Deployment Center
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Chapter 1: Introduction to Deployment Center

What is Deployment Center?

Deployment Center is a centralized web application for deploying software to your Teamcenter environments. Deployment Center gives you access to multiple environments from a single, centralized location. It simplifies the process of installing software and automates deployment to help you manage Teamcenter environments more efficiently.

After you download software packages to a central location, use Deployment Center to set up your installation and generate installation scripts. These scripts run on target machines that access and install the software.

Benefits

• Deploy, manage, and maintain multiple versions of software in multiple Teamcenter environments from a single web application.

• Reduce the costs of managing Teamcenter environments by reducing the number of people, steps, and time involved in software deployment.

• Provide a centralized location to view Teamcenter environment and deployment information with authenticated user logon access.

• Ensure consistency and accuracy by reviewing and adjusting the deployment configuration before rollout to Teamcenter environments.

• When setting up your environment, take advantage of entering parameters for one component and having those values shared with other components. For example, when you enter a machine name or port number for a component, that information is shared with other components that require the same information.

Flexible administration of software deployment

The software deployment process is accomplished in two phases.
1. The software is selected and deployment is configured in the Deployment Center web application. You can manage responsibility for software deployment with a single administrator or share it among the site’s deployment experts. For example:
   - A business analyst could make decisions about choosing the applications. Business analysts can choose the software versions and the applications needed by business units.
   - An administrator could make decisions about the machines, ports, URLs, user names, passwords, and component settings for the target machines in an environment. Administrators can make deployment selections based on knowledge of hardware infrastructure, number of users, and which applications are used by business units.

2. The deployment configuration is reviewed, and the software is deployed on the target machines.

**Manage software deployment in Teamcenter environments**

You can deploy a variety of software packages among your Teamcenter environments. A typical deployment process may look like the following:

### Example

- Obtain Teamcenter and Active Workspace software kits and put them into the Deployment Center repository.
- Register your Teamcenter environments by running a script on the target machines in the environment.
- Start and log on to Deployment Center to assess your Teamcenter environments by viewing the existing software, applications, and server component parameters.
- Determine software dependencies before deployment, and be sure you have the proper software download kits for your Teamcenter environment.
- Choose software, applications, and components to install in the Teamcenter environment, and enter the component parameter values.
- Determine where you want to deploy component servers and whether to deploy in a multiple server environment or on a single machine.
- Save a deployment in progress and return later to resume setting up the installation.
- Generate lightweight installation scripts and copy them across the network to the target machines.
- Manage installation of the software downloads from a shared location that all target machines can access.
- Perform upgrades or install additional applications and components on Teamcenter environments managed from Deployment Center.
• Perform maintenance on component configuration or parameter values after installation on Teamcenter environments managed from Deployment Center.

Deployment notes for this version

For information about enhancements and new features in Deployment Center 1.1, see What's new in Deployment Center 1.1, available from:


For information about specific supported Teamcenter Foundation versions and Active Workspace versions, see the readme file that accompanies the Deployment Center software download.

In this version, you can deploy Active Workspace 3.1 and Active Workspace 3.2 on supported Teamcenter environments. You can also deploy and upgrade Softlines, Hardlines & Footwear.

The Deployment Center does not verify that you have the correct software kits required for your environment. Be sure to check that you have the correct versions of the downloads and that you have placed them all in the Deployment Center repository.

You can check compatibility in the Internal Interoperability – Teamcenter Compatibility Matrix, available from the GTAC hardware and software certifications page.

You can use Deployment Center to deploy:

• J2EE or .NET Active Workspace client, Indexer, Indexing Engine, Visualization Data Server, and Visualization Server Manager.

• Teamcenter client communication system with Visualization Server Manager.

• Dependent Teamcenter platform applications.

• Additional Active Workspace applications after initial installation.

• Updated Active Workspace component parameter values after installation.

• Business Modeler IDE templates and software created in Teamcenter 11.3.

To perform additional deployment actions that are not yet available in Deployment Center, run Teamcenter Environment Manager (TEM) on the remote servers to complete your environment configuration. For example, you must run TEM on the target machines for the following:

• Multiple instances of Active Workspace clients

• Active Workspace translators

• Dispatcher

• Teamcenter Foundation features that are not available in Deployment Center

• Teamcenter Foundation service packs or patches
• Maintenance of Teamcenter Foundation components such as Java EE Based Server Manager, .NET Based Server Manager, .NET Web Tier, Teamcenter client communication system (TCCS), FMS server cache, two-tier rich client, four-tier rich client, and the corporate server

**Deployment process**

An advantage of using Deployment Center is its ability to perform a remote deployment. Deployment Center generates installation scripts that you copy to each target machine and then run in a command shell. Each script contains the target machine name, what to install on the target machine, and the software configurations from Deployment Center.

Your deployment choices are automatically saved in Deployment Center, which allows time to confirm your settings before committing to an installation. Others can log on to Deployment Center and review the choices and parameter settings before generating the installation scripts.

The deployment process follows this basic approach:

1. Download and stage your software installation kits to a centralized repository location on the Deployment Center server. After all the software kits are in the repository, you are ready to use them for the deployment. The software is listed on the **Repositories** page in Deployment Center. The repository services polls for software at 10 second intervals.

   **Note**

   The **Repositories** page displays the first platform it finds for a specific software download version. If you have other platforms for the same version, they are not displayed, but Deployment Center can use them for deployment.

2. Register your existing Teamcenter environments with Deployment Center. The registration process provides information about those existing environments, which Deployment Center displays after registration. You can evaluate each environment before you make deployment selections.

   Run the **send_configuration_to_dc** script locally from your Teamcenter environment's corporate server. After you run the script, the environment information is sent to Deployment Center. These registered environments are listed on the **Environments** page in Deployment Center. The **Machines** page lists all server machines used by components in registered environments. The machines from registered environments are also available from the **Machine Name** list for components.

3. Plan where you want to stage the deployment software for the servers in your environment. You can specify the location using the **-softwareLocation** deployment script argument. Your staging options:

   • Keep the software in the repository on the Deployment Center web server. Map a drive to that location on each target server, and specify that path in the **-softwareLocation** argument. Use this option if you don't have spare server space that's located near the target servers.

   • Copy the software to a shared location that is convenient to the target servers. Map a drive to that location on each target server, and specify that path in the **-softwareLocation** argument.
Plan for enough disk space to hold the entire set of deployment software for an environment. Use this option to have the software in one location that's easier to access during installation.

- Copy all of the software for a deployment to each target machine, ensuring each target server gets the complete set of software. Plan for additional disk space on each target server. Use this option to install software more quickly.

4. In Deployment Center, choose software and applications you want to install in the environment. Then choose server components and enter their installation parameter values. These selections and settings are saved as you go, so you can take your time to review and verify them. If you are unsure of your setup or you need to make changes, return later to finish making your choices or updating parameter settings. You can revisit the entire set of saved deployment selections.

5. After you verify all your setup information, you can generate the installation scripts. After they are generated, copy the scripts to each machine and run them. The target machines must be able to access the central location of the repository to perform the installation.

In the Deployment Center environment setup, you enter user names and passwords for server components. All passwords are encrypted using AES128 bit encryption in the generated deployment scripts.

**Deployment Center architecture**

The basic architecture of Deployment Center is comprised of several main parts that communicate with each other.

- **Jetty web server and the Deployment Center web application**
  A Jetty web server is automatically installed and configured for Deployment Center, and the installation automatically deploys and runs the Deployment Center web application. No additional installation or configuration is required for the Jetty web server or the Deployment Center web application. Access the web application from a web browser on any machine.

- **H2 database**
  The H2 database is also automatically installed and configured for Deployment Center. The database stores information about the Teamcenter environments registered with Deployment Center. No additional installation or configuration is required for the H2 database.

- **Repository and the repository service**
  The repository stores the downloaded software kits. Deployment Center uses the repository subdirectories when it registers Teamcenter environments and displays choices for installing software and applications.
  
  You provide the repository directory location during installation of Deployment Center. Be sure that the Deployment Center server has adequate disk space available to store all the software kits needed for your deployments.

  The repository subdirectories are automatically created:

  - **dc_contributions**

    Contains the Deployment Center files for versions of Teamcenter, Active Workspace, and Business Modeler IDE.

  **Caution**
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Do not make changes to this directory.

• **deploy_scripts**
  Contains a directory for each environment managed by Deployment Center. Generated deployment scripts and related files are placed in the appropriate environment subdirectory in a timestamped folder. The Deployment Center populates this directory structure for installing software.
  
  **Caution**
  Do not make changes to this directory.

• **software**
  Contains the software you want to install using Deployment Center. Download Teamcenter software from the GTAC download site, unzip the archive, and then copy the unzipped folder into the **software** directory.
  
  Deployment Center automatically scans this directory and registers the software in this folder. Registered software is displayed in Deployment Center for selection and subsequently installed in the environments that you set up. Deployment Center only finds software in unzipped subdirectories of the **software** directory. Software that is placed in another location on the server is not scanned.

• **system**
  Stores Deployment Center software files.
  
  **Caution**
  Do not make changes to this directory.

The repository service is automatically installed when you install Deployment Center. The repository service runs automatically and monitors the repository. The repository service reports the software kits to Deployment Center and populates the list of available software selections.

**Staging area**

The staging directory is where Deployment Center stores the generated deployment script ZIP files that are created when you finish the deployment tasks. You copy these installation scripts to the target machines. If you have configured components that run on multiple machines in the environment, there is one generated installation script ZIP file for each machine.
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System requirements

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<th>Free disk space 2</th>
<th>Free RAM</th>
<th>Third-party software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 7, Windows</td>
<td>100 MB</td>
<td>512 MB minimum</td>
<td>JRE 1.7.0_45 or later</td>
</tr>
<tr>
<td>Server 2008 R2,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windows Server 2012</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 All operating systems must be 64-bit.

2 Plan for additional disk space to accommodate storing a large set of software download kits.

System software and hardware support for your Teamcenter environments is available from the hardware and software certifications page on GTAC. You must have a WebKey account to access GTAC.

The Teamcenter Compatibility Matrix is available from the hardware and software certifications page. Under Additional Resources, click Internal Interoperability – Teamcenter Compatibility Matrix.

Install Deployment Center

Before you begin the Deployment Center installation, ensure that:

• The server directory path for the Deployment Center server has write access.

• The port you want to use for the Deployment Center web server is not in use.

• The repository directory for Deployment Center has sufficient disk space for software storage.

• The port that you want to use for the repository to communicate with the Deployment Center server is not in use.

• The installing user name account has administrative privileges so that the Deployment Center service is installed correctly.

To install Deployment Center:

1. Download the installation ZIP file for Deployment Center from the GTAC software Download page.

2. Install the supported JRE version of Java and set JAVA_HOME to the installation location.

3. Extract the Deployment Center installation ZIP file to the server where you want to run Deployment Center. The server must be accessible to the Teamcenter environments where you want to install and manage software.
4. Open a command prompt window and navigate to the location where you extracted the Deployment Center installation software. Go to the **deployment_center** directory.

5. Run **deployment_center.bat** using the following arguments. Required arguments are noted; running Deployment Center as a service is optional.

   - **install** (required)
     Run in install mode.

   - **serverDir** (required)
     Specify the full path to the directory for the Deployment Center web server and the database.

   - **serverPort** (required)
     Specify the port where the Deployment Center web server listens for requests.

   - **repoDir** (required)
     Specify the full path to the directory for the Deployment Center repository.

   - **repoPort** (required)
     Specify the port where the Deployment Center repository listens for requests from the Deployment Center server.

   - **user** (required)
     Specify the user name for Deployment Center. The user views environments, sets up installations, and generates deployment scripts. Specify a user name and remember it for logon later.

   - **password** (required)
     Specify the password for the Deployment Center user. Remember it for logon later.

