

# ORACLE 11G DATABASE REPLAY : PROCESS CAPTURE WORKLOAD FILES

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## INTRODUCTION

In this part of the paper, I will provide details as how to process the Workload file created by the Cpture process on the Source Database

In this paper, I will use db02pn as Source Database and db01pn as Target Database. Source Database is the database where Workload is captured and then the workload will be replayed at Target database.

## PRE-PROCESS WORKLOAD FILES STEPS

1. Copy the Workload files captured on Source Database server to Target Server
2. Process the Workload files on Target Database using EM Database Console
3. Process the Workload files on Target Database using EM Database EM

## COPY THE WORKLOAD FILES FROM SOURCE DATABASE SERVER TO TARGET DATABASE SERVER

### Copy the Workload file from Source DB server to Target DB server

```

192.168.152.196 - F-Secure SSH - [Defaults.ssh]
File Edit View Tools Help
[Icons]
xxxxs :/oracledata/capture_dir(targetdb )> scp oracle@172.sourcedb:/home/oracle/capture_dir/* .
The authenticity of host '172.30.106.34 (172.30.106.34)' can't be established.
RSA key fingerprint is d7:54:af:e0:3a:ad:33:68:50:95:ac:e2:d8:80:02:22.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '172.sourcedb' (RSA) to the list of known hosts.
oracle@172.sourcedb's password:
wcr_4d7x440002jx0.rec          100% 928      0.9KB/s   00:00
wcr_4d7x440002mup.rec          100% 1348     1.3KB/s   00:00
wcr_4d7x444002mqs.rec          100% 1140     1.1KB/s   00:00
wcr_4d7x448002jy8.rec          100% 928      0.9KB/s   00:00
wcr_4d7x448002k49.rec          100% 1127     1.1KB/s   00:00
wcr_4d7x44h002k2m.rec          100% 1128     1.1KB/s   00:00
wcr_4d7x45s002k84.rec          100% 1126     1.1KB/s   00:00
wcr_4d7x460002km8.rec          100% 1124     1.1KB/s   00:00
wcr_4d7x460002kma.rec          100% 1128     1.1KB/s   00:00
wcr_4d7x460002ksw.rec          100% 913      0.9KB/s   00:00
wcr_4d7x46n002k4c.rec          100% 1128     1.1KB/s   00:00
wcr_4d7x46w002k4g.rec          100% 1140     1.1KB/s   00:00
wcr_4d7x49n002mxxp.rec          100% 2604     2.5KB/s   00:00
wcr_4d7x49s002mxt.rec          100% 2402     2.4KB/s   00:00
wcr_4d7x4ah002k47.rec          100% 1128     1.1KB/s   00:00
wcr_4d7x4ah002k9p.rec          100% 1128     1.1KB/s   00:00
wcr_4d7x54c002n60.rec          100% 1835     1.8KB/s   00:00
wcr_4d7x65h002nb7.rec          100% 2501     2.4KB/s   00:00
wcr_4d7x65h002nba.rec          100% 2925     2.9KB/s   00:00
wcr_4d7x69s002nd3.rec          100% 1836     1.8KB/s   00:00
wcr_4d7x6an002nf9.rec          100% 1751     1.7KB/s   00:00
wcr_4d7x7gc002np1.rec          100% 1833     1.8KB/s   00:00
wcr_4d7x8ns002nzz.rec          100% 1836     1.8KB/s   00:00
wcr_4d7x9u8002p6x.rec          100% 1836     1.8KB/s   00:00
wcr_4d7x9v4002p83.rec          100% 1751     1.7KB/s   00:00
wcr_ca.dmp                     100% 13MB     3.3MB/s   00:04
wcr_ca.log                      100% 24KB     24.1KB/s   00:00
wcr_capture.wmnd                100% 400      0.4KB/s   00:00
wcr_cr.html                     100% 12KB     11.9KB/s   00:00
wcr_cr.text                     100% 4120     4.0KB/s   00:00
wcr_rec_00001.start             100% 0        0.0KB/s   00:00
    
```

**PROCESS THE WORKLOAD FILES ON TARGET DATABASE SERVER USING EM DATRABASE CONSOLE**

**Step 1 :** Logon to the Target Database and Create Database directory pointing to host directory where Workload files are copied from the Source Database server

```
SQL> CREATE DIRECTORY "captdir" AS '/home/oracle/capture_dir'
```

I had copied the Workload file in /home/oracle/capture\_dir directory on the Target Database server.

