



# User-schema geodatabases in Oracle



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# What is a user-schema geodatabase in Oracle?

User-schema geodatabases are geodatabases that are stored in the schema of a user other than that of the sde user. They allow you to store multiple geodatabases in one Oracle instance.

You must first create a geodatabase in the schema of the sde user in the Oracle database, then each user who has permission to do so can create a geodatabase in his or her own schema. The geodatabase in the sde user's schema is called the master sde geodatabase. All geodatabases created in other user schemas are dependent on the master sde geodatabase.

The master sde geodatabase contains a table (INSTANCES) that keeps track of all the geodatabases that exist in the schemas of other users. The master sde geodatabase contains the ST\_Geometry type, its subtypes and functions, and the system tables the ST\_Geometry type uses, such as ST\_SPATIAL\_REFERENCES.

Because both the master sde geodatabase and user-schema geodatabases are stored in a single Oracle database, they use a single ArcSDE installation and can be accessed by a single ArcSDE service.

## Why use user-schema geodatabases?

The following are some reasons you would create geodatabase in the schemas of other users:

- If smaller groups within an organization, such as departments or project groups, work independently of each other, they may want their own data. You could have a geodatabase for each group.
- Separating your development environment from your production environment
- Separately tuning each geodatabase for the specific applications it services
- Protecting sensitive information  
For example, you may want to have a sensitive military database protected in its own geodatabase so owners of other instances are not able to see the data.

## Rules for user-schema geodatabases

The following rules govern the use of user-schema geodatabases in Oracle:

- A geodatabase is owned by the user who created it. That user is the ArcSDE administrator for that geodatabase and requires the same permissions as the sde user.
- You cannot create a geodatabase in a user's schema that is a different release than the master sde geodatabase. For example, if your master geodatabase is 10, you cannot run the 9.3 setup and create a 9.3 geodatabase in a user's schema.
- A user can own only one geodatabase.
- Only one geodatabase can reference a dataset that has been registered with ArcSDE.
- You cannot create a backup of only a user's schema and have a complete geodatabase; there are dependent objects, such as user-defined types, in the master sde geodatabase that must be part of the backup.
- When upgrading, you must upgrade the master sde geodatabase before you can upgrade geodatabases in other users' schemas.

- You cannot create, start, or stop an ArcSDE service when logged in as the owner of a user-schema geodatabase; this service is associated with the master sde geodatabase and is administered by the sde user.
- You cannot delete the master sde geodatabase if any of its dependent user-schema geodatabases still exist.
- You cannot delete the ST\_Geometry type from the master sde geodatabase if any data in a user-schema geodatabase is using the ST\_Geometry type.

# The relationship between the master geodatabase and user-schema geodatabases in Oracle

Geodatabases you create in the schema of a user other than the sde user in an ArcSDE for Oracle geodatabase are not entirely self-contained; there is some functionality, such as the ArcSDE service or user-defined types, that are only in the master sde geodatabase. For that reason, you cannot treat geodatabases in users' schemas as their own entity, and the following rules apply:

- You cannot create a geodatabase in a user's schema that is a different release than the master sde geodatabase. For example, if your master geodatabase is 10, you cannot run the 9.3 setup and create a 9.3 geodatabase in a user's schema.
- You must upgrade the master sde geodatabase before you can upgrade a geodatabase in a user's schema.
- You can upgrade the master sde geodatabase without upgrading the geodatabases in other users' schemas, but you cannot upgrade a user's geodatabase without upgrading the master sde geodatabase.
- You cannot create a backup of only a user's schema and have a complete geodatabase; there are dependent objects, such as user-defined types, in the master sde geodatabase that must be part of the backup.
- If you use an ArcSDE service to connect, the ArcSDE service must be at the same release as the master sde geodatabase.
- You can use an ArcSDE service to connect to a user-schema geodatabase only if the user-schema geodatabase is the same release as the master sde geodatabase.
- Direct connections to user-schema geodatabases follow the same rules of support as direct connections to master sde geodatabases. See [Direct connect compatibility between clients and ArcSDE geodatabases](#).
- You cannot use an older client to connect to a 10 geodatabase. This is true for both the master and user-schema geodatabases.

