

How To Guides for Oracle Databases

"How To" Guides for Oracle Databases

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Oracle SQL*Plus

Set Command

set command

SQL*Plus parameters are set with the SQL*Plus set command. Session parameters are set with an alter session set ... command.

```
set pagesize 50000
alter session set nls_date_format = 'mm/dd/yyyy hh24:mi:ss'
nls_timestamp_format = 'mm/dd/yyyy hh24:mi:ss.ff6';
```

For SQL*Plus scripts

How to log commands and SQL and their output to a file.

```
set echo on
spool logfile[.lst]
...
spool off
```

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Oracle Web Sites

Oracle Customer Service / Technical Support

Contacting Oracle Customer Service or Technical Support

Oracle support can be contacted via telephone or electronically via MetaLink. The telephone numbers and other contact information can be found in their directory of [Oracle Support Contacts](#).

The following telephone numbers can be used to contact Oracle (on a outcall-enabled device such as a cell phone or computer with [VOIP](#) capabilities, simply select one of the following Click-to-Dial links to initiate a call):

United States

[Technical Support 1-800-223-1711](#) for technical issues with Oracle software

[Customer Service 1-800-645-3509](#) for non-technical requests such as version updates, available 8:00 AM to 5:00 PM Pacific time, 11:00 AM to 8:00 PM Eastern time

[Support Sales 1-800-833-3536](#) to purchase Oracle support

Canada

[Technical Support 1-800-668-8291](#) or [1-905-890-6690](#)

[Support Sales 1-888-753-4428](#) to purchase Oracle support

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Oracle DDL

Create Tablespace

```
create tablespace tspname
datafile 'dbfpath/dbfname.dbf'
size nm
autoextend on
logging
extent management local autoallocate
```

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segment space management auto;

Drop DataFile

```
alter database datafile '/path/filename.dbf' offline drop;  
alter database tempfile '/path/filename.dbf' drop;
```

Create Schema

```
define schema='schema_name'  
create user &schema identified by password;  
/* no "create session" privilege for schema */  
alter user &schema  
quota unlimited on tspname1  
quota unlimited on tspname2;
```

Create User

```
create user username identified by password password expire;  
grant create session to username;
```

Create Role

```
create role rolename;
```

Create Sequence

```
define schema='schema_name'  
create sequence &schema..seqname  
increment by 1  
start with 1  
nocache;  
grant select  
on &schema..seqname  
to rolename1,  
rolename2;
```

Create Table

```
define schema='schema_name'  
create table &schema..tblname (  
col1name number constraint tblname_1_nn not null,  
col2name char(n) constraint tblname_2_nn not null,  
col3name varchar2(n) constraint tblname_3_nn not null,  
constraint tblname_0_pk  
primary key (col1name)  
using index tablespace index_tspname  
pctfree 5  
initrans 1  
maxtrans 255  
storage (  
initial 1k  
minextents 1  
maxextents unlimited  
)  
)  
tablespace data_tspname  
pctfree 5  
initrans 1  
maxtrans 255  
storage (  
initial 4k  
minextents 1  
maxextents unlimited  
);  
grant select, insert, update, delete  
on &schema..tblname  
to rolename1,  
rolename2;
```

Oracle stores columns of CHAR type with a length field, the same as for variable length columns, so unlike other [DBMSes](#), there is no advantage in space usage to using fixed-length CHAR rather than variable length. However,

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since comparison of fixed-length CHAR columns will provide for [automatic padding](#) the data type of Oracle columns should be either [CHAR or VARCHAR2](#), as deemed appropriate for the data being stored in the column.

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Oracle DML

Oracle TIMESTAMPS

Oracle TIMESTAMPS

The difference between a TIMESTAMP and a DATE is that a TIMESTAMP includes fractions of a second.

