

Best Practices for Storing the ArcGIS® Workflow Manager Workspace in an Enterprise Geodatabase for Oracle®



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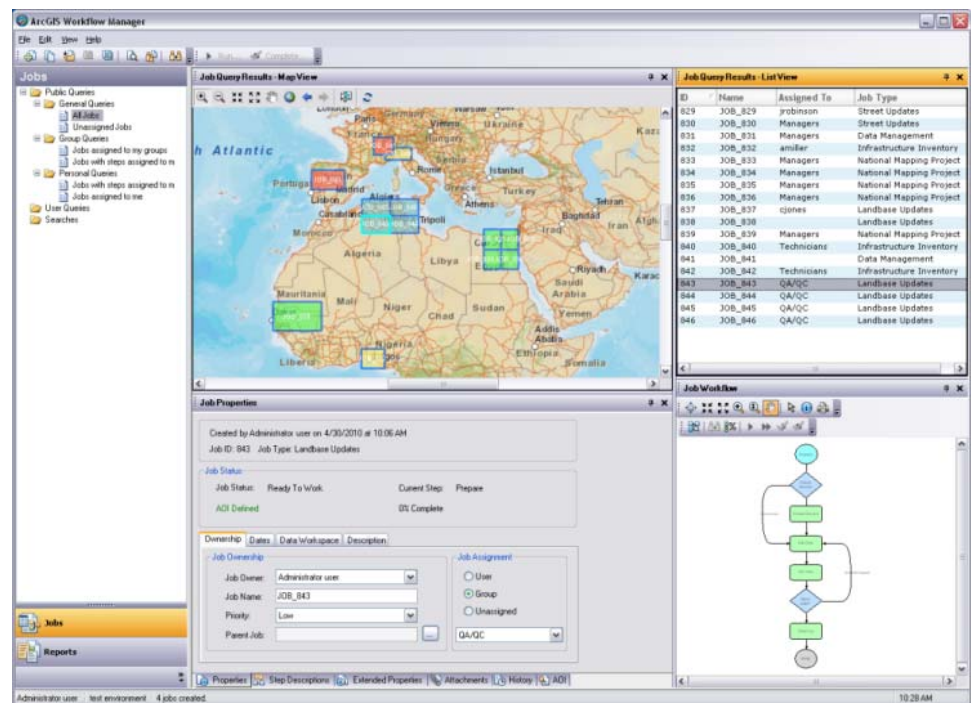
An Esri White Paper

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Introduction

This white paper is intended for database administrators to help them establish the ArcGIS® Workflow Manager workspace in an enterprise geodatabase for Oracle®. The enterprise geodatabase uses ArcSDE® technology as the gateway between geographic information system (GIS) clients and Oracle. The Workflow Manager workspace uses ArcSDE, and this paper covers the best practices to create the ArcSDE instance. ArcGIS Workflow Manager is an enterprise workflow management application that provides an integration framework for ArcGIS multiuser geodatabase environments. It simplifies many aspects of job management and tracking and streamlines the workflow, resulting in significant time savings for any implementation. Workflow Manager provides tools for allocating resources and tracking the status and progress of jobs.



ArcGIS Workflow Manager Client Application Interface

A detailed history of job actions is automatically recorded for each job to give managers a full report on how the job was completed. This information can be supplemented with comments and notes to provide even richer job documentation. Workflow Manager handles complex geodatabase tasks behind the scenes by assisting you in the creation and management of versions. An integration between Workflow Manager and ArcGIS geodatabase tools provides a way of tracking feature edits made through Workflow Manager jobs using the geodatabase archiving tools.

What Is the Postinstallation?

For the Workflow Manager applications to function, all the Workflow Manager system tables must exist in the database, and of those, the tables that host required configuration information must be populated with values that will drive the application behavior. The following section will detail how to create and start configuring the Workflow Manager system tables.

The Workflow Manager postinstallation utility is used to insert the Workflow Manager system tables into the workspace you've created for the Workflow Manager repository (also referred to as the Workflow Manager database).

This repository contains a set of geodatabase tables (Workflow Manager system tables) used to store the job and configuration information for your work management system and one feature class that is used to store the geometries for the areas of interest (AOIs) for your jobs.

