

# Best Practices for Storing the Esri® Production Mapping Workspace in an Enterprise Geodatabase for Oracle



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# Best Practices for Storing the Esri Production Mapping Workspace in an Enterprise Geodatabase for Oracle

## An Esri Technical Paper

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# Best Practices for Storing the Esri Production Mapping Workspace in an Enterprise Geodatabase for Oracle

**Introduction** Esri® Production Mapping extends ArcGIS® technology to streamline your geographic information system (GIS) data and map production by providing tools that facilitate data creation, maintenance, and validation, as well as tools for producing high-quality cartographic products. Each organization has workflows that are unique to the type of data being collected and product being delivered. These workflows can be generalized into a basic production workflow that consists of steps to create your geodatabase and capture or load an initial set of data, perform edits to the data, ensure the data is valid and accurate, and produce digital or hard-copy output. Production Mapping is designed to streamline each of these steps while remaining flexible to adapt to your business rules and workflows. This technical paper is intended for database administrators to help them establish the Production Mapping workspace in an enterprise geodatabase for Oracle. The enterprise geodatabase uses ArcSDE® technology as the gateway between GIS clients and Oracle.

**The Geodatabase** Central to any production workflow is the geodatabase. How you choose to design your geodatabase determines what data needs to be captured and edited, what logical rules exist for validating the data, and the types of output that can be created.

When designing a geodatabase, certain types of validation are built in, such as the ability to limit the valid attribute values for a field by using a domain. You can also model the geometric relationships of features through topologies or networks. Production Mapping supports these forms of validation and allows you to define additional business rules using ArcGIS Data Reviewer checks stored in a batch job. The batch jobs can be run when you update the attributes of a feature or template, such as domains, or as a postprocess like validating the topology.

The product library in Production Mapping provides a framework for managing business rules, data, and map documents in a secure, centralized location. By leveraging the rules stored in the product library, data editing tools are tailored to ensure that features conform to your data collection standards. During cartographic production, the product library can act as a document management system for your map documents and data, allowing you to check files in and out and restore historical versions. The cartographic tools in Production Mapping can also be used to ensure consistent and repeatable symbology as well as provide a number of dynamic surround elements.



White Paper:

[\*Best Practices for Storing the Product Library Workspace in an Enterprise Geodatabase for Oracle\*](#)

## **Production Database**

A production database contains the data you are using for production tasks such as creating and updating features. Depending on the data model you are using, data in a production database can be used to create a digital or hard-copy map/chart or a specific type of data. The data in a production database usually corresponds with a data model and product class in the product library. This technical paper is intended to help you establish the production database in an enterprise geodatabase for Oracle.

## **Capture**

The purpose of data capture is to consume existing data or create new data in your geodatabase. Data can be captured many different ways such as extracting new data from imagery, gathering information in the field with a mobile device, or converting existing data.

Production Mapping provides data loading automation tools that allow you to define the mapping ahead of time between source data, such as shapefiles or coverages, and your geodatabase to ensure consistency when converting large amounts of data. Feature Manager allows you to quickly and easily create new features by using feature templates and construction tools within a centralized editing environment that leverages your enhanced validation rules.

## **Edit**

The editing stage of the production workflow involves adjusting existing features and adding new features to ensure that your data is up-to-date and accurate. This can involve updating data to match a new source or modifying attributes of data that was collected for a different purpose.

When editing data within Production Mapping, feature attribution is managed through Feature Manager, which allows you to update fields while ensuring the attributes are valid according to your validation rules as well as update attributes in batches and create new features. Production Mapping also provides a number of editing tools for batch geometry updates, as well as tools for specific types of data or industries, including tools for linear referencing, utilities, contour lines, and z-enabled data.

## **Review**

Data review is important to ensure that the data being created is accurate and fit for its intended purpose before it's delivered or used for making a map product. The data review or quality control stage of the production workflow often involves three phases: finding issues with the data, whether through manual or automated methods; fixing issues or marking them as exceptions; and verifying that issues are resolved.

The Data Reviewer component of Production Mapping provides the ability to track records of all issues found in the Reviewer table, which maintains the status of the record as well as a link between the record and the feature with the issue. Data Reviewer offers the ability to automate data validation through configurable checks that can be run when you choose, scheduled through a Windows service to run at specified times, or run through Python scripts. Automated checks may not be able to find all problems with the data, such as missing features. Data Reviewer also has a number of tools to help with manual or visual quality control including tools to flag missing features and the ability to create a sample set of data for in-depth validation.



Note:

Data Reviewer is available with Production Mapping or as a stand-alone extension.



White Paper:

[Best Practices for Storing the ArcGIS Data Reviewer Workspace in an Enterprise Geodatabase for Oracle](#)

## Create Output

Typically, the final stage of a production workflow is to create the output that will be delivered; however, the workflow may be repeated if you're making a delivery contingent on approval or creating a product that requires regular updates. There are many types of output that may be produced: data exported to a certain format, hard-copy maps, or data that will be served over the web.

When producing hard-copy products, there is a wide range of types of maps or charts that you may need to produce, from one-off maps to map books to highly detailed charts that require version tracking. Production Mapping provides support for hard-copy map production through the product library by providing check-in and checkout capabilities for map documents as well as the ability to track history and roll back to previous versions.

Data visualization and symbology is important when producing a hard-copy product or serving data over the web. Production Mapping provides the tools for consistent, repeatable, rule-based symbology, where you define what symbol or representation should be applied to features based on their attribute combination. Production Mapping also provides a number of custom surround elements, such as the graphic table element that allows you to create a table or legend that automatically updates based on the data being displayed.

## Workflow Management

When managing production, it is important to be able to allocate resources and track the status of the project. Being able to ensure that work is being done consistently and that steps are not being skipped is also essential. Production Mapping allows you to tie all the components of data capture, editing, validation, and cartography together in high-level workflows with ArcGIS Workflow Manager and in detailed workflows with Task Assistant Manager.




