

Administration d'un serveur Oracle**Contenu**

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3. Managing tablespaces

1)

-Use Database Control to view all tablespaces in your database. For each tablespace, record the tablespace name, type, size and percent used.

Tablespaces

Search

Name

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Select Name	Type	Extent Management	Segment Management	Status	Size (MB)	Used (MB)	Used (%)
EXAMPLE	PERMANENT	LOCAL	AUTO	ONLINE	154,000	78,875	52.58
SYSTEM	PERMANENT	LOCAL	AUTO	ONLINE	216,000	209,953	99.55
SYSTEM	PERMANENT	LOCAL	MANUAL	ONLINE	448,000	434,913	98.82
TEMP	TEMPORARY	LOCAL	MANUAL	ONLINE	26,000	17,000	65.00
UNDOTBS1	UNDO	LOCAL	MANUAL	ONLINE	38,000	35,350	94.17
USERS	PERMANENT	LOCAL	AUTO	ONLINE	5,000	2,750	55.00

2)

-View all datafiles in your database. For each datafile record the file name, tablespace name, current size, autoextend status, and maximum file size (if autoextend is enabled).

Datafiles

Search

Name

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Select File Name	Tablespace	Status	Size (MB)	Used (MB)	Used (%)
/u01/app/oracle/oradata/orcl/system01.dbf	EXAMPLE	ONLINE	154,000	78,875	52.58
/u01/app/oracle/oradata/orcl/system01.dbf	SYSTEM	ONLINE	216,000	209,953	99.55
/u01/app/oracle/oradata/orcl/system01.dbf	SYSTEM	SYSTEM	448,000	434,913	98.82
/u01/app/oracle/oradata/orcl/temp01.dbf	TEMP	ONLINE	26,000	17,000	65.00
/u01/app/oracle/oradata/orcl/undotbs1.dbf	UNDOTBS1	ONLINE	38,000	35,350	94.17
/u01/app/oracle/oradata/orcl/users01.dbf	USERS	ONLINE	5,000	2,750	55.00

-The SYSTEM tablespace is over 90 % full. Based on the information you've just collected, should you be concerned?

Le tablespace SYSTEM contient le datafile /u01/app/oracle/oradata/orcl/system01.dbf, qui est lui même rempli à 98,82 %.

Au vu des infos données dans la partie "background", qui explique que les tablespaces contiennent les données pour les applications, on peut supposer que le tablespace SYSTEM contient les données système de Oracle, et qui il a été fait afin de juste contenir les informations nécessaires, d'où le fait que il soit quasiment plein.

De ce fait, il n'est pas nécessaire de s'inquiéter concernant le fait qu'il soit rempli à 90%.

-Why is autoextend an attribute of the data file rather than the tablespace?

Le datafile contient les données, c'est donc lui qui va augmenter au fur et à mesure que il a des nouveaux ajouts. Quand le fichier à besoin de place, le datafile augmente et le tablespace suis.

3)

-Create a new tablespace to hold information for the inventory application.

Create Tablespace

GeneralStorageThresholds

NameINVENTORY

Extent Management

Locally Managed

Dictionary Managed

Type

Permanent

Set as default permanent tablespace

Temporary

Set as default temporary tablespace

Undo

Status

Read Write

Read Only

Offline

Datfiles

Use bigfile tablespace

Tablespace can have only one datafile with no practical size limit.

Select Nameinventory11.dbfDirectory

:/u01/app/oracle/oradata/orcl/

GeneralStorageThresholds

Create Tablespace

GeneralStorageThresholds

Extent Allocation

Automatic

Uniform

Size

KB

Segment Space Management

Automatic

Manual

Enable logging

Yes

No

Block information

Block Size (B)8192

GeneralStorageThresholds

Database: orcl > Tablespaces > Create Tablespace

Create Tablespace

GeneralStorageThresholds

Tablespace Size (MB)Not available

Space Used (MB)Not available

Space Used (%)Not available

Space Used Thresholds

Use Default Thresholds

Modify Database Defaults

Warning (%)85

Critical (%)97

Specify Thresholds, by percent used

Warning (%)85

Critical (%)97

Disable Thresholds

GeneralStorageThresholds

3

Select Name	Type	Extent Management	Segment Management	Status	Size (MB)	Used (MB)	Used (%)
EXAMPLE	PERMANENT	LOCAL	AUTO	ONLINE	150,000	78,875	52.58
INVENTORY	PERMANENT	LOCAL	AUTO	ONLINE	50,000	0,63	0.13
SYSAUD	PERMANENT	LOCAL	AUTO	ONLINE	210,000	209,063	99.55
SYSTEM	PERMANENT	LOCAL	MANUAL	ONLINE	440,000	434,875	98.84
TEMP	TEMPORARY	LOCAL	MANUAL	ONLINE	20,000	17,000	85.00
UNDOTBS1	UNDO	LOCAL	MANUAL	ONLINE	30,000	25,313	84.38
USERS	PERMANENT	LOCAL	AUTO	ONLINE	5,000	2,750	55.00

4. Administrating Database Users

1)

-Create a profile named **HRPROFILE** that limits idle time to 15 minutes. Leave all other fields set to **DEFAULT**.

General
[Password](#)

★ Name

Details

CPU/Session (Sec./100)

CPU/Call (Sec./100)

Connect Time (Minutes)

Idle Time (Minutes)

Database Services

Concurrent Sessions (Per User)

Reads/Session (Blocks)

Reads/Call (Blocks)

Private SGA (KBytes)

Composite Limit (Service Units)

General
[Password](#)

2)

-Set the initialization parameter **RESOURCE_LIMIT** to **TRUE** so that your profile limits will be enforced.

Name	Help	Revisions	Value	Type
resource_limit			TRUE	Boolean

3)

-Create a role named **HRCLERK** without authentication and with **SELECT** and **UPDATE** permissions on the hr.employees table. This role will be used for clerks of the HR department.

General
[Roles](#)
[System Privileges](#)
[Object Privileges](#)
[Consumer Groups](#)

★ Name

Authentication

General
[Roles](#)
[System Privileges](#)
[Object Privileges](#)
[Consumer Groups](#)

Select	Object Privilege	Schema	Object
<input checked="" type="radio"/>	INSERT	HR	EMPLOYEES
<input type="radio"/>	SELECT	HR	EMPLOYEES

GeneralRolesSystem PrivilegesObject PrivilegesConsumer Groups

4)

-Create a role named **HRMANAGER** with **INSERT** and **DELETE** permissions on the hr.employees table. Grant the **HRCLERK** role to the **HRMANAGER** role. This role will be used by managers of the HR department.

GeneralRolesSystem PrivilegesObject PrivilegesConsumer Groups

★ Name

HRMANAGER

Authentication

None

GeneralRolesSystem PrivilegesObject PrivilegesConsumer Groups

GeneralRolesSystem PrivilegesObject PrivilegesConsumer Groups

Role

HRCLERK

Admin Option

☐

GeneralRolesSystem PrivilegesObject PrivilegesConsumer Groups

Database | Setup | Preferences | Help | Logout

Select	Object Privilege	Schema	Object
<input checked="" type="radio"/>	DELETE	HR	EMPLOYEES
<input type="radio"/>	INSERT	HR	EMPLOYEES

GeneralRolesSystem PrivilegesObject PrivilegesConsumer Groups

5)

-Create an account for David Hamby (DHAMBY), a new HR clerk. His profile is **HRPROFILE**, his password is newuser and this one expires immediately.

General [Roles](#) [System Privileges](#) [Object Privileges](#) [Quotas](#) [Consumer Groups](#) [Proxy Users](#)

★ Name

Profile

Authentication

★ Enter Password

★ Confirm Password

☒ Expire Password now

Default Tablespace

Temporary Tablespace

Status ☐ Locked ☒ Unlocked

General [Roles](#) [System Privileges](#) [Object Privileges](#) [Quotas](#) [Consumer Groups](#) [Proxy Users](#)

Role	Admin Option	Default
CONNECT	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HRCLERK	<input type="checkbox"/>	<input checked="" type="checkbox"/>

General [Roles](#) [System Privileges](#) [Object Privileges](#) [Quotas](#) [Consumer Groups](#) [Proxy Users](#)

6)

-Create an account for Jenny Goodman (JGOODMAN), the HR new manager. His profile is HRPROFILE, his password is newmanager and this one expire immediately.

Create User

Database: orcl > Users > Create User

General [Roles](#) [System Privileges](#) [Object Privileges](#) [Quotas](#) [Consumer Groups](#) [Proxy Users](#)

★ Name

Profile

Authentication

★ Enter Password

★ Confirm Password

☒ Expire Password now

Default Tablespace

Temporary Tablespace

Status ☐ Locked ☒ Unlocked

General [Roles](#) [System Privileges](#) [Object Privileges](#) [Quotas](#) [Consumer Groups](#) [Proxy Users](#)

7)

-Connect to the database as user DHAMBY using SQL*Plus. Attempts to select from the hr.employees table.

```

Enter user-name: DHAMBY
Enter password:
ERROR:
ORA-28001: the password has expired

Changing password for DHAMBY
New password:
Retype new password:
Password changed

Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> SELECT salary FROM hr.employees;

  SALARY
-----
    24000
    17000
    17000
     9000
     6000
     4800
     4800
     4200

```

8)

-New attempt to delete a record from the hr.employees table. You may get an error.

```

Elapsed: 00:00:00.00
SQL> DELETE FROM hr.employees
      2  WHERE salary = 8300;
DELETE FROM hr.employees
          *
ERROR at line 1:
ORA-01031: insufficient privileges

```

9)

-Connect to the database as JGOODMAN and attempt to select and then delete (employee_id = 143 for example) from the hr.employees table.

```

Enter user-name: JGOODMAN
Enter password:
ERROR:
ORA-28001: the password has expired

Changing password for JGOODMAN
New password:
Retype new password:
Password changed

Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Prod
With the Partitioning, OLAP and Data Mining options

SQL> DELETE FROM hr.employees
      2  WHERE employee_id = 143;

1 row deleted.

```

10)

-Roll back the delete operation because this was only a test.

```
SQL> ROLLBACK;

Rollback complete.

Elapsed: 00:00:00.00
SQL>
```

-When you created the new users you did not select a default temporary tablespace. What determines which tablespaces the new users will use?

Dans le cas où nous avons pas décider d'un tablespace temporaire pour un utilisateur, Oracle va utiliser "TEMP", qui est la tablespace temporaire par défaut:

Name

Default tablespace **No**

Extent Management	Type
<input checked="" type="radio"/> Locally Managed <input type="radio"/> Dictionary Managed	<input type="radio"/> Permanent <input type="checkbox"/> Set as default permanent tablespace <input checked="" type="radio"/> Temporary <input checked="" type="checkbox"/> Set as default temporary tablespace <input type="radio"/> Undo

Comme on peut le voir, elle a été définie ainsi.

-You did not grant the **CREATE SESSION** system privilege to either of the new users, but they can both connect to the database. Why?

Quand nous créons un utilisateur, il obtient le rôle de "connect" par défaut.
Ce rôle possède un ensemble de privilèges, comme celui de "create session", par exemple.

Edit Role: CONNECT

General	Roles	System Privileges	Object Privileges	Consumer Groups
System Privilege				
ALTER SESSION				
CREATE CLUSTER				
CREATE DATABASE LINK				
CREATE SEQUENCE				
CREATE SESSION				
CREATE SYNONYM				
CREATE TABLE				
CREATE VIEW				
General	Roles	System Privileges	Object Privileges	Consumer Groups

-Create a new user account to own database objects for a new inventory application. The username should be

INVENTORY with a password of verysecure. Make the user's default tablespace the **INVENTORY** tablespace. Grant the user the **CONNECT** and **RESOURCE** role. Also give him the **UNLIMITED_TABLESPACE** system privilege.

General Roles System Privileges Object Privileges Quotas Consumer Groups Proxy Users

* Name

Profile

Authentication

* Enter Password

* Confirm Password

☐ Expire Password now

Default Tablespace

Temporary Tablespace

Show

General	Roles	System Privileges	Object Privileges	Quotas	Consumer Groups	Proxy Users
System Privilege						Admin Option
UNLIMITED TABLESPACE						<input type="checkbox"/>
General	Roles	System Privileges	Object Privileges	Quotas	Consumer Groups	Proxy Users

Create User

Show SQL

General	Roles	System Privileges	Object Privileges	Quotas	Consumer Groups	Proxy Users
Role						Admin Option
CONNECT						<input type="checkbox"/>
RESOURCE						<input type="checkbox"/>
						Default
						<input checked="" type="checkbox"/>
						<input checked="" type="checkbox"/>
General	Roles	System Privileges	Object Privileges	Quotas	Consumer Groups	Proxy Users

-Leave one of the new users (RPANDYA) connected to the database during the next lesson. Verify that the user is automatically logged out after fifteen minutes.

Create User

General Roles System Privileges Object Privileges Quotas Consumer Groups Proxy Users

* Name

Profile

Authentication

* Enter Password

* Confirm Password

☐ Expire Password now

Default Tablespace

Temporary Tablespace

Status ☐ Locked ☒ Unlocked

General Roles System Privileges Object Privileges Quotas Consumer Groups Proxy Users

```

Enter user-name: RPANDYA
Enter password:

Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL>
SQL>
SQL>
SQL>
SQL> exit^H^H^H
Usage: { EXIT | QUIT } [ SUCCESS | FAILURE | WARNING | n |
    <variable> | :<bindvariable> ] [ COMMIT | ROLLBACK ]
ERROR:
ORA-02396: exceeded maximum idle time, please connect again

Disconnected from Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options (with complications)
[oracle@vmware oracle]$

```

5. Managing Schema Objects

1)

-In the **INVENTORY** tablespace, create the **PRODUCT_MASTER** table, in the **INVENTORY** schema, using Enterprise Manager.

