

Teamcenter 11.2 Systems Engineering and Requirements Management

Systems Architect/ Requirements Management Server Installation Manual for Windows

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Preface

This manual is a server installation reference for Systems Architect/Requirements Management (Architect/Requirements). Architect/Requirements belongs to the Siemens PLM Software portfolio of digital product lifecycle management software and services.

Audience

This manual is for application server administrators who are responsible for installing the Architect/Requirements Web component and database server component. The manual provides an overview of installation requirements and instructions for installing the Web and database server components. For information about installing the Architect/Requirements client component, see the *Systems Architect/Requirements Management User's Manual*.

Conventions

This manual uses the conventions described in the following sections:

Revision Marks

Technical changes are marked by a bar adjacent to the changed text.

Browser and Dialog Window Examples

The examples of browsers and dialog windows in this manual may appear different from those you see on your screen:

- The examples reflect Systems Architect/Requirements Management as initially installed at your site. Your enterprise may customize the browsers and dialog windows such that they appear different from those in the examples.
- The examples reflect individual Systems Architect/Requirements Management modules. If you install additional modules, your dialog windows and browsers reflect the additional modules.
- The examples reflect Systems Architect/Requirements Management installed on a Windows platform.

Names and Values

This manual represents system names, file names, and values in fonts that help you interpret the name or value. For example:

Change or add the parameter to the **initsid.ora** file.

The conventions are:

Bold	Bold font represents unvarying text or numbers within a name or value. Capitalization is as it appears.
<i>Italic</i>	Italic font represents text or numbers that vary within a name or value. The characters in italic text describe the entry. Letters are shown in lowercase, but the varying text may include uppercase letters. In initsid.ora , <i>sid</i> identifies a varying portion of the name (a unique system ID). For example, the name of the file might be: initBlue5.ora
<i>text-text</i>	A hyphen separates two words that describe a single entry.

Command Line Entries, File Contents, and Code

This manual represents command line input and output, the contents of system files, and computer code in fonts that help you understand how to enter text or to interpret displayed text. For example, the following line represents a command entry:

```
msqlora -u system/system-password
```

The conventions are:

<i>Monospace</i>	<p>Monospace font represents text or numbers you enter on a command line, the computer's response, the contents of system files, and computer code.</p> <p>Capitalization and spacing are shown exactly as you must enter the characters or as the computer displays the characters.</p>
<i>Italic</i>	<p>Italic font represents text or numbers that vary. The words in italic text describe the entry.</p> <p>The words are shown in lowercase letters, but the varying text may include uppercase letters. When entering text, use the case required by the system.</p> <p>For the preceding example, you might substitute the following for <i>system-password</i>:</p> <pre>KLH3b</pre>
<i>text-text</i>	<p>A hyphen separates two words that describe a single entry.</p>

Submitting Comments

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Shoreview, MN 55126
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Chapter 1: Preparing for the Installation

This chapter describes the Architect/Requirements components and the requirements for the installation of the Systems Architect/Requirements Management server.

Components

Architect/Requirements is designed for multi-tier Web deployment. It consists of the following main components:

- *Web* component

The Architect/Requirements business logic resides in the Web component. This component runs within the Java environment of an application server, or Web server with a servlet engine. The Web component consists of one binary file, **tcr.war**.

- *Database server* component

Architect/Requirements uses an object-oriented database system from Versant Corporation to store and manage data. The database server component consists of several binary files and must be installed separately before installing the Systems Architect/Requirements Management server.

Architect/Requirements is certified and ships with Versant Database.

For information about the version of Versant Database, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

- *Client* component

This component presents the Architect/Requirements user interface on a local computer.

The Web component and database server component can be installed on the same computer or on two separate computers.

When the Web and database servers are on different computers, they must be within the same local area network (LAN) and never connected over a wide area network. Even within a LAN, performance can be adversely affected by latency introduced by routers and firewalls, or by network traffic from other sources. For best performance, place the database server and Web server on a dedicated, private LAN, that is isolated from other traffic and has near-zero latency.

This arrangement is not a minimum requirement. However, it is recommended when there are enough users that multiple Web server instances become necessary for scalability. That level of user activity generates a high volume of small communications to the database server.

Hardware Requirements

The Architect/Requirements can be deployed in multiple configurations. Following are the recommendations for the application server and the database server.

Application Server hardware requirements (per Architect/Requirements instance)

For an anticipated 15 concurrent users

- RAM
2 GB
- Processor
2 CPUs (or cores) per instance

For an anticipated 50 concurrent users

- RAM
8 GB for 64-bit applications
- Processor
4 CPUs (or cores) per instance

Versant Database Server hardware requirements

- RAM
Memory requirements are driven by the size of the database and the desire to cache all or a significant portion of the database.
The minimum requirement for Windows is 4 GB of RAM.
- Processor
2 CPUs (or cores) are required but 4 CPUs (or cores) are recommended for better performance
- Disk space
The disk space requirement depends on the size of the database. If you are using a default database of 4 GB, you must have the following:
 - 10 GB for database area
 - 20 GB for backup area
 - 10 GB for working files
 - 50 GB for operating system swap and other applications

Temporary installation space (not to exceed the requirements above) is also required in your **Temp** directory during the installation.

RAM and disk space requirements must be adjusted upward depending on the resources required by other applications on the same servers.

These requirements do not include the disk space needed to create the database or to store back ups. For more information, see the *Systems Architect/Requirements Management System Administrator's Manual*.

Software Requirements

Architect/Requirements 11.2 is a 64-bit application. Both the application server and the database server must be a 64-bit deployment.

For a 64-bit Architect/Requirements installation, 64-bit hardware, a 64-bit operating system, and a Web server such as WebLogic, WebSphere, or Tomcat are required.

The Architect/Requirements components can be installed on the following operating systems:

- Microsoft Windows
- Sun Solaris

For information about versions of operating systems, third-party software, and Teamcenter software that are certified for your platform, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

Requirement for Versant 64-bit Installation on Windows

The installation of Versant 64-bit on a Microsoft Windows system requires Microsoft Visual C++ 2015 Redistributable Package (x64). You can download the Microsoft Visual C++ 2015 Redistributable Package (x64) from the following link:



If your Windows system already includes the Microsoft Visual C++ 2017 Redistributable Package (x64), support for Microsoft Visual C++ 2015 applications is already included. For this reason, you do not also need to install the Microsoft Visual C++ 2015 Redistributable Package (x64).

<https://www.microsoft.com/en-us/download/details.aspx?id=53840>

Oracle JDK 64-bit

The installation procedure requires deployment of the Architect/Requirements **war** file on a Windows computer. IBM WebSphere provides the required Java runtime support, with the IBM JVM 1.8. But if you are not planning to deploy Architect/Requirements on WebSphere, you must install either the Java Development Kit (JDK) or the Server JRE (Java SE Runtime Environment) on your Windows computer. You can obtain the JDK or the Server JRE from your IT department or download it directly from the Oracle Web site:

<http://www.oracle.com/technetwork/java/javase/downloads/index.html>



You must use the 64-bit version only.

For information about version of Oracle JDK certified for your platform, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

Setting the Java environment variables

You must set the following Java variables:

- **JAVA_HOME**: Set it to the Java 8 JDK directory. For example,
JAVA_HOME=C:\Program Files\Java\jdk1.8.0_201
- **PATH**: Add the Java bin directory to the PATH variable. For example,
PATH=%JAVA_HOME%\bin;%PATH%

Chapter 2: Installing Architect/Requirements

This chapter contains an overview and instructions for installing Architect/Requirements and its components. It also describes how to set environment variables and configure the Versant database. If you are upgrading an existing installation of Architect/Requirements, skip to [Upgrading the Installation](#).

Installation Overview

Architect/Requirements and its components can be installed in different configurations. Single-server and multiple-server installations are described in brief in the following sections. You may refer to this overview and follow the steps explained in detail in the subsequent sections.

You should verify the hardware and software requirements for Architect/Requirements prior to the installation.

Installing Architect/Requirements and Versant on a Single Server

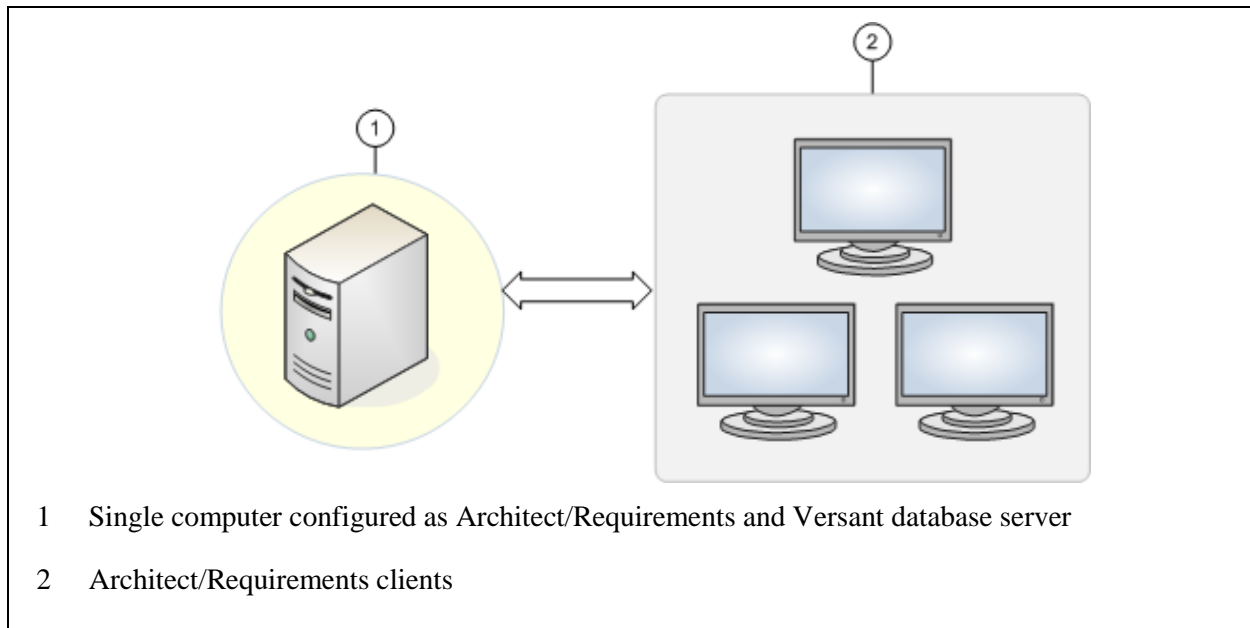


Figure 2-1. Architect/Requirements and Versant Installed on a Single Server

In a single server installation, the Systems Architect/Requirements Management server and Versant object database are installed on the same computer. At a high level, the steps involved are:

1. Install a Web application server supported by Architect/Requirements.
2. Install the Versant object database.
3. Install the Architect/Requirements server software.
4. Set environment variables.
5. Copy the Versant license file and initialize the database.
6. Perform post-installation procedures, such as deploying the Web component (**tcr.war** file), and entering the licensing information.

Installing Architect/Requirements and Versant on Multiple Servers

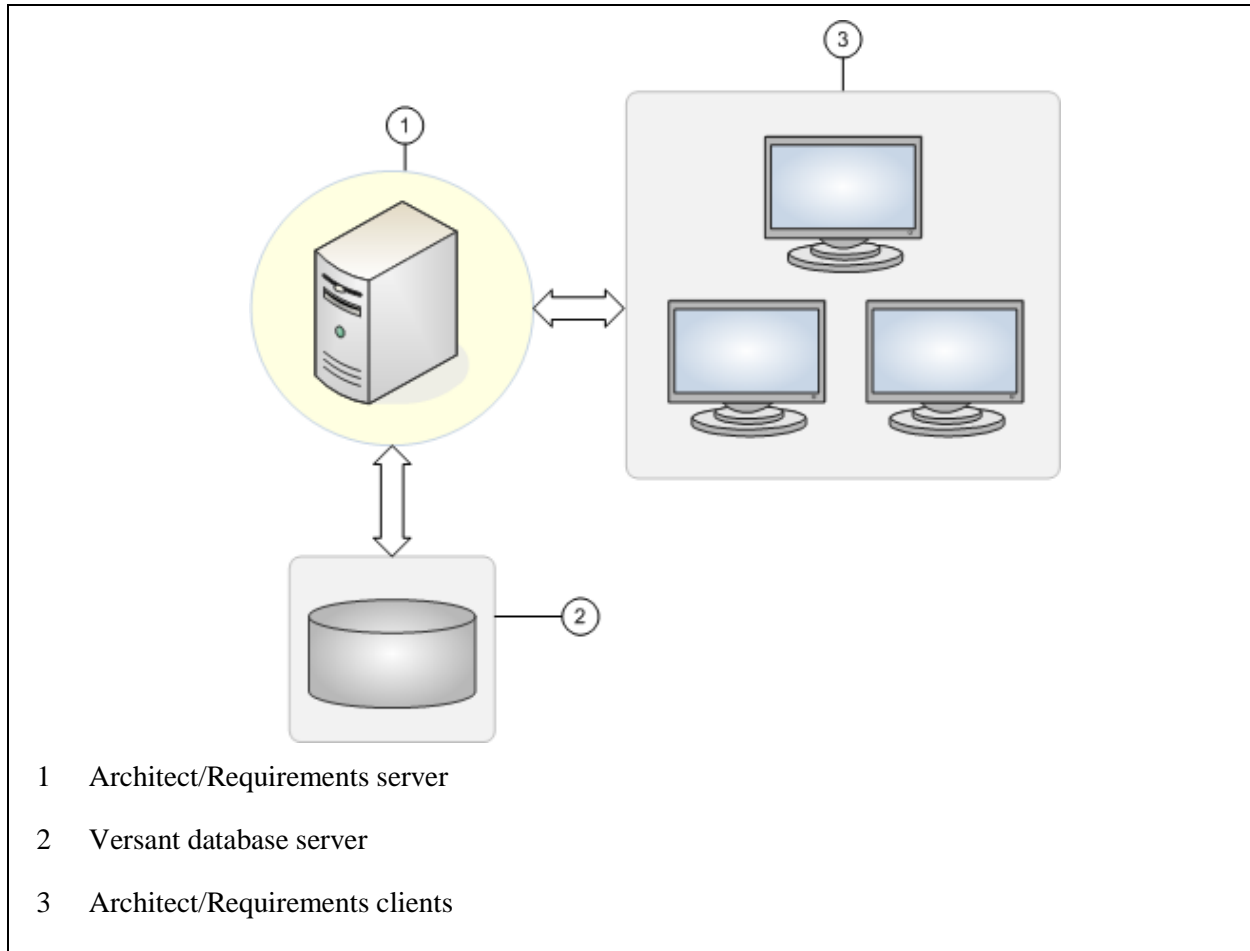


Figure 2-2. Architect/Requirements and Versant Installed On Multiple Servers

In a multiple server installation, the Systems Architect/Requirements Management server and the Versant object database are installed on separate computers.

If you are installing and configuring an additional Architect/Requirements server or a Versant database server, you should install both Versant and Architect/Requirements server software on every server.

- On the computer to be configured as the Versant database server:
 - . Install the Versant object database.
 - . Copy the Versant license file.
 - . Initialize the Versant database.
- On the computer to be configured as the Architect/Requirements Server:
 - . Install a Web application server supported by Architect/Requirements.
 - . Install the Architect/Requirements server software.

In the Database Input dialog window, ensure that you enter the host name of the Versant database server (installed and configured on a separate computer) and the name of the database.

- Set environment variables.
- Perform post-installation procedures, such as deploying the Web component (**tcr.war** file), and entering licensing information.

Installing Architect/Requirements Client in Silent Mode

The Architect/Requirements client installation program provides an option to install the client in silent mode. The IT departments or enterprise administrators can use the silent mode option to roll out command line installations of Architect/Requirements Client with Office Integration on end-user machines.



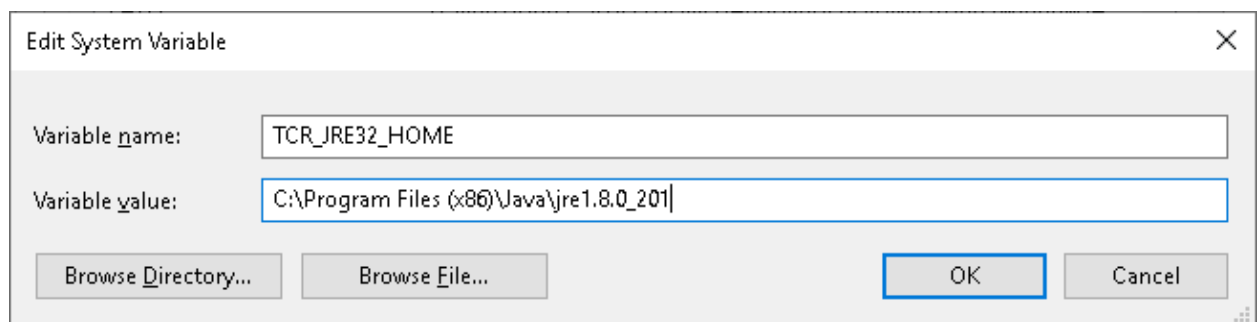
- Elevated user privileges (power user or administrator) are required for the installation as registry entries are updated with the patch information.
- The client installer does not check for the user privilege level. If the installation is not performed as a privileged user, the registry entries are not created and the client fails to run when launched by a normal user.

Deployment of 32-bit Java 8 JRE in support of the TcSE 11.2 client

Notes regarding the 32-bit Java 8 JRE configuration:

1. A 32-bit Java SE 8 JRE must be installed by either:
 - a) Installing it using the Oracle installer.
 - b) Copying it to the local file system. For example, it can be copied from:
 - i. A location where it was installed using Oracle's installer.
 - ii. The "hidden" *jre* subfolder of a 32-bit JDK.
2. Set the **TCR_JRE32_HOME** environment variable to the JRE's root folder:
 - a) Admin should set it in the "System" environment.
 - b) It can be overridden by setting it in the "User" environment.
 - c) For example:

If Java is installed to the folder *C:\Program Files (x86)\Java\jre1.8.0_201*, **TCR_JRE32_HOME** should be set as follows via the Control Panel:



3. Windows requires a restart before setting **TCR_JRE32_HOME** is complete.

To install the Architect/Requirements client in silent mode:

1. After a successful installation of the TcSE server, the client installation program is located in the TcSE_Client_Installer subfolder on the TcSE server, which should be available via a Windows share referenced as follows:

\\<TcSE-Windows-server>\TcSE_Client_Installer .



For details, please refer to the post installation task *Adding a Shared Folder for the TcSE Client Installer* in Chapter 4.

