</b>	Person who has invited you to the shared model, or has changed your role the last.
<b>Date</b>	Date when the sharing of the model was started.
<b>Your role</b>	<p>Your role and your access level to the model.</p> <p>The options are <b>Owner</b>, <b>Editor</b>, or <b>Viewer</b>.</p> <p>Only <b>Owner</b> can change the roles of the other users.</p>
	<p>If you are <b>Owner</b> of the model, you can edit the <b>Code</b> and <b>Description</b> of the model.</p>
	<p>If you are <b>Owner</b> of the model, you can invite new users to the model, or remove existing users.</p> <p>If you are <b>Editor</b>, you can see which users have been invited or have joined the shared model.</p>
	<p>If you are <b>Owner</b> of the model, you can remove the model from the sharing service.</p> <p>This discontinues the sharing, and the users who have been working with the shared model cannot share changes anymore.</p>
<p><b>Local copies of selected model on this computer</b></p> <ul style="list-style-type: none"> <li>• Edited</li> <li>• Model</li> <li>• </li> <li>• </li> </ul>	<p>When you select a model from the <b>Shared models</b> list, the model information is displayed here.</p> <ul style="list-style-type: none"> <li>• The date when the model has been edited.</li> <li>• The location of the model on your computer.</li> <li>• Click  to open the model.</li> <li>• Click  to remove the local model from your computer.</li> </ul>

See also [Starting to share a model in Tekla Model Sharing on page 10](#)  
[Joining a shared model in Tekla Model Sharing on page 10](#)

## 2.5 User information and access rights in Tekla Model Sharing

Use the **Users** dialog box to check the Tekla Model Sharing user information and the sharing actions on the model.

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

**Privileges** The person who has created the model, or anyone from the same organization, can control 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

- access to user-defined attributes
- access to lock and unlock objects
- access to modify numbering settings



- access to 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 file to your model folder.
4. Re-open the model.

See Changing access rights in `privileges.inp` and Options in `privileges.inp`.

**Locks** If you have created the model, you can also set object locks and drawing locks.

- To protect objects from being accidentally modified, you can use a user-defined attribute (UDA) called a *lock* attribute.

Note that the object locking needs to be set for the object before it is shared for the first time. This ensures that other users cannot modify the locked objects.

- You can also use drawing locks. If a drawing is locked and the lock is shared, the lock prevents any changes by other users.

To update a locked drawing:

1. Read in.
2. Write out.
3. Open the drawing lock.
4. Update the drawing.
5. Write out.

See Locking objects and Locks for drawings

**See also** [User roles in Tekla Model Sharing on page 9](#)

[Conflict handling and limitations in Tekla Model Sharing on page 30](#)

## 2.6 Creating a baseline for a model in Tekla Model Sharing

If you are **Owner** of a model in Tekla Model Sharing, and you want to make a record of the current progress of the model or 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.

When a user joins the model, the user can select from the list of available updates a baseline or an update to join. The user can select any baseline or update to join, not only the latest. By

joining an earlier baseline or update the user 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.

We recommend the **Owner** to create a new baseline when a new user has been invited to the model.

To create a baseline:

1. Click **File --> Sharing --> Create Baseline** .

2. Enter a code or a comment, if entering revision comments has been enabled.

A full model is written out 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 the model.

When the new user joins the model, the **Available updates** dialog box is displayed.

The user can then select the baseline or an update to join. If the user reads in at any point after joining, only incremental packets are read in from the sharing service.

**Example** **Owner** writes out the following baselines and updates:

Type	Packet
Baseline	1
Update	2
Update	3
Baseline	4
Update	5
Baseline	6
Update	7

- User A joins the model by reading in the Baseline 1. If the user then reads in the Update 7, the user gets all the packets from 2 to 7.
- User B joins the model by reading in the Update 5. Upon joining, the user reads in the latest full model, which is the Baseline 4, and the following incremental packet, which is the Update 5. If the user then reads in the Update 7, the user receives the packets 6 and 7.

**See also** [Joining a shared model in Tekla Model Sharing on page 10](#)

[User roles in Tekla Model Sharing on page 9](#)

[Starting to share a model in Tekla Model Sharing on page 10](#)

## 2.7 Excluding 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.

All users, regardless of their user role (**Owner, Editor, Viewer**), can exclude the model from the sharing service.