General Constraints Storage Options Partitions

* Name:

Schema:

Tablespace: Estimate Table Size

Organization: Standard, Heap Organized

Define Using: Column Specification

Columns

Set Default LOB Attributes Insert Abstract Data Type Column Advanced Attributes Delete

Select	Name	Data Type	Size	Scale	Not NULL	Default Value
<input checked="" type="radio"/>	PRODUCT_ID	NUMBER	5		<input type="checkbox"/>	
<input type="radio"/>	PRODUCT_NAME	VARCHAR2	50		<input checked="" type="checkbox"/>	
<input type="radio"/>	CODE	VARCHAR2	20		<input checked="" type="checkbox"/>	
<input type="radio"/>	REORDER_THRESHOLD	NUMBER	5		<input type="checkbox"/>	
<input type="radio"/>	COST	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>	PRICE	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	

Add 5 Table Columns

Insert Abstract Data Type Column Advanced Attributes Delete

TIP Only table columns with a data type of BLOB, CLOB, NCLOB and TableType have advanced attributes.

Constraints

Edit Delete

Select	Name	Type	Table Columns	Disabled	Deferrable	Initially Deferred	Validate	RELY
<input type="radio"/>	PRODMASTER_PRODID_PK	PRIMARY	PRODUCT_ID	NO	NO	NO	YES	NO
<input checked="" type="radio"/>	CHECK_PRODUCTMASTER_REORDER	CHECK		NO	NO	NO	YES	NO

General Constraints Storage Options Partitions

2)

-In the **INVENTORY** tablespace, create the **PRODUCT_ON_HAND** table, in the **INVENTORY** schema.

Create Table

Show SQL Cancel OK

General Constraints Storage Options Partitions

* Name

Schema

Tablespace Estimate Table Size

Organization **Standard, Heap Organized**

Define Using Column Specification ▾

Columns

Set Default LOB Attributes

Insert Abstract Data Type Column Advanced Attributes Delete

Select	Name	Data Type	Size	Scale	Not NULL	Default Value
<input checked="" type="radio"/>	ON_HAND_ID	NUMBER ▾	5		<input type="checkbox"/>	
<input type="radio"/>	PRODUCT_ID	NUMBER ▾	5		<input type="checkbox"/>	
<input type="radio"/>	QUANTITY	NUMBER ▾	5		<input type="checkbox"/>	
<input type="radio"/>	WAREHOUSE_CITY	VARCHAR2 ▾	30		<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2 ▾			<input type="checkbox"/>	

Add 5 Table Columns

☒ TIP Only table columns with a data type of BLOB, CLOB, NCLOB and TableType have advanced attributes.

Database: orcl > Tables > Create Table

Logged in As SYS

Create Table

Show SQL Cancel OK

General Constraints Storage Options Partitions

PRIMARY ▾ Add

Edit Delete

Select	Name	Type	Table Columns	Disabled	Deferrable	Initially Deferred	Validate	RELY
<input type="radio"/>	<System Assigned 0>	PRIMARY	ON_HAND_ID	NO	NO	NO	YES	NO
<input checked="" type="radio"/>	PRODUCTONHAND_FOREIGNKEY_PRODUCTID	FOREIGN	PRODUCT_ID	NO	NO	NO	YES	NO

General Constraints Storage Options Partitions

3)

-Then create the **OBSOLETE_PRODUCTS** table.

Database: orcl > Tables > Create Table

Logged in As SYS

Create Table

Show SQL Cancel OK

General Constraints Storage Options Partitions

PRIMARY ▾ Add

Edit Delete

Select	Name	Type	Table Columns	Disabled	Deferrable	Initially Deferred	Validate	RELY
<input checked="" type="radio"/>	PRIMARYKEY_PRODUCTID	PRIMARY	PRODUCT_ID	NO	NO	NO	YES	NO

General Constraints Storage Options Partitions

Database: orcl > Tables > Create Table

Logged in As SY

Create Table

Show SQL

Cancel

OK

General Constraints Storage Options Partitions

* Name OBSOLETE_PRODUCTS

Schema INVENTORY

Tablespace INVENTORY

Estimate Table Size

Organization Standard, Heap Organized

Define Using Column Specification

Columns

Set Default LOB Attributes

Insert Abstract Data Type Column

Advanced Attributes

Delete

Select	Name	Data Type	Size	Scale	Not NULL	Default Value
<input checked="" type="radio"/>	PRODUCT_ID	NUMBER	5		<input type="checkbox"/>	
<input type="radio"/>	PRODUCT_NAME	VARCHAR2	50		<input checked="" type="checkbox"/>	
<input type="radio"/>	CODE	VARCHAR2	20		<input checked="" type="checkbox"/>	
<input type="radio"/>	COST	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>	PRICE	NUMBER	5	2	<input type="checkbox"/>	

Add 5 Table Columns

TIP Only table columns with a data type of BLOB, CLOB, NCLOB and TableType have advanced attributes.

4)

-In the **INVENTORY** tablespace, create an index on the **PRODUCT_NAME** and **CODE** columns of the **PRODUCT_MASTER** table in the **INVENTORY** schema.

Results

Create

Edit

View

Delete

Actions

Create Like

Go

Select	Table Owner	Table	Index Owner	Index	Index Type	Table Type	Tablespace	Partitioned	Status	Last Analyzed
<input checked="" type="radio"/>	INVENTORY	OBSOLETE_PRODUCTS	INVENTORY	PRIMARYKEY_PRODUCTID	NORMAL	TABLE	INVENTORY	NO	Valid	
<input type="radio"/>	INVENTORY	PRODUCT_MASTER	INVENTORY	PRODMASTER_PRODID_PK	NORMAL	TABLE	INVENTORY	NO	Valid	
<input type="radio"/>	INVENTORY	PRODUCT_MASTER	INVENTORY	INDEX_PRODUCTNAME_CODE	NORMAL	TABLE	INVENTORY	NO	Valid	
<input type="radio"/>	INVENTORY	PRODUCT_ON_HAND	INVENTORY	SYS_C005320	NORMAL	TABLE	INVENTORY	NO	Valid	

Show

General Storage Options Partitions

* Name INDEX_PRODUCTNAME_CODE

Schema INVENTORY

Tablespace INVENTORY

Estimate Index Size

Index Type ☒ Standard - B-tree ☐ Bitmap

Indexed Table Object

* Table Name INVENTORY.PRODUCT_MASTER

Populate Columns

TIP The indexed columns and their orders are indicated by the Order field

Table Columns

Column Name	Data Type	Sorting Order	Order
PRODUCT_NAM	COLUMN EXPRESSION	ASC	1
CODE	COLUMN EXPRESSION	ASC	2

Add Column Expression

Alias for table INVENTORY.PRODUCT_MASTER

This alias is required if the column expression references any object type attributes or object type methods.

-When you click OK to create the index, you switch to a list of indexes for the INVENTORY schema. Why are there four indexes when you've created only one?

En plus de l'index que je viens de créer, trois indexes ont été créés lorsque j'ai rajouté les contraintes "clé primaire" et "clé étrangère". Elles portent le nom que j'avais indiqué lors de la création des clés, sauf "SYS_C005320", qui concerne la clé primaire sur la table PRODUCT_ON_HAND, dû à un oubli d'avoir précisé un nom.

5)

-Create an index on the PRODUCT_ID and QUANTITY columns of the PRODUCT_ON_HAND table.

General | Storage | Options | Partitions

* Name: INDEX_PRODUCTID_QUANTITY
 Schema: INVENTORY
 Tablespace: INVENTORY
 Index Type: ☒ Standard - B-tree ☐ Bitmap

Indexed Table Object

* Table Name: INVENTORY.PRODUCT_ON_HAND

☒ TIP The indexed columns and their orders are indicated by the Order field

Column Name	Data Type	Sorting Order	Order
PRODUCT_ID	COLUMN EXPRESSION	ASC	1
QUANTITY	COLUMN EXPRESSION	ASC	2

Alias for table INVENTORY.PRODUCT_ON_HAND:
 This alias is required if the column expression references any object type attributes or object type methods.

6)

-You receive an update of the inventory application that requires you add two columns to the PRODUCT_MASTER table:

PRIMARY_SOURCE of datatype VARCHAR2(50)
 SECONDARY_SOURCE, VARCHAR2(50).

Edit Table: INVENTORY.PRODUCT_MASTER

General | Constraints | Segments | Storage | Options | Statistics

* Name: PRODUCT_MASTER
 Schema: INVENTORY
 Tablespace: INVENTORY
 Organization: Standard, Heap Organized
 Number of Indexes: 2

Columns

Select	Name	Data Type	Size	Scale	Not NULL	Default Value
<input checked="" type="radio"/>	PRODUCT_ID	NUMBER	5		<input checked="" type="checkbox"/>	
<input type="radio"/>	PRODUCT_NAME	VARCHAR2	50		<input checked="" type="checkbox"/>	
<input type="radio"/>	CODE	VARCHAR2	20		<input checked="" type="checkbox"/>	
<input type="radio"/>	REORDER_THRESHOLD	NUMBER	5		<input type="checkbox"/>	
<input type="radio"/>	COST	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>	PRICE	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>	PRIMARY_SOURCE	VARCHAR2	50		<input type="checkbox"/>	
<input type="radio"/>	SECONDARY_SOURCE	VARCHAR2	50		<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	

7)

-The inventory application also requires you add the column LAST_UPDATE of datatype DATE in PRODUCT_ON_HAND table.

* Name
 Schema
 Tablespace
 Organization **Standard, Heap Organized**
 Number of Indexes 2

Columns

Set Default LOB Attribute

Insert Abstract Data Type Column Advanced Attributes Delete

Select	Name	Data Type	Size	Scale	Not NULL	Default Value
<input checked="" type="radio"/>	ON_HAND_ID	NUMBER	5		<input checked="" type="checkbox"/>	
<input type="radio"/>	PRODUCT_ID	NUMBER	5		<input type="checkbox"/>	
<input type="radio"/>	QUANTITY	NUMBER	5		<input type="checkbox"/>	
<input type="radio"/>	WAREHOUSE_CITY	VARCHAR2	30		<input type="checkbox"/>	
<input type="radio"/>	LAST_UPDATE	DATE			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	

Add 5 Table Columns

8)

-Add a column named OBSOLETEED of datatype DATE to the OBSOLETE_PRODUCTS table.

* Name
 Schema
 Tablespace
 Organization **Standard, Heap Organized**
 Number of Indexes 1

Columns

Set Default LOB Attributes

Insert Abstract Data Type Column Advanced Attributes Delete

Select	Name	Data Type	Size	Scale	Not NULL	Default Value
<input checked="" type="radio"/>	PRODUCT_ID	NUMBER	5		<input checked="" type="checkbox"/>	
<input type="radio"/>	PRODUCT_NAME	VARCHAR2	50		<input checked="" type="checkbox"/>	
<input type="radio"/>	CODE	VARCHAR2	20		<input checked="" type="checkbox"/>	
<input type="radio"/>	COST	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>	PRICE	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>	OBSOLETEED	DATE			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	

Add 5 Table Columns

Insert Abstract Data Type Column Advanced Attributes Delete

9)

-You receive another update for the inventory application. This update instructs you to drop the OBSOLETE_PRODUCTS table and add a column OBSOLETEED to the PRODUCT_MASTER table.

* Name
 Schema
 Tablespace
 Organization **Standard, Heap Organized**
 Number of Indexes **2**

Columns

Set Default LOB Attributes Insert Abstract Data Type Column Advanced Attributes Delete						
Previous 1-10 of 13 Next 3						
Select	Name	Data Type	Size	Scale	Not NULL	Default Value
<input checked="" type="radio"/>	PRODUCT_ID	NUMBER	5		<input checked="" type="checkbox"/>	
<input type="radio"/>	PRODUCT_NAME	VARCHAR2	50		<input checked="" type="checkbox"/>	
<input type="radio"/>	CODE	VARCHAR2	20		<input checked="" type="checkbox"/>	
<input type="radio"/>	REORDER_THRESHOLD	NUMBER	5		<input type="checkbox"/>	
<input type="radio"/>	COST	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>	PRICE	NUMBER	5	2	<input type="checkbox"/>	
<input type="radio"/>	PRIMARY_SOURCE	VARCHAR2	50		<input type="checkbox"/>	
<input type="radio"/>	SECONDARY_SOURCE	VARCHAR2	50		<input type="checkbox"/>	
<input type="radio"/>	OBSOLETE	DATE			<input type="checkbox"/>	
<input type="radio"/>		VARCHAR2			<input type="checkbox"/>	

[Add 5 Table Columns](#)

10)

-Then, you have to create a view named WAREHOUSE_VW that shows (in order):

- The name of the product (product_name)
- The amount of the product on hand (quantity)
- The warehouse city name (warehouse_city)

General [Options](#) [Object](#)

Name **WAREHOUSE_VW**

Schema **INVENTORY**

Aliases

6. *Manipulating Database Data*

6.1) data pump

1/2/3)

- Create a directory to be used by Data Pump.
- Using SQL*Plus, log on to your instance as user SYSTEM and create a table to be used for testing Data Pump.
- Still within SQL*Plus, create the Oracle directory to be used by Data Pump and grant all users permission to read and write to the directory.


```

[oracle@vmware home]$ mkdir /home/oracle/tp_dtp
[oracle@vmware home]$ sqlplus

SQL*Plus: Release 10.1.0.3.0 - Production on Tue May 29 19:41:40 2018

Copyright (c) 1982, 2004, Oracle. All rights reserved.

Enter user-name: system
Enter password:

Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> CREATE TABLE dtp_test AS SELECT * FROM all_users:^[D^H
2
SQL> CREATE TABLE dtp_test AS SELECT * FROM all_users;

Table created.

Elapsed: 00:00:00.07
SQL> SELECT COUNT(*) FROM dtp_test;

   COUNT(*)
-----
         33

Elapsed: 00:00:00.00
SQL> CREATE DIRECTORY tp_dtp AS 'home/or^[D
2
SQL> CREATE DIRECTORY tp_dtp AS '/home/oracle/tp_dtp';

Directory created.

Elapsed: 00:00:00.02
SQL> GRANT read, write ON DIRECTORY tp_dtp TO PUBLIC;

Grant succeeded.

Elapsed: 00:00:00.02
SQL> exit
Disconnected from Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options
[oracle@vmware home]$ █

```

7)

-Select Tables and enter an operating system username and password with read/write permissions on the directory specified in step 3.