The Workflow Manager system tables added by the postinstallation utility are geodatabase tables and are registered with your ArcSDE geodatabase. If at any time you are unsure of the state of the database, please connect to the repository using ArcCatalog™. Because the Workflow Manager system tables are geodatabase tables, it is strongly recommended that you do not delete or modify these tables using your RDBMS tools.

Preparing the Database

Before you can install the Workflow Manager system tables into an ArcSDE instance, you must properly set up the instance to receive the repository; the steps below will show how to accomplish this task.

DBTUNE

DBTUNE storage parameters let you control how ArcSDE technology creates objects within an Oracle database. They allow you to determine, for example, how to allocate space on a table or index and which TABLESPACE a table or index is to be created in, as well as other Oracle-specific storage attributes. They also let you specify one of the available storage formats for the geometry of a spatial column.

The DBTUNE storage parameters are stored in the DBTUNE table. The DBTUNE table, along with all other metadata tables, is created during the setup phase that follows the installation of ArcSDE. ArcSDE installation creates a dbtune file under the etc directory from which the DBTUNE table is populated. If no dbtune file is present during setup, the DBTUNE table will be populated with default values.

If a large number of database connections are accessing the same files in the same location on disk, database performance will be slower because the connections are competing with one another for the same resources. To reduce this competition, you can store database files in different locations on disk.

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Thus, DBTUNE can be modified to store the Workflow Manager system tables in separate data files across different locations on disk. This will lead to reduced disk contention and improved database input/output (I/O).

Standard GIS storage recommendations favor keeping index and log files separate from vector and tabular business tables. For performance reasons, it is better to position the business, feature, and spatial index tables separately and position TABLESPACE data files based on their usage pattern. For a multiversioned, highly active editing geodatabase, database files of VERSIONS TABLESPACES may be separated and dispersed among available disks to avoid I/O contention.

Disk Configuration

Large-production enterprise geodatabase systems should employ a hardware striping solution. The best strategies for disk and data organization involve spreading your data among multiple disks. With data spread among multiple disks, more spindles actively search for it. This can increase disk read time and decrease disk contention. However, too many disks can slow down a query. There are two main ways of achieving striping: TABLESPACES and redundant array of independent disks (RAID). You can also combine the two—create TABLESPACES within disk arrays. You can employ data segregation strategies; keeping tables from indexes or certain types of tables from other tables will improve performance and alleviate administrative burdens.

Suggested Oracle optimal configuration is as follows:

- DISK 0—Oracle/App Software DISK 0
- DISK 1—SYSTEM, Control File 1
- DISK 2—RBS, TEMP, Control File 2
- DISK 3—REDO 1,2,3, Export Files
- DISK 4—Feature Data Tables
- DISK 5—Spatial Index Data Tables
- DISK 6—Attribute Data/Business Tables
- DISK 7—Oracle Indexes

Reduce Disk I/O Contention

As a rule, you should create database files as large as possible, based on the maximum amount of data you estimate the database will contain, to accommodate future growth. By creating large files, you can avoid file fragmentation and get better database performance. In many cases, you can let data files grow automatically; just be sure to limit autoextend by specifying a maximum growth size that leaves some hard disk space available. By putting different TABLESPACES on different disks, you can also help eliminate physical fragmentation of your files as they grow.

Below is a suggested design to reduce disk I/O contention:

File Type	Database Activity	Move File to Disk With
Redo log	Frequent edits	Relatively low I/O
Redo log	Few or no edits	Moderate I/O
Undo log files	Frequent edits	Low I/O, but separate from redo log files
System data	Frequent edits	Moderate I/O
Temporary TABLESPACE	Few edits	High I/O

