TEAMCENTER

Xpedition and PADS Part Library Management

Teamcenter 2412

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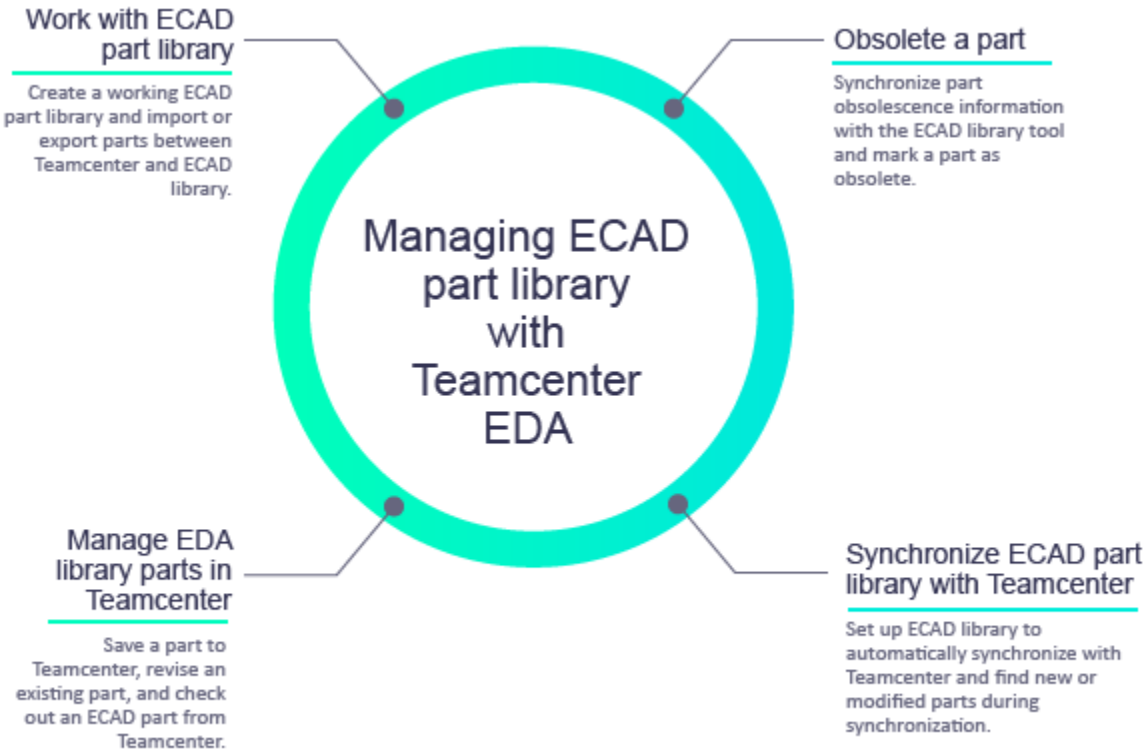
1. Managing ECAD part library in Teamcenter

Teamcenter Electronic Design Automation (EDA) integrates Mentor Graphics ECAD applications with Teamcenter to allow the ECAD designers to move design data into and out of Teamcenter and manage ECAD part library data in Teamcenter.

Teamcenter EDA supports ECAD design integration and ECAD part library integration. Both these integrations are separate functionalities and run separately. You can install them either together or separately, depending on your requirement.

The Teamcenter part library is the enterprise master ECAD library. The Teamcenter EDA library integration enables ECAD designers and librarians to capture, track, and manage all the parts, symbols, footprints, padstacks, and attributes in the part libraries as well as manage the relationships between these objects. To prevent design teams from using unapproved, obsolete, or out-of-date parts, and to ensure that accurate and consistent information is available throughout your organization, Teamcenter library data can be synchronized with each individual ECAD tool's local library on the workstation. During the synchronization process, Teamcenter automatically identifies any new or updated parts that need to be exported.



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Where do I go from here?