2. From each Windows 10 client system, run the following command:

```
\\<TcSE-Windows-server>\TcSE_Client_Installer\setup.exe -i silent LAX_VM  
"%TCR_JRE32_HOME%\bin\java.exe"
```



If you install the 32-bit Java 8 JRE using Oracle's installer, the the last two arguments (*LAX_VM* "*%TCR_JRE32_HOME%\bin\java.exe*") are not required. Otherwise, without these arguments, the installer will fail to locate a Java 8 JRE on its own.

The client is installed in the default location, such as, **C:\Program Files\SiemensPLM\Teamcenter\SystemEngineering\Release_11.2** folder.

User Privileges for the Installations

Privileges for Installing the Server

Users installing and configuring the Architect/Requirements server and the Versant database server must be logged on to the systems with administrator privileges.

The Architect/Requirements server installer should be run with a user ID that is used to manage both Architect/Requirements and Versant. This user ID may be different from the user ID used to install the Versant database.

Privileges for Installing the Client

Elevated user privileges (power user or administrator) are required for installation and update of the Architect/Requirements client. This is required as Windows registry entries are updated during the patch update.

Installing the Versant Object Database Application

Architect/Requirements uses an object-oriented database system from Versant Corporation to store and manage data. Architect/Requirements is certified and ships with Versant Database.

For information about the version of Versant Database supported, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

The Versant installer is no longer a part of the Architect/Requirements server installer. The Versant database server must be installed before installing the Architect/Requirements server. The instructions are the same for installing the Versant database server. The Architect/Requirements server may be installed either on the same machine, or on a separate machine. If you are running these servers on separate machines, perform this installation only on your database server machine.

Architect/Requirements 11.1 supports the Versant Object Database 9.3 patch 12. The Versant installer is included in the distribution archive in the *Root-Folder***Versant_9****Windows** folder.

The Versant database files must be on a file system that is local to the Versant server processor. Database corruption can occur if you use a remotely mounted drive.

Installing Versant 9

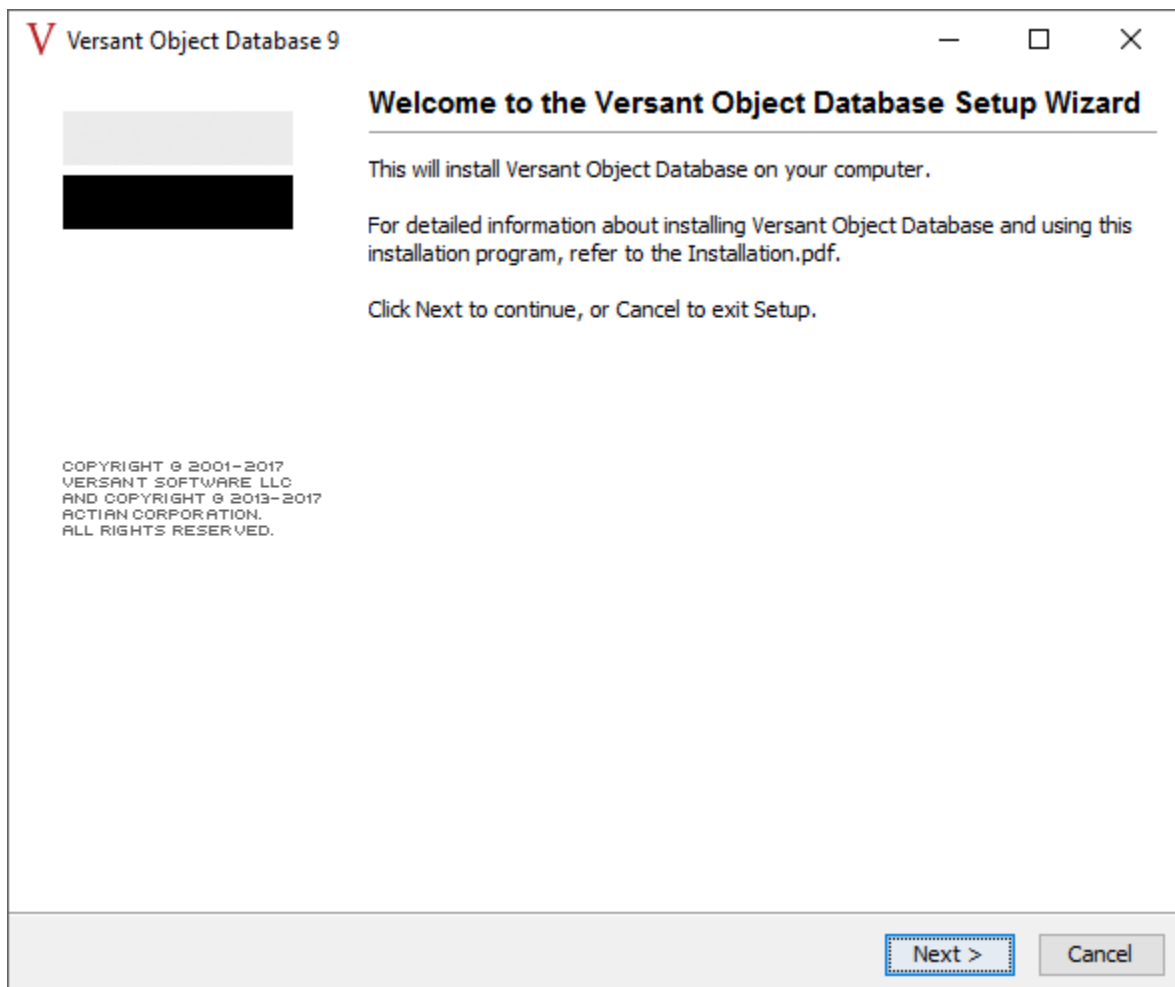
1. Run the Versant installer.

Extract **VOD9.3.0.24_2837_Windows_VS2015_64bit_opt.zip** to a temporary folder.

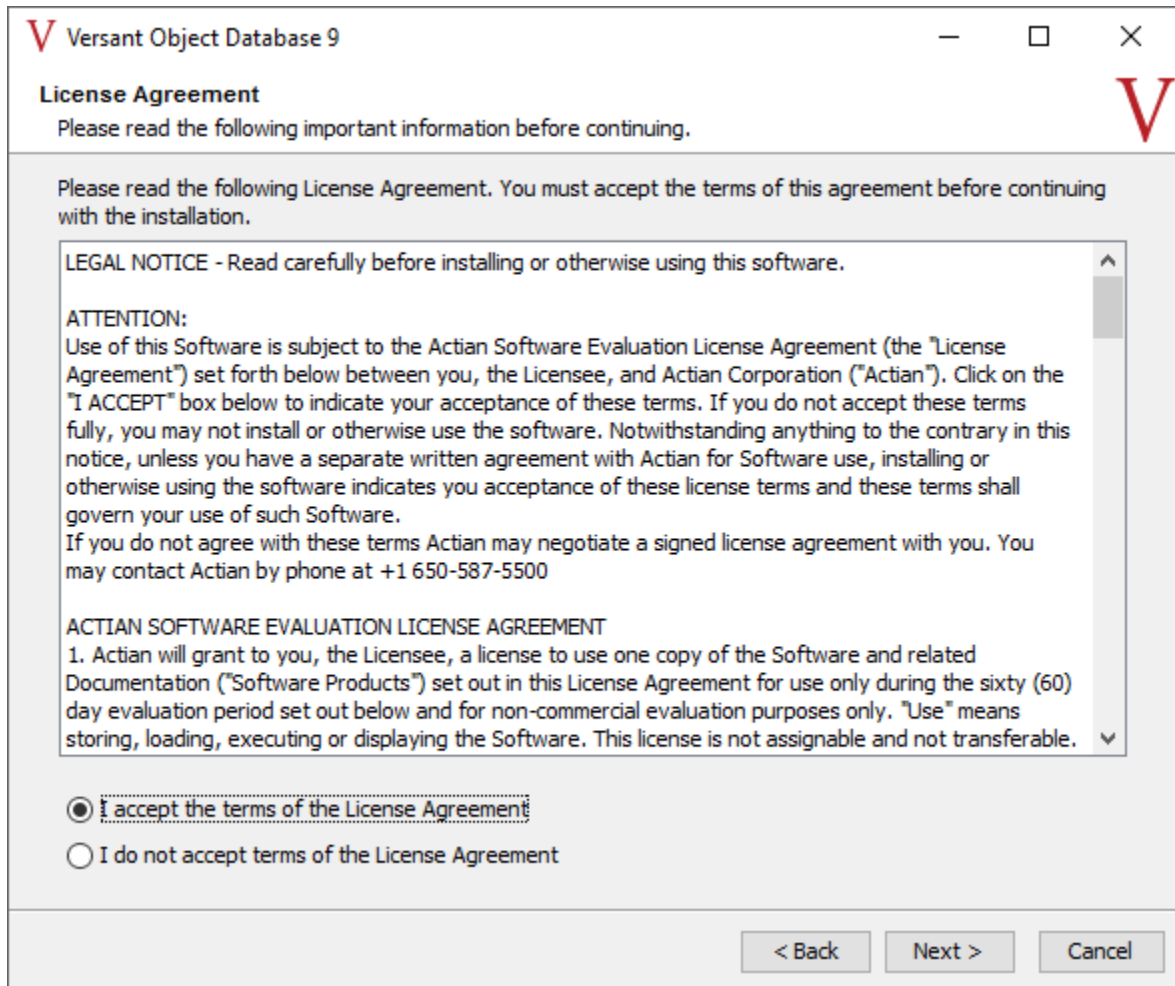
As the Administrator, execute **VOD9.3.0.24_2837_Windows_VS2015_64bit_opt.exe**.

It can take several minutes before the installation window appears.

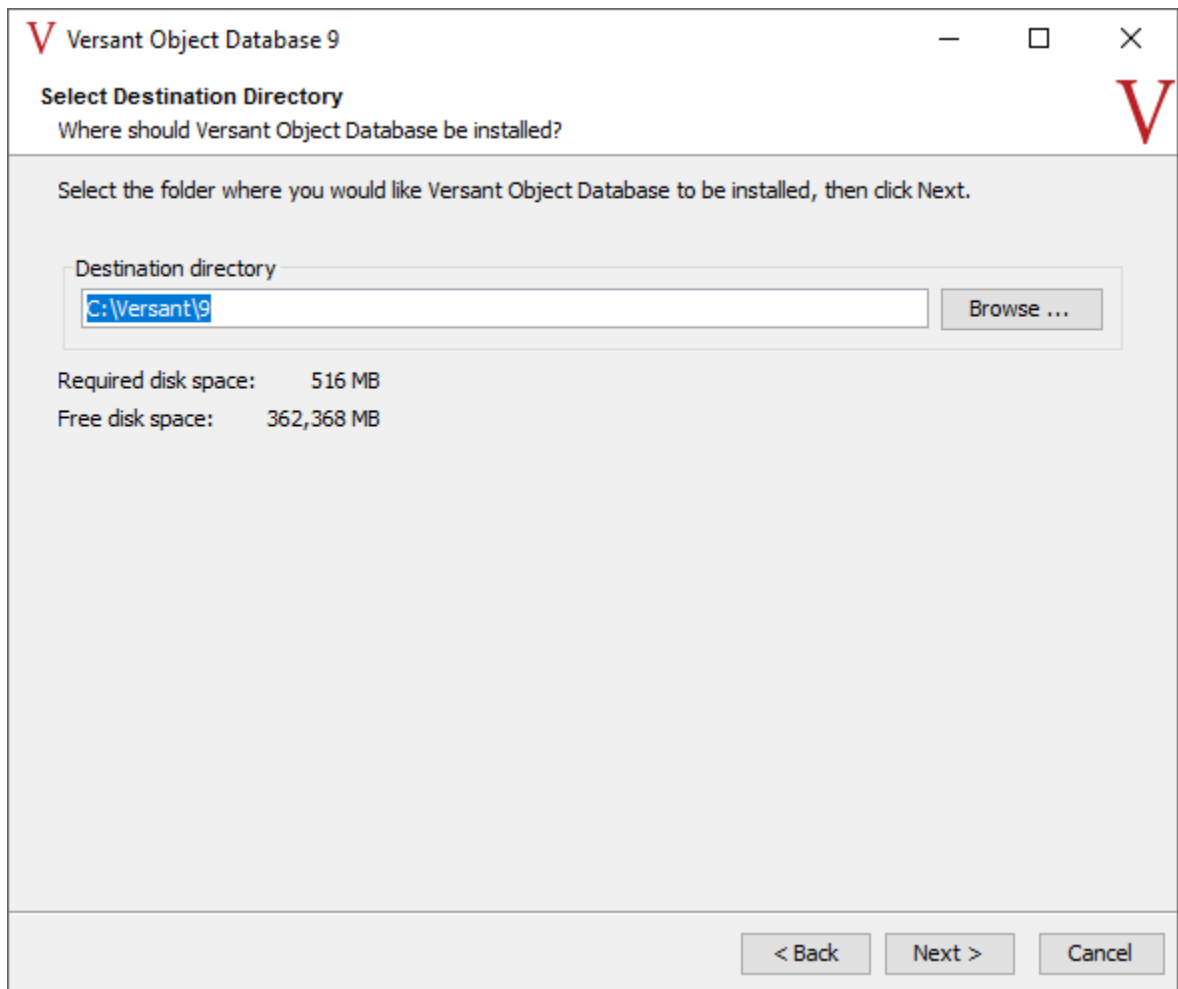
2. On the **Welcome to the Versant Object Database Setup Wizard** screen, click **Next**.



3. On the **License Agreement** screen, select **I accept the terms of the License Agreement** and click **Next**.



4. On the **Select Destination Directory** screen, specify the location to install the Versant binaries and click **Next**.



5. On the **Select Components** screen, select or clear the check boxes as relevant:

Clear the **SDK** check box.

You may need to click twice in the SDK check box to clear it. Clearing the **SDK** check box clears the **C SDK**, **C++ SDK**, **Java**, and **.NET SDK** check boxes.

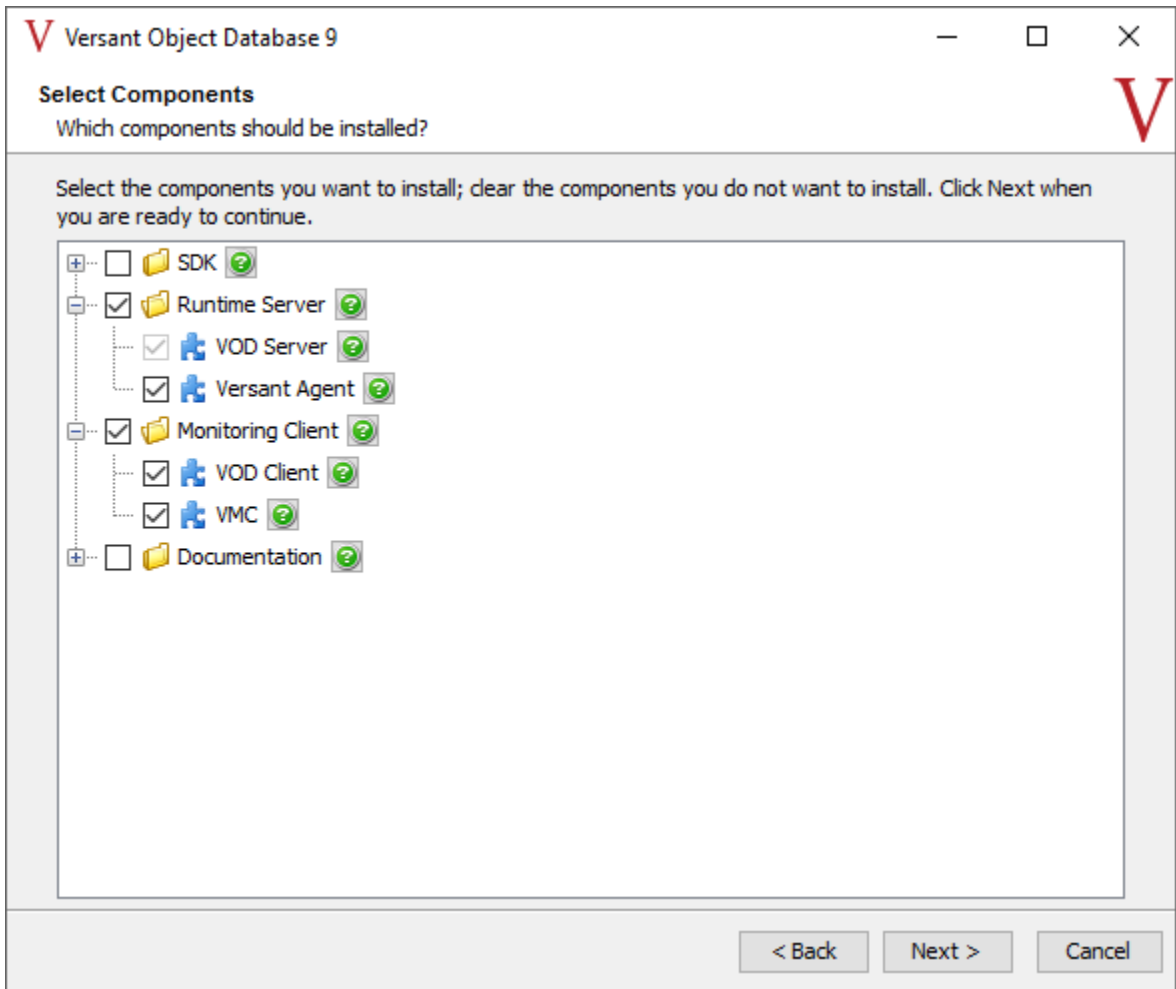
Expand the **Runtime Server** section and clear the **VSQL Server** check box.

Verify that only **VOD Server** and **Versant Agent** are selected.

Expand the **Monitoring Client** section and clear the **VSQL Client** check box.

Verify that only **VOD Client** and **VMC** are selected.