Creating the ArcSDE Instance

Step 1: Create Data Files

Create new TABLESPACES to store the Workflow Manager system tables.

```
TABLESPACE      SDE_PARAMETER
WMX_BDATA       Business table
WMX_BINDEX      Business table index
WMX_FDATA       Feature table
WMX_FINDEX     Feature table index
WMX_SDATA      Spatial Index table
WMX_SINDEX     Spatial Index table index
WMX_ADATA      Adds table (versioned)
WMX_AINDEX     Adds table index
WMX_DDATA      Deletes table (versioned)
WMX_DINDEX     Deletes table index

CREATE SMALLFILE TABLESPACE "WMX_BDATA"
DATA FILE 'D:\oracle\ORADATA\WMX\wmx_Bdata01.dbf' SIZE 10M AUTOEXTEND ON
NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT
AUTO;

CREATE SMALLFILE TABLESPACE "WMX_BINDEX"
DATA FILE 'D:\oracle\ORADATA\WMX\wmx_Bindex01.dbf' SIZE 10M AUTOEXTEND ON
NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT
AUTO;

CREATE SMALLFILE TABLESPACE "WMX_FDATA"
DATA FILE 'D:\oracle\ORADATA\WMX\wmx_FDATA01.dbf' SIZE 10M AUTOEXTEND ON
NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT
AUTO;

CREATE SMALLFILE TABLESPACE "WMX_FINDEX"
DATA FILE 'D:\oracle\ORADATA\WMX\wmx_FINDEX01.dbf' SIZE 10M AUTOEXTEND ON
NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT
AUTO;

CREATE SMALLFILE TABLESPACE "WMX_SDATA"
DATA FILE 'D:\oracle\ORADATA\WMX\wmx_Sdata01.dbf' SIZE 10M AUTOEXTEND ON
NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT
AUTO;

CREATE SMALLFILE TABLESPACE "WMX_SINDEX"
DATA FILE 'D:\oracle\ORADATA\WMX\wmx_Sindex01.dbf' SIZE 10M AUTOEXTEND ON
NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT
AUTO;

CREATE SMALLFILE TABLESPACE "WMX_ADATA"
DATA FILE 'D:\oracle\ORADATA\WMX\wmx_Adata01.dbf' SIZE 10M AUTOEXTEND ON
NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT
AUTO;
```

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```
CREATE SMALLFILE TABLESPACE "WMX_AINDEX"  
DATAFILE 'D:\oracle\ORADATA\WMX\wmx_Aindex01.dbf' SIZE 10M AUTOEXTEND ON  
NEXT 1M MAXSIZE 400M  
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT  
AUTO;  
  
CREATE SMALLFILE TABLESPACE "WMX_DDATA"  
DATAFILE 'D:\oracle\ORADATA\WMX\wmx_Ddata01.dbf' SIZE 10M AUTOEXTEND ON  
NEXT 1M MAXSIZE 400M  
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT  
AUTO;  
  
CREATE SMALLFILE TABLESPACE "WMX_DINDEX"  
DATAFILE 'D:\oracle\ORADATA\WMX\wmx_Dindex01.dbf' SIZE 10M AUTOEXTEND ON  
NEXT 1M MAXSIZE 400M  
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT  
AUTO;
```

Step 2: Create a Workflow Manager User

Create a new database user to store the Workflow Manager system tables and grant the appropriate permissions.

```
CREATE USER WMX PROFILE DEFAULT IDENTIFIED BY wmx  
  DEFAULT TABLESPACE "WMX_BDATA"  
  TEMPORARY TABLESPACE "TEMP"  
  QUOTA UNLIMITED ON "WMX_BDATA"  
  QUOTA UNLIMITED ON "WMX_BINDEX"  
  QUOTA UNLIMITED ON "WMX_FDATA"  
  QUOTA UNLIMITED ON "WMX_FINDEX"  
  QUOTA UNLIMITED ON "WMX_SDATA"  
  QUOTA UNLIMITED ON "WMX_SINDEX"  
  QUOTA UNLIMITED ON "WMX_ADATA"  
  QUOTA UNLIMITED ON "WMX_AINDEX"  
  QUOTA UNLIMITED ON "WMX_DDATA"  
  QUOTA UNLIMITED ON "WMX_DINDEX"  
  ACCOUNT UNLOCK;  
  
GRANT CREATE SESSION TO WMX;  
GRANT CREATE SEQUENCE TO WMX;  
GRANT CREATE TRIGGER TO WMX;  
GRANT CREATE VIEW TO WMX;  
GRANT CREATE TABLE TO WMX;
```

Step 3: Modify DBTUNE

Export the dbtune file before making any modification.