Converting a TIMESTAMP to a DATE

An Oracle TIMESTAMP value can easily be converted to a DATE. To convert to a DATE with no time component, use:

```
to_date(trunc(timestamp_value))
```

To convert to a DATE with a date and time, use:

```
to_date(substr(timestamp_value,1,length(sysdate)))
```

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Recovery Manager (RMAN)

RMAN

How to connect to an RMAN Catalog

```
export ORACLE_SID=targetsvc
```

```
rman target / catalog username/password@catsvc
```

```
export ORACLE_SID=catsvc
```

```
rman target username/password@targetsvc catalog username/password
```

targetsvc is the service name of the target database. *catsvc* is the service name for the database where the RMAN catalog resides.

```
list backup of database archivelog all;
```

RMAN-06059: expected archive log not found

RMAN-06059: expected archived log not found, loss of archived log compromises recoverability

ORA-19625: error identifying file */archlogpath/archsid_nnnn.arc*

ORA-27037: unable to obtain file status

IBM AIX RISC System/6000 Error: 2: No such file or directory

Compare archive logs in RMAN to ones on disk

```
list archivelog all;
```

```
list archivelog like '/archlogpath/archsid_n%.arc';
```

List of Archived Log Copies

Key Thrd Seq S Low Time Name

```
nnnnnn 1 nnnn A dd-MON-yy /archlogpath/archsid_nnnn.arc
```

...

```
host 'ls -l /archlogpath';
```

Delete all missing archive logs

DO NOT do crosscheck archivelog all with tape backups or archived logs, only disk backups or logs, where RMAN can successfully verify the existence of the files. Otherwise all backups or archived logs will become EXPIRED.

```
list expired archivelog all;
```

specification does not match any archive log in the recovery catalog

```
crosscheck archivelog like '/archlogpath/archsid_n%.arc';
```

```
crosscheck archivelog all;
```

```
list expired archivelog all;
```

List of Archived Log Copies

Key Thrd Seq S Low Time Name

```
nnnnnn 1 nnnn X dd-MON-yy /archlogpath/archsid_nnnn.arc
```

...

```
delete expired archivelog all;
```

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Do you really want to delete the above objects (enter YES or NO)?

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Recovery Scenarios

Restore A Tablespace

This can be used to recover the data in individual tables, possibly after a table has been dropped, for example. The tablespace containing the table is restored to an auxiliary instance, after which the data can be manually copied back to the original instance.

Note: Although the tablespace point in time recovery (TSPITR) initially restores the tablespace to an auxiliary instance, it also *recovers* the tablespace by transporting it back to the original instance.

See Oracle Metalink Document #228257.1 [RMAN "Duplicate Database" Feature in Oracle 9i and Oracle 10g](#).

Log onto the system using the ID for starting the Oracle database.

Shut down the auxiliary instance:

```
export ORACLE_SID=auxsvc
```

```
sqlplus 'username/password as sysdba'
```

```
show parameter db_name
```

```
shutdown immediate
```

The control file of the auxiliary instance will be replaced. If the instance will need to be restored back to its original state then make a copy of the existing control file before starting the restore.

Start up the instance in nomount mode:

```
startup nomount
```

```
exit
```

Generate a list of tablespaces to be skipped:

```
sqlplus username/password@tspsid
```

```
set pagesize 50000
```

```
select tablespace_name || ',' from dba_tablespaces where contents not in ('TEMPORARY','UNDO') and  
tablespace_name not in ('SYSTEM','tspname',...) order by 1
```

where *tspsid* is the instance containing the tablespace to be restored. Include a list of the tablespaces to be restored in the second in clause. If there are indexes in separate tablespaces, they should also be restored; otherwise the primary key constraints and/or other indexes on the tables in the tablespaces that are restored will need to be dropped in order to access the data in the tables.

Get the file IDs and file names of the data files to be restored:

```
select file_id, file_name from dba_data_files where tablespace_name in ('tspname',...);
```

Change the file name to avoid overwriting any existing files.

Determine the number of groups of redo logs and the number of copies of each.