Database: orcl > Export: Export Type

Export: Export Type

Database orcl

Database

Exports the entire database.

Schemas

Allows you to choose one or more schemas and to export the objects in those schemas.

Tables

Allows you to choose one or more tables to export from a selected schema.

Host Credentials

* Username oracle
* Password
☒ Save as Preferred Credential

8)

-On the next screen, click Add, and specify SYSTEM as the schema and dtp_test as the table.

Export: Add Tables

Database orcl

Tables and/or partitions must all belong to the same schema.

Search

Enter the full name of the schema or select a schema from which to display schema tables in the Search Results table. Enter search criteria in the Table field to filter the list of tables from the schema.

Schema SYSTEM
Only tables from the selected schema will be found.
Table DTP_TEST
All tables names containing this string will be found.
Search for ☐ Tables ☐ Partitions

Search Results

Select All | Select None

Select Schema

☒ SYSTEM

Tables

DTP_TEST

9)

-Then, choose the directory DTP_DIR as the location for the logfile.

Export: Options

Database orcl

Estimate Disk Space

Calculates an estimate of how much disk space the export job will consume (in bytes). The estimate is for table row data only and does not include metadata.

Blocks

Estimate will be calculated by multiplying the number of database blocks used by the target objects times the appropriate block sizes. This method will provide the quickest rough estimate.

Statistics

Estimate will be calculated using per-table statistics. This method will provide the most accuracy if all target tables have been recently analyzed.

Estimate Disk Space Now

Calculate the estimate of space that will be consumed without actually performing the export operation. This may take a few minutes.

Optional File

☒ Generate Log File

Directory Object TP_DTP

Create Directory Object

Log File EXPDAT.LOG

► Show Advanced Options

10)

-Choose dtp_dir as the location.

Export: Files

Database **orcl**

Specify the directory object and file name, and maximum size for the export files on the database server machine.

Select Directory Object



TP_DTP

File Name

EXPDAT%U.DMP

Add Another Row

You can wildcard a set of dump files using "%U" in the filename.

13)

-From an operating system prompt, navigate to the directory specified in step 3. There will be a file EXPDAT01.DMP, which is the export dump file, and a logfile, EXPDAT.LOG. Examine the logfile to check that the job did complete successfully.

```

oracle@vmware home1$ cd oracle/tp_dtp/
oracle@vmware tp_dtp]$ ls
EXPDAT01.DMP  EXPDAT.LOG
oracle@vmware tp_dtp]$ cat EXPDAT.LOG
Job "SYSTEM"."EXPORT000003" stopped by user request at 22:35
Starting "SYSTEM"."EXPORT000003":
Job EXPORT000003 has been reopened at Tuesday, 29 May, 2018 22:35
Restarting "SYSTEM"."EXPORT000003":
Estimate in progress using BLOCKS method...
Processing object type TABLE_EXPORT/TABLE/TBL_TABLE_DATA/TABLE/TABLE_DATA
   estimated "SYSTEM"."DTP_TEST"                        64 KB
Total estimation using BLOCKS method: 64 KB
Processing object type TABLE_EXPORT/TABLE/TABLE
   . exported "SYSTEM"."DTP_TEST"                        6.226 KB          33 rows
Master table "SYSTEM"."EXPORT000003" successfully loaded/unloaded
*****
Dump file set for SYSTEM.EXPORT000003 is:
  /home/oracle/tp_dtp/EXPDAT01.DMP
Job "SYSTEM"."EXPORT000003" successfully completed at 22:36
oracle@vmware tp_dtp]$

```

6.2) SQL loader

1)

-Use the control file lab_12_a.ctl to load data from the text file lab_12_a.dat into the PRODUCT_MASTER table.

```
load data
infile 'lab_12_a.dat' "str '\n'"
append
into table INVENTORY.PRODUCT_MASTER
fields terminated by ','
(PRODUCT_ID,PRODUCT_NAME,CODE)
```

```
GNU nano 1.2.1 File: lab_12_a.dat
,pomme,01
,poison,02
,mirroir,03
,nain de jardin,04
```

```
[oracle@vmware orcl]$ sqlldr userid=\sys/oracle AS SYSDBA\ control=lab_12_a.ctl
SQL*Loader: Release 10.1.0.3.0 - Production on Tue May 29 23:04:40 2018
Copyright (c) 1982, 2004, Oracle. All rights reserved.
Commit point reached - logical record count 5
[oracle@vmware orcl]$
```

```
SQL> select * from inventory.product_master;

PRODUCT_ID PRODUCT_NAME
-----
CODE          REORDER_THRESHOLD      COST      PRICE
-----
PRIMARY_SOURCE
-----
SECONDARY_SOURCE          OBSOLETE
-----
01          1 pomme
02          2 poison
03          3 mirroir
04          4 nain de jardin
```

2)

Use the
control file

lab_12_f.ctl to load data from the text file lab_12_f.dat into the PRODUCT_ON_HAND table.

```
GNU nano 1.2.1 File: lab_12_f.ctl
load data
infile 'lab_12_f.dat' "str '\n'"
append
into table INVENTORY.PRODUCT_ON_HAND
fields terminated by ','
(ON_HAND_ID,PRODUCT_ID)
```

```
GNU nano 1.2.1 File: lab_12_f.dat
1,01
2,02
3,03
4,04
```

```
[oracle@vmware-0rc11] $ sqlldr userid=\ sys/oracle AS SYSDBA \ control=lab_1
SQL*Loader: Release 10.1.0.3.0 - Production on Wed May 30 00:10:42 2018
Copyright (c) 1982, 2004, Oracle. All rights reserved.
Commit point reached - logical record count 5
```

```
Elapsed: 00:00:00.00
SQL> select * from inventory.product_on_hand;

ON_HAND_ID PRODUCT_ID QUANTITY WAREHOUSE_CITY LAST_UPDA
-----
1          1          1
2          2          2
3          3          3
4          4          4

Elapsed: 00:00:00.01
```

7. Creating and Using Password Profiles

3/4)

-Click Create to reach the Create Profile window, and enter STRICT as the profile name. Take the Password link to reach the password controls window.

-Set limits for your STRICT profile. Users assigned to this profile will have to change their passwords after two weeks, and they will have three days to do so. A password can only ever be used once, and after two failed login attempts the account will be locked, but only for one minute.

Create Profile

General	Password
* Name <input type="text" value="STRICT"/>	
Details	
CPU/Session (Sec./100)	<input type="text" value="DEFAULT"/>
CPU/Call (Sec./100)	<input type="text" value="DEFAULT"/>
Connect Time (Minutes)	<input type="text" value="DEFAULT"/>
Idle Time (Minutes)	<input type="text" value="DEFAULT"/>
Database Services	
Concurrent Sessions (Per User)	<input type="text" value="DEFAULT"/>
Reads/Session (Blocks)	<input type="text" value="DEFAULT"/>
Reads/Call (Blocks)	<input type="text" value="DEFAULT"/>
Private SGA (KBytes)	<input type="text" value="DEFAULT"/>
Composite Limit (Service Units)	<input type="text" value="DEFAULT"/>
General	Password

Edit Profile: STRICT

General	Password
Password	
Expire in (days)	<input type="text" value="14"/>
Lock (days past expiration)	<input type="text" value="3"/>
History	
Number of passwords to keep	<input type="text" value="1"/>
Number of days to keep for	<input type="text" value="UNLIMITED"/>
Complexity	
Complexity function	<input type="text" value="DEFAULT"/>
Failed Login	
Number of failed login attempts to lock after	<input type="text" value="2"/>
Number of days to lock for	<input type="text" value="1"/>
General	Password

9)

-In the Edit User: SYSTEM window, select the STRICT profile and expire the password.

Edit User: SYSTEM



Update Message

User SYSTEM has been modified successfully

General

[Roles](#) [System Privileges](#) [Object Privileges](#) [Quotas](#) [Consumer Groups](#) [Proxy Users](#)

Name **SYSTEM**

Profile **STRICT**

Authentication **Password**

* Enter Password

* Confirm Password

Password Status **Expired**

Enter and confirm a password to un-expire the password

Default Tablespace

Temporary Tablespace

Status ☐ Locked ☒ Unlocked

General

[Roles](#) [System Privileges](#) [Object Privileges](#) [Quotas](#) [Consumer Groups](#) [Proxy Users](#)

13)

-Attempt to change the password to the value it is already.

```
Copyright (c) 1982, 2004, Oracle. All rights reserved.

Enter user-name: system
Enter password:
ERROR:
ORA-28001: the password has expired

Changing password for system
New password:
Retype new password:
ERROR:
ORA-28007: the password cannot be reused

Password unchanged
Enter user-name: 
```

15)

-Attempt to connect three times with the wrong password. At the third attempt, you will be told that the account is locked. Wait at least one minute, and then connect with the correct password.

```

oracle@vmware orcl]$ sqlplus

SQL*Plus: Release 10.1.0.3.0 - Production on Wed May 30 01:23:24 2018

Copyright (c) 1982, 2004, Oracle. All rights reserved.

Enter user-name: system
Enter password:
ERROR:
ORA-01017: invalid username/password; logon denied

Enter user-name: system
Enter password:
ERROR:
ORA-01017: invalid username/password; logon denied

Enter user-name: system
Enter password:
ERROR:
ORA-28000: the account is locked

P2-0157: unable to CONNECT to ORACLE after 3 attempts, exiting SQL*Plus
oracle@vmware orcl]$ sqlplus

```

16)

-Tidy up by assigning **SYSTEM** back to the default profile and dropping the STRICT profile.

```

Connected to:
Oracle Database 10g Enterprise Edition Release 10.
With the Partitioning, OLAP and Data Mining option

SQL> ALTER USER systel^H
2
SQL> a^H
1* ALTER USER systel
SQL>
SQL> ALTER USER system PROFILE default;

User altered.

Elapsed: 00:00:00.03
SQL> DROP Profile strict;

Profile dropped.

Elapsed: 00:00:00.08
SQL>

```


8. Enabling Auditing

2)

-Set the **AUDIT_TRAIL** instance parameter to enable auditing to the data dictionary. As this is a static parameter, you must use the **SCOPE** clause and restart the instance.

```
Enter user-name: sys as sysdba
Enter password:

Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL>
SQL>
SQL> ALTER SYSTEM SET audit_trail=db SCOPE=spfile;

System altered.

Elapsed: 00:00:00.01
SQL> STARTUP FORCE;
ORACLE instance started.

Total System Global Area 167772160 bytes
Fixed Size 778212 bytes
Variable Size 61874204 bytes
Database Buffers 104857600 bytes
Redo Buffers 262144 bytes
Database mounted.
Database opened.
SQL> █
```

4)

-Create a table and insert some rows.

```
Enter user-name: system
Enter password:

Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> CREATE TABLE audit_test (name VARCHAR2(10), salary NUMBER);

Table created.

Elapsed: 00:00:00.09
SQL> INSERT INTO audit_test VALUES ('McGraw',100);

1 row created.

Elapsed: 00:00:00.01
SQL> INSERT INTO audit_test VALUES ('Hill',200);

1 row created.
```

5)

-Enable database auditing of access to the table.

```
Elapsed: 00:00:00.01
SQL> AUDIT select,update ON system.audit_test;

Audit succeeded.
```

6)

-Execute some statements against the table.

```

Elapsed: 00:00:00.04
SQL> SELECT * FROM audit_test;

NAME                SALARY
-----
McGraw              100
Hill                 200

Elapsed: 00:00:00.03
SQL> Upda^H^H^H
SP2-0042: unknown command "U" - rest of line ignored.
SQL> UPDATE audit_test SET salary = 50
      2 WHERE name='McGraw';

1 row updated.