Based on these rules, the following release and connection scenarios are possible:

## ArcGIS 9.2 SP5 or SP6 clients

When using a 9.2 SP5 or SP6 client, connections for specific release geodatabases are as follows:

Master/user schema geodatabase release	Direct connection or ArcSDE service	Direct connection only	No connection possible
9.2 master sde geodatabase	✓		
9.2 user-schema geodatabase in a 9.2 master geodatabase	✓		
9.3.x master sde geodatabase	✓		
9.3.x user-schema geodatabase in a 9.3.x master geodatabase	✓		
9.2 user-schema geodatabase in a 9.3.x master geodatabase		✓	
10 master sde geodatabase			✓

10 user-schema geodatabase in a 10 master geodatabase			✓
9.3.x user-schema geodatabase in a 10 master geodatabase			✓
9.2 user-schema geodatabase in a 10 master geodatabase			✓

## ArcGIS 9.3.x clients

When using a 9.3.x client, connections for specific release geodatabases are as follows:

Master/user schema geodatabase release	Direct connection or ArcSDE service	Direct connection only	No connection possible
9.2 master sde geodatabase	✓		
9.2 user-schema geodatabase in a 9.2 master geodatabase	✓		
9.3.x master sde geodatabase	✓		
9.3.x user-schema geodatabase in a 9.3.x master geodatabase	✓		
9.2 user-schema geodatabase in a 9.3.x master geodatabase		✓	
10 master sde geodatabase			✓
10 user-schema geodatabase in a 10 master geodatabase			✓
9.3.x user-schema geodatabase in a 10 master geodatabase		Possible from 9.3.1 sp1 or sp2 client	
9.2 user-schema geodatabase in a 10 master geodatabase		Possible from 9.3.1 sp1 or sp2 client	

## ArcGIS 10 clients

When using a 10 client, connections for specific release geodatabases are as follows:

Master/user schema geodatabase release	Direct connection or ArcSDE service	Direct connection only
9.2 master sde geodatabase	✓	
9.2 user-schema geodatabase in a 9.2 master geodatabase	✓	
9.3.x master sde geodatabase	✓	
9.3.x user-schema geodatabase in a 9.3.x master geodatabase	✓	
9.2 user-schema geodatabase in a 9.3.x master geodatabase		✓
10 master sde geodatabase	✓	
10 user-schema geodatabase in a 10 master geodatabase	✓	
9.3.x user-schema geodatabase in a 10 master geodatabase		✓
9.2 user-schema geodatabase in a 10 master geodatabase		✓

# Permissions for user-schema geodatabase owners

To own and administer a user-schema geodatabase, the schema owner must have nearly all the same permissions as the sde user. Permissions to create, upgrade, and maintain a user-schema geodatabase are listed in the following sections:

## Permissions needed to create a geodatabase

These are the permissions that are required to create a geodatabase in a user's schema. The last seven permissions can be revoked after the geodatabase is created.

- CREATE SESSION
- CREATE TABLE
- CREATE TRIGGER
- CREATE SEQUENCE
- CREATE PROCEDURE
- CREATE OPERATOR
- CREATE INDEXTYPE
- CREATE LIBRARY
- CREATE PUBLIC SYNONYM
- DROP PUBLIC SYNONYM
- CREATE TYPE
- CREATE VIEW

## Permissions needed to upgrade a geodatabase

These are the permissions that are required to upgrade a geodatabase in a user's schema. The last eight can be revoked after the geodatabase is upgraded.

- CREATE SESSION
- CREATE TABLE
- CREATE TRIGGER
- CREATE PROCEDURE
- SELECT ANY TABLE
- CREATE OPERATOR
- CREATE INDEXTYPE
- ALTER ANY INDEX
- CREATE ANY INDEX
- CREATE ANY TRIGGER
- CREATE ANY VIEW

- DROP ANY INDEX
- DROP ANY VIEW

## Minimum permissions

These are the minimum permissions required by the schema geodatabase owner for the geodatabase to function properly and allow the schema owner to perform day-to-day maintenance tasks.