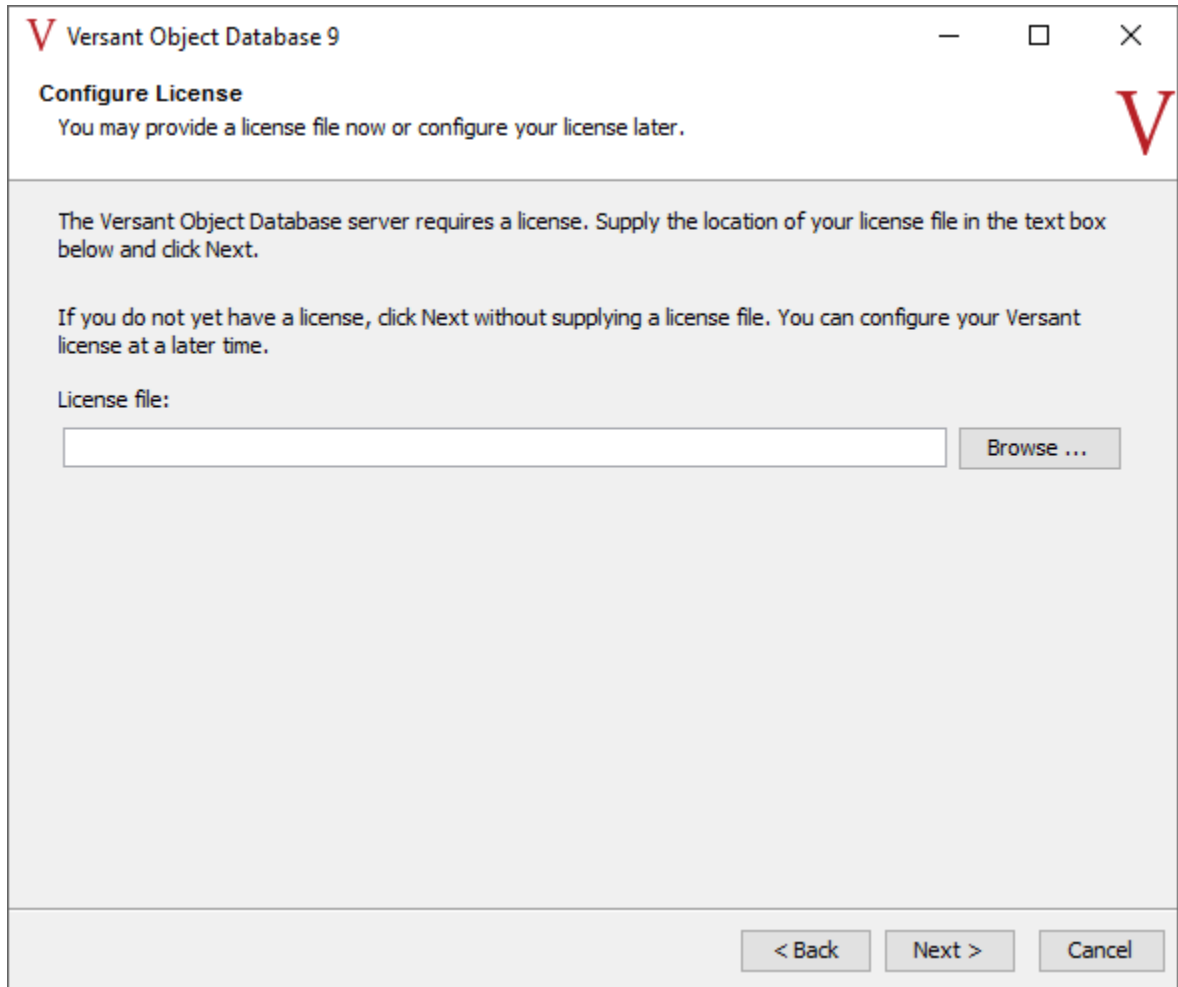
If you do not want the Versant documentation to be installed, clear the **Documentation** check box and click **Next**.



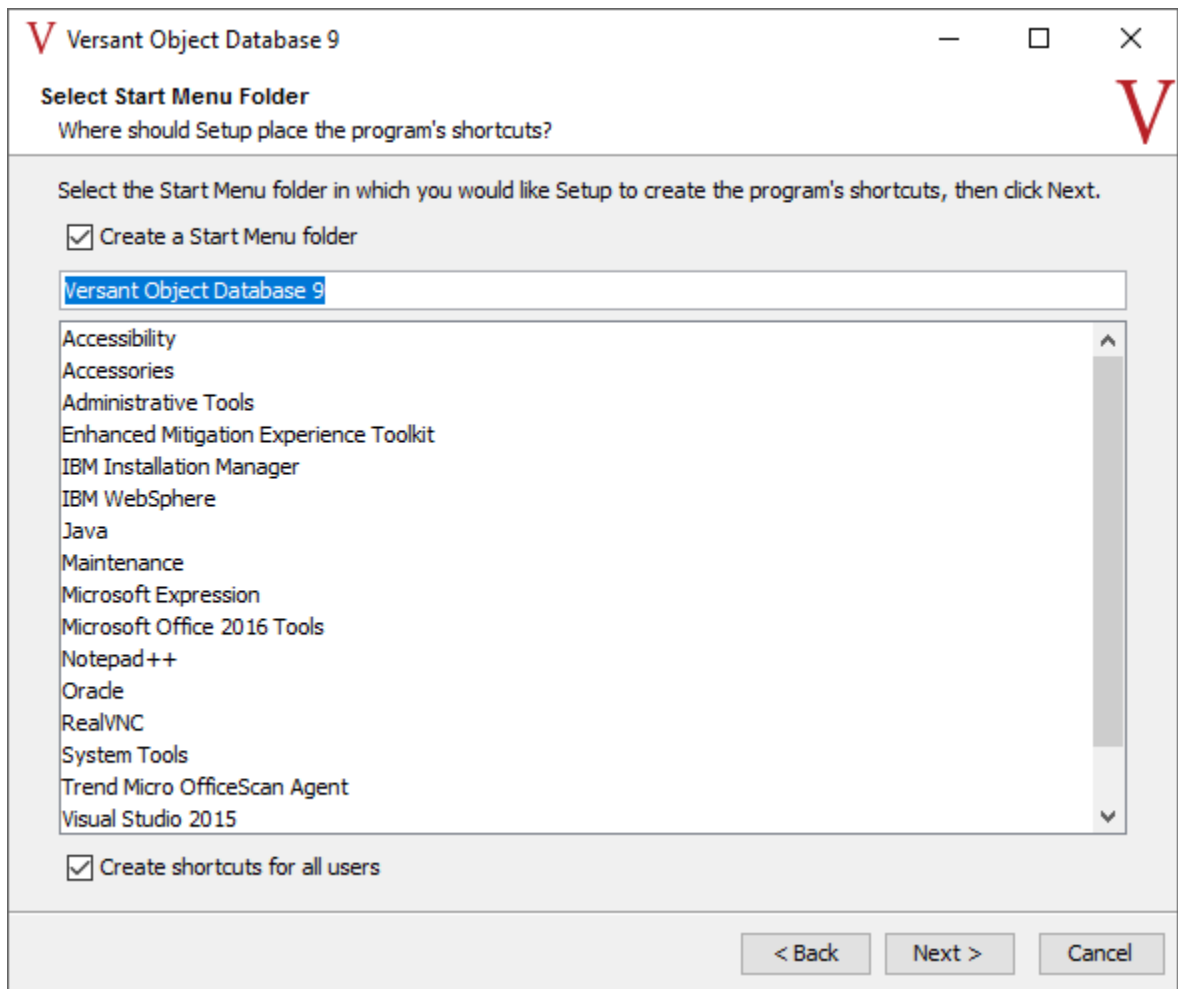
6. On the **Configure License** screen, click **Next**.



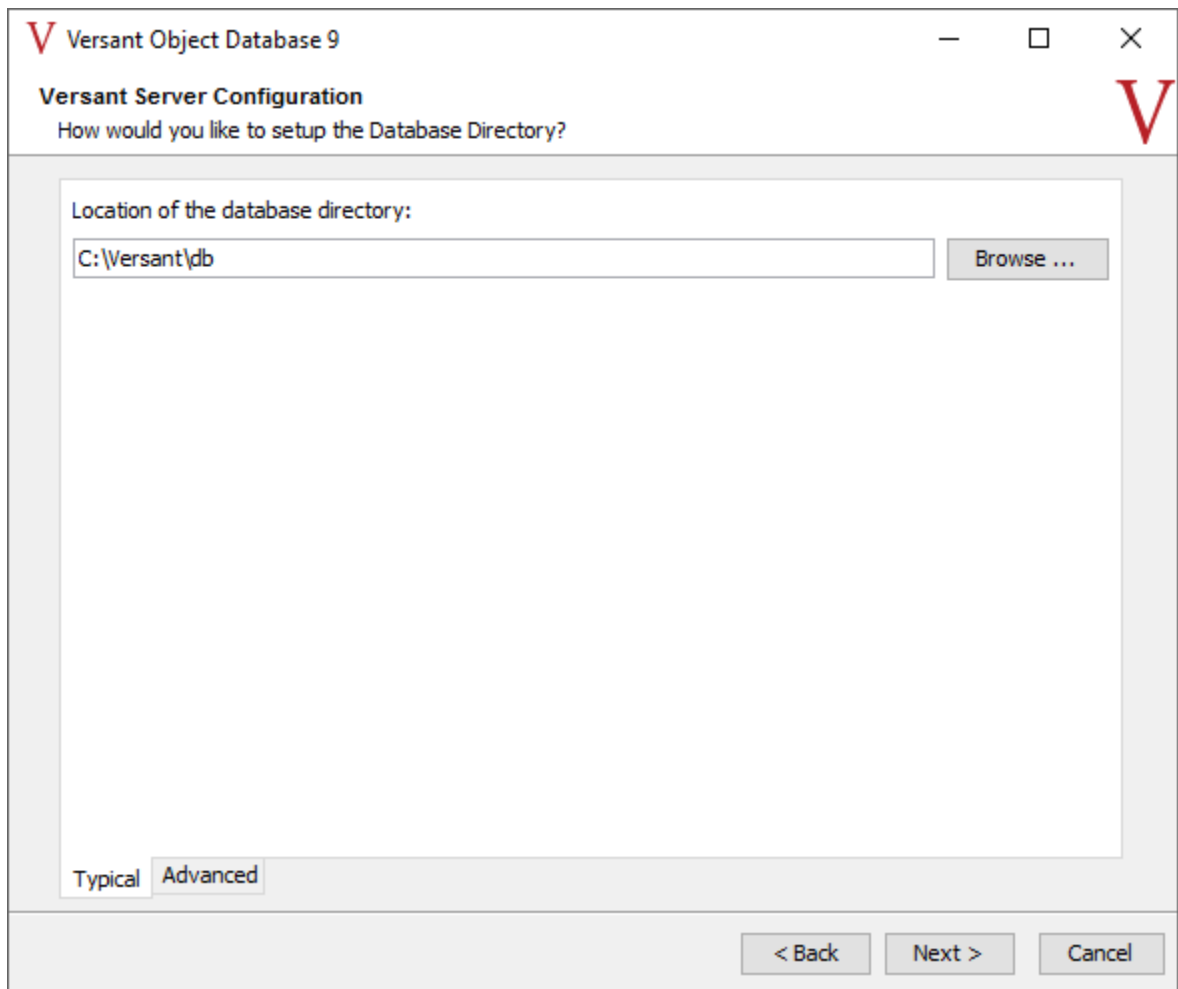
The required Versant license is available after installing Architect/Requirements. You must configure the license after completing the Architect/Requirements installation.



7. On the **Select Start Menu Folder** screen, clear the **Create shortcuts for all users** check box if you do not want the Versant link to be created in the **Start** menu for all the users and click **Next**.

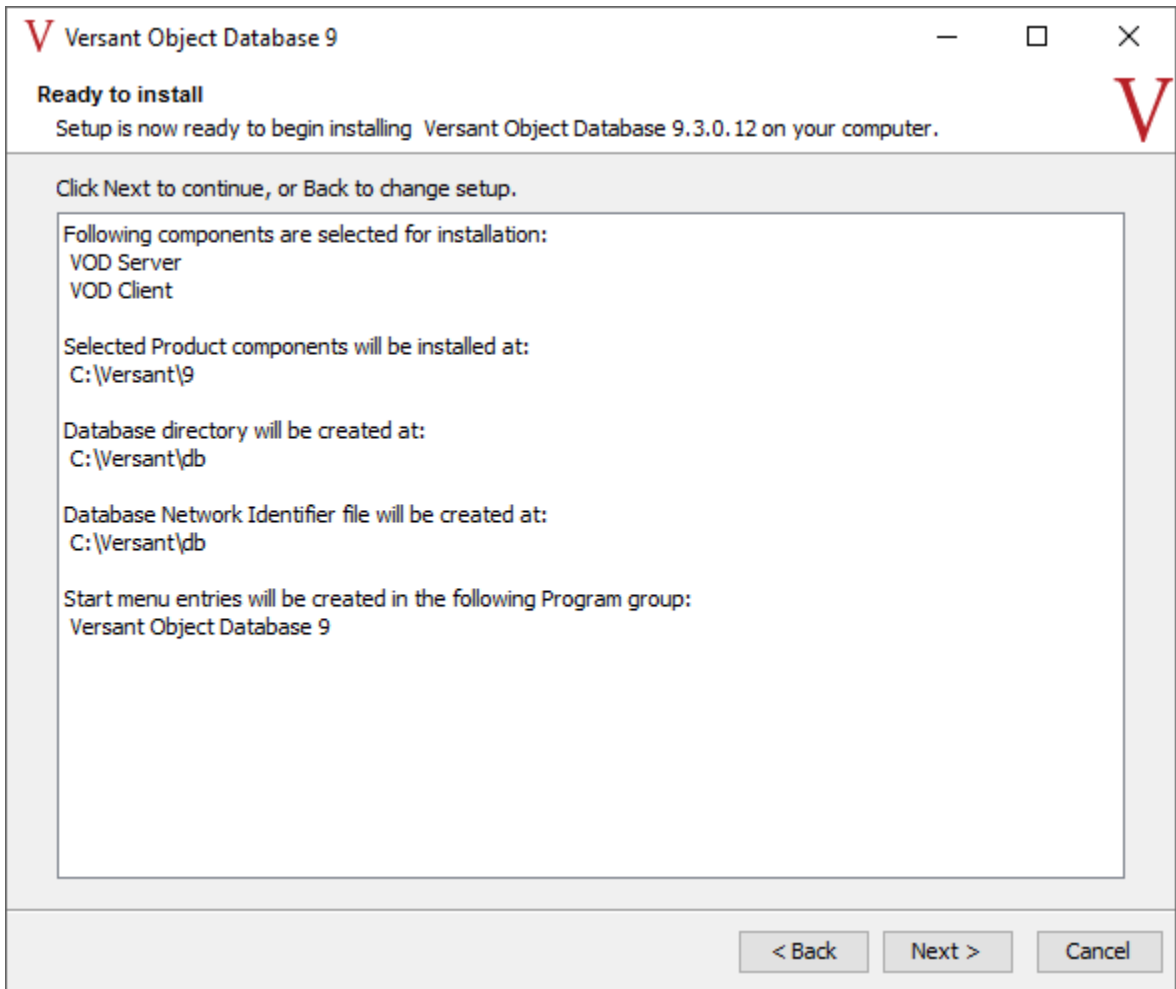


8. On the **Versant Server Configuration** screen, specify the location where you want to set up the database directory. Ensure that you have sufficient disk space for the future growth of your database.
Click **Next**.

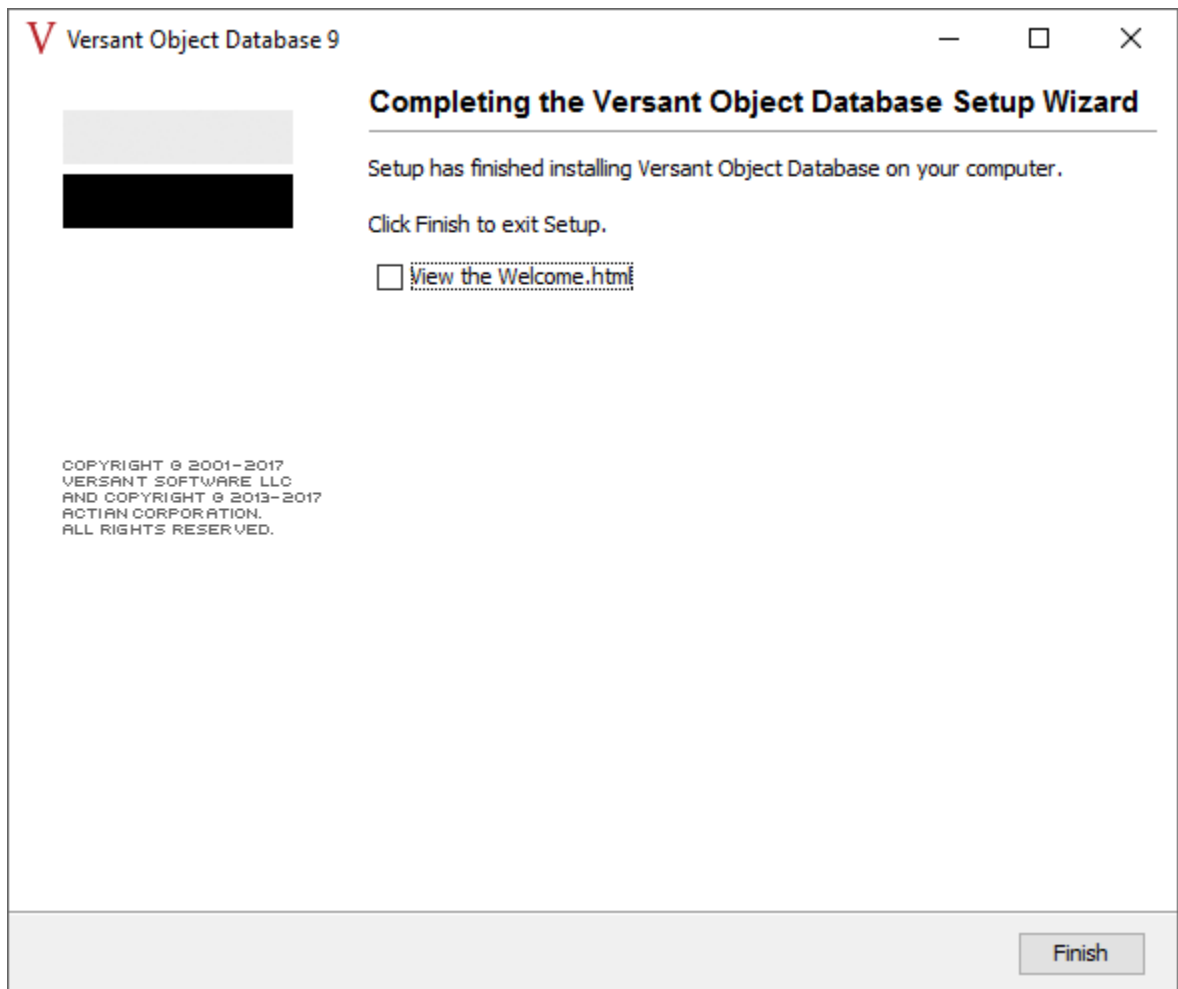



9. On the **Ready to install** screen, review the options that you have selected to install and click **Next**.

Wait for the installation process to complete.




10. On the **Completing the Versant Object Database Setup Wizard** screen, clear the **View the Welcome.html** check box and click **Finish**.



 When newly installing VOD 9.3.0.12 on Windows Server 2016 64-bit, you may encounter an error dialog after clicking this the "Finish" button on the final step of installation. The title of the error dialog would be "Setup", and the message would be "X com.install4j.runtime.beans.actions.finish,ShowFileAction". This message is of no consequence, and should be disregarded. The error dialog can be dismissed with no further action required.

