Performing Database and File System Backups and Restores Using Oracle Secure Backup

Purpose

This lesson introduces you to Oracle Secure Backup which enables you to perform database and file system backups and restores easily.

Time to Complete

Approximately 1 hour

Topics

This tutorial covers the following topics:

- Overview
- Scenario
- Prerequisites
- **Setup**
- **Registering your Administrative Server**
- **Inserting Volumes in Your Library**
- **Configuring a Backup Storage Selector**
- **Performing Database Backups**
- **Performing Database Recovery Using Disk Backups**
- **Performing Database Recovery Using Tape Backups**
- **Performing File System Backups Using Oracle Secure Backup Web Tool**
- **Performing File System Restores Using Oracle Secure Backup Web Tool**
- **Clean Up**
- Summary

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Viewing Screenshots

Place the cursor over this icon to load and view all the screenshots for this tutorial. (Caution: This action loads all screenshots simultaneously, so, depending on your Internet connection, may result in a slow response time.)

Note: Alternatively, you can place the cursor over an individual icon in the following steps to load and view only the screenshot associated with that step. You can hide an individual screenshot by clicking it.

Overview

Database backup, restore, and recovery are critical processes underlying any mission-critical system. Imagine the potential for lost revenue, customer dissatisfaction or unrecoverable information caused by a disk failure or human error. Debuting with Oracle 8.0, Recovery Manager (RMAN) is the recommended backup and recovery utility for the Oracle Database to disk and is integrated with media management utilities for tape backup and restoration. In addition to backing up the database, critical file system data such as the Oracle Home and other non-database files must be protected. With the new Oracle Secure Backup release, Oracle now provides an end-to-end backup solution for Oracle environments. Oracle Secure Backup provides centralized tape backup management protecting diverse, distributed file system data (UNIX /Linux / Windows / NAS) and the Oracle Database. Tightly integrated with Recovery Manager (RMAN), Secure Backup delivers fast database backup and optional database backup encryption to tape.

This tutorial demonstrates how to use the advanced new features released in Recovery Manager (RMAN), Oracle Secure Backup and Enterprise Manager Database Control to create a complete backup and recovery infrastructure for your whole Oracle environment. During this tutorial, you will:

- Setup an Oracle Database backup and recovery strategy to disk and tape
- Backup non-database files to tape
- Repair database files that require recovery

Oracle Secure Backup Architecture

Oracle Secure Backup employs client-server architecture. Administrative domains are used to organize and manage the backup and restore operations within the enterprise. An administrative domain has one administrative server, one or more clients, and one or more media servers.

Administrative Server	A machine in your administrative domain that contains a copy of Oracle Secure Backup software and the backup catalog that contains configuration settings and store backup history. The administrative server runs the scheduler, which starts and monitors jobs within the administrative domain. Each administrative domain will have one administrative server.
Media server	A machine that has one or more secondary storage devices, such as a tape drives or libraries, connected to it. A media server transfers data to or from attached devices. During installation, you can configure multiple secondary storage devices on media servers.
Client	A machine whose locally accessed data are backed up by Oracle Secure Backup. Most machines defined within the administrative domain are clients.

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Scenario

A backup strategy is necessary for every database, and it must provide fast and easy recovery from media failure and human error. In this lesson you will configure an Oracle Database recovery strategy to backup to disk using the Enterprise Manager's Backup Wizard called the Oracle Suggested Strategy. The Oracle

Suggested Strategy takes advantage of the Flash Recovery Area and RMAN's incremental roll forward capabilities. You will also configure and create tape backups of the files in the Flash Recovery Area as well as non-database files. Finally, backing up is only the means to recovery, as you will also repair files for the database and restore files from tape.

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Prerequisites

Before starting this tutorial, you should:

1. Have access to or install Oracle Database 10g with 10.2.0.3 patch applied
2. Install Oracle Secure Backup.
3. Download and unzip the ob.zip file into your working directory (i.e. c:\wkdir).

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Setup

The flash recovery area is a unified storage location for all recovery related files and activities in an Oracle database. All files that are needed to completely recover a database from a media failure are part of the flash recovery area. The recovery related files that can be created in the flash recovery area include: archived redo log files, control files, backups created by Recovery Manager (RMAN), and flashback logs.

By allocating a storage location and unifying related recovery files within a specific area, the Oracle database server relieves the database administrator from having to manage the disk files created by these components.

Follow the steps below to configure the flash recovery area, put your database in ARCHIVELOG mode, and configure your CHANNEL.

1. Log in to Enterprise Manager Database Console by opening your browser and entering the following URL:

   `http://<yourhostname>:1158/em`

   Enter **sys/oracle** as **SYSDBA** and click **Login**.

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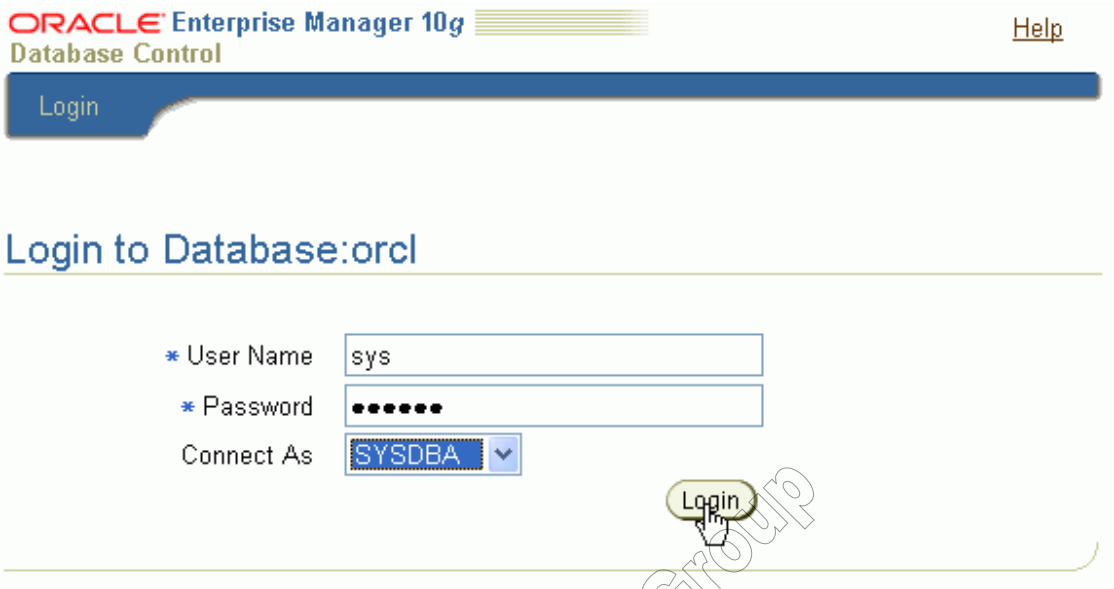
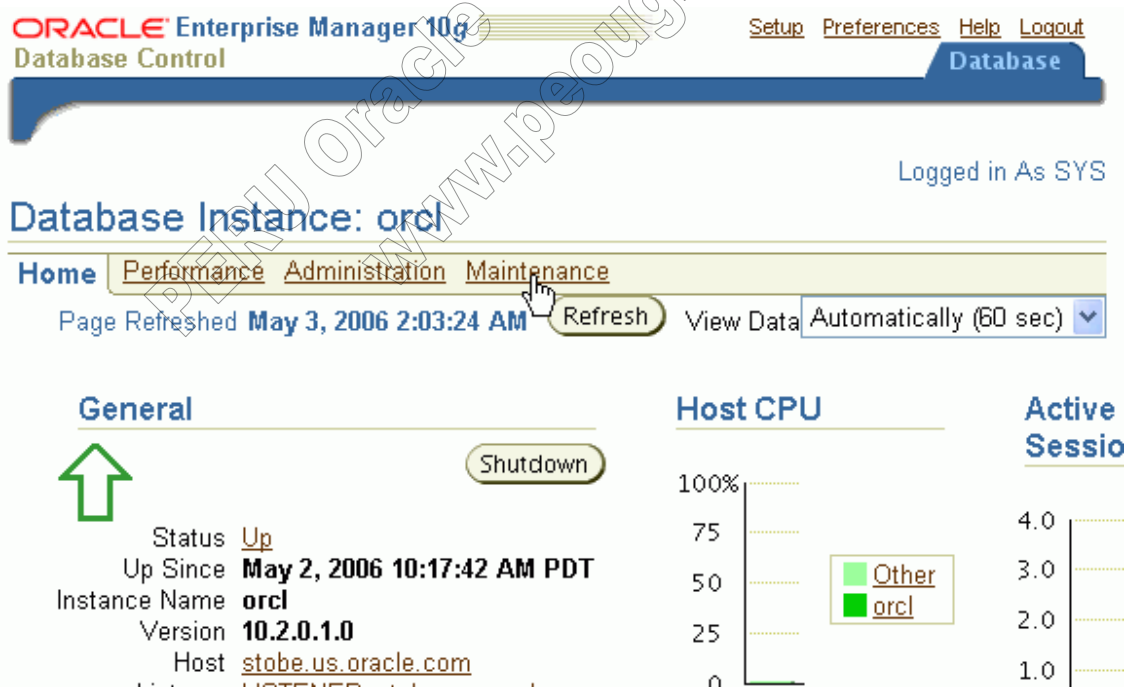


2. The **Oracle Database Home** page allows you to view the current state of the database by displaying a series of metrics that portray the overall health of the database. The Oracle Database Home page provides a launch point for the database status and administration and configuration of the database environment. It contains four pages via subtabs with each page displaying subsections. Click on the **Maintenance** tab.



3. Under Backup/Recovery Settings, click **Recovery Settings**.

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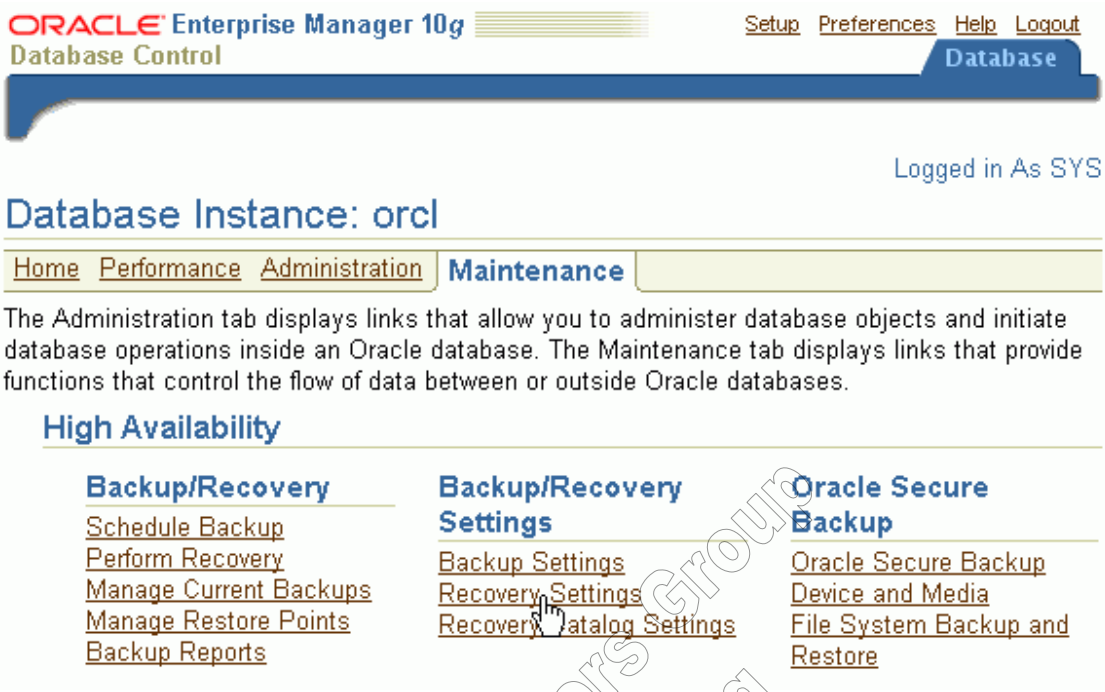

4. Click the **ARCHIVELOG Mode** checkbox and click **Apply**.

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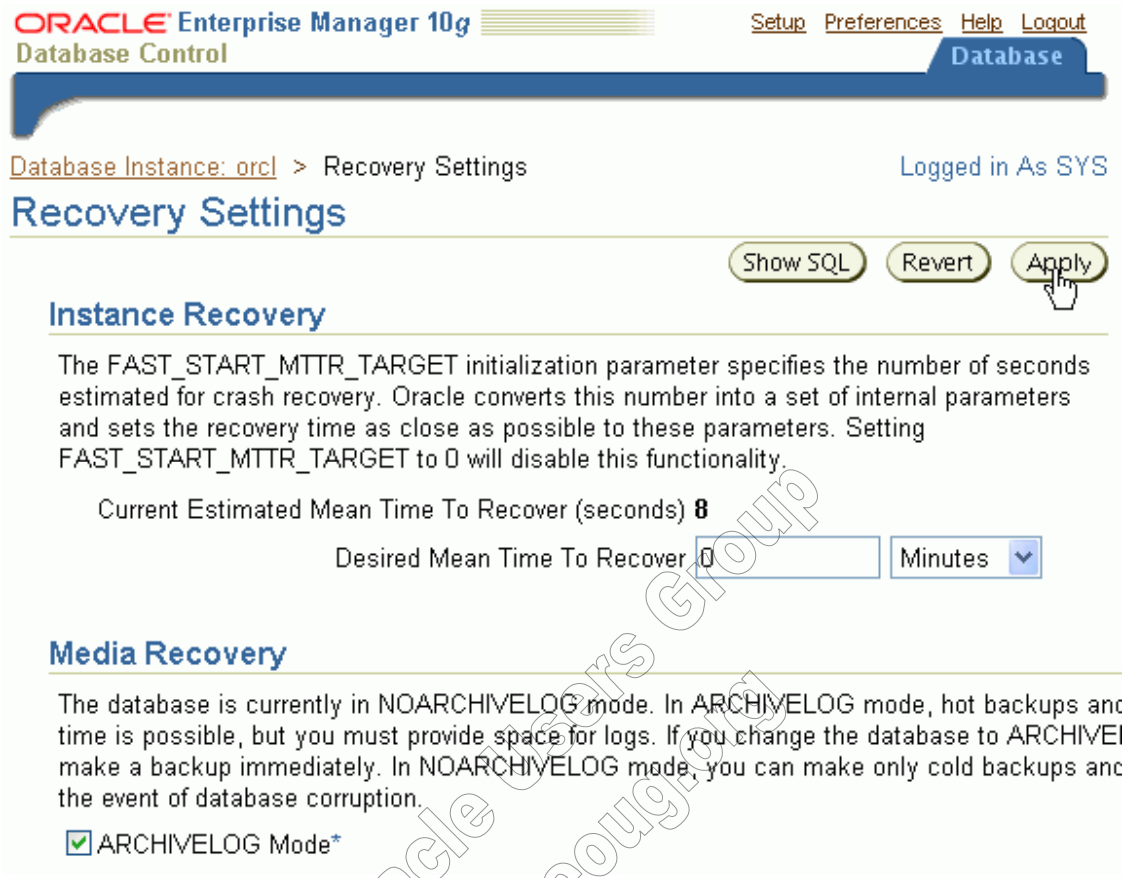

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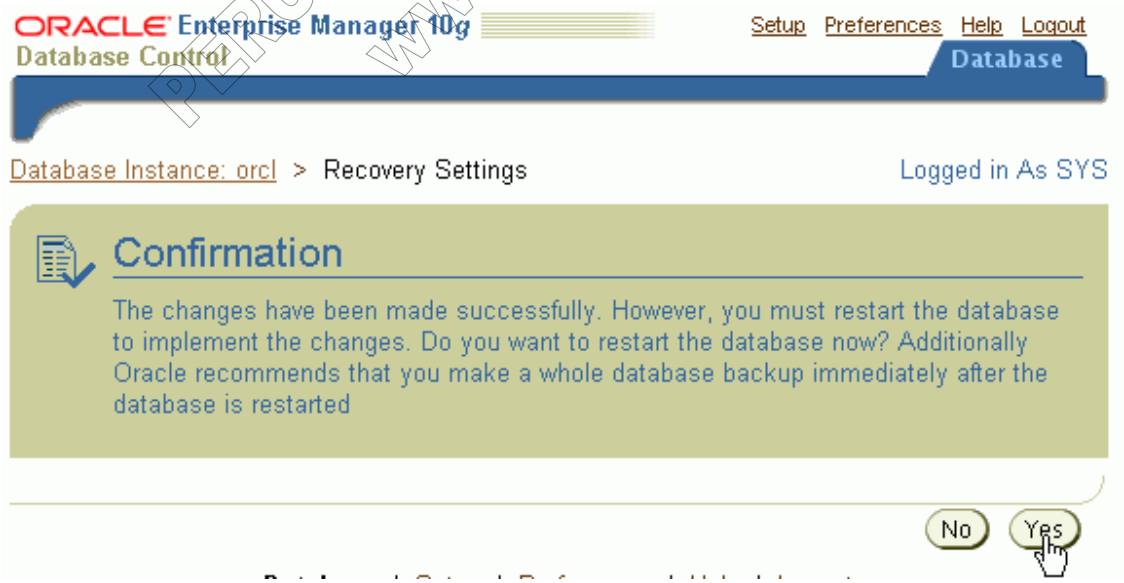
5. Click **Yes** to restart the database.



6. Enter your Host Credentials and then enter your Database Credentials as **sys/oracle** as **SYSDBA** then click

Continue.

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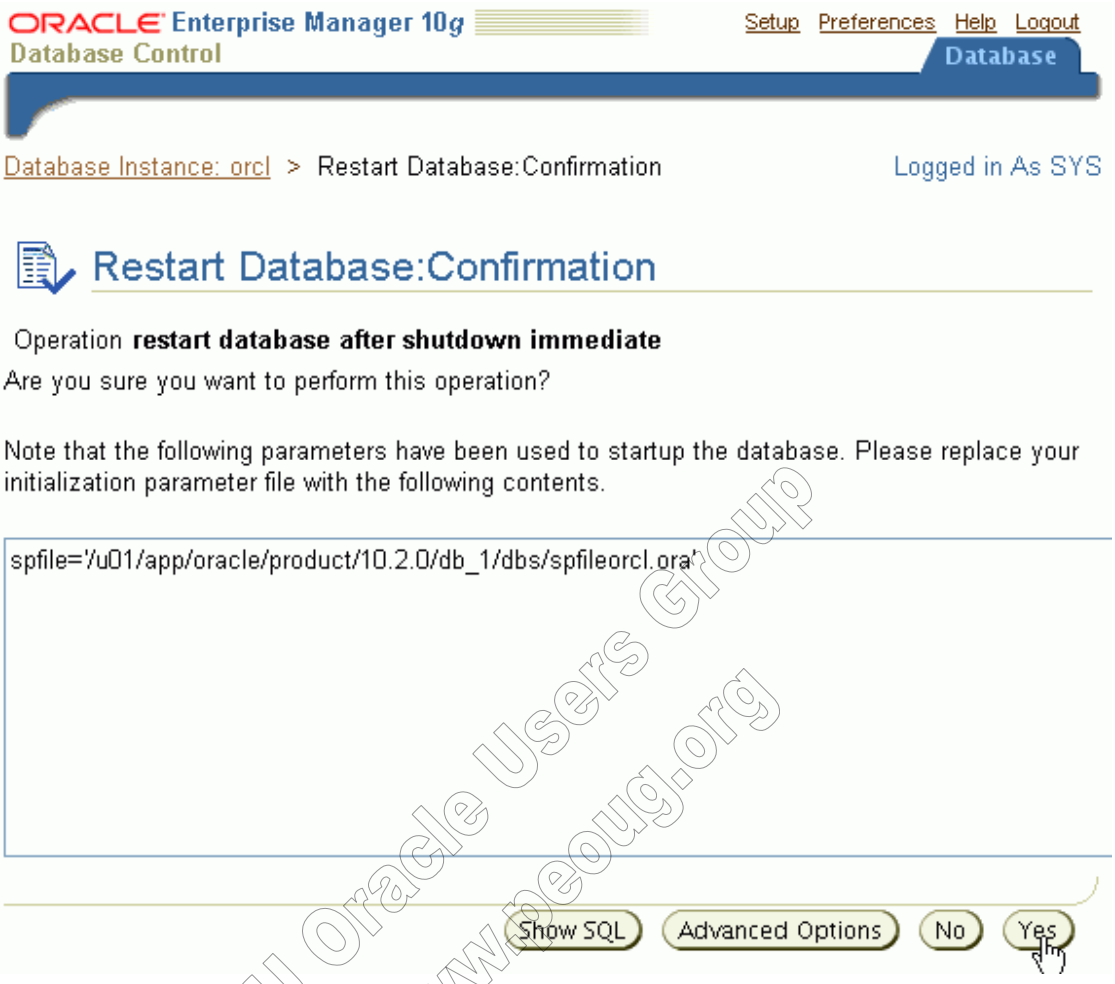
7. Click **Yes** to confirm.



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8. Your database is being restarted. Wait about 10 minutes and click **Refresh**.

9. Before you can schedule a backup, you need to configure one or more channels. Open a command window and execute the following:

mkdir –p /home/oracle/backup

```
rman TARGET /
CONFIGURE CHANNEL DEVICE TYPE 'SBT_TAPE'
PARMS="SBT_LIBRARY=oracle.disksbt,ENV=(BACKUP_DIR=/home/oracle/backup)";
CONFIGURE DEFAULT DEVICE TYPE TO 'SBT_TAPE';
exit
```

If you need to simulate virtual tape devices, just for testing, you need to execute the following:

```
Creating a virtual tape library
cd $HOME
Edit /home/oracle/mklib.obp and add the following line:
mkdev -t library -o -S 4 -a <hostname>:/vlib -v vlib
where <hostname> is your actual hostname
# obtool --user admin --password oracle10 < /home/oracle/mklib.obp
NOTE: the password you defined at the time of OSB installation.

Creating a virtual tape drive
cd $HOME
Edit /home/oracle/mktapedev.obp and add the following line:
mkdev -t tape -o -a <hostname>:/vt -v -l vlib -d 1 vt
where <hostname> is your actual hostname
# obtool --user admin --password oracle10 < /home/oracle/mktapedev.obp
NOTE: the password you defined at the time of OSB installation.
```

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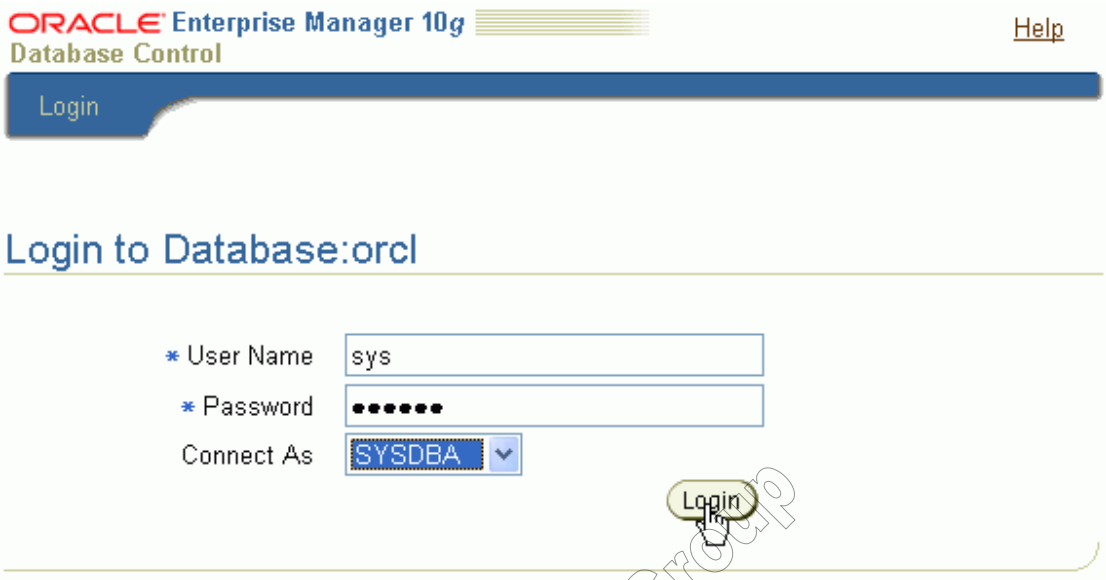
Registering your Administrative Server

To oversee data protection activities among diverse hosts, devices, and databases, Oracle Secure Backup defines an administrative domain. An administrative domain is a collection of clients, servers and tape devices under the direction of an administrative server.

The Administrative Server is a server in your administrative domain that contains a copy of Oracle Secure Backup software and the backup catalog. The backup catalog contains configuration settings metadata relating to backup and restores. The administrative server runs the scheduler, which starts and monitors jobs within the administrative domain. You need one administrative server for each administrative domain at your site. Perform the following steps to add your administrative server:

1. After you press **Refresh** from the previous section. If you receive the login window again, enter user **sys** and password **oracle** as **SYSDBA** and click **Login**.



2. Click the **Maintenance** tab.

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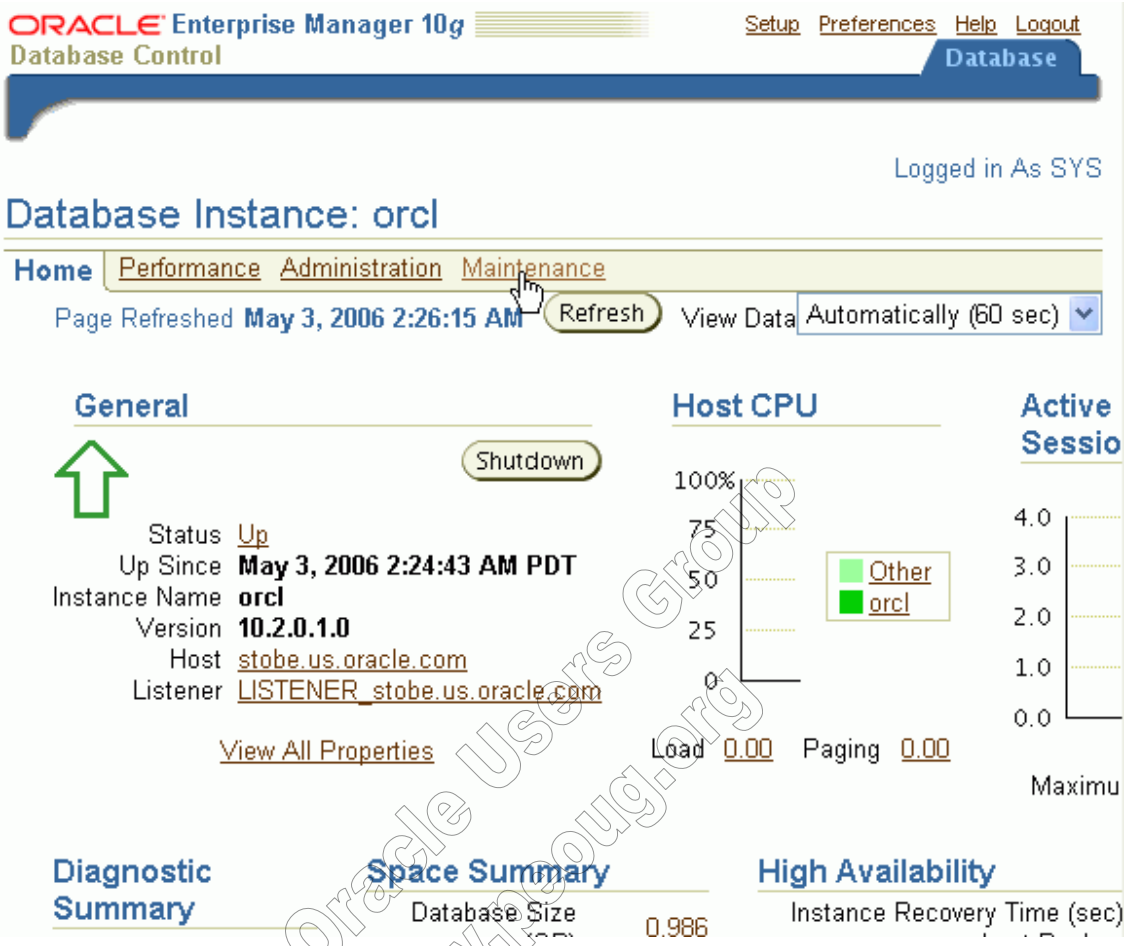

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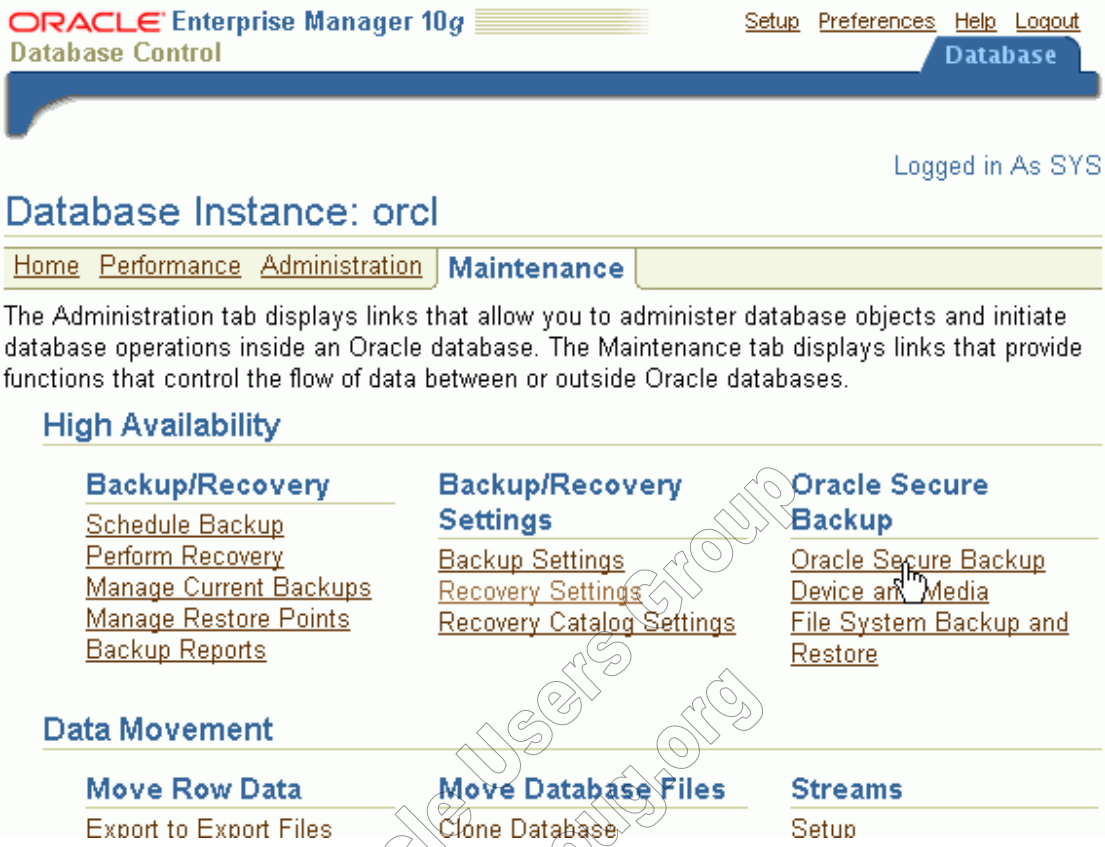
3. Under **Oracle Secure Backup,** click **Oracle Secure Backup Device and Media**.



4. Enter /usr/local/oracle/backup for the Oracle Secure Backup Home, **admin** for the Username and **oracle10** for the password. Then click **OK**.

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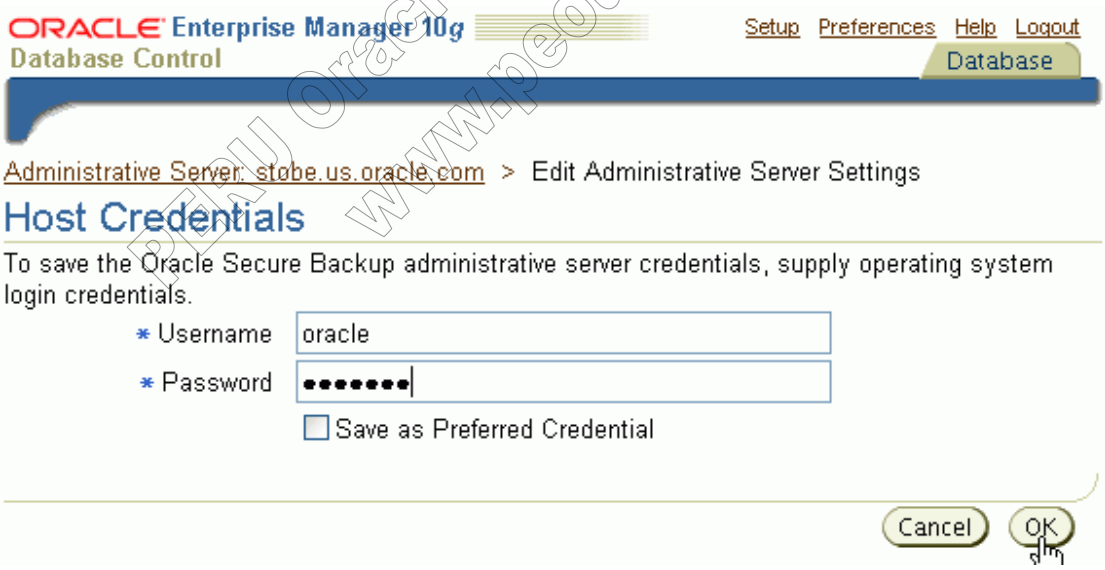
5. Enter your host credentials and click **OK**.



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6. Under the heading Resources, select the **Manage** link next to Devices.

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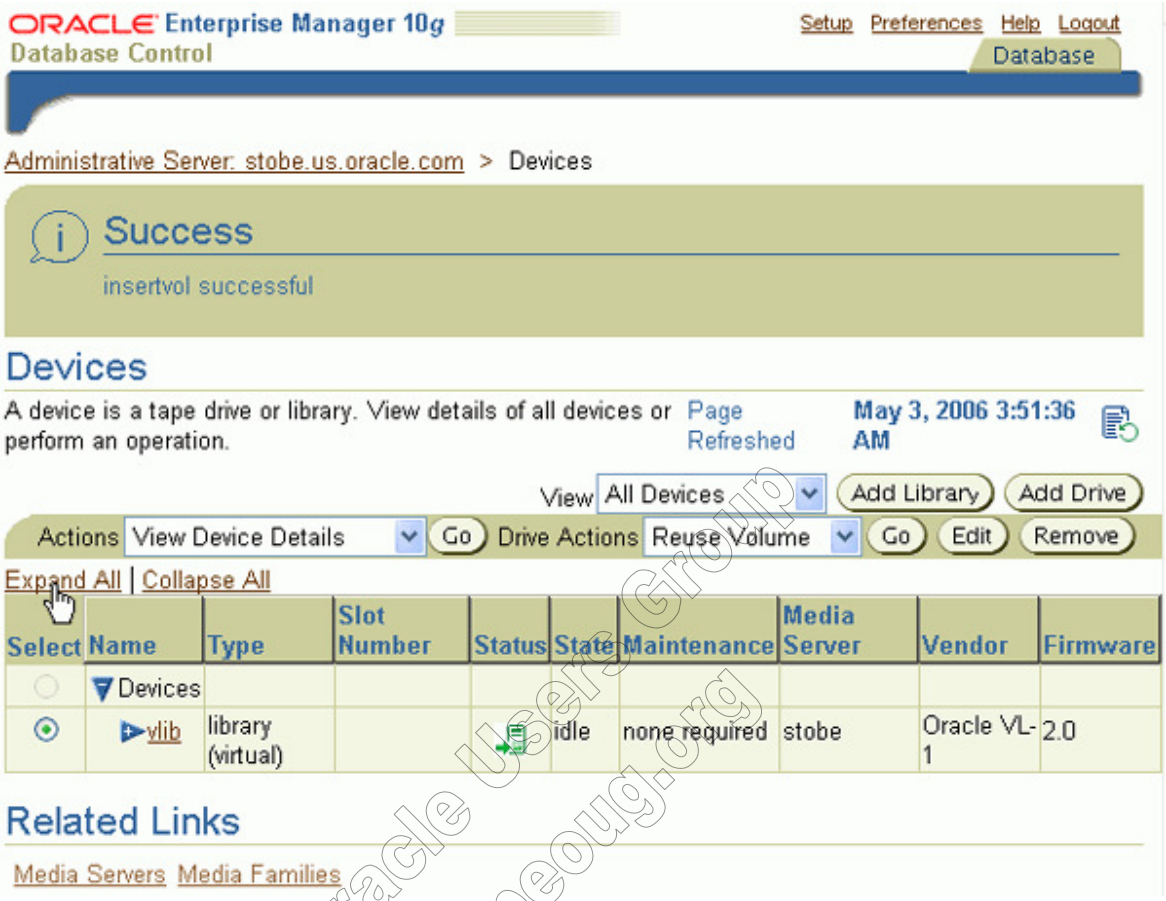
7. To see all your devices, click **Expand All**.