```

7)

-Query the DBA_AUDIT_TRAIL view to see the results of the auditing.

```

Elapsed: 00:00:00.03
SQL> SELECT username,userhost,os_username,ses_actions,obj_name FROM dba_audit_trail;

USERNAME
-----
USERHOST
-----
OS_USERNAME
-----
SES_ACTIONS
-----
OBJ_NAME
-----
SYSTEM
vmware.labo-oracle.com
oracle
-----SS-----
AUDIT_TEST

Elapsed: 00:00:00.05

```

8)

-Create an FGA policy to capture all SELECTs against the AUDIT_TEST table that read the SALARY column, if the salary retrieved is greater than 100.

```

Elapsed: 00:00:00.05
SQL> EXEC dbms_fga.add_policy ( object_schema => 'system', object_name => 'audit_test', policy_name => 'high_sal', audit_condition => 'salary > 100', audit_colu
mn => 'salary', statement_types => 'select');

PL/SQL procedure successfully completed.

```

9)

-Run some queries against the table.

```

Elapsed: 00:00:00.08
SQL>
SQL> SELECT * FROM audit_test;

NAME                SALARY
-----
McGraw              50
Hill                200

Elapsed: 00:00:00.05
SQL> SELECT salary FROM audit_test WHERE name='Hill';

SALARY
-----
200

Elapsed: 00:00:00.01
SQL> SELECT salary FROM audit_test WHERE name='McGraw';

SALARY
-----
50

Elapsed: 00:00:00.01
SQL> SELECT name FROM audit_test;

NAME
-----
McGraw
Hill

Elapsed: 00:00:00.01
SQL>

```

10)

-Query the fine-grained audit trail.

```

SQL> select os_user,db_user,sql_text from dba_fga_audit_trail;

OS_USER
-----
DB_USER
-----
SQL_TEXT
-----
oracle
SYSTEM
SELECT * FROM audit_test

oracle
SYSTEM
SELECT salary FROM audit_test WHERE name='Hill'

```

11)

-Tidy up by canceling the database auditing, dropping the FGA policy, and dropping the table.

```

Elapsed: 00:00:00.02
SQL> NOAUDIT select, update ON system.audit_test;

Noaudit succeeded.

Elapsed: 00:00:00.04
SQL> EXEC dbms_fga.drop_policy ( object_name
BEGIN dbms_fga.drop_policy ( object_name; END;

                                *

ERROR at line 1:
ORA-06550: line 1, column 41:
PLS-00103: Encountered the symbol ";" when expecting one of the following:
. ( ) , * @ % & | = - + < / > at in is mod remainder not
range rem => .. <an exponent (**)> <> or != or ~= >= <= <>
and or like as between from using || multiset member
SUBMULTISET
The symbol ";" was substituted for ";" to continue.

Elapsed: 00:00:00.01
SQL> EXEC dbms_fga.drop_policy ( object_name => 'audit_test', policy_name => 'high_sal');

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.03
SQL> d^H
SP2-0042: unknown command "" - rest of line ignored.
SQL> DROP TABLE audit_test;

Table dropped.

Elapsed: 00:00:00.31
SQL>

```

9. monitoring and Management

9.1) Managing Database Performance

9.1.1) *Repairing Invalid Objects*

2)

-Create a user TESTUSER to be used for this exercise; grant him the DBA privilege.

```

SQL>
SQL> CREATE USER TESTUSER IDENTIFIED BY oracle;

User created.

Elapsed: 00:00:00.05
SQL> GRANT dba To^H
2
SQL> GRAND
SP2-0042: unknown command "GRAND" - rest of line ignored.
SQL> GRANT DBA TO testuser IDENTIFIED BY oracle;

Grant succeeded.

Elapsed: 00:00:00.06
SQL>

```

3)

-Connect as TESTUSER, and create some objects.

```

Elapsed: 00:00:00.01
SQL> CREATE TABLE testtab(n1 NUMBER,d1 DATE);

Table created.

Elapsed: 00:00:00.08
SQL> INSERT INTO testtab v^H
  2 ;
INSERT INTO testtab v
                        *
ERROR at line 1:
ORA-00911: invalid character

Elapsed: 00:00:00.01
SQL> INSERT INTO testtab VALUES (1,SYSDATE);

1 row created.

Elapsed: 00:00:00.01
SQL> CREATE OR REPLACE VIEW v1 AS SELECT d1 FROM testtab;

View created.

Elapsed: 00:00:00.03
SQL> CREATE OR REPLACE PROCEDURE p1 AS cnt NUMBER;
  2 BEGIN
  3 SELECT COUNT(*) INTO cnt FROM testtab;
  4 END;
  5 /

Procedure created.

Elapsed: 00:00:00.10

```

4)

-Confirm the status of the objects.

```

Elapsed: 00:00:00.10
SQL> select object_name,object_type,status FROM user_objects;

OBJECT_NAME
-----
OBJECT_TYPE      STATUS
-----
V1
VIEW             VALID

TESTTAB
TABLE           VALID

P1
PROCEDURE       VALID

Elapsed: 00:00:00.05

```

5)

-Perform a DDL command on the table.

```
SQL> ALTER TABLE testtab DROP COLUMN d1;

Table altered.

Elapsed: 00:00:00.13
```

6)

-Re-run the query from step 4. Note that both the procedure and the view are now INVALID.

```
Elapsed: 00:00:00.05
SQL> ALTER TABLE testtab DROP COLUMN d1;

Table altered.

Elapsed: 00:00:00.11
SQL> SELECT object_name,object_type,status FROM user_objects;

OBJECT_NAME
-----
OBJECT_TYPE      STATUS
-----
V1
VIEW              INVALID

TESTTAB
TABLE             VALID

P1
PROCEDURE         INVALID

Elapsed: 00:00:00.05
SQL>
```

7)

-Recompile the procedure.

```
Elapsed: 00:00:00.05
SQL> ALTER PROCEDURE p1 COMPILE;

Procedure altered.

Elapsed: 00:00:00.12
```

8)

-Re-compile the view.

```
Elapsed: 00:00:00.12
SQL> ALTER VIEW v1 COMPILE;

Warning: View altered with compilation errors.

Elapsed: 00:00:00.09
```

9)

-To diagnose the problem, query the DBA_DEPENDENCIES view.

```

REFERENCED_NAME
-----
REFERENCED_OWNER      REFERENCED_TYPE
-----
TESTTAB
TESTUSER              TABLE

D1
TESTUSER              NON-EXISTENT

D1
PUBLIC                NON-EXISTENT

Elapsed: 00:00:00.06
SQL>

```

10)

-To pinpoint the exact problem, retrieve the code on which the view is based.

```

SQL> SELECT text FROM user_views WHERE view_name = 'V1';

TEXT
-----
SELECT d1 FROM testtab

```

11)

-To fix the problem, add the column back to the table and recompile.

```

Elapsed: 00:00:00.06
SQL> ALTER TABLE testtab ADD (d1 DATE);

Table altered.

Elapsed: 00:00:00.08
SQL> ALTER VIEW v1 COMPL
2
SQL> ALTER VIEW v1 COMPILE;
2
SQL> ALTER VIEW v1 COMPILE;

View altered.

Elapsed: 00:00:00.08
SQL>

```

12)

-Confirm that all the objects are now valid by re-running the query from step 4.

```
SQL> SELECT object_name,object_type,status FROM user_objects;
```

OBJECT_NAME	OBJECT_TYPE	STATUS
V1	VIEW	VALID
TESTTAB	TABLE	VALID
P1	PROCEDURE	VALID

13)

-Tidy up by dropping view and procedure.

```
SQL> DROP VIEW v1;
View dropped.
Elapsed: 00:00:00.17
SQL> DROP PROCEDURE p1;
Procedure dropped.
Elapsed: 00:00:00.08
SQL>
```

9.1.2)Repairing Unusable Indexes

1)

-In your SQL*Plus session, connect as TESTUSER and create two indexes.

```
SQL> CREATE INDEX d1_idx ON testtab(d1);
Index created.
Elapsed: 00:00:00.05
SQL> CREATE INDEX n1_idx ON testtab(n1);
Index created.
```

2)

-Confirm the index creation and status. Both will be VALID.

```
SQL> SELECT index_name,status FROM user_indexes;
```

INDEX_NAME	STATUS
D1_IDX	VALID
N1_IDX	VALID

3)

-Move the table.

```
SQL> alter table testtab MOVE;
Table altered.
```

4)

-Run the query from step 2 again. The move of the table, which changed any rowids, will have rendered the indexes unusable.

```
SQL> select index_name,status from user_indexes;

INDEX_NAME          STATUS
-----
D1_IDX              UNUSABLE
N1_IDX              UNUSABLE
```

5)

-Rebuild one index, using the NOLOGGING and ONLINE options.

```
SQL> ALTER INDEX n1_idx REBUILD ONLINE NOLOGGING;
Index altered.
```

8)

-In the Search section of the Indexes window, enter TESTUSER as the Schema, and click Go. This will show the two indexes on the TESTTAB table, one of which, D1_IDX, is still unusable.

Search

Select an object type and optionally enter a schema name and an object name to filter the data that is displayed in your results set.

Object Type	Search By	Schema	Object Name
Index	Table Name	TESTUSER	

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string.

Results

Select	Table Owner	Table	Index Owner	Index	Index Type	Table Type
<input checked="" type="radio"/>	TESTUSER	TESTTAB	TESTUSER	D1_IDX	NORMAL	TABLE
<input type="radio"/>	TESTUSER	TESTTAB	TESTUSER	N1_IDX	NORMAL	TABLE

9)

-Select the radio button for the unusable index, select Reorganize in the Actions drop-down box, and click Go to launch the Reorganize Objects Wizard.

Reorganize Objects: Objects

Database **orcl**
 Logged In As **SYSTEM**

This table contains the schema objects to be reorganized. Click Add to add schema objects to the table.

Select	Name	Type	Current Tablespace
<input checked="" type="radio"/>	TESTUSER.D1_IDX	Index	USERS

10)

-Click Next, leave all the options on default, and click Next again to generate the reorganization script and reach the Impact Report window. This should confirm that there is sufficient free space for the operation to proceed. Click Next to proceed.

Reorganize Objects: Impact Report

Database **orcl** Schema Objects **1** Cancel Back Step 4 of 6 Next

Logged In As **SYSTEM**

Script Generation Summary

Most Serious Message Severity **INFORMATION**
 Generation Started **May 30, 2018 4:26:19 AM**
 Generation Completed **May 30, 2018 4:26:19 AM**

Script Generation Information

The following table provides information about the objects and resources examined during script generation and lists details of any warnings or errors detected.

Object Name	Object Type	Message Severity	Message Type	Message
USERS	TABLESPACE	INFORMATION	Plan	Sufficient free space in Tablespace USERS. Starting Freespace with automatic extension: 33551408KB. Ending Freespace: 33551408KB. Lowest Freespace: 33551344KB.
TESTUSER	USER	INFORMATION	Plan	Sufficient tablespace quota for User TESTUSER.

[Printable Page](#)

11)

-On the Reorganize Objects: Schedule window, leave everything on default to run the job immediately, and click Next to reach the Review window.

Reorganize Objects: Schedule

Database **orcl** Schema Objects **1** Cancel Back Step 4 of 6 Next

Logged In As **SYSTEM**

Job Name: **REORGANIZE_ORCL_124**
 Description:

Host Credentials

Username: **oracle**
 Password: *********
☒ Save as Preferred Credential

Start

☒ Immediately
☐ Later
 Date: **Jun 6, 2018** (example: Jun 6, 2018)
 Time: **8:05** AM

12)

-In the Review window, click Submit Job to rebuild the index.

Job Activity

Page Refreshed May 30, 2018 4:28:23 AM

Confirmation

The job was created successfully

REORGANIZE_ORCL_21

Search

Name:
 Owner: **SYSTEM**
 Status: **Running**
 Scheduled Start: **Last 24 hours**
 Job Type: **All**
 Target Type: **All Targets**
 Target Name:
☐ Show jobs to which I have not been granted view access
Can only be checked if exactly one target is selected. The jobs will be listed, but their results cannot be viewed.

Go

Results

View: **Runs** Create Job **CloneHome** Go

Select	Name	Status (Executions)	Scheduled	Targets	Target Type	Owner	Job Type
	No Jobs						

Related Links

[Job Library](#)

13)

-In your SQL*Plus session, confirm that the index is now valid by running the query from step 2.

```
Elapsed: 00:00:00.01
SQL> SELECT index_name,status FROM user_indexes;

INDEX_NAME                STATUS
-----
D1_IDX                     VALID
N1_IDX                     VALID

Elapsed: 00:00:00.08
```

9.1.3)Automating Statistics Collection

3/4)

-Click Create to reach the Create Job window. In the Credential section, enter the Name as Analyze testtab, and leave everything else on default.

-In the Command section, replace the sample code.

Database: orcl > Scheduler Jobs > Create Job

Create Job

General

* Name

* Owner

Enabled ☒ Yes ☐ No

Description

Logging Level

Specify logging requirements for the job

Job Class

Auto Drop

Specify whether the job should be dropped after completion

Restartable

Specify whether the job can be restarted manually or in the event of failure

Command

Select the command type for the job, then enter the command requirements.

Command Type **PL/SQL Block**

PL/SQL

```
BEGIN
dbms_stats.gather_table_stats(
ownname => 'TESTUSER',
tablename => 'TESTTAB',
estimate_percent=> 100,
cascade => true,
method_opt => 'for all indexed columns size auto');
END;
```

General

[Schedule](#) [Options](#)

5)

-Take the Schedule link to reach the Schedule window. Leave everything on default, to run the job once only right away, and return to the Scheduler Jobs window.