   - **serviceName** (optional)
     Specify the service name for the Deployment Center web server. If you omit this argument, the server is not installed as a service and must be started manually.

   - **serviceDName** (optional)
     Specify the service display name for the Deployment Center web server.

For example:

```bash
deployment_center.bat -install -serverDir=D:\apps\deployment_center\server -serverPort=9090 -repoDir=D:\apps\deployment_center\repo -repoPort=9595 -user=dcadmin -password=dcadmin -serviceName=DC_Service
```

After the installation is complete, the script returns the URL to access Deployment Center. The URL has the form:

```plaintext
http://host:serverPort/deploymentcenter
```
Note
Record the URL for accessing Deployment Center to use for logon.

The script also returns the location of the installation log files. If you experience a problem in your installation or upgrade, see Troubleshoot Deployment Center installation or upgrade.

Upgrade Deployment Center

When you upgrade, all Deployment Center data is preserved, including software in the repository and deployed environment information. To upgrade Deployment Center:

1. Download the upgrade ZIP file for Deployment Center from the GTAC software Download page.

2. Extract the Deployment Center ZIP file to the server where you installed Deployment Center.

3. Stop the Deployment Center web server, including the service if it is running.

4. Check the supported JRE version of Java and the value of JAVA_HOME.

5. Open a command prompt window and navigate to the location where you extracted the Deployment Center upgrade software. Go to the deployment_center directory.

6. Run deployment_center.bat using the following arguments. All arguments are required for an upgrade.

   - **upgrade** (required)
     Run in upgrade mode.

   - **user** (required)
     Specify the user name for Deployment Center to validate the upgrade.

   - **password** (required)
     Specify the password for the Deployment Center user to validate the upgrade.

   - **serverDir** (required)
     Specify the full path to the directory for the Deployment Center installation.

   For example:

   ```
   deployment_center.bat -upgrade -serverDir=D:\apps\deployment_center\server -user=dcadmin -password=dcadmin
   ```

   The script returns the status of the upgrade and the location of the upgrade log files. If you experience a problem in your upgrade, see Troubleshoot Deployment Center installation or upgrade.
Troubleshoot Deployment Center installation or upgrade

If you have difficulty with installing or upgrading Deployment Center, look for log files in the location where you extracted the Deployment Center installation ZIP file:

The logs are in deployment_center\logs:

- **dc_install_error.log**
  Provides a description of the installation or upgrade failure.

- **dc_install_debug.log**
  Provides detailed information about the installation or upgrade operation.

- **dc_database_upgrade_error.log**
  Provides a description of the database upgrade failure.

- **dc_database_upgrade_debug.log**
  Provides detailed information about the upgrade operation.

Start Deployment Center

Before you access the Deployment Center web application from a web browser, start the Deployment Center web server. You can choose either of the following ways:

- Automatically start the server as a service
  
  If you specified the *-serviceName* argument during installation, the Deployment Center web server is installed as a service and started automatically.

  The *-serviceDName* argument, if specified, provides the Services display name. Otherwise, the service name defaults to the internal name specified by the *-serviceName* argument.

- Start the server manually
  
  If you did not specify the service arguments, start the Deployment Center service from its startup script. Navigate to the server directory specified by the *-serverDir* argument when you installed Deployment Center and run the startdc.bat script.

If you experience a problem in starting Deployment Center, see Troubleshooting Deployment Center operations.

Log on to Deployment Center

1. Enter the Deployment Center URL in the web browser. You recorded the URL from the command window after Deployment Center installation finished. The form of the URL is:

   http://*host*:serverPort/deploymentcenter

   *host* is the server where Deployment Center is installed.

   *serverPort* is the port number specified by the *-serverPort* argument for the installation script.
2. Enter the user name and password as specified by the -user and -password arguments for the Deployment Center installation script.

The Deployment Center home page appears.

If you experience a problem in logging on to Deployment Center, see Troubleshooting Deployment Center operations.

Troubleshooting Deployment Center operations

You can consult log files if you have difficulty with Deployment Center operations, such as:

- Inability to log on to Deployment Center.
- Inability to add software, applications, or components to a Deployment Center environment.
- Failure to create a deployment script.
- Deployment Center operation failures such as internal server error, display problems, or missing configuration files.

Find the log files on the Deployment Center server in deployment_center_server_dir\logs:

- web_server_debug.log
  Provides a detailed description of Deployment Center operations.

- web_server_warn.log
  Provides a description of operation failures as well as other warnings.
• `web_server_error.log`  
  Provides a description of operation failures.

• `spring_api.log`  
  Provides third-party application information.

• `hibernate_api.log`  
  Provides third-party application information.

**Backup and recovery procedure**

You can back up key Deployment Center software files for recovery in case of a failure. You can recover from a configuration error that cannot be otherwise changed in the system. You can also recover from a database corruption.

Deployment Center installation paths and parameters are referenced in the procedures. You need to be familiar with the Deployment Center installation process. In the procedures, `DC-install-dir` is the installation path to the Deployment Center. Installation parameters are described in Install Deployment Center.

**Back up the Deployment Center system**

**Note**
Best practices for backup frequency are after each deployment and when you add software to Deployment Center.

1. Stop the Deployment Center server.

2. If you set up a repository service, stop the service. The service name (and display name if specified) were set when you installed Deployment Center using the `-serviceName` and `-serviceDName` arguments.

3. Copy these database files to a safe location:

   `DC-install-dir\serverDir\db\deploy_center.h2.db`

   `DC-install-dir\serverDir\db\deploy_center.trace.db`

4. Record the list of software packages you downloaded to the repository. The repository directory is set to the location specified by the `-repoDir` during Deployment Center installation, for example:

   `DC-install-dir\repository\software`

**Note**
If you already recorded software packages and there are no changes to the repository since the last backup, you can skip this step.
5. Restart the repository service and/or start Deployment Center.

If you encounter a problem, stop Deployment Center and the repository service and replace the database files from your backup. If that doesn't fix the problem when you restart Deployment Center, download and replace the software packages in the repository.

Reinstall Deployment Center

If your recovery is not successful, you may need to reinstall Deployment Center.

1. Stop Deployment Center, and delete the repository service.

2. Either move or rename the Deployment Center installation, in case you need to access the software directories to repopulate the repository.

3. Reinstall Deployment Center into the same location, using the same paths and ports as the original installation. To restore the database files, the repository path specified by `-repoDir` must be identical to the previous installation.

4. Update the repository with the same software packages that you recorded from the previous backup. If the repository software packages are safely available from the installation that you moved or renamed, copy those files.

   Wait for Deployment Center to update and recognize the software.

5. Stop the Deployment Center server.

6. If you set up a repository service, stop the service.

7. Copy the backup database files to your current Deployment Center installation:

   \[ DC-install-dir\serverDir\db\deploy_center.h2.db \]

   \[ DC-install-dir\serverDir\db\deploy_center.trace.db \]

8. Restart the repository service and/or start Deployment Center.

   Deployment Center should be restored to the state it was in from the last backup.
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Add software to the repository

Teamcenter software that matches your currently installed Teamcenter environment must be placed in the repository to successfully register the environment. The repository directory is explained in Deployment Center architecture. The -repoDir argument for the Deployment Center installation script specifies the repository directory where you store the downloaded software.

1. Download the versions of Teamcenter software that match the versions used in your Teamcenter environment. Be sure to download the major version and the latest service pack for your Teamcenter version. For example, if your Teamcenter environment is running version 10.1.6, download Teamcenter 10.1 and the 10.1.6 service pack. After you download the software kits, unzip the archives and copy the unzipped directories to the software subdirectory in the repository.

2. Download any other supported software that you want to deploy in the Teamcenter environment using Deployment Center. After you download the software kits, unzip the archives and copy the unzipped directories to the software subdirectory in the repository. The software provides the applications and components you can choose to deploy.

   In this version, Deployment Center supports only Active Workspace software.

3. Log on to Deployment Center, and click SOFTWARE REPOSITORIES.

   The Software Repositories page opens to the Overview of the repository. The Overview provides helpful information about the server and the repository.

4. Click Contents to view the list of software in the repository.

   The Software Media table displays information about each software, such as the name and version of the software, its release type and platform, and whether it has a dependency. Deployment Center refers to the base Teamcenter software as Foundation software. Dependent software must be present before proceeding with deployment.

Be sure that the list of software is correct and complete for your planned deployment. Note whether there are missing dependencies as noted in the DEPENDENCIES column. If so, retrieve the software and copy it to the repository.

If you experience a problem in adding software to the Deployment Center repository, see Troubleshoot the repository service.

Troubleshoot the repository service

If you have difficulty with software not appearing on the Software Repositories page, you may have repository scanning issues or software file problems. The repository log files are located on the Deployment Center server in deployment_center_server_dir\repotool\logs:
• media_scanner_debug.log
  Provides a detailed description of Deployment Center software scanning operations.

• media_scanner_error.log
  Provides a description of software scanning operation failures.

• tem_config_rest_service.log
  Provides the communications information between the Deployment Center server and the repository scanning utility.

Register environments

Register your environments in Deployment Center by running the send_configuration_to_dc script on the server that hosts each Teamcenter environment. If the environment is distributed across multiple servers, you must run the script on each machine that is part of the specific Teamcenter environment. The script sends configuration information about the applications and components that are currently installed to Deployment Center.

After the environment is registered, you can view its configuration information and verify the content. Deployment Center saves information about server machines deployed in your environments.

• View the machines used in deployed Teamcenter environments from the MACHINES tile on the Deployment Center home page.

• Select a machine from a list of servers when configuring components.

1. On the machine hosting the Teamcenter environment, install the supported version of the JRE and set JAVA_HOME to the location.

2. Open a command prompt window, and set TC_ROOT to the Teamcenter installation directory if it's not already set.

3. From the location where you extracted Deployment Center, navigate to the additional_tools\Teamcenter\send_configuration_to_dc directory and extract the send_configuration_to_dc.zip file. Copy the extracted directory to the machine hosting the Teamcenter environment.

4. In the command prompt window on the Teamcenter host, navigate to the send_configuration_to_dc directory. Run send_configuration_to_dc.bat (Windows) or send_configuration_to_dc.sh (Linux or UNIX) using the following arguments. Required arguments are noted.
   -dcurl (required)
   Specify the URL you use to access Deployment Center.

   -dcusername (required)
   Specify the user name for Deployment Center as defined when installing Deployment Center.

   -dcpassword (required)
Specify the password for Deployment Center as defined when installing Deployment Center.

-`environment` (required)
  Specify a name to identify the environment being scanned. Because an environment is ordinarily identified by its site ID, this argument allows you to create a readable label that makes it easier to identify the Teamcenter environment.

-`config` (optional)
  Specify the ID value for the configuration used when installing the Teamcenter environment. Specify this argument if multiple configurations are installed in a single TC_ROOT location using the TEM installer.

For example:
```
send_configuration_to_dc.bat -dcurl=http://dc_host:9000/deploymentcenter
    -dcusername=dcadmin -dcpassword=dcadmin -environment=Sandbox
```

After the scan completes, the script returns the message `All operations completed successfully`. If you experience a problem in registering environments with Deployment Center, see Troubleshoot registering environments.

**Troubleshoot registering environments**

You can consult log files if you have difficulty with sending an environment configuration to Deployment Center (using the `send_configuration_to_dc` script), such as:

- Sending configuration to Deployment Center fails.
- Inability to communicate with a Deployment Center server.
- Invalid credentials passed when sending environment configuration.

The registration configuration log files are located on the Teamcenter environment server in `send_configuration_to_dc_dir/logs`:

- `tem_config_scanner_error_timestamp.log`
  Provides a description of environment scanning operation failures.

- `tem_config_rest_service_timestamp.log`
  Provides the communications information between the Deployment Center server and the `send_configuration_to_dc` utility.

**View registered environments**

View the environments registered in Deployment Center to verify the content. Select an environment from the list to view its properties and the applications and components installed in it.