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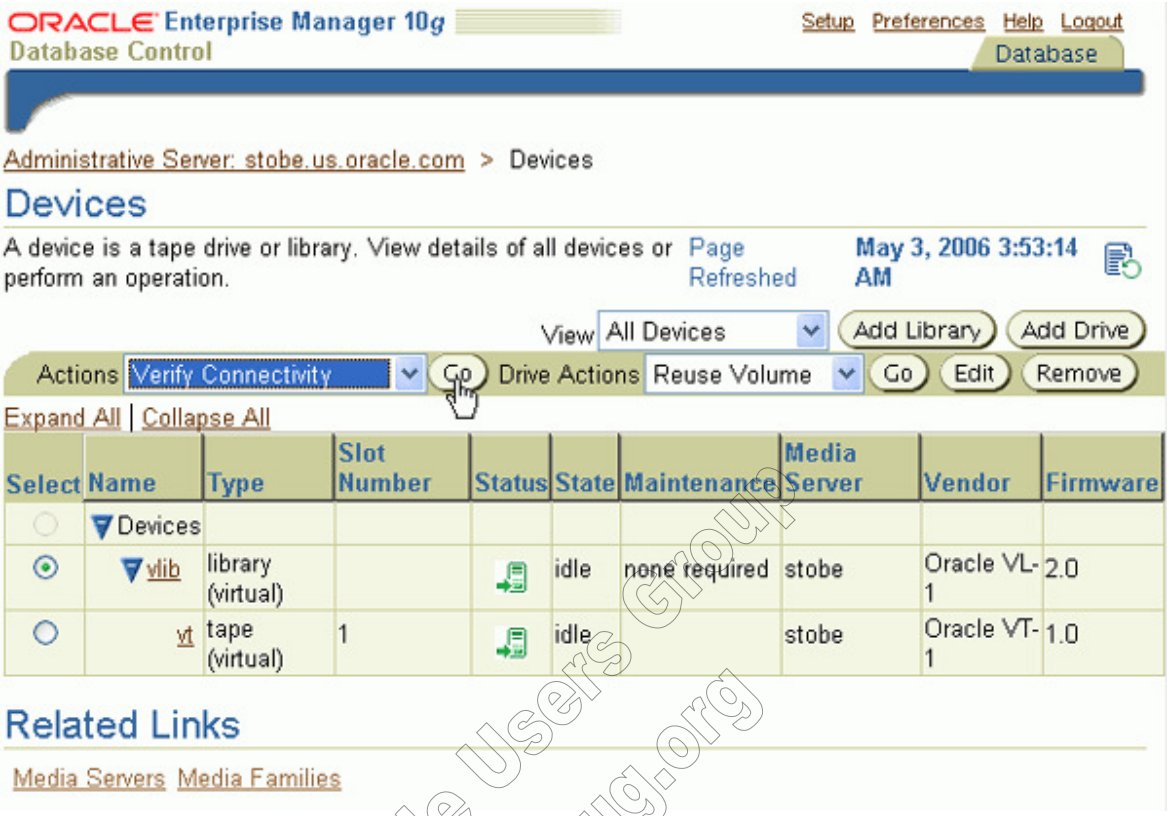
8. You want to make sure you can access your devices. Select **Verify Connectivity** from the list of Actions and click **Go**.



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9. You can access your devices. Now you can create a Backup Storage Selector. Click the **Database** tab.

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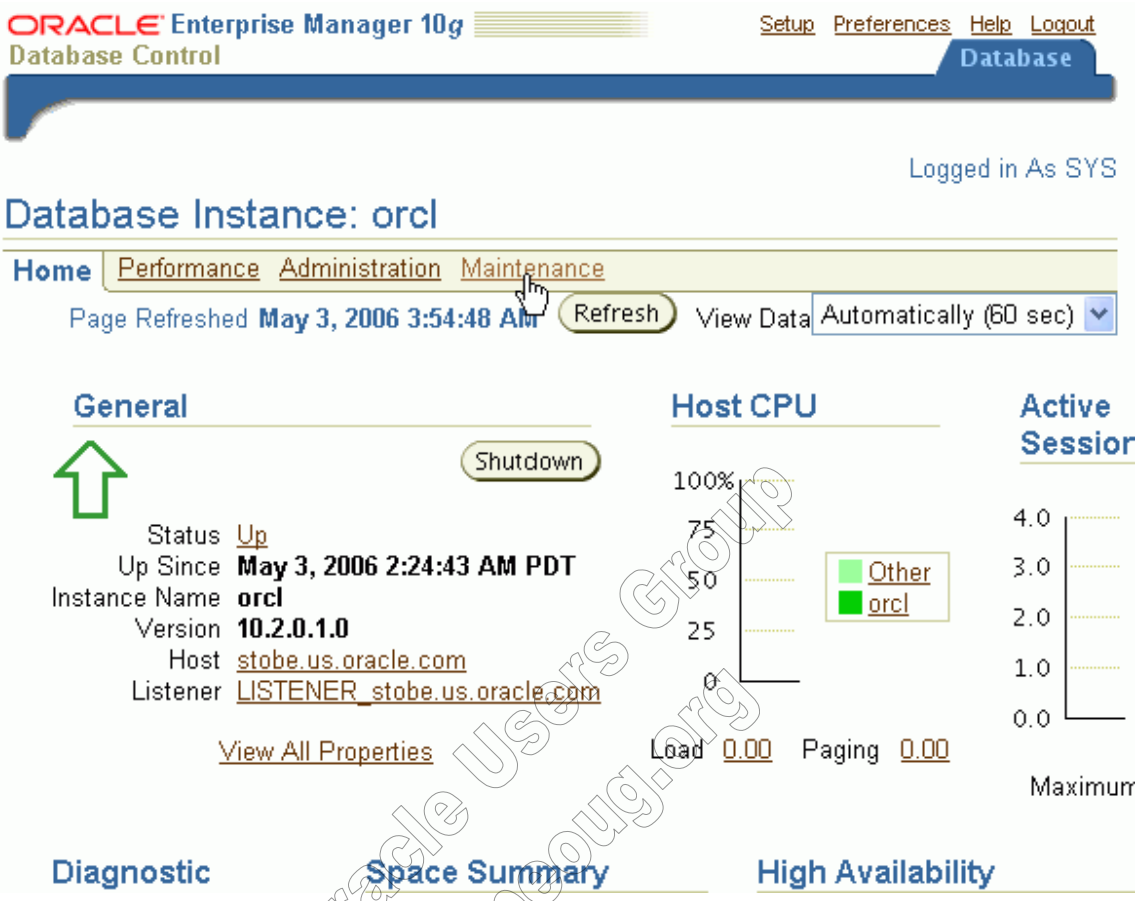
Configuring a Backup Storage Selector

Oracle configuration data is stored in a database backup storage selector. Storage selectors are created, named, and modified by a user. As with other configuration objects such as hosts, devices, and users, storage selectors are stored on the administrative server.

Storage selectors give users fine-grained control over Oracle database backup and restore operations. You can define the type of backups that are valid for this database to be backed which includes archivelogs, backupsets, incrementals, and autobackup of control file and spfile. Oracle Secure Backup defines a media family called RMAN-DEFAULT that can be used to organize the backups to specific tape volumes. Oracle Secure Backup uses the information encapsulated in storage selectors when interacting with Recovery Manager (RMAN).

To configure your backup storage selector, perform the following steps::

1. Click the **Maintenance** tab.



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2. Under Backup/Recovery Settings, click **Backup Settings**.

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3. Scroll down to the Oracle Secure Backup section.

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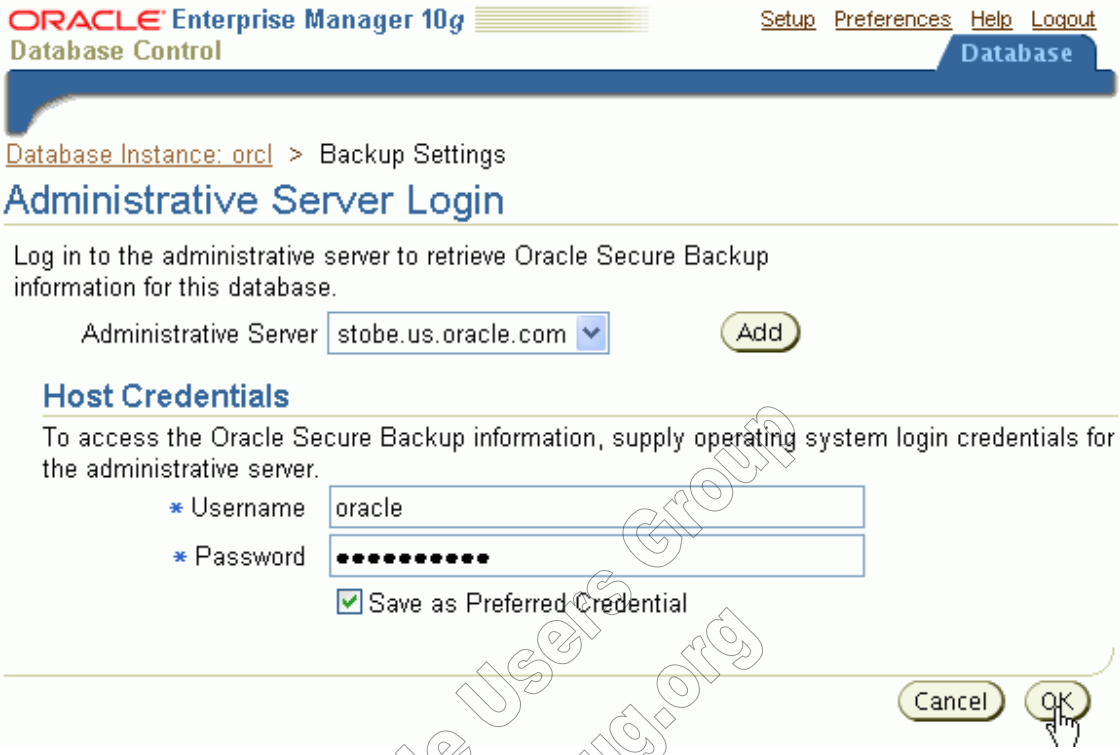
4. Click **Configure**. Even though you defined your Administrative Server, you need to associate it with this database.

5. Make sure your Administration Server is selected from the list. Make sure your host username and password are

correct. Then click **OK**.



6. Click **Add**.

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7. Click each Database Backup Type. Then under Use Devices click **Add**.

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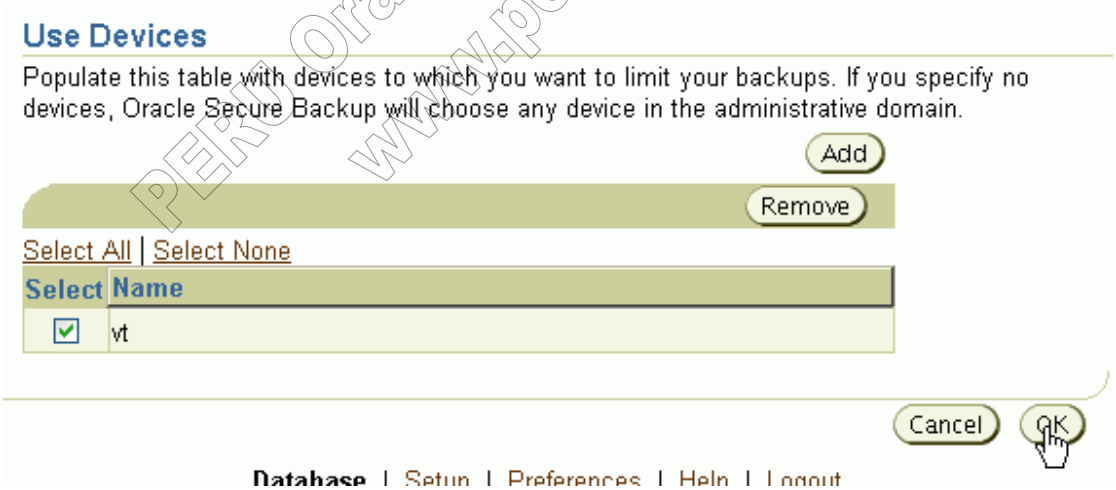
8. Select **vt1** and click **Select**.

9. Select your **vt1** device again and click **OK**.



10. Your Backup Storage Selector has been created. Click **Return**.

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11. Make sure your host credentials are set and then click **OK**.

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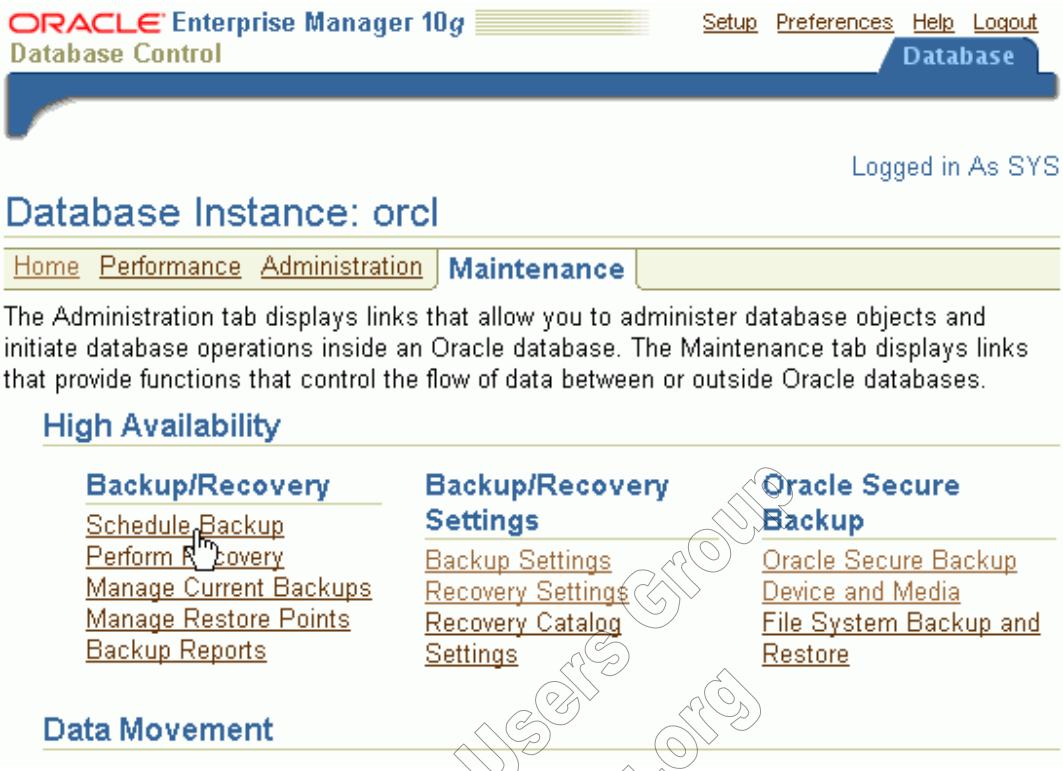
Performing Database Backups

To backup the database to disk and to tape, perform the following steps:

1. Click **Schedule Backup**.



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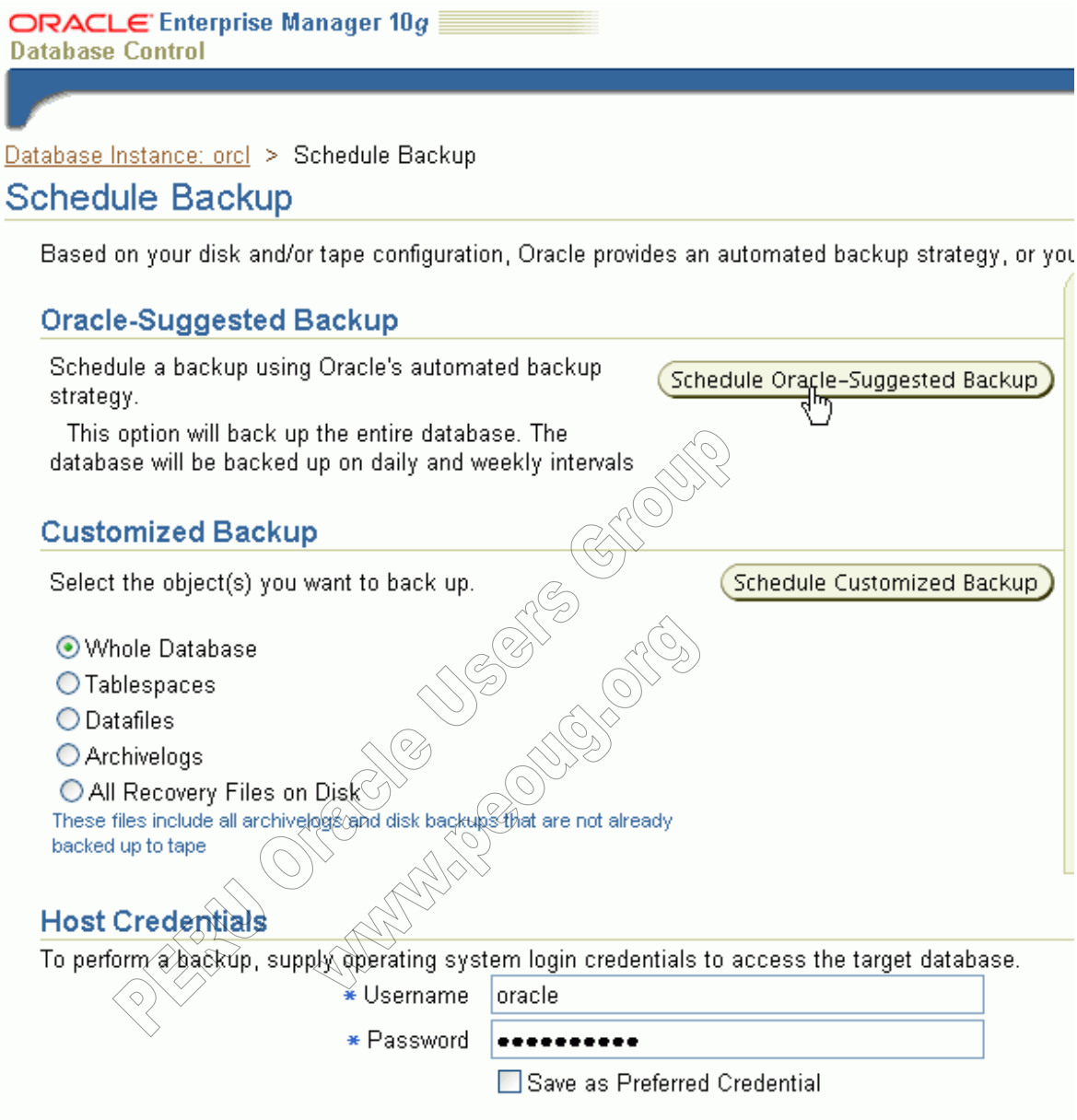
2. Make sure your host credentials are set to **oracle/oracle** and click **Schedule Oracle-Suggested Backup**.



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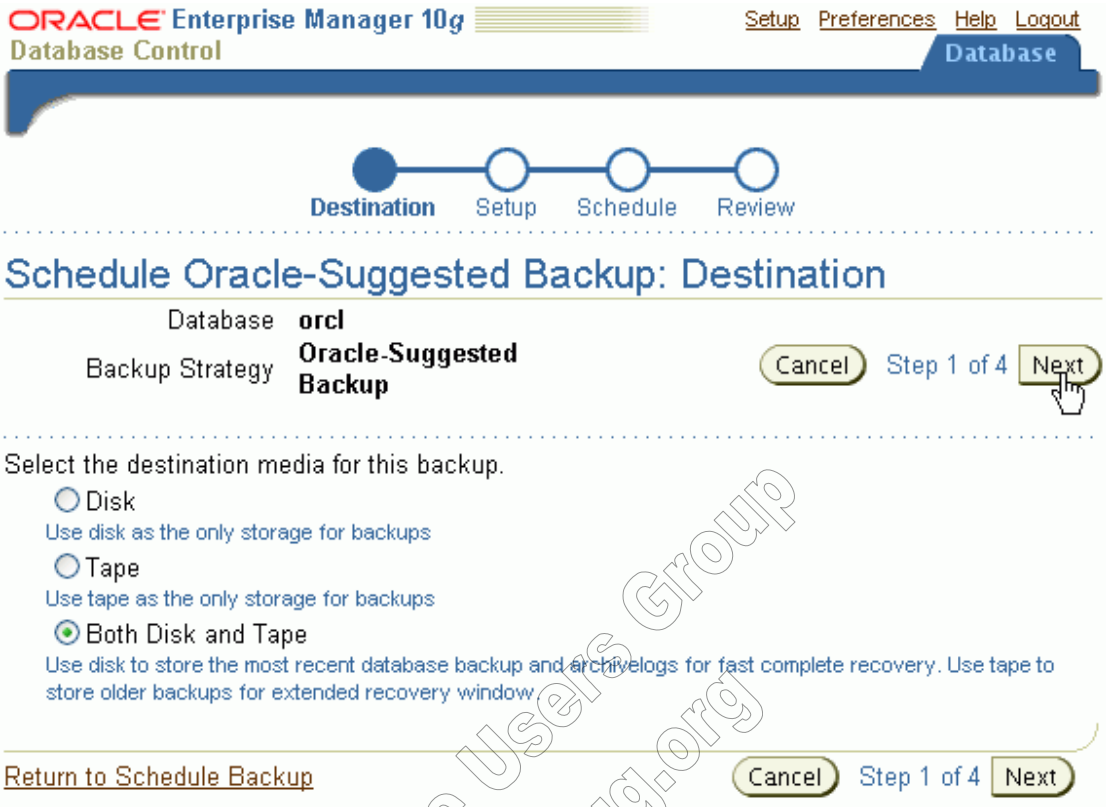
3. Choose **Both Disk and Tape** and then click **Next**.



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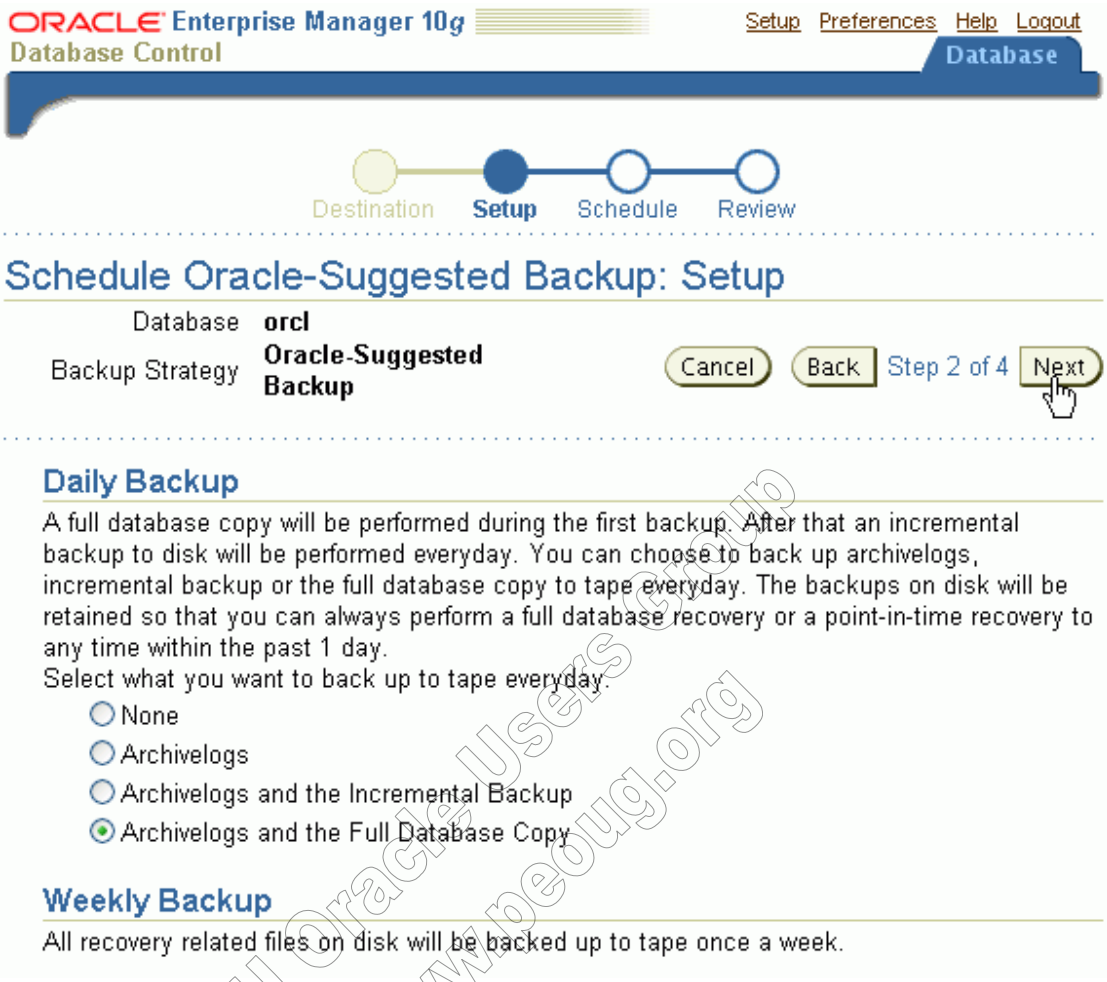
4. Select option **Archivelogs and the Full Database Copy,** and click **Next**. Typically you would perform this on a weekly basis however, in this tutorial, you need to perform a backup now so that you can perform the rest of the steps in this tutorial.



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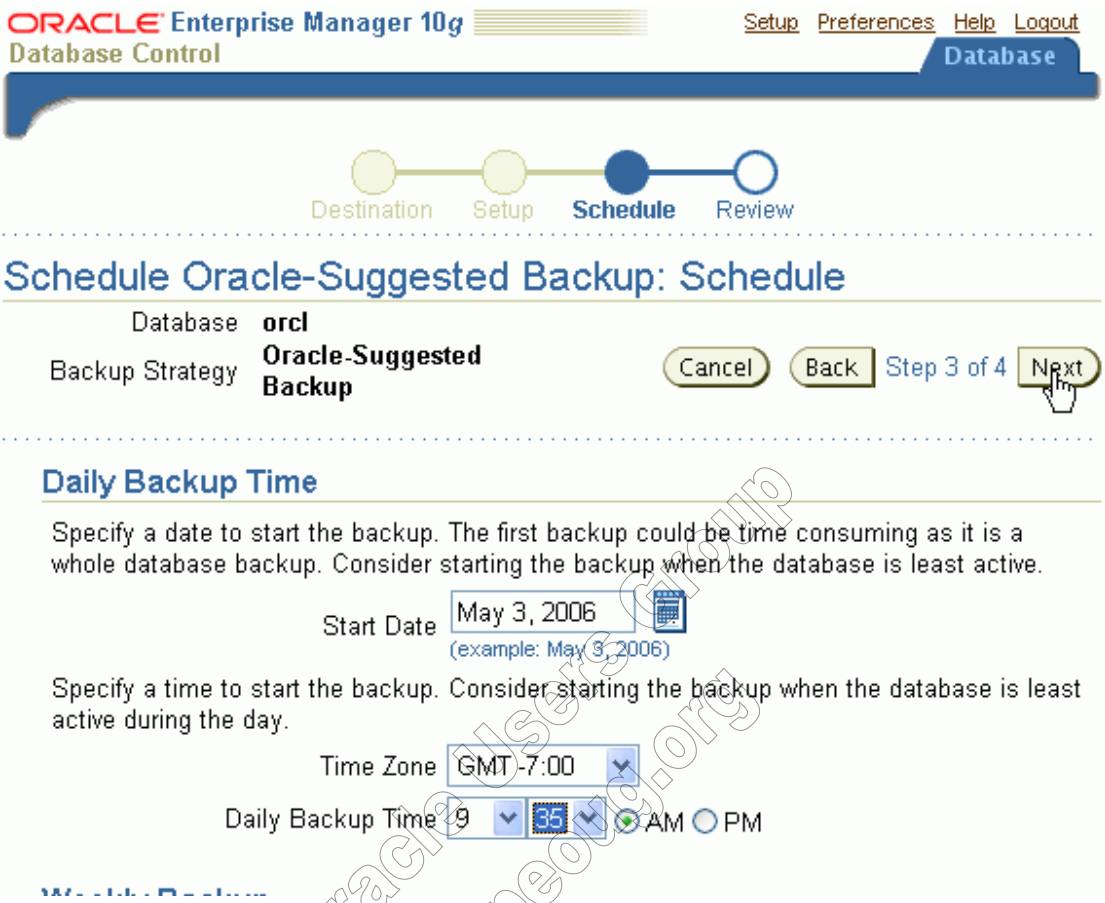
5. Set the time so that it will run within the next 5 minutes. Look at the VM Image time in the upper right of the screen, and choose the next time available. Be sure to set AM or PM correctly. Then click **Next**.



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6. Click **Submit Job**.

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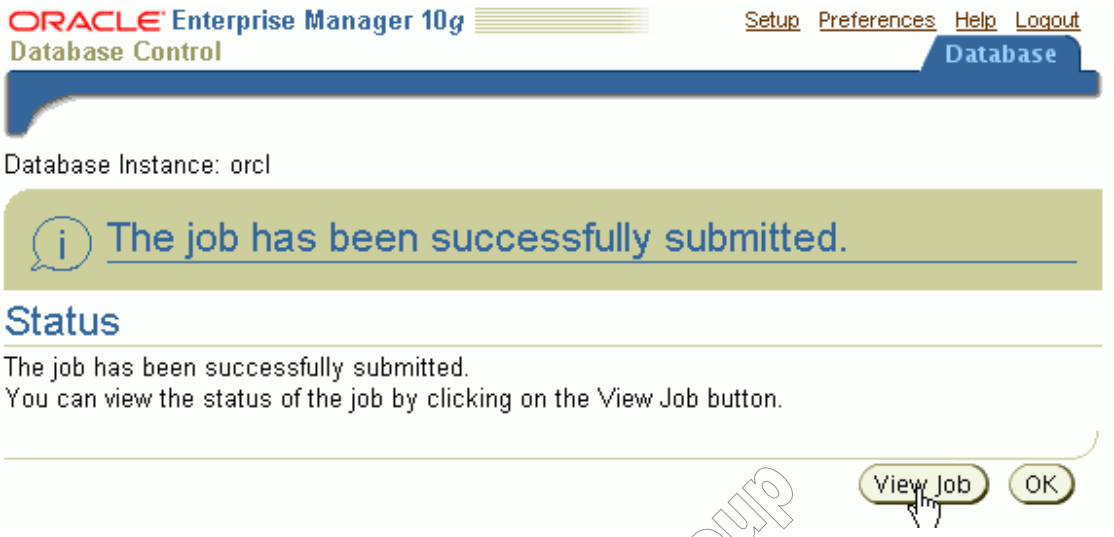
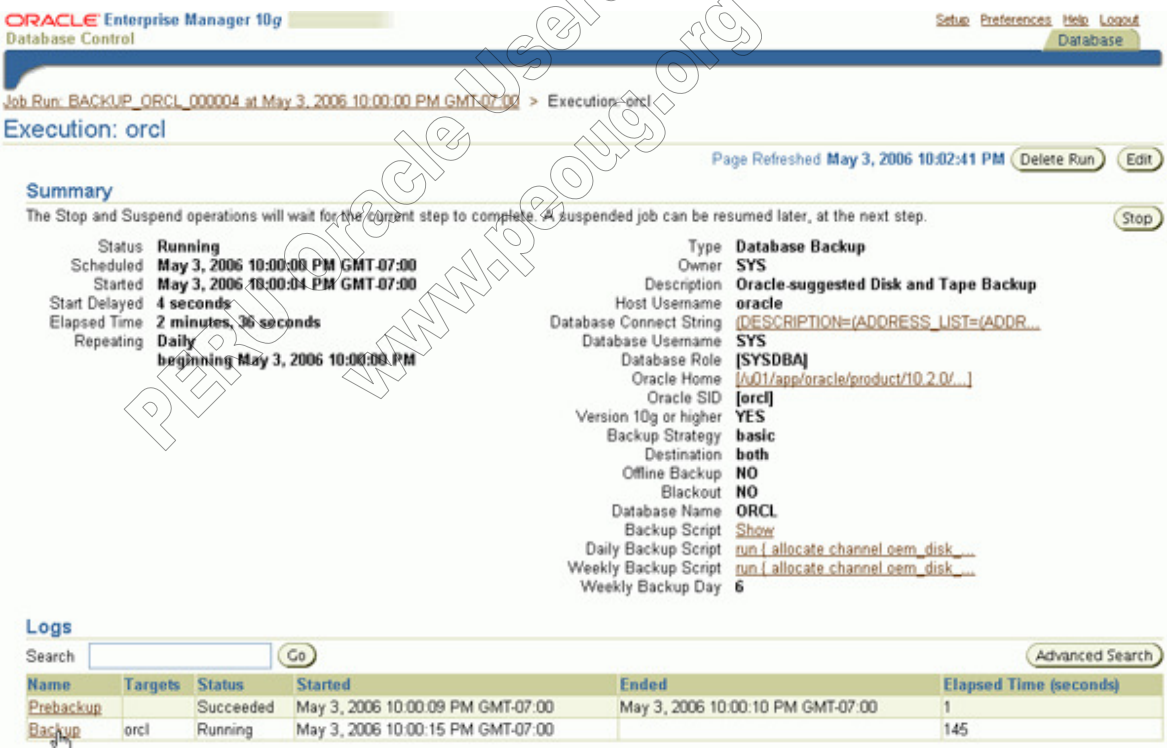
7. Your job has been submitted successfully. Click **View Job**.



8. Click the browser's **Reload** button until log names appear in the log list at the bottom of the page. When the **Backup** log name appears, click on it.



9. Scroll to the bottom and see the progress. Keep hitting **Reload** until you see the progress. This will take several minutes to complete. When complete, click the **Database** link at the bottom of the window.