11. Restart your computer.

 Although Versant does not prompt you to restart your computer, you must restart it for proper functioning of Versant.

The following services are created on installing Versant.

- **Versant Agent**
- **Versant Database Connector**

Continue installing Architect/Requirements according to the instructions in [Installing the Architect/Requirements Server](#).

After installing Architect/Requirements, you must install the Versant 8 license file.

Post-Versant Installation Steps

The last step in the Versant installation is to copy the Versant license file. This step should be completed after installing the Architect/Requirements server because the license file is included in the Architect/Requirements server installation.

Verifying the Versant Installation

Run the following commands by logging on to the Versant database server computer with the same user ID that you used to perform the Versant installation.

If Versant is installed properly, you should see several lines of output indicating the various Versant-related paths that you entered during the installation, such as Versant root path, Versant runtime path, and Versant database directory.

If you see an error message, restart the Versant service.

- **Database Server:**

Run the following commands to test the Versant installation:

```
o oscp -i @localhost
```

Sample output for `oscp -i @localhost`:

```
Versant Product Version: 9.3.0
Versant Root Path: D:\Versant\9
Versant Runtime Path: D:\Versant\9
Versant DB Directory: D:\Versant\db
Versant osc-dbid node name: hostname
Versant osc-dbid path: D:\Versant\db
```

```
o itest -v <dbserverhostname>
```

Sample output for `itest -v <dbserverhostname>`:

```
host name: localhost IP addr: xxx.xxx.xxx.xxx
Connection to <dbserverhostname> successful.
```

```
o vinfo -l
```

Sample output for `vinfo -l`

```
PRODUCT: Versant Object Database
-----
VERSION          9.3.0.12.2561
OS                Windows
BUILD INFO       VC 14.0 JDK 1.7 64bit
PATCH DATE      Feb 09, 2018
```

Included Components and Versions

```
-----
ODB              9.3.0.12.2561
JDO              9.3.0.12.2561
JVI              9.3.0.12.2561
VAR              9.3.0.12.2561
GUI              9.3.0.12.2561
```

- **Architect/Requirements Server:**

The following commands can be used to ensure that the Architect/Requirements Server can communicate with the database server across the network:

- o `oscp -i @<dbserverhostname>`

Sample output for `oscp -i @localhost`:

```
Versant Product Version: 9.3.0
Versant Root Path: C:\Versant\9
Versant Runtime Path: C:\Versant\9
Versant DB Directory: C:\Versant\db
Versant osc-dbid node name: localhost
Versant osc-dbid path: C:\Versant\db
```

- o `itest -v <dbserverhostname>`

Sample output for `itest -v <dbserverhostname>`:

```
host name: <dbserverhostname> IP addr: xxx.xxx.xxx.xxx
Connection to <dbserverhostname> successful.
```

Installing the Architect/Requirements Server

If you are upgrading your Systems Architect/Requirements Management installation from an earlier version, follow the instructions in [Upgrading the Installation](#).

Before beginning the Systems Architect/Requirements Management server installation process, ensure that you install the Versant object database software. The Versant installation is no longer a part of the Architect/Requirements server installer.

The installers are on the Architect/Requirements distribution archive.

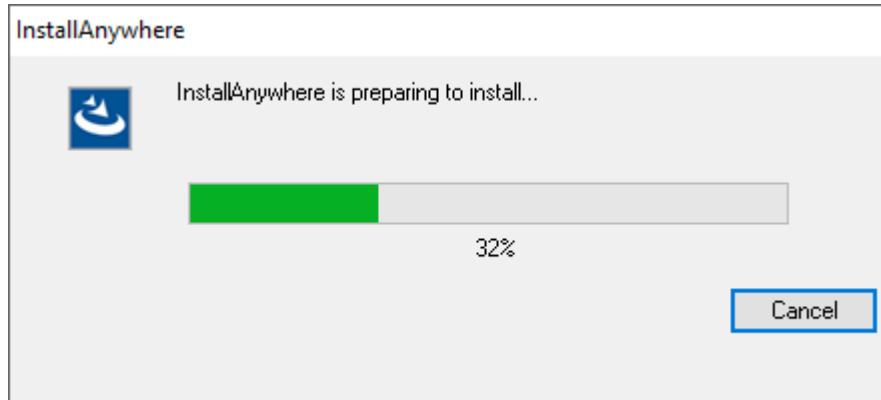
The installer is located in the *Root-Folder\Server\Windows folder*.

Installing the Server

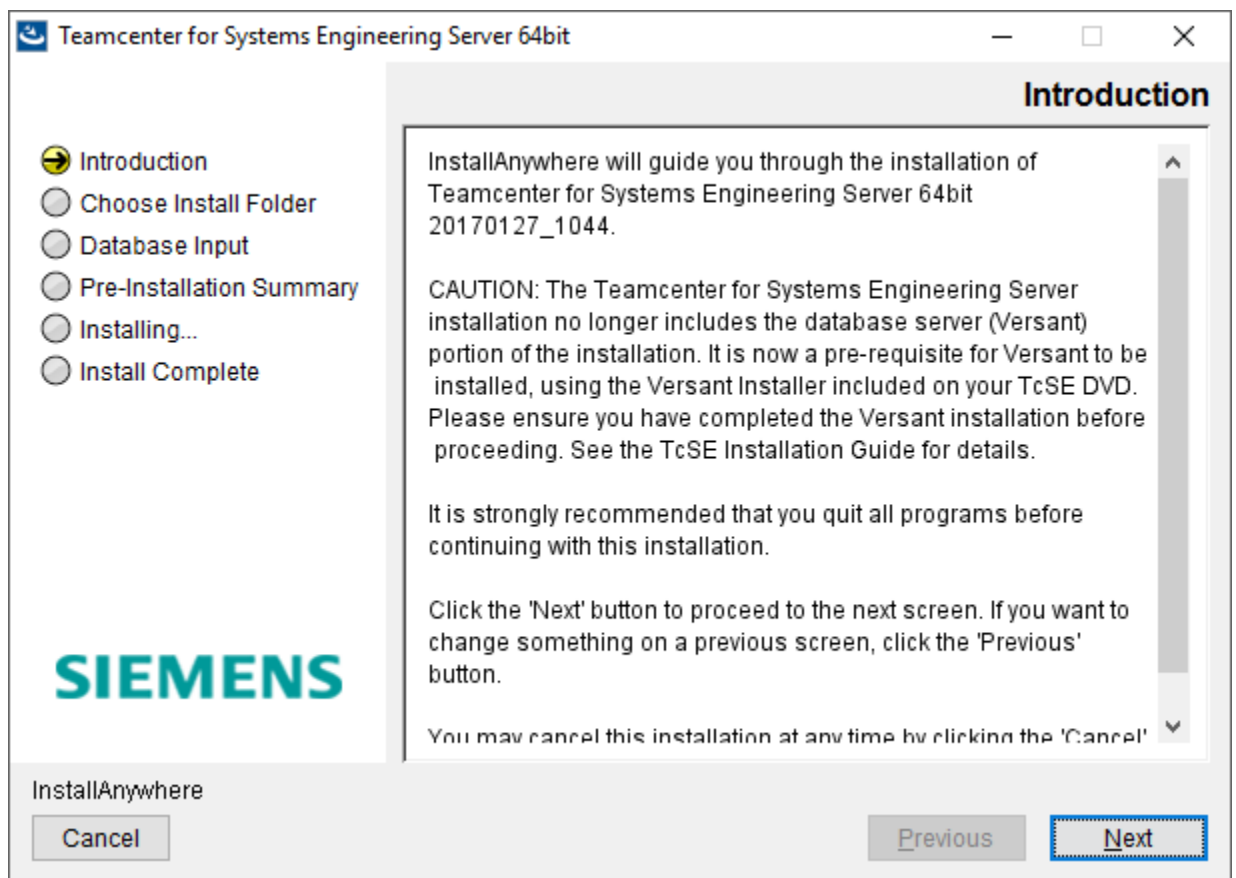
To start the Systems Architect/Requirements Management Server installation process, perform the following steps:

1. The installer file is **TcSE_Server_64.exe**. Execute the installer file.

It may take several minutes before the installation window appears.



2. In the **Introduction** screen, review the notes and click **Next** to begin the installation.



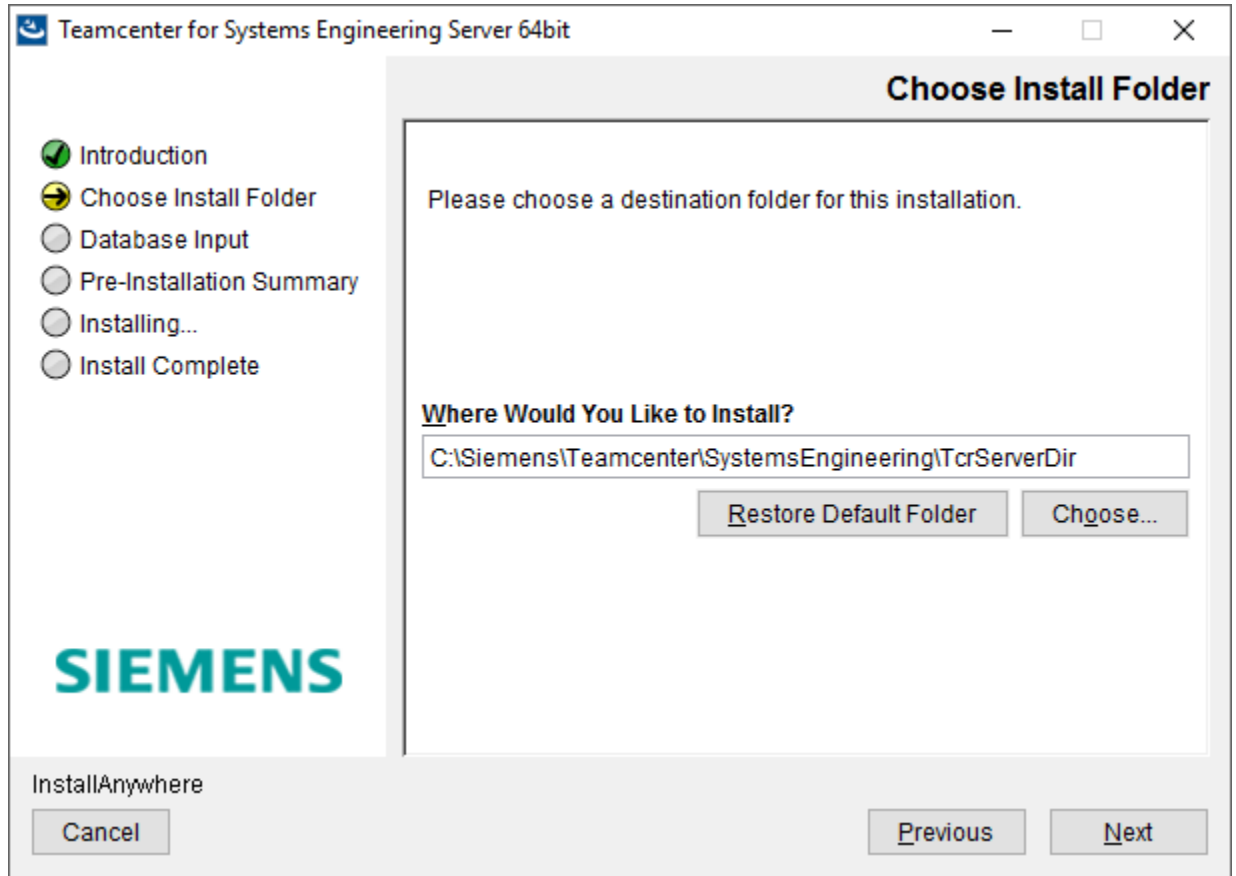
3. In the **Choose Install Folder** screen, click **Choose** to select the installation directory.

The installation path must not contain spaces.

To revert to the default location displayed by the installer, click **Restore Default Location**.

To revisit the previous options presented by the installer, click **Previous**.

Click **Next**.



4. In the **Database Input** screen, enter the name of the database server's host name and the name of the database.

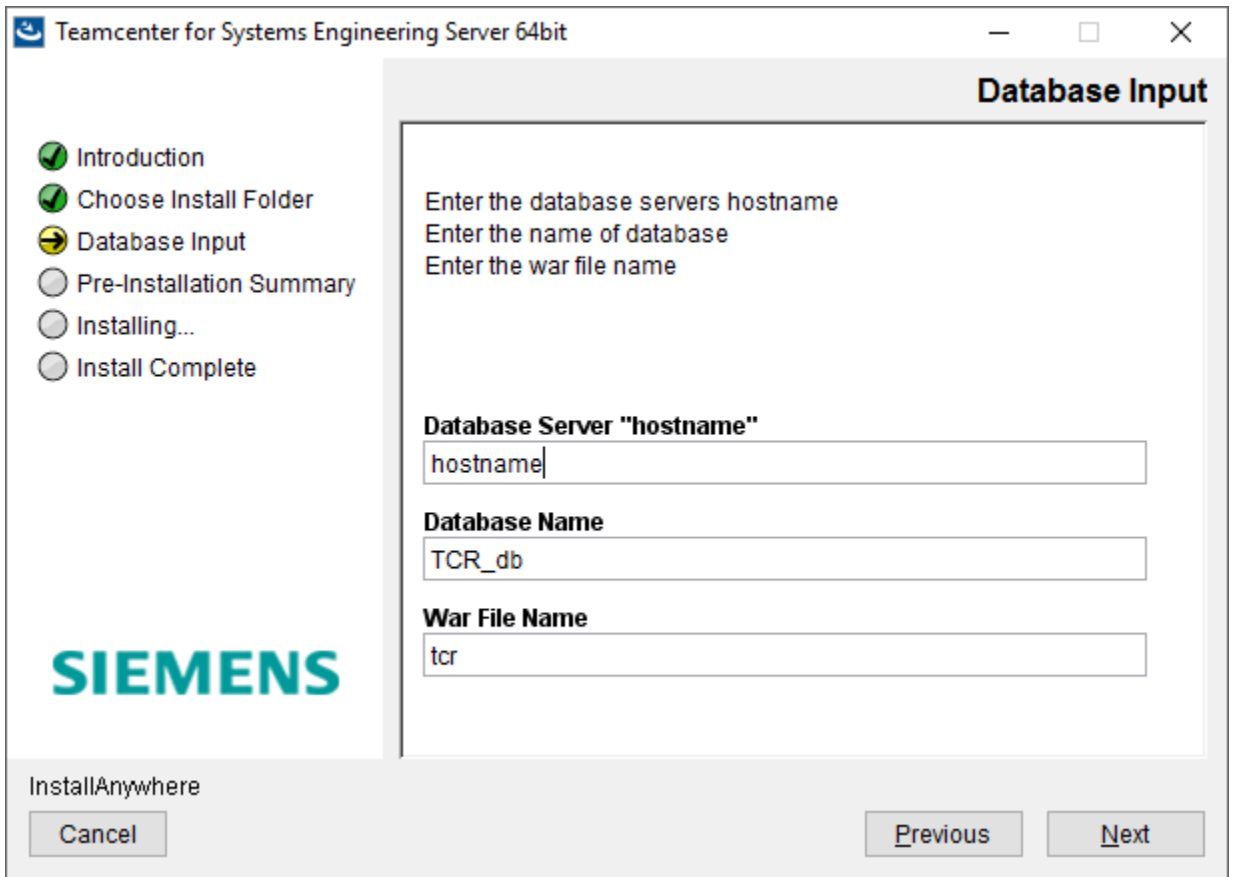
The installer defaults to the local host name and **TCR_db**. This should be correct if you are installing the application server and database server on one machine. If the database is on a separate machine, enter the information applicable to that machine.

It is not necessary for the database to already exist at this point in the installation process. The installer needs this information to update the **war** file with the information needed to connect to the database after Architect/Requirements is deployed.

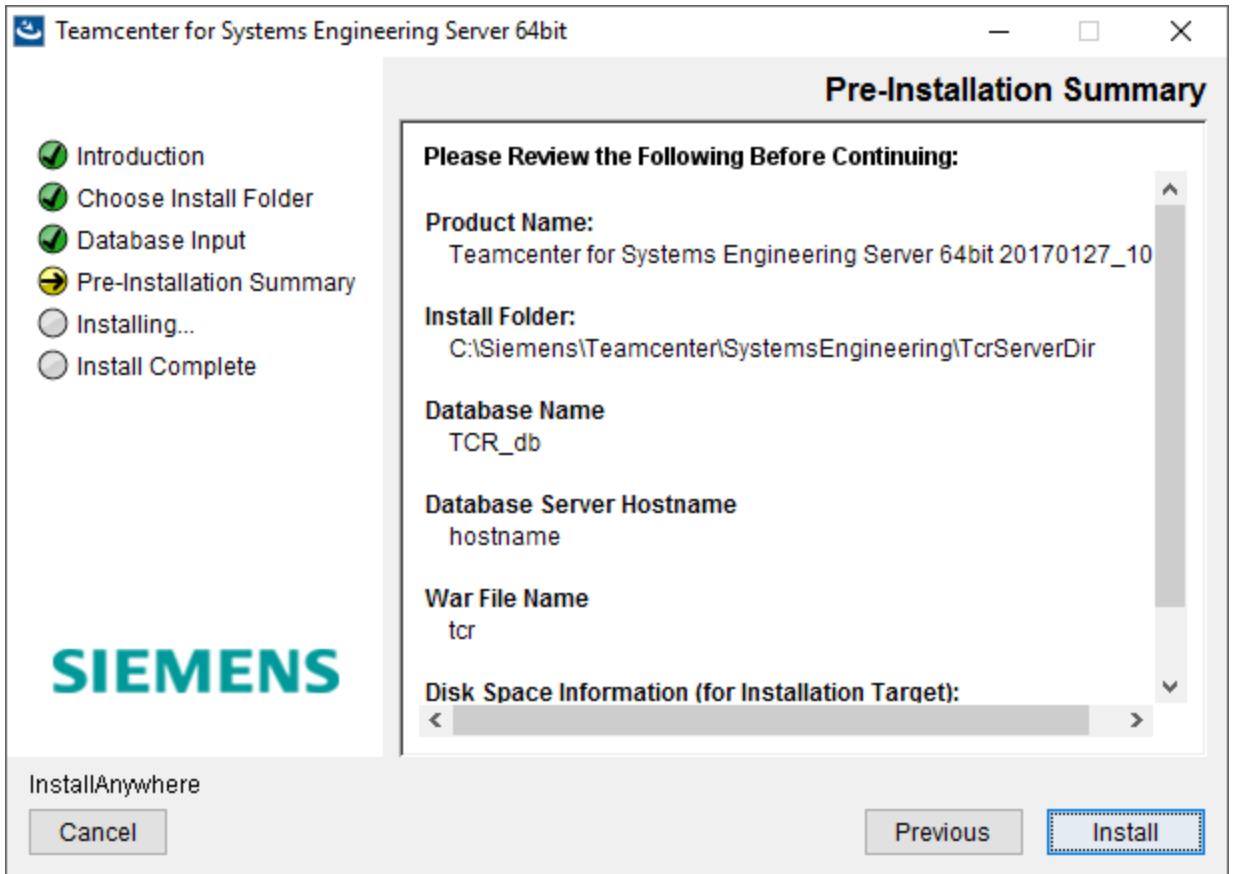


The **Database Server "hostname"** that you specify must be the same name that is used for the Versant installation.

