Deployment Center
Contents

Introduction to Deployment Center .......................................................... 1-1
What is Deployment Center? ................................................................. 1-1
Remote deployment process .................................................................. 1-3
Deployment Center architecture ......................................................... 1-4

Installing and using Deployment Center .............................................. 2-1
System requirements ........................................................................... 2-1
Install Deployment Center .................................................................. 2-1
Start Deployment Center ...................................................................... 2-3
Log on to Deployment Center ............................................................. 2-3

Registering Teamcenter environments ............................................... 3-1
Add software to the repository ............................................................ 3-1
Register environments ......................................................................... 3-1
View registered environments ............................................................. 3-2
Edit environment properties ................................................................. 3-3
Verify Software, Applications, and Components .................................. 3-4

Deploying software using Deployment Center ...................................... 4-1
Installing software ............................................................................. 4-1
Upgrade and maintenance .................................................................... 4-2
Getting Started task ............................................................................ 4-3
Software task ........................................................................................ 4-3
Applications task ................................................................................ 4-4
Component task .................................................................................. 4-5
Deploy task ............................................................................................ 4-6
Run the installation scripts ................................................................... 4-8

How to deploy Active Workspace on Teamcenter .............................. 5-1
Software needed to install Teamcenter and Active Workspace ............ 5-1
System requirements ............................................................................ 5-2
Set up the Active Workspace components .......................................... 5-5
  Configure the Active Workspace Client (Java EE) ................................ 5-5
  Configure the Active Workspace Client (.NET) .................................. 5-7
  Configure the corporate server ......................................................... 5-11
  Configure the Indexer ....................................................................... 5-12
  Configure the Indexing Engine ......................................................... 5-14
  Configure the Visualization Data Server .......................................... 5-15
  Configure the Visualization Server Manager ................................... 5-16
  Configure the Teamcenter Web Tier (Java EE) .................................. 5-17
  Configure the Teamcenter Web Tier (.NET) ..................................... 5-18
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure Teamcenter Security Services</td>
<td>5-19</td>
</tr>
<tr>
<td>Configure Teamcenter client communication system</td>
<td>5-19</td>
</tr>
<tr>
<td>Done With Components</td>
<td>5-20</td>
</tr>
<tr>
<td>Post-deployment information</td>
<td>5-21</td>
</tr>
<tr>
<td>Post-deployment procedures</td>
<td>5-21</td>
</tr>
<tr>
<td>Database triggers</td>
<td>5-21</td>
</tr>
<tr>
<td>Deploy the Active Workspace Client (J2EE)</td>
<td>5-25</td>
</tr>
<tr>
<td>Merge the Teamcenter and Solr schemas</td>
<td>5-26</td>
</tr>
<tr>
<td>Start Solr</td>
<td>5-27</td>
</tr>
<tr>
<td>Test Indexer connectivity</td>
<td>5-28</td>
</tr>
<tr>
<td>Initial object data index</td>
<td>5-29</td>
</tr>
<tr>
<td>Start the Visualization Data Server</td>
<td>5-30</td>
</tr>
<tr>
<td>Start the Visualization Server Manager</td>
<td>5-31</td>
</tr>
<tr>
<td>Environment verification</td>
<td>5-31</td>
</tr>
<tr>
<td>Start services</td>
<td>5-31</td>
</tr>
<tr>
<td>Steps to verify the installation worked</td>
<td>5-31</td>
</tr>
</tbody>
</table>

**Active Workspace components** ................................................. A-1

| Active Workspace Client (Java EE)                                      | A-1  |
| Corporate server                                                       | A-2  |
| Indexer                                                                | A-3  |
| Indexing Engine                                                        | A-5  |
| Server Manager                                                         | A-8  |
| Visualization Server Manager                                           | A-8  |
| Visualization Data Server                                              | A-10 |
Chapter 1: Introduction to Deployment Center

What is Deployment Center? .................................................. 1-1
Remote deployment process ............................................... 1-3
Deployment Center architecture ...................................... 1-4
Chapter 1: Introduction to Deployment Center

What is Deployment Center?