1. Log on to Deployment Center, and click ENvironments.
   The Environments page lists all registered environments.
2. Select an environment.
   
   **Overview** displays helpful information about the system where the Teamcenter environment resides.

3. Verify the **Properties** for the environment. You can edit some of the properties by clicking .

4. Verify the **Software, Applications Installed, and Components** for the environment. You can click a selection to display more information in the right pane.

### Edit environment properties

On the **Environments** page, **Overview** displays the properties of the selected environment. You can edit some of these properties.

1. Click **Start Edit** to display the editable fields.

2. You can change the following information:

   - **Environment Name**
     
     Displays the name provided during setup for the environment. The environment name is specified in the `-environment` argument of the `send_configuration_to_dc` script.
     
     You can update the name for the environment.

   - **Environment Type**
     
     Displays the type of the environment. The available types are **Integration, Development, Production, Test**, and **Training**. The type is set to **Production** by default when the environment is registered, but you can select another type.

   - **Location**
     
     Displays the location of the environment. You can enter or update the geographical location for the environment, such as a city, the name of a facility, or another value that helps you define the location of the environment.

   - **Comments**
     
     Displays additional information entered by the administrator. You can enter or update information about the environment.

3. To save your changes, click **Save Edits**.

   To cancel your changes, click **Cancel Edits**.
Verify software, applications, and components

On the **Environments** page, you can review the software, applications, and components for each environment.

**Software**
You can verify the status of software for the selected environment. The list includes installed and pending software. You can select the software package to see additional software details.

**Applications Installed**
You can verify the status of applications for the selected environment. The list includes installed and pending applications. You can select an application package to see additional application details.

Applications are associated with their installation software, such as Search for Active Workspace.

**Components**
You can verify the status of components for the selected environment. The list includes installed and pending components. You can select the component package to see additional information about component settings.

The additional information offers two views of the information. Required parameters view displays only required parameter information. All parameters view displays both required and optional parameter information available from Deployment Center. You can click to expand required parameters view to all parameters view. Click to return to required parameters view.

Components are associated with their applications, such as Indexing Engine and Indexer for Search.

View registered machines

View the machines used in deployed Teamcenter environments. Select a machine name from the list to view its properties, such as OS, disk capacity, and free disk space.

1. Log on to Deployment Center, and click **MACHINES**. The **Machines** page lists all servers used by components in deployed environments. When you select a machine, the **Overview** provides information about the server where one or more software components are installed.

2. Verify that the properties for the server machine are what you expect.

Properties for a machine from a deployed environment include:

- **Machine Name** and **IP Address**
  Identifies the machine by the server name and IP address.

- **OS** and **OS version**
  Displays the operating system type and version installed on the machine.

- **Local Time**
  Displays the current date, time, and time zone at the machine's location.
• **Disk Capacity** and **Disk Free**
  Displays the total disk space and the free space available. The pie chart to the right displays the same information visually.

• **Last Update**
  Displays the last time information about this server was refreshed. The information is obtained and sent by the `send_configuration_to_dc` utility.
Chapter 4: Deploying software using Deployment Center

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Deployment tasks

The Deploy Software page displays each step in the deployment as a task. In each task, Deployment Center prompts you to make selections and provide information. At any time in the process, you can save your work and exit. The settings are stored in Deployment Center, and you can return to the deployment process at your convenience.

- **Dark blue** means the task is available and is currently active.
- **Light blue** means the task is available.
- **Gray** means the task is not available yet. These tasks become available as steps within the previous tasks are completed.

Click a chevron to go to that task. You can revisit any task you previously completed to make changes. For example, if you completed the Components task, you can still return to the Applications task and make changes.

Installation deployment process

1. Open the Environments page and choose the environment where you want to install software. Click Deploy Software.
   - The Deploy Software page provides access to the deployment tasks.

2. **Getting Started**
   - Lists the steps of deploying software. Click Start to begin.

3. **Software**
   - Choose the software to install. The software determines the list of available applications to install. For example, if you choose Active Workspace software, you can install the applications it provides.

4. **Applications**
   - Choose applications to install. The list of available applications depends on the software selected in the Software task. Each software package can have one or more applications in its bundle. Applications provide business logic, data model, work processes, and administration data for specific business uses, industries, or integrations. In this step, you do not need to know details of your network or configuration of software or hosts.

5. **Components**
   - Configure the listed components. Components are the servers installed on machines in your environment. The components listed in the Components task are required for the applications
selected in the **Application** task. Components that are not yet installed display the **Pending Install** status.

Some components may already be installed in your environment, but they need updates to support your selected applications. These components display the **Pending Update** status.

You need to know the hosts on which components will be installed, user names and passwords for the server component, and component URLs. Some components have additional optional settings.

6. **Deploy**

   Generate deployment scripts. This task is not available until the **Components** task is complete.

   Deployment scripts contain the information you configured in Deployment Center for the selected environment. The scripts install the software, applications, and components onto each target machine in your environment. After the script and software ZIP files are generated, copy them to each target machine and then run them.

**Upgrade and maintenance**

You can use Deployment Center to update software or maintain components in any registered Teamcenter environment. Before you perform an upgrade or maintenance, run the **send_configuration_to_dc** script on the target servers to send the latest environment updates to Deployment Center. Deployment Center guides you through selecting software, applications, and components.

**Upgrade software**

Using the **Deploy Software** tasks for upgrading is similar to installation:

1. Download the latest version of the software and place it in the Deployment Center repository. When you open the **Environments** page, select the environment where you want to upgrade software, and click **Deploy Software**.

2. **Software**

   Choose the software to upgrade from the list. The software selections determine the list of available applications that you can install during an upgrade, as well as applications that must be updated. The **Selected Software** list displays current installed versions and latest pending versions for the environment. If the software you need is not listed, check whether it is listed in the repository.

3. **Applications**

   Applications that are already installed are automatically updated. You can add new applications from the list, in the same manner as you do for installations. Applications that have a **Pending Install** status are waiting for installation deployment to complete. Applications that are installed but need updates to support your selected software display the **Pending Update** status.

4. **Components**

   It's possible that a selection from the current deployment may cause a previously configured component to need more information. The component displays the % configured. If it's less than
100%, complete the required parameter values. Components that have no impact from the selected applications upgrade can be ignored (showing 100% configured).

Components that are not yet installed display the Pending Install status.

Components that are installed but need updates to support your selected applications display the Pending Update status.

5. **Deploy**

Generate deployment scripts for the upgrade. This task is available when the **Components** task is complete.

Deployment scripts contain the upgrade information you configured in Deployment Center for the selected environment. After the script is generated, copy it to each target machine and then run it.

**Perform maintenance**

Using the **Deploy Software** tasks for component maintenance is similar to upgrading:

1. **Components**

   You can change parameter values for components that are installed in the Teamcenter environment for any editable parameter.

   Components that require updates to apply the parameter value changes display the Pending Update status.

2. **Deploy**

   Generate deployment scripts for component maintenance. This task is available when the **Components** task is complete.

   Deployment scripts contain the parameter changes you made in Deployment Center for the selected environment. After the script is generated, copy it to each target machine and then run it.

**Getting Started task**

The **Deploy Software** page begins with the Getting Started task. You can click a task to select it. For example, click **Software** to begin using the **Software** task.

**Overview**  **Deploy Software**

1 Getting Started  2 Software  3 Applications  4 Components  5 Deploy

**Software task**

In this task, select the software to install from the list of installable applications. The software you select determines the list of applications available to install in the **Applications** task. The **Selected Software** list displays both current and pending installations for the environment.
Overview  Deploy Software

Selected Software
The table below displays the Software that are installed or pending installation into your environment.

1. In the Software task, click Edit Selected Software to add software.

   This Available Software panel displays the software choices.

2. The Available Software panel lists software from the repository. The software status displays information about the software kit. After making your selections, click Update Selected Software to add them to Selected Software.

   If the software you need is not listed, you must add it to the repository. Add software as needed, but you may have to choose applications and configure components before deployment.

3. When your Selected Software list is complete, go to the Applications task.

Applications task

In this task, choose applications for the software you selected. The list of available applications is determined by the Selected Software packages. Each software package includes one or more applications as a part of its bundle. The applications contain components, which you select later in the Components task.

Overview  Deploy Software

Selected Applications
The list below displays the Applications that are installed or pending installation into your environment.

Applications that have a Pending Install status are waiting for installation deployment to complete. Applications that have a Pending Update status are already installed but need an update to support other selections.

1. In the Applications task, click Edit Selected Applications to add applications.

   The Available Applications panel displays the application choices.

2. In Available Applications, choose the applications to install. If you choose an application that has one or more required applications associated with it, the associated applications are automatically selected. Click Update Selected Applications to add them to the Selected Applications list.
3. You can add or remove applications as long as they are not already installed. Selected applications show the Pending Install status. When your Selected Applications list is complete, go to the Components task.

Components task

In this task, prepare components for installation. Components provide the functionality for your environment. The Selected Components list displays components that were automatically added as required from the Selected Applications list. Selected Components also displays components that are optional. Optional components are selected from the Available Components panel.

Selected Components displays the components that are required by the Selected Applications. You can choose optional components from the Available Components panel.

Components that have a Pending Install status are waiting for installation deployment to complete. Components that have a Pending Update status are already installed but need an update to support other selections.

Some administrative tasks for components require that you have server names, user names, passwords, URLs, and other information ready for the deployment. If a server machine was previously deployed in another environment or is specified in the current deployment for another component, you can select it from the Machine Name list.

**Note**

When you are defining parameters values for components, some fields may not be editable. If the component has a dependency on another component that is already defined, those values are propagated to dependent components.

1. In the Components task, click **Add component to your environment** to add components. The Available Components panel displays the optional component choices.

2. In Available Components, select the components to install, and then click Update Selected Components to add them to the Selected Components list.

**Note**

Choose components carefully, as Selected Components items cannot be removed after they are added.
3. **In Selected Components**, the **CONFIGURED?** column displays the state of completion for required component settings. If you have not configured a component, the state is **Start**. The state can also display the percentage of completion, including **100% Complete** for required settings. Click the status link in the **CONFIGURED?** column.

4. The component is displayed in the right panel, where you enter required configuration settings. If you don't have all the information you need, you can save your settings at any time and return to finish them.

This panel initially opens in required parameters view mode. Completing all of the settings in required parameters view pushes the state to **100% Complete**.

Component settings are available in two views. Click \(\text{\textcircled{}}\) to toggle between required parameters view and all parameters view.

5. You must enter values for settings that appear in required parameters view. You can expand to all parameters view to see the complete list of additional optional settings.

For example, if you are installing the corporate server, required parameters view requires setting a machine name, a platform, the Teamcenter installation path, and administrative user information. If you also chose the Indexing Engine component and then expand to all parameters view for the corporate server, all parameters view displays settings for the Indexing Engine user name and URL.

6. When you are finished entering settings, click **Save Component Settings**.
7. The next component that is not complete appears in the right-side panel. When all **Selected Components** are 100% configured, go to the **Deploy** task. The **Deploy** task is not available until the **Selected Components** are all 100% complete.

### Deploy task

In this task, generate deployment scripts for the components you want to install. Deployment scripts contain the information you configured in Deployment Center for the selected environment. The scripts install the software, applications, and components on to each target machine in your environment.

When the scripts are finished, the **Deploy Instructions** panel displays information about the deployment and instructions for proceeding with the deployment. You must copy the scripts to each target machine and run them to complete the installation.

1. To generate deployment scripts, click **Generate Install Scripts**.

   Deployment Center generates installation scripts, and reports information about the scripts in the right panel.
In the **Deploy Instructions** panel, you can view the report about the deployment, including the location of the deployment scripts and the instructions for continuing the deployment.