- CREATE SESSION
- CREATE TABLE
- CREATE TRIGGER
- CREATE SEQUENCE
- CREATE PROCEDURE
- SELECT ANY TABLE

## Creating a geodatabase in a user's schema in Oracle

You create user geodatabases by running the `sdesetup` command with the `install` operation. You must include the `-i` option and specify the port number and schema name. The user name and password must be those of the user in whose schema the geodatabase is to be installed.

It is recommended that you store the system tables that get created in the user's schema with the `sdesetup -o install` command in a different tablespace than the one used for your sde master geodatabase. This helps avoid I/O contention and allows you to back up the tablespace separately if needed. To create the system tables of the user-schema geodatabase in a different tablespace, make a copy of your `dbtune.sde` file and edit the parameters under the `DATA_DICTIONARY` keyword in the `dbtune` file to point them to a different tablespace. Do this prior to running the `sdesetup` command to create the geodatabase in a user's schema.

**Note:** If the tablespace for the user-schema geodatabase is the default schema of the user, and if you left the tablespace values for the `DATA_DICTIONARY` parameters commented out (in other words, you had not specified tablespaces for the SDE master geodatabase), you do not have to alter the parameters of the `DATA_DICTIONARY` keyword to point to the new schema.

### Steps:

1. Grant the proper permissions to the user to allow him or her to create a geodatabase.
2. As the schema owner, run the `sdesetup` command.

```
sdesetup -o install -d ORACLE11G -i 5151:Thor -u Thor -p rot -l licensefile.ecp
```

**Caution:** Be sure you specify the schema name with the `-i` option. If it is not specified, and only a port number is provided, the sde schema is used by default. Since the geodatabase in the sde schema already exists, this fails.

Even if you are using a direct connection to the master sde geodatabase, you must add an ArcSDE service port number to the operating system services file on the server. You don't have to start a service, this entry just needs to be in the operating system services file.

# Connections to user-schema geodatabases in Oracle

Connections to user-schema geodatabases from ArcGIS Desktop are made from the **Spatial Database Connection** dialog box. You must specify a geodatabase version in the user's schema to make the connection. The first section below describes this.

You can use an ArcSDE service or a direct connection to connect to a geodatabase in the schema of a user other than sde. The last two sections in this topic explain how you use each of these connection types with a user-schema geodatabase.

 **Tip:** Because user-schema geodatabases were first introduced in ArcGIS 9.2, you can use an ArcGIS 9.2 or later client to connect to a user-owned geodatabase.

## Specifying a version in the schema of a user other than sde

When you initially make a database connection to geodatabase using the **Spatial Database Connection** dialog box in ArcGIS Desktop, you are automatically connecting to the sde.DEFAULT version of the geodatabase. To connect to a geodatabase in the schema of a user other than sde, click the **Change** button under **Connection** details on the **Spatial Database Connection** dialog box and change the version name from sde.DEFAULT to <user\_schema>.DEFAULT or another version owned by the geodatabase owner.

## Direct connections to user-schema geodatabases

Creating a direct connection to a user-owned geodatabase is similar to making a direct connection to the master sde geodatabase—you must install and configure the Oracle client on the client computer and specify a connection string to instruct the client application which Oracle database to use.

However, to create a direct connection to a user-owned geodatabase, you must also specify the schema name in the connection string. The syntax is  
sde:<oracle\_client\_release>:<SQL\_Net\_alias>:<schema\_name>.

In the following example, a direct connection is made to an Oracle 10g database that has a SQL Net alias of ora10inst. The geodatabase is stored in the schema of user Thor.

```
sde:oracle10g:ora10inst:Thor.
```

The SQL Net alias is set in the tnsnames.ora file when the Oracle client is configured.

Be aware that if you do not provide a schema name in the connection string, the sde schema is used by default.

 **Tip:** To specify environment variables as part of the connection string, place a semicolon at the end of the connection string, then type the environment variable.

