

# ArcGIS® 9

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## Installation Guide: ArcSDE® for Oracle®



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## Introduction

This installation guide includes information on installing ArcSDE<sup>®</sup> for Oracle<sup>®</sup>, setting up your geodatabase, and creating an ArcSDE service.

Each ArcSDE DVD or CD contains:

- An installation guide—The file you are reading now; contains instructions for installation and setup on Windows<sup>®</sup> and UNIX<sup>®</sup> systems
- Folders named after the database—Contain the installation files for that database
- documentation\_server and documentation\_sdk—These folders contain the ArcSDE Developer Help and the command references documentation for administration commands. The documentation is not installed with the UNIX setup program. If you are installing on UNIX and you want the documentation, you must copy it manually from these folders to disk. The Windows setup program will install the documentation.

The installation of ArcSDE for Oracle is a two step process.

1. Install ArcSDE for Oracle. On Windows, the ArcSDE setup program will install the Microsoft Windows Installer if required before continuing with the ArcSDE for Oracle installation. After ArcSDE for Oracle is installed on Windows, you will have the option to start the Post Installation wizard. On Unix machines, you will manually proceed with the postinstallation setup.
2. Perform the postinstallation setup, which defines the ArcSDE administrative user's (the SDE user's) environment, sets up the geodatabase repository, authorizes ArcSDE, and creates the ArcSDE service.

For guidelines on optimizing both your Oracle server and ArcSDE server configurations, see the help topics in the section Geodatabases and ArcSDE/Administering ArcSDE geodatabases in the ArcGIS online help at <http://webhelp.esri.com/arcgisdesktop/9.2/index.cfm> prior to installing the software. The same topics are also available in the help installed with ArcGIS Server and ArcGIS Desktop.



# Installing ArcSDE on Windows



## System requirements

For the latest in supported system environments, see <http://support.esri.com>, and navigate to Software > ArcSDE > System Requirements.

Your computer is required to meet these minimum system requirements to install ArcSDE for Oracle.

### Minimum system requirements

The following lists the minimum system requirements for ArcSDE for Oracle:

#### Operating system

- Microsoft Windows Server 2003<sup>®</sup>
- Microsoft Windows 2000<sup>®</sup> service pack 3 or later

#### Free disk space

The server environment on Windows requires approximately 70MB.

#### Oracle requirements

For the latest in supported Oracle environments, see <http://support.esri.com>, and navigate to Software > ArcSDE > System Requirements.

## To obtain an authorization file

Each ArcSDE server machine requires an authorization file. Each new version of ArcSDE requires a new authorization file.

There are several ways to obtain an authorization file and register ArcSDE. You can visit <https://service.esri.com> to obtain an authorization file (by email, fax, phone, or mail) before installing ArcSDE. You can also obtain an authorization file and register ArcSDE using the Post Installation wizard after installing. (This is the recommended method.) See [ArcSDE authorization](#) for registration methods using the Post Installation wizard.



## Installation overview

The installation requires system administrator privileges.

The installation procedure includes the following steps:

### 1. Obtain an authorization file.

Each ArcSDE server machine requires an authorization file. See the topic [To obtain an authorization file](#).

### 2. Start the setup program.

Insert the ArcSDE media into the appropriate drive, browse to the setup.exe in the Windows folder, and follow the installation instructions on the screen to install the ArcSDE software. For detailed installation instructions, see the topic [Installing the ArcSDE software](#).

### 3. Complete the postinstallation setup.

The postinstallation requires a valid DBMS to be installed, a database set up and available for connections, and access to the Oracle client files (this can be from an Oracle client only or database software install). The Post Installation wizard will set up the geodatabase repository in the database, authorize ArcSDE, and create and start the ArcSDE service. The Post Installation wizard will automatically launch after installation is complete. Postinstallation must be completed to successfully set up ArcSDE in the database. For detailed instructions, see the topic [Postinstallation overview](#).

## Installing the ArcSDE software

Follow the steps below to install the ArcSDE software on Windows.

### How to prepare to install the ArcSDE software

1. Obtain an authorization file for the machine on which you will be installing ArcSDE. This is not required to install the ArcSDE software but is required to complete the postinstallation setup. See the topic [To obtain an authorization file](#).
2. Log in as a user with administrative privileges.
3. Close all applications on your computer.
4. Insert the ArcSDE media into the appropriate drive and follow the directions on How to install ArcSDE.

### How to install ArcSDE

1. Navigate to the ArcSDEOracle<version> folder on the ArcSDE for Windows media and launch setup.exe to begin the installation. During the installation, you will be asked to read the license agreement and accept it or exit if you don't agree with the terms. The license agreement dialog contains a link to view the license agreement in another language.
2. To complete the software installation, follow the directions in the setup program.
3. After the ArcSDE software installation completes, the setup program will provide the opportunity to begin the Post Installation wizard. The Post Installation wizard will provide the options to set up the geodatabase repository in the database, authorize the software, and create and start the ArcSDE service. See the [Postinstallation overview](#) for more information.

**Note:** If you are installing ArcSDE on a different server than Oracle, you must copy the shared libraries used by EXTPROC to the Oracle server. These libraries include st\_shapelib plus the Geometry library and the Projection Engine library. Be sure the files copied to the Oracle server are designed to run on the operating system of the Oracle server. For example, if ArcSDE is installed on a Linux machine, but Oracle is installed on a Solaris machine, the dll and lib files you copy to the Oracle server must be for Solaris. To get the files for different operating system, you can install the software files of the ArcSDE component on the Oracle server, creating the SDEHOME files, and delete everything but the three required library files.

-----  
Library name | OS-dependent file names  
-----

st\_shapelib | st\_shapelib.dll, libst\_shapelib.so, libst\_shapelib\_64.so or libst\_shapelib.sl

Projection Engine | pe.dll, libpe.so, libpe\_64.so or libpe.sl

Geometry | sg.dll, libsg.so, libsg\_64.so or libsg.sl

These files can be found in the bin (Windows) or lib (UNIX or Linux) directory of SDEHOME after you've installed the ArcSDE component. You can copy these files to the %ORACLE\_HOME%\lib (Windows) or \$ORACLE\_HOME/lib (UNIX or Linux) directory on the Oracle server, which is the default location that Oracle looks in for shared libraries. Or, you can leave these files where they were installed or move them into any directory that is accessible to the user that owns ORACLE\_HOME. If you do not use the default location under ORACLE\_HOME, you will need to define the environment variable EXTPROC\_DLLS for the EXTPROC so it can find st\_shapelib. This is done in the listener configuration file listener.ora. Please see [Configuring Oracle Net Services to use SQL functions](#).

Finally, the library definition in the Oracle data dictionary must be updated with the correct library path to the file containing st\_shapelib. Altering the definition of the library path will invalidate package bodies that refer to it, so the package bodies of some ArcSDE stored procedure packages should be recompiled using Oracle.

## Accessing ArcSDE documentation

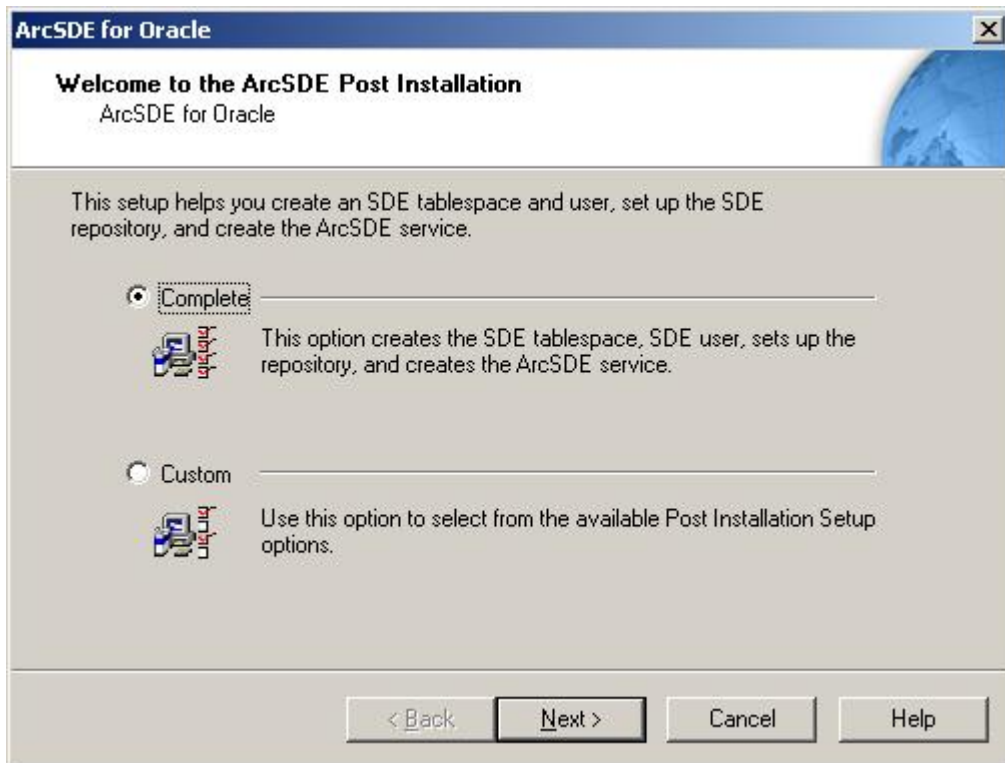
The full set of ArcSDE documentation is available in the ArcGIS Server help in the topics found in this section: Geodatabases and ArcSDE/Administering ArcSDE geodatabases. These topics can be accessed by navigating to the help folder and double clicking index.htm. The help is also available from <http://webhelp.esri.com/arcgisdesktop/9.2/index.cfm>.

