TEAMCENTER

Teamcenter Customization — Getting Started

Teamcenter 2312

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1. Basic concepts for customization

In order to customize Teamcenter, you must understand certain basic concepts.

- What is Teamcenter?
- What can I customize?
- How does it work?
- How is it organized?

2. What is Teamcenter?

At its core, Teamcenter is a manager for your company's information. The Teamcenter server process (tcserver) is where business logic takes place. It also maintains two permanent storage solutions:

- **Teamcenter volumes**

  Volumes are OS directory structures maintained by Teamcenter's File Management System (FMS). This system is responsible for delivering files to and from volumes; it is also responsible for client-side caching. All components of Teamcenter must access the FMS in order to work with files.

- **Third-party relational database**

  Non-file information, also known as metadata, is stored in a relational database management system (RDBMS); the tcserver process only works with metadata on a temporary basis.

  Regardless of the user logging in to Teamcenter, Teamcenter always connects to the RDBMS as a single user. User access and permissions are determined by the tcserver process, not the RDBMS.

> Caution:
>
> Direct manipulation of either of these storage solutions is unsupported and can cause irreparable corruption of your information. When customizing, only use supported and documented Teamcenter programming interfaces to access information managed by Teamcenter.

3. What can I customize?

You can customize nearly every aspect of Teamcenter, including:

- **User interface**

  You can customize the user interface (UI) by adding pages or tabs, arranging properties, changing icons, arranging commands, and so on. Following are the main Teamcenter clients:

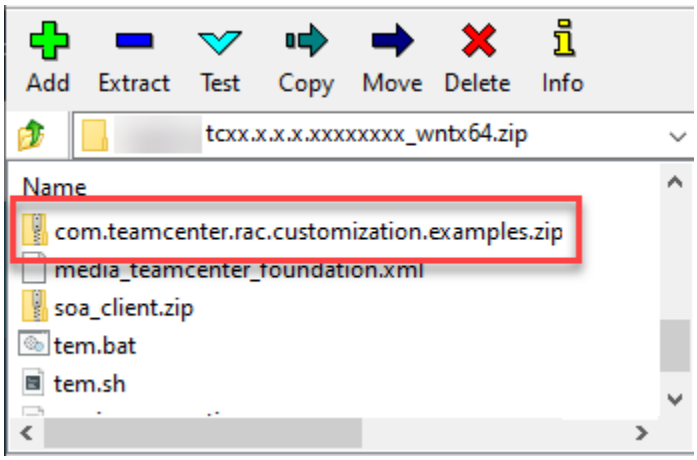
  - Active Workspace

    A separate Siemens Digital Industries Software product which ships with its own documentation. This client uses modern web-based design, and can be customized using declarative definitions, which consist of JavaScript, JSON, XML, and HTML.

  - Rich Client

    A Java client, utilizing the Eclipse Rich Client Platform (RCP) plug-in architecture, which can be customized using Java and Eclipse's Standard Widget Toolkit (SWT).

    A rich client customization plug-in contianing examples for reference is shipped with the Teamcenter software distribution.



  Also, see **www.eclipse.org** for more information about customizing RCP-based software.

- **Behavior**

  You can change core Teamcenter behavior by writing extensions to existing operations, or writing new operations using the Business Modeler IDE. Common examples include:

  - Workflow handlers.

  - Runtime properties.
  - Pre- or post-actions on existing operations.

- **Data Model**

  You can change the data model, creating new objects and properties using the Business Modeler IDE.

- **Localization**

  You can change object and property names as well as error messages based on the user's language using the TextServer and the Business Modeler IDE.

- **Command-line Utilities**

  You can write command-line utilities to access Teamcenter information using the provided C and C++ APIs.

4. How does it work?

Teamcenter organizes your information using objects; these objects have properties that can be indexed and searched for by users. You can control icons, properties, available workflows, user access permissions, and other functionality based on the type of object. Teamcenter objects:

- Have a hierarchy. There is a persistent object model (POM) structure of object types designed to contain various types of metadata. User information, file information, signoff information, and so on.
- Exhibit inheritance. Object types will inherit behavior and properties from their parents.
- Are represented by object-oriented classes. Server-side objects are represented by C++ objects, while the rich client uses Java objects. Object properties are also known as class attributes.
- Have properties which are permanently stored in RDBMS tables. Runtime properties are generated dynamically.

5. How is it organized?

Following shows a basic diagram of the Teamcenter metadata architecture.