Edit Job: TESTUSER.ANALYZETESTTAB

[General](#) [Schedule](#) [Options](#)

Schedule Type: Standard

Time Zone: GMT +02:00 [Change Time Zone](#)

Repeating

Repeat: Do Not Repeat

Start

☐ Immediately

☒ Later

Date: Jun 6, 2018
(example: Jun 6, 2018)

Time: 9:51:10 AM ☒ PM

[General](#) [Schedule](#) [Options](#)

6)

-Take the Run History link, and you will see that the job has succeeded.

View Purge Log					
Select	Name	Owner	Status	Completion Date	Run Duration (minutes)
<input checked="" type="radio"/>	ANALYZE_TESTTAB	TESTUSER	SUCCEEDED	May 30, 2018 4:43:34 AM +02:00	0.0

[Scheduled](#) [Running](#) [Disabled](#) [Run History](#)

7)

-In your SQL*Plus session, set your NLS_DATE_FORMAT session parameter to show the full time and confirm that statistics were indeed collected.

```
SQL> SELECT * FROM USER_SCHEDULER_JOB_LOG;

LOG_ID
-----
LOG_DATE
-----
OWNER          JOB_NAME
-----
JOB_CLASS      OPERATION
-----
STATUS         USER_NAME
-----
CLIENT_ID
-----
GLOBAL_UID
-----
ADDITIONAL_INFO
-----
165
30-MAY-18 04.43.34.131679 AM +02:00
TESTUSER      ANALYZE_TESTTAB
DEFAULT_JOB_CLASS  RUN
SUCCEEDED

166
30-MAY-18 04.43.34.133586 AM +02:00
TESTUSER      ANALYZE_TESTTAB
DEFAULT_JOB_CLASS  SUCCEEDED

REASON="Run once job disabled"
```

8)

-Tidy up by connecting as user SYSTEM and dropping the TESTUSER schema.

```
Elapsed: 00:00:00.07
SQL> DROP USER TESTUSER CASCADE;

User dropped.

Elapsed: 00:00:02.61
SQL> █
```

9.2) Monitoring Oracle

9.2.1) Generating an ADDM Report

2)

-Force the creation of an AWR snapshot.

```
SQL> EXEC dbms_workload_repository.create_snapshot;

PL/SQL procedure successfully completed.

Elapsed: 00:00:10.53
```

3)

-Simulate a workload by creating a table and running this anonymous PL/SQL block to generate some activity.

```
SQL> CREATE TABLE temptab AS SELECT * FROM all_objects;

Table created.

Elapsed: 00:00:00.90
SQL> BEGIN
  2  FOR i IN 1..10 LOOP
  3  INSERT INTO temptab
  4  SELECT * FROM all_objects;
  5  DELETE FROM temptab;
  6  END LOOP;
  7  COMMIT;
  8  END;
  9  /

PL/SQL procedure successfully completed.
```

4)

-Repeat the command from step 2 to generate another snapshot.

```
SQL> EXEC dbms_workload_repository.create_snapshot;

PL/SQL procedure successfully completed.

Elapsed: 00:00:00.82
```

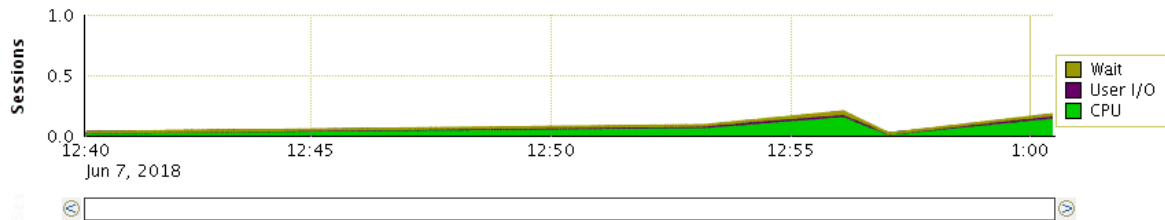
7)

-select the radio button for the latest ADDM report, and click View Result.

Automatic Database Diagnostic Monitor (ADDM)

Database Activity

The selected icon below the graph identifies the performance analysis period. Click on a different icon to select a different analysis period.



Performance Analysis

Task Name **ADDM:1124801342_1_10 (End Time:Jun 7, 2018 1:00:29 AM)**

Database Time (minutes) **0.65** Period Start Time **Jun 7, 2018 12:57:04 AM** Period Duration (minutes) **3.42**
 Task Owner **SYSTEM** Average Active Sessions **0.19**

Informational Findings

9)

-Tidy up by dropping the TMPTAB table.

```
SQL> DROP TABLE tmpTAB;

Table dropped.

Elapsed: 00:00:00.36
```


10. Managing Undo

10.1) Creating an Undo Tablespace with Database Control

4/5/6/7)

- Enter UNDO2 as the tablespace name, and set the radio buttons to Extent Management “Locally Managed”, Type “Undo”, and Status “Read Write”.
- At the bottom of the screen, click Add to specify a datafile.
- Enter UNDO2-01.DBF as the File Name, leave everything else on default, and click Continue.
- On the Create Tablespace screen, click Show SQL, and study the statement used to create your undo tablespace. Click Return to return to the Create Tablespace screen, and click OK to create the tablespace.

Create Tablespace

General | Storage | Thresholds

Show SQL Cancel OK

* Name UNDO2

Extent Management

☒ Locally Managed
☐ Dictionary Managed

Type

☐ Permanent
☐ Set as default permanent tablespace
☐ Temporary
☐ Set as default temporary tablespace
☒ Undo

Status

☒ Read Write
☐ Read Only
☐ Offline

Datafiles

☐ Use bigfile tablespace
Tablespace can have only one datafile with no practical size limit.

Add Edit Remove

Select Name	Directory	Size (MB)
<input checked="" type="radio"/> UNDO2-01.DBF	/u01/app/oracle/oradata/orcl/	100.00

General | Storage | Thresholds

Show SQL Cancel OK

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About Oracle Enterprise Manager 10g Database Control

Database | [Setup](#) | [Preferences](#) | [Help](#) | [Logout](#)

9)

- Run this query, which will return one row for each tablespace in your database, and note that your new tablespace has contents UNDO, meaning that it can only be used for undo segments, and that retention is NOGUARANTEE, a topic covered shortly.

```
SQL> SELECT tablespace_name,contents,retention FROM dba_tablespaces;
```

TABLESPACE_NAME	CONTENTS	RETENTION
SYSTEM	PERMANENT	NOT APPLY
UNDOTBS1	UNDO	NOGUARANTEE
SYSAUX	PERMANENT	NOT APPLY
TEMP	TEMPORARY	NOT APPLY
USERS	PERMANENT	NOT APPLY
EXAMPLE	PERMANENT	NOT APPLY
INVENTORY	PERMANENT	NOT APPLY
UNDO2	UNDO	NOGUARANTEE

3 rows selected.

10)

- Run this query, which will return one row for each rollback or undo segment in your database, and note that a number of undo segments have been created automatically in your new undo tablespace, but that they are all offline. Also note that the names of the automatic undo segments are in the form of “_SYSSMU n ”, where n is the undo segment number (usn).


```
SQL> SELECT tablespace_name,segment_name,status FROM dba_rollback_segs;
```

TABLESPACE_NAME	SEGMENT_NAME	STATUS
SYSTEM	SYSTEM	ONLINE
UNDOTBS1	_SYSSMU1\$	ONLINE
UNDOTBS1	_SYSSMU2\$	ONLINE
UNDOTBS1	_SYSSMU3\$	ONLINE
UNDOTBS1	_SYSSMU4\$	ONLINE
UNDOTBS1	_SYSSMU5\$	ONLINE
UNDOTBS1	_SYSSMU6\$	ONLINE
UNDOTBS1	_SYSSMU7\$	ONLINE
UNDOTBS1	_SYSSMU8\$	ONLINE
UNDOTBS1	_SYSSMU9\$	ONLINE
UNDOTBS1	_SYSSMU10\$	ONLINE
UND02	_SYSSMU11\$	OFFLINE
UND02	_SYSSMU12\$	OFFLINE
UND02	_SYSSMU13\$	OFFLINE
UND02	_SYSSMU14\$	OFFLINE
UND02	_SYSSMU15\$	OFFLINE
UND02	_SYSSMU16\$	OFFLINE
UND02	_SYSSMU17\$	OFFLINE
UND02	_SYSSMU18\$	OFFLINE
UND02	_SYSSMU19\$	OFFLINE
UND02	_SYSSMU20\$	OFFLINE

21 rows selected.

10.2)Monitoring Undo With SQL*Plus

2)

-Set up your session for displaying dates conveniently.

```
Elapsed: 00:00:00.05
SQL> ALTER SESSION SET nls_date_format = 'dd/mm/yy hh24:mi:ss';

Session altered.

Elapsed: 00:00:00.05
SQL>
```

3)

-Query V\$UNDOSTAT.

```
SQL> select begin_time,undoblks,maxquerylen,ssolderrcnt,nospaceerrcnt from v$undostat;
```

BEGIN_TIME	UNDOBLKS	MAXQUERYLEN	SSOLDERRCNT	NOSPACEERRCNT
30/05/18 06:42:30	69	0	0	0
30/05/18 06:32:30	38	0	0	0
30/05/18 06:22:30	61	0	0	0
30/05/18 06:12:30	67	0	0	0
30/05/18 06:02:30	48	0	0	0
30/05/18 05:52:30	179	0	0	0
30/05/18 05:42:30	145	0	0	0
30/05/18 05:32:30	33	0	0	0
30/05/18 05:22:30	195	0	0	0
30/05/18 05:12:30	19574	0	0	0
30/05/18 05:02:30	49	0	0	0
30/05/18 04:52:30	127	0	0	0
30/05/18 04:42:30	61	0	0	0
30/05/18 04:32:30	43	0	0	0
30/05/18 04:22:30	115	0	0	0
30/05/18 04:12:30	72	0	0	0
30/05/18 04:02:30	27	0	0	0
30/05/18 03:52:30	157	0	0	0
30/05/18 03:42:30	61	0	0	0
30/05/18 03:32:30	36	0	0	0
30/05/18 03:22:30	69	0	0	0
30/05/18 03:12:30	59	0	0	0
30/05/18 03:02:30	44	0	0	0
30/05/18 02:52:30	146	0	0	0
30/05/18 02:42:30	71	0	0	0
30/05/18 02:32:30	32	0	0	0
30/05/18 02:22:30	73	0	0	0
30/05/18 02:12:30	408	0	0	0
30/05/18 02:02:30	91	0	0	0
30/05/18 01:52:30	305	150	0	0

5)

-Calculate the minimum necessary size in bytes for your undo tablespace that will prevent errors, given your current activity data.

```
SQL> SELECT (SELECT MAX(undoblks)/600 * MAX(maxquerylen) FROM v$undostat) * (SELECT value FROM v$parameter WHERE name='db_block_size') FROM dual;
(SELECTMAX(UNDOBLKS)/600*MAX(MAXQUERYLEN)FROMV$UNDOSTAT)*(SELECTVALUEFROMV$PARAM
-----
40087552
```

11. Backup and Recovery

11.1) Configuring the Database for Backup and Recovery

2)

-Disable checkpoint tuning by setting the FAST_START_MTTR_TARGET parameter to zero.

```
SQL>
SQL> alter system set fast_start_mttr_target = 0;
System altered.
Elapsed: 00:00:00.04
SQL>
```

3)

-Simulate a workload by creating a table and starting a transaction.

```
SQL> CREATE TABLE t1 AS SELECT * FROM all_objects WHERE 1=2;
Table created.
Elapsed: 00:00:00.12
SQL> INSERT INTO t1 SELECT * FROM all_objects;
47750 rows created.
Elapsed: 00:00:02.35
SQL>
```

4)

-Run a query to see how much work would be required to recover the instance if it crashed right now.

```
SQL> SELECT recovery_estimated_ios,actual_redo_blks,estimated_mttr FROM v$instance_recovery;
RECOVERY_ESTIMATED_IOS ACTUAL_REDO_BKLS ESTIMATED_MTTR
-----
649 17844 11
Elapsed: 00:00:00.04
```

6)

-Commit the transaction, and re-run the query from Step 3. Note that nothing much has changed: COMMIT has no effect on DBWn and will not advance the checkpoint position.

```
Elapsed: 00:00:00.12
SQL> commit;
Commit complete.
Elapsed: 00:00:00.02
SQL> SELECT recovery_estimated_ios,actual_redo_blks,estimated_mttr FROM v$instance_recovery;
RECOVERY_ESTIMATED_IOS ACTUAL_REDO_BKLS ESTIMATED_MTTR
-----
699 18006 11
Elapsed: 00:00:00.06
SQL>
```

-Issue a manual checkpoint.

```
SQL> ALTER SYSTEM checkpoint;

System altered.

Elapsed: 00:00:00.11
```

8)

-Re-run the query from Step 4. Note that the RECOVERY_ESTIMATED_IOS and ACTUAL_REDO_BKLS columns have dropped substantially, perhaps to zero. The ESTIMATED_MTTR column may not have reduced, because this column is not updated in real time.

```
SQL> SELECT recovery_estimated_ios,actual_redo_blks,estimated_mttr FROM v$instance_recovery;

RECOVERY_ESTIMATED_IOS ACTUAL_REDO_BKLS ESTIMATED_MTTR
-----
20 23 10

Elapsed: 00:00:00.07
```

9)

-Tidy up by dropping the table.

```
SQL> DROP TABLE t1;

Table dropped.

Elapsed: 00:00:00.36
```

11.2) Backing Up an Oracle Database

11.2.1) Part One

2)

-In the Backup Strategy drop-down box, select Customized and click the Whole Database radio button. In the Host Credentials section, enter an operating system username and password. Click Next to reach the Schedule Backup: Options window.

