

Subject: How to Recover from a Lost Datafile with Different Scenarios

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PURPOSE

This article explains the various scenarios for ORA-01157 and how to avoid them.

SCOPE & APPLICATION

This article is intended for Oracle Support Analysts, Oracle Consultants and Database Administrators.

How to Recover from a Lost Datafile in Different Scenarios

In the event of a lost datafile or when the file cannot be accessed an ORA-01157 is reported followed by ORA-01110.

Besides this, you may encounter error ORA-07360 : sfifi: stat error, unable to obtain information about file. A DBWR trace file is also generated in the background_dump_dest directory. If an attempt is made to shutdown the database normal or immediate will result in ORA-01116, ORA-01110 and possibly ORA-07368.

This article discusses various scenarios that may be causing this error and the solution/workaround for these.

Datafile not found by Oracle

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- Unintentionally renamed or moved at the Operating System (OS) level.
Simply restore the file to its original location
 - Intentionally moved/renamed at OS level.
You are re-organising the datafile layout across various disks at the OS. After moving/renaming the file you will have to rename the file at database level.

[Note 115424.1](#) How to Rename or Move Datafiles and Logfiles

Datafile damaged/deleted

If the file is damaged/deleted and an attempt is made to start the database will result in ORA-01157, ORA-01110. Then depending upon the type of datafile lost different action needs to be taken. Check for the faulty harddisk. The file may have gone corrupt due to faulty disk. Replace the bad disk or create the file on a different disk where ever suggested.

Lost datafile could be in one of the following:

1. Temporary tablespace

If the datafile belongs temporary tablespace, you will have to simply offline drop the datafile and then drop the tablespace with including contents option.

Thereafter, re-create the temporary tablespace.

[Note 184327.1](#) Common Causes and Solutions on ORA-1157 Error Found in Backup & Recovery

2. Read Only Tablespace

In this case you will have to restore the latest backup of the read-only datafile. No media recovery is required as read-only tablespaces are not modified. But media recovery will be required if;

- a. The tablespace was in read-write mode when the last backup was taken and was made read-only afterwards.
- b. The tablespace was in read-only mode when last backup was taken and was made read-write in between and then again made read only

In either of these cases you will have to restore the file and do a media recovery using RECOVER DATAFILE statement. Apply all the necessary logs till you get the message media recovery complete.

[Note 184327.1](#) Common Causes and Solutions on ORA-1157 Error Found in Backup & Recovery

3. User Tablespace

Two options are available:

- a. Recreate the user tablespace.
If all the objects in the tablespace can be re-created (recent export is available, tables can be re-populated using scripts or through SQL*Loader) Then, offline drop the datafile, drop the tablespace with including contents option. Thereafter, re-create the tablespace and re-create objects in it.
- b. Restore file from backup and do a media recovery.
Database has to be in archivelog mode. If the database is in NOARCHIVELOG mode, you will only succeed in recovering the datafile if the redo to be applied to it is within the range of your online logs.

[Note 184327.1](#) Common Causes and Solutions on ORA-1157 Error Found in Backup & Recovery

4. Index Tablespace

Two options are available:

- a. Recreate the Index tablespace
If the index can be easily re-created using script or manual CREATE INDEX statement, then best option is to offline drop the datafile, drop the index tablespace, and re-create it and recreate all indexes in it.
- b. Restore file from backup and do a media recovery.
If the index tablespace cannot be easily re-created, then restore the lost datafile from a valid backup and then do a media recovery on it.

[Note 184327.1](#) Common Causes and Solutions on ORA-1157 Error Found in Backup & Recovery

5. System Tablespace

a. Restore from a valid backup and do a media recovery on it.

- b. Rebuild the database.
If neither backup of the datafile nor the full database backup is

available, then rebuild database using full export, user level/table level export, scripts, SQL*Loader and so forth to re-create and re-populate the database.

[Note 184327.1](#) Common Causes and Solutions on ORA-1157 Error Found in Backup & Recovery

6. Rollback Tablespace

While handling situation with lost datafile of a rollback tablespace one has to be extra cautious so as not to loose active transactions in the rollback segments. If need be please call Oracle Support for assistance.

The prefer option in this case is to restore datafile from backup and perform media recovery.

a. Database is down.

- i. Database was cleanly shutdown.
Ensure that database was cleanly shutdown in NORMAL or IMMEDIATE mode. Remove the entries of all the rollback segments belonging to the tablespace to which the lost datafile belonged from the ROLLBACK_SEGMENTS parameter in the init.ora file, or simply comment out the above parameter in init.ora.
Mount the database in restrict mode --- STARTUP RESTRICT MOUNT;
Offline drop the datafile;
Open the database
Drop all rollback segments belong the the tablespace
Drop and recreate tablespace
Recreate rollback segments
- ii. Database was NOT cleanly shutdown.
If the database was shutdown abort or had crashed last time, in this case it is possible that you will not be able to offline and drop the datafile as the rollback segments contained in it could contain active transactions. You will have to restore the file from a backup and do a media recovery. If this can not be achieved, please contact Oracle Support for further assistance.

b. Database is up and running.

If the loss of the file is discovered while database is up and running, then depeding on if we can successfully offline the rollback segments contained in the tablespace containing this file.

Two approaches are possible:

- i. Offline the lost file, Restore and Recover the datafile, bring it online. (For this database has to be in archive mode).
- ii. Take all the rollback segments offline belonging to the tablespace to which the lost datafile belongs. Make sure that these rollback segments are actually offline by checking the views dba_rollback_segs and v\$rollstat. If rollback segment contains an active transaction, then its status in dba_rollback_segs is still 'ONLINE' and in v\$rollstat is 'OFFLINE PENDING' even the 'alter rollback segment <...> offline' successfully executed. If this is the case then identify the user and their session and ask for rollback or commit from these users so as to release the rollback segments off their active transactions. Else you may kill these sessions thereby causing a rollback of these active transactions and releasing the rollback segment.
Drop all these rollback segments.

Drop the rollback tablespace including contents.
Re-create the rollback tablespace, re-create the rollback segments
in it and bring them online.

[Note 1013221.6](#) RECOVERING FROM A LOST DATAFILE IN A ROLLBACK TABLESPACE

7. Lost Controlfiles and Online Redo Logs

If you have lost all the controlfiles and the online redologs, then while attempting to create controlfile using scripts will complain of missing redologs. In this case use RESETLOGS option of the create controlfile script and then open the database with RESETLOGS option.

[Note 103176.1](#) How to Recover Having Lost Controlfiles and Online Redo Logs

8. Lost datafile and no backup

If there are no backups of the lost datafile then you can re-create the datafile with the same size as the original file and then apply all the archived redologs written since original datafile was created to the new version of the lost datafile.

Note: Please put the restore and recovery from backup as the first and prefer option for case 2 - 6.

References:

- [Note 184327.1](#) Common Causes and Solutions on ORA-1157 Error Found in Backup & Recovery
[Note 1060605.6](#) Lost datafile and no backup.