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ORACLE Enterprise Manager 10g
Database Control

Setup Preferences Help Logout
Database

Job Run: BACKUP_ORCL_000004 at May 3, 2006 10:00:00 PM GMT-07:00 > Execution: orcl > Step: Backup

Step: Backup

Page Refreshed **May 3, 2006 10:03:51 PM**

Status	**Succeeded**	Started	**May 3, 2006 10:00:15 PM GMT-07:00**
Targets	**orcl**	Ended	**May 3, 2006 10:03:11 PM GMT-07:00**
		Elapsed Time	**2 minutes, 56 seconds**

Output Log

```
Recovery Manager: Release 10.2.0.1.0 - Production on Wed May 3 22:00:16 2006

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RMAN>
connected to target database: ORCL (DBID=1112909496)
using target database control file instead of recovery catalog

RMAN>
echo set on


RMAN> run {
2> allocate channel oem_disk_backup device type disk;
3> recover copy of database with tag 'ORA$OEM_LEVEL_0';
4> backup incremental level 1 cumulative  copies=1 for recover of copy with tag 'ORA$OEM_LEVEL_0'
5> release channel oem_disk_backup;
6> allocate channel oem_sbt_backup1 type 'SBT_TAPE' format '%U';
7> backup archivelog all not backed up;
8> backup copy of database from tag='ORA$OEM_LEVEL_0';
9> delete noprompt obsolete recovery window of 31 days device type 'SBT_TAPE';
10> }
allocated channel: oem_disk_backup
channel oem_disk_backup: sid=127 devtype=DISK
```

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```
input archive log thread=1 sequence=43 recid=4 stamp=589500101
channel oem_sbt_backup1: starting piece 1 at 03-MAY-06
channel oem_sbt_backup1: finished piece 1 at 03-MAY-06
piece handle=07hi63m5_1_1 tag=TAG20060503T220141 comment=API Version 2.0,MMS Version 10.1.0.0
channel oem_sbt_backup1: backup set complete, elapsed time: 00:00:26
Finished backup at 03-MAY-06

Starting backup at 03-MAY-06
channel oem_sbt_backup1: starting full datafile backupset
channel oem_sbt_backup1: including datafile copy of datafile 00001 in backupset
input filename=/u01/app/oracle/flash_recovery_area/ORCL/datafile/o1_mf_system_25m2m3mv_.dbf
channel oem_sbt_backup1: including datafile copy of datafile 00003 in backupset
input filename=/u01/app/oracle/flash_recovery_area/ORCL/datafile/o1_mf_sysaux_25m2n6x7_.dbf
channel oem_sbt_backup1: including datafile copy of datafile 00005 in backupset
input filename=/u01/app/oracle/flash_recovery_area/ORCL/datafile/o1_mf_example_25m2nzxq_.dbf
channel oem_sbt_backup1: including datafile copy of datafile 00002 in backupset
input filename=/u01/app/oracle/flash_recovery_area/ORCL/datafile/o1_mf_undotbs1_25m2o785_.dbf
channel oem_sbt_backup1: including datafile copy of datafile 00004 in backupset
input filename=/u01/app/oracle/flash_recovery_area/ORCL/datafile/o1_mf_users_25m2og82_.dbf
channel oem_sbt_backup1: starting piece 1 at 03-MAY-06
channel oem_sbt_backup1: finished piece 1 at 03-MAY-06
piece handle=08hi63n0_1_1 comment=API Version 2.0,MMS Version 10.1.0.0
channel oem_sbt_backup1: backup set complete, elapsed time: 00:01:01
Finished backup at 03-MAY-06

no obsolete backups found
released channel: oem_sbt_backup1


RMAN> exit;

Recovery Manager complete.
```

Database | Setup | Preferences | Help | Logout

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Performing Database Recovery Using Disk Backups

To restore a lost data file from a disk backup, perform the following tasks. Note: The **employees** and **departments** tables are both in the **example** tablespace. You will need to perform the following tasks:

- Verify the Data
- Delete a Data File
- Perform a Recovery
- Place the Tablespace Online
- Verify the Recovery

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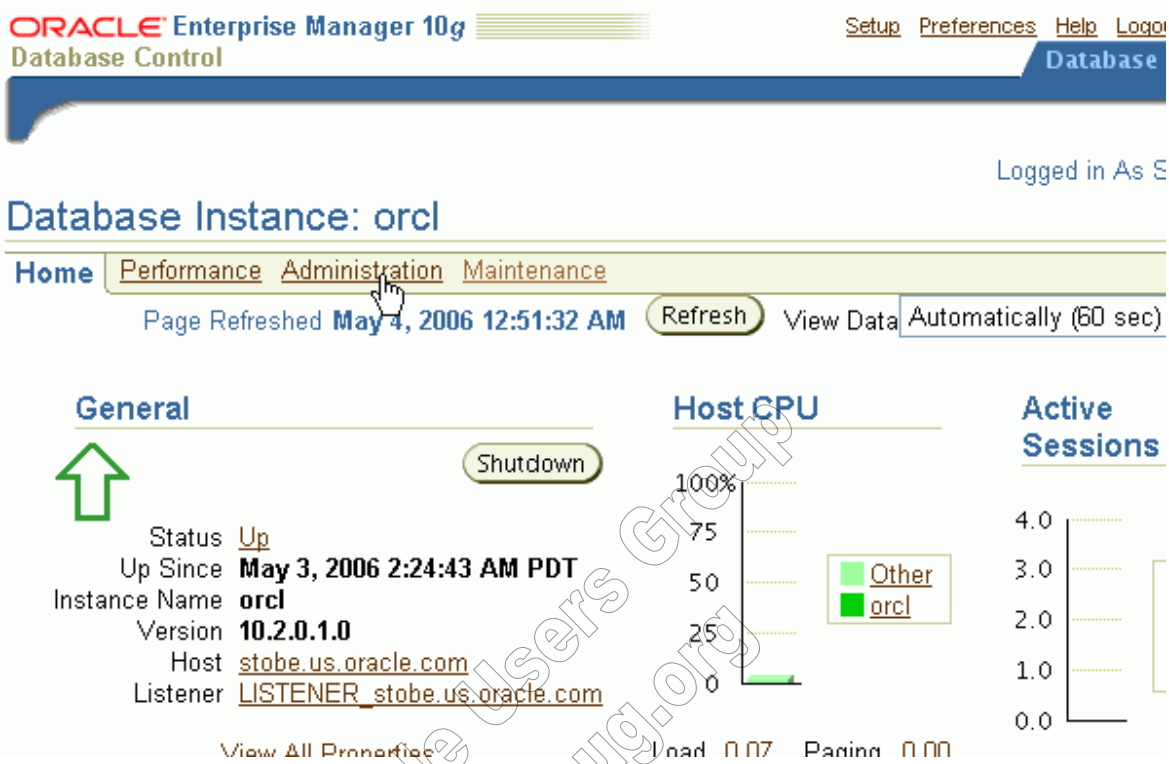
Verify the Data

You first view some data contained in the employees table. Perform the following:

1. From Enterprise Manager, click **Administration** tab.



2. Select **Tables**.

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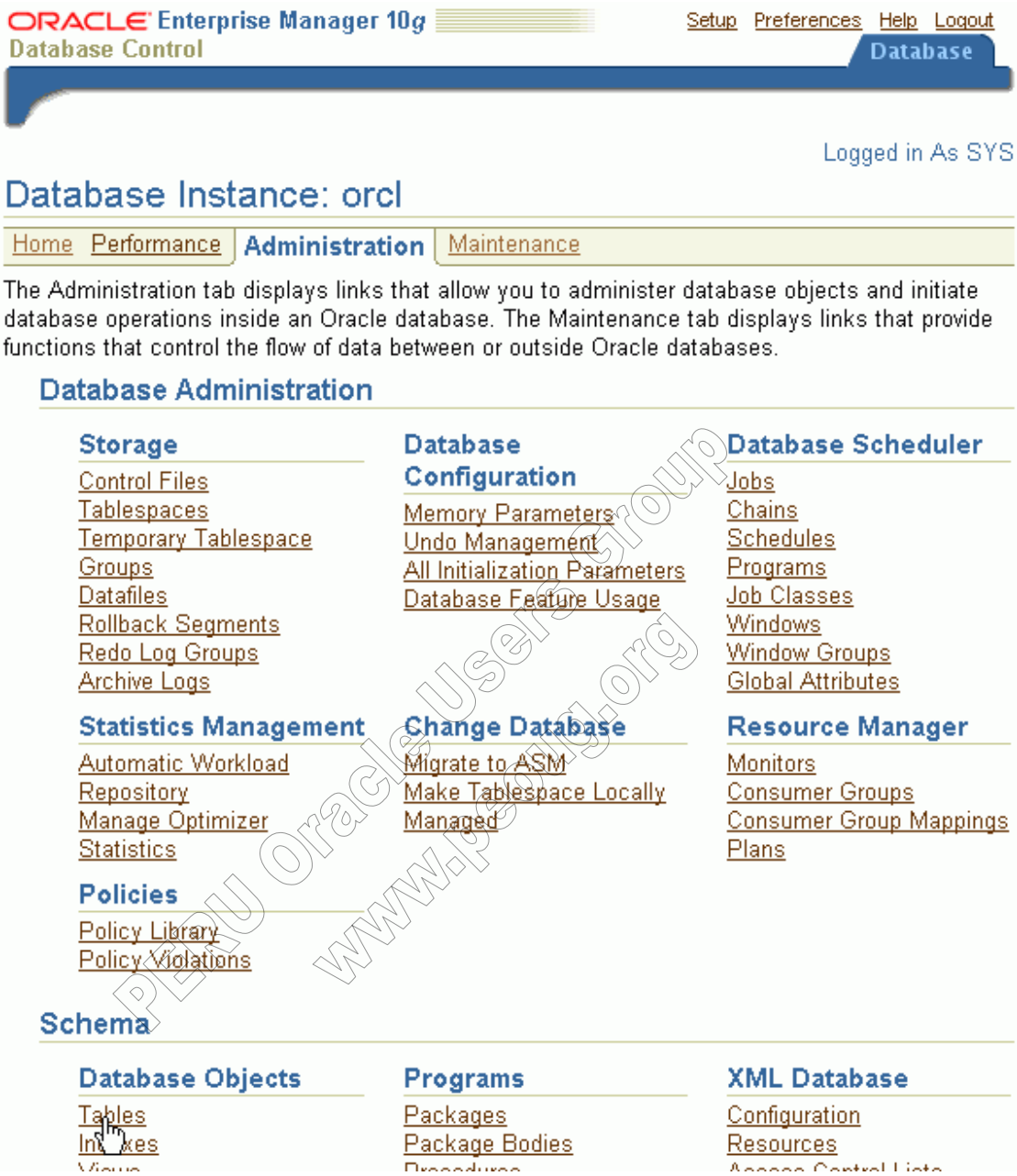

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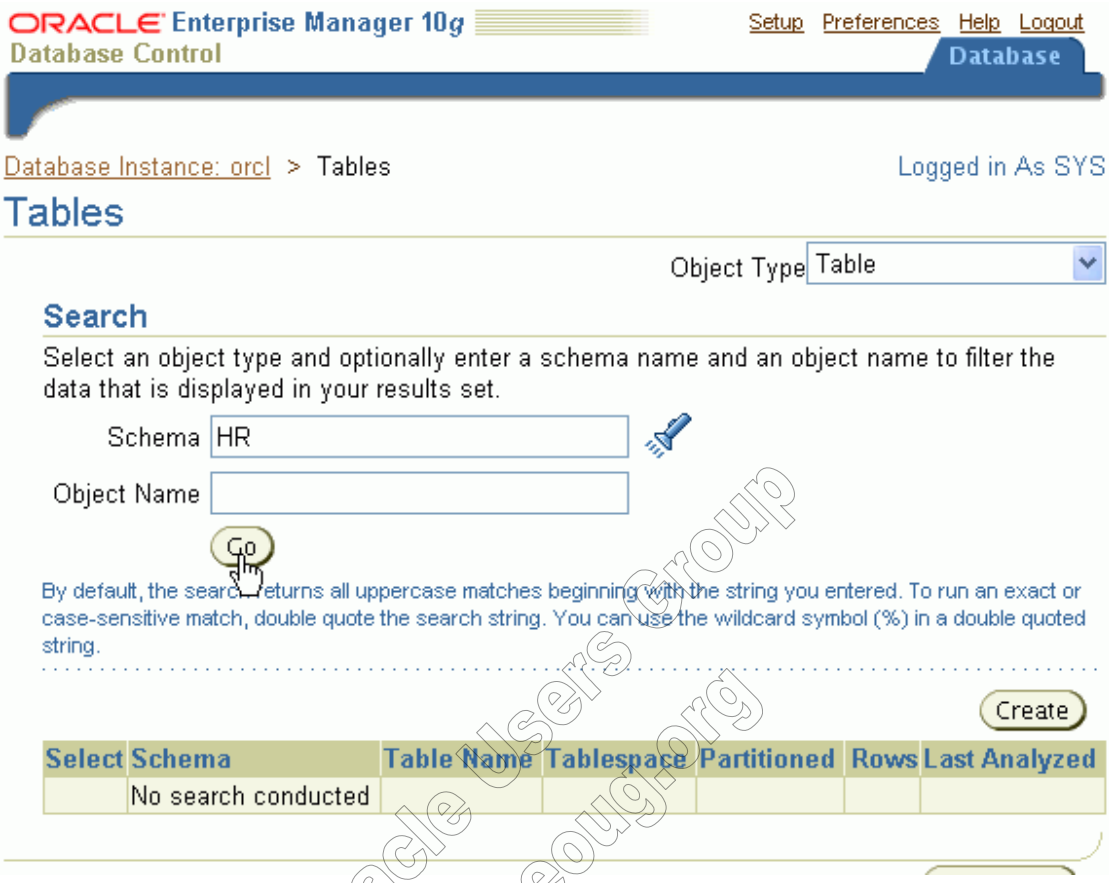
3. Enter **HR** in the Schema field and click **Go**.



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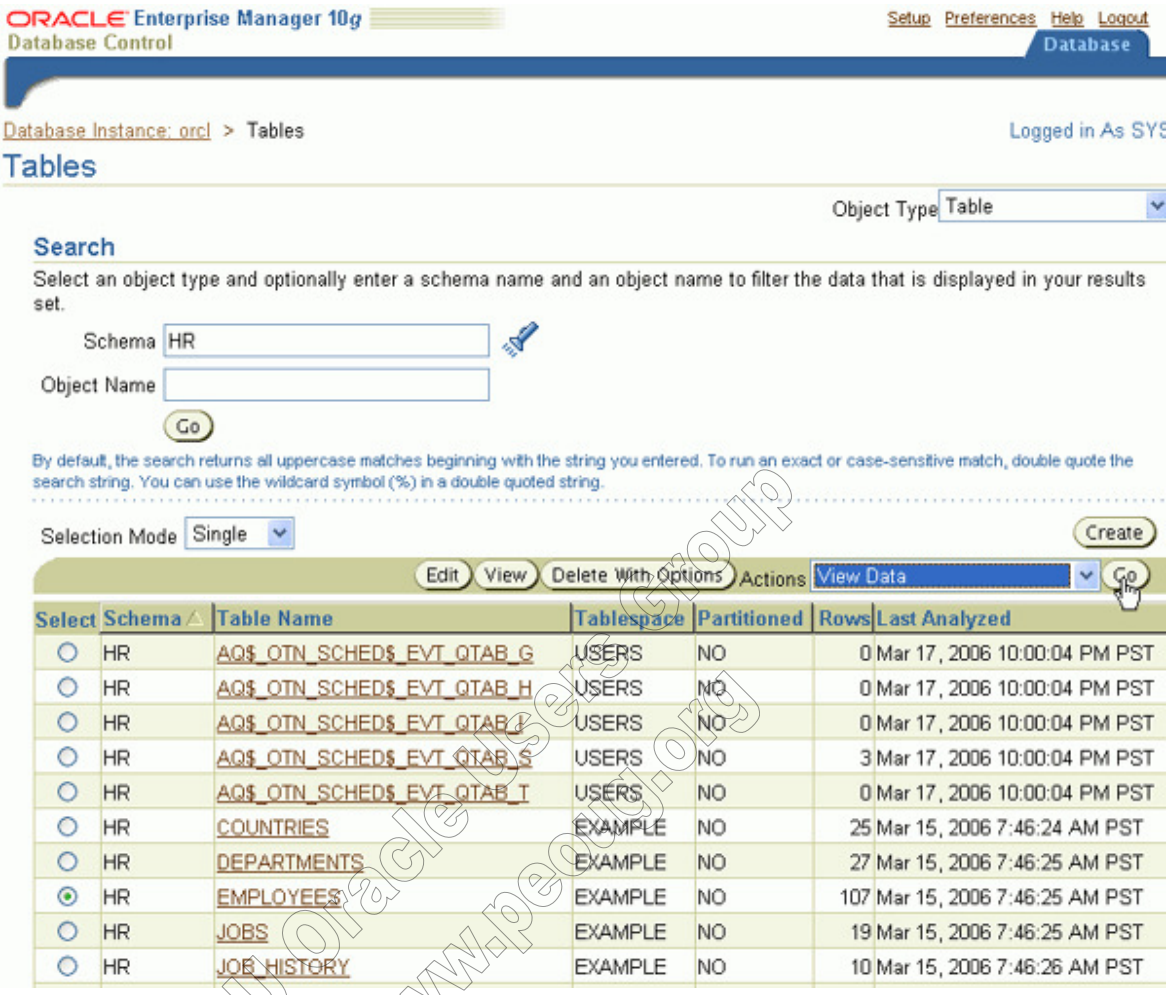
4. Select the **Employees** table, select **View Data** from the list of Actions and click **Go**.



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5. The list of Employees is displayed. Click the **Database** breadcrumb.

ORACLE Enterprise Manager 10g
Database Control

Setup Preferences Help Logout
Database

Database Instance: orcl > Tables > View Data for Table: HR.EMPLOYEES

Logged in As SYS

View Data for Table: HR.EMPLOYEES

Refine Query OK

Query

```
SELECT "EMPLOYEE_ID", "FIRST_NAME", "LAST_NAME", "EMAIL", "PHONE_
NUMBER", "HIRE_DATE", "JOB_ID", "SALARY", "COMMISSION_PCT", "MANAG
ER_ID", "DEPARTMENT_ID" FROM "HR"."EMPLOYEES"
```

Result

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMIS
198	Donald	OConnell	DOCONNEL	650.507.9833	1999-06-21 00:00:00.0	SH_CLERK	2600	
199	Douglas	Grant	DGRANT	650.507.9844	2000-01-13 00:00:00.0	SH_CLERK	2600	
200	Jennifer	Whalen	JWHALEN	515.123.4444	1987-09-17 00:00:00.0	AD_ASST	4400	
201	Michael	Hartstein	MHARTSTE	515.123.5555	1996-02-17 00:00:00.0	MK_MAN	13000	
202	Pat	Fay	PFAY	603.123.6666	1997-08-17 00:00:00.0	MK_REP	6000	
203	Susan	Mavris	SMAVRIS	515.123.7777	1994-06-07 00:00:00.0	HR_REP	6500	
204	Hermann	Baer	HBAER	515.123.8888	1994-06-07 00:00:00.0	PR_REP	10000	
205	Shelley	Higgins	SHIGGINS	515.123.8080	1994-06-07 00:00:00.0	AC_MGR	12000	
206	William	Gietz	WGIETZ	515.123.8181	1994-06-07 00:00:00.0	AC_ACCOUNT	8300	
100	Steven	King	SKING	515.123.4567	1987-06-17 00:00:00.0	AD_PRES	24000	

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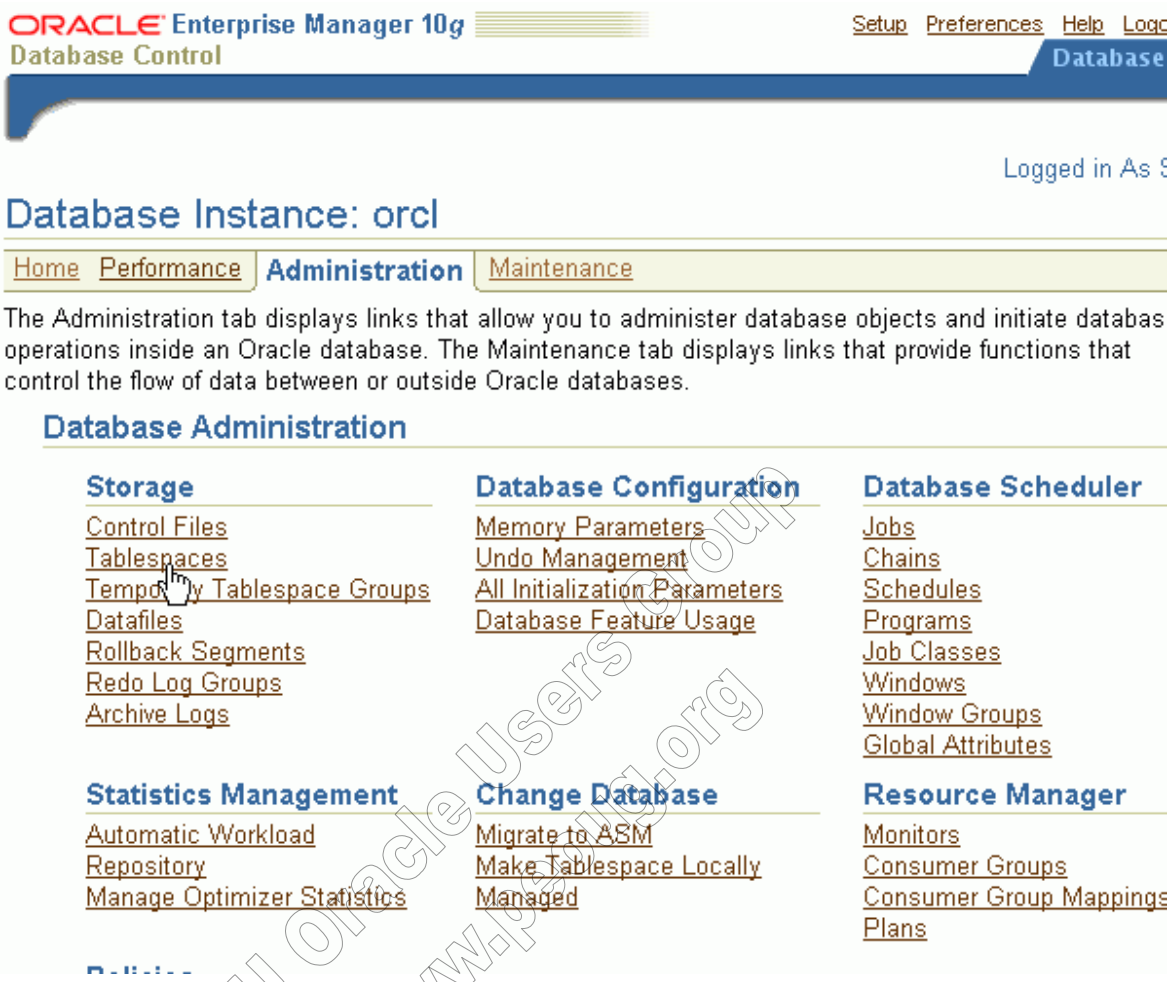
Back to Topic

Delete a Data File

In order to delete a data file, you need to take the tablespace offline, then delete it. Perform the following steps:

1. Select **Tablespaces**.



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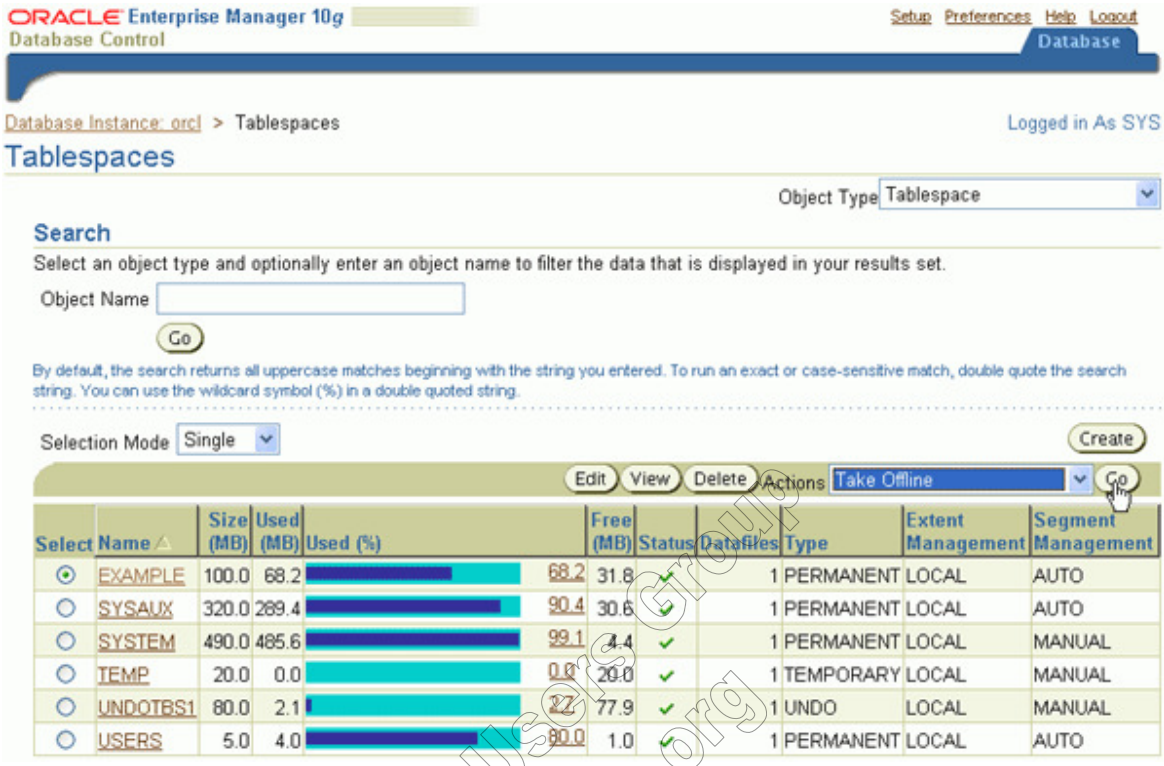
2. Select the **EXAMPLE** tablespace, select **Take Offline** from the list of Actions and click **Go**.



3. Click **Immediate** for the Offline Mode and click **OK**.

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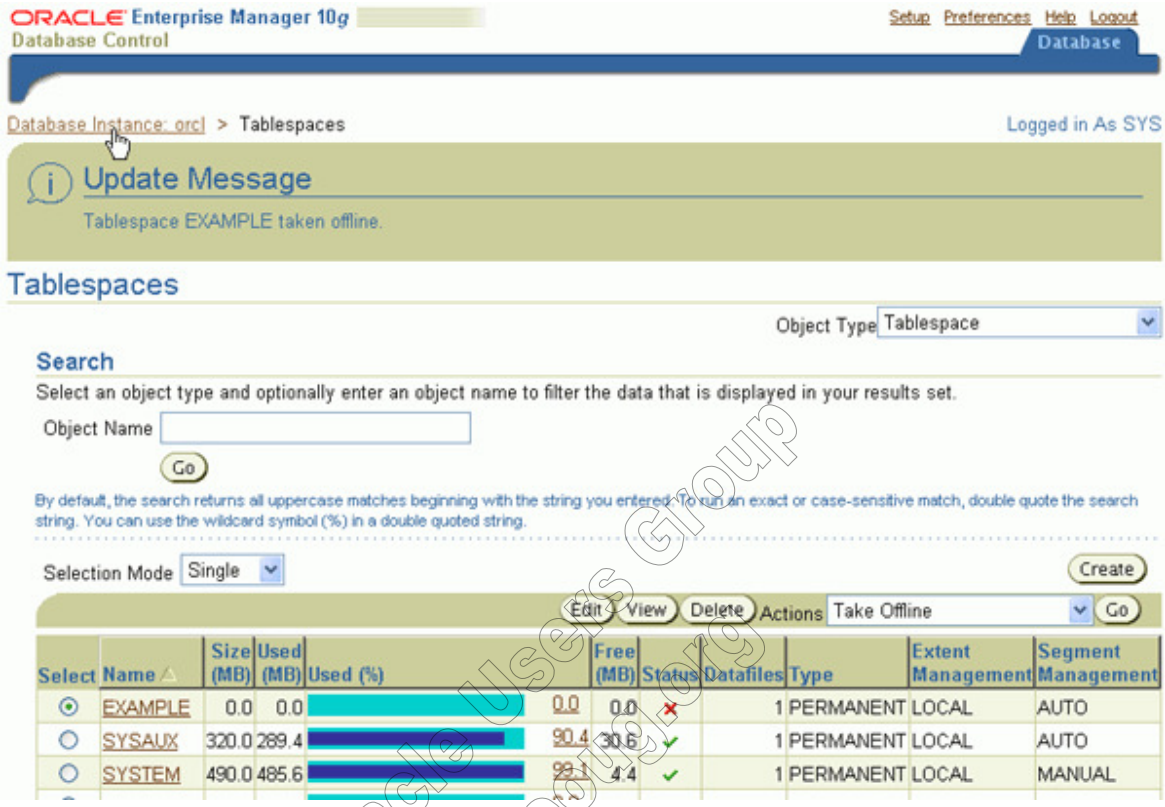
4. Your tablespace is now offline. Click the **Database** link.



5. Since the tablespace is offline, you can now delete the file. Open a teminal window and execute the following commands:

```
cd $ORACLE_BASE/oradata/orcl
rm example01.dbf
```

```
[oracle@stobe orcl]$ rm example01.dbf
[oracle@stobe orcl]$
```

6. You want to verify that the data is not available any longer. Switch back to Enterprise Manager and select the **Tables** link.

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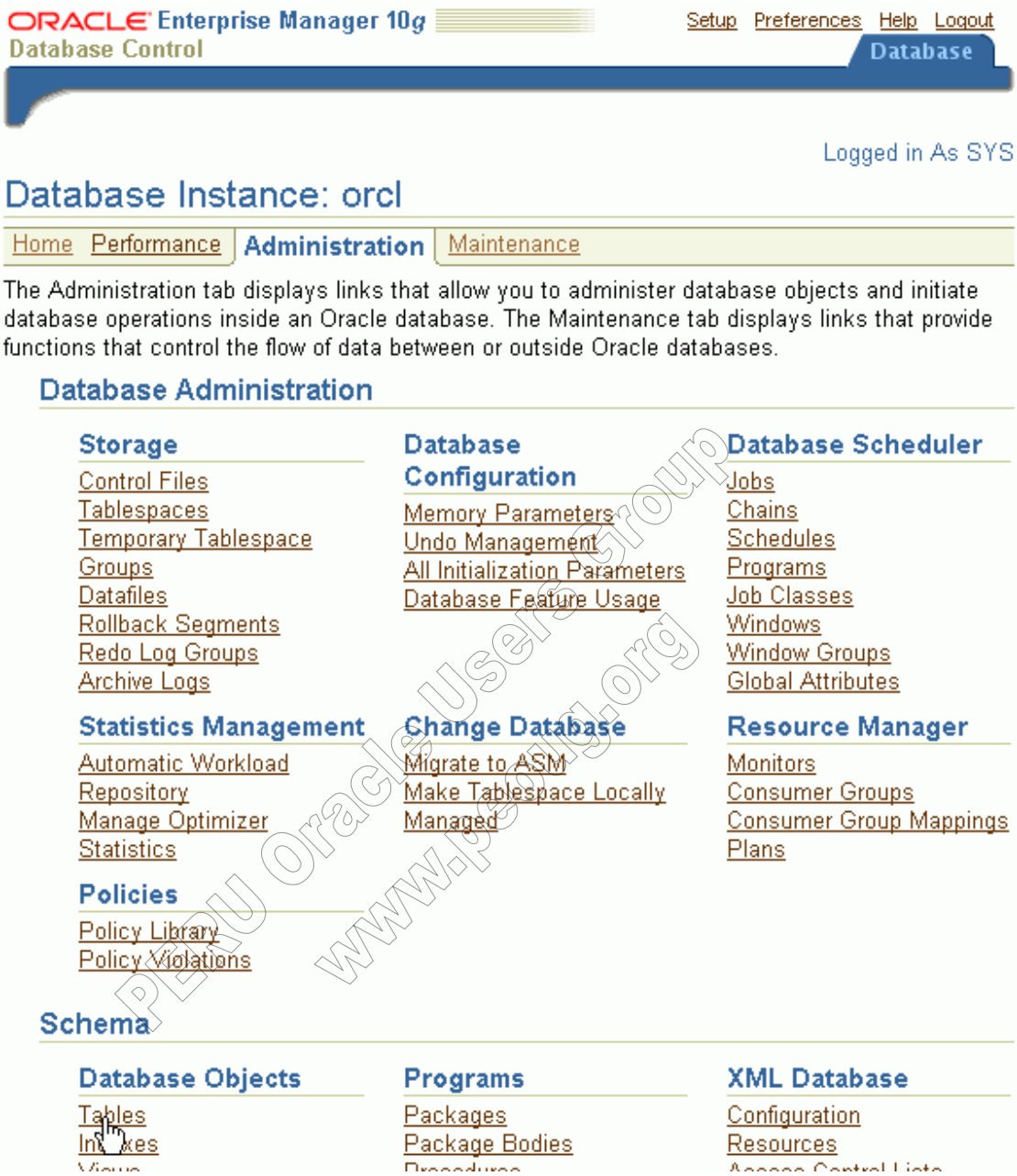

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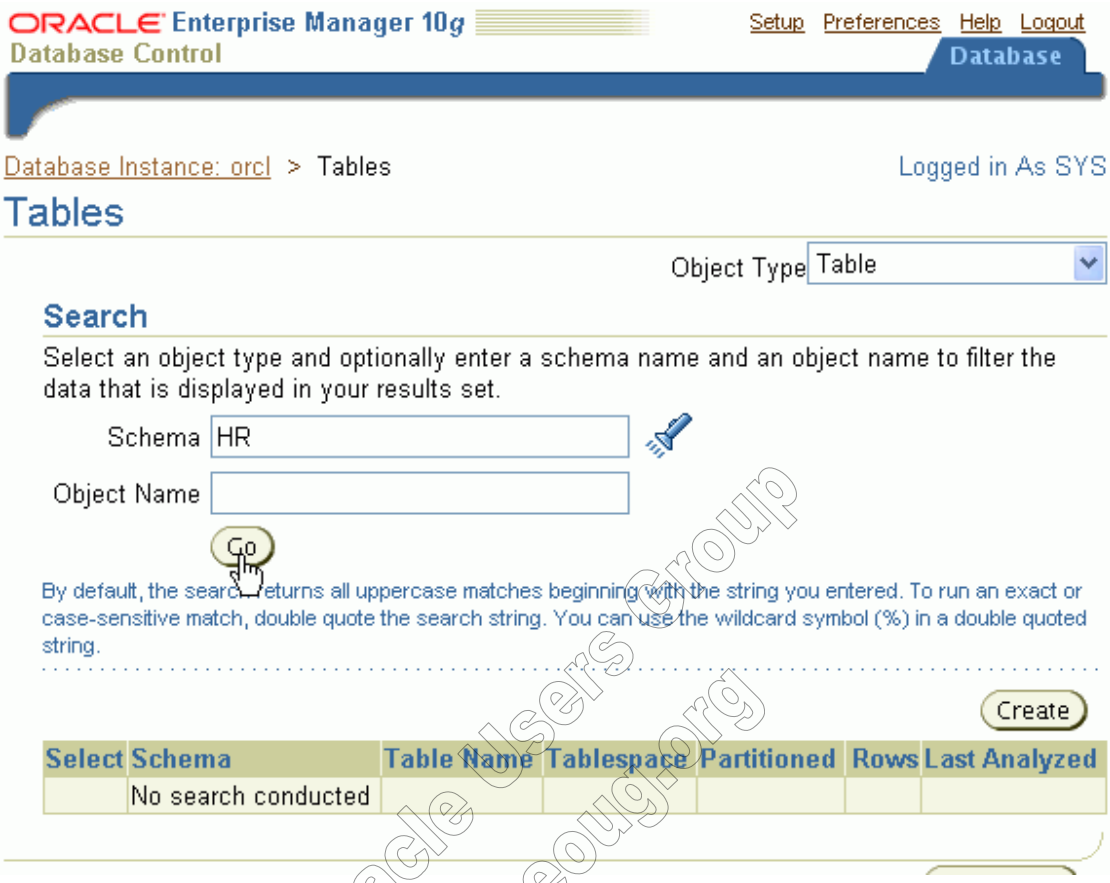
7. Enter **HR** in the Schema field and click **Go**.



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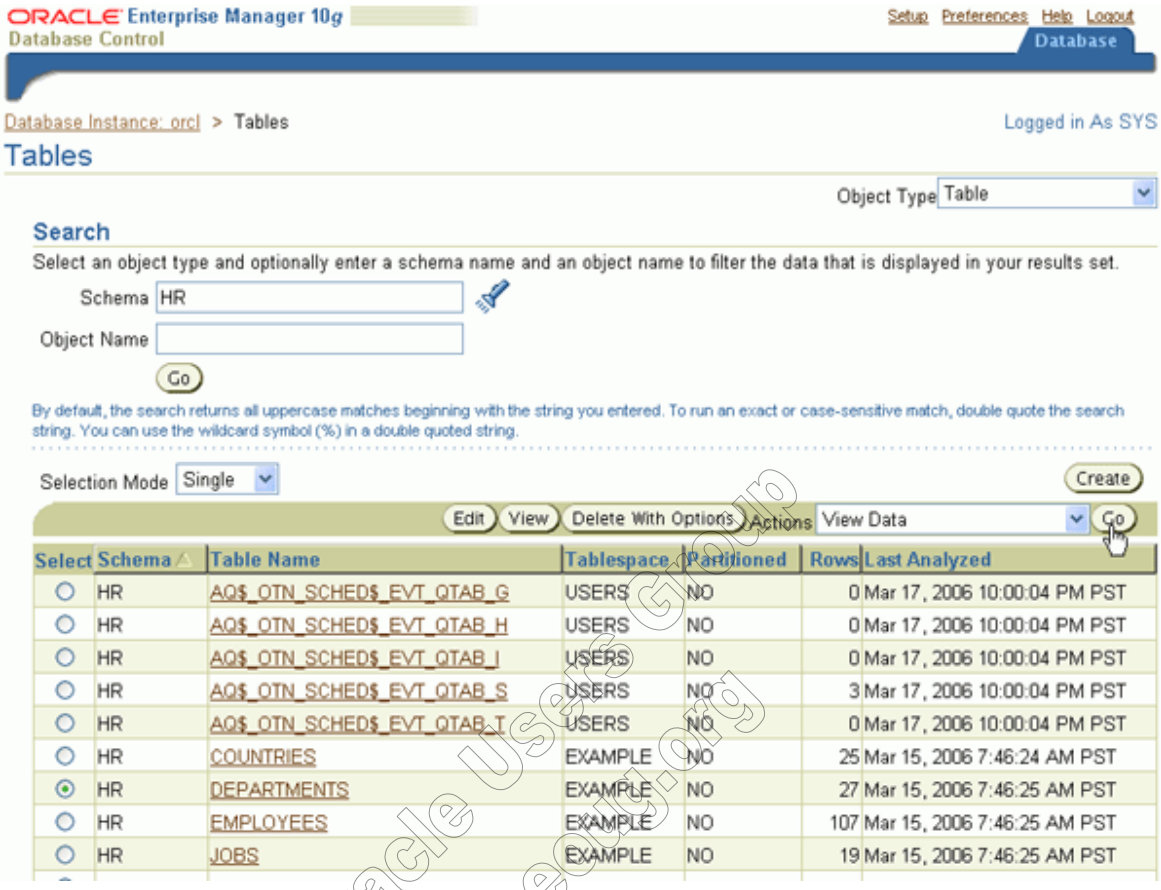
8. Select **Departments**, select **View data** from the list of Actions and click **Go**.



9. Note the I/O error. The data file contents are no longer there. Click the **Database** breadcrumb.

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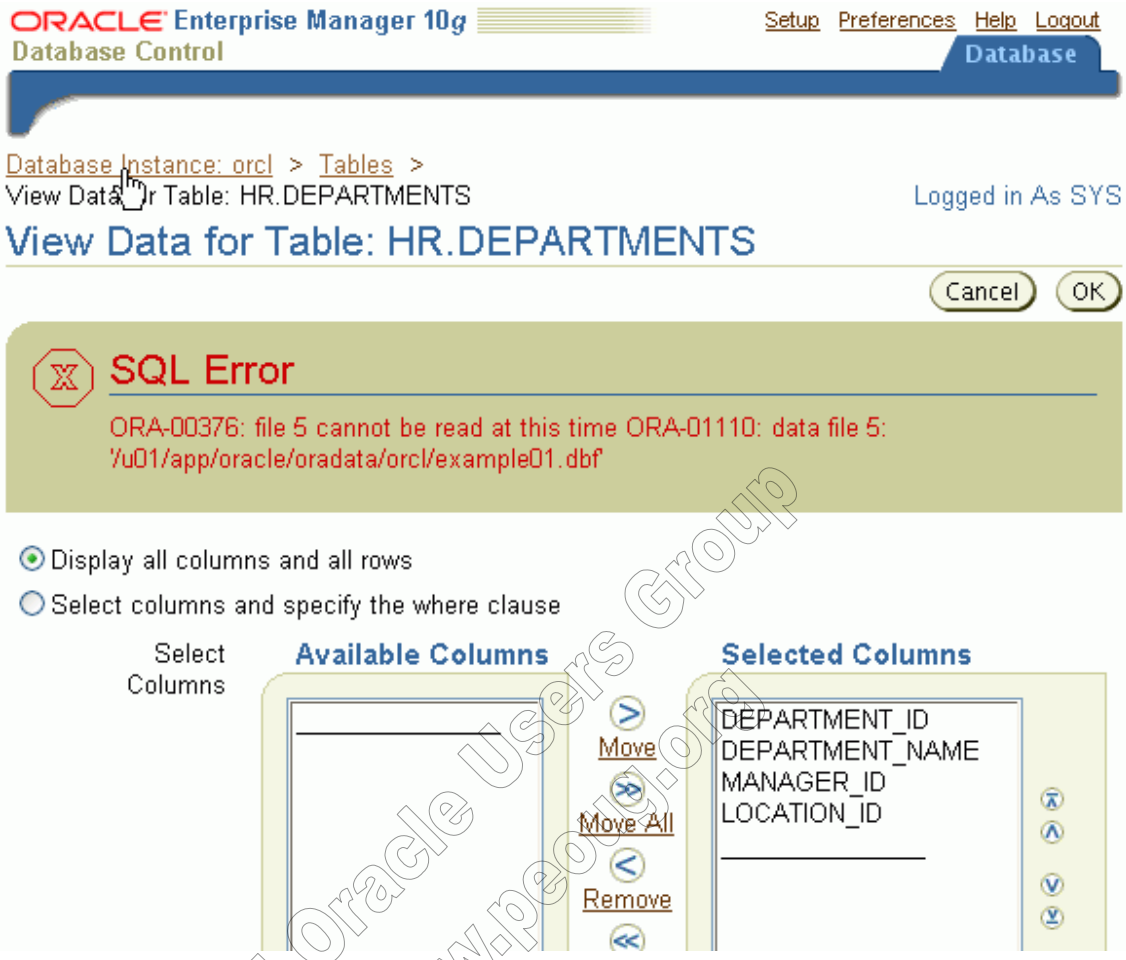

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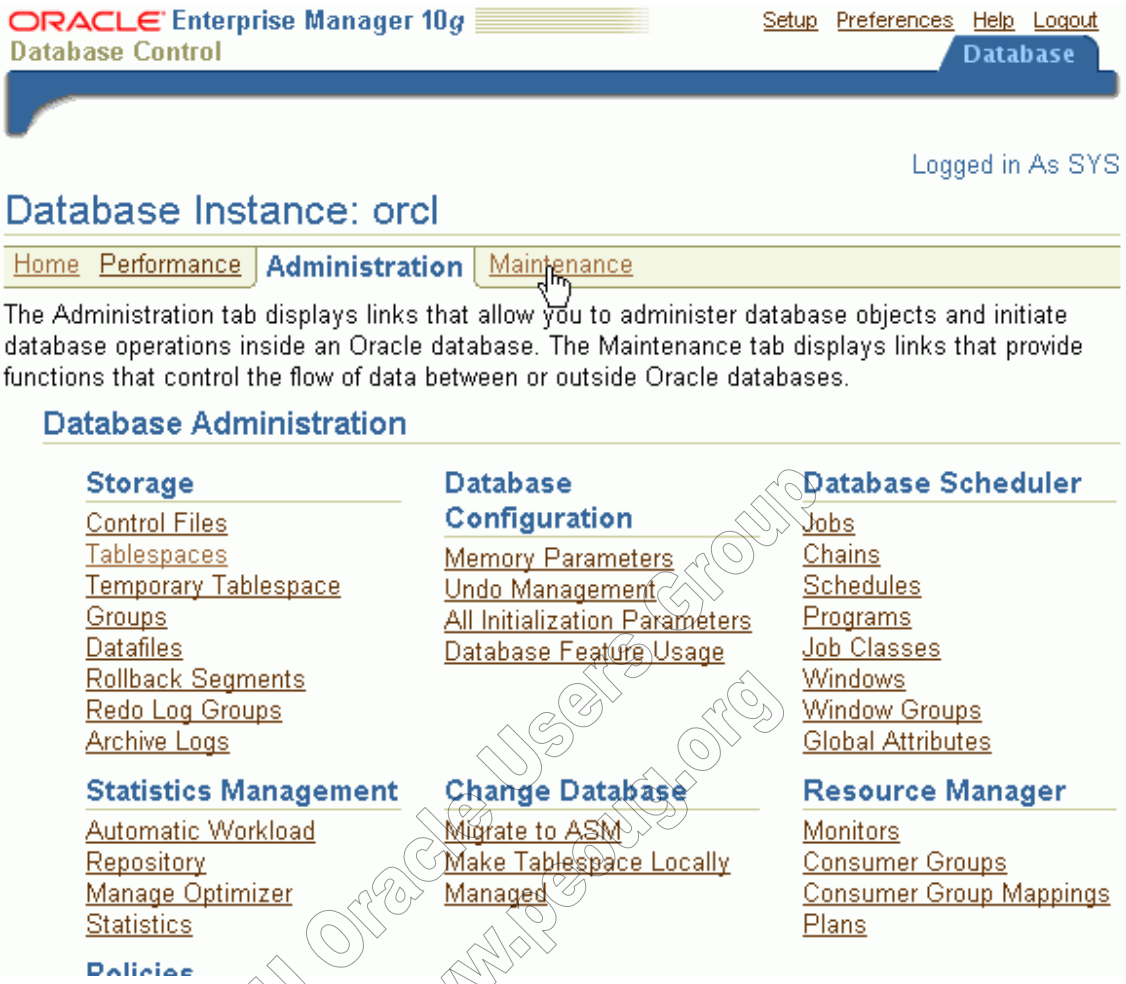
Back to Topic

Perform a Recovery

Now you are ready to perform a recovery of the data file you just deleted. Perform the following steps:

1. Click the **Maintenance** tab.



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2. Under Backup/Recovery, select **Perform Recovery**.

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3. Note the database information stating that there is one data file that needs recovery. Click **Datafiles Need Media Recovery.**

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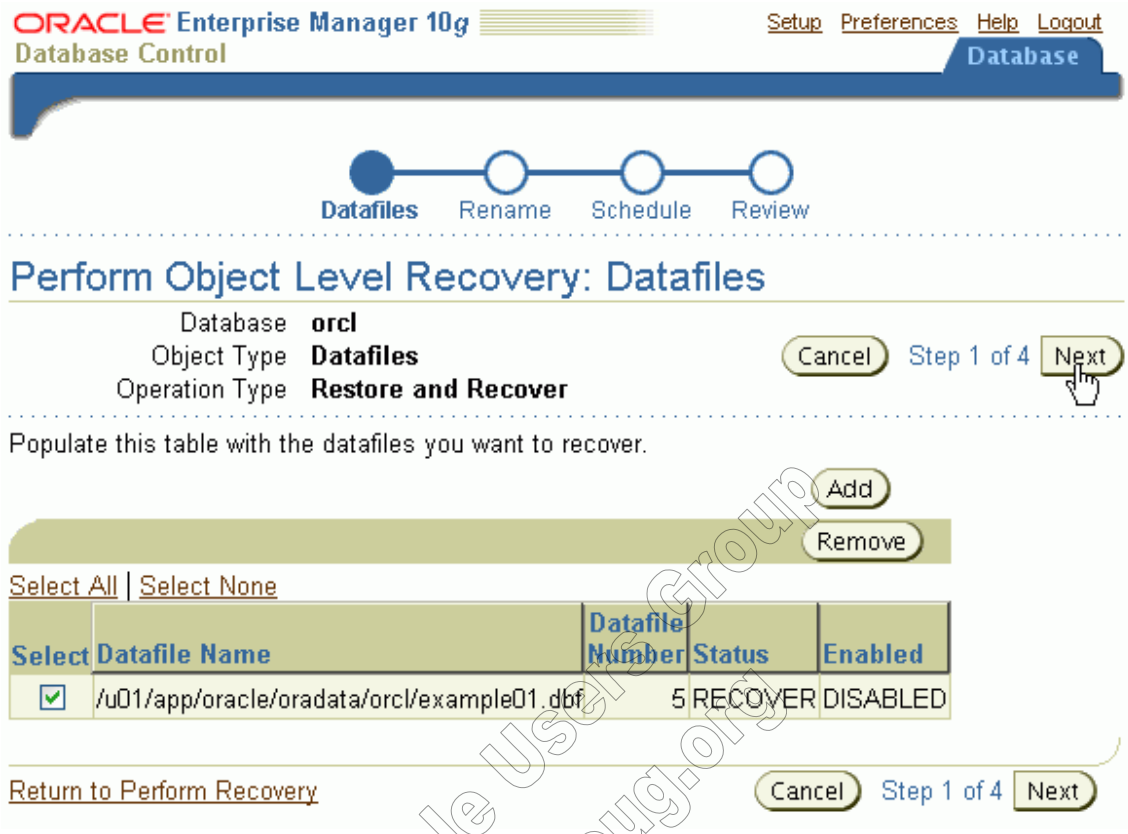
4. The data file to restore is already in the data file list. Click **Next**.



5. Take the default settings for restoring to the default location, and click **Next.**

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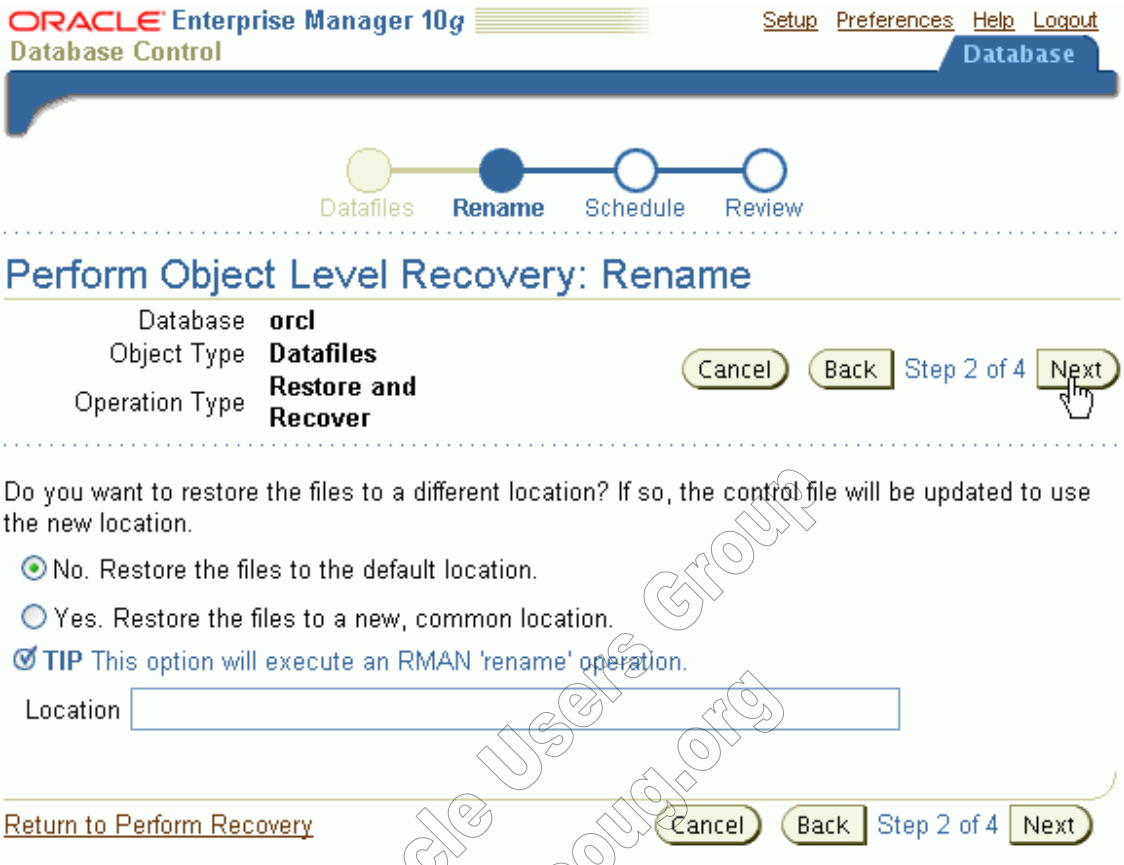

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6. Review the job to be submitted, and note that you can click Edit RMAN Script to view the script that will be run. Click **Submit.**

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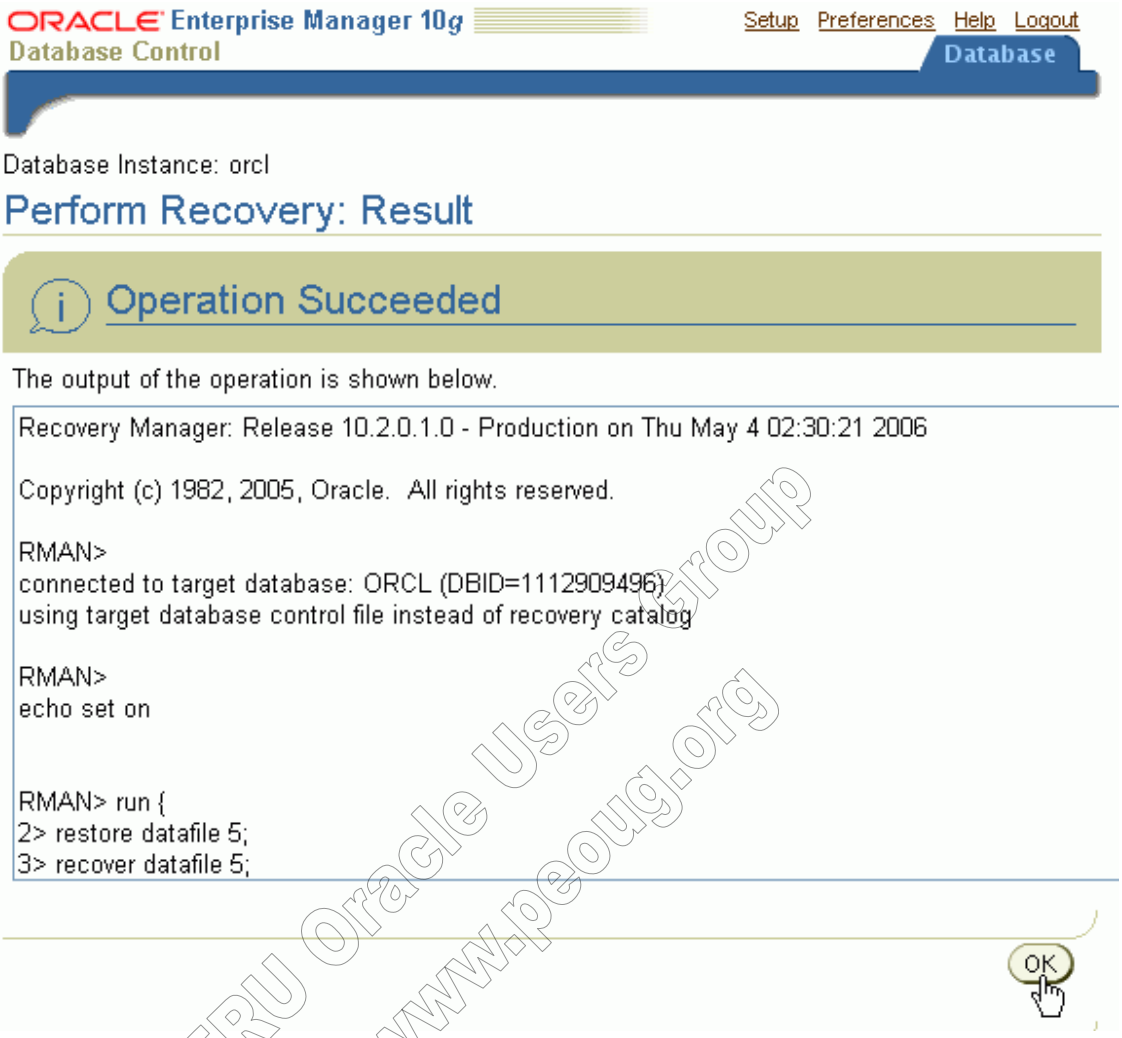
7. The browser continues to poll for status on the restore request. After about a minute, an "Operation Succeeded" message appears, at which point you should click **OK.**



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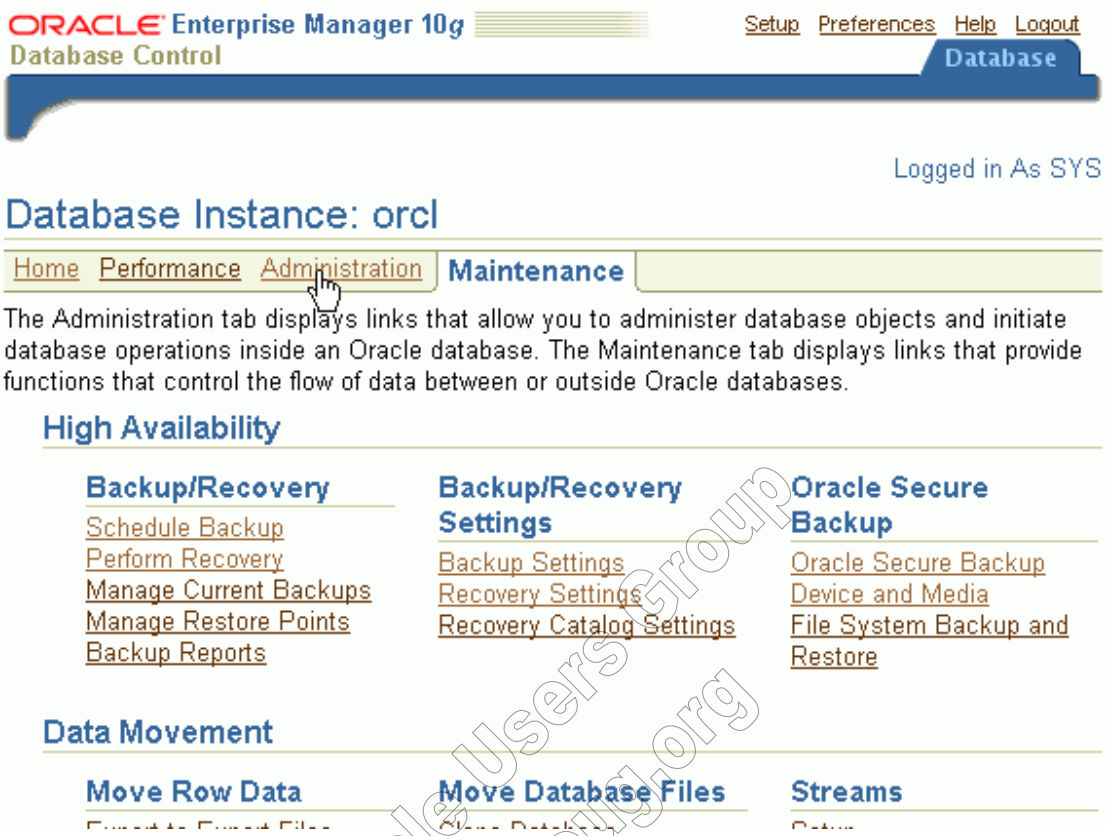
Place the Tablespace Online

Before you can access the data in the restored data file, you need to put the tablespace back online. Perform the following steps:

1. Click the **Administration** tab.



2. Click **Tablespaces**.

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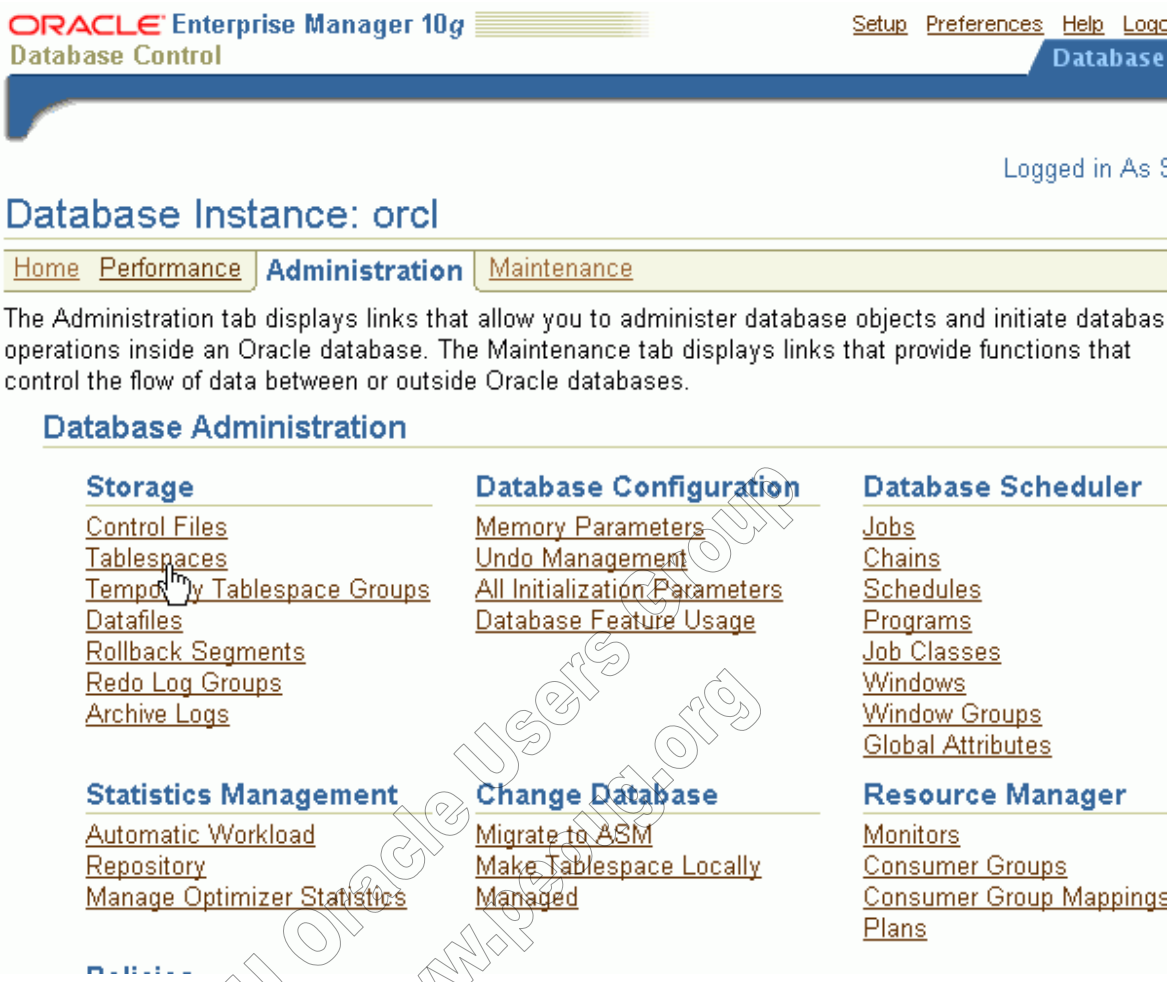

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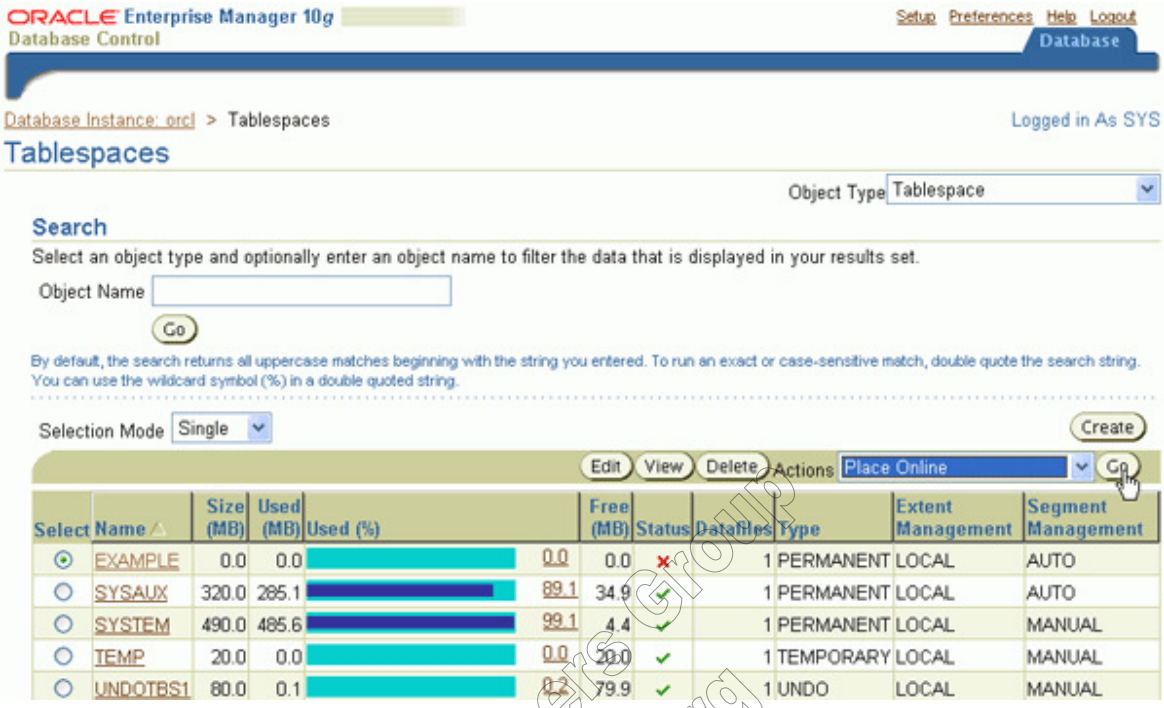
3. Select the **EXAMPLE** tablespace and select **Place Online** in the list of Actions, then click **Go**.



4. Click **Yes** to confirm.

5. Your data file for the EXAMPLE tablespace has been placed online again. Click the **Database** breadcrumb.

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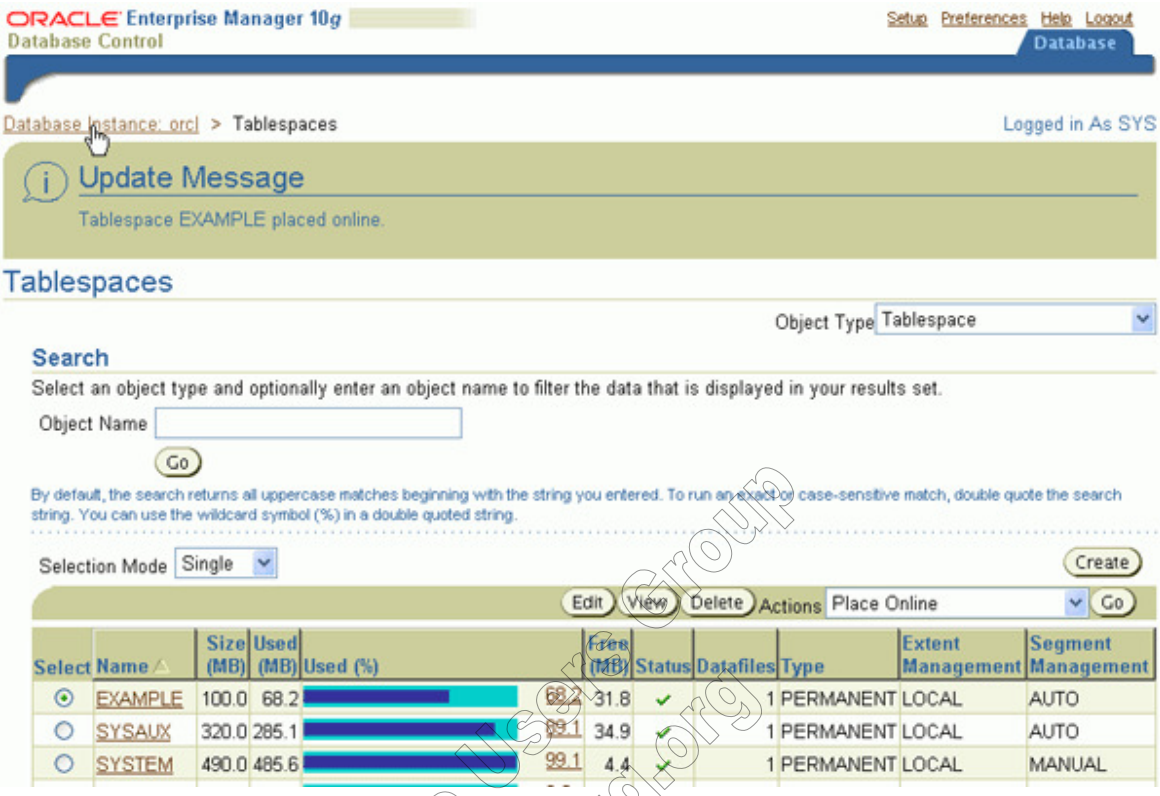

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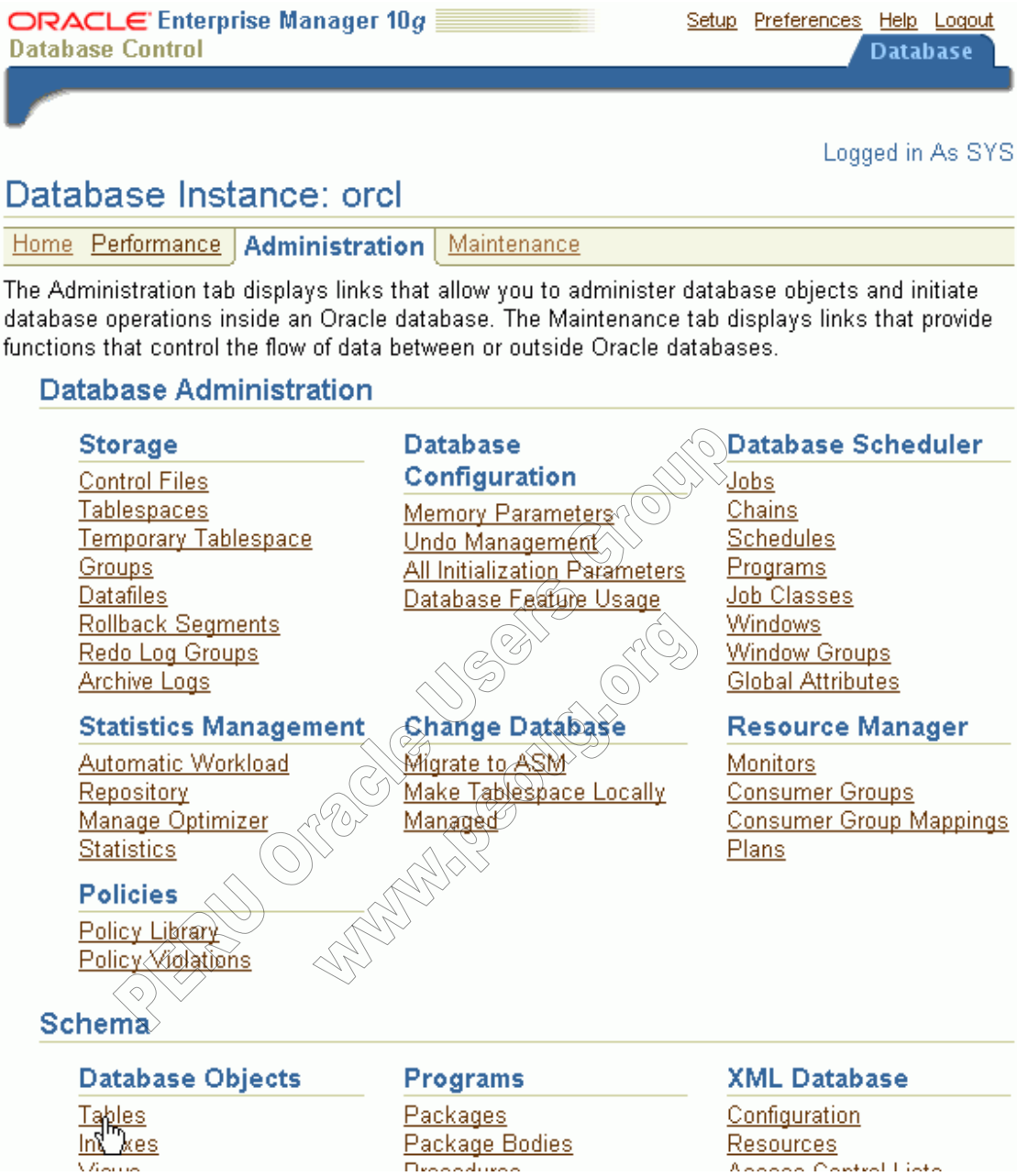
Verify Recovery

You can now verify that the data contained in the employees table has been recovered. Perform the following:

1. Select **Tables**.



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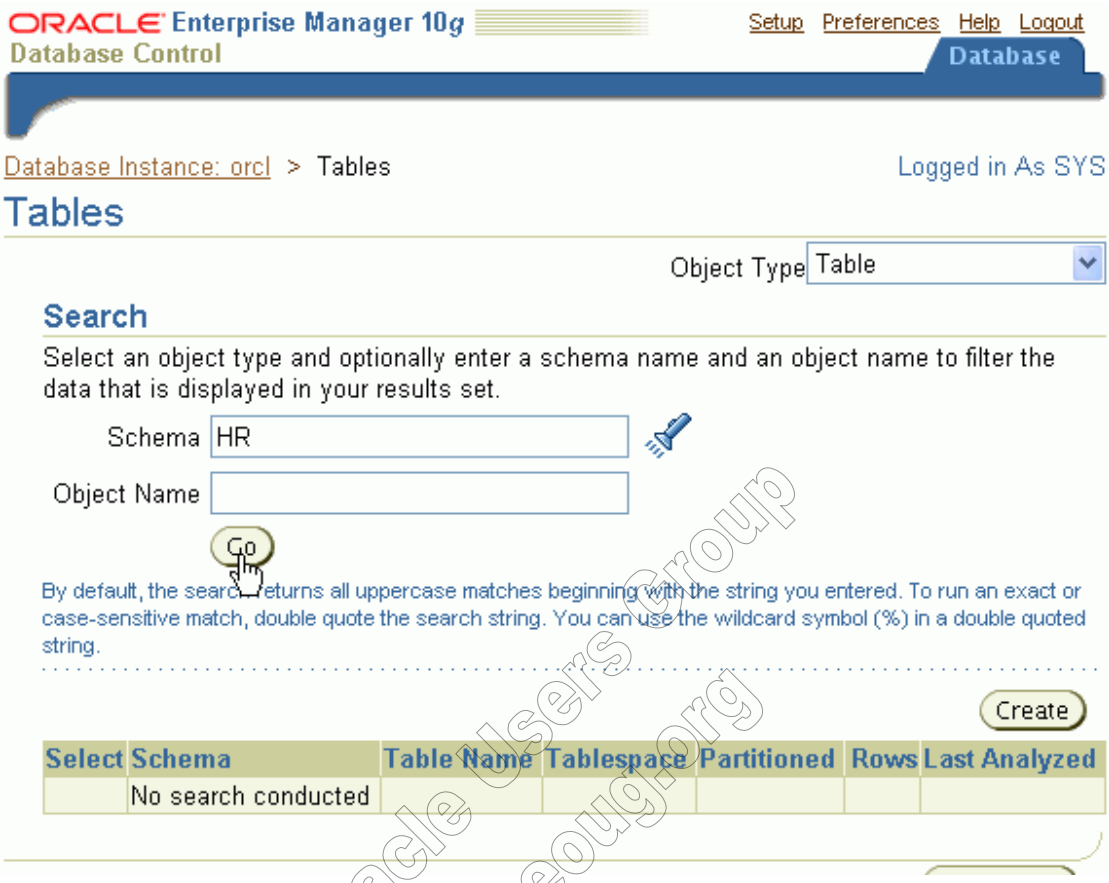
2. Enter **HR** in the Schema field and click **Go**.



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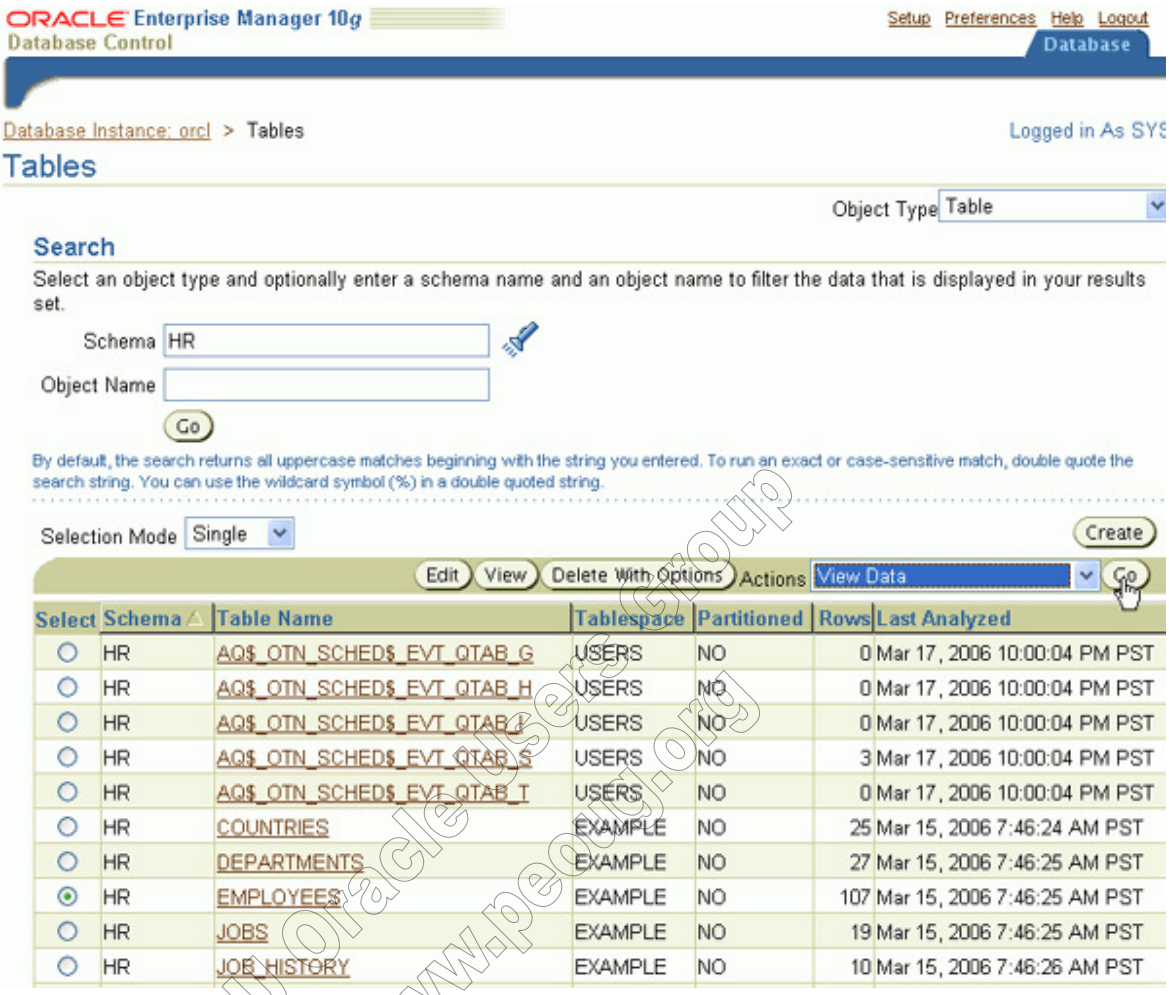
3. Select the **Employees** table, select **View Data** from the list of Actions and click **Go**.



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4. The list of Employees is displayed. Click the **Database** breadcrumb.

ORACLE Enterprise Manager 10g
Database Control

Setup Preferences Help Logout
Database

Database Instance: orcl > Tables > View Data for Table: HR.EMPLOYEES

Logged in As SYS

View Data for Table: HR.EMPLOYEES

Refine Query OK

Query