## Postinstallation overview

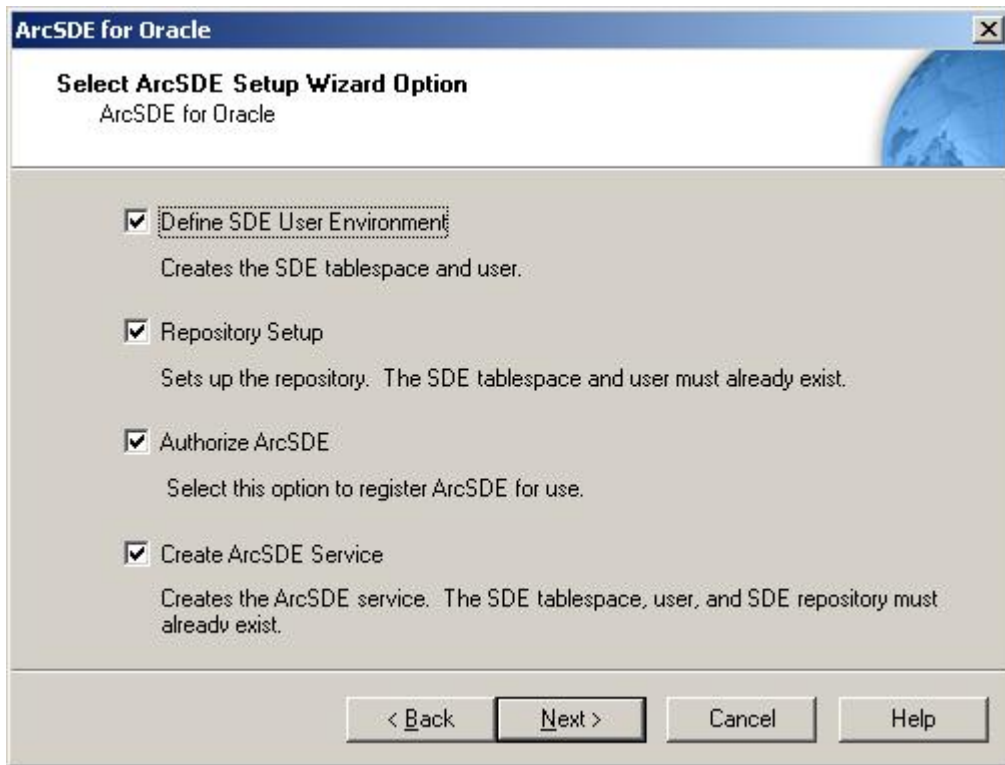
Once the ArcSDE software is installed, you must set up your SDE database, authorize ArcSDE for use, and create an ArcSDE service. The Post Installation wizard provides an easy way to complete these tasks. These steps can also be performed manually. The Post Installation wizard will guide you through the following options:

- **Setting up the SDE user environment**—If you don't already have an SDE user and tablespace, the Post Installation wizard will create them by connecting to Oracle as the sys user. The SDE user and tablespace must exist before the rest of the postinstallation setup will succeed. Security at your site may dictate you skip this part of the setup and allow your Oracle database administrator to manually create the SDE user and tablespace. To skip this step, select the custom postinstallation setup option. There are SQL scripts provided to set up the SDE user environment manually if necessary. See [Creating the SDE user and tablespace script](#) for details.
- **Setting up the ArcSDE repository**—This is a crucial step in the postinstallation setup. This postinstallation option will allow you to define the ArcSDE configuration files to be used by ArcSDE in the database. If you modified a dbtune.sde, dbinit.sde, or a giomgr.defs file and want to use one or all of those, you'll have a chance to include them here. Accept the defaults if you don't have any custom files to use. The ArcSDE system tables, geodatabase system tables, stored procedures, and locators are all created when setting up the geodatabase repository. If this step does not run successfully, your ArcSDE service will not start. This step can be performed manually with the sdesetup command. See [To manually set up the SDE repository](#) for details.
- **Authorizing ArcSDE**—Each ArcSDE server requires a unique authorization file. This postinstallation option authorizes your geodatabase repository using the authorization file. The ArcSDE service will not start and direct connections will be refused unless your geodatabase repository has been configured using a valid authorization file. You can reconfigure your geodatabase repository using the sdesetup command with the update\_key operation. See the ArcSDE Command Reference for details.
- **Creating the ArcSDE service**—Once ArcSDE has been authorized for use, the ArcSDE service can be created. If the information provided to create the ArcSDE service is complete, the Post Installation wizard will start the ArcSDE service for you.

Choose a Complete or a Custom postinstallation setup.



A Complete installation will guide you through all of the postinstallation options. Selecting a custom installation will allow you to choose from any of the available postinstallation options.



The Custom installation is recommended for advanced users or users upgrading an existing ArcSDE database. See the topic [Upgrade information](#) for details.

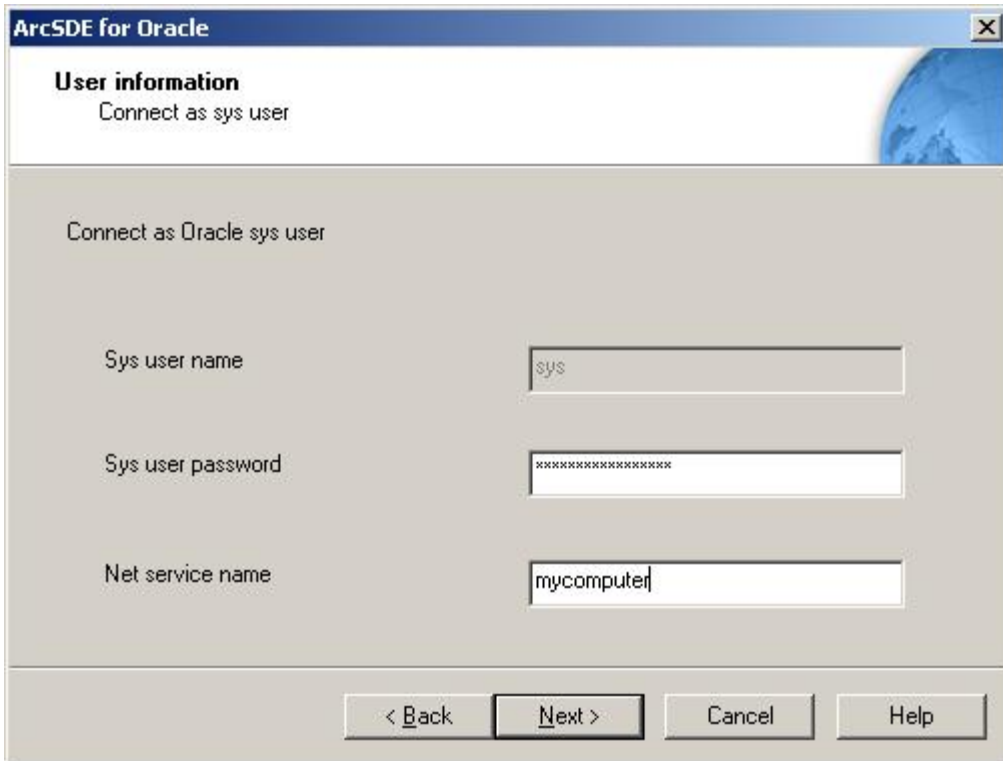
If you need to run the Post Installation wizard again at a later time, it is also available from Start > Programs > ArcGIS > ArcSDE > ArcSDE for Oracle Post Installation.

## Setting up the SDE user environment

This postinstallation setup option will do the following:

- Grant EXECUTE on DBMS\_PIPE and DBMS\_LOCK to Public.
- Create the SDE user's default tablespace.
- Create the SDE user if it does not already exist.
- Grant the SDE user the required privileges. See the topic [Creating SDE user and tablespace script](#) for privileges granted.

To set up the SDE user and tablespace, the Post Installation wizard connects to Oracle as the sys user. You must provide the sys user password. Leaving the net service name blank will result in connecting to Oracle using the default net service name on your local machine.



ArcSDE for Oracle

**User information**  
Connect as sys user

Connect as Oracle sys user

Sys user name: sys

Sys user password: xxxxxxxxxxxx

Net service name: mycomputer

< Back   Next >   Cancel   Help

Once connected to Oracle as the sys user, you will be required to set a password for the SDE user. You may also enter a tablespace name and assign a path to the tablespace file or accept the defaults provided. If the SDE user and tablespace of the required size already exist, this step will be skipped.



The screenshot shows a Windows-style dialog box titled "ArcSDE for Oracle". The main heading is "SDE user and tablespace information" with the subtitle "Creates the SDE tablespace and user". There are three input fields: "SDE user password" (empty), "Default tablespace" (containing "sde"), and a "File" field (containing "C:\oracle\product\10.2.0\db\_1\sde.dbf") with a "Browse" button next to it. At the bottom, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

The SDE tablespace and SDE user will be created, and the required privileges will be granted to the SDE user to manage the geodatabase repository.

**Note:** ArcSDE requires an SDE tablespace of at least 400 MB in size. If an SDE tablespace already exists (for example, from an earlier SDE or ArcSDE installation), the Post Installation wizard will detect it and increase its size to a minimum of 400 MB. If the tablespace is already 400 MB or larger, the tablespace size will not be changed. For more information on upgrading, please see the topic [Upgrade information](#).

**Note:** Upgrading requires certain permissions to be granted to the SDE user. Please see [Required Oracle permissions to upgrade](#) for specifics.

### Creating the SDE user and tablespace script

If you decide to not use the Post Installation wizard to set up your SDE user environment, you may modify and use the `createsdeoracle.sql` script to manually create the SDE user and tablespace. The `createsdeoracle.sql` script is located at `%SDEHOME%/tools/oracle`.