Schedule Backup: Strategy

Based on your disk and/or tape configuration, Oracle provides an automated backup strategy, or you can develop your own backup strategy with customized options.

Backup Strategy

Object ☒ Whole Database

Type You may only perform an offline backup of the whole database. If the database is OPEN at the time of backup, the database will be shut down and mounted before the backup. The database will be opened after the backup.

☐ All Recovery Files on Disk

These files include all archivelogs and disk backups that are not already backed up to tape

Host Credentials

To perform a backup, supply operating system login credentials.

* Username

* Password

☒ Save as Preferred Credential

Backup Strategies

Oracle-suggested:

- Provides an out-of-the-box backup strategy based on the backup destination. Options may vary based on the database version.
- Sets up recovery window for backup management
- Automates backup management
- Schedules recurring backups

Customized:

- Specify the objects to be backed up
- Choose a disk or tape backup destination
- Override the default backup settings
- Schedule the backup

3)

-Leave everything on defaults: a full, online backup with all archive logs. Click Next to reach the Schedule Backup: Settings window.

Schedule Backup: Options

Backup Type

☒ Full Backup

☐ Use as the base of an incremental backup strategy

☐ Incremental Backup (Level 1)

Level 1 incremental backup includes all the changed blocks since the most recent level 0 backup (cumulative).

☐ Refresh the latest datafile copy on disk to the current time using the incremental backup

Advanced

☐ Use proxy copy supported by media management software to perform a backup

If proxy copy of the selected files is not supported, Recovery Manager will perform a conventional backup.

☐ Delete obsolete backups

Delete backups that are no longer needed to satisfy the retention policy.

Maximum Files per Backup Set

The maximum number of input files in each backup set.

[Return to Strategy Type Selection](#)

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4)

-Leave everything on default to schedule a disk backup to your flash recovery area directory. Click Next to reach the Schedule Backup: Schedule window.



Schedule Backup: Settings

Here are the settings for your current backup job. You can select your backup destination directly from this page. You

☒ Disk

Flash Recovery Area **/u01/app/oracle/flash_recovery_area**

☐ Tape

Media Management Vendor(MMV) Library Parameters **not specified**

[View Default Settings](#)

[Override Current Settings](#)

Changed settings will only apply to the current backup.

[Return to Strategy Type Selection](#)

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5)

-Leave everything on default to run the backup immediately as a one-off job. Click Next to reach the Schedule Backup: Review window.

Schedule Backup: Schedule

Job

Schedule

Time Zone GMT +2:00

Start

- ☒ Immediately
☐ Later

Date Jun 9, 2018
(example: Jun 9, 2018)

Time 2 00 AM PM

Repeat

- ☒ One Time Only
☐ Interval
☐ Monthly
☐ Yearly

Frequency 1 Minutes

Repeat Until

- ☒ Indefinite
☐ Custom

Date Jun 9, 2018
(example: Jun 9, 2018)Time 3 00 AM PM
(Ignored except when repeating by minutes or hours.)
[Return to Strategy Type Selection](#)

6)

-Click the Submit Job button to launch the backup.

Schedule Backup: Review

[Cancel](#) [Edit RMAN Script](#) [Back](#) **Step 4 of 4** [Submit Job](#)

Warning

Offline Backup - If the database is OPEN at the time of backup, the database will be shut down and mounted before the backup. The database will be opened after the backup.

Database **orcl**
 Backup Strategy **Customized**
 Object Type **Whole Database**
 Backup Type **Full Backup**
 Backup Mode **Offline Backup**

Settings

Flash Recovery Area /u01/app/oracle/flash_recovery_area

[Return to Strategy Type Selection](#)
[Cancel](#) [Edit RMAN Script](#) [Back](#) **Step 4 of 4** [Submit Job](#)

7)

-Click the View Job button to check how the job is running, and then refresh the browser window to monitor progress.

Execution: orcl

Page Refreshed May 30, 2018 7:22:46 AM Delete Run Edit

Summary

The Stop and Suspend operations will wait for the current step to complete. A suspended job can be resumed later, at the next step. Stop

Status **Running**

Scheduled **May 30, 2018 7:22:42 AM GMT+02:00**

Started **May 30, 2018 7:22:44 AM GMT+02:00**

Elapsed Time **2 seconds**

Type **Backup**

Owner **SYSTEM**

Description **Whole Database Backup**

Host Username **oracle**

Database Connect String **(DESCRIPTION=(ADDRESS_LIST=(ADDR...**

Database Username **SYSTEM**

Database Role **[NORMAL]**

Oracle Home **[/u01/app/oracle/product/10.1.0/...]**

Oracle SID **[orcl]**

Version 10g or higher **YES**

Backup Strategy **advanced**

Offline Backup **YES**

do_blackout **NO**

Recovery Catalog **NO**

rman_perl_script **Show**

Logs

Search Go Advanced Search

Name	Targets	Status	Started	Ended	Elapsed Time (seconds)
Prebackup	orcl	Scheduled	May 30, 2018 7:22:45 AM GMT+02:00		

Delete Run Edit

Job Run: BACKUP_ORCL_000002 at Jun 9, 2018 3:55:54 PM GMT+02:00 > Execution: orcl

Execution: orcl

Summary

The Stop and Suspend operations will wait for the current step to complete. A suspended job can be resumed later, at the next step.

Status **Running**

Scheduled **Jun 9, 2018 3:55:54 PM GMT+02:00**

Started **Jun 9, 2018 3:55:56 PM GMT+02:00**

Elapsed Time **10 seconds**

Logs

Search Go

Name	Targets	Status	Started
Prebackup	orcl	Succeeded	Jun 9, 2018 3:56:01 PM GMT+02:00
Backup	orcl	Scheduled	Jun 9, 2018 3:56:01 PM GMT+02:00

Job Run: BACKUP_ORCL_000002 at Jun 9, 2018 3:55:54 PM GMT+02:00 > Execution: orcl

Execution: orcl

Summary

The Stop and Suspend operations will wait for the current step to complete. A suspended job can be resumed later, at the next step.

Status **Running**

Scheduled **Jun 9, 2018 3:55:54 PM GMT+02:00**

Started **Jun 9, 2018 3:55:56 PM GMT+02:00**

Elapsed Time **2 minutes, 43 seconds**

Logs

Search Go

Name	Targets	Status	Started
Prebackup	orcl	Succeeded	Jun 9, 2018 3:56:01 PM GMT+02:00
Backup	orcl	Succeeded	Jun 9, 2018 3:56:06 PM GMT+02:00
Post Backup	orcl	Scheduled	Jun 9, 2018 3:58:31 PM GMT+02:00

11.2.2)Part Two

2)

-Issue this command:

```
With the Partitioning, OLAP and Data Mining options
SQL> ALTER DATABASE BACKUP controlfile TO trace;
Database altered.
```

3)

-Locate your user dump destination.

```
SQL> show parameters user_dump_dest;

NAME                                TYPE        VALUE
-----
user_dump_dest                      string      /u01/app/oracle/admin/orcl/udu
mp
```

5)

-Identify the newest file in the directory.Open the trace file with any editor you please and study the contents.

```
-rw-r----- 1 oracle oinstall 785 May 30 07:23 orcl_ora_833.trc
-rw-r----- 1 oracle oinstall 638 May 30 07:23 orcl_ora_1069.trc
-rw-r----- 1 oracle oinstall 1730 May 30 07:26 orcl_ora_1088.trc
-rw-r----- 1 oracle oinstall 6720 May 30 21:07 orcl_ora_21032.trc
```

11.3)Recovering Oracle Databases*11.3.1)Part One*

1)

-Connect to your database with SQL*Plus, and ensure that your controlfile is multiplexed.

```
SQL> SELECT * FROM v$controlfile;

STATUS
-----
NAME
-----
IS_
---
/u01/app/oracle/oradata/orcl/control01.ctl
NO

/u01/app/oracle/oradata/orcl/control02.ctl
NO

/u01/app/oracle/oradata/orcl/control03.ctl
NO
```

3)

-Issue a startup command. The startup will stop in nomount mode, with an “ORA-00205: error in identifying controlfile, check alert log for more info” error message.

```

Enter user-name: sys as sysdba
Enter password:
Connected to an idle instance.

SQL> startup
ORACLE instance started.

Total System Global Area  167772160 bytes
Fixed Size                  778212 bytes
Variable Size              66068508 bytes
Database Buffers          100663296 bytes
Redo Buffers               262144 bytes
ORA-00205: error in identifying controlfile, check alert log for more info

```

4)

-Copy your surviving controlfile to the name and location of the file you renamed.

```

[oracle@vmware orcl]$ ls
control01.ctl.old  inventory01.dbf  lab_12_a.log  lab_12_f.log  sysaux01.dbf  undotbs01.dbf
control02.ctl     lab_12_a.bad    lab_12_f.bad  redo01.log    system01.dbf  users01.dbf
control03.ctl     lab_12_a.ctl    lab_12_f.ctl  redo02.log    temp01.dbf
example01.dbf     lab_12_a.dat    lab_12_f.dat  redo03.log    UNDO02-01.DBF
[oracle@vmware orcl]$ mv control01.ctl.old control01.ctl
[oracle@vmware orcl]$ sqlplus

```

5)

-Issue another startup command, which will be successful.

```

Enter user-name: sys as sysdba
Enter password:
Connected to an idle instance.

SQL> startup
ORACLE instance started.

Total System Global Area  167772160 bytes
Fixed Size                  778212 bytes
Variable Size              66068508 bytes
Database Buffers          100663296 bytes
Redo Buffers               262144 bytes
Database mounted.
Database opened.

```


11.3.2)Part Two

2)

-Observe the state of your online logs.

```

Elapsed: 00:00:00.01
SQL> SELECT group#,status,member FROM v$logfile ORDER BY group#,
      1
      2
      3
      4
      5
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      7
      8
      9
     10
     11
     12
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6)

-Start up the database and simulate user activity by performing a few log switches.

```
SQL> ALTER SYSTEM switch logfile;

System altered.

Elapsed: 00:00:05.13
SQL> /

System altered.

Elapsed: 00:00:00.02
SQL> /

System altered.

Elapsed: 00:00:02.81
```

7)

-Check the state of your logfile members.

```
Elapsed: 00:00:02.81
SQL> SELECT group#,status,member FROM v$logfile ORDER BY group#

  GROUP# STATUS
-----
MEMBER
-----
         1 INVALID
/u01/app/oracle/oradata/orcl/redo01.log

         1
/u01/app/oracle/oradata/orcl/redo01B.log

         2
/u01/app/oracle/oradata/orcl/redo02.log

         2
/u01/app/oracle/oradata/orcl/redo02B.log

         3
/u01/app/oracle/oradata/orcl/redo03.log

         3
/u01/app/oracle/oradata/orcl/redo03B.log

6 rows selected.
```

11)

-Clear the logfile group by selecting its radio button using the Clear Logfile choice in the Actions drop-down list, and clicking Go.

						Create
						Edit View Delete Actions Clear logfile Go
Status		# of Members Archived		Size (KB)	Sequence	First Change#
Inactive		2 No		10240	317	811081
Inactive		2 No		10240	318	811082
Current		2 No		10240	319	811083

Database: orcl > Redo Log Groups

Redo Log Groups



Update Message

Log group successfully cleared.

Search

Name

Go

To run an exact match search or to run a case sensitive search, double quote the search criteria. The wildcard (%) symbol can still be used in a double quoted search string

Results

Select	Group	Status	# of Members	Archived
<input checked="" type="radio"/>	1	Unused	2	No
<input type="radio"/>	2	Inactive	2	No
<input type="radio"/>	3	Current	2	No

12)

-In your SQL*Plus session, confirm that the problem has been fixed.

```
Elapsed: 00:00:00.01
SQL> SELECT group#,status,member FROM v$logfile ORDER BY group#;

  GROUP# STATUS
-----
MEMBER
-----
         1
/u01/app/oracle/oradata/orcl/redo01.log
         1
/u01/app/oracle/oradata/orcl/redo01B.log
         2
/u01/app/oracle/oradata/orcl/redo02.log
         2
/u01/app/oracle/oradata/orcl/redo02B.log
         3
/u01/app/oracle/oradata/orcl/redo03.log
         3
/u01/app/oracle/oradata/orcl/redo03B.log

6 rows selected.

Elapsed: 00:00:00.02
```

11.3.3)Part Three

1)

-Connect to your database as user SYSTEM using SQL*Plus, and create a tablespace.

```
Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> create tablespace noncrit datafile
  2  '/u01/app/oracle/oradata/orcl/noncrit.dbf' size 2m;

Tablespace created.
```

2)

-Create a table within the new tablespace and insert a row into it.

```
Elapsed: 00:00:00.20
SQL> create table ex1133 (c1 date) tablespace noncrit;

Table created.

Elapsed: 00:00:00.10
SQL> insert into ex1133 values(sysdate);

1 row created.