```
sdedbtune -o export -f dbtune_exp.sde -u sde -p sde -i 5151
```

Copy *dbtune_exp.sde* to *dbtune_wmx.sde*.

Create a new DBTUNE keyword following the steps below:

- Copy the `##DEFAULTS` keyword and paste it at the end of the file named `dbtune_wmx.sde`.
- Rename it `##WMX` and change the `TABLESPACE` name for the appropriate parameters.

```
dbtune_wmx.sde

##WMX
A_INDEX_RASTER "PCTFREE 0 INITRANS 4 TABLESPACE WMX_AINDEX NOLOGGING"
A_INDEX_XML "PCTFREE 0 INITRANS 4 TABLESPACE WMX_AINDEX NOLOGGING"
D_INDEX_STATE_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE WMX_DINDEX
STORAGE (INITIAL 409600) NOLOGGING"
D_INDEX_DELETED_AT "PCTFREE 0 INITRANS 4 TABLESPACE WMX_DINDEX STORAGE
(INITIAL 409600) NOLOGGING"
B_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE WMX_BDATA STORAGE
(INITIAL 409600) "
B_INDEX_XML "PCTFREE 0 INITRANS 4 TABLESPACE WMX_BINDEX NOLOGGING"
B_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE WMX_BINDEX STORAGE
(INITIAL 409600) NOLOGGING"
B_INDEX_TO_DATE "PCTFREE 0 INITRANS 4 TABLESPACE WMX_BINDEX NOLOGGING"
B_INDEX_SHAPE "PCTFREE 0 INITRANS 4 TABLESPACE WMX_BINDEX NOLOGGING"
B_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE WMX_BINDEX STORAGE
(INITIAL 409600) NOLOGGING"
B_INDEX_RASTER "PCTFREE 0 INITRANS 4 TABLESPACE WMX_BINDEX NOLOGGING"
GEOMETRY_STORAGE "ST_GEOMETRY"
F_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE WMX_FDATA "
F_INDEX_LEN "PCTFREE 0 INITRANS 4 TABLESPACE WMX_FINDEX NOLOGGING"
F_INDEX_FID "PCTFREE 0 INITRANS 4 TABLESPACE WMX_FINDEX NOLOGGING"
F_INDEX_AREA "PCTFREE 0 INITRANS 4 TABLESPACE WMX_FINDEX NOLOGGING"
D_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE WMX_DDATA STORAGE
(INITIAL 409600) "
ST_GEOM_LOB_STORAGE "STORE AS (TABLESPACE WMX_FDATA ENABLE STORAGE
IN ROW CHUNK 8K RETENTION CACHE INDEX (TABLESPACE
WMX_FINDEX) )"
S_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE WMX_SDATA STORAGE
(INITIAL 409600) "
S_INDEX_SP_FID "PCTFREE 0 INITRANS 4 TABLESPACE WMX_SINDEX NOLOGGING"
S_INDEX_ALL "PCTFREE 0 INITRANS 4 TABLESPACE WMX_SINDEX STORAGE
(INITIAL 409600) NOLOGGING"
A_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE WMX_ADATA STORAGE
(INITIAL 409600) "
A_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE WMX_AINDEX STORAGE
(INITIAL 409600) NOLOGGING"
A_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE WMX_AINDEX STORAGE
(INITIAL 409600) NOLOGGING"
A_INDEX_SHAPE "PCTFREE 0 INITRANS 4 TABLESPACE WMX_AINDEX STORAGE
(INITIAL 409600) NOLOGGING"
A_INDEX_STATEID "PCTFREE 0 INITRANS 4 TABLESPACE WMX_AINDEX STORAGE
(INITIAL 409600) NOLOGGING"
END
```

- Import the modified *dbtune_wmx.sde* file.