 Administrator	See the Xpedition and PADS Integration With Teamcenter documentation for instructions on how to install and configure Teamcenter EDA for Mentor ECAD applications.
 Administrator	See the Installing and Configuring EDA Gateway for (Non-Mentor) ECAD Applications documentation for instructions on how to install and configure EDA Gateway for (non-Mentor) ECAD applications.
 ECAD Designer	See Managing Xpedition or PADS Designs in Teamcenter for instructions on how to work with ECAD design data in Teamcenter.
 Library Administrator	
Using the EDA part library	For information on how to create and manage the EDA part library in Teamcenter, refer to the information in the section on **working with the EDA part library**.
Managing ECAD library parts in Teamcenter	Follow the procedures on how to **revise a part** and **check out a part from Teamcenter**.
How to obsolete a part?	The section on obsoleting a part provides **an overview** and the steps you must follow for **creating an obsoletion workflow** and **obsoleting the part itself**.
How do I synchronize part library data?	The section on **part library synchronization** provide information on the different tasks and features involved in synchronizing the EDA part library with Teamcenter.

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2. Using EDA part library

Working with part library management

The Teamcenter part library is the enterprise-wide master ECAD library. You can either export the whole ECAD library into Teamcenter or select a subset of it and then upload it to Teamcenter. You can identify the parts that do not exist in Teamcenter and save them to Teamcenter. You can start working with the part library management feature after you have enabled and configured the part library to function with Teamcenter.

You can do the following part library management tasks:

- Create a Teamcenter part library.
- Create the library configuration.
- Set working library.
- Review parts in the working library.
- Export the ECAD library to Teamcenter.
- Load parts from Teamcenter to the ECAD library.
- Save modified and new parts to Teamcenter.
- Revise.
- Check out, check in, or cancel check out of the part from and to Teamcenter.
- Synchronize updates.
- Synchronize from other libraries.
- Obsolete library parts.
- Initiate workflows.

> Note:
>
> You can also request new or modified library parts, using the same workflow as the designer.

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Create a Teamcenter part library

Because the Organization application in Teamcenter is integrated with the ECAD part library, you can create the Teamcenter part library in Organization using the **External Applications** node. This node holds the part libraries created.

1. Open Organization.

2. From the **Organization List** tree, select the **External Applications** node.

   The **External Applications** pane appears.

3. Type a name In the **Application Name** box. This can be any combination of alphanumeric characters.

4. Type an ID in the **Application ID** box.

   This can be any positive integer. If you want the system to generate an ID, click **Assign**.

5. From the application type list, select a type based on your ECAD tool. All available ECAD options are listed here.

   > Note:
   >
   > Select the **PADS** application type only for the **PADS standard** product. For **PADS Professional** product, you must select **Xpedition** application type.

6. Check **Allow deletion of replicated master objects to this site**.

7. Click **Create**.

   The new part is created and listed under the **External Applications** node in the **Organization List** tree.

Create an ECAD library configuration

1. In the EDA Gateway, choose the **Teamcenter→Configure** menu command.

2. In the **Library Integration Configuration** dialog box, click the **Configuration** tab and set the following values:

   - **Library Configuration**

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Specifies the name of the library configuration. To use an existing library configuration, choose a name from the list. Alternatively, you can type a unique name to create a new configuration. You can also click **Delete** to delete an existing configuration.

> Note:
>
> You cannot delete the working library.

- **Tc Part Library**

  Select the required Teamcenter part library from the list of library names. These part libraries are created in the Organization application in Teamcenter. Only those libraries are listed depending on the ECAD tool being integrated. You cannot enter a new library name.

- **Configure ECAD Library**

  This option is used to manage the ECAD part library metadata that is stored in Teamcenter. You can use this option for PADS library integration.

  Click **Browse** and ensure that **Library Data Source** points to the correct library path.

  Select the **Set Data Source Folder as Read Only** check box to make the library read-only and protect the data on your workstation after synchronization is complete.