Elapsed: 00:00:00.00
SQL> commit;

Commit complete.
```

5)

-In the Schedule Backup: Strategy window, select Customized in the Backup Strategy drop-down box.

Database: orcl

Schedule Backup: Strategy

Based on your disk and/or tape configuration, Oracle provides an automated backup strategy, or you can develop your own backup strategy with customized options.

Backup Strategy Customized

Object ☒ Whole Database

Type You may only perform an offline backup of the whole database. If the database is OPEN at the time of backup, the database will be shut down and mounted before the backup. The database will be opened after the backup.

☐ All Recovery Files on Disk

These files include all archivelogs and disk backups that are not already backed up to tape

Host Credentials

To perform a backup, supply operating system login credentials.

* Username
 * Password
☒ Save as Preferred Credential

A partir de ce point, je n'ai pas pu malheureusement trouver une manière de faire un backup des tablespaces. Comme on peut le voir sur la capture d'écran, je n'ai pas d'option pour effectuer la sauvegarde des tablespaces.

Je me suis donc permis de faire un peu de recherche afin de trouver une manière de corriger ce problème. J'ai cru comprendre qu'il était possible de configurer ses propres backups avec le lien "Configure Backup Settings":

Backup/Recovery

[Schedule Backup](#)

[Perform Recovery](#)

[Manage Current Backups](#)

[Configure Backup Settings](#)

[Configure Recovery Settings](#)

[Configure Recovery Catalog Settings](#)

Mais je n'ai pas réussi à trouver une manière de configurer un backup des tablespaces via cette option là.

Cependant, comme on peut voir dans la partie 12 "Recovery manager", il est possible de faire un backup du tablespace avec RMAN et la commande "backup tablespace NONCRIT".

12. recovery manager

12.1) Recovery Manager Configuration

1)

-Connect to your database as the target database in the default NOCATALOG mode as the SYSTEM user.

```
[oracle@vmware oradata]$ rman TARGET system/oracle NOCATALOG
Recovery Manager: Release 10.1.0.3.0 - Production
Copyright (c) 1995, 2004, Oracle. All rights reserved.
connected to target database: ORCL (DBID=1124801342)
using target database controlfile instead of recovery catalog
```

2)

-Use the **RMAN SHOW ALL** command to generate a listing of the **RMAN** configuration settings.

```
RMAN> SHOW ALL;

RMAN configuration parameters are:
CONFIGURE RETENTION POLICY TO REDUNDANCY 1; # default
CONFIGURE BACKUP OPTIMIZATION OFF; # default
CONFIGURE DEFAULT DEVICE TYPE TO DISK; # default
CONFIGURE CONTROLFILE AUTOBACKUP OFF; # default
CONFIGURE CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE DISK TO '%F'; # default
CONFIGURE DEVICE TYPE DISK PARALLELISM 1 BACKUP TYPE TO BACKUPSET; # default
CONFIGURE DATAFILE BACKUP COPIES FOR DEVICE TYPE DISK TO 1; # default
CONFIGURE ARCHIVELOG BACKUP COPIES FOR DEVICE TYPE DISK TO 1; # default
CONFIGURE MAXSETSIZE TO UNLIMITED; # default
CONFIGURE ARCHIVELOG DELETION POLICY TO NONE; # default
CONFIGURE SNAPSHOT CONTROLFILE NAME TO '/u01/app/oracle/product/10.1.0/db_1/dbs/snapcf_orcl.f'; # default
```

3)

-Configure **RMAN** to automatically back up the control file and SPFILE whenever a backup of the database or data files is taken.

```
# default
RMAN> CONFIGURE CONTROLFILE AUTOBACKUP ON;

new RMAN configuration parameters:
CONFIGURE CONTROLFILE AUTOBACKUP ON;
new RMAN configuration parameters are successfully stored
```

9)

-Choose "Retain backups that are necessary for a recovery to any time within the specified number of days and specify a value of 2. To save the modified details, enter the Host Credentials of oracle/oracle and click OK.

(Add)

Select	Tablespace Name	Tablespace Number	Status	Contents
<input type="checkbox"/>	No Items Selected			

☒ **TIP** These tablespaces can be backed up separately using tablespace backup.

Retention Policy

☐ Retain All Backups
You must manually delete any backups

☒ Retain backups that are necessary for a recovery to any time within the specified number of days (point-in-time recovery) Days
Recovery Window

☐ Retain at least the specified number of full backups for each datafile Backups
Redundancy

Host Credentials

To save the backup settings, supply operating system login credentials.

* Username

* Password

☒ Save as Preferred Credential

Policy

10)

-Verify the backup retention policy setting using the **RMAN** utility and the **SHOW** command.

```
RMAN> SHOW RETENTION POLICY;

RMAN configuration parameters are:
CONFIGURE RETENTION POLICY TO RECOVERY WINDOW OF 2 DAYS;

RMAN> █
```

12.2)Using Recovery Manager

4)

-To check using SQL*Plus, use the ARCHIVE LOG LIST command.

```
SQL> ARCHIVE LOG LIST
Database log mode          No Archive Mode
Automatic archival         Disabled
Archive destination        USE_DB_RECOVERY_FILE_DEST
Oldest online log sequence 30
Current log sequence       32
```

5)

-The database is not currently archiving. Correct this problem with the following commands, or use Enterprise Manager.

```

SQL> shutdown immediate
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup mount
ORACLE instance started.

Total System Global Area  167772160 bytes
Fixed Size                  778212 bytes
Variable Size              66068508 bytes
Database Buffers           100663296 bytes
Redo Buffers                262144 bytes
Database mounted.
SQL> alter database archivelog;
2
SQL> alter database archivelog;

Database altered.

Elapsed: 00:00:00.03
SQL> alter database open;

Database altered.

Elapsed: 00:00:00.49
SQL> archive log list;
Database log mode                Archive Mode
Automatic archival               Enabled
Archive destination              USE_DB_RECOVERY_FILE_DEST
Oldest online log sequence       30
Next log sequence to archive     32
Current log sequence             32
SQL>

```

7)

-Use the RMAN REPORT command to generate a listing of your database structure.

```

RMAN> REPORT SCHEMA;

Report of database schema
File K-bytes    Tablespace          RB segs Datafile Name
-----
1      450560 SYSTEM                ***      /u01/app/oracle/oradata/orcl/system01.dbf
2       30720 UNDOTBS1            ***      /u01/app/oracle/oradata/orcl/undotbs01.dbf
3      225280 SYSAUX            ***      /u01/app/oracle/oradata/orcl/sysaux01.dbf
4        5120 USERS            ***      /u01/app/oracle/oradata/orcl/users01.dbf
5      153600 EXAMPLE            ***      /u01/app/oracle/oradata/orcl/example01.dbf
6        2048 NONCRIT            ***      /u01/app/oracle/product/10.1.0/oradata/orcl/noncrit
.dbf
RMAN>

```

8)

-Obtain a listing of all database backup sets that currently exist.

```

RMAN> LIST BACKUP OF DATABASE;

RMAN> LIST COPY OF DATABASE;

RMAN>

```

9)

-Use RMAN to back up the data files belonging to the EXAMPLE and USERS tablespaces. Be sure you also make a copy of the current control file and server parameter file.

Your backups should be placed in the \$HOME/DONTTOUCH/ directory and should use the format df_%d_%s_%p.bak for the file names.

```

RMAN> BACKUP AS BACKUPSET
2> FORMAT '$HOME/DONTTOUCH/df_%d_%s_%p.bak'
3> TABLESPACE USERS, EXAMPLE;

Starting backup at 31-MAY-18
using channel ORA_DISK_1
channel ORA_DISK_1: starting full datafile backupset
channel ORA_DISK_1: specifying datafile(s) in backupset
input datafile fno=00005 name=/u01/app/oracle/oradata/orcl/example01.dbf
input datafile fno=00004 name=/u01/app/oracle/oradata/orcl/users01.dbf
channel ORA_DISK_1: starting piece 1 at 31-MAY-18
channel ORA_DISK_1: finished piece 1 at 31-MAY-18
piece handle=/home/oracle/DONTTOUCH/df_ORCL_4_1.bak comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:03
Finished backup at 31-MAY-18

Starting Control File and SPFILE Autobackup at 31-MAY-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/autobackup/2018_05_31/o1_mf_s_977603265_f
0holc0_.bkp comment=NONE
Finished Control File and SPFILE Autobackup at 31-MAY-18

```

10)

-Create an image copy of two data files. Use the following information:

- Copy the SYSTEM tablespace and name the copy sys01.cpy with a tag of SYSTEM01
- Copy the SYSAUX tablespace and name the copy sysaux01.cpy with a tag of SYSAUX01
- The files should be written to the Flash Recovery Area.

```

RMAN> BACKUP AS COPY
2> FORMAT 'sys01.cpy'
3> TABLESPACE SYSTEM
4> TAG=SYSTEM01;

Starting backup at 31-MAY-18
using channel ORA_DISK_1
channel ORA_DISK_1: starting datafile copy
input datafile fno=00001 name=/u01/app/oracle/oradata/orcl/system01.dbf
output filename=/u01/app/oracle/product/10.1.0/db_1/dbs/sys01.cpy tag=SYSTEM01 recid=2 stamp=977
603354
channel ORA_DISK_1: datafile copy complete, elapsed time: 00:00:07
Finished backup at 31-MAY-18

Starting Control File and SPFILE Autobackup at 31-MAY-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/autobackup/2018_05_31/o1_mf_s_977603354_fk
0hqty1_.bkp comment=NONE
Finished Control File and SPFILE Autobackup at 31-MAY-18

RMAN> BACKUP AS COPY
2> FORMAT 'sysaux01.cpy'
3> TABLESPACE SYSAUX
4> TAG=SYSAUX01;

Starting backup at 31-MAY-18
using channel ORA_DISK_1
channel ORA_DISK_1: starting datafile copy
input datafile fno=00003 name=/u01/app/oracle/oradata/orcl/sysaux01.dbf
output filename=/u01/app/oracle/product/10.1.0/db_1/dbs/sysaux01.cpy tag=SYSAUX01 recid=3 stamp=
977603416
channel ORA_DISK_1: datafile copy complete, elapsed time: 00:00:07
Finished backup at 31-MAY-18

Starting Control File and SPFILE Autobackup at 31-MAY-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/autobackup/2018_05_31/o1_mf_s_977603417_fk
0hst09_.bkp comment=NONE
Finished Control File and SPFILE Autobackup at 31-MAY-18

RMAN>

```


11)

-Obtain a listing of all database files that have not been backed up.

```

RMAN> REPORT NEED BACKUP;

RMAN retention policy will be applied to the command
RMAN retention policy is set to recovery window of 2 days
Report of files whose recovery needs more than 2 days of archived logs
File Days   Name
-----
2      5042  /u01/app/oracle/oradata/orcl/undotbs01.dbf

```

12)

-Take a full backup of the database, including archived logs. Use as little space as possible to store the backup.

```

RMAN> BACKUP AS COMPRESSED BACKUPSET DATABASE PLUS ARCHIVELOG;

Starting backup at 31-MAY-18
current log archived
using channel ORA_DISK_1
channel ORA_DISK_1: starting compressed archive log backupset
channel ORA_DISK_1: specifying archive log(s) in backup set
input archive log thread=1 sequence=32 recid=1 stamp=977603525
channel ORA_DISK_1: starting piece 1 at 31-MAY-18
channel ORA_DISK_1: finished piece 1 at 31-MAY-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/backupset/2018_05_31/o1_mf_annnn_TAG201805
31T203205_fk0hx6x3_.bkp comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:02
Finished backup at 31-MAY-18

Starting backup at 31-MAY-18
using channel ORA_DISK_1
channel ORA_DISK_1: starting compressed full datafile backupset
channel ORA_DISK_1: specifying datafile(s) in backupset
input datafile fno=00001 name=/u01/app/oracle/oradata/orcl/system01.dbf
input datafile fno=00003 name=/u01/app/oracle/oradata/orcl/sysaux01.dbf
input datafile fno=00005 name=/u01/app/oracle/oradata/orcl/example01.dbf
input datafile fno=00002 name=/u01/app/oracle/oradata/orcl/undotbs01.dbf
input datafile fno=00004 name=/u01/app/oracle/oradata/orcl/users01.dbf
input datafile fno=00006 name=/u01/app/oracle/product/10.1.0/oradata/orcl/noncrit.dbf
channel ORA_DISK_1: starting piece 1 at 31-MAY-18
channel ORA_DISK_1: finished piece 1 at 31-MAY-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/backupset/2018_05_31/o1_mf_nnndf_TAG201805
31T203207_fk0hx81p_.bkp comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:25
Finished backup at 31-MAY-18

Starting backup at 31-MAY-18
current log archived
using channel ORA_DISK_1
channel ORA_DISK_1: starting compressed archive log backupset
channel ORA_DISK_1: specifying archive log(s) in backup set
input archive log thread=1 sequence=33 recid=2 stamp=977603553
channel ORA_DISK_1: starting piece 1 at 31-MAY-18
channel ORA_DISK_1: finished piece 1 at 31-MAY-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/backupset/2018_05_31/o1_mf_annnn_TAG201805
31T203233_fk0hy2ff_.bkp comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:02
Finished backup at 31-MAY-18

Starting Control File and SPFILE Autobackup at 31-MAY-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/autobackup/2018_05_31/o1_mf_s_977603555_fk
0hy3gb_.bkp comment=NONE
Finished Control File and SPFILE Autobackup at 31-MAY-18

```

13. Managing Data Recovery

13.1) Recovering from Noncritical Losses

1)

-Get the name of the default temporary tablespace from the DATABASE_PROPERTIES view and the data files associated with this tablespace from DBA_TEMP_FILES.