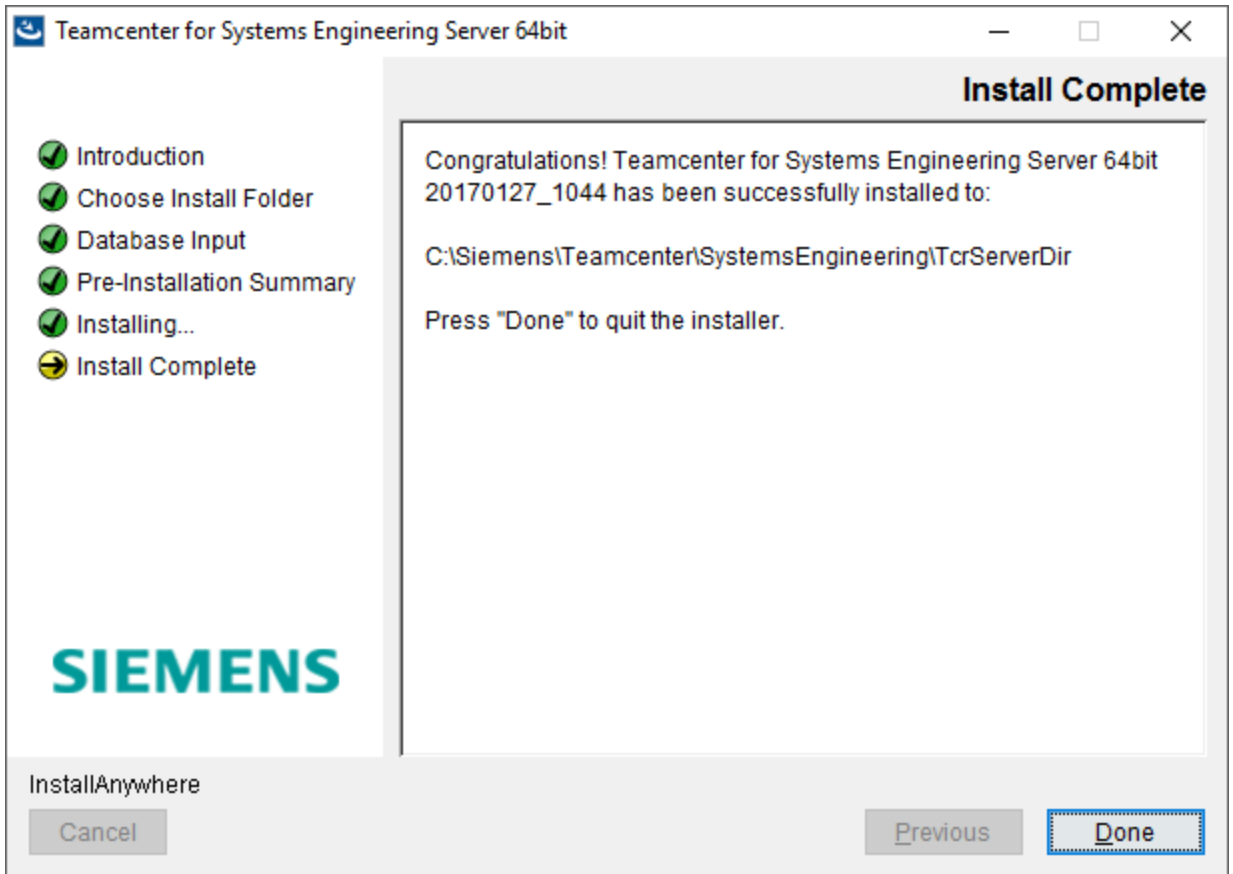
Click **Next**.



The **Pre-Installation Summary** screen displays information such as the product name, installation folder, database name, database server's host name, and disk space availability. Click **Install** to begin the installation.



5. After the installation is successful, click **Done** to exit the installer.



6. Restart your computer to ensure that the updated Path environment variable is propagated for use by you web application server's service process.

Verifying Versant Environment Variables

The Versant installer updates all the required variables during installation. You can refer to the information below to ensure that the environment variables are set correctly on the Versant Database server.

The following environment variables must be set for the user who creates and manages the Versant database (typically, this same user also installs and manages Architect/Requirements Server) on Windows machines:

- Verify that **VERSANT_ROOT** points to the location of your Versant installation.
For example, *C:\Versant\9*.
- Verify that **VERSANT_DB** points to the Versant database root directory.
For example, *C:\Versant\db*.
- Verify that **VERSANT_DBID** points to the location of the Versant database network identifier file, **osc-dbid**.
For example, *C:\Versant\db*.
- Verify that **VERSANT_DBID_NODE** has the name of the machine hosting the Versant database network identifier file, **osc-dbid**.
For example, *myVersantServer.myDomain.com*.
- Verify that the following are added to the **PATH** system environment variable:
 - Versant JVI root **bin** directory installed with the Architect/Requirements server.
The default location of the Versant JVI root **bin** directory is:
C:\Siemens\Teamcenter\SystemEngineering\TcrServerDir\jvi_root\bin
 - Versant root **bin** directory installed with the Versant object database server.
The Versant root **bin** directory is defined as *%VERSANT_ROOT%\bin*.

These variables must be set on all Versant database server computers.

Copying the Versant License File

The default location of the license file (**license.xml**) is *C:\Siemens\Teamcenter\SystemEngineering\TcrServerDir\versant_license\license.xml*. Copy the **license.xml** file located in the **versant_license** folder (in the Architect/Requirements installation folders) to the *VERSANT_ROOT* folder (for example, *C:\Versant*). This file is needed to enable Versant.



You cannot create a database if you skip this step.

Initializing the Versant Database

You need to create a new database only in case of a new installation. To create and initialize the database, perform the following steps:

1.

Log on to the application server with the ID of the user who owns and manages the Versant database server.

2. From the command prompt, change the directory to the **schema** directory of your server installation. On the command prompt, enter the following command:

```
tcradmin -action initDB -logToStdOut
```

To test whether the database (for example, **TCR_db**) is successfully created, log on to the database server, and enter the following command on the command prompt:

```
dbinfo -p TCR_db
```

If the database creation is successful, the following output is displayed:

```
VERSANT Utility DBINFO Version 9.3.0  
Copyright (c) 2001-2017 Versant Software LLC and Copyright (c) 2013-2017 Actian  
Corporation. All rights reserved.
```

```
Database is in multi-user mode ...
```



At this point, the database is created and initialized. A Systems Architect/Requirements Management user named **tcradm** is created with a blank password and the **Enterprise Administrator** privilege.

When you run the Systems Architect/Requirements Management client to verify the installation or enter licensing information, you must log on as **tcradm**.

Testing the Database

To determine whether the Systems Architect/Requirements Management database is properly created and initialized, log on to the Versant database server, and perform the following steps. Replace **VERSANT_ROOT** with the name of the root directory in which Versant is installed on your system.

1. Run the following command at the command prompt to display all the databases in your Versant installation.

```
dblist
```

Verify that the default database (for example, **TCR_db**) is included in the output. If the output does not include **TCR_db**, the database is not created properly.

2. Run the following command to display information about the database.

```
db2tty -D TCR_db
```



This Versant command line utility can fail if it is not run from a command window launched without using the **Run As Administrator** option.

This command prints several pages of data from the database on the screen if the database is created properly.

In case of any problems with the database, contact support at http://www.plm.automation.siemens.com/en_us/support/gtac/.

Next Steps

Continue with the post-installation procedures such as:

- Deploying the **tcr.war** file.
- Entering Architect/Requirements license information.
- Adding a shared folder for the TcSE client installer
- Verifying the installation.

The procedures are described in [Post-installation Tasks](#).

Chapter 3: Upgrading the Installation

This chapter describes how to upgrade Architect/Requirements server software from the version 101 or later to Architect/Requirements 11.2.

Upgrade Overview

Architect/Requirements requires you to install or upgrade your Versant database separately from the Architect/Requirements installation. The Versant installation files are included on the Architect/Requirements media.



For the upgrade steps that require entering commands, you must type the commands and not copy and paste them into a command prompt from the documentation. If you copy and paste, the command may not work as intended.



The following assumptions are made in this section:

- The name of the Architect/Requirements server war file is **tcr.war**. While the Architect/Requirements installer allows you to use any name, **tcr.war** is the typically used name.
- The name of the Architect/Requirements Versant object database is **TCR_db**. While the Architect/Requirements installer allows you to use any name, **TCR_db** is the typically used name.
- The *system 1* refers to the state of the system before the upgrade procedure, and the *system 2* refers to the state of the system following the upgrade procedure.

User Privileges for Running the Installations

Users installing and configuring the Architect/Requirements server and the Versant database server must be logged on to the systems with administrator privileges.

The Architect/Requirements server installer should be run with a user ID that is authorized to manage both Architect/Requirements and Versant. This user ID may be different from the user ID used to install the Versant database.

Upgrade Planning

Upgrading your existing Architect/Requirements installation to the latest version will include the following activities:

- Upgrading the operating system.

For information about the latest supported version of the operating system, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

- Upgrading the application server from Architect/Requirements 10.1 or later to Architect/Requirements 11.2.
- Upgrading the Versant Object Database application from to version 9.3.

For information about the latest supported version of the Versant, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

Upgrading From Architect/Requirements 10.1 or Later Versions

If you are installing and configuring additional computers as Architect/Requirements servers or Versant database servers, you should upgrade both Versant and Architect/Requirements server software on each of the computers.

You can follow the steps below that are applicable for your corresponding configuration.

On the computer configured as both the Versant database server and the Architect/Requirements server:

- . Back up any important data
- . Undeploy the existing **tr.war** file on the application server.
- . Uninstall the existing Architect/Requirements server.
- . Uninstall Versant 8.0.2
- . Install Versant 9.3
- . Install Java.

For information about the supported version of Java, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

- . Upgrade the Web application server (if required).
- . Install the latest version of the Architect/Requirements server software.

In the Database Input dialog window, ensure that the host name of the Versant database server (installed and configured on a separate computer) and the name of the database are correct.

- . Run the Schema upgrade command.

- . Deploy the new **tcr.war** file on the application server.
- . Start the Web application server.
- . Launch Architect/Requirements and update the Web configuration parameters as needed.

On every computer configured as the Versant database server:

- . Uninstall Versant 8.0.2
- . Install Versant 9.3

On every computer configured as the Architect/Requirements server:

- . Back up any important data.
- . Undeploy the existing **tcr.war** file on the application server.
- . Upgrade the Web application server (if required).
- . Install the latest Architect/Requirements server software.

In the Database Input dialog window, ensure that the host name of the Versant database server (installed and configured on a separate computer) and the name of the database are correct.

- . Review and set the environment variables if needed.
- . Deploy the new **tcr.war** file on the application server.
- . Update the Web application configuration parameters, such as **JRE.Version**.
- . Enter the Architect/Requirements licensing information.
- . Restore any backed-up data.

Upgrade Prerequisite Tasks

You must perform the tasks mentioned in this section before starting the upgrade process.

Backup Customized JSP and Schema Files

Before the upgrade, you must back up any customized **JSP** files or custom schema. You can restore the **JSP** and schema after the upgrade process.

Copy Customized JSP Files

If you have created any custom **JSP** files, or modified any example **JSP** files, copy them to a temporary location before the upgrade process. The example files are overwritten during the upgrade process.

Exporting the Customized Schema Objects

If you have modified any schema objects supplied by Architect/Requirements, such as default templates and change approval activators, you must perform XML schema export of those objects from each project. The upgrade process replaces any standard schema objects that were changed from the previous release, and you must therefore perform the XML schema export.

These objects can be restored by importing them as a post-upgrade step.

Cleaning the Database and Taking a Backup

Before beginning the upgrade, you should review the health of your existing database and back it up.

Major version installations of Architect/Requirements often have schema changes that are not compatible with previous versions. To revert to a previous version, you must restore a Versant backup from that release.

Perform the following steps:

1. Run the Architect/Requirements **maintainDB** script to ensure that there are no critical errors in the database before proceeding to the next step.

```
tcradmin -action maintainDB
```

Verify and review the log file (*TcrAdminLog.html*).

2. Ensure that all users are out of the system and stop your application server.
3. Run the following commands to ensure that all database transactions are complete and that all data is flushed from cache.

```
stopdb TCR_db  
startdb TCR_db  
stopdb TCR_db
```



It is important to ensure that the database is properly shut down. If not, the Versant schema conversion fails.

4. Run the following Versant **check** database command to ensure that there are no database integrity issues before beginning the upgrade:

```
dbtool -check TCR_db
```



This Versant command line utility can fail if it is not run from a command window launched without using the **Run As Administrator** option.

If there are no errors, proceed to the next step. If there are errors, you must resolve them before proceeding with the upgrade.

5. Backup your existing Architect/Requirements database.

The backup is for safety purposes only. It is not used in the upgrade process. Your existing database is upgraded as part of the installation process.

To back up the complete database to a file, run the following command:

```
vbackup -level 0 -device fileName -backup dbname
```

Enter variable values as follows:

Replace *fileName* with the name of the backup file.

Replace *dbname* with the name of the database. The default name of Architect/Requirements database is **TCR_db**.



Database backup can be a time-consuming activity for large databases.

For example,

```
vbackup -device PATH\vbackup_VOD20071424.vbk -backup TCR_db
```



PATH is the directory where the backup file is kept.

6. After the backup, repeat the following commands to ensure that all database transactions are complete and that all data is flushed from cache.

```
stopdb TCR_db  
startdb TCR_db  
stopdb TCR_db
```



You must complete this step now. If you do not complete this step, the database conversion that occurs later in the upgrade procedure fails.

7. Back up all your custom **.jsp** files in the custom directory of the application server (such as BEA WebLogic), *application-server-installation-directory\tr\custom*.



The contents of this directory are removed when you undeploy the previous **tr.war** file and deploy the new one. You must use the backup files as replacements after the upgrade.

8. If the Sales and Services **DeltaMaintainDB** is used, remove it.

For more information on removing the Sales and Services **DeltaMaintainDB**, contact the *Global Siemens Sales and Services* team.

Upgrading the Operating System

If you do not currently have a Windows server operating system supported for Architect/Requirements server, contact your IT department for operating system deployment recommendations. The upgrade procedure supports either your existing system with an upgraded operating system, or the use of a separate server.

Uninstalling Architect/Requirements Web Applications



If system 1 and system 2 are not on the same machine,, do not uninstall your Architect/Requirements Web applications until you have verified your system 2 configuration.

Uninstalling the Architect/Requirements application server

1. Log on as a system administrator.
2. If the computer is also configured as Architect/Requirements server, stop the application server on which Architect/Requirements is installed.
3. If the computer is also configured as a Versant database server, run the following command to stop the Architect/Requirements database (for example, **TCR_db**) at a command prompt:

```
stopdb TCR_db
startdb TCR_db
stopdb TCR_db
```

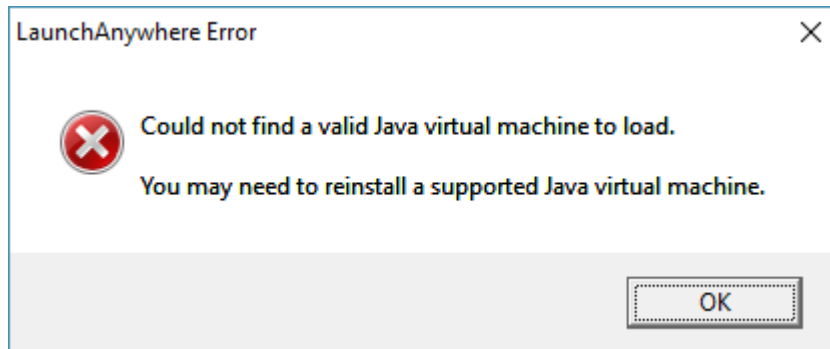
4. Uninstall the Architect/Requirements server software.

Run the uninstaller located under the **Uninstall** folder of the server installation folder (for example, **Uninstall Teamcenter for Systems Engineering Server 64bit Release_<version_number>.exe** located in the *C:\Siemens\Teamcenter\SystemEngineering\TcrServerDir\Uninstall* folder).

Alternatively, click **Start**→**Control Panel** and double-click **Add/Remove Programs**. Then remove the Architect/Requirements server software (for example, **Teamcenter for Systems Engineering Server 64bit Release_<version_number>**).



The Architect/Requirements server uninstaller will fail with a message similar to the following if there is a problem in locating a JRE:



The remedy is to insert the **LAX_VM** argument to explicitly specify the JRE used to run the uninstaller. For example, the following command uninstalls the Architect/Requirements server application, which had been installed to its default location, using **java.exe** under **JAVA_HOME**:

```
"C:\Siemens\Teamcenter\SystemEngineering\TcrServerDir\Uninstall\Uninstall
Teamcenter for Systems Engineering Server 64bit Release_<version_number>.exe"
LAX_VM "%JAVA_HOME%\bin\java.exe"
```

Undeploying the Existing WAR File

As part of the upgrade procedure, you should undeploy the existing **tcr.war** file before deploying the new **tcr.war** file. Follow the instructions from your application server vendor for removing a Web archive.

If you have any customizations in the **custom** folder inside the WAR file, create a backup for them so that you can add them to the new **tcr.war** file.

Installing Architect/Requirements Server



If system 1 and system 2 are not on the same machine, be sure to install your Architect/Requirements Server on system 2 prior to moving the database. It needs to be in place in order to complete that procedure.

You have now completed uninstalling your existing version. Continue by following the installation steps below.