```
sdedbtune -o import -f dbtune_wmx.sde -u sde -p sde -i 5151
```

Step 4: Create the Workspace

The postinstallation creates all the system tables required for you to use ArcGIS
Workflow Manager.

Steps

- a. From the **Start** menu, navigate to **ArcGIS Workflow Manager** and select **Workflow Manager Post Installation**.

The *ArcGIS Workflow Manager Post-Installation* wizard appears.

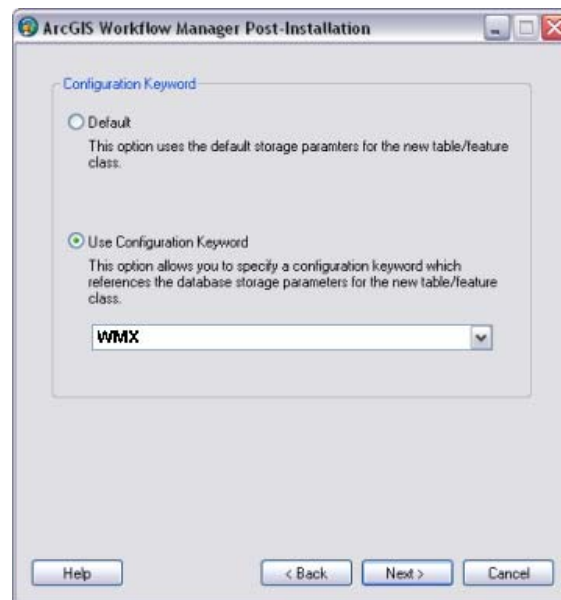
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- b. Enter the connection information for the designated workspace and test the connection information.



Enter connection information for the ArcSDE geodatabase that will be the container for the Workflow Manager repository.

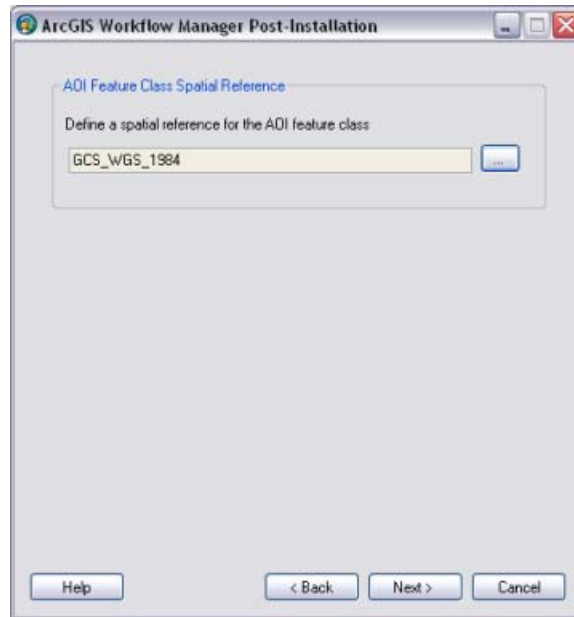
- c. Click **Next**.
- d. Choose a configuration keyword for your Workflow Manager geodatabase; use the WMX keyword created in step 3.



Choose the configuration keyword.

- e. Click **Next**.
- f. Define the spatial reference for the Area of Interest feature class.

A separate two-page wizard appears allowing you to select the coordinate system and extents.



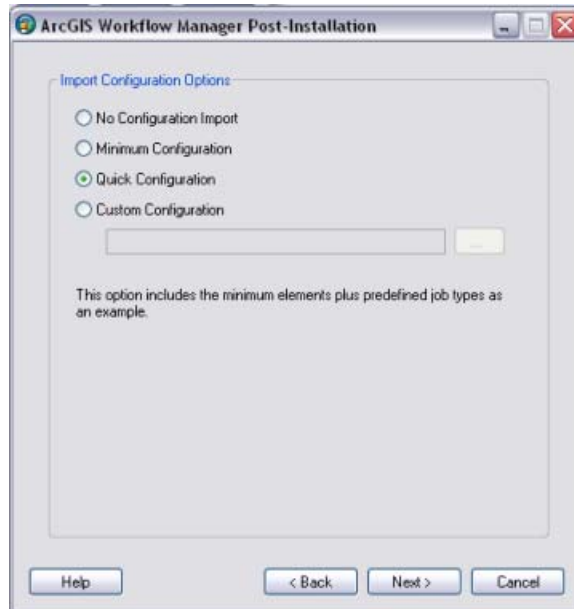
Define the spatial reference for the Area of Interest feature class.

- g. Click **Next**.
 - Choose your starting configuration import option for the Workflow Manager repository.
 - **No Configuration Import** puts the Workflow Manager system tables schema into your designated geodatabase but will not prepopulate any of the configuration elements.
 - **Minimum Configuration** imports just the basic elements that the Workflow Manager system requires.

Note: If you plan to use all the functionality available in the Workflow Manager client application, it is recommended that you import at least the minimum configuration.
 - **Quick Configuration** includes the minimum elements and predefined job types as an example.