Start RMAN, connecting to the target, catalog and auxiliary instances.

```
rman target sys/password@tspsid catalog rmanid/rmanpass@catsid auxiliary sys/auxpass[@auxsid]
```

Resynchronize the catalog if necessary, to include any new archive logs:

```
list archivelog all;
```

```
resync catalog;
```

Execute the following RMAN command to restore the tablespace to the auxiliary instance:

```
run {
```

```
allocate auxiliary channel 'tape1' device type 'sbt_tape' parms
```

```
'ENV=(TDPO_OPTFILE=/usr/tivoli/tsm/client/oracle/bin64/tdpo_tspsid.opt)';
```

```
set until time "to_date('mm/dd/yyyy hh:mm:ss','mm/dd/yyyy hh24:mi:ss)";
```

```
set newname for datafile 1 TO '/u###/oradata/auxsid/systspsid01.dbf';
```

```
set newname for datafile 2 TO '/u###/oradata/auxsid/undotspsid01.dbf';
```

```
set newname for datafile fileid TO '/u###/oradata/auxsid/tspsid filename';
```

```
duplicate target database to auxsid
```

```
skip tablespace
```

```
list of tablespaces to be skipped
```

```
logfile
```

```
group 1 ('/u01/oradata/auxsid/redotspsid01a.log',
```

```
'/u02/oradata/auxsid/redotspsid01b.log') size 10M reuse,
```

```
group 2 ('/u01/oradata/auxsid/redotspsid02a.log',
```

```
'/u02/oradata/auxsid/redotspsid02b.log') size 10M reuse,
```

```
group 3 ('/u01/oradata/auxsid/redotspsid03a.log',
```

```
'/u02/oradata/auxsid/redotspsid03b.log') size 10M reuse;
```

```
}
```

Wait for the restore and recovery to complete, then exit RMAN:

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```
Starting restore at ...
channel tape1: starting datafile backupset restore
channel tape1: restore complete
Finished restore at ...
Starting recover at ...
starting media recovery
media recovery complete
Finished recover at ...
database dismounted
Oracle instance shut down
connected to auxiliary database (not started)
Oracle instance started
exit
Recovery Manager complete.
```

If the restore fails after media recovery, it may be possible to continue without having to restore again. For example:

```
sql statement: drop tablespace XDB including contents
```

```
RMAN-00571: =====
```

```
RMAN-00569: ===== ERROR MESSAGE STACK FOLLOWS =====
```

```
RMAN-00571: =====
```

```
RMAN-03002: failure of Duplicate Db command at 11/15/2007 22:24:22
```

```
RMAN-03015: error occurred in stored script Memory Script
```

```
RMAN-03009: failure of sql command on clone_default channel at 11/15/2007 22:24:22
```

```
RMAN-11003: failure during parse/execution of SQL statement: drop tablespace XDB including contents
```

```
ORA-29857: domain indexes and/or secondary objects exist in the tablespace
```

```
export ORACLE_SID=auxsvc
```

```
sqlplus 'username/password as sysdba'
```

```
set pagesize 50000
```

```
select name, open_mode from v$database;
```

```
column name format a60
```

```
select status, name, enabled from v$datafile;
```

If any required indexes were not restored, an error will occur when attempting to access the data in the restored table. Those indexes will need to be dropped.

```
ERROR at line 1:
```

```
ORA-00376: file ## cannot be read at this time
```

```
ORA-01111: name for data file ## is unknown - rename to correct file
```

```
ORA-01110: data file ##: '/u01/app/oracle/product/version/dbs/MISSING000##'
```

```
alter table owner.table_name drop constraint constraint_name;
```

To keep the restored data in the auxiliary instance, reset the database to indicate that a RESETLOGS has been done:

```
export ORACLE_SID=auxsvc
```

```
rman target sys/password[@auxsid] catalog rmanid/rmanpass@catsid
```

```
reset database;
```

To return to the original data in the auxiliary instance, shut down the instance:

```
sqlplus 'username/password as sysdba'
```

```
show parameter db_name
```

```
shutdown immediate
```

```
exit
```

Rename the control files back, then start up the instance in nomount mode:

```
sqlplus 'username/password as sysdba'
```

```
startup nomount
```

```
exit
```

Reset the database incarnation to the one that matches the restored control files:

```
rman target sys/password[@auxsid] catalog rmanid/rmanpass@catsid
```

```
list incarnation of database auxsid;
```

```
reset database to incarnation inckey
```

```
exit
```

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Oracle Net Services

Oracle Net Services

Checking connectivity

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Check TCP/IP connectivity to the remote system

```
ping -c 1 hostname
PING hostname.domain.com: (10.1.1.3): 56 data bytes
64 bytes from 10.1.1.3: icmp_seq=0 ttl=64 time=0 ms
----hostname.domain.com PING Statistics----
1 packets transmitted, 1 packets received, 0% packet loss
```

Check Oracle service name resolution and connectivity

The `tnsping` command shows the connect descriptor that an Oracle service name resolves to, and tests the connection to the service.