  Specify the following library data source for your ECAD tools:

ECAD tool name	Library data source
PADS	*%SDD_HOME%***Libraries\amd.pt9**
	*%SDD_HOME%***Libraries\amd.ld9**
	*%SDD_HOME%***Libraries\amd.pd9**
	*%SDD_HOME%***Libraries\amd.ln9**

- **Configure Part Metadata Database**

  This option is used to manage the ECAD part library metadata that is stored in the databases that can be accessed using ODBC for the Xpedition, Cadence, Orcad, and Altium library integration.

  a. Select the **Configure Part Metadata Database** check box to configure the part metadata database.

  b. Click **Configure** to configure the data source and a mapping file.

  a. (Optional) In the **Configure ODBC Connector** dialog box, select a data source from the list installed on your workstation and then browse to a mapping file.

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The **Configure ODBC Connector** dialog box maps elements in the EDA part library to the table structure in the part metadata database. In this process, an **EDALibXML** element (component, symbol, or footprint) is mapped to a table, and an EDA property is mapped to a column of the table. Only the modified and new parts are synchronized.

If the required mapping is not available, click **Create Mapping** to create a new ODBC table mapping, or click **Modify Mapping** to modify the current ODBC table mapping.

b. (Optional) In the **ODBC Table Mapping** dialog box, the **Teamcenter Library Object** tree shows all available EDA elements. Only components and shapes (that is, footprint, symbol, and padstack) are valid.

The attributes of the elements are listed in the **edalib.xml** file in the following format:

```
<attr value="68p" itemId="900-2000000-006" name="Value"/>
```

In this example, the displayed attribute name is **Value**.

A. If the required attribute is not displayed, select the component and click the **Add** button + to add an attribute to the selected EDA element.

Teamcenter EDA Gateway displays the **Add a property** dialog box, allowing you to define the name of the new attribute.

B. If the required table is not displayed in the **Table Definition** list, click the **Add** button +.

Teamcenter EDA Gateway displays the **Add a table** dialog box, allowing you to define the name of the new table.

C. To add properties or columns to the table, select the table and click the **Add** button +.

Teamcenter EDA Gateway displays the **Add a column** dialog box, allowing you to define the name of the new column. The new column is added to the table, but no new column is added to the physical table.

D. Select a property in the **Teamcenter Library Object** tree and a column in the **Table Definition** tree, and then click **Map** button to add the table into the **Teamcenter Library Object** list.

E. When the list is complete, you can click **Save** to save the mapping result in a file in a specified folder.

- **Configure File Mode**

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This option is supported only for EDM library integration.

In the **Sync Folder** box, type or browse to the location that will create a **.edx** file during the synchronization from Teamcenter. Typically, this location is the EDM inbox queue folder for Xpedition.

3. Click **OK** to close the dialog boxes and complete the configuration process.

Set the working library

The ECAD part designer can be configured to maintain one or more ECAD libraries in the same workstation. You can switch between ECAD libraries and the current selection is referred to as the *working library*.

All EDA library operations use the working library. For example, during synchronization EDA will look for modified library objects only in the working library.

1. In Teamcenter Gateway for EDA, choose **Teamcenter→Set Working Library**.

   The **Set Working Library** dialog box appears.

2. Select the working library and click **OK**.

   The EDA library integration traverses the library and collects the object list (parts, symbols, footprints, and padstacks).

Open Xpedition library components in Teamcenter Gateway for EDA

The Xpedition library components are packaged as Enterprise Data eXchange (EDX) package files. To load the contents of this package file in Teamcenter Gateway, do the following:

1. In Teamcenter Gateway for EDA, choose **Teamcenter→Open Library**.

2. Browse to the location where the EDX package is located.

   Click **OK**.

Review parts in the working library

To review the parts in the library, you can use the main Teamcenter Gateway for EDA dialog window and make one of the following searches:

- You can search for a particular type of part by selecting the part type from the **Object** list.