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- **Custom Configuration** allows you to import a preexisting Workflow Manager configuration file.



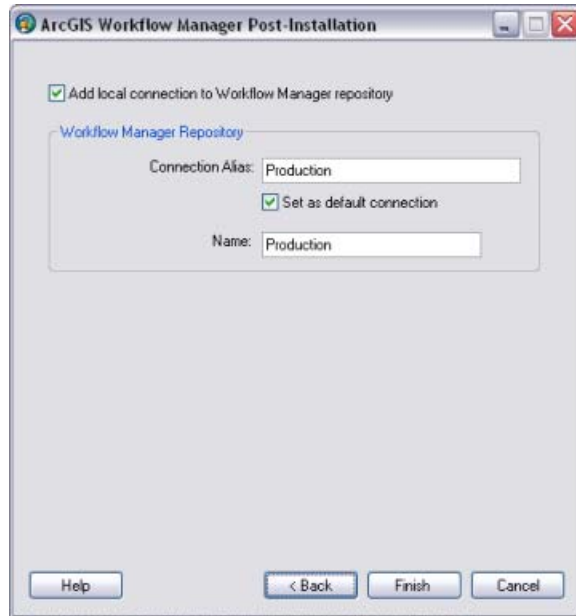
Choose the starting configuration for your repository.

Note: If you plan to import a Workflow Manager configuration exported from a version 3.x database, choose the **No Configuration Import** option. Tools are provided in the Workflow Manager Configuration Manager to import the legacy configuration files.

- h. Click **Next**.
- i. Choose whether you would like to create a Workflow Manager database connection in this new repository when the postinstallation is complete.
 - Specify a connection alias.
 - Specify a repository name.

Note: This is used as a unique identifier when defining a cluster for Repository Replication.

- Specify to set the database as default.



Decide whether you want Workflow Manager to add a Workflow Manager database connection for you.

- j. Click **Finish**.

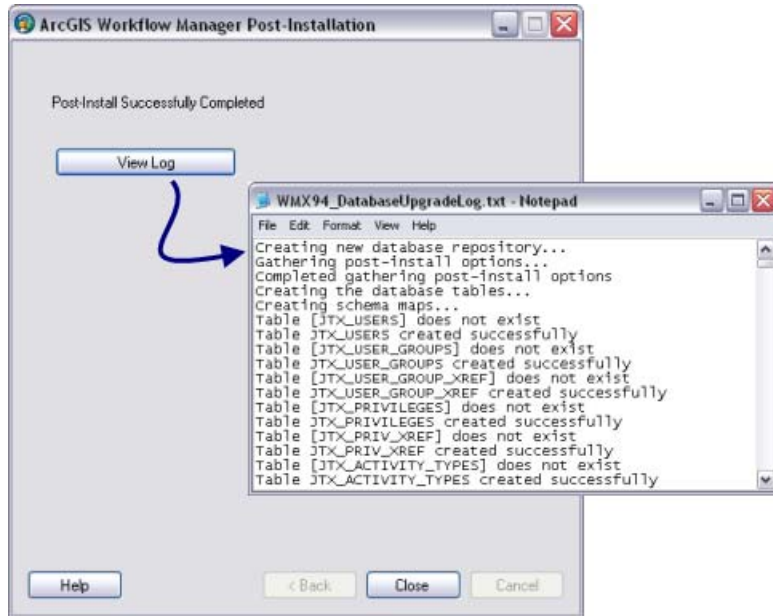
The system tables needed to use Workflow Manager are created in the database. Also, the current user running the postinstallation is automatically added to the list of users and has administrator access.

The final page in the wizard appears, indicating whether the postinstallation was successful or not.

Note: Administrator access means that the current user can connect to the selected database through the configuration manager to make edits to components of your system.

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- k. Choose whether you would like to view the log.



The final page of the wizard indicates the success of the postinstallation and provides an option to see a log of the process.

- l. Click **Close**.

Step 5: Verify Storage

Run the SQL queries below to verify that the Workflow Manager workspace was created under the correct TABLESPACES:

```
sqlplus wmx/wmx@wmx

--TABLES--
SELECT TABLE_NAME, TABLESPACE_NAME, STATUS FROM USER_TABLES ORDER BY 1;
--INDEXES--
SELECT INDEX_NAME, TABLE_NAME, TABLESPACE_NAME, STATUS FROM USER_INDEXES
ORDER BY 2,1;
--LOBS--
SELECT * FROM USER_LOBS WHERE SEGMENT_NAME LIKE 'SYS_LOB%' ORDER BY
TABLE_NAME;
```

If any tables or indexes are stored in the wrong TABLESPACE, then ALTER TABLE and ALTER INDEX can be used to change the TABLESPACE. See the SQL syntax.

```
ALTER TABLE <table_name> MOVE TABLESPACE <tablespace_name>;
ALTER INDEX <index_name> REBUILD TABLESPACE <tablespace_name>;
```

If moving large objects (LOB), please read Oracle MetaLink Doc ID: 130814.1, How to move LOB Data to Another TABLESPACE. Search for this document at <https://support.oracle.com/CSP/ui/flash.html>.

Step 6: Grant Permissions and Roles

Grant permissions to the Workflow Manager system tables through Oracle roles using the script below:

```
SET SERVEROUTPUT ON;

spool Roles_wmx.sql;
DROP ROLE "WMXEDITOR";
CREATE ROLE "WMXEDITOR" NOT IDENTIFIED;
DROP ROLE "WMXVIEWER";
CREATE ROLE "WMXVIEWER" NOT IDENTIFIED;
select 'grant select on ' || owner || '.' || table_name || ' to WMXVIEWER;'
from sys.dba_tables where lower(owner) = 'wmx' order by table_name;
select 'grant select,insert,update,delete on ' || owner || '.' || table_name
|| ' to WMXEDITOR;'
from sys.dba_tables where lower(owner) = 'wmx' order by table_name;
spool off;
SET SERVEROUTPUT ON;
/
@Roles_wmx.sql;
/
```

Then simply grant the WMXEDITOR role to ArcSDE editor users and the WMXVIEWER role to ArcSDE viewer users.

Step 7: Use Log File Tables

Enterprise geodatabases use log file tables to maintain lists of selected records. Records are written to log file tables for later use by the application whenever a selection of a specific size is made, a reconciliation or post on a versioned database is performed, or a disconnected editing checkout is done in a client application. The log file tables store the ObjectIDs of the selected features so they can be redisplayed. This allows faster analysis and processing of information.

In ArcGIS, by default, log file tables are used if the selection set contains 100 or more records. This selection threshold of 100 features is set in the registry. It can be changed; however, Esri does not recommend doing so. There is no proven performance reason for changing it, and doing so could even cause performance problems. Thus, log file tables store feature selections in ArcMap™ that are greater than 100 for each connected ArcSDE editor/viewer user. Hence, it is recommended that log file tables be stored in a separate TABLESPACE; this can be achieved with the DBTUNE table.

Log file options are set using specific parameters in the SERVER_CONFIG and DBTUNE tables. Parameters in these tables are altered using the sdeconfig and sdedbtune commands, respectively.

Create Log File TABLESPACES

```
CREATE SMALLFILE TABLESPACE SDELOGFILE
DATA FILE 'D:\oracle\ORADATA\WMX\SDE\sdelogfile01.dbf' SIZE 10M AUTOEXTEND
ON NEXT 1M MAXSIZE 800M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 512K SEGMENT SPACE MANAGEMENT
AUTO;

CREATE SMALLFILE TABLESPACE SDELOGFILEIDX
DATA FILE 'D:\oracle\ORADATA\WMX\SDE\sdelogfileidx01.dbf' SIZE 10M
AUTOEXTEND ON NEXT 1M MAXSIZE 400M LOGGING EXTENT MANAGEMENT LOCAL UNIFORM
SIZE 512K SEGMENT SPACE MANAGEMENT AUTO;
```

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Change DBTUNE Log File Parameters

- Export the DBTUNE table.

```
sdedbtune -o export -f dbtune_logfile.sde -u sde -p sde -i 5151
```

- Modify the dbtune_logfile.sde ##LOGFILE_DEFAULTS configuration keyword.