```
tnsping svcname
```

Used LDAP adapter to resolve the alias

Attempting to contact

```
(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=hostname)(PORT=1521)))(CONNECT_DATA=
```

```
OK (10 msec)
```

`svcname` can be the name of a service that has been defined as a Net Service Name in the LDAP server (OID) using Oracle Net Manager (oidadmin). The details of LDAP entries can also be displayed and/or modified using Oracle Directory Manager (oidadmin). `svcname` can also be a service name defined locally using the Local Net Service Name configuration option of the Oracle Net Configuration Assistant.

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Installing and running Oracle on IBM z/OS

Installing Oracle on IBM z/OS

Running Oracle Universal Installer (OUI) on z/OS

Running Oracle Universal Installer (OUI) on z/OS

If necessary, delete any dumps or other /tmp files, UNIX files and [MVS](#) datasets from a previous installation failure.

[Connect to UNIX on z/OS via Telnet](#)

Make sure /etc/startup.mk exists. If not, copy it from /samples/startup.mk. OUI may crash with Java and CEE dumps if it does not exist.

Set up the environment for the required version of Java and start OUI:

```
export PATH=/bin:/usr/lpp/java/J1.4/bin
```

```
export JAVA_HOME=/usr/lpp/java/J1.4
```

```
/usr/lpp/Oracle/runInstaller -ignoreprereqs > ~/ouistdout 2> ~/ouistderr
```

Redirecting STDOUT and STDERR prevent OUI from failing with a IEC141I 013-C0 error on the [MVS](#) console.

Rename the ~/ouistdout and ~/ouistderr before starting OUI for the next installation or configuration.

Installing Patches on z/OS

Installing Patches on z/OS

Log into USS with the login ID which owns the Oracle installation directories.

Download the patch to be installed and put it in the ORACLE_HOME directory.

Download the latest version of OPatch (patch #4898608) and put it in the ORACLE_HOME directory.

Download the OS/390 version of the UnZip utility from the Oracle Metalink [UnZip Utilities Download page](#).

Uncompress the UnZip utility and add execute permission:

```
uncompress unzip_os390.Z
```

```
chmod ug+x unzip_os390
```

UnZip OPatch and the patch to be applied:

```
./unzip_os390 -a p4898608_10203_GENERIC
```

```
./unzip_os390 pnnnnnnn_10203_MVS
```

Use the -a option when extracting OPatch to convert ASCII to EBCDIC. The patch itself probably contains binary files and may not need to be extracted with the -a option, but it might not hurt to include it anyway.

Make sure the environment variables and PATH are properly set:

```
export JAVA_HOME=/usr/lpp/java/J1.4
```

```
export ORACLE_HOME=/usr/lpp/Oracle/product/otg/10.2.0.3
```

```
export ORACLE_HLQ_PDS=ORACLE.OTG.V10203
```

```
export PATH=$ORACLE_HOME/OPatch:$ORACLE_HOME/perl/bin:$PATH
```

The PATH should include the OPatch directory and the directory that contains the version of Perl that was installed with Oracle.

Verify the versions of Java and Perl:

```
java -version
```

```
perl -version
```

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Make sure oralnst.loc points to the correct oralInventory location (ex: \$ORACLE_BASE/oralInventory or \$ORACLE_HOME/oralInventory).

```
cat /var/opt/oracle/oralnst.loc
```

```
#Oracle Installer Location File Location
```

```
#Ddd Mmm dd hh:mm:ss ZZZ yyyy
```

```
inst_group=MVSNFSC
```

```
inventory_loc=/usr/lpp/Oracle/10.2.0.3/oralInventory
```

Verify oralInventory exists where indicated by oralnst.loc:

```
ls -l /usr/lpp/Oracle/10.2.0.3/oralInventory
```

Test running OPatch:

```
opatch lsinventory
```

Shut down the gateways if they are running.

Perform any pre-installation instructions indicated by the ReadMe file, such as allocating data sets.

Apply the patch:

```
cd nnnnnnn
```

```
opatch apply
```

Perform any post-installation instructions indicated by the ReadMe file.

Running Oracle Net and other OSDI services on IBM z/OS

Determine the status of the [OSDI](#) subsystem

The following [MVS](#) console commands can be used to determine if the Oracle [OSDI](#) subsystem is running.