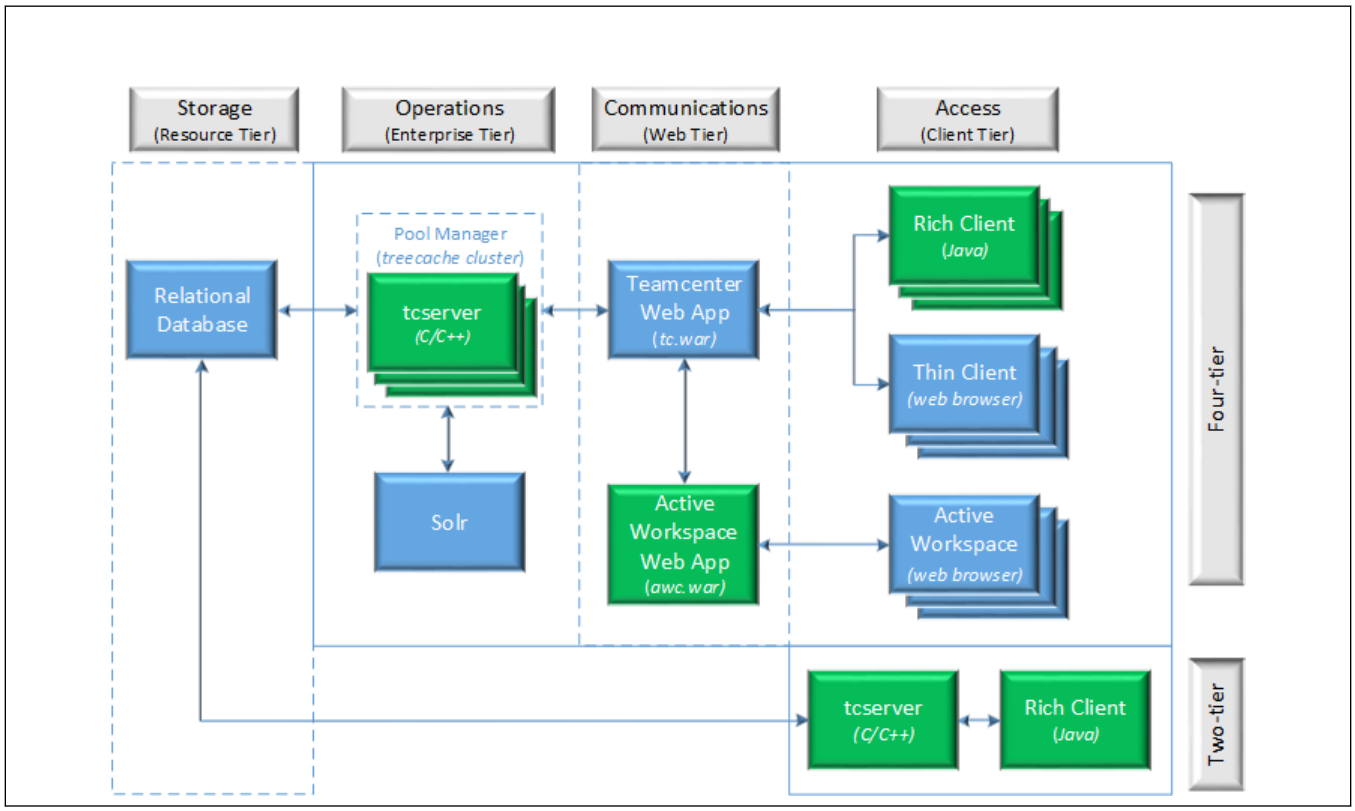


Figure 5-1. Green areas may be customized

- **Client Tier**

  Only the main Teamcenter clients are shown. You can also write a custom client or connect an existing piece of software to Teamcenter using Teamcenter Services.

  The two-tier rich client has its own self-contained tcserver process, and must therefore have direct access to the resource tier. This means any network latency will degrade performance drastically, and also having to open direct access to the resource tier is not secure in a corporate network. For these reasons, the two-tier rich client is mainly used by system administrators during installation and configuration. It is also useful for troubleshooting, as it does not require the four-tier architecture to be functional. When distributing your customizations, don't forget any two-tier rich client installations!

- **Web Tier**

The web tier consists of a Teamcenter web application that is responsible for communication between clients and the tcserver process. Customization of the core Teamcenter web application is not supported.

If you have installed Active Workspace, there is a second web application which communicates with the main Teamcenter web application. This provides the communication and interface processing for Active Workspace. Customization of the Active Workspace web application is covered in Active Workspace's Active Workspace Customization guide.

- **Enterprise Tier**

  The enterprise tier consists of a pool of Teamcenter C++ server processes (tcserver) and a server manager. The optional Dispatcher Server (not shown) will also be here if that feature is installed. Any server-side customizations are made to this tier.

- **Resource Tier**

  The resource tier consists of a relational database server, volume servers, license servers, and other important, low-level resources. Customization at this level is not supported.