To exclude a model from the sharing service:

1. Click **File** --> **Sharing** --> **Exclude from Sharing** .

A confirmation message is displayed.

2. Click **Continue**.

The model is disconnected from the sharing service, and you cannot write out or read in changes anymore.

After a model has been excluded

- you can start to use the model in single-user mode.
- you can start to use the model in multi-user mode.
- you can continue working with the model in Tekla Model Sharing.

If you want to use Tekla Model Sharing, you can either

- join the same model again in the **Shared models** dialog box.

When you join the model, you can select a baseline or an update that you want to join.

If you join the model again, you need to save a new local version of the model on your computer.

- start sharing 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.

If you do not change the name of the model, you may have several models that have the same name on the **Shared models** list. All these models 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.

**See also** [Converting a shared model to a single-user or a multi-user model on page 20](#)

[Starting to share a model in Tekla Model Sharing on page 10](#)

## 2.8 Converting a shared model to a single-user or a multi-user model

If needed, you can stop working with a shared model in Tekla Model Sharing and convert the model to a single-user or a multi-user model.

To convert a shared model:


1. Open the shared model that you want to convert.
2. Click **File --> Sharing --> Exclude from Sharing** .

A confirmation message is displayed.

3. Click **Continue**.

The model is disconnected from the sharing service, and you cannot write out or read in changes anymore.

4. Click **File --> Open** to open the model list.
5. From the list of models, select the shared model that you want to convert to a single-user or a multi-user model.

Shared models have the  icon.

6. Right-click and select **Convert to new single-user model** or **Convert to new multi-user model**.

The model is converted and you can enter a name for the model in the **Model name** box.

**See also** [Excluding a model from the sharing service in Tekla Model Sharing on page 19](#)

[Starting to share a model in Tekla Model Sharing on page 10](#)

# 3 What is shared in Tekla Model Sharing

By default, everything 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.



Some of the catalog files that are located in the environment folders are copied to the model folder when the sharing is started.

Option	Description
<b>Model database</b>	Model database .db1 is shared incrementally.
<b>Numbering database</b>	Numbering database .db2 is shared, but it cannot be updated incrementally.  If you have modified the family numbering settings and you read in, you lose the changes if another user has 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

Option	Description
	<p>important to check that the settings are as they were before starting to share them.</p> <p>We recommend you to use the <b>Drawings --&gt; Numbering --&gt; Numbering Series of Selected Objects</b> command when numbering.</p> <p>Create your model output, such as drawings, reports, NC files and IFC files, after a successful write out.</p>
<b>Model history database</b>	Model history database <code>history.db</code> is shared incrementally.
<b>Plan database</b>	<p>Plan databases <code>.db3</code> are shared, but they cannot be updated incrementally.</p> <p>If you have imported a CIS/2 or a SDF model and you read in, you lose the plan database changes if another user has imported the same CIS/2 or SDF model and has written out.</p>
<b>Analysis model database</b>	<p>Analysis model database <code>.db6</code> and analysis results model database <code>.db5</code> are shared, but they cannot be updated incrementally.</p> <p>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.</p>
<b>Custom components and sketched profiles</b>	Custom components and sketched profiles database <code>xslib.db1</code> is shared incrementally.
<b>Profile catalog</b>	Profile database <code>profdb.bin</code> file is local. The used catalog definitions are shared incrementally.
<b>Reinforcing bar catalog</b>	<p>The <code>rebar_database.inp</code> file in the model folder is updated or created when the model is shared.</p> <p>When you add and use a new reinforcing bar definition, 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.</p>
<b>Bolt catalog</b>	Bolt catalog file <code>screwdb.db</code> and bolt assembly catalog file <code>assdb.db</code> are local. The used definitions are shared incrementally.
<b>Material catalog</b>	Material catalog file <code>matdb.bin</code> is local. The used definitions are shared incrementally.
<b>User-defined attribute (UDA) definitions</b>	<p>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.</p> <p>New attribute definitions are added to the database automatically when the model is opened. If the current <code>objects.inp</code> file has</p>