- **Script Generation Date** displays the time stamp for the local date and time of script generation.
- **Deployment Overview** describes the deployment covered by the scripts.
- **Software To Be Installed** lists the software required to install the components.
- **Software Needed For Install** lists software that is already installed on the machine but is still needed for this installation process to install other components.
- **Deploy Script Directory** displays the path to the location of the ZIP files containing the generated scripts. Go to the ZIP file directory and check for one or more ZIP files corresponding to the machines in your Teamcenter environment. Look for the
**Deploy** _Instructions.html_ file, which contains the same information and instructions that you reviewed in the report.

- **Deploy Scripts** displays the ZIP files that were generated for each server along with the associated component names. Each ZIP file contains the installation scripts for a single server.

If all components are to be installed on the same machine, there is only one ZIP file. The ZIP file name ends with the target machine name where you run the script. For example, if the ZIP file is named **20160330_202452EDT__Sandbox_LM6W006.zip**, it runs on the **LM6W006** machine. Run an installation script only on its designated machine.

3. After you determine that the scripts you need are in the directory, you can proceed with the installation deployment.

**Run the installation scripts**

The generated scripts are saved in the repository staging area on the Deployment Center server. The **-repoDir** argument of the **deployment_center.bat** installation script set the path to the staging directory location. The **Deploy** _Instructions.html_ file is saved to the same repository. It contains the same information and instructions that you reviewed in the **Deploy Instructions** panel of the **Deploy** task.

Before you run the installation scripts, you must make them available to the designated servers in your Teamcenter environment.

1. In the **Deploy Instructions** panel of the **Deploy** task, find the **Deploy Script Directory** section and take note of the path to the repository staging directory.

   On the Deployment Center server, open a file explorer and navigate the path to **staging_directory**.

   There may be one or more subdirectories under the staging directory following the pattern:

   ```plaintext
   environment_name\install\date_timestamp
   ```

   _environment_name_ is the name of the Teamcenter environment of your deployment, and _date_timestamp_ is the date and time that the installation scripts were generated.

2. Determine which subdirectory you need, and find the installation ZIP files and the **Deploy** _Instructions.html_ that you generated. The ZIP files have the naming convention:

   ```plaintext
   date_timestamp__environment_name_host_name.zip
   ```

3. Copy the ZIP files to a directory that is accessible to the servers where you are deploying the installations. Select one of these methods:

   - **Copy the ZIP files directly to each server**

     Select this method if you want to run the installation locally on the machine. You must copy the correct ZIP file that matches each server. Be sure the server host name matches the _host_name_ in the ZIP file name.

   - **Copy the ZIP files to a shared location and map a drive on each server**
Select this method if you want to run the installation from a common location accessible to all the servers in the Teamcenter environment. You must share the installation location by mapping a drive to it on each server.

**Tip**

You can omit specifying a software location when you run the installation script. By default, the deployment script looks for the installation files on the M drive. The script takes a `-softwareLocation` argument, which you can omit if you map the shared drive to M. Be sure that the M drive is free on each target machine when you set up the mapped drive for the shared location.

Copy the installation ZIP files to the appropriate location and unzip them.

**Note**

If you unzip your installation ZIP to a UNIX or Linux system, be aware that path and file names are in mixed case. Avoid converting path and file names to lowercase, as paths are case sensitive on these systems. See the documentation for your ZIP utility for information.

4. Set JAVA_HOME.

   JAVA_HOME can be set to the Java JDK location or the Java JRE location.

   If you are installing the Active Workspace Client Java EE, JAVA_HOME must be set to the Java JDK location.

5. If a Teamcenter server manager is running, stop it.

6. Open a command prompt window and navigate to the location where you unzipped the file. Run the deploy.bat script.

   If you mapped a shared location for the scripts using the M drive, run deploy.bat with no arguments.

   If you did not map to an M drive, specify the location in the `-softwareLocation` argument, for example, deploy.bat -softwareLocation=D:\deploy_software.

   When the installation is complete, the command prompt returns the message, **Deployment action successfully completed.**

   Log files are in the directory where the installation ZIP file was unzipped.

   If you experience a problem in running the deploy.bat script, see **Troubleshooting the deployment script.**

**Troubleshooting the deployment script**

You can consult log files if you have difficulty with performing a deployment on a target server (using the deploy.bat script), such as:
• Inability to locate the software required by the script (as specified by `-softwareLocation` or in the default mapped M: drive location).

• Inability to communicate with a Deployment Center server.

• A deployment failure.

The log files located in `deployment_script_dir\logs` on the Teamcenter environment server:

• `deployer_timestamp.log`
  Provides a detailed description of the deployment operation.

• `scanner_timestamp.log`
  Provides information about the software scanning performed during deployment.
Chapter 5: How to deploy Active Workspace on Teamcenter

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Chapter 5: How to deploy Active Workspace on Teamcenter

Software required to install Teamcenter and Active Workspace

To install Active Workspace, you need both an Active Workspace software kit and a Teamcenter Foundation software kit.

• Use the Foundation software kit to install Teamcenter. This software kit deploys core components, including a database with the default Teamcenter data model and features for managing your data. Teamcenter includes critical capabilities such as system monitoring, auditing, administration, security, subscriptions, notifications, workflow, and user management. This software kit also includes Teamcenter clients such as the rich client, the thin client, and Microsoft Office Live integration.

  The Foundation kit contains PLM platform capabilities such as Classification, Visualization, Reporting and Analytics, and Integrated Material Management. The Foundation kit also contains specific PLM applications such as Change Management, Schedule Management, Product Structure Management, Requirements Management and Service Lifecycle Management. Optional extensibility tools include the Business Modeler IDE to configure data model and behavior, Active Integration to enable enterprise application integration, and integrations to CAD and ECAD applications.

• Use the Active Workspace software kit to install the Active Workspace client to access a Teamcenter deployment. The Active Workspace software kit includes the basic client deployment as well as optional PLM modules. Active Workspace is deployed on the Teamcenter four-tier architecture. Active Workspace components provide full-text searching and filtering, visualization of 3D data, and access to a variety of PLM capabilities.

  Evaluate your site requirements to determine whether you want to deploy the components on a single machine or on multiple machines.

  The architecture diagram shows a sample deployment for Teamcenter and Active Workspace.
System requirements

Active Workspace software components have the following system requirements:

- **Server Extensions**
  - The corporate server must have a 64-bit operating system and 64-bit JDK.
  - The Teamcenter four-tier web application (Java EE or .NET) must be deployed.

- **Active Workspace Client**
  - Java EE Client
The machine on which the WAR file is built must have:

- A minimum of 16 GB of free physical RAM (unused by other applications) to avoid paging. Siemens PLM Software recommends that the machine have a minimum of 24 GB.
- Windows server operating system.
  - If you are running Teamcenter in a Linux environment, you can deploy the WAR file on a Linux server; however, the WAR file must be built on a Windows server machine.
  - 64-bit JDK installed and the JAVA_HOME system environment variable must be set.

  - .NET Client
    - A minimum of 16 GB of free physical RAM to successfully generate the .NET Client web application. Siemens PLM Software recommends that the machine have a minimum of 24 GB.
    - Windows Server operating system.
    - The .NET Client web application supports deployment on IIS only.
    - 64-bit JDK installed and the JAVA_HOME system environment variable must be set.

- Indexing
  - The Indexing Engine must be installed on a machine with a 64-bit operating system.
  - The Indexing Engine must be installed on a machine with 64-bit JDK or JRE.
  - In AIX and Solaris environments, Solr must be installed on a machine with a supported version of Bash.
    - For supported versions, see the Hardware and Software Certifications page on GTAC.

- Visualization Server
  - Supported hardware is suitable for a production environment. Other hardware may work with Active Workspace, but Siemens PLM Software accepts problem reports only for issues that are reproducible on a supported configuration.

- Visualization Server Manager
  - The Visualization Server Manager’s supported hardware and software configurations are:
    - Windows Server 64-bit 2012 R2 or Windows Server 64-bit 2008 R2.
      - Some graphics cards are not supported on Windows Server 64-bit 2008 R2.
    - Server class hardware using the graphics card:
      - NVIDIA GRID K1, K2, or M60 as certified by NVIDIA.
      - (M60 is not supported on Windows Server 64-bit 2008 R2.)
For information about NVIDIA server hardware compatible with the GRID graphics cards, see www.nvidia.com/buygrid.

**Note**

Windows Server 2012 R2 supports a maximum of 8 GPUs.

**Example**

When booting Windows Server 2012 R2 with a legacy VGA device and two or more NVIDIA GRID K1 cards, one of the NVIDIA GPUs is unavailable.

- You can run the Visualization Server Manager on a virtual machine for demonstration or evaluation purposes. However, the Visualization Server Manager requires hardware graphics support. For full GPU performance and functionality on a virtual machine, assign a supported graphics card to the VM through a hypervisor such as Citrix XenServer.

- **Visualization Data Server** (optional)

  You can install the Visualization Data Server (VDS) component to improve visualization performance. The Visualization Data Server is required for Massive Model Visualization (MMV).

  Windows Server 64-bit 2012 R2 or Windows Server 64-bit 2008 R2.

  Siemens PLM Software recommends that you install the Visualization Data Server on a machine with multiple processors.

  The Visualization Data Server is a multithreaded server program and is therefore resource intensive; multiple processors are utilized if they are available. Standard server class machine hardware is sufficient.

  Virtual machine deployment is supported.

  The machine hosting the Visualization Data Server should have a minimum of 16 GB of RAM but may require more. The amount of RAM needed depends on the number of structures to be indexed and their size.

  A rough rule of thumb is to count the number of lines in the unconfigured structure to be indexed and allow at least 2000 bytes per line. For example, if there are 1 million lines in the unconfigured product index, 1 million * 2000 = 2 GB of RAM.

  If you are not sure of the size of the structures, Siemens PLM Software recommends that you allow approximately 4 GB of RAM for each structure you are planning to cache in the Visualization Data Server. For example, if 4 structures are to be indexed, 16 GB of RAM is required.

  There are no graphics card requirements.

  You must deploy the Visualization Data Server on a high-speed LAN near the Visualization Server Manager.
Siemens PLM Software recommends that you deploy the Visualization Data Server near or on a machine hosting an FSC cache or FSC volume. If you deploy the Visualization Data Server on a remote machine (on a WAN) from the FSC volume, you should deploy an FSC cache on a LAN near or on the Visualization Data Server host machine.

- You must deploy an FMS client cache (FCC) component on the machine hosting the Visualization Data server.
  
  For maximum performance, the Visualization Data server should be installed on the same machine as the Visualization Server Manager, and should use the same cache.

- Structure indexing must be set up. The Visualization Data Server uses the structure indexing infrastructure of Active Workspace to keep cached product structure up-to-date.

**Set up the Active Workspace components**

**Configure the Active Workspace Client (Java EE)**

Enter values for the required settings in required parameters view panel of the **Active Workspace Client (Java EE)** component. Click all parameters view to see all of the configuration settings.

1. Enter values for the following as needed.

   **Machine** (used for WAR file generation)
   
   The deployment script for this machine generates the WAR file (**awc.war**). Then copy the WAR file to the web application server specified by **Web App Server Machine** in the **TC_ROOT\out\war** directory. Follow instructions from your web application server software for deploying the WAR file.

   - **Machine Name** (required)
     
     Enter the machine name where the Active Workspace Client (Java EE) WAR file (**awc.war**) is built. This machine is usually different than the one where the WAR file is deployed.

   - **OS** (required)
     
     Enter the operating system installed on the machine that builds the WAR file. A Windows Server operating system is required.

   **General Settings**

   - **Teamcenter Installation Path** (required)
     
     Enter the path where Teamcenter is installed.

   **Volume Connection Settings**

   Connects the Active Workspace Client (Java EE) component to the FSC. By default, **Use as Bootstrap URLs** is selected and the **FSC Connection URL** is set to the host name and FSC port for the Teamcenter corporate server.