Note:

ArcGIS Workflow Manager is available with Production Mapping and as a stand-alone extension.

Workflow Manager allows you to create a job (unit of work), assign or reassign the job to a user, and track the overall status of the project. Each job includes a predefined workflow that you build to represent your processes. When assigned a job, you execute the steps in the workflow to launch the appropriate tools, send e-mail notifications, or ask questions to determine the path the job should take.

Task Assistant Manager allows you to define workflows in ArcMap™ that guide you through various tasks. Task Assistant workflows can be used to provide step-by-step instructions for complex tasks, minimize confusion for new users, or simply be used as a reference. Clicking a task in a workflow can execute a tool in ArcMap or geoprocessing

tools, set up your environment by specifying layer or snapping properties, or provide a description of what needs to be done.

 White Paper:

[Best Practices for Storing the ArcGIS Workflow Manager Workspace in an Enterprise Geodatabase for Oracle](#)

## **Production Mapping Solutions**

Production Mapping can be used to build your own solutions by creating a product library to meet the standards of an industry or business. However, Esri has built three commercial off-the-shelf solutions for the [defense mapping](#), [nautical](#), and [aeronautical](#) industries that utilize and expand on Production Mapping functionality.

## **ArcSDE DBTUNE**

DBTUNE storage parameters let you control how ArcSDE technology creates objects within an Oracle database. They allow you to determine things such as how to allocate space to 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.

Thus, DBTUNE can be modified to store the Production feature dataset and tables in separate datafiles 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 to position tablespace datafiles based on their usage pattern. For a multiversioned, highly active editing geodatabase, database files of the VERSIONS tablespace may be separated and dispersed across 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 across multiple disks. With data spread across 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 that are 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 datafiles 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

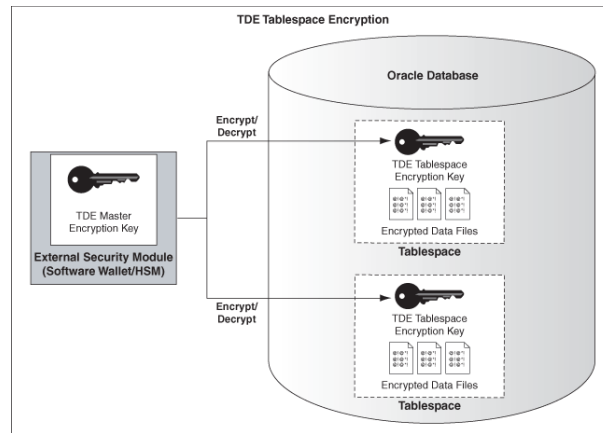
### **Transparent Data Encryption**

Transparent Data Encryption (TDE) enables you to encrypt sensitive data, such as credit card numbers, stored in tables and tablespaces. Encrypted data is transparently decrypted for a database user or application that has access to data. TDE helps protect data stored on media in the event that the storage media or datafile is stolen. Oracle Database uses authentication, authorization, and auditing mechanisms to secure data in the database but not in the operating system datafiles where data is stored. To protect these datafiles, Oracle Database provides Transparent Data Encryption. TDE encrypts sensitive data stored in datafiles. To prevent unauthorized decryption, TDE stores the encryption keys in a security module external to the database.

Benefits of using TDE include the following:

- As a security administrator, you can be sure that sensitive data is safe in case the storage media or datafile is stolen.
- Implementing TDE helps you address security-related regulatory compliance issues.
- You do not need to create triggers or views to decrypt data for the authorized user or application. Data from tables is transparently decrypted for the database user and application.

- Database users and applications need not be aware of the fact that the data they are accessing is stored in encrypted form. Data is transparently decrypted for the database users and applications.
- Applications need not be modified to handle encrypted data. Data encryption and decryption is managed by the database.
- Key management operations are automated. The user or application does not need to manage encryption keys.



Tablespace TDE

See the Oracle documentation on how to configure tablespace TDE:

[http://download.oracle.com/docs/cd/E11882\\_01/network.112/e10746/asotrans.htm#ASOAG9579](http://download.oracle.com/docs/cd/E11882_01/network.112/e10746/asotrans.htm#ASOAG9579).

```

*-----*
--Configure TDE Oracle Enterprise Manager - OEM
*-----*/

--Create the wallet folder
mkdir C:\oracle\admin\wallets

OEM > login as sys / sysdba

OEM > Server > Transparent Data Encryption

Advanced Options > Change Location

Host Credentials
Username: avworld\dba_ora
Password: xxxxxxxx

Configuration Method: File System

Encryption Wallet Directory: C:\oracle\admin\wallets

OK

Create Wallet > Local Auto-Open Wallet > Create

Host Credentials
Username: avworld\dba_ora
Password: xxxxxxxx

Wallet Password: walletadmin

Continue
    
```

J10066

```

--Backup the wallet folder
cd C:\oracle\admin

zip -r wallets wallets

/*-----
--Configure TDE Manually
-----*/
--Create the wallet folder
mkdir C:\oracle\admin\wallets

--Add wallet location to sqlnet.ora

ENCRYPTION_WALLET_LOCATION =
  (SOURCE =
    (METHOD = FILE)
    (METHOD_DATA =
      (DIRECTORY = C:\oracle\admin\wallets\${ORACLE_SID})
    )
  )

Note: The default encryption wallet location is $ORACLE_BASE/admin/<global_db_name>/wallet.
If you want to let Oracle manage a wallet in the default location then there is no need to
set the ENCRYPTION_WALLET_LOCATION parameter in sqlnet.ora.

--Generate a master key

alter system set encryption key identified by "walletadmin";

--See the status of the wallet

select * from v$encryption_wallet;

--Make the wallet auto login

set ORACLE_SID=prod

orapki wallet create -wallet C:\oracle\admin\wallets -auto_login -pwd walletadmin

--Backup the wallet folder

cd C:\oracle\admin

zip -r wallets wallets