#### Related concepts found in the help

You can get more information related to the SDE user and permissions in the ArcGIS Desktop online help (<http://webhelp.esri.com/arcgisdesktop/9.2>) or the help system installed with ArcGIS Server or ArcGIS Desktop. Use the links below to open the online topics, or open the help and search for the following titles:

[The ArcSDE administrative account](#)

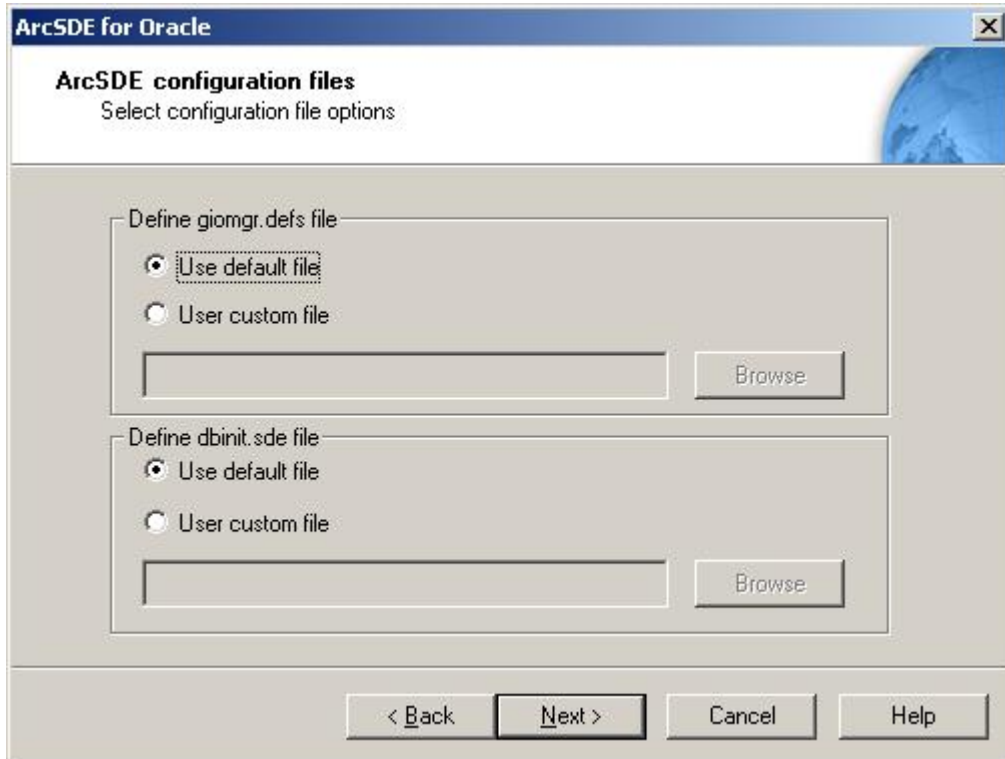
[User permissions](#)



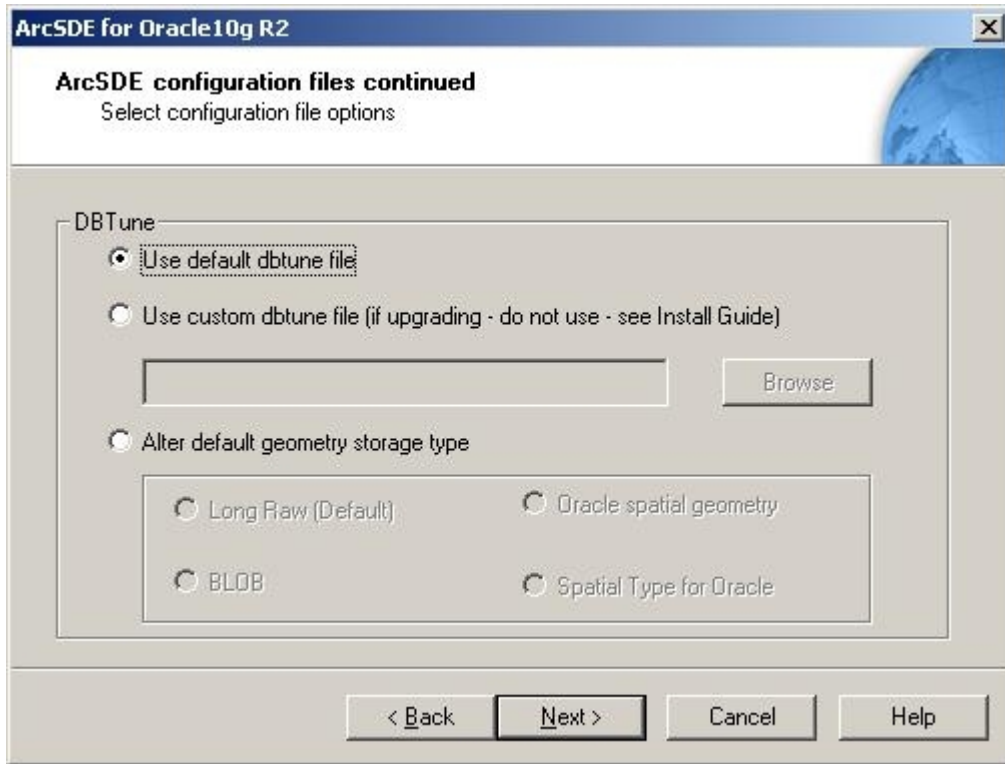
 **ArcGIS Installation Guide**

## Setting up the geodatabase repository

Once the SDE tablespace and user are created, you can set up the geodatabase repository. Options are provided to specify custom `giomgr.defs`, `dbinit.sde`, and/or `dbtune.sde` files. For information on these files, consult the [ArcGIS online help](#).



You have the option of using the default `dbtune.sde` file provided with ArcSDE, using your own custom `dbtune.sde` file (which could include such things as altering the default [geometry storage type](#) for your geodatabase to use when storing data and defining the tablespaces used to store the geodatabase tables), or use the default `dbtune.sde` file but alter the default geometry storage type using the Post Installation wizard.



If you do not have custom files and do not want to change the default geometry storage type, accept the default configuration files.

**If you are upgrading ArcSDE:** The Post Installation wizard will not import a custom dbtune.sde file. In the Define dbtune.sde file section, as shown in the above dialog box, do not choose to use a custom dbtune.sde file when upgrading ArcSDE. If you want to use a custom dbtune.sde file, you must manually import the custom file using the `sdedbtune -o import` command. For more information on the `sdedbtune` command, see the ArcSDE Administration Command References help available from Start > Programs > ArcGIS > ArcSDE > Command References, on the ArcSDE media at `\documentation_server\Admin_Cmd_Ref`, or in `%SDEHOME%\Documentation\Admin_Cmd_Ref`.

After the configuration files are defined, you can connect to Oracle to set up the geodatabase repository. Setting up the repository is a crucial step in the postinstallation setup. If you do not choose to perform this postinstallation option using the Post Installation wizard, you must manually execute the `sdesetup` command at the DOS prompt.

The geodatabase repository contains all the ArcSDE metadata for administering the ArcSDE geodatabase. Refer to the `sdesetup` command in the ArcSDE Administration Command Reference (`%SDEHOME%\Documentation\Admin_Cmd_Ref`) for specifics on what is occurring with this operation.

Provide your SDE user password and Oracle net service name to connect to Oracle as the SDE user and create the repository.

**ArcSDE for Oracle**

**User information**

Connect to create SDE repository

SDE user name: sde

SDE user password: \*\*\*\*\*

Net service name: mycomputer

< Back   Next >   Cancel   Help

If you are performing an upgrade of an existing ArcSDE geodatabase, you will have to grant additional permissions to the SDE user in Oracle for the upgrade to take place successfully. Refer to the topic [Required Oracle permissions to upgrade](#) for further information.

### To manually set up the repository

If you choose not to use the Post Installation wizard to set up the repository, you must manually execute the `sdesetup` command at the DOS prompt.

Refer to the `sdesetup` command reference in the ArcSDE Administration Command Reference (`%SDEHOME%\Documentation\Admin_Cmd_Ref`) for specifics on what is occurring with this operation.

Provide your SDE user password and Oracle net service name to connect to Oracle as the SDE user and create the geodatabase repository.

#### Related concepts found in the help

You can get more information related to setting up the repository in the ArcGIS Desktop online help (<http://webhelp.esri.com/arcgisdesktop/9.2>) or the help system installed with ArcGIS Server or ArcGIS Desktop. Use the links below to open the online topics, or open the help and search for the following titles:

[The dbtune file and the DBTUNE table](#)

[DBTUNE configuration keywords](#)

[DBTUNE configuration parameter name-configuration string pairs](#)

## Installation Guide: ArcSDE for Oracle

About geometry storage types

A spatial type for Oracle

The ST\_Geometry storage type

Using the Oracle Spatial geometry type

ArcSDE Compressed Binary storage

The OGC Well-Known Binary representation for geometry

The geomgr.defs file and the SERVER\_CONFIG table

The dbinit.sde file

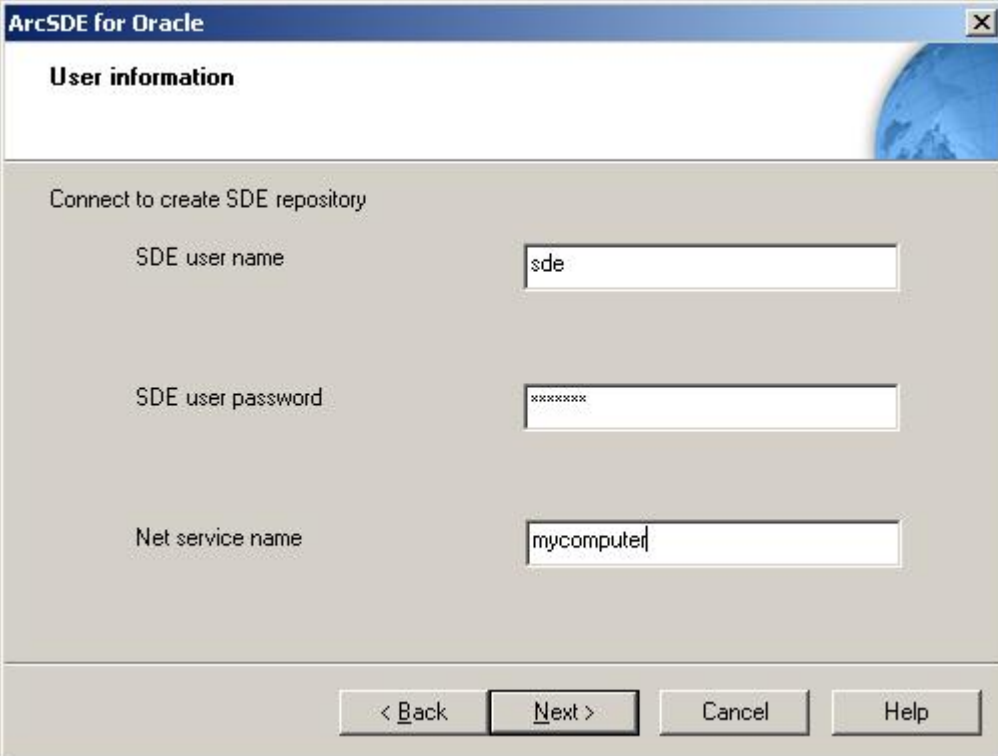
System tables of a geodatabase stored in Oracle

## ArcSDE authorization

Each ArcSDE server requires a unique authorization file. You can obtain an authorization file using the Post Installation wizard. If you have already obtained your authorization file, the Post Installation wizard will configure your geodatabase repository using your authorization file.