   - **Use as Bootstrap URLs**
     
     FSC servers are automatically assigned by the FMS system.
In the FSC Connection URL box, enter a comma-separated list of one or more FMS bootstrap URLs. Bootstrap URLs contain well-known FSCs that can be consulted for the actual FSC assignment. The assignment is delegated to the FMS network, which uses mapping logic and configuration data to determine which FSCs the requestor uses (refer to the clientmap configuration in the FMSMaster configuration file).

Optionally, provide the Bootstrap Client IP value for the assignment.

The client mapping logic uses an IP address to determine the assignment. By default, the IP address from the HTTP connection of the requestor is used unless a Bootstrap Client IP value is provided. The Bootstrap Client IP value should only be used when there are proxies that may hide the actual requestor’s IP address from the FSC servers, or if you want the assignment to be performed based on a particular IP and not that of the requestor. (The client/requestor is the host on which the awc.war file is deployed.)

- **Use Assigned FSC URLs**
  
  Explicitly declare the FSC servers that are used for file operations.
  
  Enter a comma-separated list of one or more FSC URLs.

### Web App Server Machine

- **Machine Name**
  
  Enter the name of the machine where the WAR file is to be deployed into the web application server. This information allows Active Workspace to communicate with the application running on the web application server.

### Visualization Server Pool Assigner Settings

Enter the port on which the Visualization Server Manager listens. The machine name is specified in the Visualization Server Manager component.

### Visualization Server Peer Assigner Settings

Enter host and port values for additional Visualization Server Pool Assigners.

- **Add Server Peer Assigner**
  
  Select this option if you want this Visualization Server Pool Assigner to connect with other Visualization Server Pool Assigners.

- **Host**
  
  Enter the machine name on which a peer Visualization Server Pool Assigner is deployed.

- **Port**
  
  Enter the port on which the peer Visualization Server Pool Assigner listens.

### Teamcenter Server Connection Settings

Enter the Teamcenter four-tier URL following the form:

```
protocol://host:port/tc-web-app-name
```

- **protocol** is http or https.
• *host* is the machine running the web application server for the Teamcenter web application.

• *port* is the port used by the web application server.

• *tc-web-app-name* is the name of the Teamcenter web application. The default is *tc*.

### Configurable Cache Control

The **Maximum Age** field sets the duration for caching resources (HTML, CSS, images) downloaded from the application server.

• **Maximum Age**

  Specifies the duration for caching resources downloaded from the application server. The value is set on the HTTP header. A longer duration improves performance.

• **Units**

  Select the unit for **Maximum Age**.

### Client Locales

Choose additional languages to include in the Active Workspace Client (Java EE) configuration.

• **en_US** (default)

• **zh_CN**

• **zh_TW**

• **de_DE**

• **es_ES**

• **fr_FR**

• **it_IT**

• **ja_JP**

• **ko_KR**

• **ru_RU**

• **pl_PL**

• **cs_CZ**

• **pt_BR**

• **iw_IL**

2. You can **Save Component Settings** at any time and return to complete your specifications. After you enter all required settings, the **CONFIGURED?** column for the component displays 100%. 

---

**deployment_center 1.1**

**Deployment Center Guide 5-7**
Configure the Active Workspace Client (.NET)

Enter values for the required settings in the quick view panel of the Active Workspace Client (.NET) component. Click full view to see all of the configuration settings.

1. Enter values for the following as needed:

   Machine
   • Machine Name (required)
     Enter the machine where the Active Workspace Client (.NET) WAR file (awc.war) is built.
   • OS (required)
     Enter the operating system installed on the machine that builds the WAR file. A Windows Server operating system is required.

General Settings

   Teamcenter Installation Path (required)
   Enter the path to the Active Workspace .NET installation.

Volume Connection Settings

Connects the Active Workspace Client (.NET) component to the FSC. By default, Use as Bootstrap URLs is selected, and the FSC Connection URL is set to the host name and FSC port for the Teamcenter corporate server.

   • Use as Bootstrap URLs
     FSC servers are automatically assigned by the FMS system.

     Bootstrap URLs contain well-known FSCs that can be consulted for the actual FSC assignment. The assignment is delegated to the FMS network, which uses mapping logic and configuration data to determine which FSCs the requestor uses (refer to the clientmap configuration in the FMSMaster configuration file).

     The client mapping logic uses an IP address to determine the assignment. By default, the IP address from the HTTP connection of the requestor is used unless a Bootstrap Client IP value is provided. The Bootstrap Client IP value should only be used when there are proxies that may hide the actual requestor’s IP address from the FSC servers, or if you want the assignment to be performed based on a particular IP and not that of the requestor. (The client/requestor is the host on which the awc.war file is deployed.)

   • Use Assigned FSC URLs
     Explicitly declare the FSC servers that are used for file operations.

     Enter a comma-separated list of one or more FSC URLs.

.NET Settings

Deploy to IIS Web Site?

Choose this to create the client IIS web application and deploy it to the website using values specified in this panel. Otherwise, Teamcenter Environment Manager creates the client IIS web
application but does not deploy it. You can manually deploy the web application ZIP file to an IIS installation.

**IIS Web Site Configuration**

Specify settings for configuring the IIS website deployment.

- **Use existing web site?**
  
  Choose this to deploy the Active Workspace client to an existing IIS web server. The IIS virtual directory for the .NET web tier deployment is created on the selected IIS web server to host the client application.

  **Existing Web Site**

  Choose the existing website.

- **Create new web site?**
  
  Choose this to create a new IIS website to host the Active Workspace client application.

  **New Web Site**

  Enter the name of the website. By default, the value is **Teamcenter AWS IIS Web Site**.

  **Web Site Port**

  Enter the port used by the Active Workspace web application. By default, the value is **8002**.

  **Web Site Root Path**

  Enter the path to the Active Workspace web application. By default, the value is **c:\inetpub\wwwroot**.

**IIS Web Application Pool Configuration**

Enter the settings for the IIS web application pool.

- **Use existing application pool?**
  
  Choose this to use the current application pool.

  **Existing Application Pool**

  Choose the application pool.

- **Create new application pool?**
  
  Choose this to create a new application pool.

  **New Application Pool**

  Enter the name for the application pool. By default, the value is **Teamcenter AWS App Pool**.

**Virtual Directory Name for Active Workspace Client**

Enter the name for the virtual directory for Active Workspace. By default, the value is **awc**.
Virtual Directory Name for Visualization Pool Assigner

Enter the name for the virtual directory for Visualization Pool Assigner. By default, the value is **net_assigner**.

Visualization Server Pool Assigner Settings

Enter values used by the Active Workspace Client (.NET) component to connect to the Visualization Server Manager.

- **Host** (required)
  Enter the name of the machine on which the Visualization Server Manager is deployed.

- **Port** (required)
  Enter the port on which the Visualization Server Manager listens.

Visualization Server Peer Assigner Settings

Enter host and port values for additional Visualization Server Pool Assigners.

- **Add Server Peer Assigner**
  Select this option if you want this Visualization Server Pool Assigner to connect with other Visualization Server Pool Assigners.

- **Host**
  Enter the machine name on which a peer Visualization Server Pool Assigner is deployed.

- **Port**
  Enter the port on which the peer Visualization Server Pool Assigner listens.

Communication to other components

**Teamcenter Web Tier (.NET)**

Specifies the Teamcenter web tier URL.

Client Locales

Choose additional languages to include in the Active Workspace Client (.NET) configuration.

- **en_US** (default)
- **zh_CN**
- **zh_TW**
- **de_DE**
- **es_ES**
- **fr_FR**
- **it_IT**
How to deploy Active Workspace on Teamcenter

- ja_JP
- ko_KR
- ru_RU
- pl_PL
- cs_CZ
- pt_BR
- iw_IL

2. You can Save Component Settings at any time and return to complete your specifications.
   After you enter all required settings, the CONFIGURED? column for the component displays 100%.

Configure the corporate server

Enter values for the required settings in the quick view panel of the Corporate Server component.
Click full view to see all of the configuration settings.

1. Enter values for the following as needed.

   Machine
   - Machine Name (required)
     Displays the machine where the corporate server is installed.
   - OS (required)
     Displays the operating system platform for the machine where the corporate server is running.

   General Settings
   Teamcenter Installation Path
   Displays the path to the location of the corporate server installation. This is usually the path to TC_ROOT.

   User (required)
   Enter the Teamcenter administrative user name.

   Password (required)
   Enter the Teamcenter administrative user password.

   Confirm Password (required)
   Enter the password again to verify it.

   Communication Settings to Other Components
Enter or verify the settings to connect to other components.

**Indexing Engine User**

**User**

Enter the name of the Solr administrative user.

**Indexing Engine URL**

Enter the URL to connect to the Indexing Engine unless it's already defined.

Replace `HOSTNAME` with the server name where the Indexing Engine is installed.

Enter the port used by the Indexing Engine. By default, the value is **8983**.

2. You can **Save Component Settings** at any time and return to complete your specifications. After you enter all required settings, the **CONFIGURED?** column for the component displays 100%.

**Configure the Indexer**

Enter values for the required settings in the quick view panel of the Indexer component. Click **all parameters view** to see all of the configuration settings.

1. Enter values for the following as needed.

**Machine**

- **Machine Name** *(required)*
  
  Enter the name of the machine where you want to install the Indexer. This can be the same machine where the corporate server is installed or any other machine in your network.

- **OS** *(required)*
  
  Enter the operating system platform running on the Indexer machine.

**General Settings**

- **Teamcenter Installation Path** *(required)*
  
  Enter the path to the Indexer installation. The installation path may be provided by another component that was already configured.

**Indexer Settings**

- **Indexing Environment**
  
  Choose the mode for the method of running the Indexer.

  - **Standalone**
    
    Run indexing operations on one machine using a single Java process that connects to the Teamcenter server manager and the Solr search engine.
This mode supports both object data and structure data, and it is the only mode that supports object data. A custom type associated with TcFtsIndexer must support standalone mode.

- **Dispatcher based**
  
  Initiate indexing operations using the Dispatcher that runs across multiple machines.
  
  This mode supports structure data indexing. If you run the TcTFSIndexer in Dispatcher mode against object data, the indexer reverts to using standalone mode. A custom type associated with TcFtsIndexer must support Dispatcher mode.

- **Maximum Teamcenter Connections**
  
  Enter the maximum number of connection between the Teamcenter server and the Indexer. Set the number to a value less than the number of warm TcServers available in the Teamcenter server manager pool. The default value is 3, and the minimum is 1. For example, if you have 100 warm tcservers in the Teamcenter server manager pool, you may want to set the value to 50.

  **Note**
  
  After installing the Indexer, you must optimize instances of TcFTSIndexer and increase the maximum Teamcenter connections value as necessary. See [Configuration and Extensibility → Configuring Active Workspace features → Search configuration → Search deployment best practices → Optimize usage of TcFTSIndexer machines](#) in the Active Workspace help collection.

- **Teamcenter Retry count** (required)
  
  Enter the number of attempts to connect to the Teamcenter server. The minimum value is 1.

- **Staging Directory** (required)
  
  Enter the staging directory.

- **Active Workspace Object Data Indexer Settings**
  
  **Start Time**
  
  Enter the beginning date and time for extracting indexing data from objects; data older than this date is not indexed.

  **End Time**
  
  Enter the optional end date and time for extracting indexing data from objects; data newer than this date is not indexed.

  **Maximum Query Timespan (in Minutes)**
  
  Enter the maximum span of a query in minutes. The maximum value is 50000, the minimum value is 5000, and the default value is 20000.

  **Export Batch Size (objects per thread)**
Enter the maximum number of objects handled in one thread. The maximum value is 20000, the minimum value is 1, and the default value is 1000.

Communication Settings to Other Components
Enter or verify the settings to connect to other components.
- Teamcenter Administrative User
- The Indexing Engine User

Web Application Server
Teamcenter 4-tier URL (required)
Enter the URL for the deployed Teamcenter web application.
The format is:

http://host:port/web-app-name

host is the server hosting the Teamcenter web application.
port is the port used by the web application server.
web-app-name is the name of the Teamcenter web application, typically tc.