```

## Step 1: Datafiles Create new tablespaces to store the production data.

TABLESPACE	SDE_PARAMETER	
PM_BDATA	PM_Bdata	Business table
PM_BINDEX	PM_Bindex	Business table index
PM_BDATA_TOPO	PM_Bdata_Topo	Topology Business table
PM_BINDEX_TOPO	PM_Bindex_Topo	Topology Business table index
PM_FDATA	PM_FDATA	ST_Geometry Lob storage
PM_FINDEX	PM_FINDEX	ST_Geometry Lob index
PM_FDATA_TOPO	PM_FDATA_Topo	Topology ST_Geometry Lob storage
PM_FINDEX_TOPO	PM_FINDEX_Topo	Topology ST_Geometry Lob index
PM_SDATA	PM_Sdata	Spatial Index Tables
PM_SINDEX	PM_Sindex	Spatial Index Features
PM_SDATA_TOPO	PM_Sdata_Topo	Topology Spatial Index Tables
PM_SINDEX_TOPO	PM_Sindex_Topo	Topology Spatial Index Features
PM_ADATA	PM_Adata	Adds table (versioned)
PM_AINDEX	PM_Aindex	Adds table index
PM_DDATA	PM_Ddata	Delete table (versioned)
PM_DINDEX	PM_Dindex	Delete table index
PM_RASTER	PM_raster	Raster Datasets
PM_RINDEX	PM_rindex	Raster Indexes
PM_RBLK	PM_rblk	Raster BLK table
PM_RBLKIDX	PM_rblkidx	Raster BLK table Indexes
PM_XMLDOC	PM_xmldoc	XML Documents
PM_XMLIDX	PM_xmlidx	XML Documents Indexes

```

CREATE SMALLFILE TABLESPACE "PM_BDATA" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Bdata01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_BINDEX" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Bindex01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_BDATA_TOPO" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Bdata_topo01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

```

```
CREATE SMALLFILE TABLESPACE "PM_BINDEXTOP" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Bindex_Topo01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_FDATA" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Fdata01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_FINDEX" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Findex01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_FDATA_TOPO" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Fdata_Topo01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_FINDEX_TOPO" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Findex_Topo01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_SDATA" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Sdata01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_SINDEX" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Sindex01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_SDATA_TOPO"
DATAFILE 'C:\ORADATA\PROD\pm\pm_Sdata_topo01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_SINDEX_TOPO" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Sindex_topo01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_ADATA" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Adata01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_AINDEX" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Aindex01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_DDATA" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Ddata01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_DINDEX" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_Dindex01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_XMLDOC" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_xmldoc01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_XMLIDX" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_xmlidx01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 400M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_RASTER" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_raster01.dbf' SIZE 10M AUTOEXTEND ON NEXT 4M MAXSIZE 800M
BLOCKSIZE 8k
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 4M SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_RINDEX" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_rindex01.dbf' SIZE 10M AUTOEXTEND ON NEXT 4M MAXSIZE 800M
BLOCKSIZE 8k
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 4M SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_RBLK" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_rblk01.dbf' SIZE 10M AUTOEXTEND ON NEXT 4M MAXSIZE 2G
BLOCKSIZE 8k
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 4M SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE "PM_RBLKIDX" ENCRYPTION default storage (ENCRYPT)
DATAFILE 'C:\ORADATA\PROD\pm\pm_rblkidx01.dbf' SIZE 10M AUTOEXTEND ON NEXT 4M MAXSIZE 800M
BLOCKSIZE 8k
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 4M SEGMENT SPACE MANAGEMENT AUTO;
```

By setting the datafiles initial size to 10M, there is no delay in the creation of the tablespaces; to avoid fragmentation, you can resize the datafiles.

```
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Bdata01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Bindex01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Bdata_topo01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Bindex_topo01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Fdata01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Findex01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Fdata_topo01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Findex_topo01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Sdata01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Sindex01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Sdata_topo01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Sindex_topo01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Adata01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Aindex01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Ddata01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_Dindex01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_xmldoc01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_xmlid01.dbf' RESIZE 400M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_raster01.dbf' RESIZE 800M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_rindex01.dbf' RESIZE 800M;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_rblk01.dbf' RESIZE 2G;
ALTER DATABASE DATAFILE 'C:\ORADATA\PROD\pm\pm_rblkid01.dbf' RESIZE 800M;
```

## Step 2: PM User

Create a new database user to store the production data and grant the appropriate permissions.

```
CREATE USER PM PROFILE DEFAULT IDENTIFIED BY pm
  DEFAULT TABLESPACE "PM_BDATA"
  TEMPORARY TABLESPACE "TEMP"
  QUOTA UNLIMITED ON "PM_BDATA"
  QUOTA UNLIMITED ON "PM_BINDEX"
  QUOTA UNLIMITED ON "PM_FDATA"
  QUOTA UNLIMITED ON "PM_FINDEX"
  QUOTA UNLIMITED ON "PM_SDATA"
  QUOTA UNLIMITED ON "PM_SINDEX"
  QUOTA UNLIMITED ON "PM_BDATA_TOPO"
  QUOTA UNLIMITED ON "PM_BINDEX_TOPO"
  QUOTA UNLIMITED ON "PM_FDATA_TOPO"
  QUOTA UNLIMITED ON "PM_FINDEX_TOPO"
  QUOTA UNLIMITED ON "PM_SDATA_TOPO"
  QUOTA UNLIMITED ON "PM_SINDEX_TOPO"
  QUOTA UNLIMITED ON "PM_ADATA"
  QUOTA UNLIMITED ON "PM_AINDEX"
  QUOTA UNLIMITED ON "PM_DDATA"
  QUOTA UNLIMITED ON "PM_DINDEX"
  QUOTA UNLIMITED ON "PM_XMLDOC"
  QUOTA UNLIMITED ON "PM_XMLINDX"
  QUOTA UNLIMITED ON "PM_RASTER"
  QUOTA UNLIMITED ON "PM_RINDEX"
  QUOTA UNLIMITED ON "PM_RBLK"
  QUOTA UNLIMITED ON "PM_RBLKINDX"
  ACCOUNT UNLOCK;

GRANT CREATE SESSION TO PM;
GRANT CREATE SEQUENCE TO PM;
GRANT CREATE TRIGGER TO PM;
GRANT CREATE VIEW TO PM;
GRANT CREATE TABLE TO PM;
```