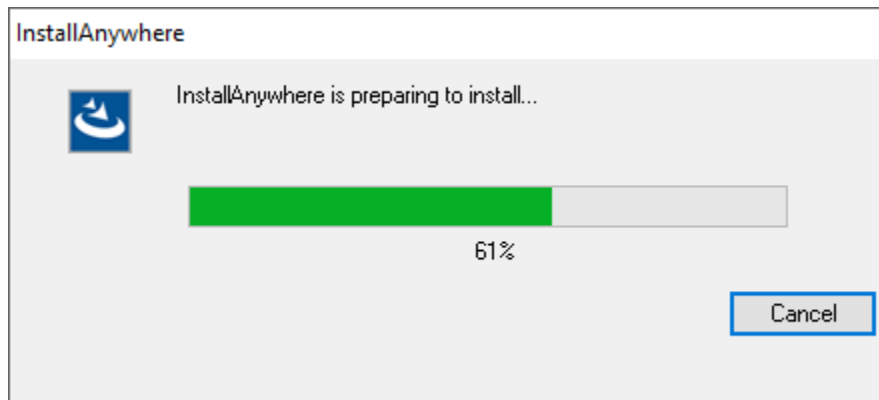
The installers are on the Architect/Requirements distribution archive.

The installer is located in the *Root-Folder\Server\Windows* folder.

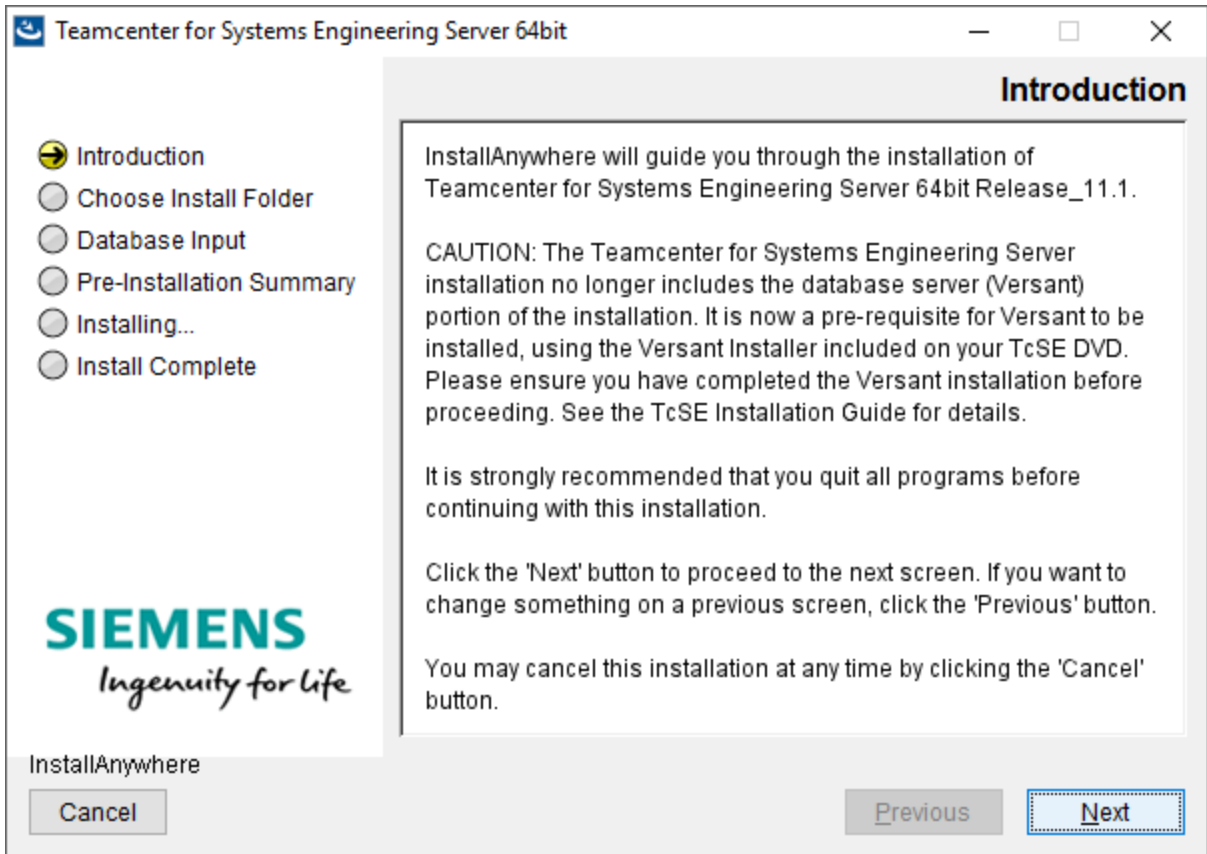
Installing the Server

To start the Systems Architect/Requirements Management Server installation process, perform the following steps:

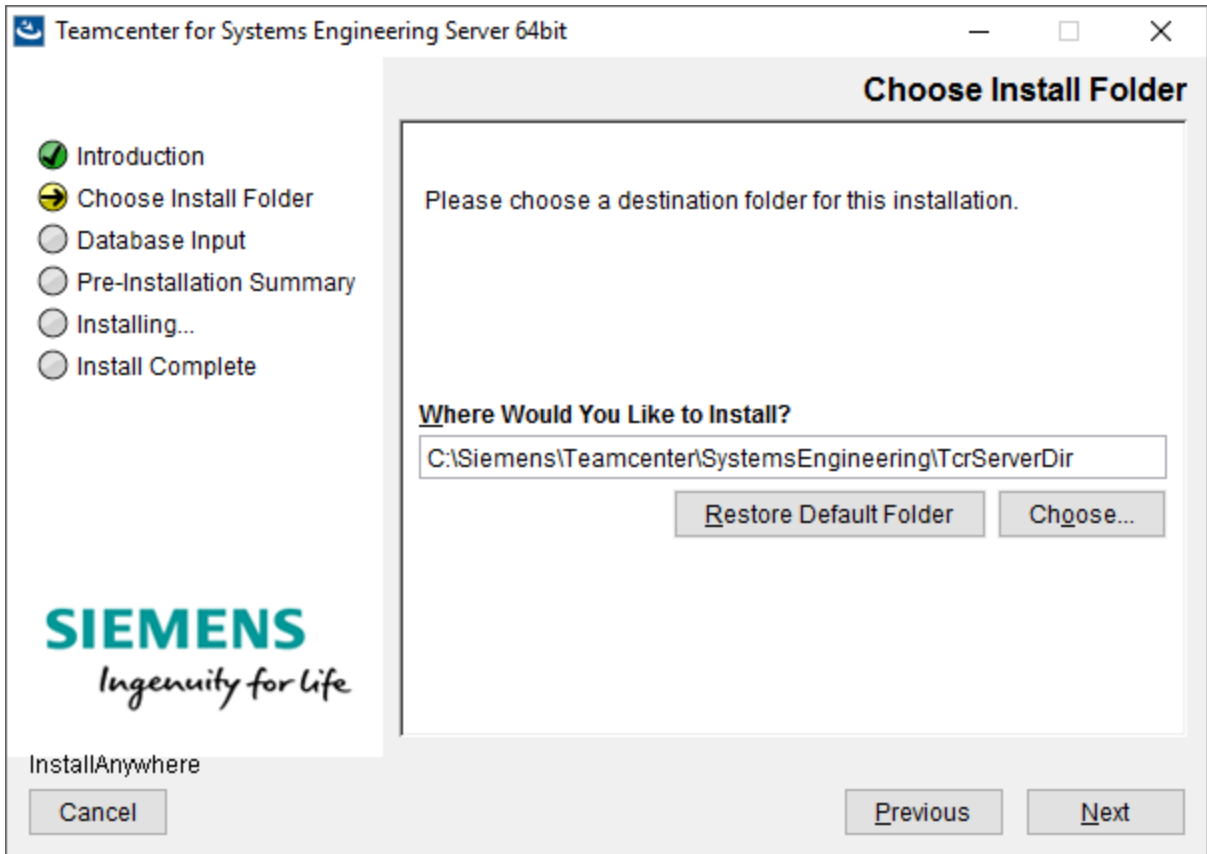
1. The installer file is **TcSE_Server_64.exe**. Execute the installer file.
It may take several minutes before the installation window appears.



2. In the **Introduction** screen, review the notes and click **Next** to begin the installation.



3. In the **Choose Install Folder** screen, click **Choose** to select the installation directory.
The installation path must not contain spaces.
To revert to the default location displayed by the installer, click **Restore Default Location**.
To revisit the previous options presented by the installer, click **Previous**.
Click **Next**.



4. In the **Database Input** screen, enter the name of the database server's host name and the name of the database.

The installer defaults to the local host name and **TCR_db**. This should be correct if you are installing the application server and database server on one machine. If the database is on a separate machine, enter the information applicable to that machine.

It is not necessary for the database to already exist at this point in the installation process. The installer needs this information to update the **war** file with the information needed to connect to the database after Architect/Requirements is deployed.

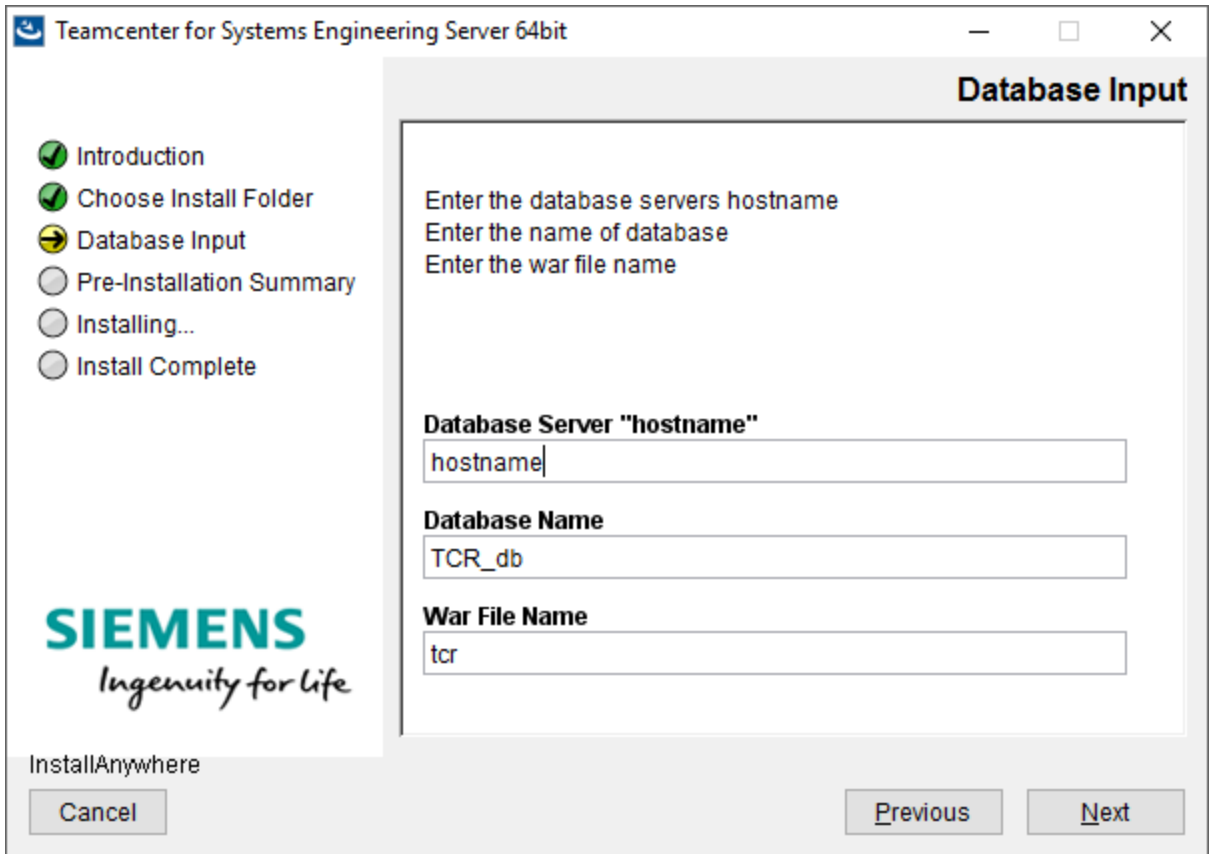


The **Database Server "hostname"** that you specify must be the same name that is used for the Versant installation.

The installer uses a default name **tcr**. If you customized the name of the war file during the original installation, you must specify the same name in the **War File Name** box.

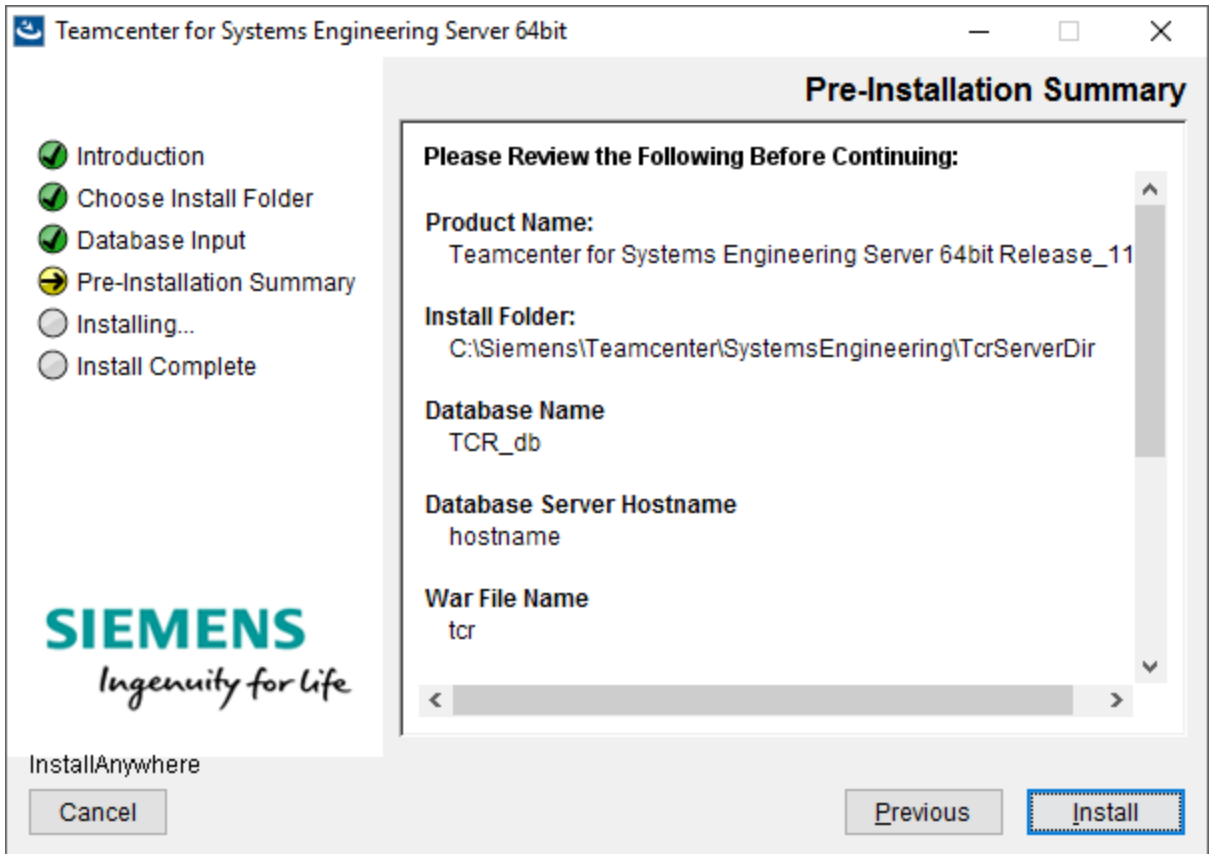
Using a different war file name for the upgrade is not supported.

Click **Next**.

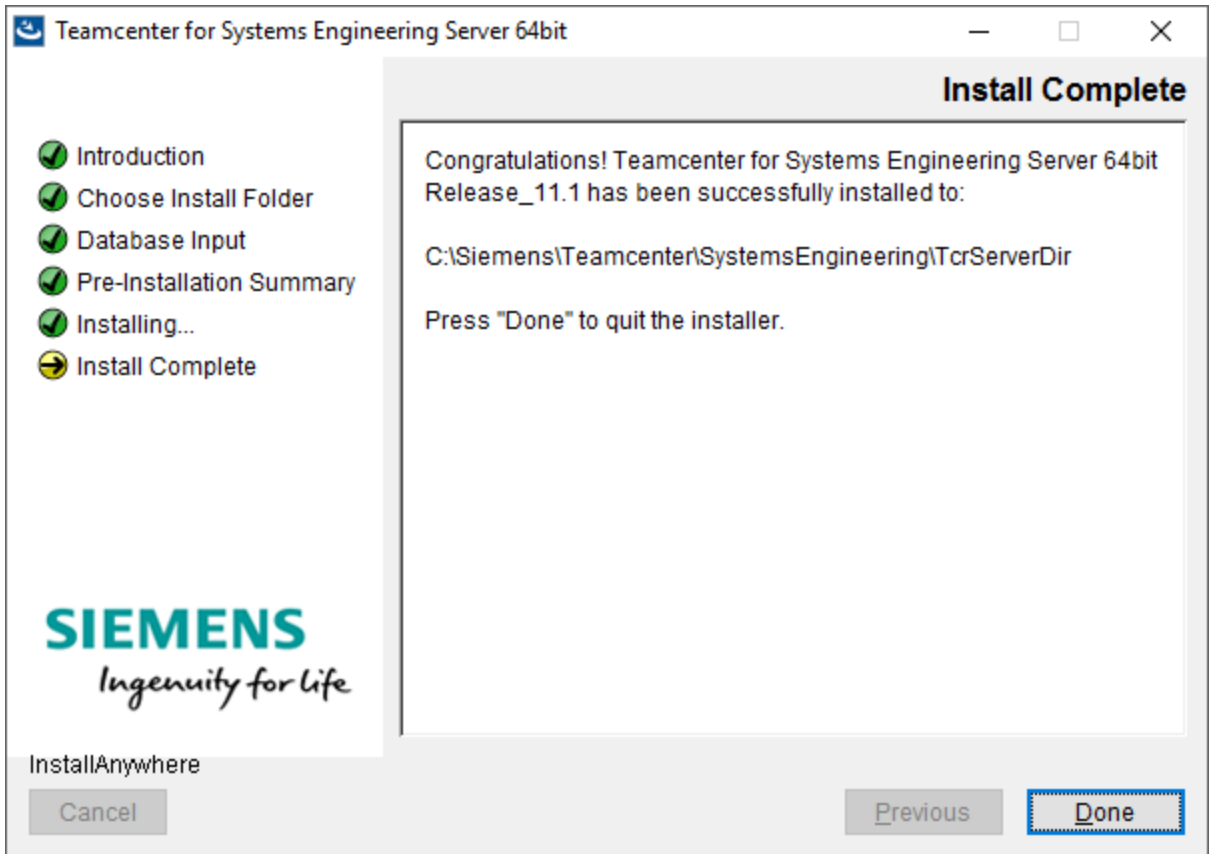


5. The **Pre-Installation Summary** screen displays information such as the product name, installation folder, database name, database server's host name, and disk space availability.

Click **Install** to begin the installation.