For more information on direct connections from ArcGIS Desktop to a geodatabase in Oracle, see [Setting up a direct connection to Oracle](#) and [Making a direct connection from ArcGIS Desktop to a geodatabase in Oracle](#).

## ArcSDE service connections to user-schema geodatabases

If you use an ArcSDE service to connect, only one giomgr process is used: the one to the sde master geodatabase. Therefore, you have one ArcSDE service for the sde master geodatabase; you do not set up separate ArcSDE services for the user-schema geodatabases, and there are not separate giomgr processes or port numbers for each geodatabase.

When you make a connection from a client using an ArcSDE service, specify the port number of the ArcSDE service and the schema that contains the geodatabase to which you want to connect. The syntax for this is <the\_port\_number>:<schema\_name>.

In this example, a connection is made to the geodatabase in Thor's schema with an ArcSDE service that uses the port number 5151:

```
5151:Thor.
```

If you do not specify the schema name, the connection is made to the sde master geodatabase.

# User-schema geodatabase management

Administration of geodatabases stored in a schema other than that of the sde user are managed somewhat differently than the sde master geodatabase on which they are dependent. This topic includes a few of the management tasks that have different procedures than those for the master geodatabase.

The user who owns the geodatabase is the ArcSDE administrator. In other words, the user that owns the schema in which the geodatabase is stored is equivalent to the sde user in the sde master geodatabase and is the user who performs administrative tasks in the user-schema geodatabase.

 **Tip:** Other user-schema geodatabase information can be found in [Connections to user-schema geodatabases](#) and [Deleting a geodatabase from a user's schema](#).

## Starting and stopping a geodatabase in a user's schema

Geodatabases stored in schemas other than the sde schema are dependent on the master geodatabase. Once you start or shut down the master geodatabase, all associated geodatabases are automatically started or shut down. An attempt to start a geodatabase stored in a user's schema independently will result in an error similar to the following:

```
init_DB DB_instance_open_as_dba: -93
DBMS error code: 1017
ORA-01017: invalid username/password; logon denied
```

## Listing the geodatabases present on a server

You can find out what geodatabases are running on a server by using the `-I` option on the `sdemon -o info` command. This option will return information regarding the various geodatabases that are present on a server.

```
sdemon -o info -I instances
Instance          Created              Id
SDE               Thu Oct 28 16:30:20 2004    0
MAP               Mon Feb 27 11:18:04 2006    1
```

 **Tip:** You can also use SQL to query the INSTANCES system table to obtain information about user-schema geodatabases.

For details on the `sdemon` command, see the ArcSDE Administration Command Reference provided with ArcSDE.

## Creating stored procedures for geodatabases stored in a user's schema

Each geodatabase has its own set of stored procedure packages that are automatically created in the ArcSDE administrator's schema upon geodatabase creation.

In addition, you can create individual packages in the geodatabase through SQL\*Plus if you provide the schema name. For example, to create the dbtune\_util package in the Thor user schema, issue the following command at the SQL prompt:

```
@dbtune_util.sps THOR
```

## Loading data into a user-schema geodatabase

You load data into geodatabases that are stored in the schema of a user other than the sde user the same way that you load data into the sde master geodatabase—with either ArcGIS Desktop (the recommended method) or ArcSDE commands.

**⚠ Caution:** It is important to note that if you are connected to two different geodatabases in the same Oracle database as the same user in ArcGIS Desktop, when you try to copy and paste datasets between the geodatabases, the paste fails. This is due to the fact that the dataset does not have a unique fully qualified name since it is stored in the same user's schema.

You can load a table into a geodatabase with the same table name that exists in another geodatabase as long as the tables are owned by different schemas.

### Registering tables and layers

Users who own geodatabases are allowed to create tables in other geodatabases using SQL or ArcSDE commands, but a table can be registered in only one geodatabase.

If the table has already been registered in another schema, the SE\_TABLE\_REGISTERED\_OUTSIDE\_SCHEMA error will be returned.