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- The quick search field (located below the menu commands)

  Search for objects in the current working library, using the part number or the name of the symbol or footprint. Wildcard entries (***** characters) are permitted as shown in the example.

You can use the **Show** list to display all matches, only the parts that do not exist in Teamcenter, or only checked out parts. Click **Refresh** to update the table after you change the selection.

Select **Get information from Teamcenter** to show the part owner, group, last modified date, checked out, and release status information in the table. If this check box is not selected, these fields are blank.

> Note:
>
> The maximum number of parts shown in the table is defined in the **EDALIB_ShowPartsMaxNumber** preference.

Export an ECAD library to Teamcenter

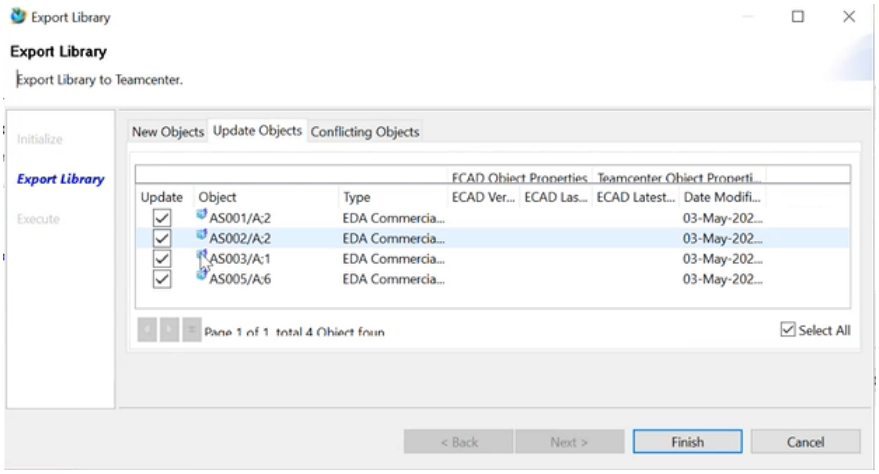
You can export an ECAD library, a part metadata database, or both to Teamcenter to populate the Teamcenter reference library.

1. In the Teamcenter Gateway for EDA, choose **Teamcenter→Export Library to Teamcenter**.

   The **Export Library** dialog box appears and shows objects to export.

   > Note:
   >
   > You see this dialog box when the value of the **EDALib_DryRunReport_ExportToTeamcenter** preference is **Always** or **Prompt**.