2. You can Save Component Settings at any time and return to complete your specifications.
   After you enter all required settings, the CONFIGURED? column for the component displays 100%.

Configure the Indexing Engine
Enter values for the required settings in the quick view panel of the Indexing Engine component. Click full view to see all of the configuration settings.

1. Enter values for the following as needed.
   Machine
   - Machine Name (required)
     Enter the name of the machine where you want to install the Indexing Engine. This can be the same machine where the corporate server is installed or any other machine in your network.
   - OS (required)
     Enter the operating system platform running on the Indexing Engine machine.

General Settings
   Teamcenter Installation Path (required)
   Enter the path to the Indexing Engine installation. The installation path may be provided by another component that was already configured.

Indexing Engine Settings
Solr is installed as part of the Indexing Engine component.

- **Install Indexing Engine as a Service?**
  If you do not choose to install as a Windows service, you must start the Indexing Engine manually.

  **Note**
  This option is available for Active Workspace 3.2.1 and later.

- **Indexing Engine URL**
  Define the URL to connect to Solr.
  Replace **HOSTNAME** with the server name where Solr is installed.
  Enter the port used by Solr. By default, the value is **8983**.

- **Indexing Engine User** (required)
  Enter the user name and password of the Solr administrator. The user name requires the domain, **domain\username**.

2. You can **Save Component Settings** at any time and return to complete your specifications.
   After you enter all required settings, the **CONFIGURED?** column for the component displays **100%**.

**Configure the Visualization Data Server**

Enter values for the required settings in the quick view panel of the Visualization Data Server component. Click **full view** to see all of the configuration settings.

1. Enter values for the following as needed.

   **Machine**
   - **Machine Name** (required)
     Enter the name of the machine where you want to install Visualization Data Server. This can be the same machine where the corporate server is installed or any other machine in your network.
   - **OS** (required)
     Enter the operating system platform running on the Visualization Data Server machine.

   **General Settings**
   - **Teamcenter Installation Path**
     Enter the path to the Visualization Data Server installation.

   **Visualization Data Server**
   - **Server Port**
Enter the port number on which the Visualization Data Server listens.

**Communication Settings to Other Components**

**Corporate Server**

**Teamcenter Administrative User**

**User**

Enter or verify the name of the Teamcenter administrative user.

**Password**

Enter the password of the Teamcenter administrative user if needed.

**Confirm Password**

Enter it again to verify it.

**Visualization Data Server Connection to Teamcenter**

**Teamcenter 4-tier URL (required)**

Define the URL of the deployed Teamcenter web application.

The format is:

```
http://host:port/web-app-name
```

- **host** is the server hosting the Teamcenter web application.
- **port** is the port used by the web application server.
- **web-app-name** is the name of the Teamcenter web application, typically tc.

2. You can **Save Component Settings** at any time and return to complete your specifications.

After you enter all required settings, the **CONFIGURED?** column for the component displays 100%.

**Configure the Visualization Server Manager**

Enter values for the required settings in the quick view panel of the Visualization Server Manager component. Click full view to see all of the configuration settings.

1. Enter values for the following as needed.

**Machine**

- **Machine Name** (required)

  Enter the name of the machine where you want to install Visualization Server Manager. This can be the same machine where the corporate server is installed or any other machine in your network.

- **OS** (required)

  Enter the operating system platform running on the Visualization Server Manager machine.
General Settings

• Teamcenter Installation Path
  Enter the path to the Visualization Server Manager installation.

Visualization Server Manager Settings

• Local Host Alias
  Enter the alias for the local Visualization Server Manager.

• Server Port
  Enter the port for the Visualization Server Manager.

• Maximum Servers in Sub-Pool
  Enter the maximum number of Visualization server processes allowed to run in this pool (for a single-host configuration) or in this subpool (for a multiple host configuration).

• Minimum Warm Servers
  Specifies the minimum number of Visualization server processes to start in this pool but are not assigned.

Override Local Node

• Override Local Node Settings
  Choose whether to override the local host name and port value.

• Host
  If you select Override Local Node Settings, enter the host name.

• Port
  If you select Override Local Node Settings, enter the port.

Visualization Server Pool Assigners

• Machine Name
  Enter the name of the pool assigner, which is the same machine for the Active Workspace web application.

• Port
  Enter the port number for the pool assigner.

2. You can Save Component Settings at any time and return to complete your specifications.
   After you enter all required settings, the CONFIGURED? column for the component displays 100%.
Configure the Teamcenter Web Tier (Java EE)

Enter values for the required settings in the quick view panel of the Teamcenter Web Tier (Java EE) component. Click full view to see all of the configuration settings.

1. Enter values for the following as needed:

   **Machine**
   - **Machine Name** (required)
     Enter the machine where the Teamcenter Web Tier (Java EE) is installed.
   - **OS** (required)
     Enter the operating system installed on the machine where the Teamcenter Web Tier (Java EE) is installed.

**4-Tier Settings**

   **Teamcenter 4-Tier URL** (required)
   Enter the Teamcenter four-tier URL following the form:
   
   ```
   protocol://host:port/tc-web-app-name
   ```
   - **protocol** is **http** or **https**.
   - **host** is the machine running the web application server for the Teamcenter web application.
   - **port** is the port used by the web application server.
   - **tc-web-app-name** is the name of the Teamcenter web application. The default is **tc**.

2. You can **Save Component Settings** at any time and return to complete your specifications. After you enter all required settings, the **CONFIGURED?** column for the component displays **100%**.

Configure the Teamcenter Web Tier (.NET)

Enter values for the required settings in the quick view panel of the Teamcenter Web Tier (.NET) component. Click full view to see all of the configuration settings.

1. Enter values for the following as needed:

   **Machine**
   - **Machine Name** (required)
     Enter the machine where the Teamcenter Web Tier (.NET) is installed.
   - **OS** (required)
     Enter the operating system installed on the machine where the Teamcenter Web Tier (.NET) is installed.
General Settings

Teamcenter Installation Path
Enter the path to the Teamcenter Web Tier (.NET) installation.

4-Tier Settings

Teamcenter 4-Tier URL (required)
Enter the Teamcenter four-tier URL following the form:

```
protocol://host:port/tc-web-app-name
```

- `protocol` is **http** or **https**.
- `host` is the machine running the web application server for the Teamcenter web application.
- `port` is the port used by the web application server.
- `tc-web-app-name` is the name of the Teamcenter web application. The default is **tc**.

2. You can **Save Component Settings** at any time and return to complete your specifications. After you enter all required settings, the **CONFIGURED?** column for the component displays **100%**.

Configure Teamcenter Security Services

Enter values for the required settings in the quick view panel of the Teamcenter Security Services component. Click **full view** to see all of the configuration settings.

1. Enter values for the following as needed:

   **Machine**

   Machine Name (required)
Enter the machine where Teamcenter Security Services is installed.

   OS (required)
Enter the operating system installed on the machine where Teamcenter Security Services is installed.

   **Security Settings**

   Enable TcSS?
Select this to enable TcSS.

   TcSS Application ID
Enter the Security Services application ID.

   TcSS Login URL
Enter the log on URL for the Security Services application.

2. You can **Save Component Settings** at any time and return to complete your specifications.

   After you enter all required settings, the **CONFIGURED?** column for the component displays 100%.

**Configure Teamcenter client communication system**

Enter values for the required settings in the required parameters view panel of the Teamcenter client communication system component. Click the all parameters view to see all of the configuration settings.

1. Enter values for the following as needed:

   **Machine**
   - **Machine Name** (required)
     Enter the machine where Teamcenter client communication system is installed.
   - **OS** (required)
     Enter the operating system installed on the machine where Teamcenter client communication system is installed.

   **General Settings**
   - **Teamcenter Installation Path**
     Enter the path to the Teamcenter client communication system installation.

   **File Client Cache**
   - **Install FCC?**
     Select this option if you want to install a new FCC.
   - **Use existing FCC?**
     Select this option if you want to use your existing FCC.

   **FSC Assignment Mode**
   - **Merge values from existing FMS_HOME?**
   - **Use Configuration and Environments?**
   - **FSC Assignment Mode**
     Select the method to assign FSCs.
     
     **clientmap**
     Routes FCC data requests to the assigned **fsc** elements specified within the **clientmap** section of the **fmsmaster_fscid.xml** configuration file.
**parentfsc**  Routes FCC data requests to the list of `parentfsc` elements specified in the `fcc.xml` configuration file. Use this setting when the default client mapping is not sufficient.

**FCC Parents**
This table specifies which FSCs to use, based on priority, for downloading the FMS configuration information.

2. You can **Save Component Settings** at any time and return to complete your specifications.
   After you enter all required settings, the **CONFIGURED?** column for the component displays **100%**.

### Ready to deploy

When all components are **100% Complete**, you can click **Done with Components** to advance to the Deploy task. Components display **100% Complete** when all required settings are defined. Optional settings may still be undefined. You can return to Software, Applications or Components to add, update, or remove selections and change settings before proceeding to the Deploy task.

### Postdeployment information

### Postdeployment procedures

After running the deploy scripts to install the Active Workspace components, perform some postdeployment tasks to help make your environment operational:

- **Corporate server:**
  - Install database triggers.

- **Client**
  - Deploy the Active Workspace Client (Java EE).

- **Indexing Engine**
  1. Merge the Teamcenter and Solr schemas.
  2. Start Solr.

**Note**
Solr must be running so that you can index data and so the users can search for data.

- **Indexer**
  1. Test Indexer connectivity.
  2. Initial object data index.
• Visualization Data Server
  Start the Visualization Data Server.

• Visualization Server Manager
  Start the Visualization Server Manager.

Database triggers

Install database triggers

The TcFTSIndexer requires database triggers to detect additions, modifications, and deletions to the database when performing run-time (synchronous) indexing. You must manually add these to the database (Oracle or Microsoft SQL) to the corporate server after running the install script.

Choose the database platform you installed:

• Install database triggers in Oracle

• Install database triggers in Microsoft SQL

Install database triggers in Oracle

1. Grant create trigger privilege to the Oracle user that owns the Teamcenter database (typically infodba) by:
   a. Open a command prompt.
   b. Type:
      ```
      sqlplus system/password
      ```
   c. Type:
      ```
      grant Create trigger to infodba identified by password;
      ```
   d. Type:
      ```
      exit
      ```
2. Create the trigger:
   a. In the command prompt, type:
      ```
      sqlplus infodba/password
      ```
   b. Type:
      ```
      @Teamcenter-installation-media\tc\install\sitecons\wntx64\tc\install\sitecons\sitecons_install_tables_and_triggers.sql
      ```

Install database triggers in Microsoft SQL

1. Choose Start→All Programs→Microsoft SQL Server 2012→SQL Server Management Studio.
2. Complete the **Connect to Server** dialog box and then click **Connect**.

   ![Connect to Server dialog box](image)

   - Set **Server name** to the host on which Microsoft SQL Server is installed.
   - Set **Authentication** to **SQL Server Authentication**.
   - In the **Login** box, enter **infodba**.
   - In the **Password** box, type the user's password.

3. In the **Object Explorer** panel of the **Microsoft SQL Server Management Studio** dialog box, expand **Databases** and select **database-name**.

   ![Object Explorer panel](image)

4. From the menu bar, choose **File→Open→File**.
5. In the **Open File** dialog box, navigate to `Teamcenter-installation-media\tc\install\sitecons` and select `sitecons_install_tables_and_triggers_mssql.sql`.

The selected file is opened in the **Microsoft SQL Server Management Studio** dialog box.