```
SQL> SELECT * FROM database_properties
2  WHERE property_name like '%TEMP%';

PROPERTY_NAME
-----
PROPERTY_VALUE
-----
DESCRIPTION
-----
DEFAULT_TEMP_TABLESPACE
TEMP
Name of default temporary tablespace

Elapsed: 00:00:00.02
SQL> SELECT file_name FROM dba_temp_files WHERE tablespace_name = 'TEMP';

FILE_NAME
-----
/u01/app/oracle/oradata/orcl/temp01.dbf

Elapsed: 00:00:00.02
SQL>
```

2)

-Delete the temporary tablespace data files at the operating system level.

```
With the Partitioning, OLAP and Data Mining options
[oracle@vmware oradata]$ rm /u01/app/oracle/oradata/orcl/temp01.dbf
[oracle@vmware oradata]$
```

3)

-Connect to the database as a SYSDBA user, shutdown the instance, and restart it.

```
Copyright (c) 1982, 2004, Oracle. All rights reserved.

Enter user-name: sys as sysdba
Enter password:

Connected to:
Oracle Database 10g Enterprise Edition Release 10.1.0.3.0 - Production
With the Partitioning, OLAP and Data Mining options

SQL> shutdozn immediate;
SP2-0734: unknown command beginning "shutdozn i..." - rest of line ignored.
SQL> shutdown immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup;
ORACLE instance started.

Total System Global Area 167772160 bytes
Fixed Size 778212 bytes
Variable Size 66068508 bytes
Database Buffers 100663296 bytes
Redo Buffers 262144 bytes
Database mounted.
Database opened.
SQL>
```

4)

-Perform a query against a table in the database that involves sorting of data. What happens?

```
Database opened.
SQL> SELECT text FROM dba_source
  2  WHERE owner='SYSMAN'
  3  ORDER BY name,line;
SELECT text FROM dba_source
*
ERROR at line 1:
ORA-01157: cannot identify/lock data file 201 - see DBWR trace file
ORA-01110: data file 201: '/u01/app/oracle/oradata/orcl/temp01.dbf'

Elapsed: 00:00:00.11
```

La table dba_source, comme on a pu voir dans la question 1, à comme pour fichier temporaire /u01/app/oracle/oradata/orcl/temp01.dbf. Or, le fichier à été supprimé. L'exécution de la requête à donc été interrompue à cause de l'absence de ce fichier.

5)

Attempt to take the temporary tablespace offline before recovering it. What happens?

```
Elapsed: 00:00:00.11
SQL> ALTER TABLESPACE temp OFFLINE;
ALTER TABLESPACE temp OFFLINE
*
ERROR at line 1:
ORA-03217: invalid option for alter of TEMPORARY TABLESPACE
```

Il semblerait qu'il n'arrive pas à reconnaître la tablespace "temp". Cela doit être le tablespace contenu dans le fichier temp01.dbf.

6)

-Drop the temporary tablespace. What happens?

```
Elapsed: 00:00:00.11
SQL> DROP TABLESPACE temp;
DROP TABLESPACE temp
*
ERROR at line 1:
ORA-12906: cannot drop default temporary tablespace

Elapsed: 00:00:00.11
```

7)

-Create a new temporary tablespace named TEMP1 containing a single data file named temp1.dbf which is 100 MB in size.

```
Elapsed: 00:00:00.03
SQL> CREATE TEMPORARY TABLESPACE temp1
  2  TEMPFILE '/u01/app/oracle/oradata/orcl/temp1.dbf' SIZE 100M;

Tablespace created.

Elapsed: 00:00:00.27
```

8)

-Change the database default temporary tablespace to TEMP1.

```
Elapsed: 00:00:00.11
SQL> ALTER DATABASE DEFAULT TEMPORARY TABLESPACE temp1;

Database altered.
```

9)

-Retry your query that involved a sort operation. What happens now?

```
Elapsed: 00:00:00.04
SQL> SELECT text FROM dba_source
 2  WHERE owner='SYSMAN'
 3  ORDER BY name,type,line;

TEXT
-----
TRIGGER blackout_change
  BEFORE INSERT ON MGMT_BLACKOUT_STATE FOR EACH ROW
DECLARE

  latest_availability_rowid ROWID;
  latest_availability_status NUMBER;
  latest_availability_sev_guid RAW(16);
  new_annotation_guid RAW(16);
  l_emd_url VARCHAR2(2000);
  l_count NUMBER;
  l_target_guid RAW(16);
  is_target_type_host BOOLEAN;
  host_guid RAW(16);
  host_availability_status NUMBER;
  l_current_target_state NUMBER;

  l_current_blackout_state NUMBER;

  l_created_thru MGMT_BLACKOUTS.created_thru%TYPE;

  l_actual_start_time DATE;
  l_actual_end_time DATE;
  l_occurrence_number NUMBER;

  response_metric_guid RAW(16);
  update_availability BOOLEAN := false;
```

10)

-Drop the temporary tablespace with the missing data files. You must remove the tablespace and the file associated using a single SQL command.

```
Elapsed: 00:00:02.02
SQL> DROP TABLESPACE temp INCLUDING CONTENTS AND DATAFILES;

Tablespace dropped.

Elapsed: 00:00:00.24
SQL>
```

11)

-Perform a backup of the database.

```

RMAN> backup database;

Starting backup at 02-JUN-18
using target database controlfile instead of recovery catalog
allocated channel: ORA_DISK_1
channel ORA_DISK_1: sid=133 devtype=DISK
channel ORA_DISK_1: starting full datafile backupset
channel ORA_DISK_1: specifying datafile(s) in backupset
input datafile fno=00001 name=/u01/app/oracle/oradata/orcl/system01.dbf
input datafile fno=00003 name=/u01/app/oracle/oradata/orcl/sysaux01.dbf
input datafile fno=00005 name=/u01/app/oracle/oradata/orcl/example01.dbf
input datafile fno=00002 name=/u01/app/oracle/oradata/orcl/undotbs01.dbf
input datafile fno=00004 name=/u01/app/oracle/oradata/orcl/users01.dbf
input datafile fno=00006 name=/u01/app/oracle/product/10.1.0/oradata/orcl/noncrit.dbf
channel ORA_DISK_1: starting piece 1 at 02-JUN-18
channel ORA_DISK_1: finished piece 1 at 02-JUN-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/backupset/2018_06_02/01_mf_nnndf_TAG201806
02T225759_fk616qbx_.bkp comment=NONE
channel ORA_DISK_1: backup set complete, elapsed time: 00:00:15
Finished backup at 02-JUN-18

Starting Control File and SPFILE Autobackup at 02-JUN-18
piece handle=/u01/app/oracle/flash_recovery_area/ORCL/autobackup/2018_06_02/01_mf_s_977785094_fk
6176fy_.bkp comment=NONE
Finished Control File and SPFILE Autobackup at 02-JUN-18

```

13.2) Database Recovery13.2.1) Part One**1)**

-As user system/oracle create the table HR.DEPARTMENTS2 by selecting all rows from the HR.DEPARTMENTS table. Confirm that the new table exists, and record the total number of rows in the table. View the active log by querying V\$LOG. Perform a log switch when finished.

```

SQL> connect system/oracle as sysdba
Connected.
SQL> CREATE TABLE HR.DEPARTMENTS2 AS SELECT * FROM HR.DEPARTMENTS;

Table created.

Elapsed: 00:00:00.08
SQL> select count(*) from hr.departments2;

COUNT(*)
-----
        27

Elapsed: 00:00:00.00
SQL> select sequence#,status from v$log;

SEQUENCE# STATUS
-----
        77 INACTIVE
        78 INACTIVE
        79 CURRENT

Elapsed: 00:00:00.02
SQL> alter system switch logfile;

System altered.

Elapsed: 00:00:00.27
SQL>

```

2)

-Check and record the system time and date.

```
Elapsed: 00:00:00.27
SQL> !date
Sat Jun  2 23:10:01 CEST 2018
```

3)

-Query V\$LOG again to confirm the switch and then insert three lines into the HR.DEPARTMENTS2 table and commit. Confirm the number of row in the table. These INSERTs represent the introduction of questionable data into the table.

```
SQL> select sequence#, status from v$log;

SEQUENCE# STATUS
-----
      80 CURRENT
      78 INACTIVE
      79 ACTIVE

Elapsed: 00:00:00.00
SQL> select count(*) from hr.departments2;

COUNT(*)
-----
        27

Elapsed: 00:00:00.00
```

4)

-Shutdown the database, and restart it in mount mode.

```
SQL> shutdown immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup mount;
ORACLE instance started.

Total System Global Area 167772160 bytes
Fixed Size                778212 bytes
Variable Size             66068508 bytes
Database Buffers          100663296 bytes
Redo Buffers              262144 bytes
Database mounted.
```

5)

-Using RMAN, recover the database to a point in time before the new data was introduced using the information you recorded before the inserts were performed.

```
RMAN> run {
2> set until time "TO_DATE('18-JUN-02:23:10:01','YY-MON-DD:HH24:MI:SS')";
3> restore database;
4> recover database;
5> }

executing command: SET until clause

Starting restore at 02-JUN-18
allocated channel: ORA_DISK_1
channel ORA_DISK_1: sid=160 devtype=DISK

channel ORA_DISK_1: starting datafile backupset restore
channel ORA_DISK_1: specifying datafile(s) to restore from backup set
restoring datafile 00001 to /u01/app/oracle/oradata/orcl/system01.dbf
restoring datafile 00002 to /u01/app/oracle/oradata/orcl/undotbs01.dbf
restoring datafile 00003 to /u01/app/oracle/oradata/orcl/sysaux01.dbf
restoring datafile 00004 to /u01/app/oracle/oradata/orcl/users01.dbf
restoring datafile 00005 to /u01/app/oracle/oradata/orcl/example01.dbf
restoring datafile 00006 to /u01/app/oracle/product/10.1.0/oradata/orcl/noncrit.dbf
```

6)

-Open the database with the RESETLOGS option and confirm the recovery.

```
SQL> alter database open resetlogs;

Database altered.

Elapsed: 00:00:01.14
SQL> select count(*) from hr.departments2;

   COUNT(*)
-----
         27

Elapsed: 00:00:00.01
```

13.2.1)Part Two

1)

-Determine the current log sequence and write it down.

```
Elapsed: 00:00:00.01
SQL> select sequence#,status from v$log;

 SEQUENCE# STATUS
-----
          1 CURRENT
           0 UNUSED
           0 UNUSED

Elapsed: 00:00:00.02
```


2)

-Verify the row count for the HR.DEPARTMENTS2 table.

```
SQL> select count(*) from hr.departments2;

COUNT(*)
-----
        27

Elapsed: 00:00:00.02
```

3)

-Force a log switch and verify the switch has taken place. Perform several inserts into the HR.DEPARTMENTS2 table and commit the changes. Verify the new row count. Then exit your SQL*Plus session.

```
SQL> alter system switch logfile;

System altered.

Elapsed: 00:00:05.13
SQL> select sequence#,status from v$log;

SEQUENCE# STATUS
-----
         1 ACTIVE
         2 CURRENT
         0 UNUSED

Elapsed: 00:00:00.00
SQL> insert into hr.departments2 values (280,'DUMMY1',' ',' ');
insert into hr.departments2 values (280,'DUMMY1',' ',' ')
*
ERROR at line 1:
ORA-00947: not enough values

Elapsed: 00:00:00.01
SQL> insert into hr.departments2 values (280,('DUMMY1',' ',' '));
ERROR:
ORA-01756: quoted string not properly terminated

Elapsed: 00:00:00.01
SQL> insert into hr.departments2 values (280, 'DUMMY1',' ',' ');

1 row created.

Elapsed: 00:00:00.02
SQL> insert into hr.departments2 values (290, 'DUMMY2',' ',' ');

1 row created.

Elapsed: 00:00:00.02
SQL> insert into hr.departments2 values (300, 'DUMMY3',' ',' ');

1 row created.

Elapsed: 00:00:00.01
SQL> commit;

Commit complete.

Elapsed: 00:00:00.01
SQL> select count(*) from hr.departments2;

COUNT(*)
-----
        30

Elapsed: 00:00:00.01
SQL>
```


4)

-Using Enterprise Manager while logged in as a SYSDBA user, recover the database to a point in time before the new data was introduced using the information you recorded before the inserts were performed.

Type

Object Type **Whole Database** ▼

Operation ☒ Recover to the current time or a previous point-in-time

Type Datafiles will be restored from the latest usable backup as required.

☐ Restore all datafiles

Need to specify Time, SCN or log sequence. The backup taken at or prior to that time will be used.

☐ Recover from previously restored datafiles

Host Credentials

To perform recovery, supply operating system login credentials.

* Username

* Password

☒ Save as Preferred Credential

i Information

The database is currently down. Enter the host OS credentials and the database credentials to continue.

Host Credentials

* Username

* Password

Database Credentials

Enter the SYSDBA credentials for the target database. SYSDBA credentials are required to continue the operation. They cannot be left empty.

* Username

* Password

Role SYSDBA

5)

-Wait until the Operation Succeeded message is displayed, then use SQL*Plus to verify that the recovery was successful by checking the row count in the HR.DEPARTMENTS2 table.

```
Elapsed: 00:00:00.00
SQL> select count(*) from hr.departments2;

      COUNT(*)
-----
           27

Elapsed: 00:00:00.01
```