2. From the **Export Library** dialog box, you can choose the objects to export from the **Update Objects** tab.



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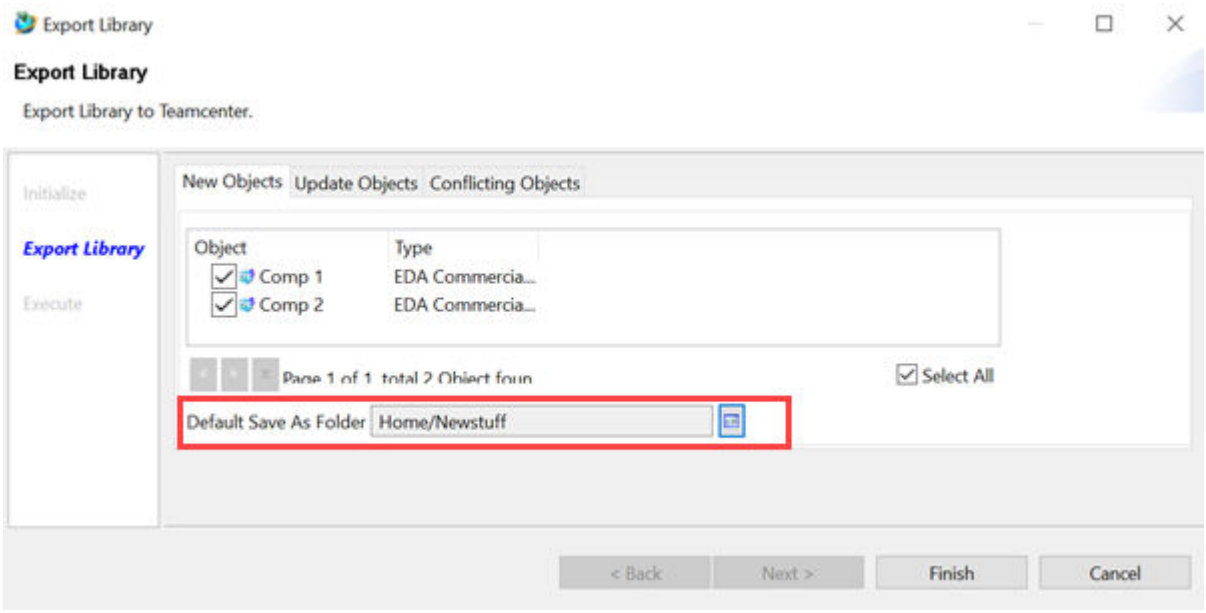
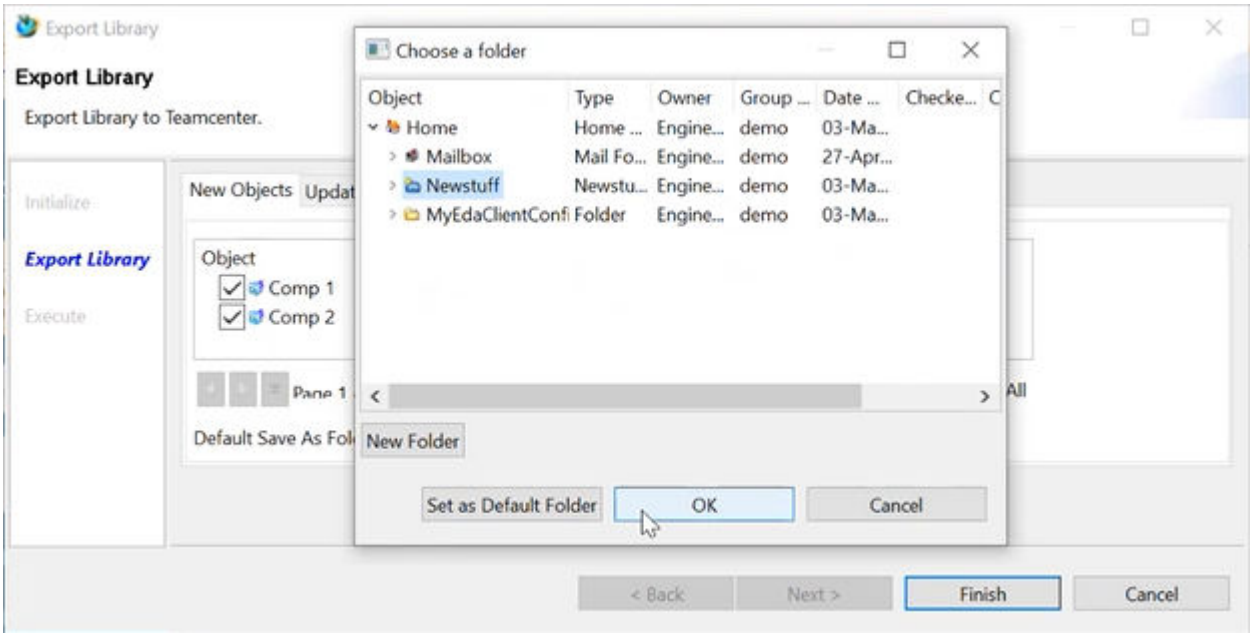
The **New Objects** and **Conflicting Objects** tab show the new and conflicting objects that need to be synchronized.