```
SELECT "EMPLOYEE_ID", "FIRST_NAME", "LAST_NAME", "EMAIL", "PHONE_
NUMBER", "HIRE_DATE", "JOB_ID", "SALARY", "COMMISSION_PCT", "MANAG
ER_ID", "DEPARTMENT_ID" FROM "HR"."EMPLOYEES"
```

Result

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMIS
198	Donald	OConnell	DOCONNEL	650.507.9833	1999-06-21 00:00:00.0	SH_CLERK	2600	
199	Douglas	Grant	DGRANT	650.507.9844	2000-01-13 00:00:00.0	SH_CLERK	2600	
200	Jennifer	Whalen	JWHALEN	515.123.4444	1987-09-17 00:00:00.0	AD_ASST	4400	
201	Michael	Hartstein	MHARTSTE	515.123.5555	1996-02-17 00:00:00.0	MK_MAN	13000	
202	Pat	Fay	PFAY	603.123.6666	1997-08-17 00:00:00.0	MK_REP	6000	
203	Susan	Mavris	SMAVRIS	515.123.7777	1994-06-07 00:00:00.0	HR_REP	6500	
204	Hermann	Baer	HBAER	515.123.8888	1994-06-07 00:00:00.0	PR_REP	10000	
205	Shelley	Higgins	SHIGGINS	515.123.8080	1994-06-07 00:00:00.0	AC_MGR	12000	
206	William	Gietz	WGIETZ	515.123.8181	1994-06-07 00:00:00.0	AC_ACCOUNT	8300	
100	Steven	King	SKING	515.123.4567	1987-06-17 00:00:00.0	AD_PRES	24000	

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Back to Topic

Performing Database Recovery Using Tape Backups

To restore a lost data file from a tape backup, you need to delete the data file AND the backup of the data file. Perform the following tasks:

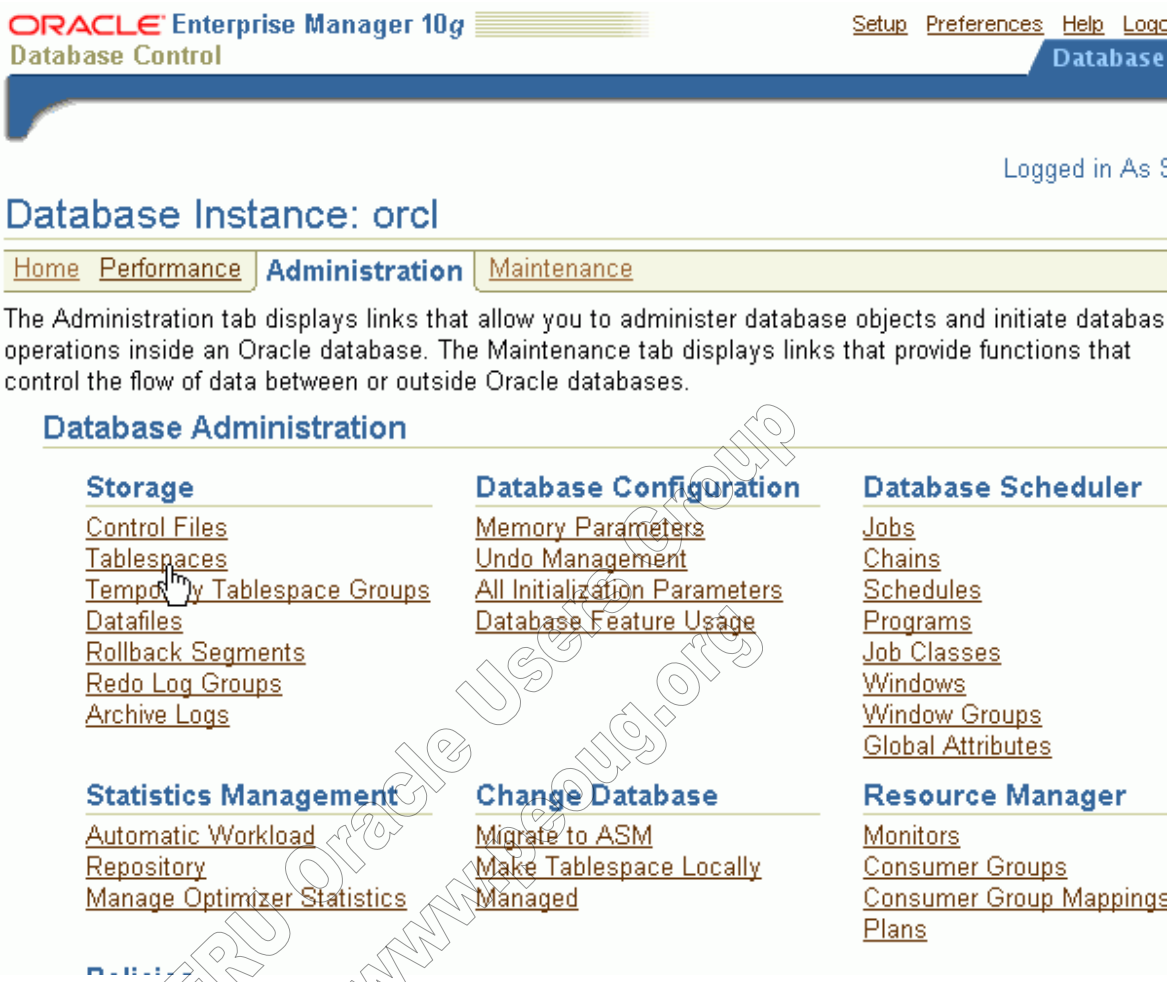
- Delete a Data File
- Delete a Backup Data File
- Perform a Recovery
- Place the Tablespace Online
- Verify Recovery

Back to Topic List

Delete a Data File

In order to delete a data file, you need to take the tablespace offline, then delete it. Perform the following steps:

1. Select **Tablespaces**.



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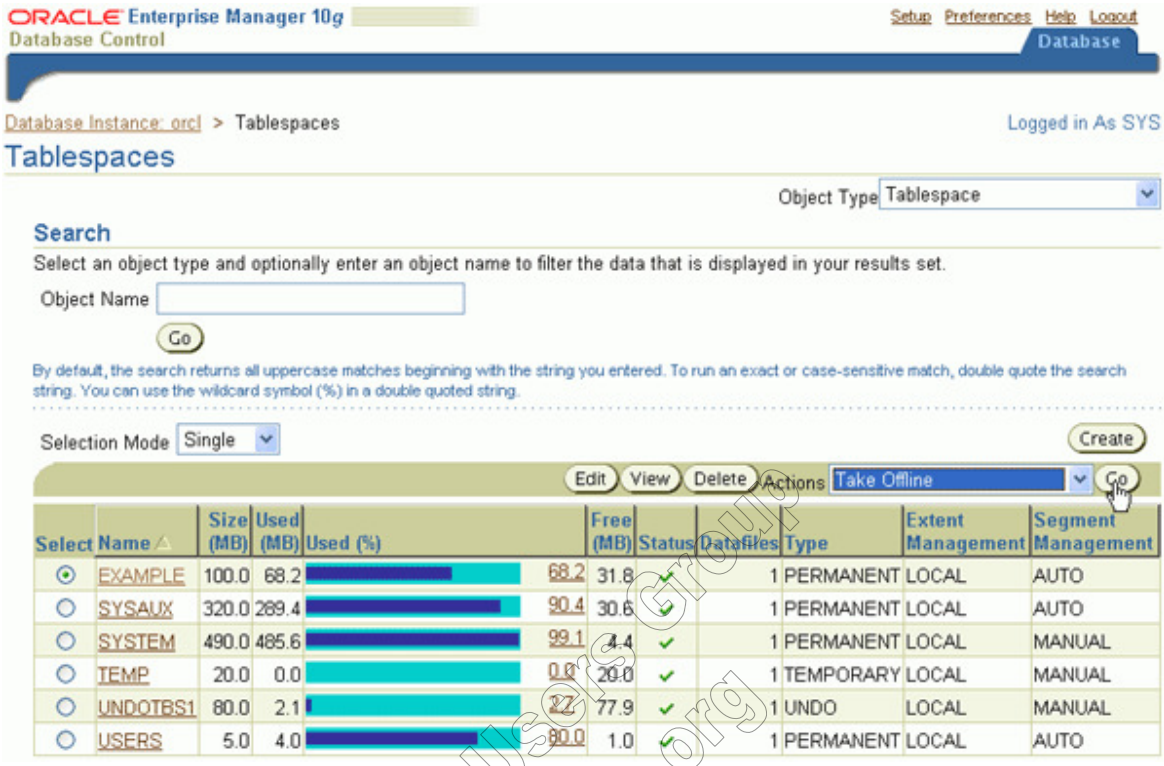
2. Select the **EXAMPLE** tablespace, select **Take Offline** from the list of Actions and click **Go**.



3. Click **Immediate** for the Offline Mode and click **OK**.

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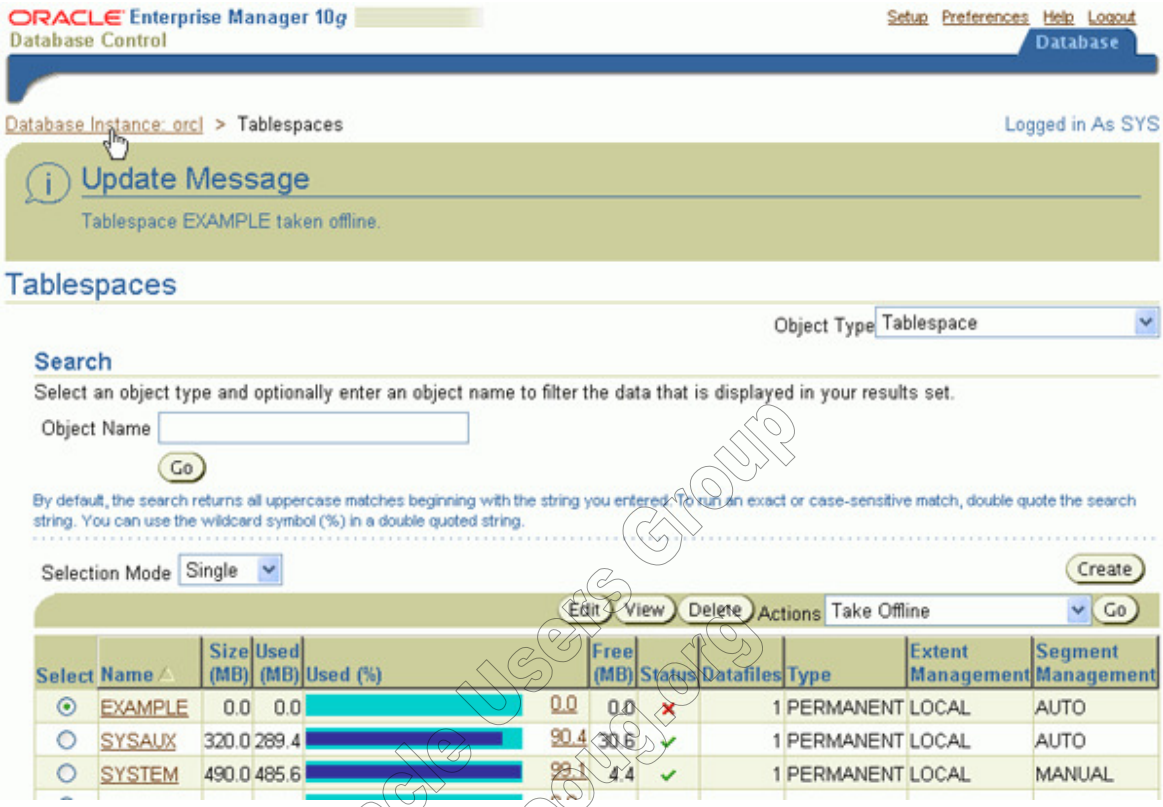
4. Your tablespace is now offline. Click the **Database** link.



5. Since the tablespace is offline, you can now delete the file. Open a teminal window and execute the following commands:

```
cd $ORACLE_BASE/oradata/orcl
rm example01.dbf
```

```
[oracle@stobe orcl]$ rm example01.dbf
[oracle@stobe orcl]$
```

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Back to Topic

Delete a Backup Data File

When you perform recovery of the database, RMAN will choose the fastest recovery method. Because there are data file image copies available on disk, RMAN chooses to use those files instead of restoring the file from the tape backup. In order to demonstrate recovery of a data file from tape, you need to first delete the backup of the data file stored on disk. The backup is in the Flash Recovery Area. Perform the following steps:

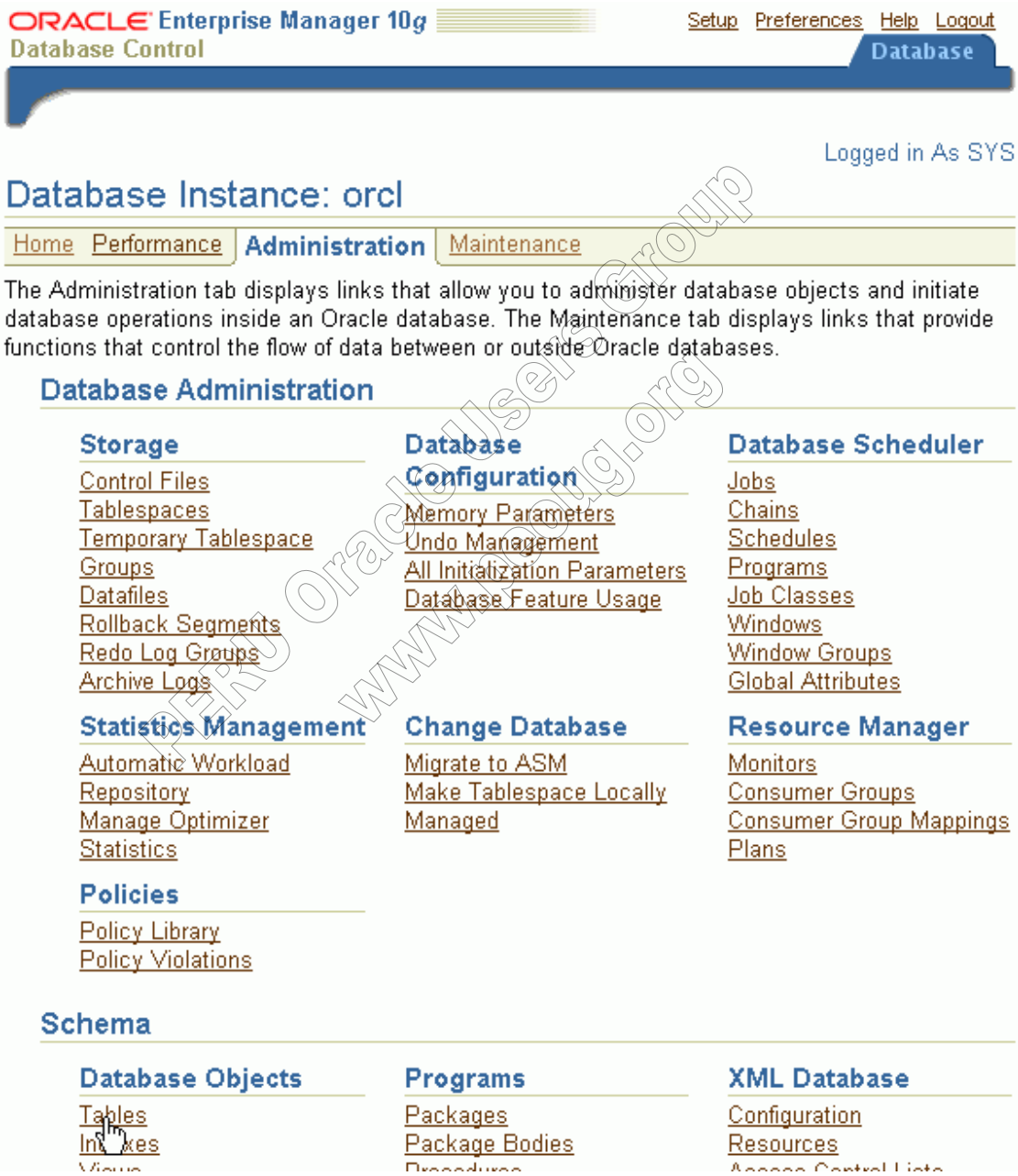
1. Switch to your terminal window and execute the following commands:

```
cd $ORACLE_BASE/flash_recovery_area/ORCL/datafile
```

```
rm *example*.dbf
```

```
[oracle@stobe datafile]$ rm *example*.dbf
[oracle@stobe datafile]$
```

2. You want to verify that the data is not available any longer. Switch back to Enterprise Manager and select the **Tables** link.



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3. Enter **HR** in the Schema field and click **Go**.

4. Select **Departments**, select **View data** from the list of Actions and click **Go**.

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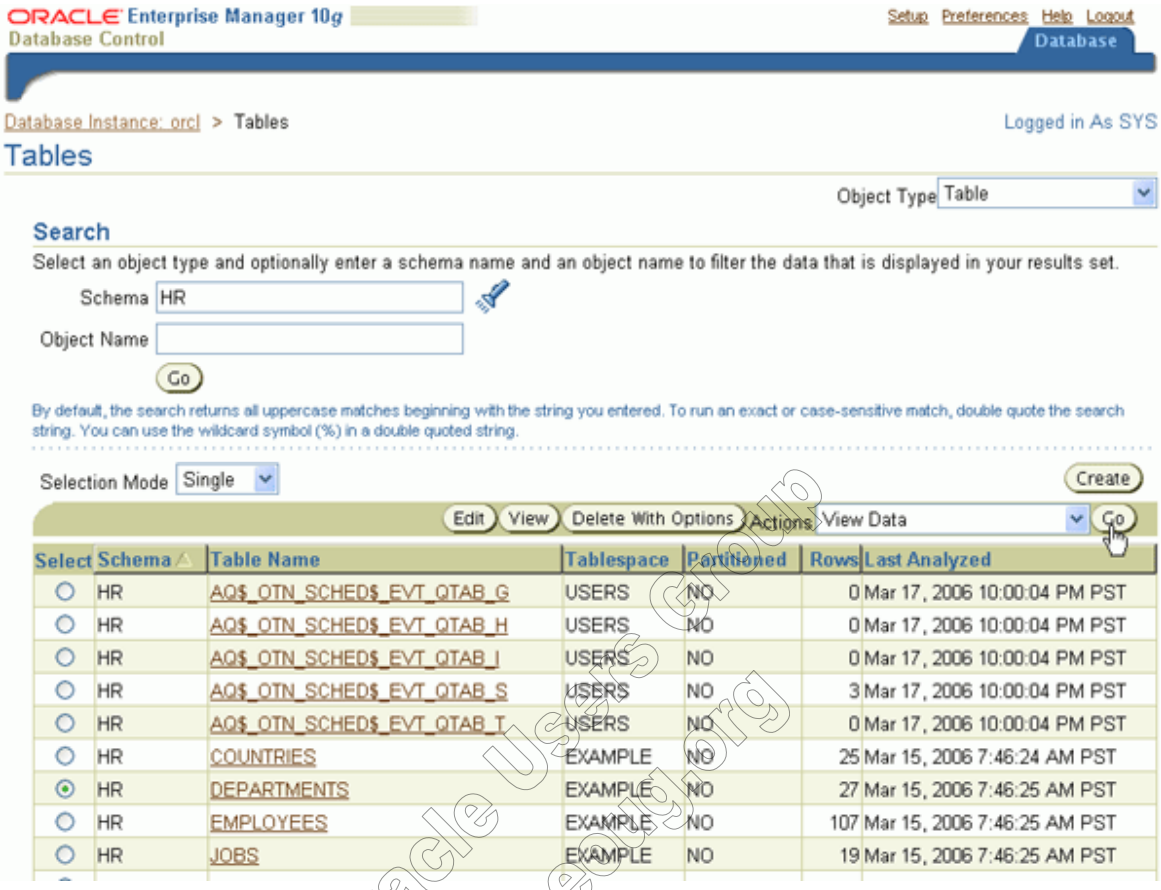

5. Note the I/O error. The data file contents are no longer there. Click the **Database** breadcrumb.

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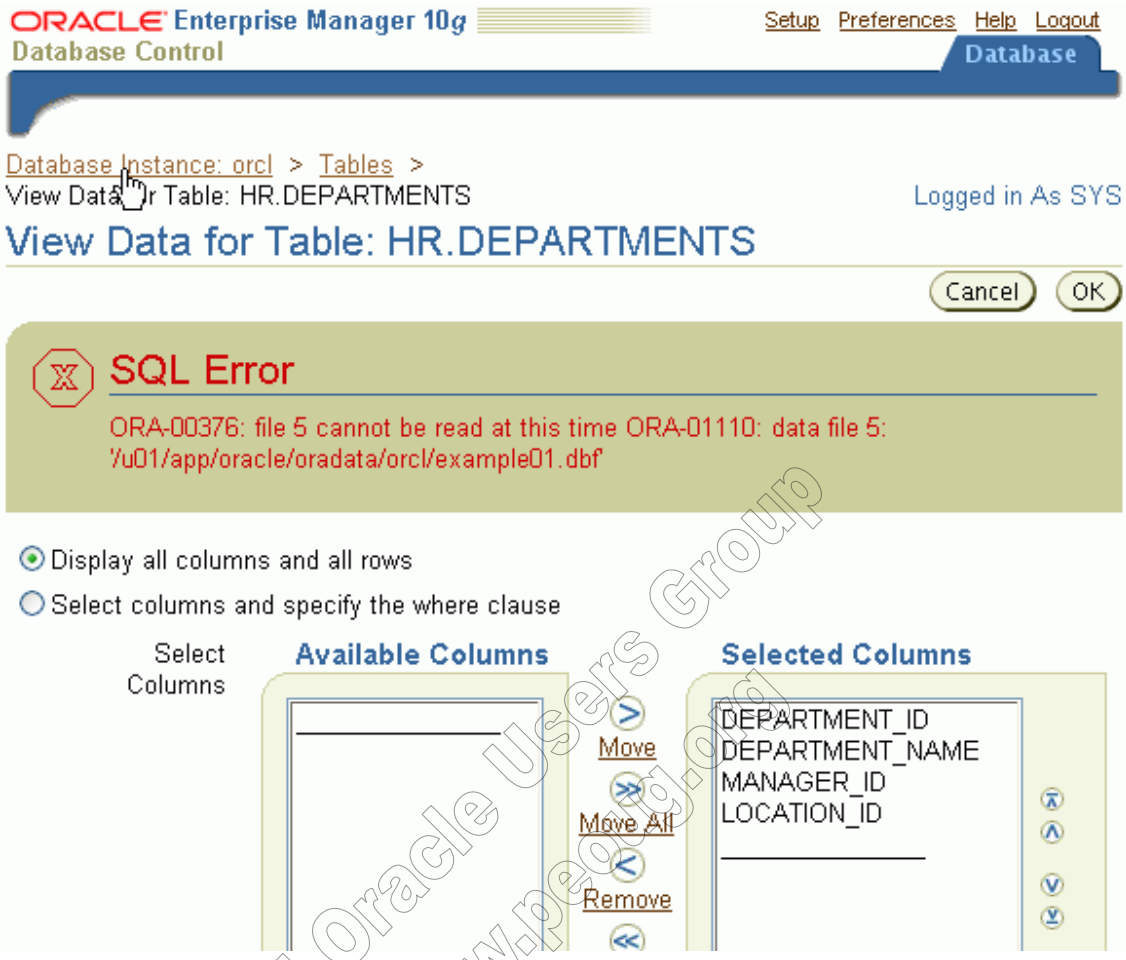

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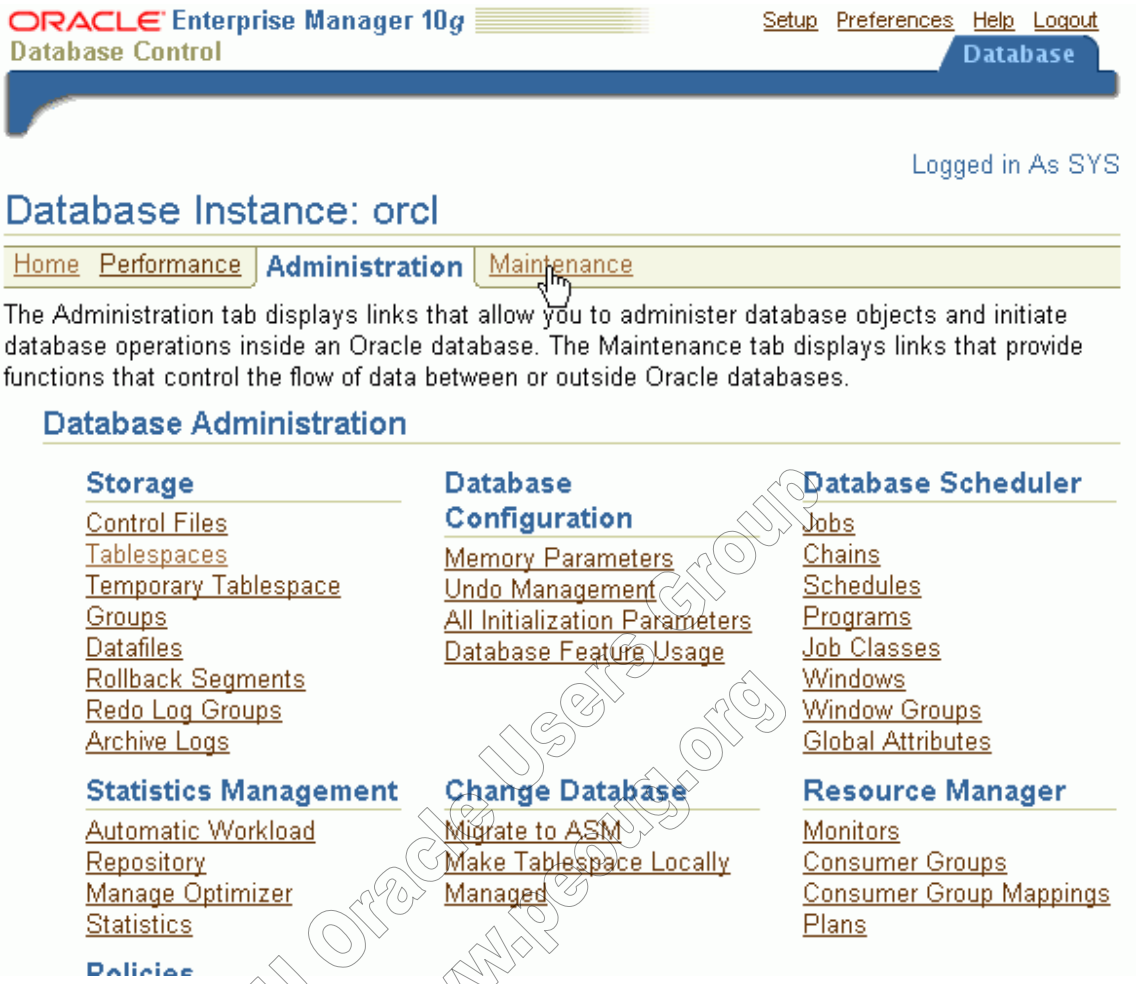
Perform a Recovery

1. Click the **Maintenance** tab.



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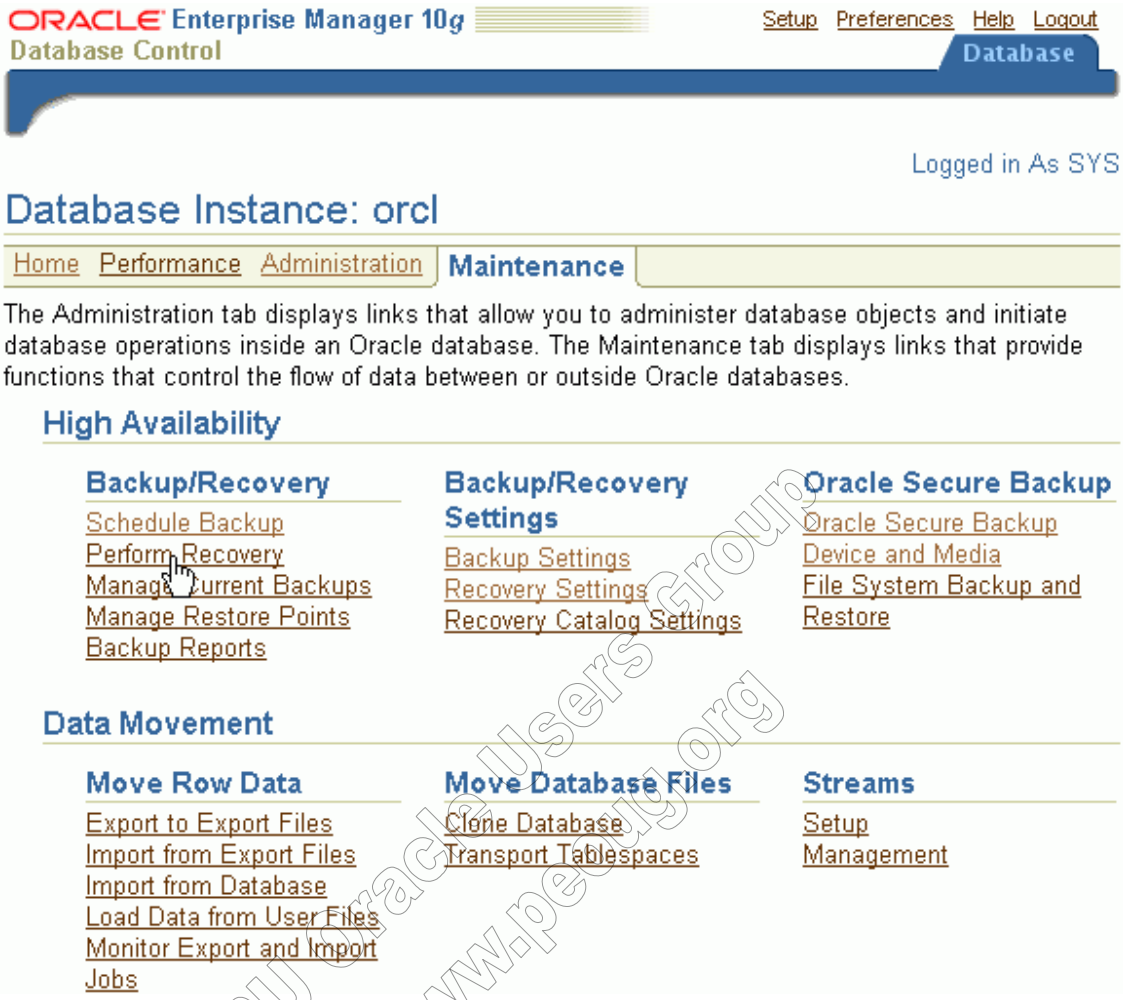
2. Under Backup/Recovery, select **Perform Recovery**.



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3. Note the database information stating that there is one data file that needs recovery. Click **Datafiles Need Media Recovery.**

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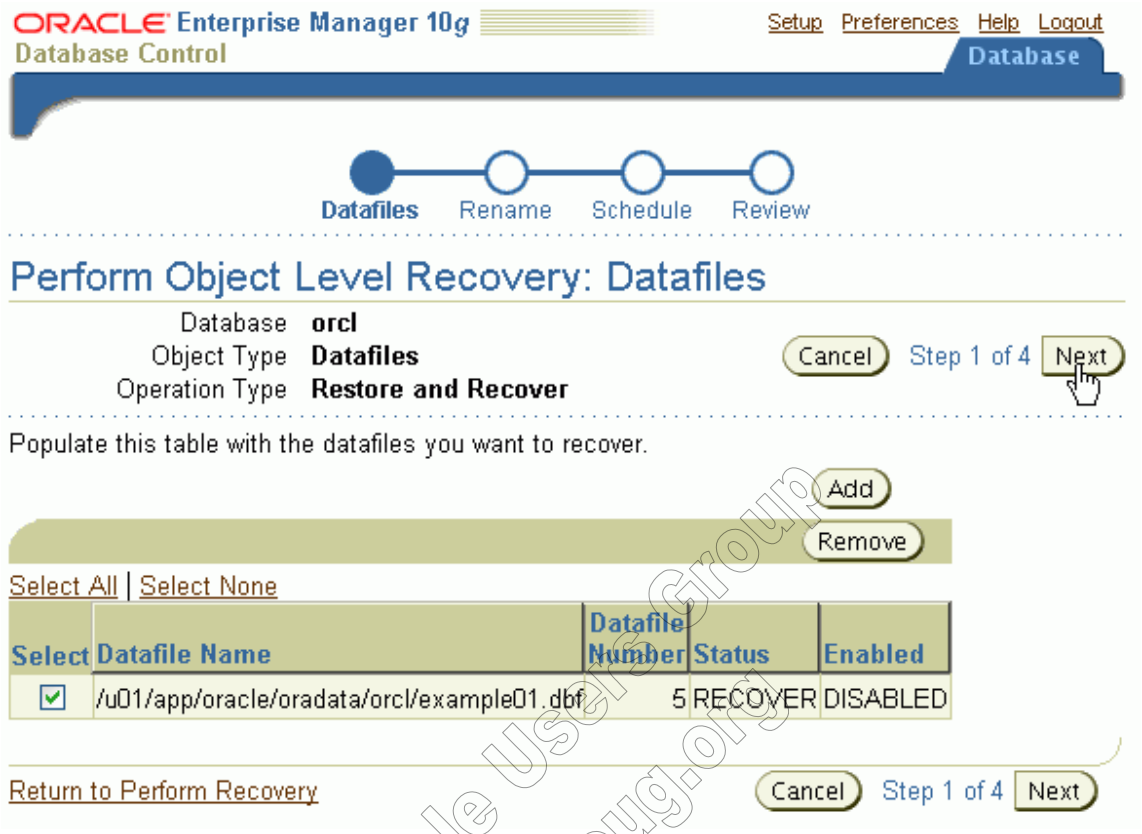
4. The data file to restore is already in the data file list. Click **Next**.



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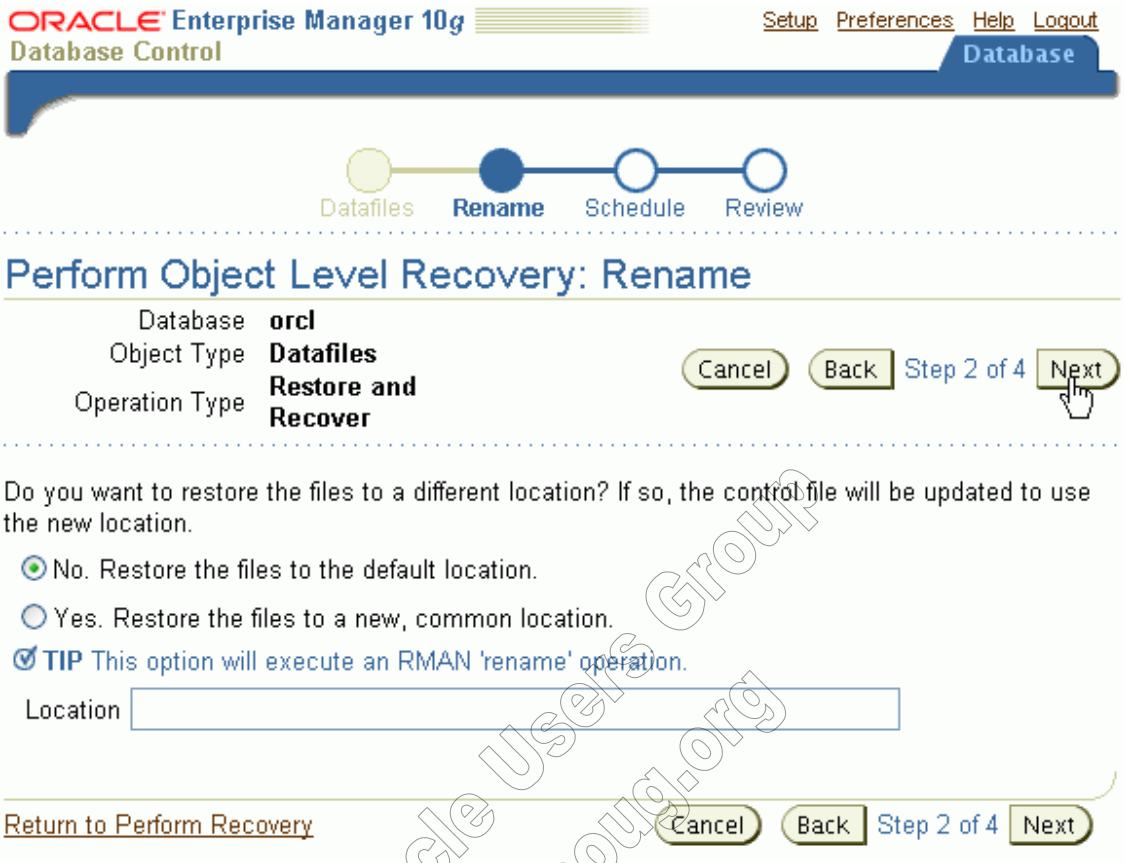
5. Take the default settings for restoring to the default location, and click **Next.**



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6. Review the job to be submitted, and note that you can click Edit RMAN Script to view the script that will be run. Click **Submit.**

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7. The browser continues to poll for status on the restore request. After about a minute, an "Operation Succeeded" message appears. Scroll down to see what was recovered.

8. Notice that the backup datafile was not found so the tablespace was recovered from tape. Click **OK.**

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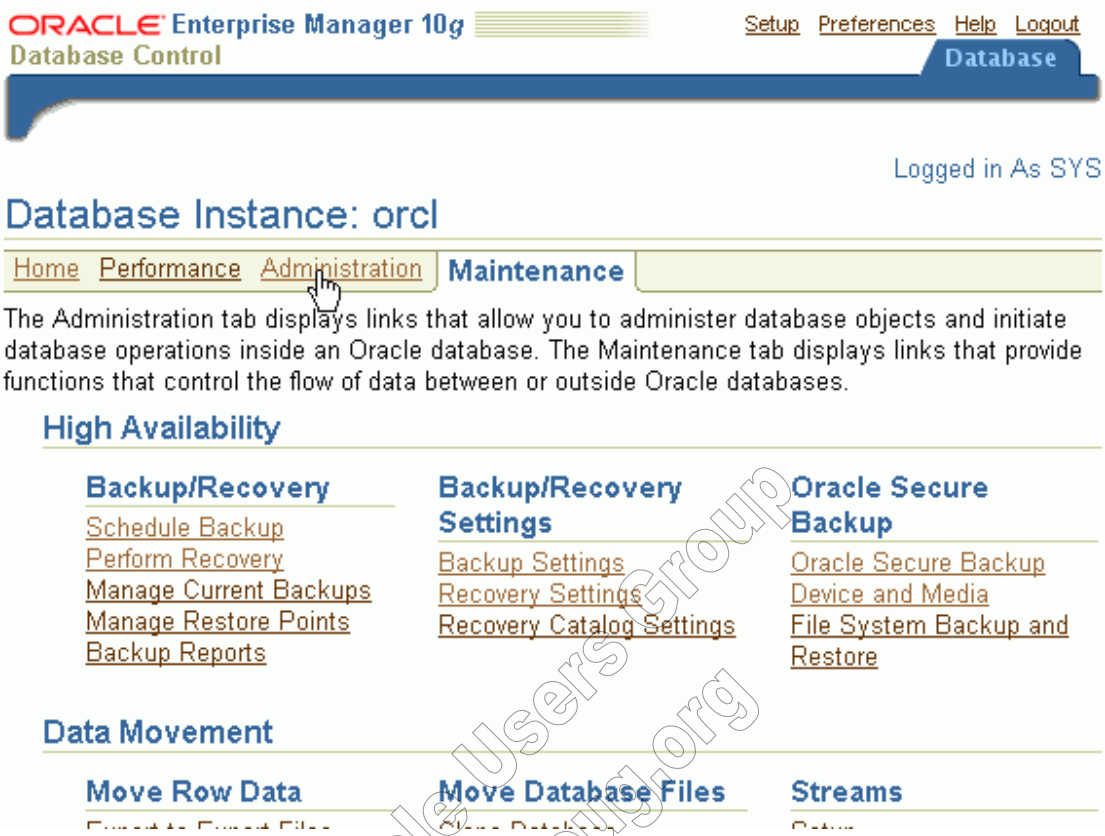
Back to Topic

Place the Tablespace Online

Before you can access the data in the restored data file, you need to put the tablespace back online. Perform the following steps:

1. Click the **Administration** tab.



2. Click **Tablespaces**.

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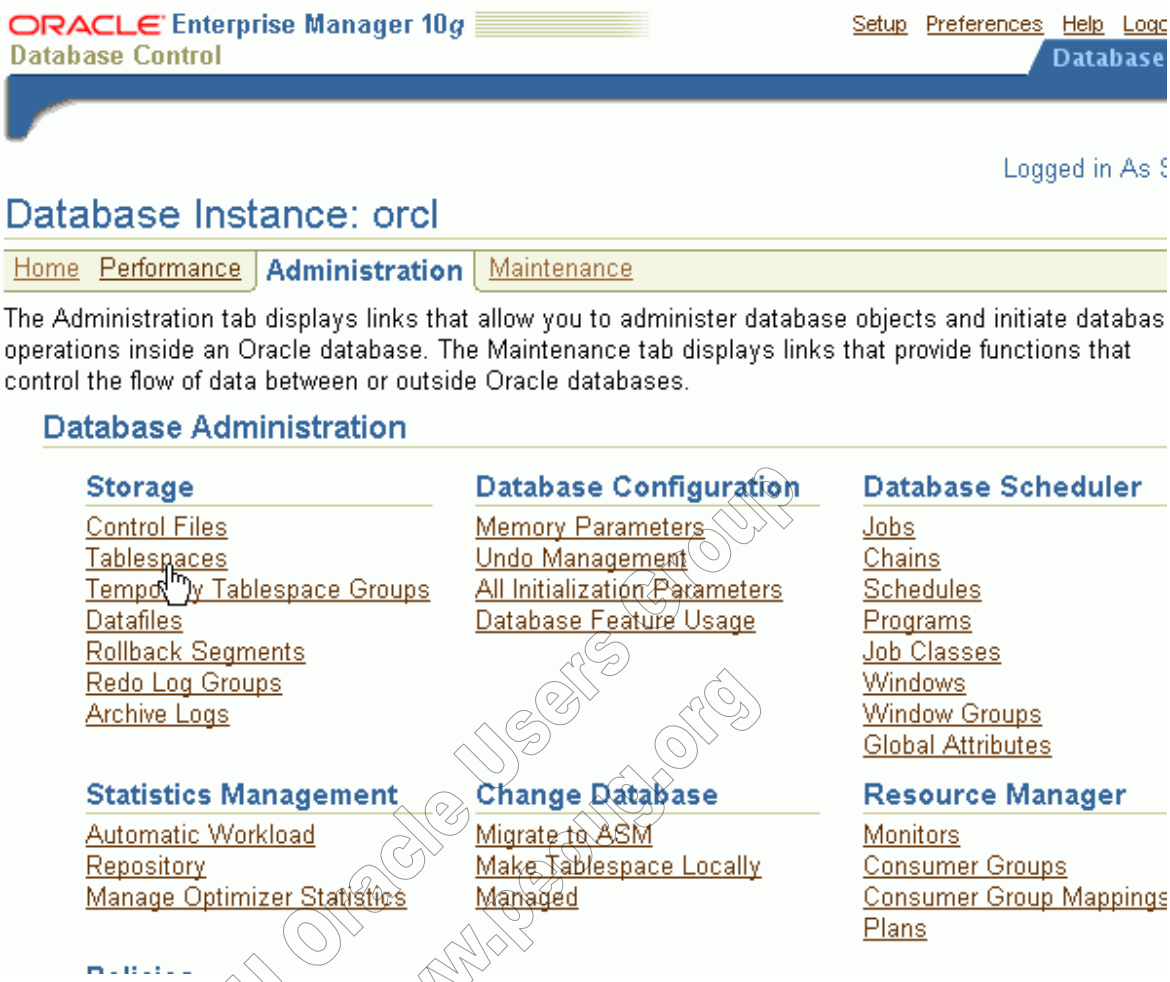

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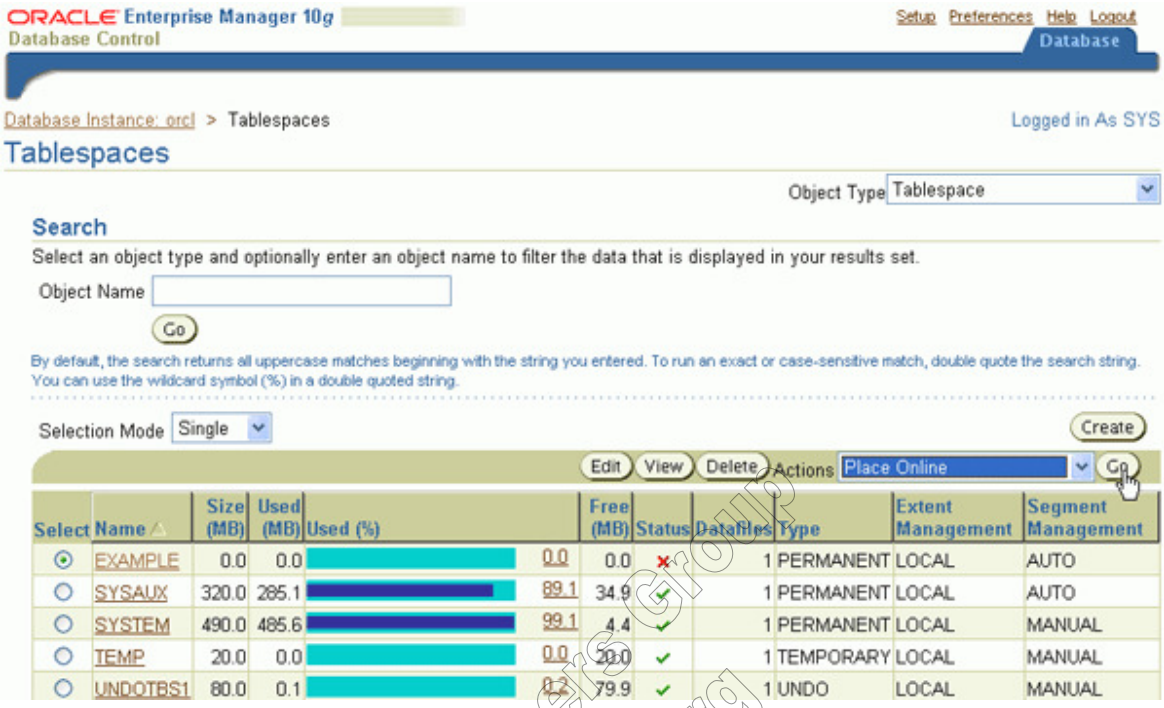
3. Select the **EXAMPLE** tablespace and select **Place Online** in the list of Actions, then click **Go**.



4. Click **Yes** to confirm.

5. Your data file for the EXAMPLE tablespace has been placed online again. Click the **Database** breadcrumb.

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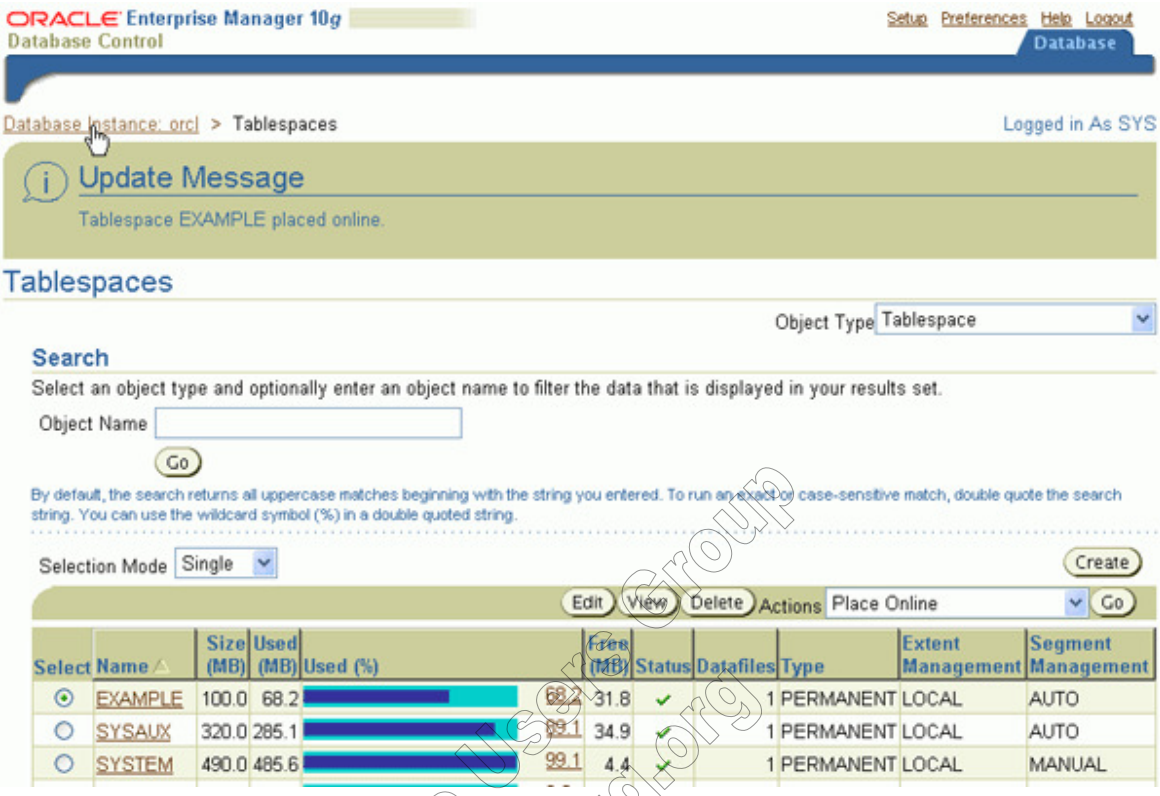

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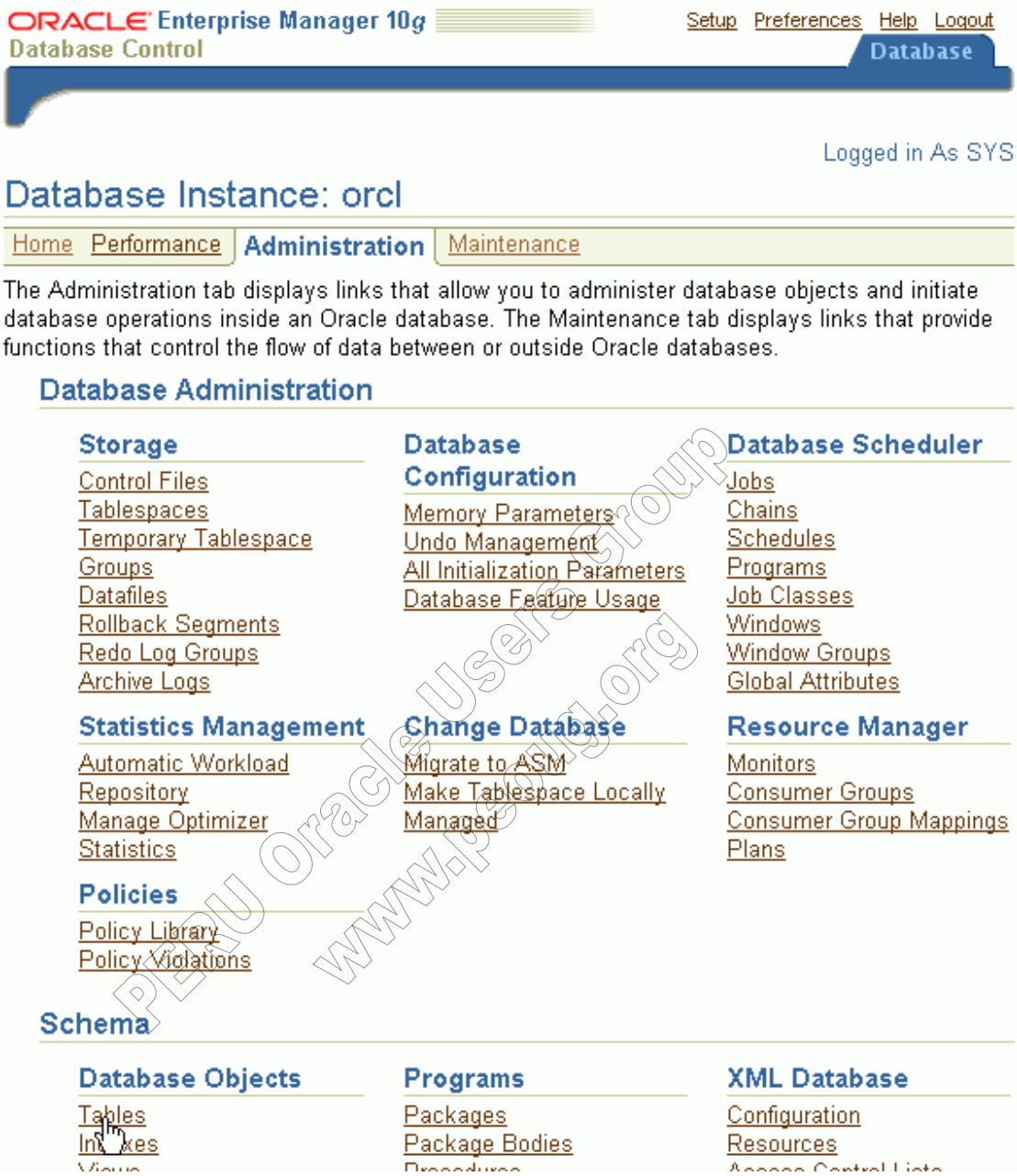
Verify Recovery

You can now verify that the data contained in the employees table has been recovered. Perform the following:

1. Select **Tables**.



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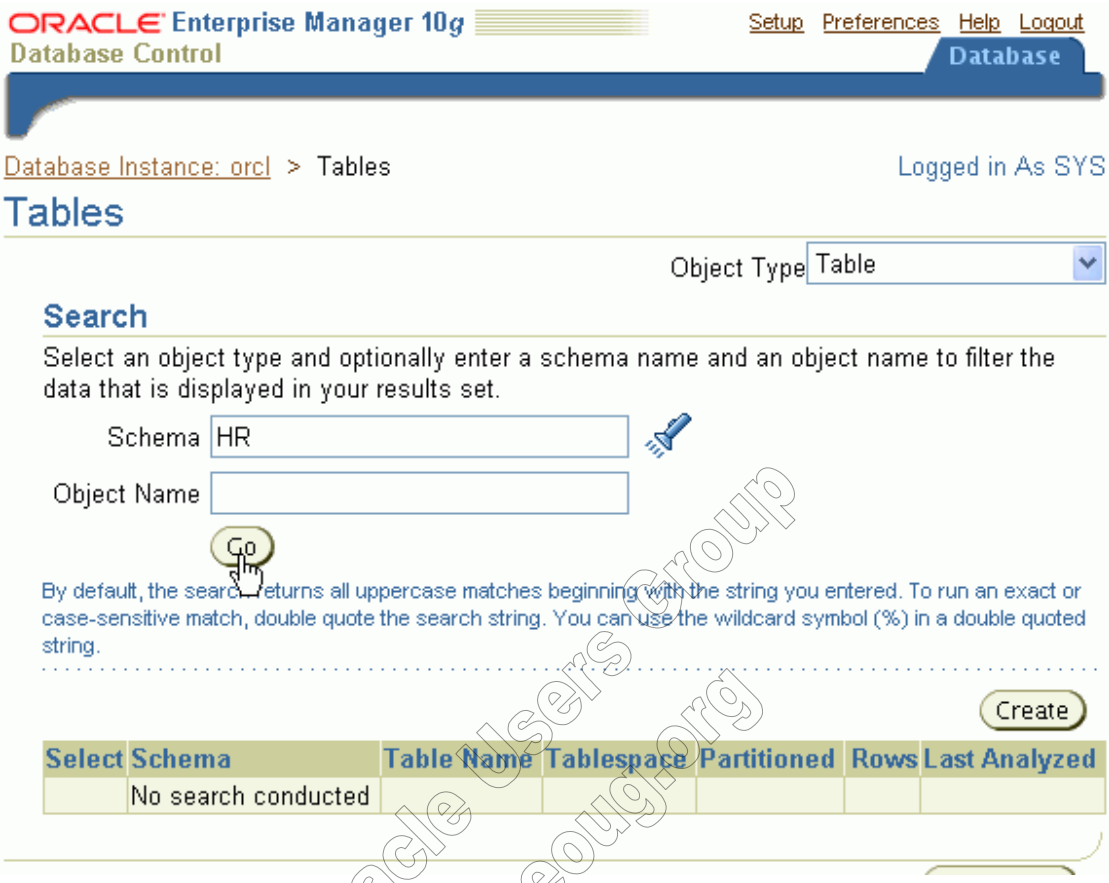
2. Enter **HR** in the Schema field and click **Go**.



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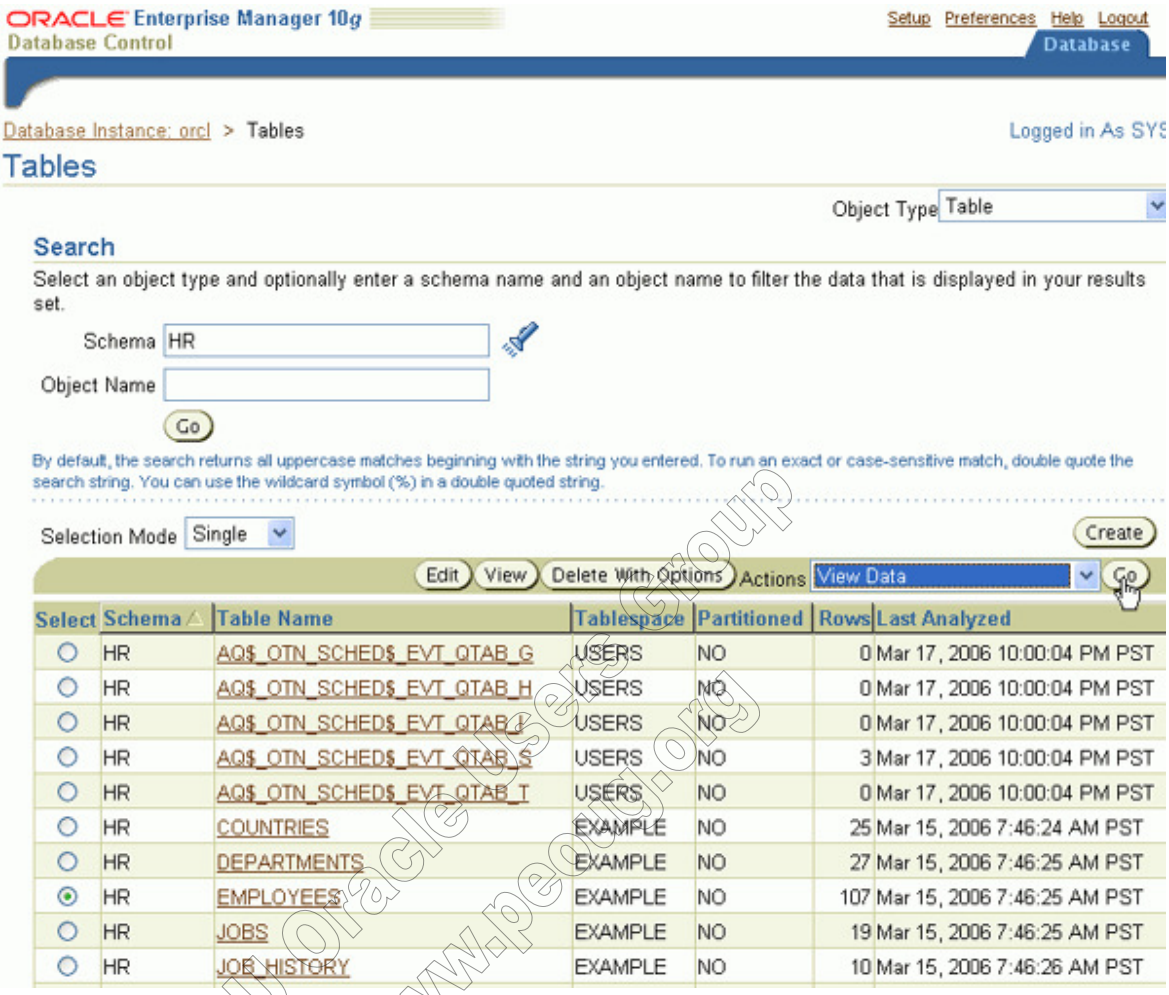
3. Select the **Employees** table, select **View Data** from the list of Actions and click **Go**.



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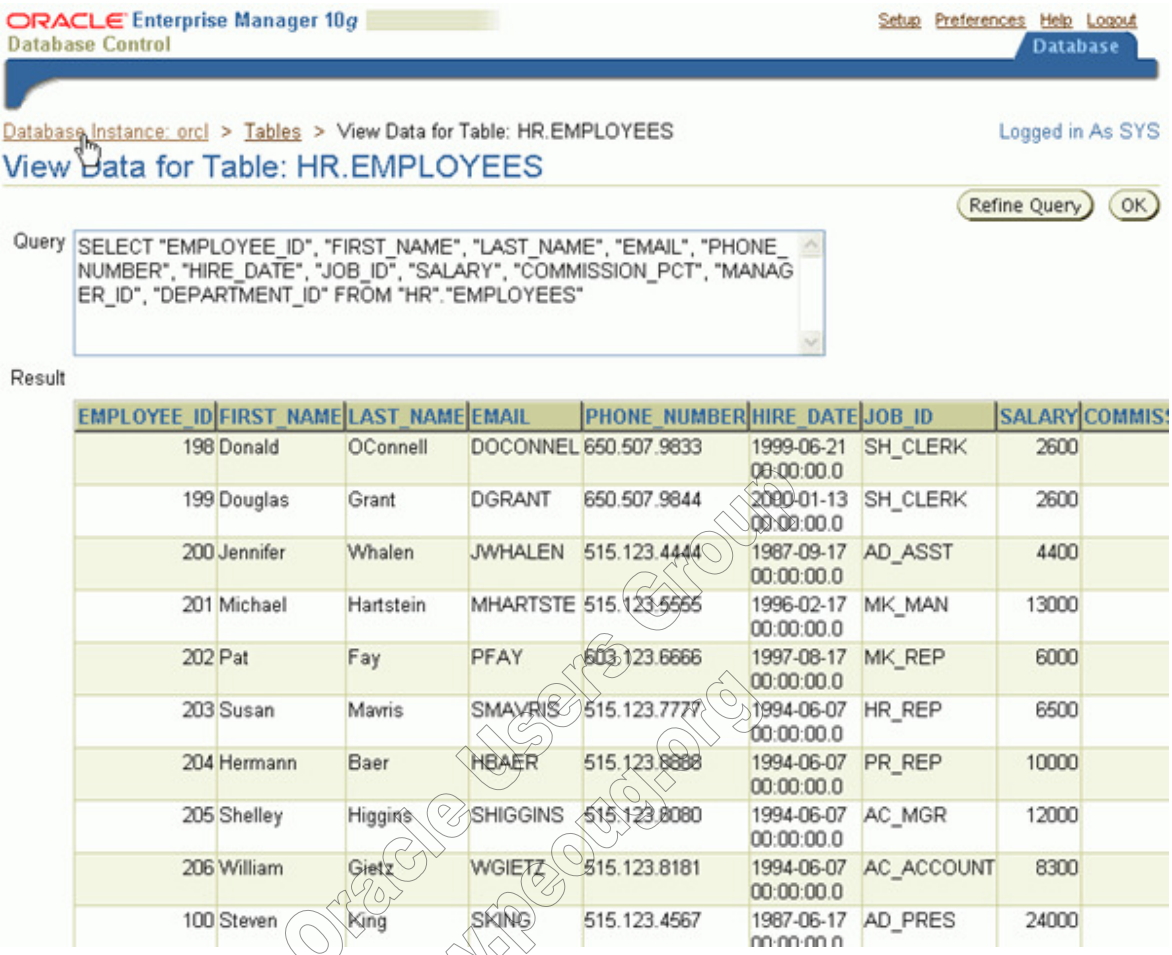
4. The list of Employees is displayed. Click the **Database** breadcrumb.



EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMIS
198	Donald	OConnell	DOCONNEL	650.507.9833	1999-06-21 00:00:00.0	SH_CLERK	2600	
199	Douglas	Grant	DGRANT	650.507.9844	2000-01-13 00:00:00.0	SH_CLERK	2600	
200	Jennifer	Whalen	JWHALEN	515.123.4444	1987-09-17 00:00:00.0	AD_ASST	4400	
201	Michael	Hartstein	MHARTSTE	515.123.5555	1996-02-17 00:00:00.0	MK_MAN	13000	
202	Pat	Fay	PFAY	603.123.6666	1997-08-17 00:00:00.0	MK_REP	6000	
203	Susan	Mavris	SMAVRIS	515.123.7777	1994-06-07 00:00:00.0	HR_REP	6500	
204	Hermann	Baer	HBAER	515.123.8888	1994-06-07 00:00:00.0	PR_REP	10000	
205	Shelley	Higgins	SHIGGINS	515.123.8080	1994-06-07 00:00:00.0	AC_MGR	12000	
206	William	Gietz	WGIETZ	515.123.8181	1994-06-07 00:00:00.0	AC_ACCOUNT	8300	
100	Steven	King	SKING	515.123.4567	1987-06-17 00:00:00.0	AD_PRES	24000	

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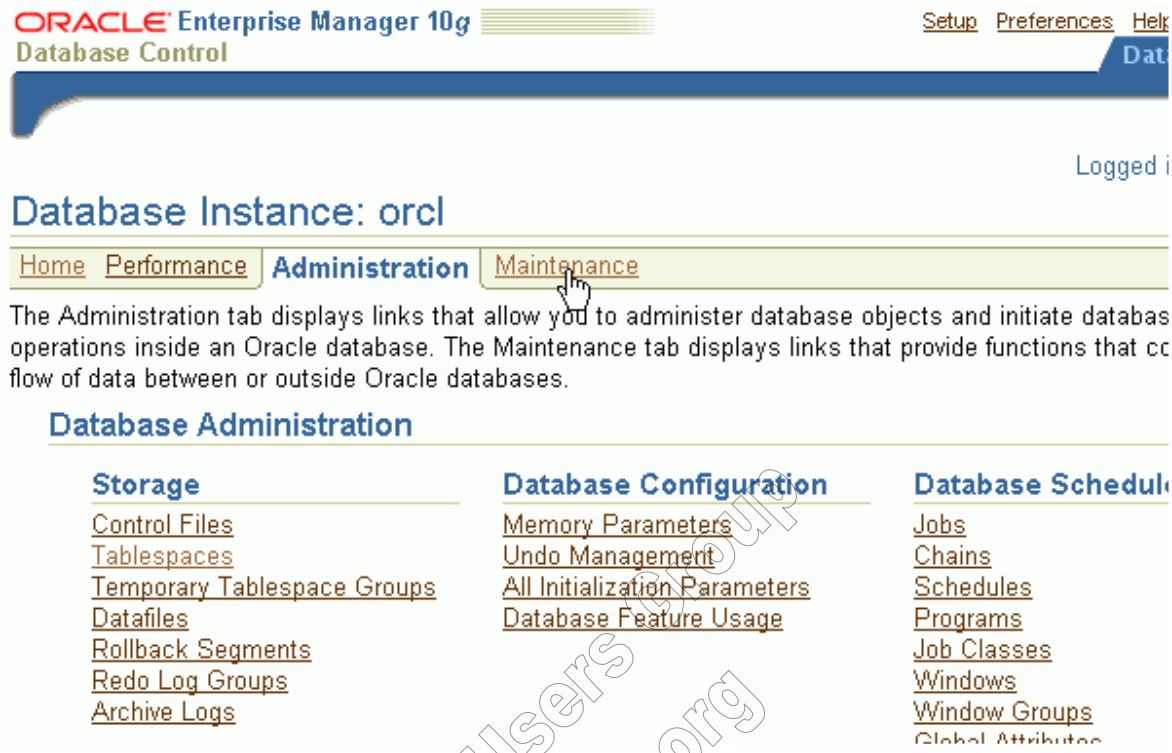
Performing File System Backups Using Oracle Secure Backup Web Tool

The Oracle Secure Backup Web tool is an online graphical user interface that enables you to configure administrative domains, manage operations, browse the backup catalog and back up and restore file system data. You will use the Oracle Secure Backup Web Tool to review the backup jobs you performed in Enterprise Manager and perform a file system backup. Perform the following steps:

1. From your browser window, click the **Maintenance** tab.



2. Under Oracle Secure Backup, right-click on **File System Backup and Restore** and click **Open Link in New Window**.

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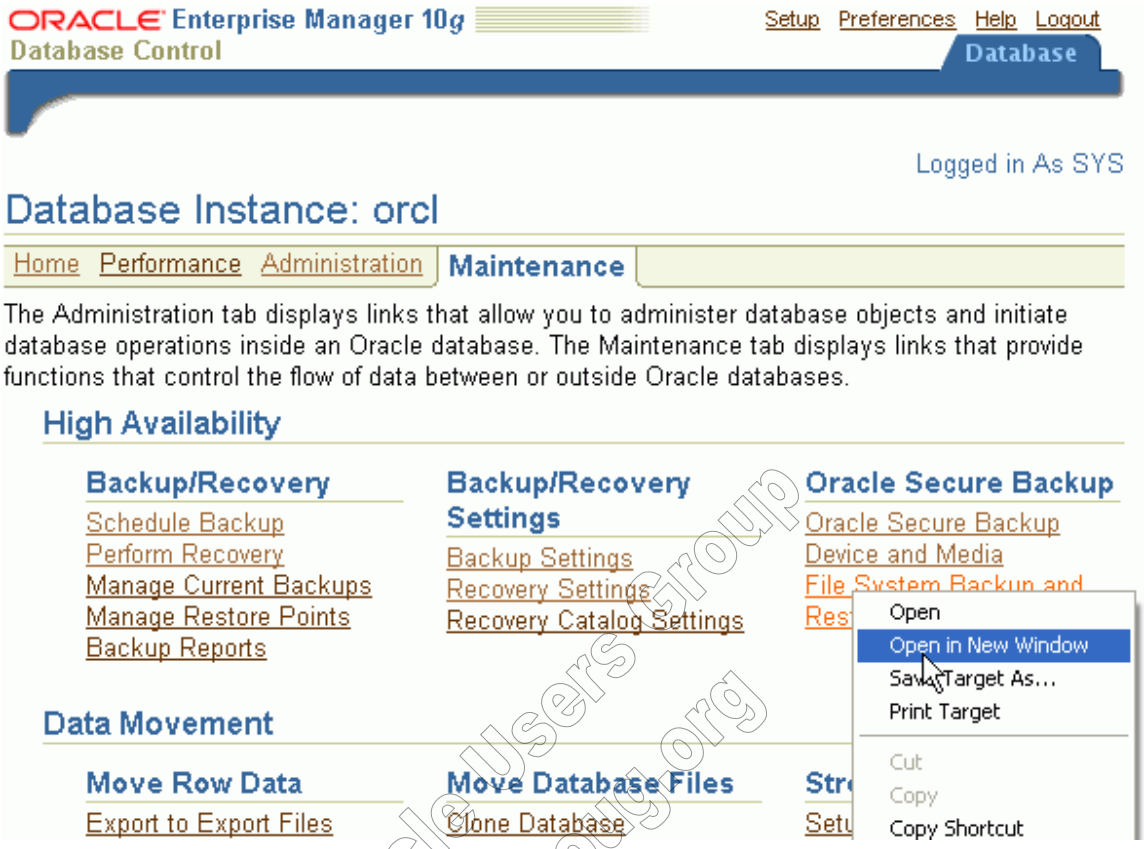

3. Click **OK** to connect with a certificate. The reason you get this warning is because the signer of the certificate is not trusted. Your browser does not recognize the signer as a registered CA, certificate authority. The only trusted CAs that come with each browser are Thwart and Verisign.

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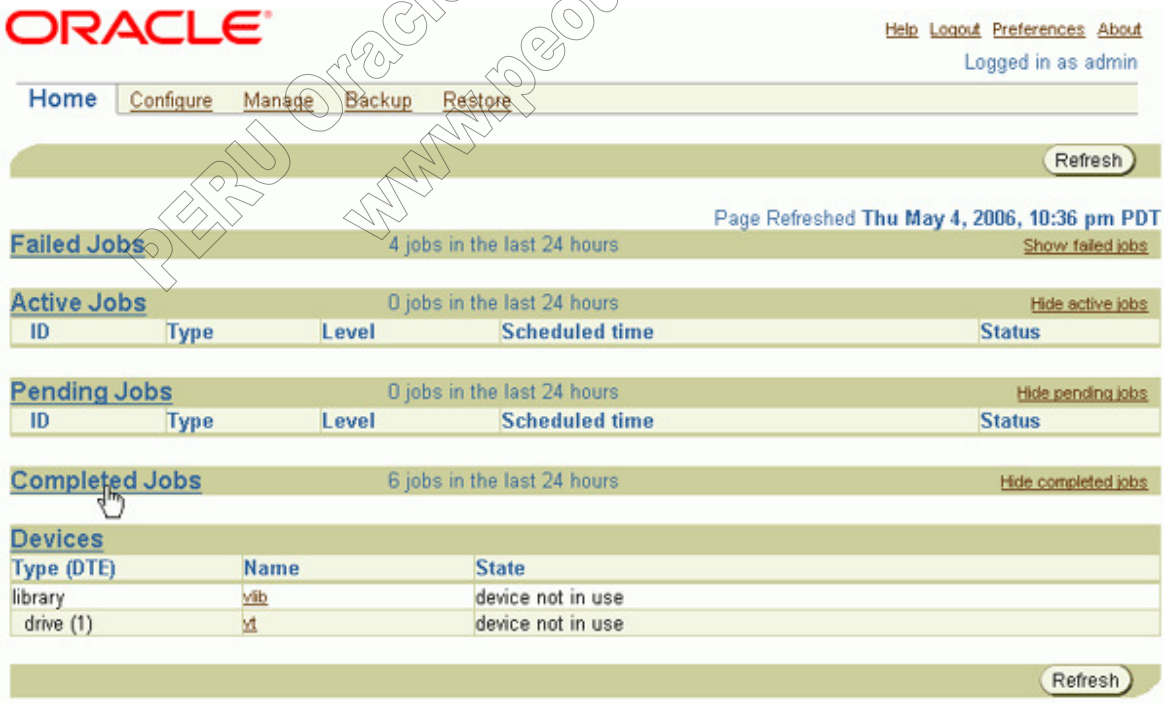
4. Enter **admin** for the User Name and your Secure Backup password and click **Login**.

5. You can view the backup job you just ran in Enterprise Manager. Click the **Completed Jobs** link.



6. You see the jobs you performed in Enterprise Manager. At this point, you want to perform your file system backup.

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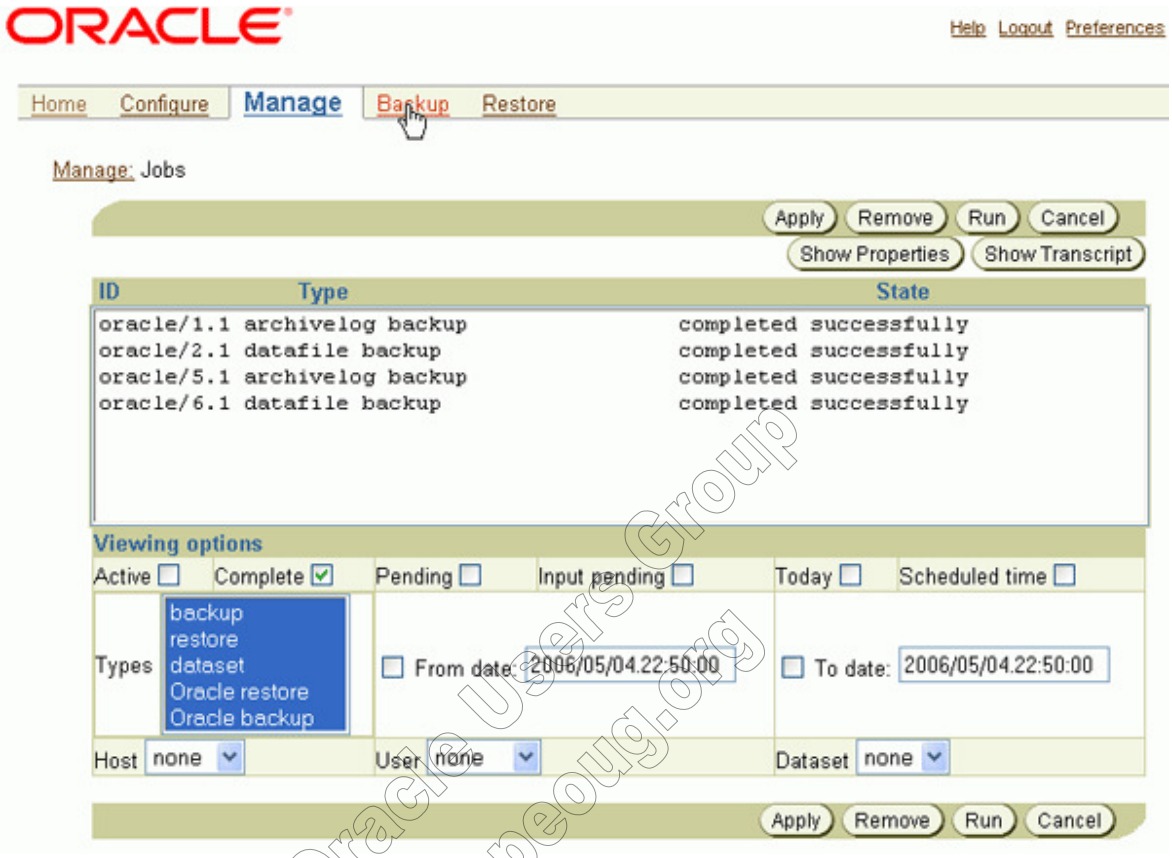
Click the **Backup** tab.



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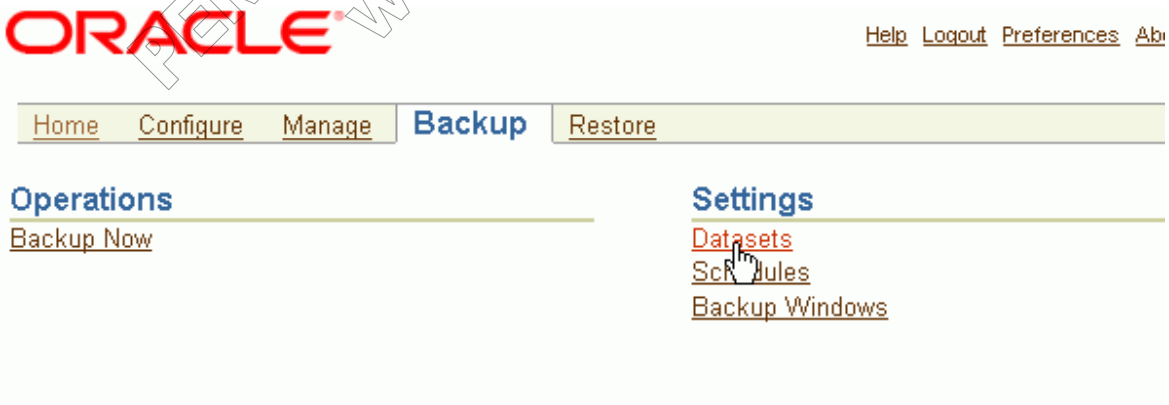
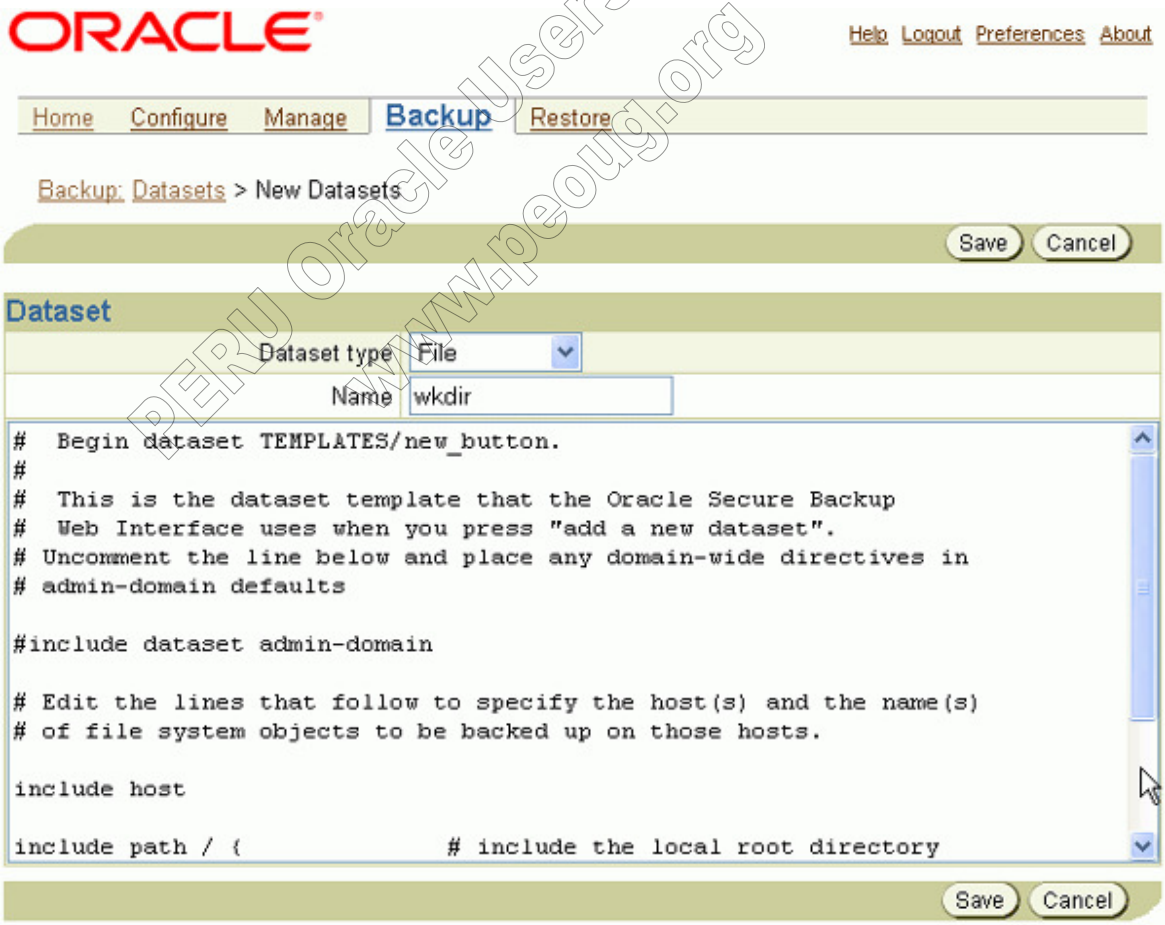
7. Under Settings, click **Datasets**.



8. Click **Add**.

9. Enter **wkdir** for the Name and add your hostname to the include path so it now reads include path <hostname>. Then scroll down.



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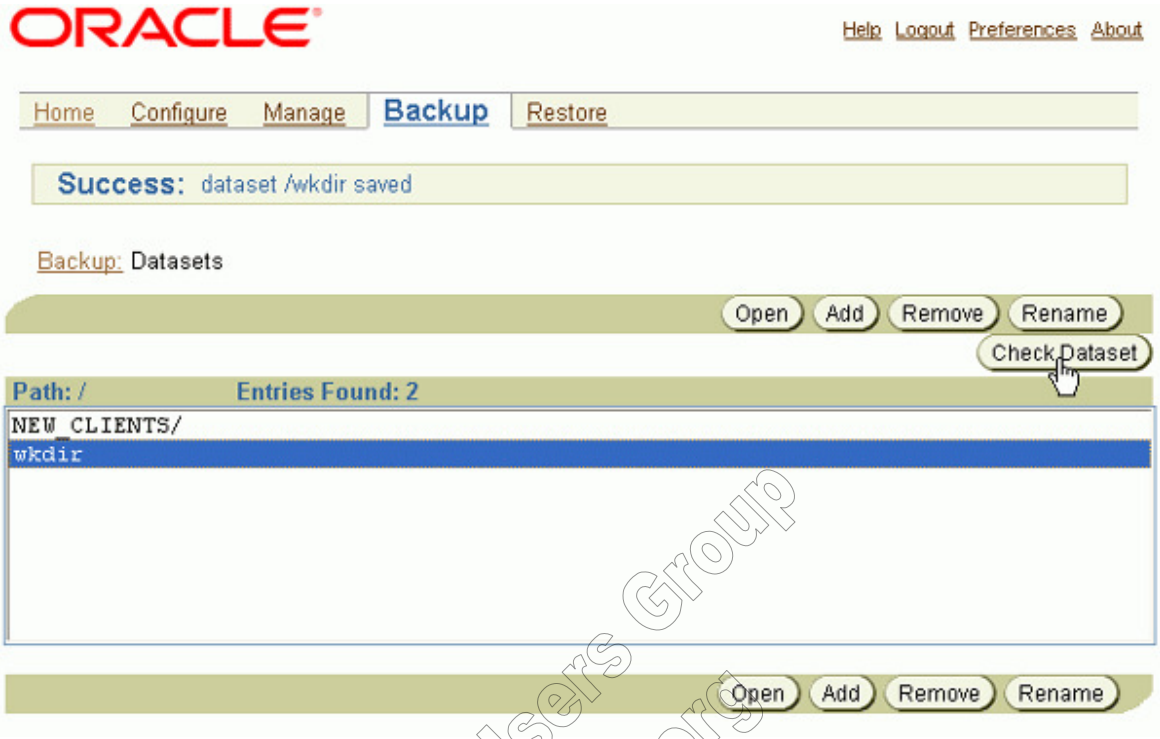
10. In this scenario, you want to backup just the /home/oracle/wkdir/obdir/dir2 directory. So later in the tutorial you restore only the dir2 directory. Change/Add the following:

```
include path /home/oracle/wkdir/obdir {
exclude path /home/oracle/wkdir/obdir/dir1.
```

Then click **Save**.

11. Click **wkdir** from the list of Datasets and click **Check Dataset**.



12. No errors were found. Click **Close**.

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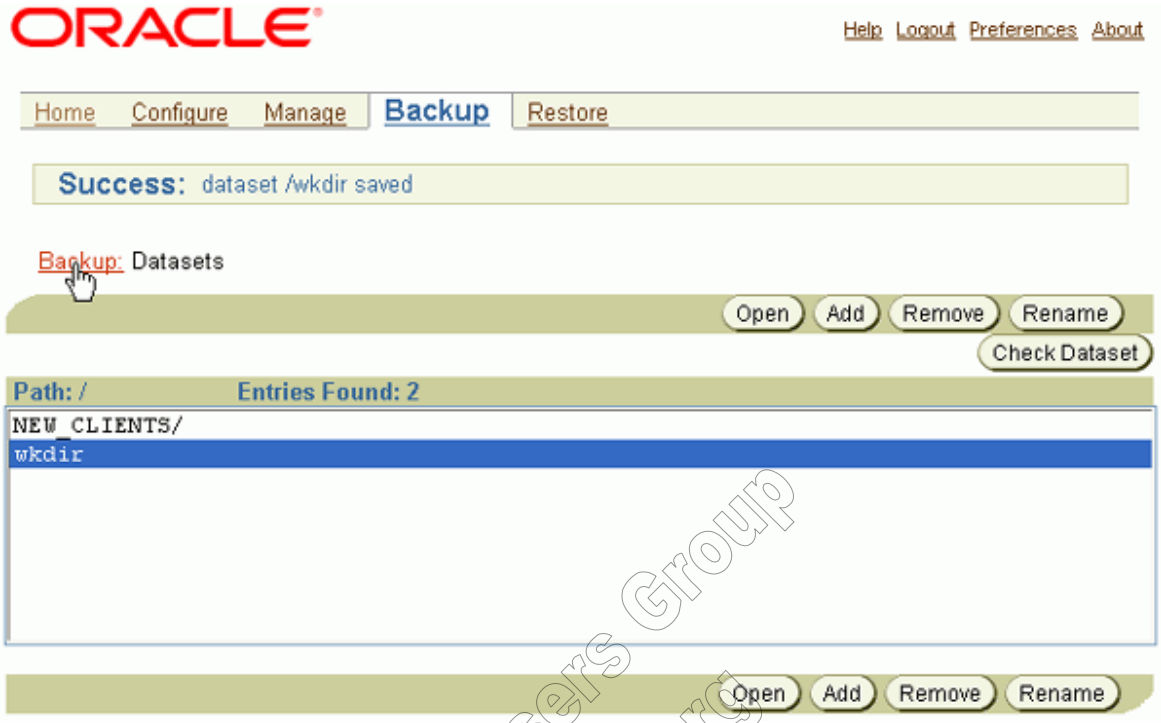
13. Now you are ready to perform your backup. Click the **Backup** breadcrumb.



14. Under Operations, click **Backup Now**.

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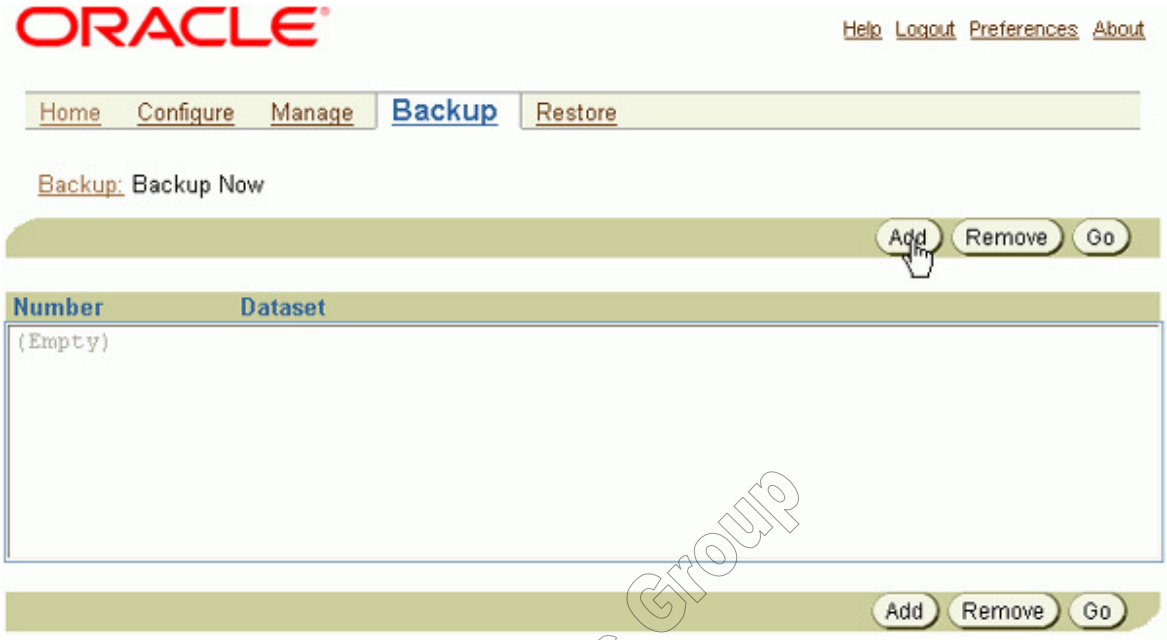
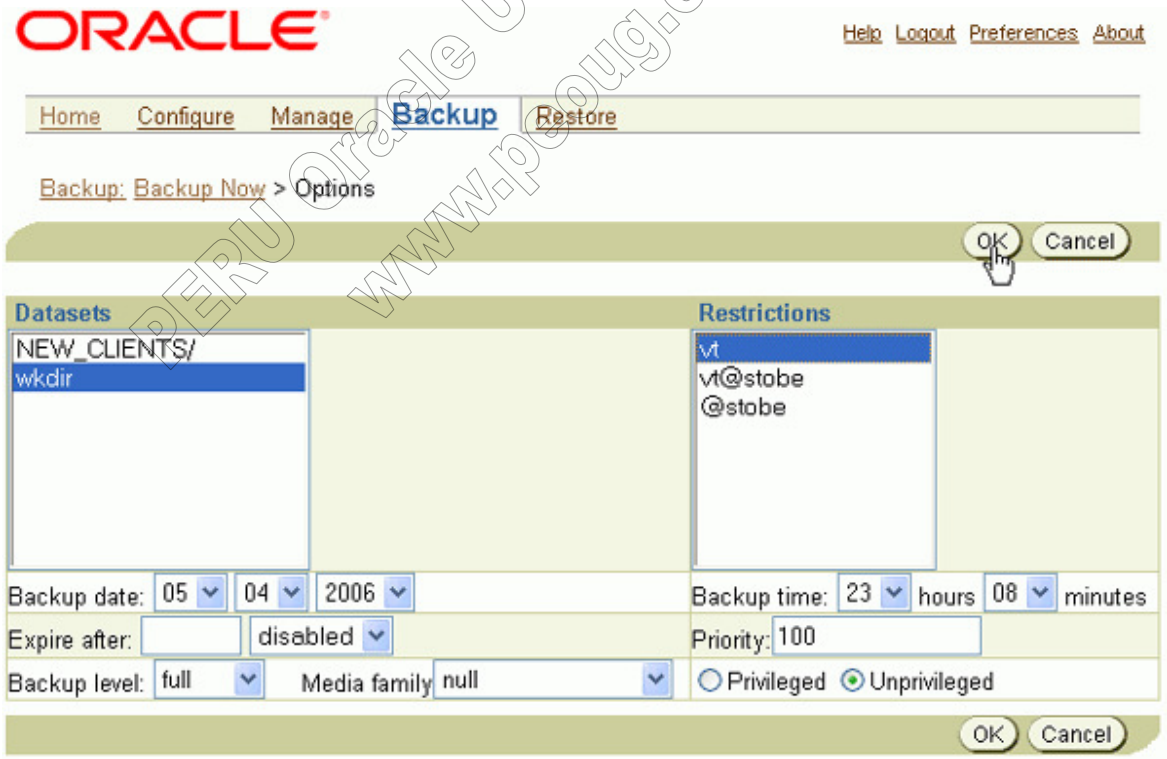
15. You first need to add your dataset. Click **Add**.



16. Select the Dataset **wkdir** and the Restriction **vt1** and click **OK**.



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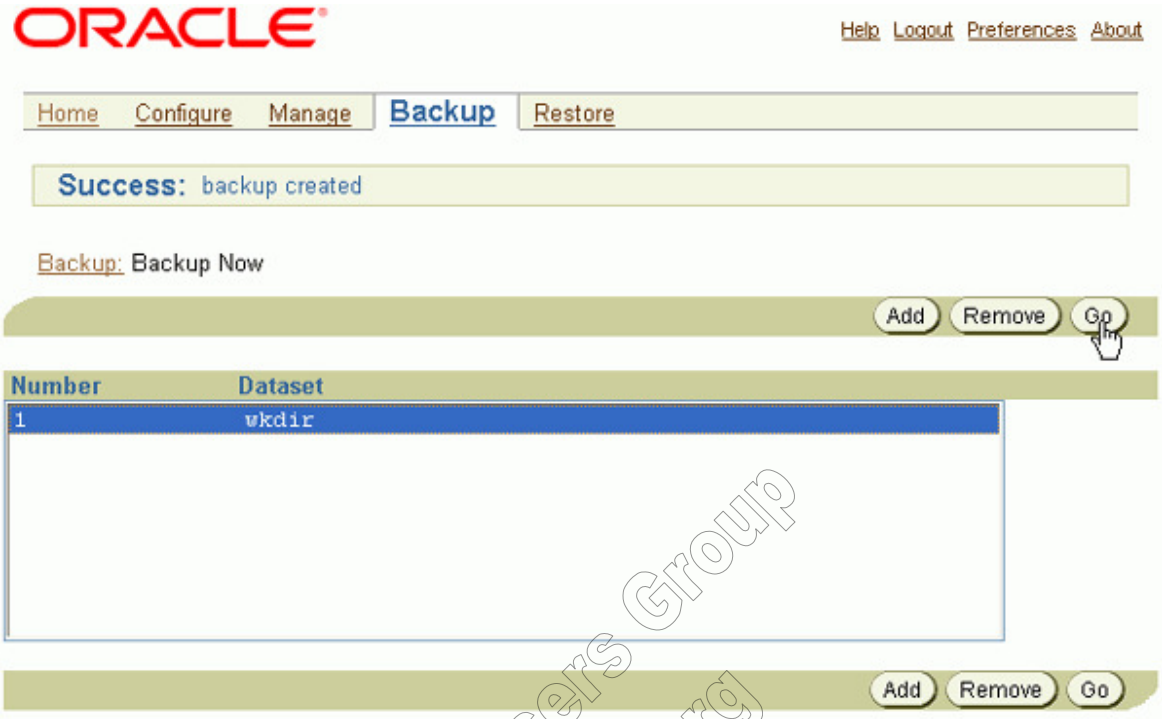
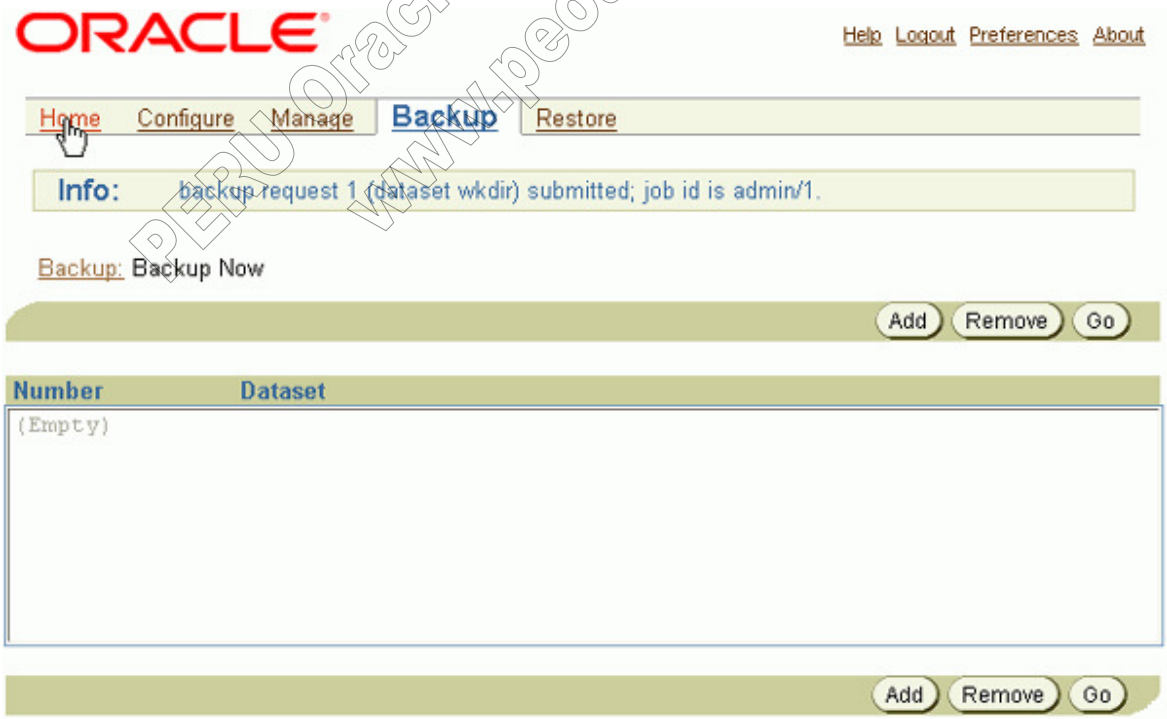
17. Select your dataset from the list and click **Go**.



18. Click the **Home** tab.



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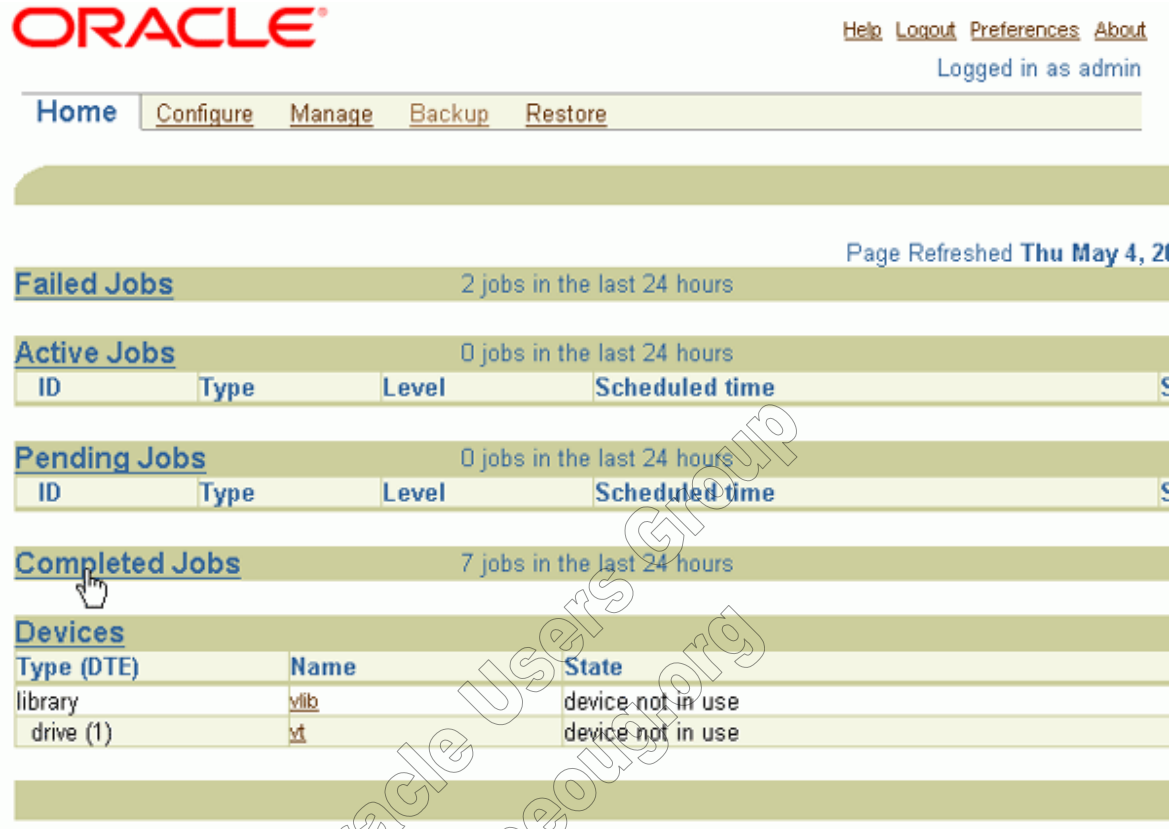
19. Click the **Completed Jobs**.



20. Your backup is now complete. You can take a look at the transcript if you want. Otherwise, you are ready to restore from backup.

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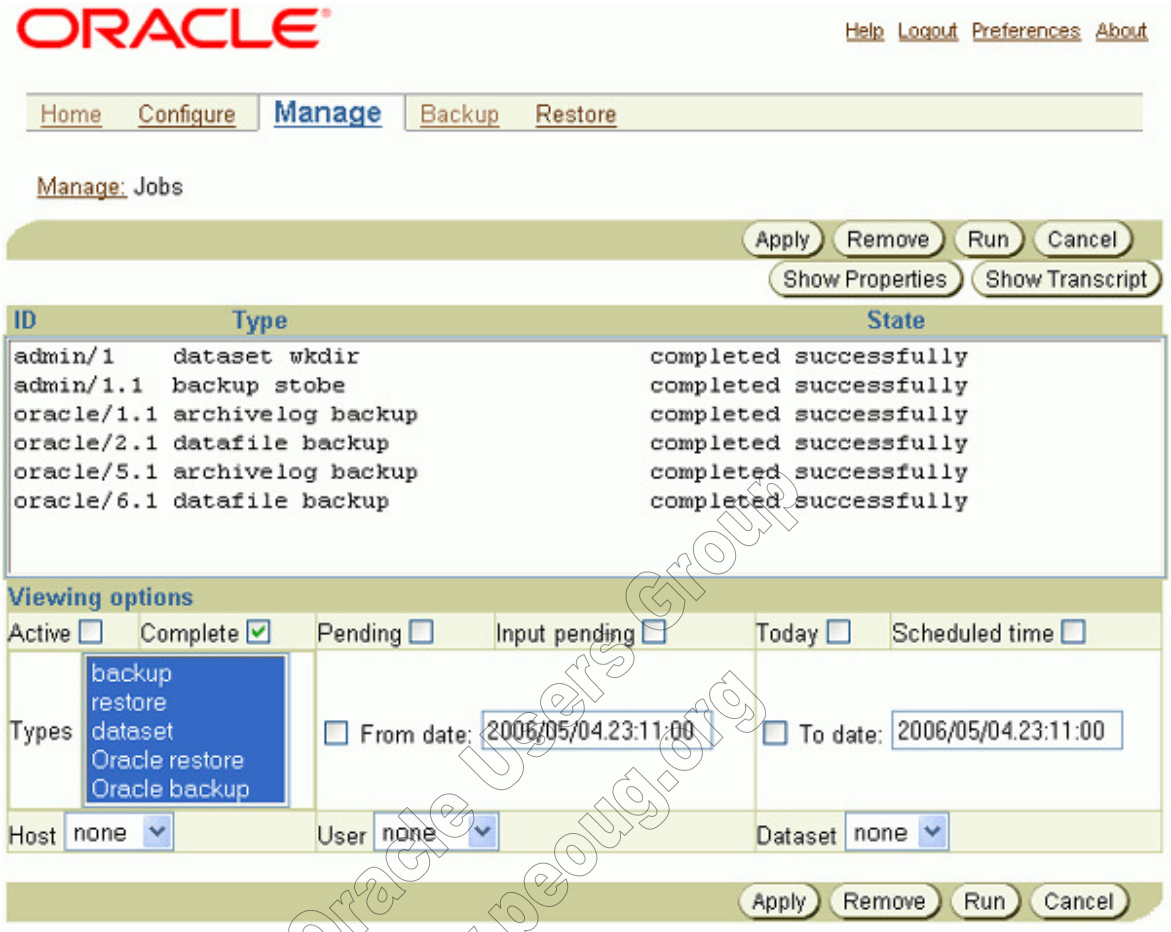

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Performing File System Restore Using Oracle Secure Backup Web Tool

To restore file system files, perform the following steps:

1. From your terminal window, enter the following commands to see the present state of the directories and then to delete them.