Option	Description
	<p>a different definition than the <code>environment.db</code>, it is possible to take changes to use by clicking <b>Tools --&gt; Diagnose &amp; Repair Model --&gt; Diagnose &amp; Change Attribute Definitions</b> .</p> <p>If the <code>objects.inp</code> file is in the model folder, it is shared as a file and it overrides the local <code>objects.inp</code> file when you read in.</p>
<b>Options</b>	<p>When a model is created, the options are read from the <code>options.ini</code> files and the model-specific options are stored to <code>options_model.db</code> and <code>options_drawings.db</code> databases.</p> <p>Model-specific options can be modified using <b>Options</b> and <b>Advanced Options</b> dialog boxes. Model-specific option modifications are shared incrementally.</p> <ul style="list-style-type: none"> <li>• Some of the options are of the type <b>SYSTEM(ROLE)</b>. These options are read from the <code>.ini</code> files and are not shared. It is possible to change <b>SYSTEM(ROLE)</b> model option to <b>MODEL(ROLE)</b> option and the drawing option to <b>DRAWINGS(ROLE)</b> option. The options are then stored to the <code>options_model.db</code> or <code>options_drawings.db</code> databases in the model folder, and the value is shared incrementally.</li> <li>• Some of the options are of the type <b>USER</b>. These options are user-specific and they are not shared.</li> <li>• Some of the options are of the type <b>SYSTEM</b>. These options are user-specific and they are not shared. It is possible to change a <b>SYSTEM</b> option to a <b>MODEL(SYSTEM)</b> option. The option is stored in the <code>options.ini</code> file under the model folder. The <code>options.ini</code> file or the information in the file is not shared.</li> </ul>
<b>Other important files in the model folder</b>	<p>The database ID range mapper file <code>db.idrm</code> and the library database ID range mapper file <code>xslib.idrm</code> 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.</p>
<b>View sharing</b>	<p>By default, views are not shared. Views are shared if they have a name, and the <b>Share</b> option in the <b>View Properties</b> dialog box is set to <b>Shared</b>.</p> <p>Note that when you join a model, you get all the model views but changes to the views are not shared if the <b>Share</b> option is set to <b>Not Shared</b>.</p>

See also [Conflict handling and limitations in Tekla Model Sharing on page 30](#)

### 3.1 Tekla Model Sharing settings

Use the **Sharing Settings** dialog box to, for example, enable the writing out of comments.

Option	Description
<b>Model folder file sharing</b>	<p>Click the <b>Exclude</b> button to define files or folders in the model folder that you do not want to share.</p> <p>See <a href="#">Excluding files and folders from Tekla Model Sharing on page 25</a>.</p>
<ul style="list-style-type: none"> <li>• <b>Tekla Model Sharing cache</b></li> <li>• <b>Name and Port</b></li> </ul>	<p>You can set up a separate Tekla Model Sharing Cache service 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 you have a narrow bandwidth to the Internet, because using a cache reduces the download effort.</p> <p>See <a href="#">Installing a cache service for Tekla Model Sharing on page 7</a>.</p> <p>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.</p> <ul style="list-style-type: none"> <li>• Enter the <b>Name</b> and <b>Port</b> number of the cache. Click the <b>Set</b> button to connect to the cache.</li> <li>• Alternatively, you can set the advanced option <code>XS_CLOUD_SHARING_PROXY</code> to "name of the server"; "port" in a <code>.ini</code> file. This advanced option is user-specific.</li> <li>• To reset the cache settings in the dialog box to the ones defined in the <code>.ini</code> file, click the <b>Reset</b> button.</li> </ul>
<b>Show available updates when joining the model</b>	<p>Select the check box to enable a list that shows all the available baselines and updates to join. The list is shown when a user joins a model.</p>



Option	Description
	<p>The list makes it possible for the user to select the level of history to join.</p> <p>Alternatively, you can set the advanced option <code>XS_SHARING_JOIN_SHOW_AVAILABLE_UPDATES</code> to <code>TRUE</code> in a <code>.ini</code> file to enable the showing of updates.</p> <p>This advanced option is user-specific.</p>
<p><b>Show available updates when reading in the changes</b></p>	<p>Select the check box to enable a list that shows all the available baselines and updates. The list is shown when a user reads in the model changes.</p> <p>Alternatively, you can set the advanced option <code>XS_SHARING_READIN_SHOW_AVAILABLE_VERSIONS</code> to <code>TRUE</code> in a <code>.ini</code> file to enable the showing of updates.</p> <p>This advanced option is user-specific.</p>
<p><b>Enable write out revision comment</b></p>	<p>Select the check box to enable the entering of revision comments.</p> <p>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.</p> <p>Alternatively, you can set the advanced option <code>XS_SAVE_WITH_COMMENT</code> to <code>TRUE</code> in <code>.ini</code> files to enable the revision comment.</p> <p>This advanced option is model-specific.</p>
<ul style="list-style-type: none"> <li>• <b>Copy project folder files to model folder</b></li> <li>• <b>Copy firm folder files to model folder</b></li> <li>• <b>Overwrite model folder files</b></li> </ul>	<p>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 <b>Copy files</b> button.</p> <p>We recommend you to copy the project and firm folder files.</p> <p>You can also select whether the copied project or firm folder files replace the existing files of the same name in the model folder.</p> <p>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.</p>