6. Click **Execute**.
7. Verify that there are no errors.

8. Close the Microsoft SQL Server Management Studio dialog box.

**Deploy the Active Workspace Client (Java EE)**

Deploy the Active Workspace Client (Java EE) WAR file on a supported Java EE web application server such as JBoss or WebSphere. Deployment on Microsoft Internet Information Services (IIS) is not supported for the Active Workspace Client (Java EE) WAR file. For supported versions of third-party software, refer to the hardware and software certifications page on GTAC.

The process of deploying the Active Workspace Client (Java EE) WAR file varies by web application server vendor. Generally, the Active Workspace Client (Java EE) WAR file is copied directly to an auto deploy directory or is copied and deployed manually into a web application server using either a web-based console or command line utilities.

The Active Workspace Client (Java EE) WAR file (awc.war) is created in the client-war-installation\aws2\stage\out directory on the machine used to build it.

**JBoss configuration**

If you are using a JBoss server, you must edit its configuration file to allow Active Workspace to be referenced outside of local host environments.

1. Open standalone.xml (the name of your deployment’s configuration file) in an editor.

2. Search for the following line:
   
   `<inet-address value="${jboss.bind.address:127.0.0.1}"/>

   This line is located in the `<interface name="public">` section of the file.
3. Replace the existing line with the following:

   <any-address/>

4. Save and close the configuration file.

**WebSphere configuration**

- If you are using a WebSphere server, you must modify the web container to work around a known issue with WebSphere’s handling of internal HTTP routing (resulting in an SRVE0190E error). Refer to the following WebSphere documentation for details on this modification:


- Following is an example of the additional custom properties for WebSphere:

  ```
  com.ibm.ws.webcontainer.mapFiltersToAsterisk=true
  com.ibm.ws.webcontainer.removeTrailingServletPathSlash=true
  com.ibm.ws.webcontainer.invokeFiltersCompatibility=true
  com.ibm.ws.webcontainer.invokeFiltersCompatibility=true
  ```

- If during deployment the administration console either freezes or returns an error that says it is unable to deploy the WAR file, try changing the Java heap size settings. For example, set the initial heap size to 4096 MB and the maximum heap size to 6144 MB. Refer to the following WebSphere documentation for instructions on setting the Java heap size:


**Merge the Teamcenter and Solr schemas**

Before you can index data, the Solr schema must be merged with the Teamcenter schema. This is done by the deployment script unless the corporate server and the Indexing Engine are installed on separate machines. Perform the merger after running the installation script on both the corporate server host and on the Indexing Engine host.

1. If you installed Solr as a Windows service, it is running and must be stopped before you can merge the Teamcenter and Solr schemas. To do this, open the Services dialog box in the Windows Control Panel, and stop the Active Workspace Indexing Service.

2. Locate the TC_SOLR.SCHEMA.xml and TC_ACE_SOLR.SCHEMA.xml files in the TC_DATA\fts directory on the corporate Server. To manually merge the schemas, these files must be available on the machine on which Solr is installed.

   Solr is installed on the same machine as the Indexing Engine component. If you installed this component on a machine other than the corporate Server, you must copy these files to a temporary location on the Indexing Engine host.

3. On the Indexing Engine host, open a command prompt and navigate to the SOLR_HOME directory.

   The SOLR_HOME directory is located under the location you provided for the Teamcenter Installation Path setting under General Settings when configuring the Indexing Engine.
default value for this settings is C:\Program Files\Siemens\Teamcenter\version where version is the major version of Teamcenter that is installed.

The SOLR_HOME directory is named solr-version.

4. Run:

   TcSchemaToSolrSchemaTransform.bat LOCAL-DIR

   LOCAL-DIR is the local directory on the Indexing Engine host containing the 
   TC_SOLR_SCHEMA.xml and TC_ACE_SOLR_SCHEMA.xml files.

   This updates the Solr schemas using the XML files.

**Start Solr**

After merging the Teamcenter and Solr schemas, you must restart Solr. Solr must be running so that you can index data and the users can search for data.

1. Start Solr according to how you configured the Indexing Engine.
   
   • If you configured Solr to run as a Windows service by selecting Install Indexing Engine as a Service? under Indexing Engine Settings when configuring the Indexing Engine, you start it from the Services dialog box in the Windows Control Panel. The service name is Active Workspace Indexing Service.
   
   • If you did not configure Solr to run as a Windows service, you must start Solr manually by running:

     INDEXING-ENGINE-ROOT\runSolr.bat

2. Verify Solr is running:
   
   a. Open a web browser and check that you can access the Solr administration page. This URL is the value you provided for the Indexing Engine URL setting under Indexing Engine Settings when configuring the Indexing Engine. The format of this URL is:

      http://host:port/solr/admin

      host is the machine on which the Indexing Engine is installed.

      port is the port value used by Solr. The default is 8983.

   b. Sign in with the Solr administrator user name and password that you defined when configuring the Indexing Engine. These are the user name and password you provided for Indexing Engine User under Indexing Engine Settings when configuring the Indexing Engine.

**Test Indexer connectivity**

Before you run an initial index of object data, Siemens PLM Software recommends that you test the Indexer's ability to connect to the system by running the runFTSIndexer utility in test mode. Before you can do this, the following manual tasks must be completed:

• The Active Workspace Client (Java EE) must be deployed on a web server.

• The Teamcenter and Solr schemas are merged.
1. Ensure that the Teamcenter user running the runFTSIndexer can sign in to the database. The default user that runs the utility is infodba, as defined in the Tc.user setting in the indexer-root/TcFTSIndexer/conf/TcFtsIndexer.properties file.

2. Ensure that the following are running:
   - Teamcenter database
   - Solr
   - Web application server hosting the Teamcenter web tier application
   - Web application server hosting the Active Workspace web application
   - Teamcenter server manager

3. On the machine on which the Indexer is installed, open a command prompt.

4. Navigate to the bin directory of the TcFTSIndexer, for example, indexer-root\TcFTSIndexer\bin.

5. To test the TcFTSIndexer’s connectivity, run the command:
   
   runTcFTSIndexer -task=TYPE:test

   For TYPE, substitute:

   - objdata
     
     Object data does not support Dispatcher-based indexing. Object data requires that Active Workspace Object Indexer is selected for the Indexer. This is done in the Active Workspace Indexer Type Selection TEM panel when installing the Indexer component.

   - structure
     
     Structure data requires that Active Content Structure was selected in the Applications task in Deployment Center.

**Initial object data index**

1. Siemens PLM Software recommend that before running your initial index, you optimize your TcFTSIndexer machines. See Configuration and Extensibility→Configuring Active Workspace features→Search configuration→Search deployment best practices→Optimize usage of TcFTSIndexer machines in the Active Workspace help collection.

2. If there were no errors resulting from the TcFTSIndexer connectivity test, you are ready to run the initial index. Ensure that the following are running:
   - Teamcenter database
   - Solr
   - Web application server hosting the Teamcenter web tier application
   - Web application server hosting the Active Workspace client
• Teamcenter server manager

3. On the machine on which the Indexer is installed, open a command prompt.

4. Navigate to the bin directory of the TcFTSIndexer, for example, \indexer-root\TcFTSIndexer\bin.

5. For object data indexing, type the following command:

   runTcFTSIndexer -task=objdata:index

   The initial index may take some time to run if there is existing data in the database.

6. Verify that there are no errors.

**Start the Visualization Data Server**

Run the Visualization Data Server Manager:

   visualization-data-server-root\VisDataServer\Program\VisDataServer.exe

*visualization-data-server-root* is the location you provided for the Teamcenter Installation Path setting under General Settings when configuring the Visualization Data Server. The default is \Program Files\Siemens\Teamcenter\version\VisDataServer.exe, where *version* is the Teamcenter major version that is installed.

**Start the Visualization Server Manager**

Run the Visualization Server Manager:

   visualization-server-manager-root\vispoolmanager\run_visservermgr.cmd

*visualization-server-manager-root* is the location you provided for the Teamcenter Installation Path setting under General Settings when configuring the Visualization Server Manager. The default location is \Program Files\Siemens\Teamcenter\version, where *version* is the Teamcenter major release that is installed.

When running run_visservermgr.cmd, you can use Windows Remote Desktop Connection or another remote access product (such as VNC) to sign in to the Visualization Server Manager. You need an NVIDIA card with a driver version of 340.66 or later.

After running run_visservermgr.cmd, you can lock the machine, but you must remain logged on. If you sign out, the Visualization Server Manager is shut down. The Visualization Server Manager requires access to the graphics card and consequently cannot run as a Windows service due to operating system limitations.

**Environment verification**

**Start servers and applications**

The following must be running in order to use Active Workspace:

• Teamcenter database
• Teamcenter server manager
• Web server that is running the Teamcenter web tier application
• Web server where the Active Workspace Client application is deployed
• Solr
• Visualization Data Server
  (If you installed this component, it must be running.)
• Visualization Server Manager

**Steps to verify the installation worked**

Verify that the installation of the Active Workspace components was successful:

1. Verify that you can sign in:
   a. Sign in to a client machine in your environment.
   b. Open a supported web browser.
      For supported versions of third-party software, refer to the hardware and software certifications page on GTAC.
   c. Enter the Active Workspace Client URL:
      
      \[http://host:port/web-app-name\]
      
      *host* is the machine running the web application server on which the Active Workspace client web application is deployed.
      
      *port* is the port used by the web application server.
      
      *web-app-name* is either the Java EE Client WAR file name (such as awc) or the .NET Client virtual directory name (such as awc).
   d. Type a user name and password and click **Sign in**. Verify that you can sign in without errors.

2. Verify that you can perform a search:
   a. Type a search string in the **Search** box.
      If this is a new installation and there is no customer data in the system yet, you can use the search string **infodba** to see search results related to the **infodba** user.
   b. Click the **Search** button.
      If you see results related to your search string and you do not receive any errors, search is working properly.

3. Verify that Visualization is working:
   a. If your environment contains visualization data, such as a JT file, search for that data.
   b. Click the **Viewer** tab to display the JT file.
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Chapter 6: How to deploy the Business Modeler IDE templates on Teamcenter

Deploy Business Modeler IDE templates

Users can generate a Business Modeler IDE template package in Teamcenter 11.3 that can be deployed to Teamcenter environments using either Deployment Center or Teamcenter Environment Manager (TEM). This consolidated output directory contains templates, libraries, and deployment configuration files.

To deploy a Business Modeler IDE template, obtain the directory of the template package output generated by the Business Modeler IDE. Place the Business Modeler IDE output directory in the software subdirectory of the Deployment Center repository.

To ensure you have a supported template package, check:

- **Directory naming convention**
  
  `template-internal-name_OS_template-version_build-version_YYYY_MM_DD_HH-MM-SS`
  
  The optional template version is assigned by the Business Modeler IDE user to track the versions of a template package. A template version can include an optional build number. If the Business Modeler IDE user assigns a build number, the template is in development. The build version tracks iterative testing before the template is ready for production. Template versions and build versions are expressed as integers separated by periods, up to four places.

- **artifacts** subdirectory
  
  Contains the template software ZIP files for deployment.

- **dc_contributions** subdirectory
  
  Contains the template bundle information (called packages) for deployment by Deployment Center. If you use TEM, this directory is ignored.

- **tem_contributions** subdirectory
  
  Contains the template bundle information for deployment by TEM. If you use Deployment Center, this directory is ignored.

- **media_teamcenter_template-package-name.xml** file
  
  Provides the application names to both TEM and Deployment Center for deployment.

The Deployment Center repository displays **Dependencies** as specified within packages using package IDs.
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Appendix A: Active Workspace components

Active Workspace Client (Java EE)

The Active Workspace Client component provides an intuitive user experience accessed from a web browser. No additional software plugins are required on the end-user machine. The Active Workspace Client provides full-text searching and filtering of results, visualization of 3D data, high-end performance, an uncluttered, graphically appealing user interface, and access to a breadth of PLM capabilities.

Environment communication may be set up between servers.