## Step 3: Modify DBTUNE

- Export the dbtune file before making any modification.

```
sdedbtune -o export -f dbtune_exp.sde -u sde -p sde -i sde:oracle11g:mcs
```

- Copy *dbtune\_exp.sde* to *dbtune\_pm.sde*.

- Fill the new dbtune file with the proper tablespaces:

```
dbtune_pm.sde

##DATA_DICTIONARY
ATTRIBUTE_BINARY "BLOB"
B_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDEDICTINDEX STORAGE (INITIAL 40K)
NOLOGGING "
```

B_INDEX_USER	"PCTFREE 0 INITRANS 4 TABLESPACE PM_SDEDICTINDEX STORAGE (INITIAL 40K)
NOLOGGING "	
B_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_SDEDICT STORAGE (INITIAL 40K) "
STATE_LINEAGES_TABLE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_SDEDICT STORAGE (INITIAL 7M) "
STATES_TABLE	"INITRANS 4 TABLESPACE PM_SDEDICT STORAGE (INITIAL 1M) "
VERSIONS_TABLE	"INITRANS 4 TABLESPACE PM_SDEDICT STORAGE (INITIAL 256K) "
XML_INDEX_TAGS_TABLE	"INITRANS 4 TABLESPACE PM_SDEDICT STORAGE (INITIAL 1M) "
XML_INDEX_TAGS_INDEX	"INITRANS 5 TABLESPACE PM_SDEDICTINDEX STORAGE (INITIAL 1M) "
VERSIONS_INDEX	"INITRANS 4 TABLESPACE PM_SDEDICTINDEX STORAGE (INITIAL 128K) NOLOGGING
"	
STATES_INDEX	"INITRANS 5 TABLESPACE PM_SDEDICTINDEX STORAGE (INITIAL 128K) NOLOGGING
"	
STATE_LINEAGES_INDEX	"PCTFREE 0 INITRANS 4 TABLESPACE PM_SDEDICTINDEX STORAGE (INITIAL 5M)
NOLOGGING "	
MVTABLES_MODIFIED_TABLE	"INITRANS 4 TABLESPACE PM_SDEDICT STORAGE (INITIAL 2M) "
MVTABLES_MODIFIED_INDEX	"INITRANS 4 TABLESPACE PM_SDEDICTINDEX STORAGE (INITIAL 2M) NOLOGGING "
END	
##DEFAULTS	
A_INDEX_ROWID	"PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
B_INDEX_TO_DATE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING"
B_INDEX_XML	"PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING"
UI_TEXT	"User Interface text description for DEFAULTS keyword"
S_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_SDATA STORAGE (INITIAL 409600) "
RAS_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RASTER STORAGE (INITIAL 409600) "
GEOMETRY_STORAGE	"ST_GEOMETRY"
D_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_DDATA STORAGE (INITIAL 409600) "
D_INDEX_STATE_ROWID	"PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
BND_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RASTER STORAGE (INITIAL 409600) "
BND_INDEX_COMPOSITE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
BLK_INDEX_COMPOSITE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RBLKIDX STORAGE (INITIAL 409600)
NOLOGGING "	
B_INDEX_ROWID	"PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
AUX_INDEX_COMPOSITE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
A_INDEX_USER	"PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
A_INDEX_SHAPE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
XML_IDX_TEXT_UPDATE_METHOD	"NONE"
XML_IDX_TEXT_UPDATE_MEMORY	" "
XML_IDX_TEXT_TAG_STORAGE	"NOCACHE NOLOGGING CHUNK 4K PCTVERSION 5 TABLESPACE PM_XMLDOC"
XML_IDX_INDEX_TEXT	" "
XML_IDX_INDEX_TAG	"PCTFREE 0 INITRANS 4 TABLESPACE PM_XMLIDX NOLOGGING"
XML_IDX_INDEX_STRING	"PCTFREE 0 INITRANS 4 TABLESPACE PM_XMLIDX NOLOGGING"
XML_IDX_INDEX_PK	"PCTFREE 0 INITRANS 4 TABLESPACE PM_XMLIDX NOLOGGING"
XML_IDX_INDEX_DOUBLE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_XMLIDX NOLOGGING"
XML_DOC_VAL_LOB_STORAGE	"NOCACHE NOLOGGING CHUNK 4K PCTVERSION 5 DISABLE STORAGE IN ROW
TABLESPACE PM_XMLDOC"	
XML_DOC_UNCOMPRESSED_TYPE	"CLOB"
XML_DOC_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_XMLDOC"
XML_DOC_MODE	"COMPRESSED"
XML_DOC_INDEX	"PCTFREE 0 INITRANS 4 TABLESPACE PM_XMLIDX NOLOGGING"
F_INDEX_FID	"PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING"
F_INDEX_AREA	"PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING"
D_INDEX_DELETED_AT	"PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
COMMENT	"Any general comment for DEFAULTS keyword"
BND_INDEX_ID	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
BLK_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RBLK STORAGE (INITIAL 409600) "
B_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA STORAGE (INITIAL 409600) "
B_INDEX_SHAPE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING"
A_INDEX_RASTER	"PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING"
XML_IDX_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_XMLDOC"
XML_IDX_INDEX_ID	"PCTFREE 0 INITRANS 4 TABLESPACE PM_XMLIDX NOLOGGING"
XML_DOC_TEXT_TYPE	"LONGRAW"
XML_DOC_LOB_STORAGE	"NOCACHE NOLOGGING CHUNK 4K PCTVERSION 5 DISABLE STORAGE IN ROW
TABLESPACE PM_XMLDOC"	
ST_GEOM_LOB_STORAGE	" STORE AS (TABLESPACE PM_FDATA ENABLE STORAGE IN ROW CHUNK 8K RETENTION
CACHE INDEX (TABLESPACE PM_FINDEX) ) "	
S_INDEX_SP_FID	"PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX NOLOGGING"
S_INDEX_ALL	"PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
RASTER_STORAGE	"BLOB"
RAS_INDEX_ID	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
F_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_FDATA "
F_INDEX_LEN	"PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING"
B_INDEX_USER	"PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX STORAGE (INITIAL 409600)
NOLOGGING "	
B_INDEX_RASTER	"PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING"
A_INDEX_XML	"PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING"
A_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_ADATA STORAGE (INITIAL 409600) "
AUX_STORAGE	"PCTFREE 0 INITRANS 4 TABLESPACE PM_RASTER STORAGE (INITIAL 409600) "