The ArcSDE service will not start unless your geodatabase repository has been configured using the valid authorization file.

To reconfigure the repository with an updated authorization file, run through this portion of the Post Installation wizard again. To launch the Post Installation wizard at a later time, go to Start > Program Files > ArcGIS > ArcSDE > ArcSDE for Oracle Post Installation. If the software authorization option is not selected with the repository setup option, you will also be required to provide the following information to connect to the spatial database:



**ArcSDE for Oracle**

**User information**

Connect to create SDE repository

SDE user name: sde

SDE user password: \*\*\*\*\*

Net service name: mycomputer

< Back   Next >   Cancel   Help

Provide your SDE user password and Oracle net service name to connect to Oracle as the SDE user and create the geodatabase repository. No additional permissions are required.

To successfully register and authorize ArcSDE:

### Choose your registration option

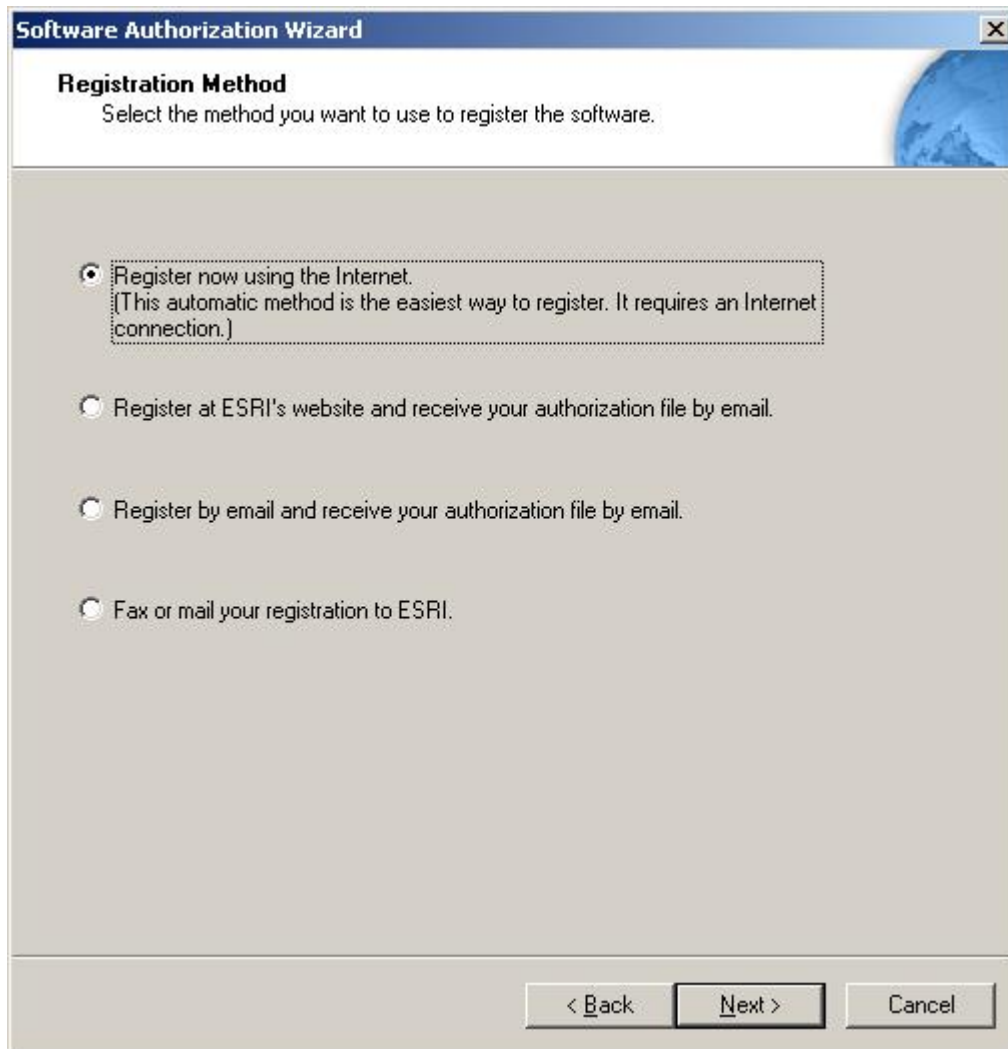


You can configure the geodatabase repository using two methods:

**1. I have installed my software and need to register it.**

Select this option if you do not already have an authorization file. There are several methods to provide your registration information.





Select the registration method you would like to use. This is the method in which you will provide your registration information, including the registration number you received with the software. After providing your registration information, your authorization file will be emailed to you.

**Tip**

- Register now using the Internet enables you to authorize the software immediately. It requires an Internet connection.

**2. I have received an authorization file from ESRI and am now ready to finish the registration process.**

Select this option if you have already received your authorization file from ESRI Customer Service. If you select this option, you can either browse to the location

of the file (if you received the file by email), or you can manually enter the authorization information.

If you choose the option to browse to an authorization file on disk, you are required to Choose or enter the location of the authorization file that you received from Customer Service.

If you choose the option to manually enter the authorization information, you are required to provide the following information: (This information can be obtained from the authorization file you received by mail, email, telephone, or fax)

- Feature name
- Version number
- Time-out date
- Registration number
- Authorization code

## To manually authorize ArcSDE

If you choose to manually authorize ArcSDE, you must use the `sdesetup` command.

You can manually register ArcSDE with an authorization file in two ways:

1. If you already have your authorization file, run the `sdesetup` command using the install or upgrade operations and designate the location of the authorization file with the `-l` option. See [To manually set up the ArcSDE repository](#).
2. If you don't yet have your authorization file, run the `sdesetup` command with the install or upgrade operations but without the `-l` option. Once you receive your authorization file from ESRI, run `sdesetup` again using the `update_key` operation and the `-l` option.

The syntax for the `sdesetup` command with the `update_key` operation is as follows:

```
sdesetup -o update_key -d
<ORACLE9I|ORACLE10G|SQLSERVER|DB2|INFORMIX>
-l <key> [-u <DB_Admin_user>] [-p
<DB_Admin_password>]
[-H <sde_directory>] [-D <database>] [-s datasource]
[-i <service>]
[-N] [-q]
```

Where `<key>` is the location of your authorization file

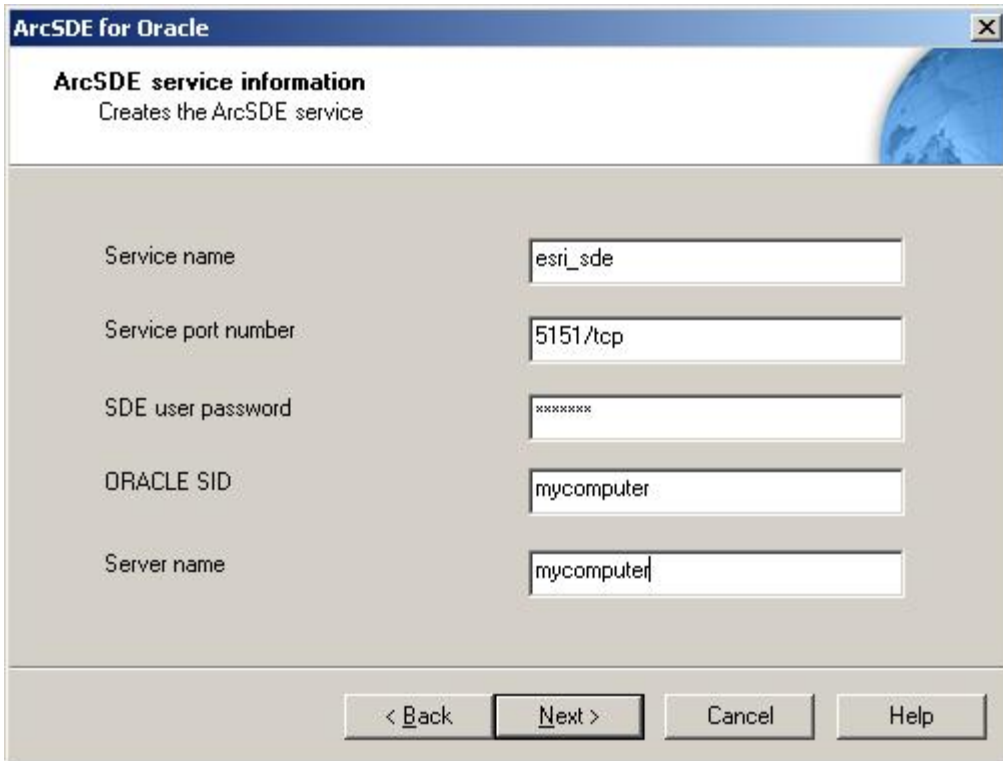
For example:

```
sdesetup -o update_key -d ORACLE10G -l c:\license\keycode.txt -u
sde -p sde
```

Refer to the `sdesetup` command in the ArcSDE Administration Command Reference (`%SDEHOME%\Documentation\Admin_Cmd_Ref`) for specifics on what is occurring with this operation.