**Step 2 :** Login to Enterprise Manager Database console of Target Database. Then select **Software and Support** tab and then click on **Database Replay**



**Step 3 :** To process Captured Workload, Click on **Go to Task** against the Task Name **Preprocess Captured Workload** as shown in RED below.

ORACLE Enterprise Manager 11g Database Control

Database Instance: orcl >

### Database Replay

The Database Replay feature allows database workload to be captured on one system and replayed later on a different system. Replaying a captured workload can be useful to compare two different systems.

Task	Task Name	Description	Go to Task
1	Capture Workload	Choose this option to capture workload on this database.	
2	Preprocess Captured Workload	Preprocessing will prepare a captured workload for replay. This must be done once for every captured workload.	
3	Replay Workload	Choose this option to replay a preprocessed workload on this database.	

**Step 4 :** Select the Directory created in Step 1. You can also create the Directory here using **Create Directory object** button shown below

ORACLE Enterprise Manager 11g Database Control

Setup Preferences Help Logout Database

Database Instance: orcl > Database Replay > Logged in As SYS

### Preprocess Captured Workload

Cancel Preprocess Workload

#### Directory

Select a directory object that contains a captured workload.

\* Directory Object  Create Directory Object

- AUDIT\_DIR
- DATA\_FILE\_DIR
- DATA\_PUMP\_DIR
- IDR\_DIR
- LOG\_FILE\_DIR
- MEDIA\_DIR
- ORACLE\_OCM\_CONFIG\_DIR
- SUBDIR
- XMLDIR
- captir

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atabase | Setup | Preferences | Help | Logout

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**Step 5:** When you select the Directory Object from the List box, it will automatically read the Workload Repository files and will show you the Captured information.

Click **Preprocess Workload** to start Processing Workload Wizard

ORACLE Enterprise Manager 11g Database Control

Database Instance: orcl > Database Replay > Logged in As SYS

**Preprocess Captured Workload** [Cancel] [Preprocess Workload]

**Directory**  
Select a directory object that contains a captured workload.  
\* Directory Object:  [Create Directory Object]

**▼ Capture Summary**

Name	<b>CAPTURE-orcl-20070719133228</b>	Captured Data Size (MB)	<b>0.03</b>
Status	<b>Completed</b>	Duration (hh:mm:ss)	<b>00:25:51</b>
Directory Object	<b>captdir</b>	Start Time	<b>Jul 19, 2007 1:49:15 PM EDT</b>
Database Name	<b>ORCL</b>	End Time	<b>Jul 19, 2007 2:15:06 PM EDT</b>
Capture Database Version	<b>11.1.0.6.0</b>	Start SCN	<b>6771511559</b>
DBID	<b>1155348838</b>	End SCN	<b>6771515021</b>
Capture Error Code	<b>0</b>	Preprocessed Database Version	<b>N/A</b>
Capture Error Message	<b>None</b>		

**▶ Capture Details**

[Cancel] [Preprocess Workload]

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**Step 6 : Preprocess Captured Workload Wizard : Database version**

This window will show you the Database version used by Capture process as well as Database version used for processing the Workload files.

Click **Next** to Continue

The screenshot shows the Oracle Enterprise Manager 11g Database Control interface. At the top, there is a navigation bar with 'ORACLE Enterprise Manager 11g Database Control' on the left and 'Setup Preferences Help Logout' on the right. Below this is a progress indicator with three steps: 'Database Version' (selected), 'Schedule', and 'Review'. The main content area is titled 'Preprocess Captured Workload: Database Version'. It displays the following information: Database: orcl, Version: 11.1.0.6, Capture Name: CAPTURE-orcl-20070719133228, and Logged In As: SYS. There are 'Cancel' and 'Next' buttons. Below this, a message states: 'The current database version is 11.1.0.6. Continue only if you intend to replay the captured workload on a database of the same version.' At the bottom of this section, there are 'Cancel' and 'Next' buttons, with the 'Next' button highlighted by a red rectangle. A navigation bar at the bottom of the page contains links for 'Database', 'Setup', 'Preferences', 'Help', and 'Logout'. The footer includes copyright information for Oracle (1996, 2007) and a link to 'About Oracle Enterprise Manager'.

**Step 7 : Preprocess Captured Workload Wizard : Schedule**

You can accept the Default Job Name and can schedule the preprocessing Job for scheduler

Specify the Host Credential so that Oracle can read the Workload files

Click **Next** to Continue

ORACLE Enterprise Manager 11g Database Control [Setup](#) [Preferences](#) [Help](#) [Logout](#)

Database

Database Version **Schedule** Review

---

### Preprocess Captured Workload: Schedule

Database **orcl** Cancel Back Step 2 of 3 Next  
 Version **11.1.0.6.0**  
 Capture Name **CAPTURE-orcl-20070719133228**  
 Logged In As **SYS**

Specify the following to schedule the preprocessing job.