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```

ATTRIBUTE_BINARY "BLOB"
A_INDEX_STATEID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX STORAGE (INITIAL 409600)
NOLOGGING "
END

##IMS_GAZETTEER
XML_DOC_LOB_STORAGE "NOCACHE NOLOGGING CHUNK 4K PCTVERSION 5"
XML_DOC_VAL_LOB_STORAGE "NOCACHE NOLOGGING CHUNK 4K PCTVERSION 5"
END

##LOGFILE_DEFAULTS
LD_INDEX_DATA_ID "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILEIDX NOLOGGING "
LF_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILE"
SESSION_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILE"
SESSION_INDEX "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILEIDX NOLOGGING "
LD_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILEIDX NOLOGGING "
SESSION_TEMP_TABLE 0
LF_INDEXES "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILEIDX NOLOGGING "
LD_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILE "
END

##NETWORK_DEFAULTS
A_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_ADATA "
B_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
UI_NETWORK_TEXT "The network default configuration"
S_INDEX_SP_FID "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX NOLOGGING "
S_INDEX_ALL "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX NOLOGGING "
F_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_FDATA "
F_INDEX_FID "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
F_INDEX_AREA "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
D_INDEX_STATE_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
D_INDEX_DELETED_AT "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
COMMENT "The base system initialization parameters for NETWORK_DEFAULTS"
B_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA "
B_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
S_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDATA "
F_INDEX_LEN "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
D_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_DDATA "
B_INDEX_SHAPE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
A_INDEX_STATEID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
ATTRIBUTE_BINARY "BLOB"
A_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_INDEX_SHAPE "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
END

##NETWORK_DEFAULTS::DESC
A_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_INDEX_STATEID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
B_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
D_INDEX_DELETED_AT "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
D_INDEX_STATE_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
D_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_DDATA"
B_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
A_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_ADATA"
B_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA"
A_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
END

##NETWORK_DEFAULTS::NETWORK
A_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_INDEX_STATEID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
B_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
D_INDEX_STATE_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
D_INDEX_DELETED_AT "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
A_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_ADATA"
D_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_DDATA"
B_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA"
B_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
END

##SDELOB
ATTRIBUTE_BINARY "BLOB"
F_INDEX_LEN "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
RASTER_STORAGE "BLOB"
S_INDEX_SP_FID "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX NOLOGGING "
F_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA "
F_INDEX_FID "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
GEOMETRY_STORAGE "SDELOB"
UI_TEXT "User Interface text description for SDELOB keyword"
F_INDEX_AREA "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
B_INDEX_SHAPE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
COMMENT "Any general comment for SDELOB keyword"
END

```

```

##SDO_GEOMETRY
ATTRIBUTE_BINARY          "BLOB"
RASTER_STORAGE            "SDO_GEORASTER"
UI_TEXT                   "User Interface text description for SDO_GEOMETRY keyword "
GEOMETRY_STORAGE         "SDO_GEOMETRY"
COMMENT                   "Any general comment for SDO_GEOMETRY keyword"
END

##SDO_GEORASTER
ATTRIBUTE_BINARY          "BLOB"
GEOMETRY_STORAGE         "SDO_GEOMETRY"
RDT_INDEX_COMPOSITE      "PCTFREE 0 INITRANS 4 STORAGE ( INITIAL 409600) NOLOGGING "
UI_TEXT                   "User Interface text description for SDO_GEORASTER keyword"
RDT_STORAGE              "PCTFREE 0 INITRANS 4"
RASTER_STORAGE           "SDO_GEORASTER"
COMMENT                   "Any general comment for SDO_GEORASTER keyword"
END

##ST_GEOMETRY
ATTRIBUTE_BINARY          "BLOB"
COMMENT                   "The network default configuration"
ST_GEOM_LOB_STORAGE      " STORE AS (CHUNK 8K CACHE ENABLE STORAGE IN ROW PCTVERSION 1)"
UI_TEXT                   "User Interface text description"
GEOMETRY_STORAGE         "ST_GEOMETRY"
END

##SURVEY_MULTI_BINARY
ATTRIBUTE_BINARY          "BLOB"
UI_TEXT                   "User Interface text description"
END

##TERRAIN_DEFAULTS
A_INDEX_ROWID            "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_INDEX_STATEID          "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_ADATA"
B_INDEX_USER             "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
D_INDEX_DELETED_AT      "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
F_INDEX_LEN              "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
D_INDEX_STATE_ROWID     "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
B_INDEX_SHAPE            "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
A_INDEX_SHAPE            "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
UI_TERRAIN_TEXT         "The terrain default configuration"
S_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDATA"
S_INDEX_SP_FID           "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX NOLOGGING "
S_INDEX_ALL              "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX NOLOGGING "
F_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_FDATA"
F_INDEX_FID             "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
F_INDEX_AREA            "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
D_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_DDATA"
B_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA"
B_INDEX_ROWID           "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
A_INDEX_USER            "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
END