You can install and deploy software in your Teamcenter environments using Deployment Center. The centralized web application runs in a browser, deploys software to Teamcenter environments, and enables access to multiple environments from a single, remote location.

Deployment Center simplifies the process of installing software and automates deployment to help manage Teamcenter environments more efficiently. You download large software packages to a centralized location, set up the installation in Deployment Center, and generate installation scripts that 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 log on access.

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

Flexible administration of software deployment

The software deployment process is accomplished in two phases. In the first phase, the software is selected and deployment is configured in the Deployment Center web application. In the second phase, the deployment configuration is reviewed and the software is deployed on the target machines.

During phase one, 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.

**Manage software deployment in Teamcenter environments**

A typical deployment process might look like the following:

- 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.
- Choose software, applications, and components to install in the Teamcenter environment, and enter the component parameter values.
- Choose whether to install component servers in a distributed 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.

**Installation notes for this release**

The only supported deployment in this version is Active Workspace 3.1 or 3.2 compatible with a supported version of Teamcenter foundation software. The **Internal Interoperability – Teamcenter Compatibility Matrix** is available from the GTAC hardware and software certifications page.

In this release, you can:

- Deploy Active Workspace 3.1 and Active Workspace 3.2, including Retail, Footwear, and Apparel.
- Upgrade Active Workspace 3.1 to Active Workspace 3.2 including Retail, Footwear, and Apparel.
• Install the J2EE or .NET Active Workspace client, Indexer, Indexing Engine, Visualization Data Server, and Visualization Server Manager.

• Install Teamcenter client communication system with Visualization Server Manager.

• Install dependent Teamcenter platform software and applications.

• Install additional Active Workspace applications after initial installation.

• Update Active Workspace component parameter values after installation.

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

• Multiple instances of Active Workspace clients

• Active Workspace service packs or patches

• 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 Corporate Server.

Remote 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 install 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. When you have all the software kits in the repository, you are ready to use them for the deployment. The software is listed on the Repositories page in Deployment Center.

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

The `send_configuration_to_dc` script is located in the Deployment Center installation. Copy the script to your environment's corporate server and run it locally. 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.

3. 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.

4. When you have verified all your setup information, you can generate the install 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 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 areas which communicate with each other.

- **Jetty web server and 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 needed 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 needed for the H2 database.

- **Repository and the Repository Service**
  
  The Repository stores the downloaded software kits. Deployment Center uses information in the repository when it registers Teamcenter environments and displays choices for installing software and applications.

  You provide the Repository directory location during installation of Deployment Center. You need to be sure that Deployment Center server has adequate disk space available to store all the software kits needed for your deployments.

  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 will run on multiple machines in the environment, there will be one generated install script ZIP file for each machine.
Chapter 2: Installing and using Deployment Center

System requirements ................................................................. 2-1
Install Deployment Center ............................................................ 2-1
Start Deployment Center ............................................................... 2-3
Log on to Deployment Center ......................................................... 2-3
Chapter 2: Installing and using Deployment Center

System requirements

<table>
<thead>
<tr>
<th>Operating systems</th>
<th>Free disk space</th>
<th>Free RAM</th>
<th>Third party software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 7, Windows Server 2008 R2, Windows Server 2012</td>
<td>100 MB</td>
<td>512 MB minimum</td>
<td>JRE 1.7.0_45 or later</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 plenty of 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 needs to be accessible to the Teamcenter environments where you want to install software.
4. Open a command prompt window and navigate to the location where you extracted the Deployment Center installation software. Go to the to `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 log on later.
   
   - `password` (required)
     Specify the password for the Deployment Center user. Remember it for log on 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:

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

When the installation is complete, the script returns the location of the installation log file and the URL to access Deployment Center. The URL has the form:

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

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 `startdc.bat`.