```
cd /home/oracle/wkdir/obdir
ls -lR
rm -Rf *
```

```
[oracle@stobe oracle]$ cd /home/oracle/wkdir/obdir
[oracle@stobe obdir]$ ls -lR
.:
total 8
drwxr-xr-x    2 oracle   oracle       4096 May  4 23:04 dir1
drwxr-xr-x    2 oracle   oracle       4096 May  4 23:04 dir2

./dir1:
total 8
-rw-r--r--    1 oracle   oracle         14 May  4 23:04 file1.txt
-rw-r--r--    1 oracle   oracle         14 May  4 23:04 file2.txt

./dir2:
total 8
-rw-r--r--    1 oracle   oracle          0 May  4 23:04 core
-rw-r--r--    1 oracle   oracle         14 May  4 23:04 file3.txt
-rw-r--r--    1 oracle   oracle         14 May  4 23:04 file4.txt
[oracle@stobe obdir]$ rm -Rf *
[oracle@stobe obdir]$
```

Note that there are 2 sub-directories, and one of them has a file named core. After the restore you will see only the **dir2** directory and the files **file3.txt** and **file4.txt** in the list. This is because when you performed the backup you excluded the path for dir1 and any files with the name core.

2. Switch back to your browser, and click the **Restore** tab.

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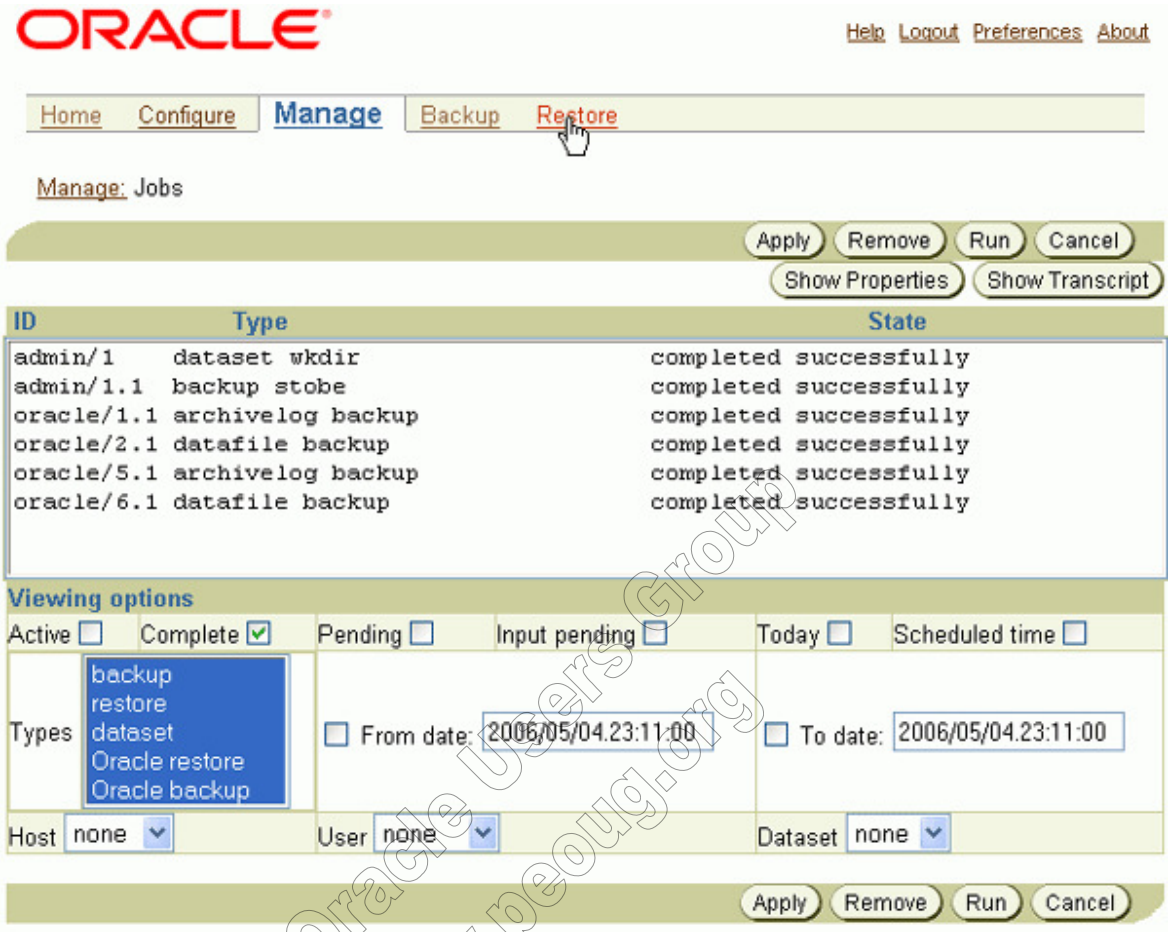

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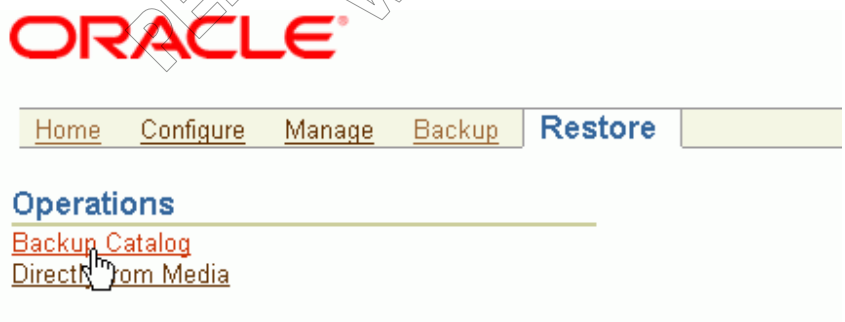
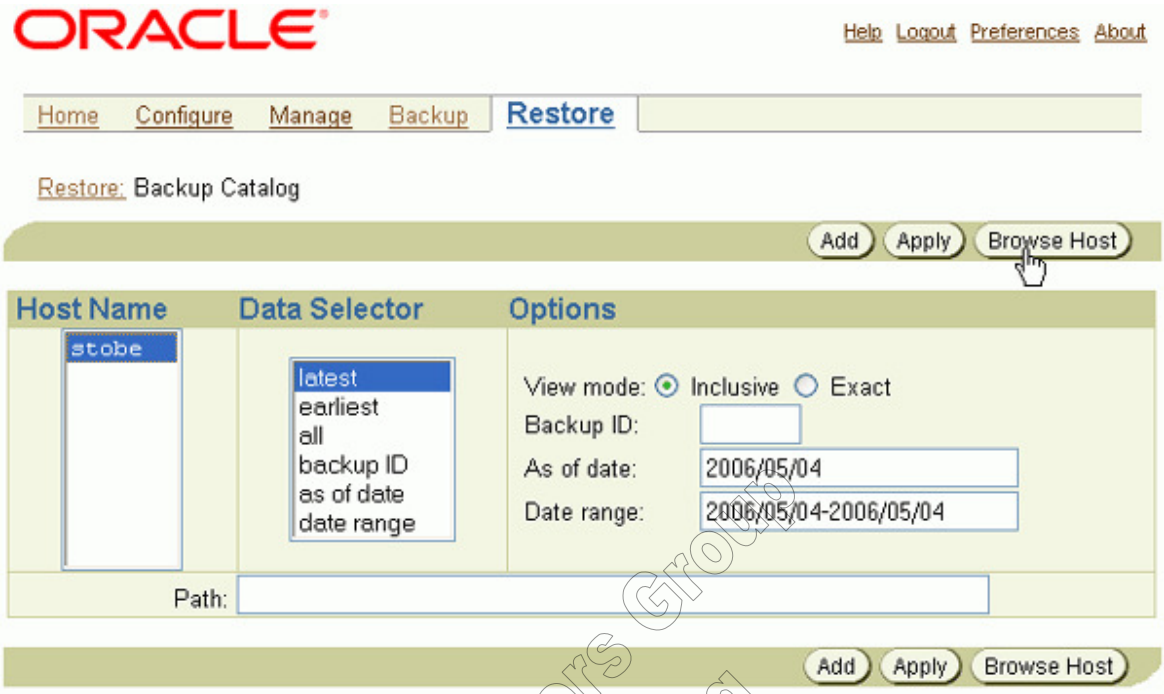
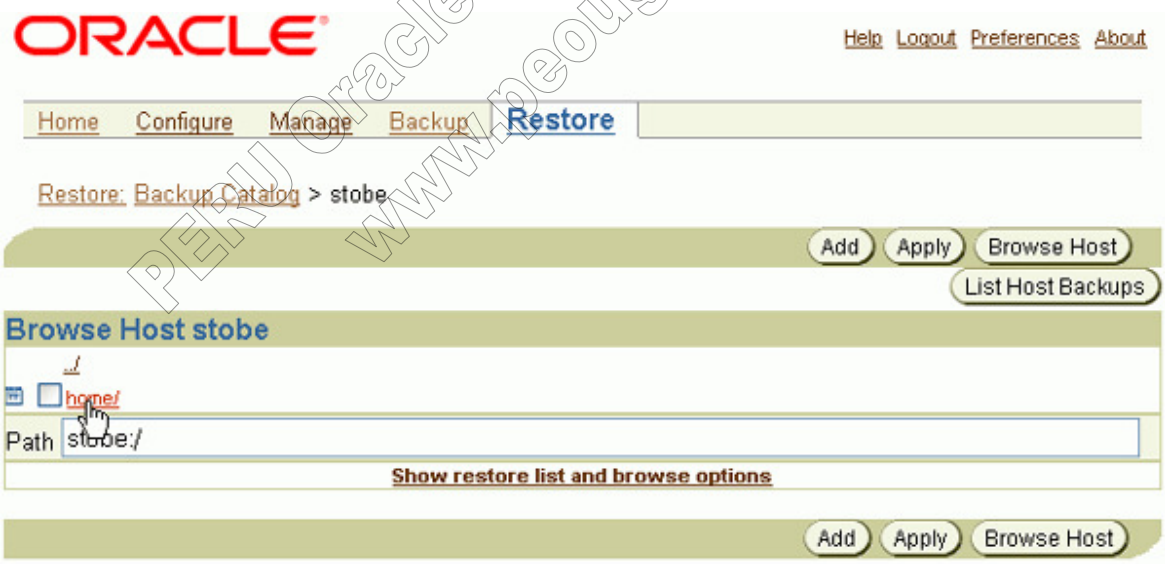
3. Click **Backup Catalog** under the Operations heading.



4. Select your hostname and click **Browse Host.**



5. Click on the "**home/"** link.



6. Continue to navigate down into the directory until "**obdir/" appears as the directory link.** Click to turn on the checkbox for the obdir directory. Then click **Add.**

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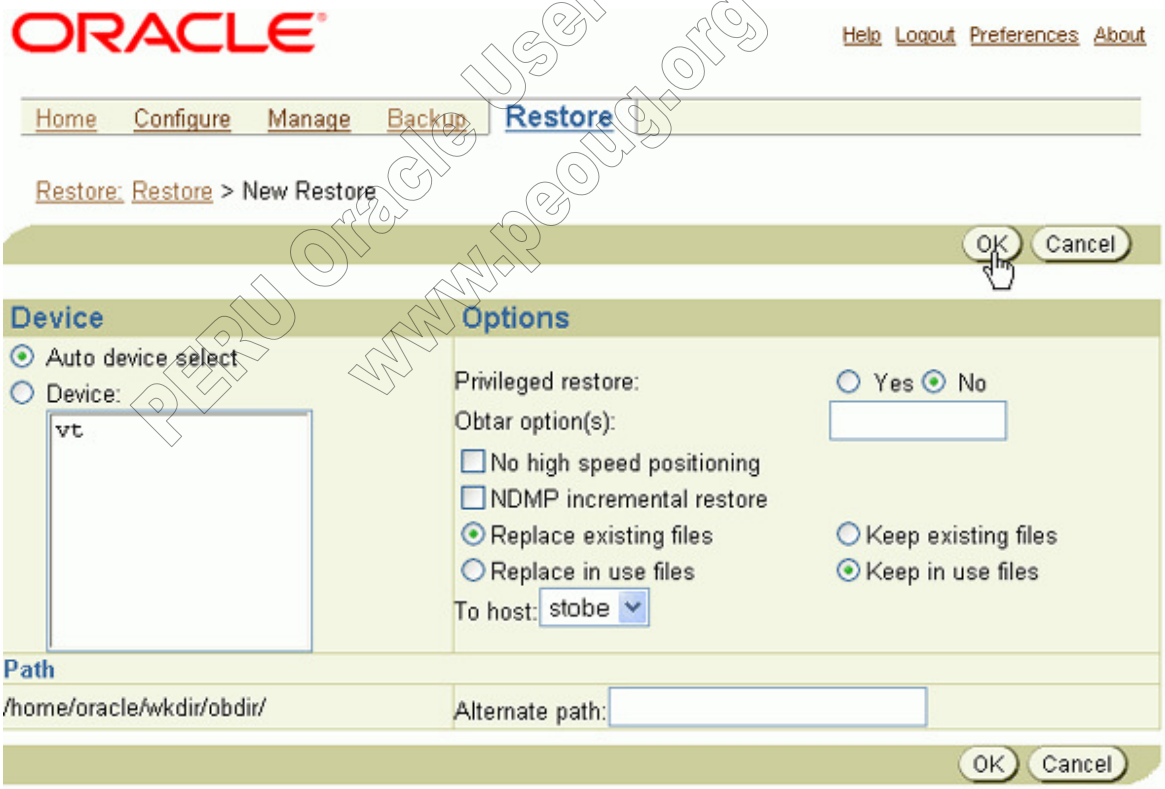
7. Keep the defaults, which restore all files unless they are in use. Click **OK**.



8. Note the "Success" message saying the selection was added to the restore list. Click "**Show restore list and browse options"** link.

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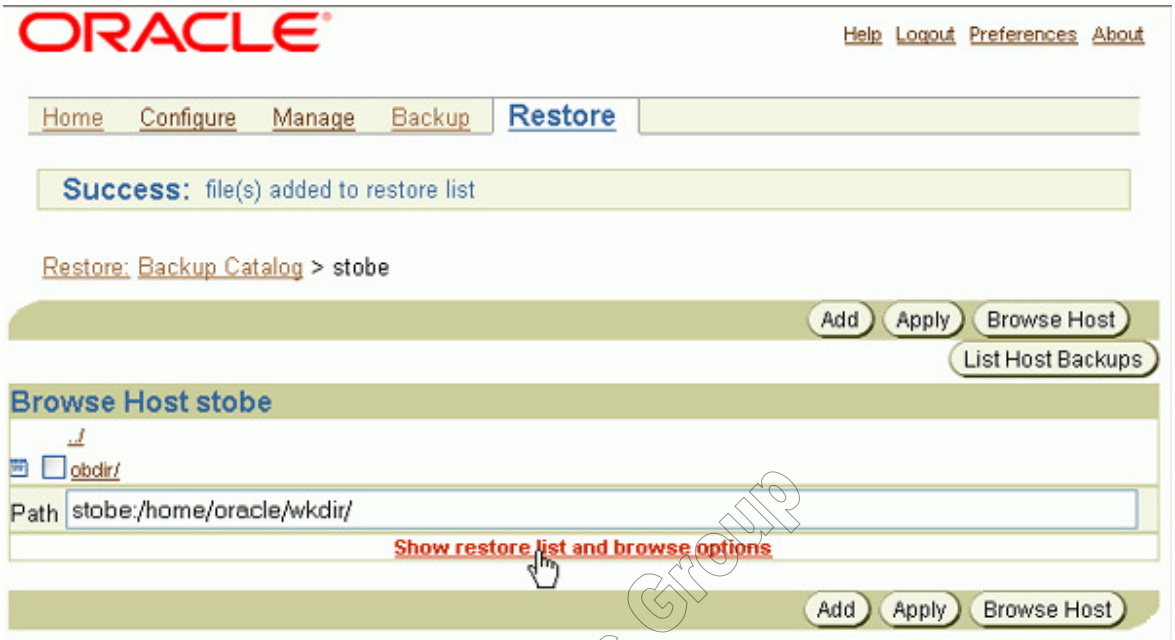

9. Note that the **obdir** directory is in the list. Select it and click **Go.**

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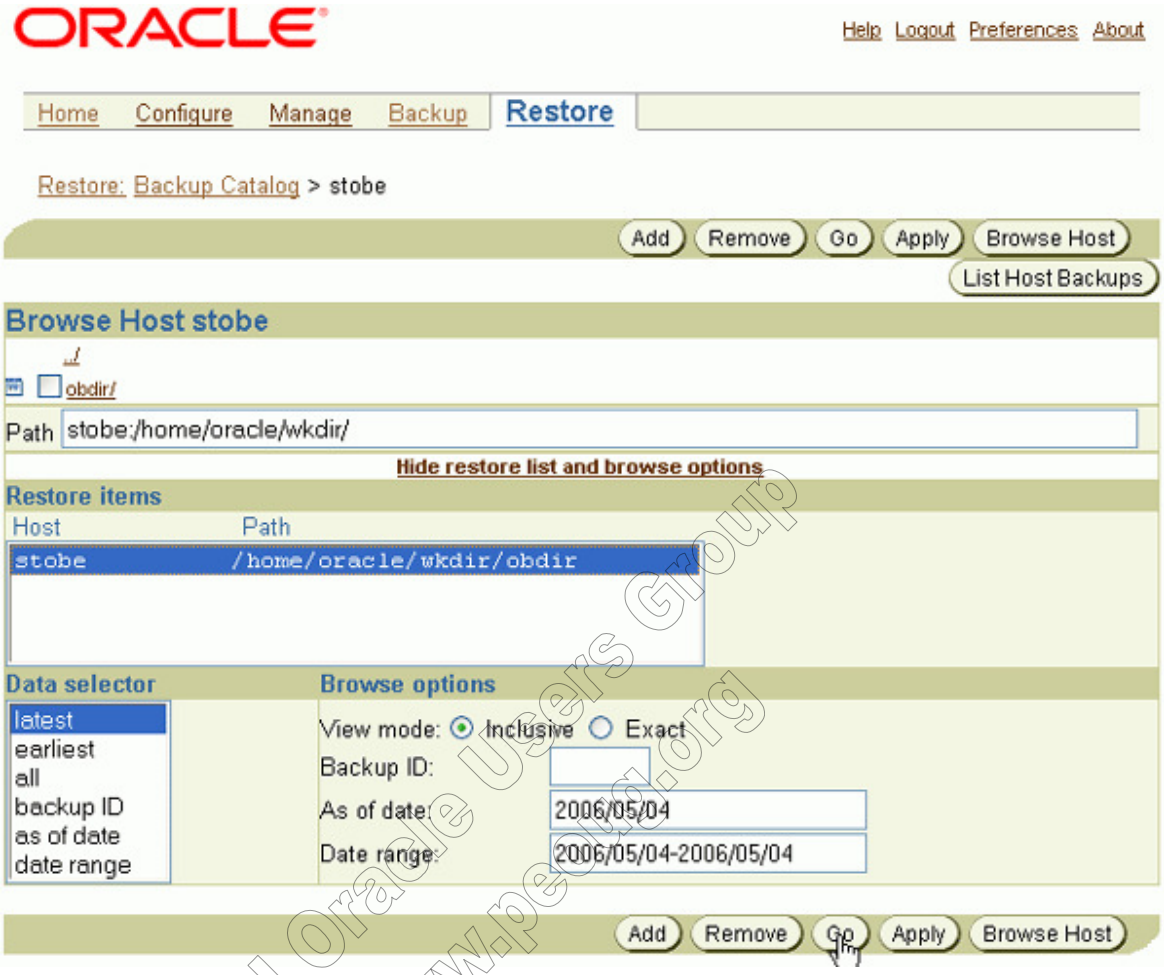

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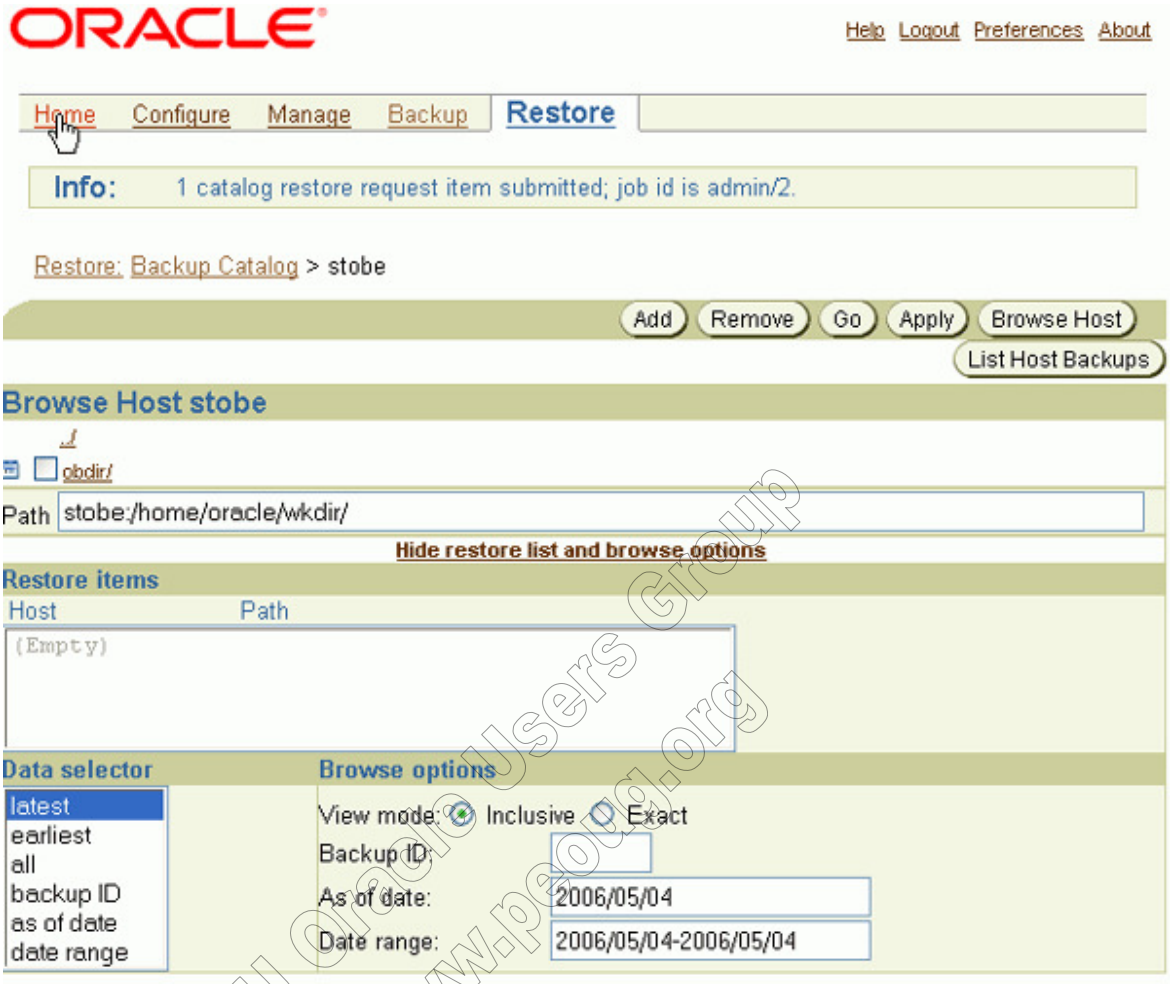
10. Note the "Info" message saying the job was submitted. Click **Home**.



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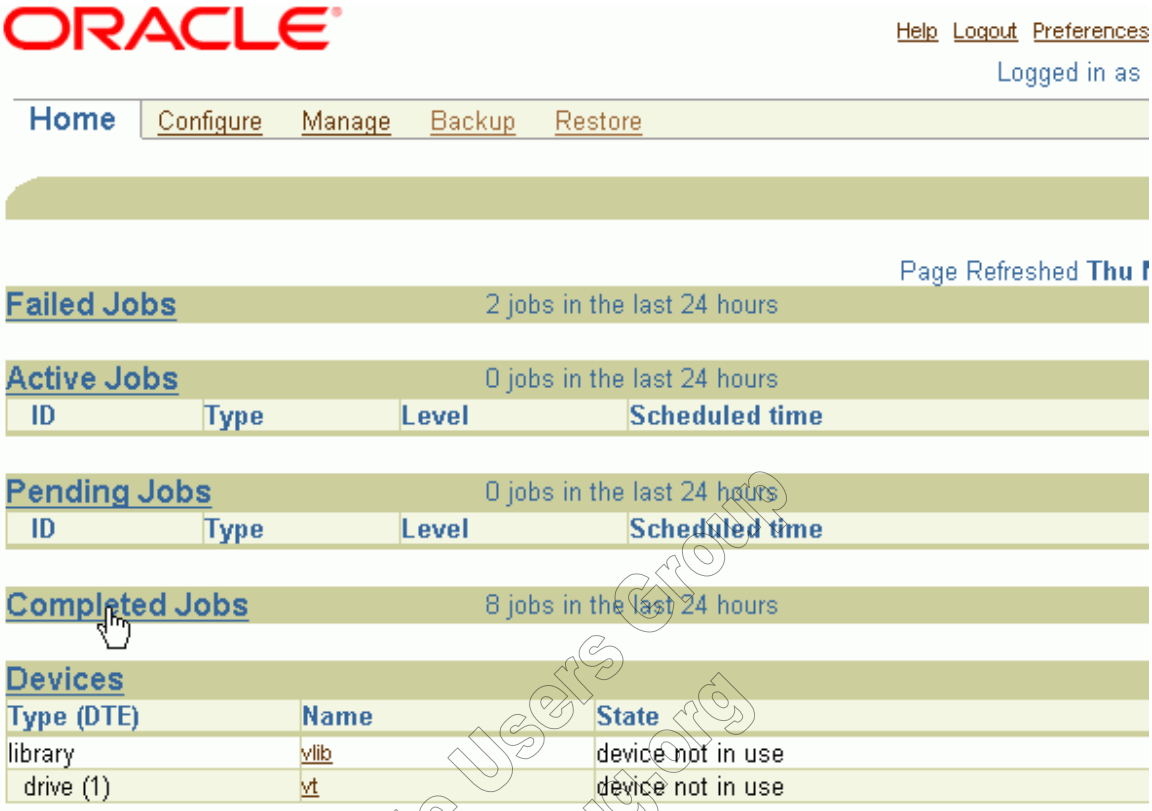
11. Click **Completed Jobs.**



12. You see that your restore completed successfully.

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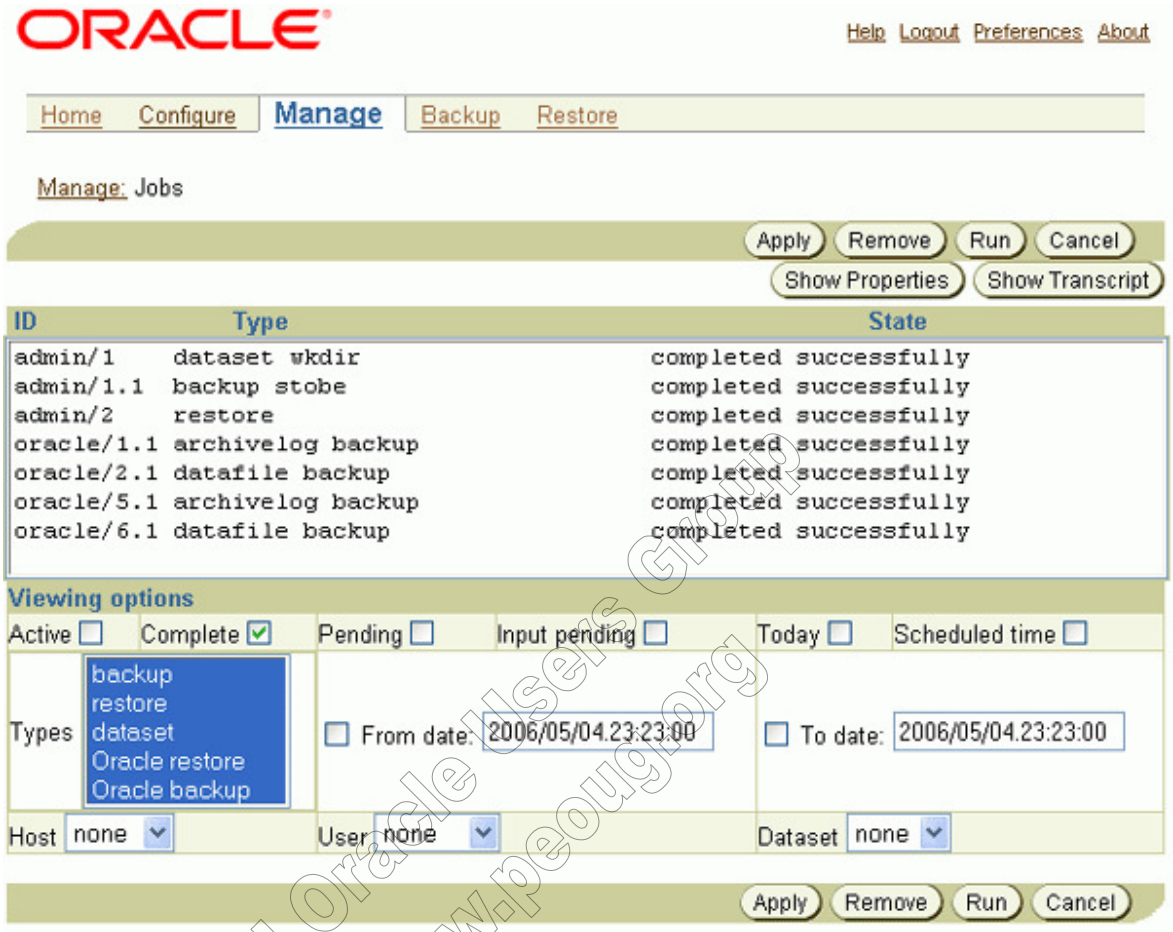

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13. Switch to your terminal window and enter the following commands to see the results of the restore:

```
cd /home/oracle/wkdir/obdir
ls -lR
```

```
[oracle@stobe obdir]$ cd /home/oracle/wkdir/obdir
[oracle@stobe obdir]$ ls -lR
.:
total 4
drwxr-xr-x    2 oracle   oracle       4096 May  4 23:04 dir2

./dir2:
total 8
-rw-r--r--    1 oracle   oracle         14 May  4 23:04 file3.txt
-rw-r--r--    1 oracle   oracle         14 May  4 23:04 file4.txt
[oracle@stobe obdir]$
```

Note that directory **dir2** has been restored, but not **dir1**. Also note that the file **core** has not been restored. This was as a result of the exclude path and name entries you set during the backup.

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