##TERRAIN_DEFAULTS::EMBEDDED
A_INDEX_SHAPE            "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_INDEX_STATEID          "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
B_INDEX_ROWID           "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
B_INDEX_USER            "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
D_INDEX_STATE_ROWID     "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
B_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA"
A_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_ADATA"
A_INDEX_ROWID           "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
S_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDATA"
S_INDEX_ALL              "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX NOLOGGING "
F_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_FDATA"
F_INDEX_LEN              "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
F_INDEX_FID             "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
D_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_DDATA"
S_INDEX_SP_FID           "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX NOLOGGING "
F_INDEX_AREA            "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX NOLOGGING "
D_INDEX_DELETED_AT      "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
B_INDEX_SHAPE            "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX NOLOGGING "
A_INDEX_USER            "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
END

##TOPOLOGY_DEFAULTS
ST_GEOM_LOB_STORAGE      " STORE AS (TABLESPACE PM_FDATA_TOPO ENABLE STORAGE IN ROW CHUNK 8K
RETENTION CACHE INDEX (TABLESPACE PM_FINDEX_TOPO) )"
A_INDEX_ROWID            "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_INDEX_SHAPE            "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_ADATA"
B_INDEX_USER            "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX_TOPO NOLOGGING "
UI_TOPOLOGY_TEXT        "The topology default configuration"
S_INDEX_SP_FID           "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX_TOPO NOLOGGING "
S_INDEX_ALL              "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX_TOPO NOLOGGING "
F_STORAGE                "PCTFREE 0 INITRANS 4 TABLESPACE PM_FDATA_TOPO"
F_INDEX_FID             "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX_TOPO NOLOGGING "
F_INDEX_AREA            "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX_TOPO NOLOGGING "

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```

D_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_DDATA"
D_INDEX_DELETED_AT "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
B_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA_TOPO"
S_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDATA_TOPO"
F_INDEX_LEN "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX_TOPO NOLOGGING "
D_INDEX_STATE_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
B_INDEX_SHAPE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX_TOPO NOLOGGING "
A_INDEX_STATEID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
B_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX_TOPO NOLOGGING "
A_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
END

##TOPOLOGY_DEFAULTS::DIRTYAREAS
ST_GEOM_LOB_STORAGE " STORE AS (TABLESPACE PM_FDATA_TOPO ENABLE STORAGE IN ROW CHUNK 8K
RETENTION CACHE INDEX (TABLESPACE PM_FINDEX_TOPO) ) "
A_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_INDEX_SHAPE "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
A_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_ADATA"
B_INDEX_SHAPE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX_TOPO NOLOGGING "
D_INDEX_DELETED_AT "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
S_INDEX_ALL "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX_TOPO NOLOGGING "
F_INDEX_AREA "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX_TOPO NOLOGGING "
B_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX_TOPO NOLOGGING "
A_INDEX_USER "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
S_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDATA_TOPO"
S_INDEX_SP_FID "PCTFREE 0 INITRANS 4 TABLESPACE PM_SINDEX_TOPO NOLOGGING "
F_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_FDATA_TOPO"
F_INDEX_LEN "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX_TOPO NOLOGGING "
F_INDEX_FID "PCTFREE 0 INITRANS 4 TABLESPACE PM_FINDEX_TOPO NOLOGGING "
D_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_DDATA"
D_INDEX_STATE_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_DINDEX NOLOGGING "
B_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_BDATA_TOPO"
B_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_BINDEX_TOPO NOLOGGING "
A_INDEX_STATEID "PCTFREE 0 INITRANS 4 TABLESPACE PM_AINDEX NOLOGGING "
END

##WKB_GEOMETRY
ATTRIBUTE_BINARY "BLOB"
GEOMETRY_STORAGE "OGCWKB"
UI_TEXT "User interface text description for OGC WKB"
RASTER_STORAGE "BLOB"
END
    
```

- Import the modified *dbtune\_pm.sde* file.

```

sdedbtune -o import -f dbtune_pm.sde -u sde -p sde -i sde:oracle11g:mcs
    
```

### Step 4: Configure Oracle Parameters

It is recommended that you ensure that the following parameter values are used when creating an Oracle database:

Parameter Name	Value
Configure with Database Enterprise Manager	Enabled
Automatic Memory Management	Enabled
OPEN_CURSORS	10000
SESSION_CACHED_CURSORS	50–150
DEFERRED_SEGMENT_CREATION	False
RESOURCE_LIMIT	True
ALTER PROFILE "DEFAULT" LIMIT IDLE_TIME 60 PASSWORD_LIFE_TIME UNLIMITED PASSWORD_GRACE_TIME UNLIMITED	Set Default profile for ArcSDE and data owner users.
RECYCLEBIN	Off

*Oracle Parameters*

## Step 5: Configure ArcSDE Parameters

You need to configure the MAXBLOBSIZE and TCPKEEPALIVE parameters for the ArcSDE geodatabase used as the Production Database. The MAXBLOBSIZE value is -1 by default. However, if you are using Oracle or another enterprise DBMS, make sure that this value is set to -1 and the TCPKEEPALIVE value is set to 1. This command should be used at the command prompt of a machine where ArcSDE is installed.