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 install 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 opens.
Deployment Center
Chapter 3: Registering Teamcenter environments

Add software to the repository ................................................................. 3-1
Register environments ........................................................................... 3-1
View registered environments ................................................................. 3-2
Edit environment properties ................................................................. 3-3
Verify Software, Applications, and Components .................................... 3-4
Chapter 3: Registering Teamcenter environments

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 -repoDir argument for the Deployment Center installation script specified the repository directory where you store the Teamcenter and Active Workspace software.

1. Download the versions of Teamcenter software that match the versions used to install your Teamcenter environment. Be sure to download the major release and the latest service pack for your Teamcenter version. For example, if your Teamcenter environment is running version 10.1.6, you need to download the Teamcenter 10.1.0 major release and the 10.1.6 service pack. Copy the software to the repository software subdirectory.

2. Download any other supported software that you want to deploy in the Teamcenter environment using Deployment Center. Copy the software to the repository software subdirectory. The software provides the applications and components you can choose to deploy.

   In this release, Deployment Center supports 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 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 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.

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 that it has what you expect.

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 `additional_tools\Teamcenter\send_configuration_to_dc` and extract `send_configuration_to_dc.zip`. 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` folder. 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 use 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
-settings=dcadmin -dcpassword=dcadmin -environment=Sandbox
```

When the scan is complete, the script returns the message **All operations completed successfully**. If you want to view the logs, they are located in the same directory where you ran the `send_configuration_to_dc` script.

**View registered environments**

View the environments registered in Deployment Center to verify they contain what you expect. Select an environment 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. When you choose an environment, the **Overview** provides helpful information about the system where the Teamcenter environment resides.

2. Verify that the **Properties**, **Software**, **Applications Installed**, and **Components** for the environment are what you expect.

**Properties for an environment include:**

- **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.

- **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 choose another type.

- **Location**
  Displays the location of the environment. You can set a geographical location for the environment, such as a city, the name of a facility, or another value that defines a location.

- **Comments**
  Displays additional information entered by the administrator.

**Edit environment properties**

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

1. Click **Start Edit**. Several fields become editable.

2. You can change the following information:

   - **Environment Name**
     Enter a new name for the environment.
     The **Environment Name** is first defined when the environment was registered.

   - **Environment Type**
     Choose the type of environment from the list, according to how the environment is used: **Integration**, **Development**, **Production** (the default), **Test**, and **Training**.

   - **Location**
     Enter a geographical location, such as a city, a facility, or another place that helps you identify the environment.
• **Comments**

Enter additional information that helps you identify 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 view the **Software**, **Applications Installed**, and **Components** for an environment. Choose **Overview** to see:

**Software**

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

The additional information offers two views of the information. Quick view displays required parameter information. Full view displays required and optional parameter information available from Deployment Center. You can click \( \rightarrow \uparrow \) to expand quick view to full view. Click \( \rightarrow \downarrow \) to return to quick view.

Components are associated with their applications, such as Indexing Engine and Indexer for Search.
Chapter 4: Deploying software using Deployment Center

Installing software ................................................................. 4-1
Upgrade and maintenance ..................................................... 4-2
Getting Started task ............................................................... 4-3
Software task ........................................................................... 4-3
Applications task ....................................................................... 4-4
Component task ........................................................................ 4-5
Deploy task ............................................................................... 4-6
Run the installation scripts ....................................................... 4-8