The following example shows registering with ArcSDE a table, mytable, that was created using SQL:

```
sdetable -o register -t mytable -i 2299:schemaname -u user -p passwd
```

This example shows creating a layer, mylayer, using the sdelayer command.

```
sdelayer -o create -l mylayer,shape -i port:schemaname -u user -p passwd
```

See the ArcSDE Administration Command Reference, which is included on the ArcGIS Server Enterprise installation media, for details on using the sdetable and sdelayer commands.

## Creating a backup of a user-owned geodatabase

If all the tables in the schema geodatabase are owned by the schema owner (in other words, if no other user created data in the geodatabase), the geodatabase owner does not own data in any other geodatabase, and you are not using the ST\_Geometry storage type, you can create a backup of the geodatabase owner's schema.

In most cases, it is recommended that you do a complete Oracle system backup. If users have data spread across multiple geodatabases in the same Oracle database, or you are using the ST\_Geometry storage type (which is the default storage type for ArcSDE geodatabases beginning with ArcGIS 9.3), a complete Oracle system backup is required. That is because the geodatabase in the user's schema relies on information in other schemas in the database; therefore, creating a backup of only the schema that contains the geodatabase is insufficient. See your Oracle documentation for information on creating database backups.

# Deleting a geodatabase from a user's schema

You can delete the ArcSDE geodatabase repository from a user's schema by doing the following:

Steps:

1. Make a backup of the database.
2. Unregister or remove from the user's schema all data that is registered with ArcSDE and/or the geodatabase. This includes such objects as feature datasets, stand-alone feature classes, raster datasets, raster catalogs, and nonspatial tables—any object that contains a record in the TABLE\_REGISTRY ArcSDE system table.  
This also applies to objects registered in another user's schema. For example, there could be a feature class in the user2 schema that is registered in the master geodatabase. This, too, would need to be removed or unregistered before you could delete the user-schema geodatabase.
3. Be sure there are no users connected to the sde master geodatabase or any of the user-schema geodatabases.
4. Execute the sdesetup command with the delete operation to remove the ArcSDE repository (the system tables, views, indexes, triggers, operators, packages, package bodies, libraries, type bodies, index types, and types) from the user's schema. See the ArcSDE Administration Command Reference for details on using the sdesetup command.

```
sdesetup -o delete -d ORACLE11G -u theschemaowner  
-p nomira -i 5151:theschemaowner
```

**⚠ Caution:** Be sure to specify the user-schema information with the `-i` option; if you do not, `sdesetup` will attempt to delete the sde master geodatabase.

# Preparing to upgrade a geodatabase in Oracle

When you upgrade any enterprise system, including a geodatabase, plan ahead. Test the new version on a development or test server to ensure that it works with all your client applications.

When you have determined that the new system works the way you expected, schedule the upgrade; be sure the necessary staff are available to perform the upgrade and that they have the permissions necessary to complete their assigned tasks.

-  **Note:**
- You can upgrade directly from an ArcSDE 9.2, 9.3, or 9.3.1 geodatabase to ArcSDE 10. If your geodatabase is at release 9.1 or lower, you must first upgrade to a supported release, then upgrade to ArcSDE 10.
  - Upgrades from beta versions of the software are not supported.
  - If the geodatabase is part of a replica, you must upgrade both the parent and child geodatabase before synchronizing.
  - There is no formal mechanism to downgrade an ArcSDE geodatabase to a previous version. If after upgrading to a newer version you want to downgrade the geodatabase, you must restore the old database from backup.

You must also complete the following steps before you upgrade your geodatabase in Oracle.

Steps:

1. Check the [ArcGIS Resource Center](#) to be sure that your system meets the minimum requirements.
2. If you are upgrading to ArcSDE 10 for Oracle and you are currently using Oracle9i, you must first upgrade your Oracle database to at least Oracle 10g R2. See the Oracle documentation for information on how to migrate your existing Oracle installation and database to a new release of Oracle.