```
##LOGFILE_DEFAULTS
LD_INDEX_DATA_ID      "PCTFREE 0 INITRANS 4 TABLESPACE SDELOGFILEIDX
NOLOGGING "
LF_INDEXES            "PCTFREE 0 INITRANS 4 TABLESPACE SDELOGFILEIDX
NOLOGGING "
LF_STORAGE            "PCTFREE 0 INITRANS 4 TABLESPACE SDELOGFILE"
SESSION_INDEX         "PCTFREE 0 INITRANS 4 TABLESPACE SDELOGFILEIDX
NOLOGGING "
SESSION_TEMP_TABLE 0
SESSION_STORAGE       "PCTFREE 0 INITRANS 4 TABLESPACE SDELOGFILE"
LD_STORAGE            "PCTFREE 0 INITRANS 4 TABLESPACE SDELOGFILE "
LD_INDEX_ROWID        "PCTFREE 0 INITRANS 4 TABLE PACE SDELOGFILEIDX
NOLOGGING "
END
```

- Import the modified dbtune_logfile.sde.

```
sdedbtune -o export -f dbtune_logfile.sde -u sde -p sde -i 5151
```

Create Log File Tables

- Grant QUOTA on SDELOGFILE and SDELOGFILEIDX permissions to the ArcSDE editor/viewer user.

```
ALTER USER <user_name> QUOTA UNLIMITED ON "SDELOGFILE";
ALTER USER <user_name> QUOTA UNLIMITED ON "SDELOGFILEIDX";
```

- Grant CREATE TABLE permission for the ArcSDE editor/viewer user.
- In ArcMap, select more than 100 features; this automatically creates the log file tables.
- Remove CREATE TABLE permissions as appropriate.

Learn more about ArcSDE log file tables at help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/What_are_ArcSDE_log_file_tables/002n00000013000000/.

Step 8: Create Database Users

The example below shows how to create an editor and viewer ArcSDE user:

Editor User

```
CREATE USER WMX_EDITOR PROFILE "DEFAULT"
IDENTIFIED BY editor
DEFAULT TABLESPACE "USERS"
TEMPORARY TABLESPACE "TEMP" ACCOUNT UNLOCK;
GRANT "CONNECT" TO "WMX_EDITOR";
GRANT CREATE TABLE TO "WMX_EDITOR";
GRANT "WMXEDITOR" TO "WMX_EDITOR";
/*-- WMXEDITOR role has SELECT, INSERT, UPDATE and DELETE permission on
the WMX system tables (featureclasses, tables, etc.)
ALTER USER WMX_EDITOR QUOTA UNLIMITED ON "SDELOGFILE";
ALTER USER WMX_EDITOR QUOTA UNLIMITED ON "SDELOGFILEIDX";
```

Viewer User

```
CREATE USER WMX_VIEWER PROFILE "DEFAULT"  
IDENTIFIED BY viewer  
DEFAULT TABLESPACE "USERS"  
TEMPORARY TABLESPACE "TEMP" ACCOUNT UNLOCK;  
GRANT "CONNECT" TO "WMX_VIEWER";  
GRANT CREATE TABLE TO "WMX_VIEWER";  
GRANT "WMXVIEWER" TO "WMX_VIEWER";  
/*-- WMXVIEWER role has SELECT permission on the WMX system tables  
(featureclasses, tables, etc.)  
ALTER USER GIS_VIEWER QUOTA UNLIMITED ON "SDELOGFILE";  
ALTER USER GIS_VIEWER QUOTA UNLIMITED ON "SDELOGFILEIDX";
```

Conclusion

You can reduce disk contention and improve database I/O by storing the ArcGIS Workflow Manager workspace in different locations on disk. However, this practice alone does not guarantee optimal database performance, and additional tuning tasks may be needed.

Learn more about the recommended tuning tasks at help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/Minimize_disk_I_O_contention_in_Oracle/002n00000025000000/.

For more information on ArcGIS Workflow Manager, visit esri.com/workflowmanager or e-mail workflowmanager@esri.com.

Access blogs, forums, downloads, and more from the ArcGIS Workflow Manager Resource Center at resources.arcgis.com/content/workflow-manager/10.0/about.

Access other resources at ArcGIS Desktop 10 Help (help.arcgis.com/en/arcgisdesktop/10.0/help/index.html) and Esri Support (support.esri.com).



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