When a user performs an action in the interface that sends a request to the database:

1. The request goes to the Active Workspace Client component.

2. The Active Workspace Client component contacts the Teamcenter Web Tier component. This communication is configured using the Teamcenter 4-tier URL parameter that points to the Teamcenter Web Tier component.
3. The Teamcenter Web Tier component contacts the Teamcenter Server Manager component which manages a pool of Teamcenter business logic servers. It assigns a business logic server to the user for all transactions in the system for this user session.

4. The assigned business logic server communicates with the database.

The Active Workspace Client enables users to upload and download files from a Teamcenter volume. The volume that is used by the client is specified using the **File Server Cache (FSC)** connection parameters when configuring the Active Workspace Client.

The Active Workspace Client can optionally be configured to view 3D data by installing the Visualization application. This application adds the Visualization Server Manager component and, optionally, the Visualization Data Server to your environment. The Visualization Server Manager that is used by the Active Workspace Client is specified using the Visualization connection parameters when configuring the Active Workspace Client.

**Deployment options**

The Active Workspace Client component is required if you plan to use any of the capabilities of Active Workspace. At a minimum, you must have at least one Active Workspace Client component deployed on a web application server in your environment. You can use Deployment Center to configure multiple Active Workspace Client components for deployment to provide fast response time for users in each of your geographical regions.

The Active Workspace Client component supports both Java EE and .Net web application servers, should the correct component for your environment.

**Configuration**

If you deploy multiple Active Workspace Client components, you have the option to deploy a Teamcenter web tier application, Teamcenter server manager, Volume Server, and Visualization Server Manager for each deployed Active Workspace Client component in your environment. In this case:

- Configure the **Teamcenter 4-tier URL** connection parameter on the Active Workspace Client component to point to the nearest Teamcenter web tier application so that data is retrieved from the closest Teamcenter web tier application.

- Configure the FSC connection parameters on the Active Workspace Client component to point to the nearest Volume Server so files are transferred to and from the closest volume.

- Configure the Visualization connection parameters on the Active Workspace Client component to point to the nearest Visualization Server Manager so that 3D data will be rendered by the closest Visualization Server Manager.

Additionally, the behavior of the Active Workspace Client can be configured to control search, style sheets, indexes, structure indexes, and workflow. For more details on configuring the Active Workspace Client component, see the Active Workspace help collection.

**Corporate server**

**Overview**
The corporate server performs the business logic and data processing for the Teamcenter environment. The business logic server handles client requests and processes those requests by applying business logic, accessing the database, and accessing files in volumes. The business logic server exposes business logic to the clients through SOA, ITK, and utilities.

Whereas a standard Teamcenter server contains only the base Teamcenter libraries and the libraries of the optional applications, a corporate server is a special type of server that contains the same libraries as a the business logic server, and also contains a shared data directory that is used to process data model changes to the database via each application’s Business Modeler IDE templates. Therefore, a corporate server is typically used to process installations of applications, applying service packs and patching, and upgrades as each of these processes can change the database.

**Deployment options**

For any Teamcenter environment to function, it must have at least one corporate server. Multiple corporate servers can be installed to support clients running on multiple operating system platforms.

**Configuration**

The base behavior of the business logic server and database can be extended by adding optional applications that provide specific behavior tailored for industry best practices or specific business purposes. These optional applications typically extend the base behavior of the system using codeless configuration points or codeful extension points that are packaged in the form of Business Modeler IDE templates, libraries, and administrative configuration files.

For more information, see *Configuring Teamcenter, Administering Teamcenter, and Customizing Teamcenter* in the Teamcenter help collection.

**Indexer**

Indexing provides a high-performance, single-field search capability for the Active Workspace Client. The advantage of an index-based search is that users can type search strings into a single global search field to find data in the Teamcenter database.

The Indexer component plays an integral part in the Active Workspace index-based search; it orchestrates the tasks involved in indexing data. It manages the tasks of extracting data from the Teamcenter database, transforming the data, and then loading the data into the Indexing Engine so that it can be stored in the index.

Environment communication may be set up between servers.
The following tasks are performed when data is indexed:

1. The Indexer extracts data from the Teamcenter database using this communication chain:
   a. The Indexer contacts the Teamcenter Web Tier component. This communication is configured by setting the **Teamcenter 4-tier URL** parameter on the Indexer component to point to the Teamcenter Web Tier component.

   b. The Teamcenter Web Tier component contacts the Teamcenter Server Manager component which manages a pool of Business Logic Servers. It assigns a Business Logic Server to the Indexer component.

   c. The assigned Business Logic Server contacts the Teamcenter database.

2. The Indexer transforms the extracted data.

3. The Indexer loads the transformed data into the Indexing Engine. This communication is configured by setting the **Indexing Engine URL** parameter on the Indexing component to point to the Indexing Engine.
Deployment options

If Active Workspace is installed in your Teamcenter environment, an Indexer component must be included. Without an Indexer, data cannot be indexed and users cannot search for data from the Active Workspace Client interface. A single Teamcenter environment can support only one Indexer component and the Indexer component must be paired with a single Indexing Engine component.

Configuration

The Indexer is involved in two distinct indexing processes that take place at two different times:

- The Indexer is used to index all existing object data using the `runTcFTSIndexer -task=objcdata:reindex` utility. If the existing data is not indexed, users cannot search for it. Deployment Center offers configuration parameters that affect how the initial index is performed such as Start Time, End Time, and Maximum Query Timespan.

- The Indexer is used to automatically keep the index data stored in the Indexing Engine synchronized with the Teamcenter database as data is created, modified, and deleted by users after the initial index is run. In order to perform this synchronization, you set up the Indexer to run on a schedule using `runTcFTSIndexer -task=objcdata:sync -interval=seconds`. The -interval argument sets how often the Indexer checks the Teamcenter database.

Deployment Center offers other configuration parameters that affect how the initial and scheduled indexes are performed such as Export Batch Size, Maximum Teamcenter Connections, and Teamcenter Retry Count.

For more details on configuring the Indexer component, see the Active Workspace help collection.

Indexing Engine

Overview

Indexing provides a high-performance, single-field search capability for the Active Workspace Client. The advantage of an index-based search is that users can type search strings into a single global search field to find data in the Teamcenter database.

The Indexing Engine component performs these operations:

- It stores indexed data that was extracted from the Teamcenter database and transformed by the Indexer.

- It finds matches in its stored index for search strings entered by users in the Active Workspace Client’s global search field.

Communication

Each operation has its own communication chain. The operations manage the storage of indexed data that was extracted from the Teamcenter database and transformed by the Indexer.
The following tasks are performed when data is indexed:

1. The Indexer extracts data from the Teamcenter database using this communication chain:
   a. The Indexer contacts the Teamcenter Web Tier component. This communication is configured by setting the **Teamcenter 4-tier URL** parameter on the Indexing component to point to the Teamcenter Web Tier component.
   b. The Teamcenter Web Tier component contacts the Teamcenter Server Manager component which manages a pool of Business Logic Servers. It assigns a Business Logic Server to the Indexer component.
   c. The assigned Business Logic Server contacts the Teamcenter database.

2. The Indexer transforms the extracted data.

3. The Indexer loads the transformed data into the Indexing Engine. This communication is configured by setting the **Indexing Engine URL** parameter on the Indexing component to point to the Indexing Engine.
Deployment

The Indexing Engine component is required; without it, data cannot be indexed and users cannot search for data using Active Workspace Client interface. A Teamcenter environment can support only one Indexing Engine component, which must be paired with a single Indexer. The Indexing Engine is CPU intensive. As a best practice, install this component on its own machine so that your users experience the highest performance when searching.

Configuration

The Business Modeler IDE controls which business objects and properties are indexed and configures the filtering and faceting displayed in the Active Workspace search results.

For more information on configuring the Indexing Engine component, see the Active Workspace help collection.

User searching

When a user searches for data, the following tasks are performed:

1. A user enters search criteria in the search box. The search criteria is sent to the Active Workspace Client component.

2. The Active Workspace Client component sends the search criteria to the Teamcenter Web Tier component. This communication is configured by setting the Teamcenter 4-tier URL parameter on the Active Workspace Client component to point to the Teamcenter Web Tier component.
3. The Teamcenter Web Tier component sends the search criteria to the Teamcenter Server Manager component. The Teamcenter Server Manager assigns a Business Logic Server to the user session if one is not already assigned.

4. The Business Logic Server sends the search criteria to the Indexing Engine. The Indexing Engine attempts to find a match for the search criteria in the indexed data that it has stored. This communication is configured using the **Indexing Engine URL** parameter on the Corporate Server component.

**Pool Server Manager**

The Pool Server Manager component manages a pool of Teamcenter Business Logic Servers in a four-tier architecture deployment. The Pool Server Manager starts and times out a configurable number of business logic servers to communicate with a Teamcenter database. A server process within the Pool Server Manager assigns available business logic servers to users when they log on to clients. The Pool Server Manager communicates with the Teamcenter web tier application using either TCP or multicast protocol.

If your environment requires four-tier architecture, Install the Pool Server Manager. The Pool Server Manager is not used in a two-tier environment. A small deployment may have only one Pool Server Manager managing a pool of server processes. For larger deployments, additional Pool Server Managers can be installed on other machines to distribute pools of Business Logic Servers across multiple hosts.

**Visualization Server Manager**

The Active Workspace Client provides the ability for users to visualize 3D data in a web browser without needing to install additional software on the client machine to support rendering. Rendering is performed by the Visualization Server Manager component. This component manages a pool of rendering processes that stream visualization data to the Active Workspace Client.

The Visualization Server Manager is configured to register itself with an Active Workspace Client’s Visualization Server Pool Assigner. When the Active Workspace Client is running, it communicates to a Visualization Server Manager after it is registered.
The Active Workspace Client can be optionally configured to communicate with a specific Visualization Server Manager. This communication is configured on the Active Workspace Client component using the Visualization connection parameters. If you are using multiple web application servers to support a global deployment, configure multiple Active Workspace Client components where each component points to the closest Visualization Server Manager. This ensures that when a user interacts with 3D data, the data will be rendered by the closest Visualization Server Manager.

The Visualization Server Manager can also be configured to work in conjunction with an optional Visualization Data Server. This communication is configured on the Visualization Server Manager component using the Visualization Data Server communication parameters.

The Visualization Server Manager component is optional. Install the Visualization Server Manager if you need the Active Workspace Clients to support visualization of 3D data. If a Visualization Server Manager component is installed, you can optionally install the Visualization Data Server. This component boosts performance of streaming 3D visualization data and is needed if you users plan to utilize Massive Model Visualization. If both a Visualization Server Manager and a Visualization Data Server are installed, as a best practice, they should both be installed on the same machine to maximize performance.

The Visualization Server Manager supports performance configuration settings. For more details on configuring the Visualization Server Manager component, see the Active Workspace help collection.

**Visualization Data Server**

**Overview**

The Active Workspace Client provides the ability to visualize 3D data on a web browser without needing to install additional software on the client machine to support rendering. The Visualization Data Server component provides better rendering performance of 3D data and for providing Massive Model Visualization.
The Visualization Data Server communicates with the Business Logic Server to retrieve 3D data files. This communication is configured on the Visualization Data Server component using the Teamcenter 4-tier URL connection parameters.

The Visualization Data Server caches and indexes rendering data to provide faster performance during rendering of 3D data. When a request for rendering 3D data is sent from the client to the Visualization Server Manager, the Visualization Server Manager communicates with the Visualization Data Server to retrieved cached and indexed data. This communication is configured on the Visualization Server Manager component using the Visualization Data Server connection parameters.

Install the Visualization Data Server if you need to support faster rendering of 3D data or Massive Model Visualization. If a Visualization Data Server is installed, a Visualization Server Manager must also be installed. If both a Visualization Server Manager and a Visualization Data Server are installed, they should both be installed on the same machine.

The Visualization Data Server supports configuration settings. For more details on configuring the Visualization Data Server component, see the Active Workspace help collection.
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