3. From the **Export Library** dialog box, you can choose the new objects to export from the **New Objects** tab.

   You can specify a folder where you want to save the new object in Teamcenter from the **Default Save As Folder** option.



4. Select a folder where you want to save the new object and click **OK**.



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5. Click **Finish**.

   The export operation creates new part in Teamcenter and associates them with the specified Teamcenter part library. Existing objects if they are not in conflict are updated.

Load parts from Teamcenter to the ECAD library

1. In the Teamcenter Gateway for EDA, choose **Teamcenter→ Load**.

   The **Load** dialog box appears.

2. Search for the parts.

   The search results are displayed.

3. Select the parts and click **OK**.

   The selected parts are loaded from Teamcenter to the ECAD site.

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3. Managing ECAD library parts in Teamcenter

Revise a part

1. Select the object you want to revise.

   You can select part, footprint, or symbol but not the padstack.

2. Choose **Teamcenter→Revise**.

   The **Revise** dialog box appears.

3. Type a value in the **Revision ID** box. You can also click **Assign** to automatically assign a new revision value.

4. To check out the part, select **Check-Out**.

5. Click **OK** to revise.

When you revise a part in this way, Teamcenter:

- Validates if the part, footprint or symbol exists.
- If the part, footprint or symbol exists, revises the item revision with the assigned revision value.
- Save the part, footprint, or symbol.
- If the **Check-In** option is selected, it places a check out lock on the part, footprint, or symbol.

Check out a part from Teamcenter

1. Select the part, footprint, or symbol you want to check out.

2. Choose **Teamcenter→Check-Out**.

   The **Check-Out** dialog box appears.

3. Type the **Change ID** and **Comments** in the **Check-Out** dialog box.

4. Click **OK**.

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The object is checked out, and the latest revision from Teamcenter is downloaded to the working library.

Cancel a checkout

To cancel the checkout of a part:

- In Teamcenter Gateway, choose **Teamcenter→Cancel Check-Out**.

  The check out lock is removed, and the design is reverted to its previous version.

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4. Obsoleting a part

Overview of obsoleting a part

Part library management supports the synchronization of part obsolescence information with the ECAD library tool. This creates an obsolete attribute with the value set as true. This notifies you that some part is obsolete and must not be used in ECAD designs. To complete this task, you must first create an obsolete workflow and then obsolete a part.

Create an obsoletion workflow

1. Open Workflow Designer.
2. Choose **File→New Root Template**.

   The **New Root Template** dialog box appears.
3. In the **New Root Template Name** box, type **Obsolete Process**.
4. From the **Based on Root Template** list, select **TCM Release Process**.
5. From the **Template Type** list, select **Process**.
6. Click **OK** to close the **New Root Template** dialog box.
7. In the process template tree on the upper left corner, click **Add Status Task** and select **TCM Released**.
8. In the lower left corner, click **Attributes** and select **Obsolete** as the release status.
9. In the lower left corner, click **Handlers**.
10. In the process template tree on the upper left corner, select **Add Status** below **Complete**.
11. Add one argument, **Obsolete**, with an empty value and save it.
12. Change the name **Add Status Task (TCM Released)** to **Add Status Task (Obsolete)**.
13. In the **Instructions** box, modify **Original Process Templates** to **Obsolete Template**.
14. Select the **Set Stage to Available** check box.

For more information about creating workflows, see the *Workflow Designer on Rich Client*.

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Obsolete a part

1. Select a part in My Teamcenter.
2. Choose **File→New→Workflow Process**.

   The **New Process** dialog box appears.
3. From the **Process Template** list, select **Obsolete Process**.
4. Click **OK**.

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5. Part library synchronization

Overview of EDA part library synchronization

EDA part library synchronization allows you to:

- Set up the ECAD library to automatically synchronize with Teamcenter at scheduled times in silent mode.
- Set up the synchronization of the part metadata from Teamcenter to the ECAD part metadata database.