Chapter 4: Deploying software using Deployment Center

Installing software

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 satisfied.

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 3.2 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 script installs the software, applications, and components on to each target machine in your environment. After the script is generated, copy it to each target machine and then run it.

---

**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 choosing 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, choose 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 need to 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 need 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 choose it. For example, click Software to install in the Software task.

**Software task**

In this task, choose the software to install from the list of installable applications. The software you choose 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 choose later in the Components task.

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.

Overview  Deploy Software

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

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.
Component 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 Selected Applications. 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 of the administrative tasks for components require that you have server names, user names, passwords, URLs, and other information ready, as required for the deployment.

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.

Overview Deploy Software

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, choose the components to install, and then click Update Selected Components to add them to the Selected Components list.

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 displays 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 quick view mode, which shows only required settings. Completing all of the settings in quick view will push the state to 100% Complete.
Component settings are available in quick view mode or full view mode. Click to expand quick view to full view.

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

   For example, if you are installing the corporate server, quick 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 the full view for the corporate server, the full 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 will 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 need to copy the scripts to each target machine and run them to complete the installation.
Overview  Deploy Software

1 Getting Started  2 Software  3 Applications  4 Components  5 Deploy

Generate Install Scripts

The "Generate Install Scripts" button below will generate all the scripts necessary to install "Teamcenter Active Workspace 3.1" Major into the "-1962993650" environment. The scripts will be generated based on the configurations you provided in the Components task. Click the "Generate Install Scripts" button to proceed or if you need to make a correction, go back to the Components task and change your configurations. Then return here to "Generate Install Scripts".

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

Deployment Center generates install scripts, and reports information about the scripts in the right panel.

**Deploy Instructions**

**Successful Script Generation**:
The Deployment Center has generated a set of scripts to install the "Teamcenter Active Workspace 3.1" software into your "Sandbox" Teamcenter environment.

**Deployment Overview**

**Software To Be Installed**
- Teamcenter Active Workspace 3.1

**Software Needed For Install**
Ensure that the following software is copied to a directory location that can be accessed by all target machines:
- Teamcenter Active Workspace 3.1
- Teamcenter Foundation 10.1.6

**Deploy Script Directory**
The zip files are located on the "C\16is2979" machine in following directory locations:
d:\apps\deployment_center_repo\staging_directory\Sandbox\install\20160411_162502EDT

**Deploy Scripts**
The table below provides a listing of the zip files that were generated, the target machine, and the component(s) that will be installed on to each target machine.

<table>
<thead>
<tr>
<th>ZIP File Name</th>
<th>Target Machine</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>20160411_162502EDT_Sandbox_LM6W002.zip</td>
<td>LM6W002</td>
<td>Active Workspace Client (Java EE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indexer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Server Pool (Java EE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visualization Data Server</td>
</tr>
</tbody>
</table>

**Deploy Instructions for Machine Scripts**

**Deploy Instructions for WAR File Deployment**

**Launch the Active Workspace Client**
After all steps are completed above, launch a web browser, enter the URL for the deployed "awc.war" file to use the Active Workspace Client.

2. In the **Deploy Instructions** panel, view the report about the deployment, including the location of the deployment scripts and the instructions for continuing the deployment.
Chapter 4: Deploying software using Deployment Center

- **Software To Be Installed** lists the Active Workspace software needed to install the components.

- **Software Needed For Install** lists Teamcenter 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 will 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_LM6W002.zip**, it runs on the **LM6W002** machine. Run an install 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. On 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:

   ```
   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:

   ```
   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. Choose one of these methods:
   - **Copy the ZIP files directly to each server**
     Choose 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**
     Choose 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.

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.
Chapter 5: How to deploy Active Workspace on Teamcenter

Software needed to install Teamcenter and Active Workspace ........................................ 5-1
System requirements ........................................................................................................ 5-2
Set up the Active Workspace components ........................................................................ 5-5
  Configure the Active Workspace Client (Java EE) .......................................................... 5-5
  Configure the Active Workspace Client (.NET) ............................................................... 5-7
  Configure the corporate server ....................................................................................... 5-11
  Configure the Indexer ...................................................................................................... 5-12
  Configure the Indexing Engine ....................................................................................... 5-14
  Configure the Visualization Data Server ........................................................................ 5-15
  Configure the Visualization Server Manager ............................................................... 5-16
  Configure the Teamcenter Web Tier (Java EE) ............................................................... 5-17
  Configure the Teamcenter Web Tier (.NET) ................................................................. 5-18
  Configure Teamcenter Security Services ..................................................................... 5-19
  Configure Teamcenter client communication system .................................................... 5-19
Done With Components ................................................................................................... 5-20
Post-deployment information .......................................................................................... 5-21
  Post-deployment procedures .......................................................................................... 5-21
  Database triggers .......................................................................................................... 5-21
    Install database triggers ............................................................................................... 5-21
    Install database triggers in Oracle .............................................................................. 5-22
    Install database triggers in Microsoft SQL .................................................................. 5-22
  Deploy the Active Workspace Client (J2EE) ............................................................... 5-25
  Merge the Teamcenter and Solr schemas ...................................................................... 5-26
  Start Solr ....................................................................................................................... 5-27
  Test Indexer connectivity ............................................................................................... 5-28
  Initial object data index ................................................................................................. 5-29
  Start the Visualization Data Server .............................................................................. 5-30
  Start the Visualization Server Manager ...................................................................... 5-31
Environment verification ................................................................................................. 5-31
  Start services ............................................................................................................... 5-31
  Steps to verify the installation worked ......................................................................... 5-31
Chapter 5: How to deploy Active Workspace on Teamcenter

Software needed 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.

- **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 used 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 1.7 installed and the JAVA_HOME system environment variable must be set.

  o .NET Client
    - A minimum of 16 GB of free memory to successfully generate the .NET Client web application. Siemens PLM Software recommends that the machine used have a minimum of 24 GB.
    - Windows Server operating system.
    - The .NET Client web application supports deployment on IIS only.
    - JDK 64-bit is 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
    - 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 following graphics cards:
          - NVIDIA GRID K1, K2, or M60 as certified by NVIDIA.
            M60 is not supported on Windows Server 64-bit 2008 R2.

      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 for use.

**Note**

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.

For information about NVIDIA server hardware compatible with the GRID graphics cards, see [www.nvidia.com/buygrid](http://www.nvidia.com/buygrid).

- 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.

- 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.

- 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.

- 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 the quick view panel of the Active Workspace Client Java (EE) component. Click full view to see all of the configuration settings.

1. Enter values for the following as needed:

   **Machine**
   - **Machine** (required)
     Enter the machine where the Active Workspace Client (Java EE) WAR file (awc.war) is built.
   - **Platform** (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 the Active Workspace Client WAR file is built.

   **Volume Connection Settings**
   Connects 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.
     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 will use (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.

**Visualization Server Pool Assigner Settings**
Enter values used by the Active Workspace Client (Java EE) 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**
  Choose 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

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.

   When you have entered all required settings, the **CONFIGURED?** column for the component displays 100%.

Configure the Active Workspace Client (.NET)

Enter values for the required settings in the quick view panel of the Active Workspace Client Java (.NET) component. Click to see all the configuration settings.
Chapter 5: How to deploy Active Workspace on Teamcenter

1. Enter values for the following as needed:

   **Machine**
   - **Machine** (required)
     Enter the machine where the Active Workspace Client (.NET) WAR file (awc.war) is built.