See also [Conflict handling and limitations in Tekla Model Sharing on page 30](#)

## 3.2 Excluding 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.

To exclude model files or folders from sharing:

1. Click **File --> 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.

The following folders are excluded by default:

- Directory=ModelSharing
- Directory=ModelSynchFiles
- Directory=RefCache
- Directory=RefCacheFolders
- Directory=PublicWeb
- Directory=Reports
- Directory=PlotFiles
- Directory=Logs
- Directory=ProjectOrganizer
- Directory=SessionFileRepository

- 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:

Option	Description
<b>(x.x)</b>	<code>TeklaStructures.bbb</code> is excluded from sharing.
<b>(x.*)</b>	All the files with <code>TeklaStructures.</code> are excluded from sharing.

Option	Description
(*.*)	All the files with .bbb are excluded from sharing.
(*.*)	All the files from that folder, but not from its sub-folders, are excluded from sharing.

- 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.

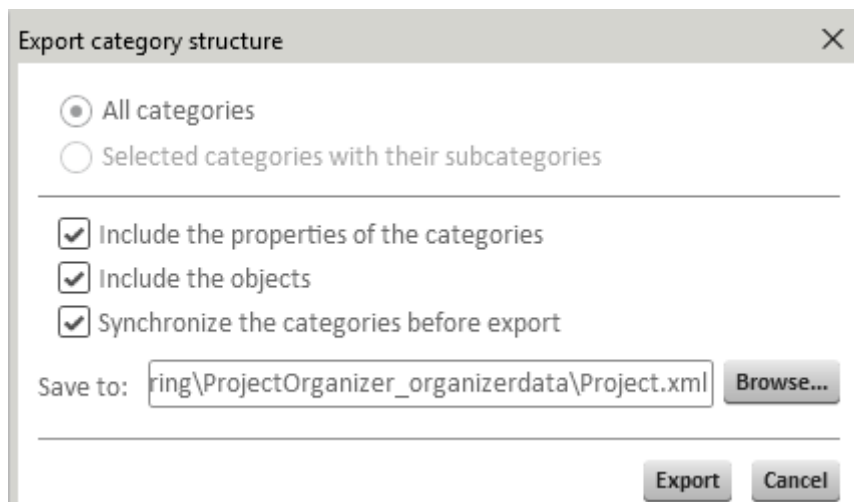
See also [Tekla Model Sharing settings on page 24](#)