## Creating the ArcSDE service

This option of the Post Installation wizard allows you to create an ArcSDE service. You must provide a unique TCP/IP port number and service name, the SDE user password that you used for your SDE user, the ORACLE SID, and server name. Your Oracle\_SID is the Oracle Service Name Identifier, the unique name for your Oracle instance. The server name is required to determine the server to which you will be connecting; by default, your machine name is provided. All fields in this dialog box are required.



The screenshot shows a dialog box titled "ArcSDE for Oracle" with a close button in the top right corner. Below the title bar, the text "ArcSDE service information" is displayed, followed by "Creates the ArcSDE service". The dialog contains five input fields:

- Service name: esri\_sde
- Service port number: 5151/tcp
- SDE user password: masked with asterisks (\*\*\*\*\*)
- ORACLE SID: mycomputer
- Server name: mycomputer

At the bottom of the dialog, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

This portion of the Post Installation wizard will add an entry to the services file of your server machine (usually, this is c:\WINNT\system32\drivers\etc\services). If you need to modify your service later, you can use the sdeservice command at the DOS prompt, or run through this option in the Post Installation wizard again. Information on the sdeservice command can be found in the ArcSDE Administration Command Reference (%SDEHOME%\Documentation\Admin\_Cmd\_Ref).

### To manually create the ArcSDE service

You can use the sdeservice command at the DOS prompt to manually create or modify the ArcSDE service. Information on the sdeservice command can be found in the ArcSDE Administration Command Reference (%SDEHOME%\Documentation\Admin\_Cmd\_Ref).

**Related concepts found in the help**

You can get more information related to the ArcSDE service in the ArcGIS Desktop online help (<http://webhelp.esri.com/arcgisdesktop/9.2>) or the help system installed with ArcGIS Server or ArcGIS Desktop. Use the links below to open the online topics, or open the help and search for the following titles:

An overview of ArcSDE geodatabase connections

Starting an ArcSDE service

Stopping an ArcSDE service

Pausing and resuming an ArcSDE service

Accessing an ArcSDE service through a firewall

Troubleshooting the ArcSDE service

## Running multiple installations on the same machine

There are two possible scenarios for running multiple installations on the same machine.

- **Running ArcSDE for two different DBMS installations on the same machine**—It is possible to install more than one ArcSDE service for different DBMSs on the same machine. Some ESRI products share the same administrator commands (for example, `sdeservice` and `sdemon`). To successfully run more than one ArcSDE service on the same machine, do the following:
  1. Before running the postinstallation setup, make sure the ArcSDE service that you want to administer is the ESRI product listed first in your System PATH.
  2. Make sure the SDEHOME variable in your PATH is set to your current ArcSDE installation location.

**Steps 1 and 2 above apply whenever administrator commands for ESRI products are run. If you do not change your System PATH, the administrator commands for the wrong product may be run.**

3. Run the ArcSDE postinstallation setup for the chosen DBMS.
  4. You can now manage the multiple ArcSDE services/installations by switching back and forth between ArcSDE environments through the System Control Panel or by using the ArcSDE administrative commands with the `-H` option set to the appropriate SDEHOME location.
- **Running more than one ArcSDE service for the same DBMS installation**—To do this, each service must use a unique port number and name, which must be added to the Windows services file.

 **ArcGIS Installation Guide**

## The next steps

After you finish the postinstallation setup, you're ready to add other users, set up client connections, and add data to your geodatabase. The following is a list of help topics to assist you in these tasks. Topics can be found in the ArcGIS Desktop online help (<http://webhelp.esri.com/arcgisdesktop/9.2>) or the help system installed with ArcGIS Server or ArcGIS Desktop. Use the links below to open the online topics, or open the help and search for the titles.

TASK	RELATED TOPICS
Geodatabase users	<a href="#">Adding users to an ArcSDE geodatabase</a> <a href="#">User permissions</a> <a href="#">Grouping users by access needs</a>
Client connections	<a href="#">Configuring Oracle Net Services to use SQL functions</a> <a href="#">An overview of ArcSDE geodatabase connections</a> <a href="#">Setting up clients for a direct connection</a> <a href="#">Creating spatial database connections</a>
Adding data	<a href="#">An overview of adding datasets to the geodatabase</a>

## Upgrade information

### IMPORTANT information for users upgrading:

- **Direct upgrades are only supported from ArcSDE 8.3, ArcSDE 9.0, and ArcSDE 9.1. Upgrading directly from ArcSDE 8.2.x, 8.0.x, or 3.x is not supported.** Moving from any of these unsupported released versions of ArcSDE to the current ArcSDE release will require the server to first be upgraded to ArcSDE 8.3, 9.0, or 9.1 and then upgraded to ArcSDE 9.2. It is also possible to export all your data using the `sdeexport` command and then import it into ArcSDE 9.2.
- **Upgrades from Beta or Prerelease are NOT supported.**
- **Create a backup of your existing ArcSDE database before upgrading.** Contact your database administrator for correct protocol.
- **ArcSDE Oracle8i , 9iR2, and 10gR1 users:**

If you are upgrading to ArcSDE 9.2 for Oracle and you are currently using Oracle8i, you will first be required to upgrade your Oracle database to at least Oracle9iR2 and then use the `setup.exe` for ArcSDE Oracle9iR2 to upgrade ArcSDE. See Oracle's documentation for information on how to migrate your existing Oracle installation and database to a new release of Oracle database.

After the Oracle database has been upgraded, you can upgrade your ArcSDE installation.

For details on exact Oracle versions and patch levels supported by each ArcSDE for Oracle installation, see the ArcSDE System Requirements online at <http://support.esri.com>, and navigate to Software > ArcSDE > System Requirements. See the DBMS notes section under each System Requirements entry for any additional setup information.

- **Before installing the latest version of ArcSDE, you must uninstall your previous version of ArcSDE.** The setup will prompt you to remove your existing installation if you do not uninstall before starting the latest ArcSDE setup.
- When upgrading from a supported release of ArcSDE, there are two recommended upgrade paths:
  - [Upgrading without keeping the existing service for transition purposes](#)
  - [Upgrading while keeping the existing service for transition purposes](#)



## Upgrading without keeping the existing service

As a precaution, it is strongly recommended that you create a backup of your database including all previous ArcSDE system tables and layer data before upgrading your ArcSDE installation.

Please read the additional topics, [Tablespace requirements](#) and [Required Oracle permissions to upgrade](#) prior to upgrading; the tablespace requirements and some permissions may have changed for this release.

Upgrading without keeping the older service includes steps that are similar to a new installation and have the same prerequisites.

1. Follow the instructions in the topic [Installing the ArcSDE software](#) to install the software. If you have not done so already, you will need to uninstall any earlier versions of ArcSDE. The ArcSDE setup program will prompt you to uninstall earlier versions of ArcSDE and to delete any ArcSDE services associated with the earlier version.
2. Complete the postinstallation setup by following the steps in the topic [ArcSDE postinstallation overview](#).

If you do not use the Post Installation wizard to perform these steps, they must be completed manually using:

- The `sdesetup` command to upgrade the geodatabase repository in the database
- The `sdeservice` command to create the ArcSDE service
- The `sdemon` command or Windows services to start the ArcSDE service

**Note:** If manually upgrading ArcSDE, the SDE tablespace must meet any new size requirement for the new version of ArcSDE. See the topic [Tablespace size requirements](#) for further information.

## Upgrading while keeping the existing service

Upgrading ArcSDE while keeping the existing service for transition purposes is a more involved upgrade scenario. Follow these steps to maintain both a previous version of the ArcSDE service and this new version of the ArcSDE service on the same machine:

1. Before installing this version of ArcSDE, shut down the previous version of the ArcSDE service and remove it by executing the `sdeservice` command with the delete operation. See the administrator command reference for more information on the `sdeservice` command. Go to Start > Programs > ArcGIS > ArcSDE > Command References.
2. It is important to make a copy of the previous version of SDEHOME before proceeding with installing the new version of ArcSDE. You will have to copy SDEHOME back after installing this version of ArcSDE.
3. Install the new version of ArcSDE. The installation will remove your previous installation (SDEHOME and contents) without affecting the Oracle database on which it was running. Do not run the ArcSDE Post Installation wizard; you will have to manually perform the postinstallation steps.
4. The new version of the ArcSDE service and the previous version of the ArcSDE service cannot use the same Oracle database. Create a new Oracle database giving it a unique ORACLE\_SID name. This is the ORACLE\_SID you will use for the new version of the ArcSDE service. Create a tablespace named SDE and a user named SDE. Grant the SDE database user the correct database privileges as outlined in the [Creating the SDE user and tablespace script](#).
5. Open a DOS prompt and change directories to %SDEHOME%\bin folder of the new ArcSDE installation. Run the `sdesetup -o install` command as the SDE database user. Make sure you connect using the correct service name for the newly created ORACLE\_SID. You cannot point two instances of ArcSDE at the same ORACLE\_SID.
6. Copy the previous version of %SDEHOME% that you copied in step 2 to its original location. From the previous version of the %SDEHOME%\bin directory, run the `sdeservice -o create` command to re-create the previous version of the ArcSDE service.
7. Before starting both ArcSDE services, make sure that your services are correct by checking the ORACLE\_SID entry in %SDEHOME%\etc\dbinit.sde

For example, for previous versions of ArcSDE:

```
% cd C:\Program Files\arcsde\ora9iexe\etc
% type dbinit.sde
```

```
ORACLE_SID=ORCLold
```

For the new version of ArcSDE:

```
% cd C:\arcgis\ArcSDE\oraexe\etc
```

```
% type dbinit.sde
```

```
ORACLE_SID=ORCLnew
```

Note that in this example, each service has its own SDEHOME. If you put %SDEHOME%\bin in your path, remember that the system- or user-level environment variable can contain only one path for SDEHOME. Also note that each service has its own ORACLE\_SID. In the example, the previous version of the ArcSDE service points to ORCLold ORACLE\_SID while the new ArcSDE service points to the ORCLnew ORACLE\_SID.