6. After the installation is successful, click **Done** to exit the installer.



Upgrading the Database for use with Architect/Requirements 11.2



The steps are also applicable for **Versant Object Database only** machines.

After the installation, you must upgrade the database for use with Architect/Requirements 11.2. Perform the following steps to upgrade the database.

Upgrading the Architect/Requirements Schema



If you intend to move your database to a new server while completing this upgrade, see [Appendix B, Upgrading the Architect/Requirements Schema while moving the database server](#). After you complete the steps in Appendix B, proceed to [Completing the Upgrade](#).

1. Stop the database. Execute the following command at the command prompt:

```
stopdb TCR_db  
startdb TCR_db  
stopdb TCR_db
```

2. Upgrade the Architect/Requirements schema.

From the command prompt, change the directory to the schema directory of your server installation. Execute the following command:

```
tcradmin -action upgradeDB -logToStdOut
```

Completing the Upgrade

1. Deploy the Architect/Requirements 11.2 web application **tcr.war** file.

For information on how to deploy the **tcr.war** file, see [Deploying the tcr.war File](#).

2. If you have also moved your database to a new server with this upgrade, you must restore the customer number and Architect/Requirements license information recorded in the prerequisite steps.

3. Upgrade the Architect/Requirements client.

To upgrade the Architect/Requirements client, you must uninstall the previously installed client.

For information on uninstalling the Architect/Requirements client, see *Uninstalling the Architect/Requirements Client* in the *Systems Architect/Requirements Management User's Manual*.



Architect/Requirements 11.2 requires 32-bit Java 8. Uninstall all previously installed JREs and install a supported update of 32-bit Java.

For information about the supported version of Java, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

Install the new Architect/Requirements client.

For information on installing the Architect/Requirements client, see *Installing the Architect/Requirements Client with Office Integration* in the *Systems Architect/Requirements Management User's Manual*.

4. Start an Architect/Requirements client and verify the upgrade.



Elevated user privileges (power user or administrator) are required for the installation as registry entries are updated with the patch information.

For information on how to start the client and perform the verification, see [Verifying the Installation](#).

Running the maintainDB Utility

Siemens PLM Software recommends that you run the **maintainDB** utility after upgrading your database from any earlier version.

To examine and correct the entire database, run the **tcradmin** command. From the command prompt on system 2, change the directory to the schema directory of your server installation. Execute the following command from the command prompt:

```
tcradmin -action maintainDB -logToStdOut
```

For more information about running **maintainDB**, see the *Systems Architect/Requirements Management System Administrator's Manual*.

Next Steps

Continue with the post-upgrade procedures such as:

- Restoring custom **JSP** files.
- Updating the Web application configuration parameters.
- Entering Architect/Requirements license information.
- Adding a shared folder for the TcSE client installer
- Upgrading the Architect/Requirements clients.
- Verifying the installation.
- Restoring the customized schema.

The procedures are described in [Post-installation Tasks](#).

Chapter 4: *Post-installation Tasks*

This chapter describes the procedures to be followed after installing or upgrading the Systems Architect/Requirements Management server.

Overview

Some of the post installation or upgrade procedures are:

- Restoring custom JSP files.
- Deploying the **tr.war** file.
- Updating the Web Application Configuration parameters.
- Entering Architect/Requirements license information.
- Upgrading the Architect/Requirements clients.
- Verifying the installation.
- Restoring customized schema.

Restoring Custom JSP Files

Before upgrading to a newer version of Architect/Requirements, you may have backed up all your custom JSP files before undeploying an existing **tcr.war** file. You can restore these custom JSP files to ensure that your customized information is available after upgrading the server software.

The JSP files were located in the custom directory of the application server (such as BEA WebLogic), *application-server-installation-directory\tcr\custom*.

To restore your custom JSP files:

1. Create a temporary folder and extract the **tcr.war** file.
You can use Winzip, or run the command: `jar -xf tcr.war`
2. Add the backed up JSP files to the **custom** folder.
3. To prevent adding the existing **tcr.war** file to the new WAR file, delete or move it (the existing **tcr.war** file) from the temporary folder.
4. Zip the contents of the temporary folder to create the new WAR file.

You can use Winzip, or run the following command:

```
jar -cf tcr.war *
```

Deploying the tcr.war File

The Architect/Requirements Web component (**tcr.war**) contains libraries required for the functioning of the Architect/Requirements server. You should deploy the **tcr.war** file on the application server (such as BEA WebLogic) after installing or upgrading the Architect/Requirements server software.

The Architect/Requirements WAR file (**tcr.war**) is located in the **war_file** directory. The typical location of the **war_file** folder is *C:\Siemens\Teamcenter\SystemEngineering\TcrServerDir\war_file*.

Use an appropriate example provided in the following sections to deploy the WAR files. For more instructions specific to your application server, see the documentation provided by the vendor.

Deploying tcr.war File on Oracle WebLogic

Use the examples provided in this section to deploy a WAR file on Oracle WebLogic.

Deployment Process

To deploy the WAR file on Oracle WebLogic, perform the following steps:

1. Edit the **CLASSPATH** variable.
2. Create a WebLogic domain for Systems Architect/Requirements Management.
3. Deploy the WAR file.
4. Restart WebLogic.

Edit the Classpath Variable



If the **CLASSPATH** includes the **jvi.jar** file before WebLogic is launched, deployment of **tcr.war** fails.

Before you start WebLogic, you must ensure that the **jvi.jar** file path is not included in the **CLASSPATH** environment variable. The Architect/Requirements application server must use its own copy of the Versant Object Database's **jvi.jar** file, and a **jvi.jar** file included in the **CLASSPATH** can prevent **tcr.war** from deploying successfully.

For example, if the **CLASSPATH** in your WebLogic environment includes a path to a **jvi.jar**, `C:\Folder1\jvi.jar`, the **tcr.war** deployment will fail:

```
CLASSPATH=C:\Folder1\jvi.jar;C:\Folder2\jarfile2.jar;C:\Folder3\jarfile3.jar
```

The remedy, prior to starting WebLogic, would need to set **CLASSPATH**, excluding `C:\Folder1\jvi.jar`, similar to the following:

```
set CLASSPATH=C:\Folder2\jarfile2.jar;C:\Folder3\jarfile3.jar
```

Create a WebLogic Domain

Before deploying the WAR file, you must create a WebLogic domain.

To create a domain:

1. From the Oracle Fusion Middleware Configuration Wizard, choose **Create a new WebLogic domain** and click **Next** to continue.



Typically, the Configuration Wizard is available at **Start** → **All Programs** → **Oracle** → **Configuration Wizard**.

2. Choose **Generate a domain configured automatically to support the following Oracle products:** and check the **Basic WebLogic Server Domain** check box. Click **Next** to continue.
3. Enter and note the default administrator user name and password for the domain. This information is required to start and stop the WebLogic application server, or to access the WebLogic Administrative Console. Click **Next** to continue.
4. In the **Domain Mode and JDK** screen, choose the **Production** Domain Mode, choose a supported 64-bit Oracle JDK, and click **Next** to continue.
5. In the **Advanced Configuration** screen, check the Administration Server box, and click **Next** to continue.
6. In the **Administration Server** window, enter and note the port number, such as **7010**. Then enter and note the name for the Systems Architect/Requirements Management domain, such as **tcr_7010**, and click **Next**.
7. In the **Configuration Summary** window, verify that the summary, and then click **Create**.
8. Once the **Configuration Progress** window shows 100%, click **Next**.
9. Verify that the **End of Configuration** window indicates that the domain creation succeeded, and click **Finish**.

For the domain in the example above, the WebLogic configuration files and folders are typically created at *C:\oracle\user_projects\domains\tr_7010*.

Deploying the War File

Start the WebLogic application server by running the **Start the Admin Server for WebLogic Server Domain** command. It is typically available at *C:\oracle\user_projects\domains\domain_name\bin\startWebLogic.cmd*. Enter the default administration user name and password when prompted.

Launch the Oracle WebLogic administrative console and log on using the default administration user name and password. For a domain created with the port **7010**, the administrative console can be typically launched using **http://hostname:7010/console**.

To deploy the war file:

1. In the **Change Center** section in the left pane, click the **Lock & Edit** button to modify, add, or delete items in this domain.
2. In the **Domain Structure** section in the left pane, click **Deployments**. The **Summary of Deployments** page is displayed. Click **Install** under **Summary of Deployments**.
3. On the **Install Application Assistant** pane, browse to the location of the WAR file. The Architect/Requirements WAR file (**tr.war**) is located in the **war_file** directory. The typical location of the **war_file** folder is *C:\Siemens\Teamcenter\SystemEngineering\TcrServerDir\war_file*.
4. Choose the WAR file and click **Next** to continue. The processing usually takes a few seconds. You must wait until the hour glass cursor disappears and the **Install Application Assistant** pane is displayed.
5. Choose the **Install this deployment as an application** installation type and click **Next**.
6. On the **Install Application Assistant** pane, click **Finish**.
7. In the **Change Center** section in the left pane, click **Activate Changes** to activate the pending changes.
8. Restart WebLogic.
9. When the restart is complete, login once again to the WebLogic administration console.
10. In the **Domain Structure** section in the left pane, click **Deployments**. The **Summary of Deployments** page is displayed.
11. Select the **Control** tab under **Summary of Deployments**, and select the check box next to the WAR file (for example, **tr**). Click the arrow next to the **Start** button and select the **Servicing all requests** option.
12. In the **Start Application Assistant** pane, click **Yes**.
After the processing is successful, the state column next to the WAR file (for example, **tr**) is **Active**.
Log out of the WebLogic administrative console.

Deploying tcr.war File on IBM WebSphere

The examples in this section are for a typical WebSphere installation. If you are not an experienced Web server administrator, Siemens PLM Software recommends that you do only the actions in these examples and retain other default WebSphere settings.

To deploy the WAR file on IBM WebSphere, perform the following steps:

1. Deploy the WAR file.
2. Restart WebSphere.
3. Install the security JAR files that are required for Systems Architect/Requirements Management licensing.

Deploying the War File

To deploy the war file:

1. Log on to the WebSphere application server administration console.
By default, the IBM WebSphere administrative console is run on Port 9060:
http://localhost:9060/ibm/console.
2. In the left pane, expand **Applications**→**Application Types**, and then click the **Websphere enterprise applications** link.
3. In the **Enterprise Applications** pane, click the **Install** button.
4. In the **Preparing for the application installation** pane, select **Local file system**, click **Browse** and select the Architect/Requirements WAR file.

The Architect/Requirements WAR file (**tcr.war**) is located in the **war_file** directory. The typical location of the **war_file** folder is

C:\Siemens\Teamcenter\SystemEngineering\TcrServerDir\war_file.

5. In the **Preparing for the application installation** pane, select **Fast Path**, and click **Next**.
6. In the **Install New Application** pane, for **Step1: Select installation options**, click **Next**.
7. In the **Install New Application** pane, for **Step 2: Map modules to servers**, select the **Teamcenter 11 for systems engineering** check box and click **Next**.
8. In the **Install New Application** pane, for **Step 3: Map virtual hosts for Web modules**, select the **Teamcenter 11 for systems engineering** check box and click **Next**.
9. In the **Install New Application** pane, for **Step 4: Map context roots for Web modules**, enter **/tcr** as the **Context Root** and click **Next**.
10. In the **Install New Application** pane, for **Step 5: Summary**, click **Finish**.

This action initiates the deployment process, which may take several minutes. After the WAR file is deployed, the installation summary is displayed, and it includes a message such as:

`Application tcr_war installed successfully.`

11. Click the **Save Directly to Master Configuration** link to save the settings for Systems Architect/Requirements Management.

12. Restart WebSphere.
13. In the left pane, expand **Applications**→**Application Types**, and then click the **Websphere enterprise applications** link.
14. Check that the application (for example, **tcr_war**) is started.

The **Application Status** must display a green arrow. Systems Architect/Requirements Management is deployed and running.

If it is not started, a red cross is displayed as the **Application Status**. Select the check box in front of the application and click **Start**.

Installing the Security JAR Files

To install the security JAR files, perform the following steps:

1. Open the main Architect/Requirements login page.
2. Click the **Administrative Tools** link. On the Administrative Tools page, click the **Web Application Configuration** link.
3. Log on as an enterprise administrator user (typically **tcradm**).
4. Scroll to the bottom of the page and click the **Install Security Files** button.
5. On the page displaying the **From** and **To** locations, the **To** text box must include the only the complete path to the server JRE's **lib/ext** folder. For example, **D:\apps\IBM\WebSphere\AppServer\java\jre\lib\ext** . Delete any additional path information or semicolons.
Click **OK**.
6. After the process completes, click the **Close** button.

Deploying the tcr.war File on Apache Tomcat

This section provides procedure examples for deploying the WAR file on Apache Tomcat.



The examples in this section are for a typical Tomcat installation. If you are not an experienced Web server administrator, Siemens PLM Software recommends that you do only the actions in these examples and leave all other Tomcat settings at the defaults.

To deploy the WAR file on Apache Tomcat:

1. Install the Java Development Kit (JDK).
2. Install Apache Tomcat.
3. Deploy the WAR file.

Installing JDK

Install JDK, using the installation program provided by Oracle.

For information about versions of the JDK supported for Apache Tomcat, see the Siemens PLM Software Certification Database:

http://www.plm.automation.siemens.com/en_us/support/gtac/certifications.shtml and see the **Teamcenter Systems Engineering Software Certifications** section.

Installing Apache Tomcat

Install Tomcat, using the installation program provided by Apache.



The JDK must be installed first, because the Tomcat installation program detects the JDK version on your system. If the wrong location is detected, cancel the installation and set the **JAVA_HOME** environment variable to the location of JDK on your system. Tomcat then uses this location.

Deploying the WAR File

When both JDK and Tomcat are installed, you can deploy the WAR file.

1. Copy the WAR file from the Architect/Requirements installation directory to the **TOMCAT_HOME\Webapps** folder.

The Architect/Requirements WAR file (**tcr.war**) is located in the **war_file** directory. The typical location of the **war_file** folder is

C:\Siemens\Teamcenter\SystemEngineering\TcrServerDir\war_file.

The WAR file should be copied to the **Webapps** folder within your Tomcat directory structure.

2. Deploy the WAR file on Tomcat.

Ensure that Tomcat is running. Tomcat expands the WAR file automatically. Under the **Webapps** directory, Tomcat creates a directory named **tcr** with the contents of the WAR file.

3. Restart Tomcat.

The Apache Tomcat application server caches **.jsp** files that it compiles at runtime under the **tomcat_root\work** folder. In some cases, simply deleting and re-deploying the WAR file does not force

Tomcat to reload these cached files. This causes Architect/Requirements to run with the older versions of **.jsp** files from previous releases.

As a workaround:

1. Delete the old WAR file and the deployment folder.
2. Delete the **tcr** folder, typically found at *tomcat_root\work\User\localhost\tcr* where *User* is the user name.
3. Deploy the Architect/Requirements WAR file.
4. Restart Tomcat.

Updating the Web Application Configuration Parameters

If you are upgrading your installation, update the Web application configuration parameters by performing the following steps:

1. Open the main Architect/Requirements login page.
2. Click the **Administrative Tools** link. On the Administrative Tools page, click the **Web Application Configuration** link.
3. Log on as an enterprise administrator user (typically **tcradm**).
4. Scroll down to the **JRE.Version** parameter, and select the **Reset to Default** check box to update the list of JRE software supported for this release.

The **Reset to Default** check box is not available in case of new installation.

5. Scroll to the bottom of the page and click the **Update** button. The updated values of the **JRE.Version** parameter are displayed.
6. Click **OK**.

Entering Architect/Requirements License Information

You receive license information in an e-mail message from Siemens PLM Software Customer Support when your Architect/Requirements application is registered.

The license information includes:

- Your customer number, located on the **Installation No** line in the message body.
-

Your license key, contained in the license file named **tcr.lic** that is attached to the message.

The license key is an encrypted text string that controls a certain number of licenses and license types. The key contains information such as your customer number, an expiration date, and the number of seats for each license type.

Enter this license information after the **tcr.war** file is deployed and the database is initialized or upgraded.

For more information about managing licenses, see the *Systems Architect/Requirements Management System Administrator's Manual*.

Entering Your Customer Number

Your customer number is located on the **Installation No** line in the e-mail message that you receive from Siemens PLM Software Customer Support.

1. In Microsoft Internet Explorer, open the Architect/Requirements home page, and then click the **Administrative Tools** link.
2. On the Administrative Tools page, click the **Web Application Configuration** link.
The Architect/Requirements login page is displayed.
3.
Enter **tcradm** in the **User Name** field, and then click **Log In**.



If your server is newly upgraded, the password for the **tcradm** user is unchanged. For a newly installed server, leave the **Password** field blank. A password is not required as the database is newly initialized.

The Configuration Parameters page is displayed.



You can also display the Configuration Parameters page by entering the following URL in the Internet Explorer **Address** field.

```
http://server:port/tcr/ugs/tc/req/configtcr.jsp
```

4.
Locate the **LIC.CustomerNumber** parameter, and then enter your customer number in the corresponding **Current Database Value** field.
5. At the bottom of the page, click **Update**.
A confirmation page displays the proposed and current values for the parameter.
6. To commit the proposed value to the database, click **Ok**.
The Configuration Parameters page is displayed, with your customer number as the **LIC.CustomerNumber** parameter value.

For more information about managing licenses, see the *Systems Architect/Requirements Management System Administrator's Manual*.

Entering Your License Key

Your license key is in the license file named **tcr.lic**. This file is attached to the e-mail message that you receive from Siemens PLM Software Customer Support.



Your customer number must be entered before you start this procedure. For more information, see [Entering Your Customer Number](#).

1. On the Architect/Requirements home page, click the **Administrative Tools** link.
The Administrative Tools page is displayed.
2. Click the **TcSE Licensing** link.

The License Information page is displayed, with a summary of the license count from all license keys.

3.

Click the **Manage Licenses** link.

The Architect/Requirements login page is displayed.

4.

Enter your enterprise administrator user name and password, select a language, and click **Log In**.

The License Management page is displayed.



If your database is new and if your customer number is not entered, an alternate page is displayed. This page contains a link to the Web Application Configuration page.

Click that link, enter your customer number in the **LIC.CustomerNumber** parameter, and click the **Update** button. Then repeat this procedure.

5. Open the **tcr.lic** file in a text editor (for example, Microsoft Notepad), and copy the encrypted string to the clipboard.

6. In the text field at the bottom of the License Management page, delete the words **Enter Key Here** and paste the encrypted string into the field.



You can reverse this action by clicking **Clear**.

7. Click **Add Key**.

The license management utility checks the license key. When the license key is validated, a confirmation page displays the license key information in unencrypted format.

Click **Back** to return to the License Management page, where you can enter the key again or enter another key.



If the license key is invalid, expired, or a duplicate, an error message is displayed.