   - **Platform** (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 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 will use (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 web site 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 web site 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 web site.

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

  **New Web Site**
  Enter the name of the web site. 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**

  **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 Active Workspace. By default, the value is **awc**.

**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**
  Choose 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**
- **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. When you have entered 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. Machine
   • Machine (required)
     Displays the machine where the corporate server is installed.
   • Platform (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.
When you have entered 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 full view to see all of the configuration settings.

1. Enter values for the following as needed.

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

   **General Settings**
   - **Teamcenter Installation Path**
     Enter the path to the Indexer installation.

   **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 which 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 will revert to using Standalone mode. A custom type associated with TcFtsIndexer must support Dispatcher mode.
Max 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. Consult the Active Workspace help Optimize instances of TcFTSIndexer
in Configuration and Extensibility→Configuring Active Workspace
features→Search configuration→Search deployment best practices→Optimize
usage of TcFTSIndexer machines.

Teamcenter Retry count
Enter the number of attempts to connect to the Teamcenter server. Minimum value is 1.

Staging Directory
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. Maximum value is 50000, 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. Maximum value is 20000,
minimum value is 1, 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.
   When you have entered 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** (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.
   - **Platform** (required)
     Enter the operating system platform running on the Indexing Engine machine.

   **General Settings**
   - **Teamcenter Installation Path**
     Enter the path to the Indexing Engine installation.

   **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.
   - **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.

2. You can **Save Component Settings** at any time and return to complete your specifications.
   When you have entered 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** (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.

     - **Platform** (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.
   When you have entered 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 (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.
   • Platform (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.
• Max 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).
• Min Warm Servers
Specifies the minimum number of Visualization server processes to start in this pool but not assigned.

**Visualization Data Server**

- **Machine**
  Enter the machine name where the Visualization Data Server is installed.

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

**Override Local Node**

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

- **Host**
  If you selected **Override Local Node Settings**, enter the host name.

- **Port**
  If you selected **Override Local Node Settings**, enter the port.

**Visualization Server Pool Assigner**

- **Host**
  Enter the host 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.

   When you have entered 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** (required)
     Enter the machine where the Teamcenter Web Tier (Java EE) is installed.

   - **Platform** (required)
Chapter 5: How to deploy Active Workspace on Teamcenter

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. When you have entered 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 (required)
     Enter the machine where the Teamcenter Web Tier (.NET) is installed.
   - Platform (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. When you have entered 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.

Enter values for the following as needed:

**Machine**

**Machine** (required)

Enter the machine where Teamcenter Security Services is installed.

**Platform** (required)

Enter the operating system installed on the machine where Teamcenter Security Services is installed.

**Security Settings**

**Enable TcSS**

Choose 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.

**Configure Teamcenter client communication system**

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

1. Enter values for the following as needed:

   **Machine**

   • **Machine** (required)
Enter the machine where the Teamcenter client communication system is installed.

- **Platform** (required)
  Enter the operating system installed on the machine where the 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?**
Choose this option if you want to install a new FCC.

**Use existing FCC?**
Choose 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**
Choose 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.

When you have entered all required settings, the **CONFIGURED?** column for the component displays **100%**.

**Done With Components**

When all components are **100% Complete**, you can click **Done with Components** to advance to the final 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.
Post-deployment information

Post-deployment procedures

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

- Corporate server:
  
  Install database triggers.

- Client
  
  Deploy the Active Workspace Client (J2EE).

- 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](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 of Microsoft SQL Server Management Studio](image1)

4. From the menu bar, choose **File**→**Open**→**File**.

![Microsoft SQL Server Management Studio (Administrator)](image2)

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.
Chapter 5:  How to deploy Active Workspace on Teamcenter

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 (J2EE)**

You 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 merge after running the install 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. The 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 so the users can search for data. How you start Solr depends on 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`

To verify that Solr is running:

1. 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**.

2. 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, it is recommended 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. This is covered in Optimize instances 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

To start the Visualization Data Server Manager, run:

```
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 `C:\Program Files\Siemens\Teamcenterversion` where `version` is the Teamcenter major version that is installed.
Start the Visualization Server Manager

To start the Visualization Server Manager, run:

```
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 `C:\Program Files\Siemens\Teamcenter version`. `version` is Teamcenter major release that is installed.

When running `run_visservermgr.cmd`, you can use Windows Remote Desktop Connection to sign in to the machine on which the Visualization Server Manager is installed if you have an NVIDIA card with a driver version of 340.66 or later. Other remote access products, such as VNC, also can be used.

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 services

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 log 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. Go to the Active Workspace Client URL:

   \texttt{http://host:port/web-app-name}

   \textit{host} is the machine running the web application server on which the Active Workspace client web application is deployed.

   \textit{port} is the port used by the web application server.

   \textit{web-app-name} is either the Java EE Client WAR file name (such as \texttt{awc}) or the .NET Client virtual directory name (such as \texttt{awc}).

d. Type a user name and password and click \textbf{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 \textbf{Search} box.

      If this is a new installation and there is no customer data in the system yet, you can use the search string \texttt{infodba} to see search results related to the \texttt{infodba} user.

   b. Click the \textbf{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 \textbf{Viewer} tab to display the JT file.
### Appendix A: Active Workspace components

<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Workspace Client (Java EE)</td>
<td>A-1</td>
</tr>
<tr>
<td>Corporate server</td>
<td>A-2</td>
</tr>
<tr>
<td>Indexer</td>
<td>A-3</td>
</tr>
<tr>
<td>Indexing Engine</td>
<td>A-5</td>
</tr>
<tr>
<td>Server Manager</td>
<td>A-8</td>
</tr>
<tr>
<td>Visualization Server Manager</td>
<td>A-8</td>
</tr>
<tr>
<td>Visualization Data Server</td>
<td>A-10</td>
</tr>
</tbody>
</table>
Appendix A: Active Workspace components

Active Workspace Client (Java EE)

Overview

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 web-intuitive 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

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 which 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. Which volume 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 around the globe 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 BMIDE 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 BMIDE templates, libraries, and administrative configuration files.

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

**Indexer**

**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 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**
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 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=objdata: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=objdata:sync -interval=seconds. The -interval argument sets how often the Indexer checks the Teamcenter database.

Deployment Center offers other configuration parameters that affect the 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.

Environment 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.
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.

**Deployment Options**

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. The Indexing Engine component must be paired with a single Indexer. The Indexing Engine is CPU intensive. It is a best practice to install this component on its own machine so that your users experience the highest performance when searching.
Configuration

Using the Business Modeler IDE, you can control which business objects and properties are indexed and configure the filtering and faceting shown to a user in the Active Workspace search results.

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

Server Manager

Overview

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

Deployment options

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

Visualization Server Manager

Overview

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.

Environment communication
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.

**Deployment options**

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.

**Configuration**

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 for users 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 is used to provide better rendering performance of 3D data and for providing Massive Model Visualization.

Environment communication

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.

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.

Deployment options
The Visualization Data Server component is optional. 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, then 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.

**Configuration**

The Visualization Data Server supports configuration settings.

For more details on configuring the Visualization Data Server component, see the Active Workspace help collection.
Siemens Industry Software

Headquarters
Granite Park One
5800 Granite Parkway
Suite 600
Plano, TX 75024
USA
+1 972 987 3000

Americas
Granite Park One
5800 Granite Parkway
Suite 600
Plano, TX 75024
USA
+1 314 264 8499

Europe
Stephenson House
Sir William Siemens Square
Frimley, Camberley
Surrey, GU16 8QD
+44 (0) 1276 413200

Asia-Pacific
Suites 4301-4302, 43/F
AIA Kowloon Tower, Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
+852 2230 3308

About Siemens PLM Software

Siemens PLM Software, a business unit of the Siemens Industry Automation Division, is a leading global provider of product lifecycle management (PLM) software and services with 7 million licensed seats and 71,000 customers worldwide. Headquartered in Plano, Texas, Siemens PLM Software works collaboratively with companies to deliver open solutions that help them turn more ideas into successful products. For more information on Siemens PLM Software products and services, visit www.siemens.com/plm.

© 2016 Siemens Product Lifecycle Management Software Inc. Siemens and the Siemens logo are registered trademarks of Siemens AG. D-Cubed, Femap, Geolus, GO PLM, I-deas, Insight, JT, NX, Parasolid, Solid Edge, Teamcenter, Tecnomatix and Velocity Series are trademarks or registered trademarks of Siemens Product Lifecycle Management Software Inc. or its subsidiaries in the United States and in other countries. All other trademarks, registered trademarks or service marks belong to their respective holders.