Set up EDA part library synchronization with Teamcenter

The EDA part library is synchronized with Teamcenter by running the **eda_sync.bat** command. Perform the following steps to select, edit, and run the script corresponding to your ECAD system.

Step 1: Create a Teamcenter proxy user account that will be used to perform the library integration sync operations.

Step 2: In the **TcEDAClient.Properties** file set the **User** value to the Teamcenter proxy user ID.

Step 3: Generate a file to hold the Teamcenter proxy user password, using the following command:

Example: `eda_password_file.bat -p <proxy user psw> -pf C:\Siemens\EDASecure\file.txt`

Step 4: Select the script corresponding to your ECAD system from the following list. The selected script is invoked in the task scheduler to synchronize the library periodically.

Use **start_syncMentorExpLibrary** to synchronize the Xpedition library.

Use **start_syncMentorEDXLibrary** to synchronize the Xpedition EDM library.

This script takes an optional argument such as `- syncFolder <folder>`. This argument specifies a folder where the EDX file will be created. This argument overrides the **syncFolder** defined in the library configuration. This command creates an EDX file with the name `eda_sync_yyyyMMdd_HHmmss.edx` where `yyyyMMdd_HHmmss` refers to the current date and time. This file must then be manually imported into the Mentor library, unless the **syncFolder** has been set up as an EDM inbox queue.

Use **start_syncMentorPADSLibrary** to synchronize the PADS library.

Step 5: Edit the script that corresponds to your ECAD system as follows:

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Example: `eda_sync.bat -syncLibrary -application mentorEDXLib –syncConfig “EDM Library” –pf D:\EDASecure\file.txt`

Where:

-pf specifies the file holding encrypted Teamcenter password.

-syncConfig specifies the synchronization configuration name.

Step 6: In a task scheduler, create an entry that invokes the sync script edited in the previous step at the desired time and frequency.

Finding and filtering new and modified parts during automatic synchronization

Existing parts modified and associated to a certain library can be found by the TIE synchronizer. The synchronizer provides a SOA service to find modified parts for a specified library.

New parts that are imported into Teamcenter and assigned to a library site can be traced by the synchronizer. New parts that are not assigned to a library are not found by the synchronizer. You must select new parts in the rich client manually.

> Note:
>
> You can define your own saved query or modify the **EDALib_Sync_Find_NewParts** preference to find new parts in Teamcenter. You then add the saved query name as the value into **EDALIB_Sync_FindNewParts** preference.

You can run a saved query to filter new and modified parts. The input to this saved query are all parts found in EDA library. The output of the query is a subset of parts that meet the filter conditions.

> Note:
>
> You can define your own saved query to filter new and modified parts and add the saved query name to the **EDALIB_Sync_FilterSyncParts** preference.

Filtering new and modified parts during automatic synchronization

You can create a saved query to filter new and modified parts. The input to this saved query are all parts found in EDA library. The output of the query is a subset of parts that meet the filter conditions.

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Note:

You can define your own saved query to filter new and modified parts and add the saved query name to the **EDALIB_Sync_FilterSyncParts** preference.

Synchronizing file-base library or metadata database and setting local library as read only

The EDA client validates the filtered parts, downloads the candidates from Teamcenter to the local machine, and updates the local library or part metadata database based on the synchronization configuration. If you checked **Set local folder to read only** while setting up configuration, the library path is set as read-only.

Synchronize part library using the EDA gateway

1. In the EDA gateway, choose **Teamcenter→Synchronize from Teamcenter**.

   The **Synchronization** dialog box appears.