8. Click **Add**.

The license key is committed to the database. The License Management page displays the new license key in the table of encrypted strings.



If you have two or more Web application servers that point to the same database, and if you manage each server separately through the **Installation Key** parameter in the **web.xml** file, you must add this license key on each server.

Adding a Shared Folder for the TcSE Client Installer

The Systems Architect/Requirements Management installation program creates the *TcSE_Client_Installer* directory under the Systems Architect/Requirements Management server directory. This directory

(folder) should be shared across the Windows network for TcSE system administrators to install, and to diagnose issues for, the TcSE client. Contact your local IT department for assistance with adding *TcSE_Client_Installer* as a shared folder.

Upgrading the Architect/Requirements Client

After you have completed the server upgrade, you must upgrade all the Architect/Requirements client.

Elevated user privileges (power user or administrator) are required for uninstalling the Architect/Requirements client.

To upgrade an Architect/Requirements client

1. Uninstall the existing client.

For information on uninstalling the Architect/Requirements client, see *Uninstalling the Architect/Requirements Client* in the *Systems Architect/Requirements Management User's Manual*.

2. Install the latest Architect/Requirements client.

For information on installing the Architect/Requirements client, see *Installing the Architect/Requirements Client with Office Integration* in the *Systems Architect/Requirements Management User's Manual*.

Verifying the Installation

Verifying the Installation on the Server

After the patch is deployed, you can verify the Architect/Requirements Server patch version.

To verify the Architect/Requirements Server patch version:

1. Open the Architect/Requirements client home page.
2. Click **Administrative Tools**.
3. Click **Diagnostic Tools**.
4. Click **Server Version**.

Ensure that the server patch version for the Architect/Requirements war file and **tcrServer.jar** file is displayed as **11.1.0**.

To verify that the correct version of the **tcrServer.jar** was copied to your schema directory, navigate to the schema directory and execute the following command:

```
tcradmin -action showVersion logToStdOut
```

Verify that the following details are displayed on the screen:

```
Product-Version: Release_11.1
Product-Client-Patch: 11.1.0
Product-Server-Patch: 11.1.0
```

In addition to the **Server Version** diagnostics, there are additional diagnostic utilities that provide information about the environment in which the Systems Architect/Requirements

Management server is installed. This information helps you troubleshoot problems with the installation.

For detailed information about using these utilities, see *Running System Utilities* in the *Systems Architect/Requirements Management System Administrator's Manual*.

Verifying the Installation on the Client

You verify the Systems Architect/Requirements Management server installation by running the Systems Architect/Requirements Management client. If the client connects to the database, the installation is successful.

For detailed information about installing the client, see the *Systems Architect/Requirements Management User's Manual*.

To run the Systems Architect/Requirements Management client and verify the version:

1. Verify that the Systems Architect/Requirements Management application server is running.

Record the name and port number of the application server.

2. In the Microsoft Internet Explorer **Address** field, enter the URL of the Systems Architect/Requirements Management home page.

For example, if your host is named **MyHost** and is running on port **8080**, you would enter the following:

```
http://MyHost:8080/tcr
```

3. Click the **Launch Teamcenter systems engineering** link.
4. In the **User Name** and **Password** fields, enter your Systems Architect/Requirements Management user name and password.

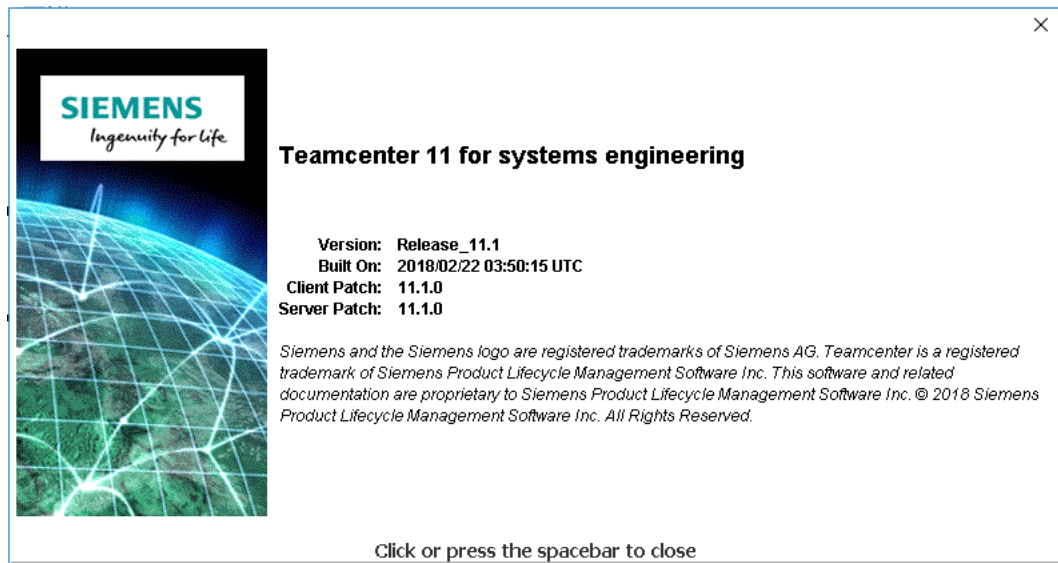
If you have just created the Systems Architect/Requirements Management database, enter **tcradm** as the user name. This is the default user name created at the time of initializing the Architect/Requirements database and it has no password.

5. Click **Login**, or press the enter key.
6. Follow the subsequent instructions in the installation wizard.

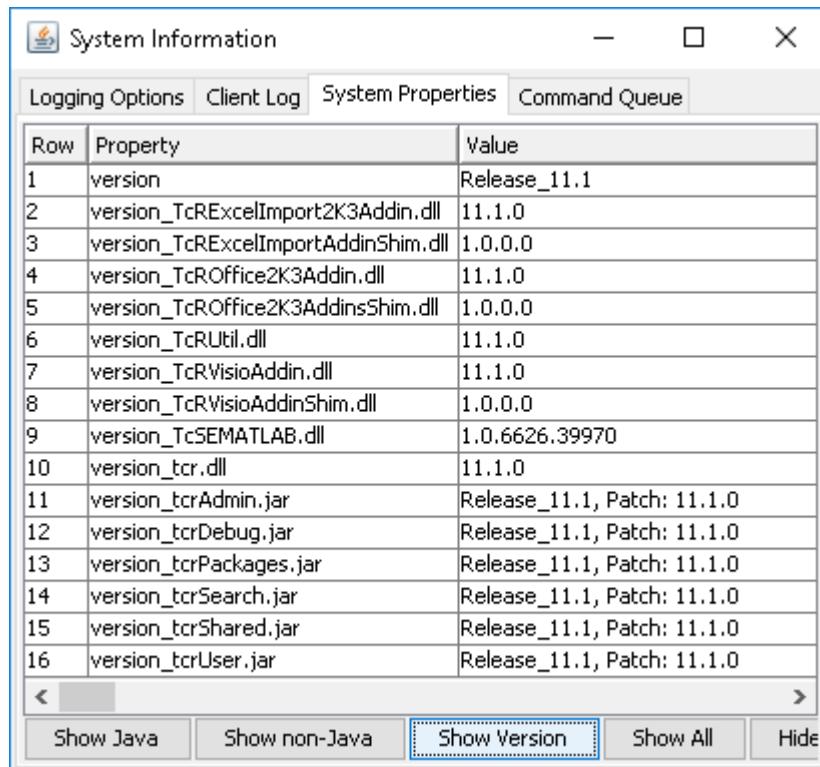


One of the JRE versions as defined in the **JRE.Version** Web configuration parameter must be present on the client machine. If that version is not present on the client machine, the Architect/Requirements server prompts you to install it the first time you run Architect/Requirements.

7. After the Architect/Requirements client is launched, verify the version by either of the following methods:
 - Click **Help**→**About** to view the **About** box. The splash screen displays the patch version as **11.1**.



- View the **System Properties** by clicking **Tools**→**System Information**→**System Properties**→**Show Version**. Architect/Requirements displays the version information for files installed on the client computers.



Restoring Customized Schema

Before upgrading to a newer version of Architect/Requirements, you may have exported the locally modified schema objects supplied by Architect/Requirements.

You may perform an XML schema import of those objects.

Importing Schema for Folder Move Confirmation

After you have verified the installation, you can optionally add schema to provide an optional confirmation when users attempt to move a top-level folder. See PR 6847222 for details.

To Import Schema to provide Folder Move Confirmation

1. Log on to Architect/Requirements as a user with the Enterprise Administrator privilege.
2. Navigate to the **Administration** module.
3. Right-click the **TcR Administration** project.
4. From the menu, select **Import**→**Import Schema**.
5. Select the **AdminProjectSchema.xml** file, extracted from the **TcSE_11.1.zip** file to the temporary folder and click **OK**.

Chapter 5: Uninstalling Architect/Requirements

This chapter describes the situations when you may need to uninstall the Systems Architect/Requirements Management server software. A reference to the detailed instructions is also provided.

Uninstalling the application server software

In some situations, you may want to uninstall the Systems Architect/Requirements Management application server software from your application server. For example:

- To move the application server to a different system.
- To reinstall the application server in a different location on the same server.
- To upgrade to a new version of Systems Architect/Requirements Management.
- When your evaluation is concluded.

The instruction to uninstall the Systems Architect/Requirements Management application server is explained in [Uninstalling Architect/Requirements Web Applications](#).



The name of the uninstaller executable in the uninstall folder of the version 11.1 has been simplified to the standard name, *uninstall.exe*, unlike in previous versions where the name included the version number.

Appendix A: Directories and Files Created During Server Installation

The Systems Architect/Requirements Management installation program creates the following directories under the Systems Architect/Requirements Management server directory:

- **Uninstall**
This directory contains files needed to uninstall the Systems Architect/Requirements Management server.
- **jvi_root**
Contains the Versant client runtime files used by the Systems Architect/Requirements Management server.
- **schema**
This directory contains the files necessary for administrative functions such as creating a new database and maintenance utilities such as **MaintainDB**.
The main script is **tcradmin**. The rest are supporting Java files. The **version.txt** file contains the Architect/Requirements version that these files are built from.
- **security_jars**
This directory contains Java files necessary for the licensing of Systems Architect/Requirements Management to function properly on WebSphere.
- **TcSE_Client_Installer**
This directory contains the TcSE client installer, **setup.exe**, along with its accompanying files. It also includes the Live Office Diagnostic utility, **TcSEDiagnosticTool.exe**. This directory (folder) is intended to be shared across the Windows network for TcSE system administrators to install, and to diagnose issues for, the TcSE client.
- **versant_license**
This directory contains the **license.xml** file. This file must be copied to your **VERSANT_ROOT** directory.
- **war_file**
Contains the Systems Architect/Requirements Management Web archive. This file must be copied to or deployed on your application server.

The following files are at the root level:

- **Teamcenter_for_Systems_Engineering_Server_64bit_VERSION_InstallLog.log**: This is the installation log file.

Appendix B: Upgrading the Architect/Requirements Schema while moving the database server

This appendix describes how to upgrade the Architect/Requirements schema while moving a database server. It is a useful if you need to move your database server to meet certification requirements on the upgraded system.



The following assumptions are made in this section:

- The name of the Architect/Requirements server war file is **tcr.war**. While the Architect/Requirements installer allows you to use any name, **tcr.war** is the typically used name.
- The name of the Architect/Requirements Versant object database is **TCR_db**. While the Architect/Requirements installer allows you to use any name, **TCR_db** is the typically used name.
- The *system 1* refers to the system as it exists prior to upgrade procedure, and the *system 2* refers to the system as it exists following the upgrade procedure.
- Commands executed on Window servers must be executed from an Administrator command prompt.

Ensuring unique database numbering

If this is the first database being moved to System 2, you must ensure that the Versant database IDs created on System 2 begin with a new numbering series. To do this :



You must perform this step only once. If you have performed this step previously, move on to the next appropriate section.

1. Determine the highest number used on System 1 to date by running the *dblist* command with no arguments at the System 1 command prompt:
2. From the output, you will see that the number for each database is shown in the “ID” field.
3. Record the highest database ID number viewed from the output.
4. Set the threshold database ID on System 2 by entering the following commands on the System 2 command prompt.:

```
dblist
```

```
makedb -nofeprofile TempDB
```

```
createdb TempDB
```

```
setdbid <HighestDatabaseIDNumberOnSolaris> TempDB
```

```
removedb -rmdir TempDB
```

System 1 running on Solaris Server

If you intend to move a database from a Solaris server to Windows server, complete the steps that follow. Otherwise, proceed to the next section.

1. If you are upgrading from a previous release, you must first install Versant Object Database 8.0.2 on System 2. Please refer to Chapter 2 of the Architect/Requirements 10.1 installation manual for details.



To perform this step, System 2 must be running on a Windows Server supported by Architect/Requirements 10.1. Specifically:

- If you intend to move the database to Windows Server 2012 R2, you can do so by simply completing the procedure in this section, since it is supported by both Architect/Requirements 10.1 and Architect/Requirements 11.1.
- If you intend to move the database to Window Server 2016, you must first move the database to a Windows Server supported by Architect/Requirements 10.1 by completing the procedure in this section. Once that is complete, you can then move to Windows Server 2016 by performing a second database move per the next section, [System 1 running on Windows Server](#).

2. Ensure that the user performing the upgrade process on system 2 has the Versant DBA role assigned on the system 1 database. To check the user's existing status, execute the following command on the database server used by system 1:

```
dbuser -list TCR_db
```

If the user is not assigned the DBA role, execute the following command on the database server used by system 1:

```
dbuser -add -n <UpgradeUserName> -role DBA TCR_db
```

3. Note down your **Customer Number** and **License Key** information using the **Web Application Configuration** and **TcSE Licensing links** on the **Administrative Tools** page of system 1.

As the system 2 database is on a different machine, you need to enter the information while deploying the **tcr.war** file.

4. To create the database directory, execute the following command from the command prompt of system 2:

```
makedb -nofeprofile TCR_db
```

5. Copy the **profile.be** file from the system 1 **TCR_db** directory to the system 2 database directory.



The upgrade process causes a small increase in the database size.

Ensure that the Versant system volume, as specified by the **sysvol** parameter in **profile.be**, is large enough to accommodate the database that you are copying. For example, if the size of the database is **10 GB**, the **sysvol** must be a minimum of **12000M** including **20%** room for growth.

The **profile.be** syntax is **M** for **megabytes**.

- To create the database, execute the following command from the command prompt of system 2:

```
createdb -i TCR_db
```

- Ensure that the user who owns the database on system 1 has the Versant DBA role assigned on the system 2 database. To check the user's existing status, execute the following command on system 2:

```
dbuser -list TCR_db
```

If the user is not assigned the DBA role, execute the following command on system 2:

```
dbuser -add -n <System1DatabaseOwnerUserName> -role DBA TCR_db
```

- Copy the database from system 1 to system 2 by executing the following command on system 2:

```
vcopydb -nolock -nocreate -optimize TCR_db@<System1> TCR_db
```

- Copy the **profile.be** file from system 1 **TCR_db** directory to system 2 database directory.



The previous step overwrites the **profile.be** file so you must copy it again.

Ensure that the Versant system volume, as specified by the **sysvol** parameter in **profile.be**, is large enough to accommodate the database that you are copying. For example, if the size of the database is **10 GB**, the **sysvol** must be a minimum of **12000M** including **20%** room for growth.

The **profile.be** syntax is **M** for **megabytes**.

- Stop the database. Execute the following command at the command prompt of system 2:

```
stopdb TCR_db  
startdb TCR_db  
stopdb TCR_db
```

- If you are upgrading from a previous release, you must now uninstall the Versant Object Database 8.0.2 from system 2, and install Versant Object Database 9 in its place. Please refer to Chapter 3 of this manual for details.

- Upgrade the Versant schema. Execute the following command at the command prompt of system 2:

```
cnvrtdb TCR_db
```

- Create the session user. From the command prompt on system 2, change the directory to the schema directory of your server installation. Execute the following command from the command prompt of system 2:

```
tcradmin -action createSessionUser -logToStdOut
```

- Upgrade the Architect/Requirements schema. Execute the following command on system 2:

```
tcradmin -action upgradeDB -logToStdOut
```

System 1 running on Windows Server

Complete the steps that follow if you intend to move a database from a Windows server to different Windows server:

1. If you are upgrading from a previous release, you must now uninstall the Versant Object Database 8.0.2 from system 1, and install Versant Object Database 9 in its place. Please refer to Chapter 3 of this manual for details.
2. Ensure that the user performing the upgrade process has the Versant DBA role assigned on the system 1 database. To check the user's existing status, execute the following command on the database server used by system 1:

```
dbuser -list TCR_db
```

If the user is not assigned the DBA role, execute the following command on the database server used by system 1:

```
dbuser -add -n <UpgradeUserName> -role DBA TCR_db
```

3. Note down your **Customer Number** and **License Key** information using the **Web Application Configuration** and **TcSE Licensing** links on the **Administrative Tools** page of system 1.

As the system 2 database is on a different machine, you need to enter the information while deploying the **tcr.war** file.

4. To create the database directory, execute the following command from the command prompt of system 2:

```
makedb -nofeprofile TCR_db
```

5. Copy the **profile.be** file from system 1 **TCR_db** directory to the system 2 database directory.



The upgrade process causes a small increase in the database size.

Ensure that the Versant system volume, as specified by the **sysvol** parameter in **profile.be**, is large enough to accommodate the database that you are copying. For example, if the size of the database is **10 GB**, the **sysvol** must be a minimum of **12000M** including **20%** room for growth.

The **profile.be** syntax is **M** for **megabytes**.

6. Copy the database from system 1 to system 2 by executing the following command on the system 2:

```
vcopydb -nolock -i -optimize TCR_db@<System1> TCR_db
```

7. Copy the **profile.be** file from system 1 **TCR_db** directory to system 2 database directory.



The previous step overwrites the **profile.be** file so you must copy it again.

Ensure that the Versant system volume, as specified by the **sysvol** parameter in **profile.be**, is large enough to accommodate the database that you are copying. For example, if the size of the database is **10 GB**, the **sysvol** must be a minimum of **12000M** including **20%** room for growth.

The **profile.be** syntax is **M** for **megabytes**.

8. Stop the database. Execute the following command at the command prompt of system 2:

```
stopdb TCR_db  
startdb TCR_db  
stopdb TCR_db
```

9. Upgrade the Versant schema. Execute the following command at the command prompt of system 2:

```
cnvrtdb TCR_db
```

10. Create the session user. From the command prompt on system 2, change the directory to the schema directory of your server installation. Execute the following command from the command prompt of system 2:

```
tcradmin -action createSessionUser -logToStdOut
```

11. Upgrade the Architect/Requirements schema. Execute the following command on system 2:

```
tcradmin -action upgradeDB -logToStdOut
```

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