```
sdeconfig -o alter -v MAXBLOBSIZE=-1 -i <service> -u sde -p <sde_password>
sdeconfig -o alter -v TCPKEEPALIVE=1 -i <service> -u sde -p <sde_password>
```

For more information, see the ArcSDE Administration Command Reference.

## Step 6: Load the Data

Prepare your geodatabase for loading data.

- Back up your database.

- Change the ArcSDE buffer size:

```
sdeconfig -o alter -i sde:oracle11g:mcs -u sde -p sdeadmin -N -q -v MINBUFSIZE=409600
sdeconfig -o alter -i sde:oracle11g:mcs -u sde -p sdeadmin -N -q -v MAXBUFSIZE=819200
```

- Set the ArcSDE temp folder:

```
sdeconfig -o alter -i sde:oracle11g:mcs -u sde -p sdeadmin -N -q -v TEMP=C:\TEMP
```

- List ArcSDE parameters:

```
sdeconfig -o list -i sde:oracle11g:mcs -u sde -p sdeadmin
```

- Set the database to no archive log mode:

```
sqlplus / as sysdba
shutdown immediate;
startup mount;
alter database flashback off;
alter database noarchivelog;
alter database open;
select flashback_on from v$database;
archive log list;
```

- Disable tablespace logging:

- Logging—Generate redo logs for creation of tables, indexes, and partitions and for subsequent inserts. Recoverable.
- No Logging—Redo log entries are smaller, so the above operations are not logged and not recoverable. Data loading of large feature classes and tables is faster.

```
sqlplus /nolog
connect / as sysdba;

select 'ALTER TABLESPACE ' || CHR(34) || NAME || CHR(34) || ' NOLOGGING;'
FROM V$TABLESPACE
WHERE NAME NOT IN ('SYSTEM', 'SYSAUX', 'USERS', 'TEMP', 'UNDOTBS1') ORDER BY NAME;
```

```
ALTER TABLESPACE "PM_BDATA" NOLOGGING;
ALTER TABLESPACE "PM_BINDEXT" NOLOGGING;
ALTER TABLESPACE "PM_BDATA_TOPO" NOLOGGING;
ALTER TABLESPACE "PM_BINDEXT_TOPO" NOLOGGING;
ALTER TABLESPACE "PM_FDATA" NOLOGGING;
ALTER TABLESPACE "PM_FINDEX" NOLOGGING;
ALTER TABLESPACE "PM_FDATA_TOPO" NOLOGGING;
```

```
ALTER TABLESPACE "PM_FINDEX_TOPO" NOLOGGING;
ALTER TABLESPACE "PM_SDATA" NOLOGGING;
ALTER TABLESPACE "PM_SINDEX" NOLOGGING;
ALTER TABLESPACE "PM_SDATA_TOPO" NOLOGGING;
ALTER TABLESPACE "PM_SINDEX_TOPO" NOLOGGING;
ALTER TABLESPACE "PM_ADATA" NOLOGGING;
ALTER TABLESPACE "PM_AINDEX" NOLOGGING;
ALTER TABLESPACE "PM_DDATA" NOLOGGING;
ALTER TABLESPACE "PM_DINDEX" NOLOGGING;
ALTER TABLESPACE "PM_RASTER" NOLOGGING;
ALTER TABLESPACE "PM_RINDEX" NOLOGGING;
ALTER TABLESPACE "PM_RBLK" NOLOGGING;
ALTER TABLESPACE "PM_RBLKIDX" NOLOGGING;
ALTER TABLESPACE "PM_XMLDOC" NOLOGGING;
ALTER TABLESPACE "PM_XMLIDX" NOLOGGING;
```

- Load 10 percent of the data, estimate the total size of each datafile, and then resize the datafiles accordingly.

If loading or appending data to an existing feature class, even if the feature class is empty but you have to load a large amount of data, change the layer I/O mode to `load_only_io`. The loading will be faster because indexes are disabled.

```
sdelayer -o load_only_io -l contour_1,shape -i sde:oracle11g:mcs -s mysrv -u sde -p sde
```

- Load your data model with the PM user and then load the production mapping data.
- Back up your database.

## Step 7: Register as Versioned

In ArcCatalog™, register the PM schema as versioned.

## Step 8: Verify Storage

Run the SQL queries below to verify that the PM tables and indexes were created under the correct tablespaces:

```
sqlplus pm/pm@rev
--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, `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), read Oracle MetaLink Doc ID 130814.1, "How to move LOB Data to Another Tablespace."

## Step 9: Prepare Geodatabase for Editing

Prepare the geodatabase for normal online transaction processing (OLTP) editing.

- After data loading, change the layer to normal I/O:

```
sdelayer -o normal_io -l contour_1,shape -i sde:oracle11g:mcs -s mysrv -u sde -p sde
```

- Change the ArcSDE buffer size:

```
sdeconfig -o alter -i sde:oracle11g:mcs -u sde -p sdeadmin -N -q -v MINBUFSIZE=16384
sdeconfig -o alter -i sde:oracle11g:mcs -u sde -p sdeadmin -N -q -v MAXBUFSIZE=65536
```

- Enable tablespace logging:

```
sqlplus /nolog
connect / as sysdba;

select 'ALTER TABLESPACE ' || CHR(34) || NAME || CHR(34) || ' LOGGING;'
FROM V$TABLESPACE
WHERE NAME NOT IN ('SYSTEM','SYSAUX','USERS','TEMP','UNDOTBS1') ORDER BY NAME;

ALTER TABLESPACE "PM_BDATA" LOGGING;
ALTER TABLESPACE "PM_BINDE" LOGGING;
ALTER TABLESPACE "PM_BDATA_TOPO" LOGGING;
ALTER TABLESPACE "PM_BINDE_TOPO" LOGGING;
ALTER TABLESPACE "PM_FDATA" LOGGING;
ALTER TABLESPACE "PM_FINDEX" LOGGING;
ALTER TABLESPACE "PM_FDATA_TOPO" LOGGING;
ALTER TABLESPACE "PM_FINDEX_TOPO" LOGGING;
ALTER TABLESPACE "PM_SDATA" LOGGING;
ALTER TABLESPACE "PM_SINDEX" LOGGING;
ALTER TABLESPACE "PM_SDATA_TOPO" LOGGING;
ALTER TABLESPACE "PM_SINDEX_TOPO" LOGGING;
ALTER TABLESPACE "PM_ADATA" LOGGING;
ALTER TABLESPACE "PM_AINDEX" LOGGING;
ALTER TABLESPACE "PM_DDATA" LOGGING;
ALTER TABLESPACE "PM_DINDEX" LOGGING;
ALTER TABLESPACE "PM_RASTER" LOGGING;
ALTER TABLESPACE "PM_RINDEX" LOGGING;
ALTER TABLESPACE "PM_RBLK" LOGGING;
ALTER TABLESPACE "PM_RBLKIDX" LOGGING;
ALTER TABLESPACE "PM_XMLDOC" LOGGING;
ALTER TABLESPACE "PM_XMLIDX" LOGGING;
```