8. Start one or both instances.

**Note:** You must have the appropriate licensing to perform this upgrade. You can run both instances to test your data under the new ArcSDE configuration. You can move data from the previous versions of the ArcSDE instance by copying and pasting with ArcCatalog, or exporting/importing with the commands sdeexport/sdeimport, sde2shp/shp2sde, etc.

## Tablespace size requirements

The minimum tablespace requirement for upgrading is 400 MB. For larger databases, especially large geodatabases, the SDE tablespace requirement may be larger. If you choose to define the SDE user environment using the Post Installation wizard, the wizard will check that your SDE user's default tablespace is at least 400 MB. If the tablespace is less than 400 MB, it will automatically be extended.

## Required Oracle permissions to upgrade

To upgrade your Oracle instance, you will have to grant the following additional permissions to the SDE user in Oracle for the upgrade to succeed:

```
ALTER ANY INDEX
ALTER ANY TABLE
ANALYZE ANY
CREATE ANY INDEX
CREATE ANY PROCEDURE
CREATE ANY SEQUENCE
CREATE ANY TRIGGER
CREATE ANY VIEW
CREATE INDEXTYPE
CREATE LIBRARY
CREATE OPERATOR
CREATE PROCEDURE
CREATE PUBLIC SYNONYM
CREATE SESSION
CREATE TABLE
CREATE TRIGGER
CREATE TYPE
DROP ANY INDEX
DROP ANY INDEXTYPE
DROP ANY LIBRARY
DROP ANY PROCEDURE
DROP ANY SEQUENCE
DROP ANY TABLE
DROP ANY TYPE
DROP ANY VIEW
DROP OPERATOR
DROP PUBLIC SYNONYM
EXECUTE ANY PROCEDURE
SELECT ANY SEQUENCE
SELECT ANY TABLE
UNLIMITED TABLESPACE
```

After the upgrade completes, you may revoke the following permissions from the SDE user account:

```
ANALYZE ANY
ALTER ANY INDEX
ALTER ANY TABLE
CREATE ANY INDEX
CREATE ANY TRIGGER
CREATE ANY VIEW
DROP ANY INDEX
DROP ANY INDEXTYPE
DROP ANY LIBRARY
DROP ANY TABLE
DROP ANY TYPE
DROP ANY VIEW
```

## Installation Guide: ArcSDE for Oracle

```
DROP ANY PROCEDURE
DROP ANY SEQUENCE
DROP OPERATOR
EXECUTE ANY PROCEDURE
SELECT ANY SEQUENCE
CREATE INDEXTYPE
CREATE LIBRARY
CREATE OPERATOR
CREATE TYPE
UNLIMITED TABLESPACE
```

The Oracle SYS user must also grant execute permissions on a number of packages to the public role:

```
sqlplus sys/*****

grant execute on dbms_pipe to public;

grant execute on dbms_lock to public;
```

See [Creating the SDE user and tablespace script](#).

## Uninstalling ArcSDE

To uninstall ArcSDE:

1. Before uninstalling ArcSDE, make a copy of any custom files (such as the dbtune.sde file) you want to keep for future use.
2. From the Start menu, open the Control Panel and double-click the Add/Remove Programs icon.
3. Select ArcSDE for Oracle from the program list, and click the Remove button.





# Installing ArcSDE on UNIX



## System requirements

For the latest in supported system environments, see <http://support.esri.com> and navigate to Software > ArcSDE > System Requirements.

Your computer is required to meet these minimum system requirements to install ArcSDE for Oracle.

### Minimum system requirements

PLATFORM	OPERATING SYSTEM	COMPILER
Sun™ Solaris2™	SunOS 5.9 (Solaris 9) 64-bit	Sun Studio 8 C and C++ 5.5 2003/03/12
Red Hat Linux	Red Hat Linux AS/ES 4	gcc version 3.2.3 20030502 (Red Hat Linux 3.2.3-24)
IBM®	AIX Rev 5.2 64-bit	IBM VisualAge C and C++ version 6.0.0.5
HP®	HP-UX B.11.11 64bit®	HP ANSI C++ B3910B A.03.31
HP® TRU64™	HP Tru64 UNIX V5.1B	Compaq C++ V6.2-024 for Compaq Tru64 UNIX V5.1B (Rev. 2650)

Higher releases may, and usually do, work. Lower versions of releases are not supported.

**Note:** For any given operating system, if the DBMS is not supported on that version of the operating system, ArcSDE is not supported either.

### 64 bit support

For those platforms on which ArcSDE does support 64 bit Oracle, the 64 bit operating system must also support 64 bit Oracle. Visit the ESRI Support site at <http://support.esri.com> for current information on support levels and certification. Another alternative is to use 64 bit Oracle with the direct connect configuration option from your client machine. See the help topic [Setting up clients for a direct connection](#) in the ArcGIS Server or ArcGIS Desktop help for more information. This help topic is also available from <http://webhelp.esri.com/arcgisdesktop/9.2/index.cfm>

## Disk space

Installation of the ArcSDE software will require approximately this amount of disk space:

Server Environment	Disk Space
SUN	125 MB approx.
HP	105 MB approx.
HP TRU64	145 MB. approx.
IBM	160 MB approx.
LINUX	102 MB approx.

## Fortran Run-Time Environment

ESRI distributes IBM version 6.1.0.0 Fortran Run-Time Environment (RTE) libraries with ArcSDE. An additional Fortran RTE is not required. A Fortran RTE that is already installed on a machine will be used by the system and for all other applications other than ArcSDE.

Older versions of ArcSDE use their own Fortran RTE's, located in \$SDEHOME/lib, and work fine on AIX. However, you must have a LIBPATH variable set to \$SDEHOME/lib:/usr/lib:/lib with the appropriate \$SDEHOME to work correctly.

For **HP TRU64**, the following additional steps are required to load mandatory OS subsets (/usr/shlib/libfor.so):

1. Mount Tru64 UNIX associated products

```
CD: mount -dr /<dev> /cdrom
```

2. Load subset from /cdrom using the 'setld -l' command

## IBM file sets required

The following file sets (or higher) are required for IBM:

- xIC.aix50.rte 6.0.0.0
- xIC.msg.en\_US.rte 6.0.0.0
- xIC.rte 6.0.0.0

Files sets may be downloaded from the following link: [http://www-1.ibm.com/support/docview.wss?rs=32&context=SSEP5D&uid=swg24005921&loc=en\\_US&cs=utf-8&lang=en+en](http://www-1.ibm.com/support/docview.wss?rs=32&context=SSEP5D&uid=swg24005921&loc=en_US&cs=utf-8&lang=en+en)

## **Oracle requirements**

For the latest in supported Oracle environments, see <http://support.esri.com>, and navigate to Software > ArcSDE > System Requirements.

---

## Preinstallation requirements

The installation of ArcSDE on UNIX systems requires the following:

- A [system administrator account on UNIX](#) that will own the SDEHOME files
- An [Oracle SDE account with a default tablespace](#)
- An authorization file to authorize ArcSDE; see [ArcSDE authorization](#)

### Creating the ArcSDE operating system administrator account on UNIX

To install ArcSDE for Oracle, you must create an ArcSDE administrator account on your UNIX server. By convention, the ArcSDE administrator account is named SDE, but you may use any name. The ArcSDE administrator must own all ArcSDE system files and directories. Keep the password in strict confidence to maintain system security. Only those users who must administer the ArcSDE system should have access to the ArcSDE administrator login. To create the ArcSDE administrator login, use the system administration procedures outlined by the host operating system. The following is a sample UNIX configuration for the ArcSDE administrator account using SDE as the name.

Login name:	sde
User Id:	<Any unused user id>
Group Id:	<Any group id>
Home Directory:	<home directory for user sde>
Default Shell:	/bin/sh or /bin/csh

Add the following to the SDE user's .cshrc or .profile file, depending on which UNIX shell it will use. By adding the lines below, all ArcSDE administration and utility software programs can be located without specifying absolute paths. Application programs will also be able to find the necessary program files located within the ArcSDE installation directory.

There are several environment variables you should set. For the Bourne shell, add variable definitions to the .profile file. Syntax is:

```
<VARIABLE> = <value for variable>

export <VARIABLE>
```

For the C shell, add variable definitions to the .cshrc file (or the SDEHOME/etc/dbinit.sde file). Syntax is:

```
setenv <VARIABLE> <variable_value>
```

The list of variables you should set are as follows:

```

SDEHOME <location of ArcSDE>

ORACLE_HOME <location of Oracle>

ORACLE_SID <Oracle SID value>

TNS_ADMIN <location of the tnsnames.ora file>

PATH $PATH:$SDEHOME/bin:$ORACLE_HOME/bin

LD_LIBRARY_PATH $SDEHOME/lib:/usr/lib:/lib:$ORACLE_HOME/lib (All
platforms except HP and IBM)

SHLIB_PATH $SDEHOME/lib:/usr/lib:/lib:$ORACLE_HOME/lib (for HP only)

LIBPATH $SDEHOME/lib:/usr/lib:/lib:$ORACLE_HOME/lib (for IBM only)

TWO_TASK <value for TWO_TASK> (if ArcSDE and Oracle on different
machines)

```

The ORACLE\_HOME and ORACLE\_SID variables locate an Oracle database installed on the local host. However, when the TWO\_TASK variable is set, ORACLE\_HOME and ORACLE\_SID are not used. The TWO\_TASK variable identifies the location of a remote Oracle database. The TNS\_ADMIN must be set if the default location of the tnsnames.ora file is not used. You do not need to set this variable if the Oracle database is on the local host (that is, the TWO\_TASK variable is not set).

**Note:** When the ArcSDE service is started, the giomgr process reads the variable settings in the \$SDEHOME/etc/dbinit.sde file. These variable settings override the variables set by .cshrc or .profile files. The role of the dbinit.sde file is further explained in the help topic [The dbinit.sde file](#) in the ArcGIS Server and Desktop help.