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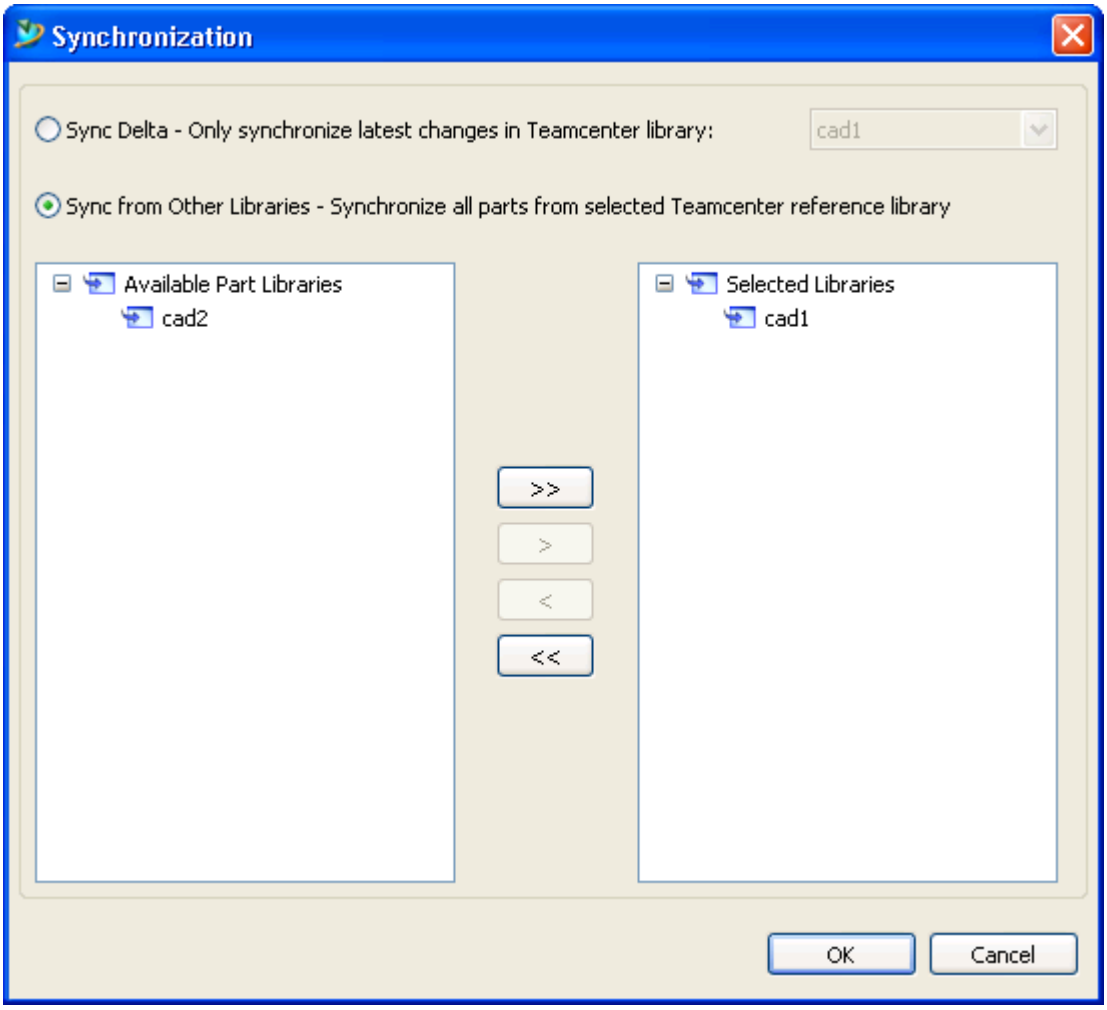

2. In the **Synchronization** dialog box, choose any of the following options:

   a. **Sync Delta - Only synchronize latest changes in Teamcenter library**

      Choose this option to synchronize the changes in the Teamcenter library.

      You can choose which library to synchronize from the list next to the **Sync Delta - Only synchronize latest changes in Teamcenter library** option.

   b. **Sync from other libraries- Synchronize all parts from selected Teamcenter reference library**

      Choose this option to synchronize all parts from the selected Teamcenter library.

      You can choose multiple libraries to synchronize by choosing the library from the **Available Part Libraries** list.

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