- Set the database to archive log mode:

```
sqlplus / as sysdba
alter system set db_recovery_file_dest_size=10G scope=spfile;
alter system set db_recovery_file_dest='C:\oradata\flash_recovery_area' scope=spfile;
alter system set log_archive_dest_1='LOCATION=USE_DB_RECOVERY_FILE_DEST' scope=spfile;
shutdown immediate;
startup mount;
alter database archivelog;
alter database flashback on;
alter database open;
select flashback_on from v$database;
archive log list;
```

- Back up your database.

## Step 10: Permissions and Roles

- Grant permissions to the PM tables through Oracle roles using the script below:

```
SET SERVEROUTPUT ON;

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

- Then grant the PMEDITOR role to ArcSDE editor users and the PMVIEWER role to ArcSDE viewer users.

## Step 11: 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 you store the log file tables 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 PM_SDELOGFILE
DATAFILE 'D:\oracle\ORADATA\PM\SDE\pm_sdelogfile01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE 800M
LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 512K SEGMENT SPACE MANAGEMENT AUTO;

CREATE SMALLFILE TABLESPACE PM_SDELOGFILEIDX
DATAFILE 'D:\oracle\ORADATA\PM\SDE\pm_sdelogfileidx01.dbf' SIZE 10M AUTOEXTEND ON NEXT 1M MAXSIZE
400M LOGGING EXTENT MANAGEMENT LOCAL UNIFORM SIZE 512K SEGMENT SPACE MANAGEMENT AUTO;
```

### Change DBTUNE Log File Parameters

- Export the DBTUNE table.

```
sdedbtune -o export -f dbtune_logfile.sde -u sde -p sde -i sde:oracle11g:mcs
```

- Modify the dbtune\_logfile.sde ##LOGFILE\_DEFAULTS configuration keyword.

```
##LOGFILE_DEFAULTS
LD_INDEX_DATA_ID "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILEIDX NOLOGGING "
LF_INDEXES "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILEIDX NOLOGGING "
LF_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILE "
SESSION_INDEX "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILEIDX NOLOGGING "
SESSION_TEMP_TABLE 0
SESSION_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILE "
LD_STORAGE "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILE "
LD_INDEX_ROWID "PCTFREE 0 INITRANS 4 TABLESPACE PM_SDELOGFILEIDX NOLOGGING "
END
```

- Import the modified dbtune\_logfile.sde.

```
sdedbtune -o export -f dbtune_logfile.sde -u sde -p sde -i sde:oracle11g:mcs
```

### Create Log File Tables

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

```
ALTER USER <user_name> QUOTA UNLIMITED ON "PM_SDELOGFILE";
ALTER USER <user_name> QUOTA UNLIMITED ON "PM_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/](http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/What_are_ArcSDE_log_file_tables/002n00000013000000/).

## Step 12: ArcSDE User

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

### *Editor User*

```
CREATE USER GIS_EDITOR PROFILE "DEFAULT"
  IDENTIFIED BY editor
  DEFAULT TABLESPACE "USERS"
  TEMPORARY TABLESPACE "TEMP" ACCOUNT UNLOCK;
GRANT "CONNECT" TO "GIS_EDITOR";
GRANT CREATE TABLE TO "GIS_EDITOR";
/*-- PMEDITOR role has SELECT, INSERT, UPDATE and DELETE permission on the PM data (featureclasses,
tables, etc.)
GRANT "PMEDITOR" TO "GIS_EDITOR";
ALTER USER GIS_EDITOR QUOTA UNLIMITED ON "PM_SDELOGFILE";
ALTER USER GIS_EDITOR QUOTA UNLIMITED ON "PM_SDELOGFILEIDX";
```

### *Viewer User*

```
CREATE USER GIS_VIEWER PROFILE "DEFAULT"
  IDENTIFIED BY viewer
  DEFAULT TABLESPACE "USERS"
  TEMPORARY TABLESPACE "TEMP" ACCOUNT UNLOCK;
GRANT "CONNECT" TO "GIS_VIEWER";
GRANT CREATE TABLE TO "GIS_VIEWER";
/*-- PMVIEWER role has SELECT permission on the PM data (featureclasses, tables, etc.)
GRANT "PMVIEWER" TO "GIS_VIEWER";
ALTER USER GIS_VIEWER QUOTA UNLIMITED ON "PM_SDELOGFILE";
ALTER USER GIS_VIEWER QUOTA UNLIMITED ON "PM_SDELOGFILEIDX";
```

## Conclusion

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

## More Information

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/](http://help.arcgis.com/en/arcgisdesktop/10.0/help/index.html#/Minimize_disk_I_O_contention_in_Oracle/002n00000025000000/).

For more information on Esri Production Mapping, visit [esri.com/productionmapping](http://esri.com/productionmapping) or e-mail [productionmapping@esri.com](mailto:productionmapping@esri.com).

Access blogs, forums, downloads, and more, from the Esri Production Mapping Resource Center at [resources.arcgis.com/content/esri-production-mapping/10.0/about](http://resources.arcgis.com/content/esri-production-mapping/10.0/about).

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



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