For details on exact Oracle versions and patch levels supported by each ArcSDE for Oracle installation, see the ArcGIS Server System Requirements on the ArcGIS Resource Center at <http://resources.esri.com> and navigate to **ArcGIS Products > Server > System Requirements > Relational Database Management Systems > Oracle**.

3. Make sure that the Oracle Text component is installed.  
The Text component is installed by default in Oracle 10g and 11g; however, if you did not do a default installation, the Text component may not have been installed.

To see if it is installed, execute the following SQL statement while logged in as SYSTEM or a user with DBA privileges in the database:

```
SELECT owner, object_name
FROM all_objects
WHERE object_type = 'PACKAGE'
AND object_name = 'CTX_DDL'
```

If no record is returned, the Text component is not installed. Run the Oracle installation to install the Text component.

4. Create a backup of the database.
5. For IBM AIX users only: If you are installing on AIX, it is recommended that you run `slibclean` before upgrading or installing ArcSDE to clear inactive libraries from memory. Stop your current ArcSDE service and run `slibclean` as the root user. See your AIX system administrator documentation for more information on the `slibclean` command.
6. Remove any custom functionality you may have added to the ArcSDE geodatabase system tables outside ArcGIS such as triggers or additional indexes.  
The upgrade procedure cannot be aware of customizations you make to the system tables. If such customizations prevent the alteration of a system table's schema, the upgrade will fail.
7. Grant the ArcSDE administrator the permissions necessary to upgrade a geodatabase.
8. Install the current ArcGIS client (ArcGIS Desktop, ArcGIS Engine, or ArcGIS Server) release on a computer that can directly connect to the geodatabase to perform the upgrade.
9. Make sure that the Oracle client is installed and configured on the computer where ArcGIS Desktop is installed.  
This is required because you must make a direct connection to the geodatabase to upgrade it. See [Setting up a direct connection to Oracle](#) for more information.
10. Make sure there are no users connected to the geodatabase you are upgrading. If you are upgrading the sde master geodatabase, also make sure no one is connected to any of the user-schema geodatabases in the Oracle database.  
You can use the `sdemon` command to check this. Be sure to check the connections for the geodatabase you are upgrading and, if upgrading the master geodatabase, check the connections for all user-schema geodatabases. See [Displaying connected sessions](#) for instructions.
11. Shut down any ArcSDE services that are running using the `sdemon -o shutdown` command. Or if the service is running on a Windows server, you can stop the service on the **Windows Services** interface instead of using the `sdemon` command.  
See the command syntax in the ArcSDE Administration Command Reference for more information on the `sdemon` command.
12. Uninstall the old release of ArcSDE. See either [Uninstalling ArcSDE from Windows](#) or [Uninstalling ArcSDE from Linux or UNIX](#) for instructions.
13. In Windows, you are prompted to delete the ArcSDE services during the uninstallation process if any are running. Click **Yes** to delete the service if you are installing a new release of ArcSDE. If you are installing a service pack or patch, you can click **No** and reuse the service unless the service pack or patch instructions specify that you must re-create the service. (For example, if the service pack or patch fixes something in the service functionality, you most likely need to re-create it.)
14. Install the new release of ArcSDE.  
On Windows operating systems, do not run the Post Installation wizard. The Post Installation wizard is for new installations only.

 **Note:** If you install ArcSDE to a different location than you had previously and your previous release geodatabase had the `EXTPROC` configured for `ST_Geometry`, you must reconfigure your `listener.ora`

15. If ArcSDE is installed on a different server than your Oracle database, copy the `st_shape` library from the `bin` (Windows) or `lib` (UNIX/Linux) directory in `SDEHOME` to the `lib` directory in `ORACLE_HOME`. If you plan to use the `ST_Raster` type, also copy the `libst_raster_ora` library from `SDEHOME` to the `ORACLE_HOME` directory.  
See [Installing Oracle and ArcSDE on separate servers](#) for more information.

The geodatabase is now ready to be upgraded.

# Upgrading geodatabases in user schemas in Oracle

You can create multiple geodatabases in one Oracle database. When you do this, you create a geodatabase in the schema of a user other than that of the sde user. For this reason, these geodatabases are referred to as user-schema geodatabases. These geodatabases contain their own ArcSDE and geodatabase system tables.