```
DISPLAY SSI
```

```
DISPLAY SSI,SUBSYS=RRS
```

```
SUBSYS=RRS
```

```
DYNAMIC=YES STATUS=ACTIVE COMMANDS=REJECT
```

```
DISPLAY SSI,SUBSYS=orss
```

```
SUBSYS=orss
```

```
DYNAMIC=YES STATUS=ACTIVE COMMANDS=ACCEPT
```

The Resource Recovery Services (RRS) subsystem is required for the RRSF interface used by Oracle. The subsystem name for [OSDI](#) (*orss* above) may be different on different systems.

If the Oracle subsystem is not included in the display, it needs to be defined with an [operator command](#):

```
SETSSI ADD,S=orss,I=ORASSINI,P='....PARMLIB(member)'
```

```
MIS0020I Oracle subsystem orss initialized. Version:10.02.0.2.00
```

```
MIS0196I Service group orss defined
```

```
MIS0198I Service ORAP10 defined
```

```
MIS0198I Service ORAN10 defined
```

```
MIS0195I Service group orss (OSDI Oracle 10G Subsystem - orss)
```

```
Mode=*SYS , Systems=*ALL
```

```
Service ORAN10 Type NET (Oracle V10G Net Service)
```

```
Service ORAP10 Type GTW (Oracle V10G TG4DB2 Service)
```

```
MIS0193I Service ORAP10 starting
```

```
MIS0193I Service ORAN10 starting
```

Display the names of the [OSDI](#) services with:

```
orss SHOW SERVICEGROUP LONG
```

```
MIS0195I Service group orss (OSDI Oracle 10G Subsystem - orss)
```

```
Mode=*SYS , Systems=*ALL
```

```
Service ORAN10 Type NET (Oracle V10G Net Service)
```

```
Service db2gw1 Type GTW (Oracle V10G TG4DB2 Service)
```

Display the definition of the Oracle Net service with:

```
orss SHOW SERVICE ORAN10
```

```
MIS0194I Service ORAN10 Type NET (Oracle V10G Net Service)
```

```
Proc=ORAN10 , ID=ORAN , Parm='HPNS PORT(1521) ENCLAVE(SESS)'
```

```
Jobname= , JobAcct=(no accounting)
```

```
MaxAS=001, Mode=LOCAL , Systems=(none)
```

Display the definition of the gateway service with:

```
orss SHOW SERVICE db2gw1
```

```
MIS0194I Service db2gw1 Type GTW (Oracle V10G TG4DB2 Service)
```

```
Proc=db2gw1 , ID=db2gw1 , Parm='ORACLE...PARMLIB(member)'
```

```
Jobname= , JobAcct=(no accounting)
```

```
MaxAS=004, Mode=LOCAL , Systems=(none)
```

Display the operational status of the Oracle Net service with:

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orss DISPLAY *ORAN10*

MIS0308I Service *ORAN10* is ACTIVE , 001 address spaces

F *ORAN10*,DIS ALL

MIN0200I CID Owner Protocol Address

MIN0201I *nnnnnnnn* *ORAN10* TCP 010.001.001.*nnn/nnnnn*

MIN0201I *nnnnnnnn* *ORAN10* TCP 010.001.001.*nnn/nnnnn*

Display the operational status of the gateway service with:

orss DISPLAY *db2gw1*

MIS0308I Service *db2gw1* is ACTIVE , 001 address spaces

Services can be stopped and started with these commands:

orss STOP *ORAN10* [FORCE]

orss STOP *db2gw1* [FORCE]

SETSSI DEACT,SUBNAME=*orss*

SETSSI ACT,SUBNAME=*orss*

orss START *db2gw1*

orss START *ORAN10*

There are also DRAIN and RESUME commands which block and unblock new incoming connections through the gateway.

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