## Creating the Oracle SDE user and tablespace

Before you can start the ArcSDE service, you must install and configure the Oracle database and create the Oracle SDE user.

Unlike the ArcSDE for Windows installation, the UNIX installation of ArcSDE does not provide any interface for creating the Oracle SDE user or its tablespace. Therefore, the task must be performed using SQL. You may modify and use the createsdeoracle.sql script to manually create the SDE user and tablespace. The createsdeoracle.sql script is located at \$SDEHOME/tools/oracle.

### Related concepts found in the help

You can get more information related to the SDE user and permissions in the ArcGIS Desktop online help (<http://webhelp.esri.com/arcgisdesktop/9.2>) or the help system installed with ArcGIS Server or ArcGIS Desktop. Use the links below to open the online topics, or open the help and search for the following titles:

[The ArcSDE administrative account](#)

[User permissions](#)



## Installing the ArcSDE component

1. Make sure the ArcSDE administrator account, which was created during the preinstallation stage, is used to install the ArcSDE component of ArcGIS Server Enterprise and that this account has write permissions to the installation directory.
2. Place the ArcSDE media into the appropriate drive and mount the drive.
3. Change directories into the appropriate database directory.

```
% cd /cdrom/oracle
```

4. To start the ArcSDE installation, type the install command at the operating system prompt:

```
% ./install -load
```

**(Note:** The usage for the install command is: Usage: install <-help | -load | -remove | -verify >. To read more about the installation procedure, type: ./install -help.)

Running the install command will start the command-driven dialog for the ArcSDE component installation procedure. Default selections are noted in brackets, [ ]. To obtain a list of options or online help, type '?' at any prompt. You can quit the installation procedure at any time by typing 'quit' or 'q'. To return to a previous question, type the caret, '^'.

5. Before continuing with the installation, you will be asked to read the license agreement and accept it or exit if you don't agree with the terms. The default is set to "no" and you have to type "yes" to proceed with the installation. The license agreement can be found under the License folder at the root level of each CD or on the DVD under each platform's install folder (ArcSDE/<platform>/License). The license agreement also can be viewed in a different language at <http://www.esri.com/licenseagreement/>. Please read the license agreement file appropriate for your locale.

```
ESRI is willing to license the software to you only if you
accept and agree to the enclosed license agreement. If you
have read and agree with the terms in the enclosed license
agreement type 'yes' to continue the installation process, if
not press <return> or type 'no' to exit installation process.
[no]
```

Once the installation is complete, please continue with the postinstallation setup.

**Note:** If you are installing ArcSDE on a different server than Oracle, you must copy the shared libraries used by EXTPROC to the Oracle server. These libraries include st\_shapelib plus the Geometry library and the Projection Engine library. Be sure the

files copied to the Oracle server are designed to run on the operating system of the Oracle server. For example, if ArcSDE is installed on a Linux machine, but Oracle is installed on a Solaris machine, the dll and lib files you copy to the Oracle server must be for Solaris. To get the files for different operating system, you can install the software files of the ArcSDE component on the Oracle server, creating the SDEHOME files, and delete everything but the three required library files.

-----  
 Library name | OS-dependent file names  
 -----

st\_shapelib | st\_shapelib.dll, libst\_shapelib.so, libst\_shapelib\_64.so or  
 libst\_shapelib.sl

Projection Engine | pe.dll, libpe.so, libpe\_64.so or libpe.sl

Geometry | sg.dll, libsg.so, libsg\_64.so or libsg.sl  
 -----

These files can be found in the bin (Windows) or lib (UNIX or Linux) directory of SDEHOME after you've installed the ArcSDE component. You can copy these files to the %ORACLE\_HOME%\lib (Windows) or \$ORACLE\_HOME/lib (UNIX or Linux) directory on the Oracle server, which is the default location that Oracle looks in for shared libraries. Or, you can leave these files where they were installed or move them into any directory that is accessible to the user that owns ORACLE\_HOME. If you do not use the default location under ORACLE\_HOME, you will need to define the environment variable EXTPROC\_DLLS for the EXTPROC so it can find st\_shapelib. This is done in the listener configuration file listener.ora. Please see [Configuring Oracle Net Services to use SQL functions](#).

Finally, the library definition in the Oracle data dictionary must be updated with the correct library path to the file containing st\_shapelib. Altering the definition of the library path will invalidate package bodies that refer to it, so the package bodies of some ArcSDE stored procedure packages should be recompiled using Oracle.

#### **Note for AIX users only:**

If you are installing on AIX, it is recommended that you run slibclean before installing or upgrading ArcSDE to clear inactive libraries from memory. If you are upgrading, see the [Upgrading ArcSDE](#) topic. To run slibclean (as root user):

```
# /usr/sbin/slibclean
```

(optional) To list the libraries as root user, type:

```
# /usr/sbin/genkld
```

For more information on the slibclean or the genkld commands, refer to your AIX system administrator documentation.

## ArcSDE postinstallation setup on UNIX

After your software is installed and before you attempt to start the ArcSDE service, you must complete the postinstallation setup.

To successfully complete the postinstallation setup:

### 1. Modify files in \$SDEHOME/etc and /etc.

Once your software is installed, you will need to modify one or more files.

- **/etc/services**—This is a system file which requires root access to change. You'll need to add a line to that file defining the TCP/IP port number and name to use for your ArcSDE service. Add a line similar to the following:

```
esri_sde      5151/tcp      # ArcSDE service on pinetree
```

Users connecting to your service can use the TCP/IP port number 5151 as the service name. If they prefer to use the name `esri_sde`, they'll need to add this same line to their local system services file.

- **\$SDEHOME/etc/services.sde**—Enter the same line in this file that you entered for the `/etc/services`.
- Other configuration files in `$SDEHOME/etc` you may want to edit include:

**dbinit.sde**—In this file, you can set variables the application server will use. Syntax is:

```
set <variablename>=<value>
```

See the ArcGIS Server and Desktop help topic [The dbinit.sde file](#) for more information.

**giomgr.defs**—This file contains parameters that define how ArcSDE uses memory. The default parameters are usually sufficient for most applications. This file gets loaded into the database as a table called `SERVER_CONFIG` as part of the `sdesetup` command (step 3). For more information on the `giomgr.defs` file, see the ArcGIS Server and Desktop help topic [The giomgr.defs file and the SERVER\\_CONFIG system table](#). To modify these settings after running the `sdesetup` command, see the `sdeconfig` command in the ArcSDE Administration Command Reference.

**dbtune.sde**—This file controls the physical storage parameters for tables in the database. This file gets loaded into the database as a table called `DBTUNE` as part of the `sdesetup` command (next step). For more information, see the ArcGIS Server and Desktop help topic [The dbtune file and the DBTUNE table](#). To modify these settings after



running the `sdesetup` command, see the `sdedbtune` command in the ArcSDE Administration Command Reference.

## 2. Grant execute privileges.

Make sure the public role has execute privileges on the `dbms_pipe` and `dbms_lock` packages. AS the Oracle SYS user, execute the following SQL commands:

```
sqlplus sys/***** as sysdba

grant execute on dbms_pipe to public;

grant execute on dbms_lock to public;
```

## 3. Run `$SDEHOME/bin/sdesetup`.

See [Permission Changes](#) for a list of privileges required for the SDE user to run `sdesetup`.

The `sdesetup` command will do the following:

- Create all the ArcSDE and geodatabase system tables in the DBMS.
- Create ArcSDE stored procedures.
- Populate the LOCATORS and METADATA system tables with data from `$SDEHOME/geocode/templates`.

The `sdesetup` command must execute successfully for ArcSDE to function correctly.

The usage for the `sdesetup` command is as follows:

```
-?

-h

-o upgrade -d <ORACLE9I|ORACLE10G|SQLSERVER|DB2|INFORMIX>
           [-H <sde_directory>] [-u <DB_Admin_user>] [-p
           <DB_Admin_password>]
           [-s datasource] [-i <service>] [-N] [-l <key>] [-q]

-o list -d <ORACLE9I|ORACLE10G|SQLSERVER|DB2|INFORMIX>
         [-H <sde_directory>] [-u <DB_Admin_user>] [-p
         <DB_Admin_password>]
         [-s datasource] [-i <service>] [-q]

-o install -d <ORACLE9I|ORACLE10G|SQLSERVER|DB2|INFORMIX>
            [-H <sde_directory>] [-u <DB_Admin_user>] [-p
            <DB_Admin_password>]
            [-s datasource] [-i <service>] [-N] [-l <key>] [-q]

-o update_key -d <ORACLE9I|ORACLE10G|SQLSERVER|DB2|INFORMIX>
              -l <key> [-u <DB_Admin_user>] [-p
              <DB_Admin_password>]
```

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```
[-H <sde_directory>] [-s datasource] [-i <service>]
[-N] [-q]
```

### Operations:

upgrade	Upgrade ArcSDE geodatabase.
list	List installed ArcSDE release.
install	Create geodatabase tables and procedures ArcSDE requires.
update_key	Add or update ArcSDE authorization key information.

### Options:

-d	Underlying RDBMS for ArcSDE
-h	Print Options
-i	ArcSDE service name (default: esri_sde) or port number, or direct connect information
-l	ArcSDE authorization key or location to authorization file
-N	No verification
-o	Operation
-p	DBMS DBA user password
-q	Quiet
-s	Datasource name
-u	DBMS DBA user name
-?	Print options

For new installations, use the install operation. For supported upgrades of ArcSDE, use the upgrade operation. To see what version of ArcSDE you have, use the list operation. The command generates a status for each stage of the setup.

More information on the sdesetup command can be obtained from the ArcSDE Administration Command Reference (\$SDEHOME/documentation/Admin\_Cmd\_Ref).

To authorize the software, use the -l <key> option during an installation or upgrade. To authorize ArcSDE later, use the update\_key operation. For additional information see [ArcSDE authorization](#).

### Related concepts found in the help

You can get more information related to setting up the repository in the ArcGIS Desktop online help (<http://webhelp.esri.com/arcgisdesktop/9.2>) or the help system installed with ArcGIS Server or ArcGIS Desktop. Use the links below to open the online topics, or open the help and search for the following titles:

The dbtune file and the DBTUNE table

DBTUNE configuration keywords

DBTUNE configuration parameter name-configuration string pairs

About geometry storage types

A spatial type for Oracle

The ST\_Geometry storage type

Using the Oracle Spatial geometry type

ArcSDE Compressed Binary storage

The OGC Well-Known Binary representation for geometry

The giomgr.defs file and the SERVER\_CONFIG table

The dbinit.sde file

System tables of a geodatabase stored in Oracle

## ArcSDE authorization

Each ArcSDE server machine requires an authorization file. Each new version of ArcSDE requires a new authorization file.

To authorize ArcSDE for use, you must obtain an authorization file from ESRI Customer Service (.ecp file). For more information on obtaining an authorization file see: <https://service.esri.com>

You can register ArcSDE with an authorization file in two ways:

1. If you already have your authorization file, run the `sdesetup` command with the `install` or `upgrade` operation and specify the authorization key information with the `-l` option. See [ArcSDE postinstallation setup](#).
2. If you don't yet have your authorization file, you can run the `sdesetup` command with either the `install` or `upgrade` operation but without the `-l` option. Then when you receive your authorization file from ESRI, run `sdesetup` again using the `update_key` operation and the `-l` option.

The syntax for the `sdesetup` command with the `update_key` operation is as follows:

```
sdesetup -o update_key -d
<ORACLE9I|ORACLE10G|SQLSERVER|DB2|INFORMIX>
-l <key> [-u <DB_Admin_user>] [-p
<DB_Admin_password>]
[-H <sde_directory>] [-D <database>] [-s datasource]
[-i <service>]
[-N] [-q]
```

Where `<key>` is the authorization key information or the location of your authorization file

For example:

```
sdesetup -o update_key -d ORACLE10G -l /machine/keycode.txt -u
sde -p sde
```

More information on the `sdesetup` command can be obtained from the ArcSDE Administration Command Reference (`$SDEHOME/documentation/Admin_Cmd_Ref`).

## Starting the ArcSDE service on UNIX

An ArcSDE service must be created and started. Start the ArcSDE service by logging in as the ArcSDE administrator and using the `sdemon` command.

```
sde on edsel > sdemon -o start
```

```
Please enter ArcSDE DBA password: <enter your Oracle sde password here>
```

Once the service is accepting connections, it is ready for use.

If you encounter problems starting the service, consult the topic [Troubleshooting the ArcSDE service](#) in the ArcGIS Server or Desktop help. This help topic is also available from <http://webhelp.esri.com/arcgisdesktop/9.2/index.cfm>.

For more information on the `sdemon` command, see the ArcSDE Administration Command Reference (`$SDEHOME/documentation/Admin_Cmd_Ref`).

### Related concepts found in the help

You can get more information related to the ArcSDE service in the ArcGIS Desktop online help (<http://webhelp.esri.com/arcgisdesktop/9.2>) or the help system installed with ArcGIS Server or ArcGIS Desktop. Use the links below to open the online topics, or open the help and search for the following titles:

[An overview of ArcSDE geodatabase connections](#)

[Stopping an ArcSDE service](#)

[Pausing and resuming an ArcSDE service](#)

[Accessing an ArcSDE service through a firewall](#)

[Troubleshooting the ArcSDE service](#)

 **ArcGIS Installation Guide**

## The next steps

After you finish the postinstallation setup, you're ready to add other users, set up client connections, and add data to your geodatabase. The following is a list of help topics to assist you in these tasks. Topics can be found in the ArcGIS Desktop online help (<http://webhelp.esri.com/arcgisdesktop/9.2>) or the help system installed with ArcGIS Server or ArcGIS Desktop. Use the links below to open the online topics, or open the help and search for the titles.

TASK	RELATED TOPICS
Geodatabase users	<a href="#">Adding users to an ArcSDE geodatabase</a> <a href="#">User permissions</a> <a href="#">Grouping users by access needs</a>
Client connections	<a href="#">Configuring Oracle Net Services to use SQL functions</a> <a href="#">An overview of ArcSDE geodatabase connections</a> <a href="#">Setting up clients for a direct connection</a> <a href="#">Creating spatial database connections</a>
Adding data	<a href="#">An overview of adding datasets to the geodatabase</a>

## Upgrading ArcSDE

### IMPORTANT information for users upgrading

- **Direct upgrades are only supported from ArcSDE 8.3, ArcSDE 9.0, and ArcSDE 9.1. Upgrading directly from ArcSDE 8.2.x, 8.0.x, or 3.x is not supported.** Moving from any of these unsupported released versions of ArcSDE to the current ArcSDE release will require the server to first be upgraded to ArcSDE 8.3, 9.0, or 9.1 and then upgraded to ArcSDE 9.2. It is also possible to export all your data using the `sdeexport` command and then import it in to ArcSDE 9.2, or import and export your data using ArcCatalog.
- **Upgrades from Beta or Prerelease are NOT supported.**
- **Create a backup of your existing ArcSDE database before upgrading.** Contact your database administrator for correct protocol.
- **ArcSDE Oracle8i , 9iR2, and 10gR1 users:**

If you are upgrading to ArcSDE 9.2 for Oracle and you are currently using Oracle8i, you will first be required to upgrade your Oracle database to at least Oracle9iR2. See Oracle's documentation for information on how to migrate your existing Oracle installation and database to a new release of Oracle database.

After the Oracle database has been upgraded, you can upgrade your ArcSDE installation.

For details on exact Oracle versions and patch levels supported by each ArcSDE for Oracle installation, see the ArcSDE System Requirements online at <http://support.esri.com>, and navigate to Software > ArcSDE > System Requirements. See the DBMS notes section under each System Requirements entry for any additional setup information.

### Required Oracle permissions to upgrade an ArcSDE geodatabase

To upgrade your Oracle instance, you will have to grant the following additional permissions to the ArcSDE administrative user (the SDE user or the owner of a user-schema geodatabase) in Oracle for the upgrade to succeed:

```
ALTER ANY INDEX
ALTER ANY TABLE
ANALYZE ANY
CREATE ANY INDEX
CREATE ANY PROCEDURE
CREATE ANY SEQUENCE
CREATE ANY TRIGGER
CREATE ANY VIEW
CREATE INDEXTYPE
```

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```
CREATE LIBRARY
CREATE OPERATOR
CREATE PROCEDURE
CREATE PUBLIC SYNONYM
CREATE SESSION
CREATE SEQUENCE
CREATE TABLE
CREATE TRIGGER
CREATE TYPE
DROP ANY INDEX
DROP ANY PROCEDURE
DROP ANY SEQUENCE
DROP ANY TABLE
DROP ANY VIEW
DROP PUBLIC SYNONYM
EXECUTE ANY PROCEDURE
SELECT ANY SEQUENCE
SELECT ANY TABLE
UNLIMITED TABLESPACE
```

After the upgrade completes, you may revoke the following permissions from the SDE user account:

```
ANALYZE ANY
ALTER ANY INDEX
ALTER ANY TABLE
CREATE ANY INDEX
CREATE ANY TRIGGER
CREATE ANY VIEW
DROP ANY INDEX
DROP ANY INDEXTYPE
DROP ANY LIBRARY
DROP ANY TABLE
DROP ANY TYPE
DROP ANY VIEW
DROP ANY PROCEDURE
DROP ANY SEQUENCE
DROP OPERATOR
EXECUTE ANY PROCEDURE
SELECT ANY SEQUENCE
CREATE INDEXTYPE
CREATE LIBRARY
CREATE OPERATOR
CREATE TYPE
UNLIMITED TABLESPACE
```

For the ArcSDE for Oracle installation, the Oracle SYS user must also grant execute permissions on a number of packages to the public role:

```
sqlplus sys/***** as sysdba
grant execute on dbms_pipe to public;
grant execute on dbms_lock to public;
```

You may modify and use the createsdeoracle.sql script to manually create the SDE user and tablespace. The createsdeoracle.sql script is in \$SDEHOME/tools/oracle.



Follow these steps to upgrade an ArcSDE service on UNIX:

1. Install the software to a new location. Save the old SDEHOME in case you need it. You may want to copy configuration files (dbtune.sde, dbinit.sde, giomgr.defs) from the old SDEHOME/etc into the new SDEHOME/etc.
2. If necessary, modify the configuration files.
3. Run `$SDEHOME/bin/sdesetup -o upgrade` to upgrade system tables and install updated stored procedures and locators. Be sure to grant new permissions to the SDE user and check the size of the SDE user's default tablespace before running this command. See [Permission changes](#) and [Tablespace size requirements](#) for details. For more information on the `sdesetup` command, see the ArcSDE Administration Command Reference (`$SDEHOME/documentation/Admin_Cmd_Ref`).

### Note for AIX users only:

If you are installing on AIX, it is recommended that you run `slibclean` before installing or upgrading ArcSDE to clear inactive libraries from memory. If you are upgrading stop your current ArcSDE service before running `slibclean` (as root user):

1. Stop your current ArcSDE service

```
% sdemon -o shutdown
```

2. run `slibclean` as root user

```
# /usr/sbin/slibclean
```

3. (optional) To list the libraries as root user, type:

```
/usr/sbin/genkld
```

For more information on the `slibclean` or the `genkld` commands, refer to your AIX system administrator documentation.

### Tablespace size requirements

The minimum tablespace requirement for upgrading ArcSDE is 400 MB. For larger databases, especially large geodatabases, the SDE tablespace requirement may be larger.

## Uninstalling ArcSDE

Uninstalling an existing version of ArcSDE consists of the following:

1. Stopping the service

```
sdaemon -o shutdown
```

2. Using operating system command to remove the software

```
rm -r $SDEHOME
```

You may also want to remove the service entry from the `/etc/services` file.

These two steps stop the service and remove the software from disk. The ArcSDE system tables, stored procedures, and user data are still in your Oracle database. If upgrading, leave them there and see the topics [Tablespace size requirements](#) and [Permission changes](#).