However, geodatabases you create in the schema of a user other than the sde user in an ArcSDE for Oracle geodatabase are not entirely self-contained; there is some functionality, such as the ArcSDE service or user-defined types, that are only in the master geodatabase in the sde user's schema. As a result of this, the following are true:

- You must make a backup of the entire database; creating a backup of only a user's schema does not include the user-defined types and functions.
- Stopping the ArcSDE service on the master geodatabase disables service connections to user-schema geodatabases.
- You must upgrade the master geodatabase before you upgrade geodatabases in user schemas.
- You cannot upgrade a user-schema geodatabase while the master geodatabase is being upgraded.

You upgrade the geodatabase in a user's schema separately, after you have upgraded the master geodatabase. Additionally, the schema owner, not the sde user, must upgrade geodatabases in his or her schema and, therefore, must be granted permissions to upgrade.

If you try to upgrade a user-schema geodatabase before upgrading the master geodatabase, you will receive the following message:

```
Cannot upgrade a user schema geodatabase
when the master schema geodatabase is at a previous release.
The master schema geodatabase must be upgraded first.
ERROR: Geodatabase schema object install not completed.
```

It is recommended that you keep all the geodatabases in the same Oracle instance at the same ArcGIS release, but you do not have to upgrade all the user-schema geodatabases in the Oracle database if you are using a direct connection to the geodatabase.

## Steps:

1. Follow the instructions in [Preparing to upgrade a geodatabase in Oracle](#).
2. Make sure a backup has been made of the entire Oracle database.
3. Make sure the master geodatabase is already upgraded.
4. Start ArcCatalog, or start ArcMap, ArcGlobe, or ArcScene and open the Catalog window.
5. Expand the **Database Connections** node.
6. Make a direct connection to the user-schema geodatabase, logging in as the schema owner.
7. Right-click the geodatabase and click **Properties**.

8. Click the **General** tab.

If an upgrade is needed, the **Upgrade Geodatabase** button is active.

If the **Upgrade Geodatabase** button is not active, it could be because the connecting client is at the same release as the ArcSDE geodatabase, your DBMS is not at a supported upgradable release, you are using an ArcSDE service connection rather than a direct connection to the

geodatabase, or you are connecting from an ArcGIS Desktop client running under an ArcView license.

 **Note:** You cannot run the Upgrade Geodatabase tool if any other geoprocessing tools are currently running as background processes on the client machine.

9. ESRI recommends that you leave both the **Pre-requisites check** and **Upgrade geodatabase** options checked on the Upgrade Geodatabase geoprocessing tool. That way, the tool checks to see if the prerequisites to upgrade have been met before continuing with the geodatabase upgrade.

The prerequisite check detects other active connections to the geodatabase, whether the connecting user has sufficient privileges to upgrade the geodatabase, and that the database can support XML columns; makes sure all datasets can be opened; ensures that the master geodatabase has been upgraded before any user-schema geodatabases can be upgraded; and detects that the database and libraries are at the same release. If any prerequisites are not met, the tool terminates. You must correct any problems before you run the upgrade procedure again.

The results of this check are reported in the geoprocessing tool progress dialog box and the GDBUpgrade<n>.log, which can be found in the system TEMP directory.

10. Click **OK** to start the checks and upgrade.
11. If all checks are passed, the tool proceeds with the upgrade. The status for the prerequisites check and the upgrade are shown on the geoprocessing tool progress dialog box.
12. When the tool successfully completes, click **Close** to close the geoprocessing tool progress dialog box.

Your user-schema geodatabase is upgraded to the latest ArcGIS release.

To upgrade network datasets or cadastral or parcel fabrics in the user-schema geodatabase, use the Upgrade Network or Upgrade Parcel Fabric geoprocessing tools or Python scripts.

 **Note:** Upgrades of network datasets and cadastral or parcel fabrics are optional. However, if you do not upgrade them, you do not have access to the latest functionality in network datasets and parcel fabrics.