### 3.3 Using import and export to share Organizer data in Tekla Model Sharing

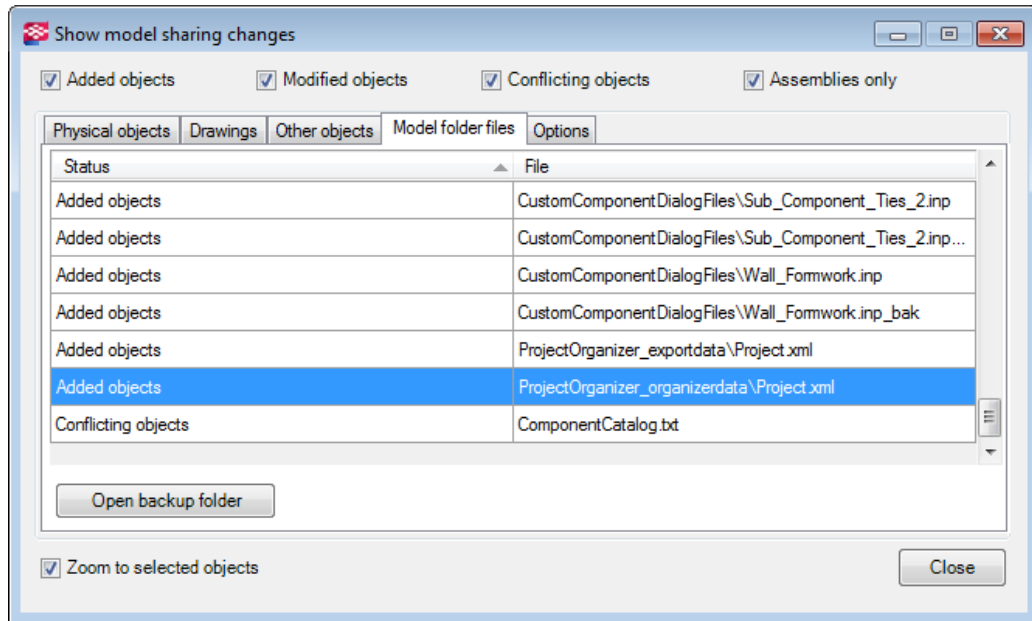
By default, **Organizer** data is not shared. However, you can use the **Organizer** import and export with Tekla Model Sharing to share the **Organizer** changes.

1. Choose a user who is responsible of the **Organizer** data. This is the User A.
2. User A creates the **Organizer** data and exports the data to a model subfolder.

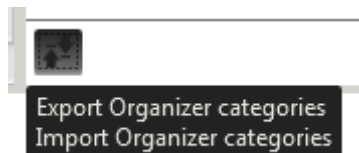
Note that the selected folder cannot be the default `ProjectOrganizer` folder.



3. User A writes out.
4. User B reads in and notices that there is new data available.



5. User B opens **Organizer** and imports the data that the 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.

See also [What is shared in Tekla Model Sharing on page 21](#)

### 3.4 Collecting 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.

To collect model history:

1. Click **Tools** --> **Options** --> **Advanced Options** .
2. Go to the **Speed and Accuracy** tab.
3. Set `XS_COLLECT_MODEL_HISTORY` to `TRUE`.

4. Set `XS_CLEAR_MODEL_HISTORY` to `FALSE`.
5. Click **OK**.
6. To view model history, do one of the following:

- Click **Tools --> Inquire --> Object** .

The model history is shown in the **Inquire Object** dialog box.

If the **Enable write out revision comments** has been selected in the **Sharing settings** dialog box, the revision comments are displayed in the **Inquire Object** dialog box.

- Create a model history report.

1. Click **Drawings & Reports --> Create Report** .

2. Select a report template that shows model history from the list.

The name of the report template may vary in different environments. In the Default environment, the report template is called

`Q_Model_History_Report`.

3. 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.

# 4 Conflict handling and limitations in Tekla Model Sharing

**Conflict handling** 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 family numbering settings.



Family numbering settings are shared but cannot be incrementally updated. We recommend that one user updates and 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.

We recommend you to use the **Drawings --> Numbering --> Numbering Series of Selected Objects** command when numbering.

---

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.

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.

---



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 listed or visualized when you read in. Therefore deletions must be made with caution.

---

**Object IDs** Tekla Structures objects have an identifier that is shown as the object ID. With Tekla Model Sharing, Globally Unique Identifiers (GUIDs) are used as object IDs.

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

- In cast unit drawings, the **Cast unit definition method: By cast unit ID**.
- Interoperability import/export actions:
  - FabTrol XML
  - ASCII
- All other applications, macros and report processes that rely on static IDs.
- Excel design that uses connection ID in the file name and that the user may use in reports and drawings.
- 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.

**See also** [What is shared in Tekla Model Sharing on page 21](#)

[Showing changes in Tekla Model Sharing after reading in on page 13](#)

[Using import and export to share Organizer data in Tekla Model Sharing on page 27](#)

## 4.1 Restoring a model in Tekla Model Sharing

**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 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 version is old, reading in all changes may take some time.

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.

**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 the model again.
2. Read in the packets until you have reached the preferred level in the model history.
3. Exclude from sharing.
4. Start sharing and invite other users again to the model.

Make sure that all the users within the model start to use the restored version of the model.

**See also** [Joining a shared model in Tekla Model Sharing on page 10](#)

[Excluding a model from the sharing service in Tekla Model Sharing on page 19](#)

[Starting to share a model in Tekla Model Sharing on page 10](#)



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