#### Job Parameters

\* Job Name   
 Description

#### Start

Immediately  
 Later

Date    
(example: Dec-12-2002)

Time     AM  PM

#### Host Credentials

\* Username   
 \* Password   
 \* Confirm Password   
 Save as Preferred Credential

Cancel Back Step 2 of 3 **Next**

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**Step 8 : Preprocess Captured Workload Wizard : Review**  
Now you can review the Job and click **Submit** to send the Job to Job Scheduler

ORACLE Enterprise Manager 11g Database Control

Setup Preferences Help Logout Database

Database Version Schedule **Review**

**Preprocess Captured Workload: Review**

Logged In As **SYS**   Step 3 of 3

Workload CAPTURE-orcl-20070719133228 will be preprocessed on database 'orcl'.

Job Name	<b>PREPROCESS-ORCL-20070719153418</b>
Database	<b>orcl</b>
Preprocessed Database Version	<b>11.1.0.6.0</b>
Directory Object	<b>captdir</b>
Capture Name	<b>CAPTURE-orcl-20070719133228</b>
Captured Data Size (MB)	<b>0.03</b>
Start Time	<b>Immediately</b>

Step 3 of 3

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**Step 9 : Job is submitted Successfully. Click on View Job to see the status of the Job.**

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Database Instance: orcl > Logged in As SYS

**Confirmation**  
 Job 'PREPROCESS-ORCL-20070719153418' to prepare the workload has been created successfully.

[View Job](#)

Once the job is complete you will need to do the following, if you have not already, prior to replaying the workload on the replay system:

1. Restore the replay database on a test system to match the capture database at the start of the workload capture.
2. Make changes (such as perform an upgrade) to the test system as needed.
3. Copy the workload to the test system.

**Database Replay**

The Database Replay feature allows database workload to be captured on one system and replayed later on a different system. Replaying a captured workload can be useful to compare two different systems. Page Refreshed Jul 19, 2007 3:40:22 PM EDT [Refresh](#)

Task	Task Name	Description	Go to Task
1	Capture Workload	Choose this option to capture workload on this database.	
2	Preprocess Captured Workload	Preprocessing will prepare a captured workload for replay. This must be done once for every captured workload.	
3	Replay Workload	Choose this option to replay a preprocessed workload on this database.	

[View Workload Capture History](#)

**Active Capture and Replay**

Select Name	Type	Directory Object	Start Time
No items found			

**Overview**

The following are the typical steps to perform Database Replay:

1. Capture the workload on a database. (Task 1)
2. Optionally export the AWR data. (Task 1)
3. Restore the replay database on a test system to match the capture database at the start of the workload capture.
4. Make changes (such as perform an upgrade) to the test system as needed.
5. Copy the workload to the test system.
6. Preprocess the captured workload. (Task 2)
7. Configure the test system for the replay.
8. Replay the workload on the restored database. (Task 3)

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**Step 10 : Job History Shows that Job is completed successfully. Click the Database Tab to go back to Enterprise Manager Home Page**

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Database Control **Database**

Jobs > Job Run: PREPROCESS-ORCL-20070719153418 >

**Execution: orcl** Page Refreshed Jul 19, 2007 3:41:55 PM EDT [Delete Run](#) [Create Like](#) [Edit](#) [View Definition](#)

---

**Summary**

Status <b>Succeeded</b> Scheduled <b>Jul 19, 2007 3:40:22 PM (UTC-04:00)</b> Started <b>Jul 19, 2007 3:40:22 PM (UTC-04:00)</b> Ended <b>Jul 19, 2007 3:40:32 PM (UTC-04:00)</b> Elapsed Time <b>10 seconds</b> Notification <b>No</b>	Type <b>SQL Script</b> Owner <b>SYS</b> Description Parameters <b>-S</b> DB Username <b>SYS</b> DB Role <b>AS SYSDBA</b> Username <b>oracle</b>
---	---

Targets

Status

[Expand All](#) | [Collapse All](#)

Name	Targets	Status	Started	Ended	Elapsed Time (seconds)
Execution: orcl	orcl	<b>Succeeded</b>	Jul 19, 2007 3:40:22 PM (UTC-04:00)	Jul 19, 2007 3:40:32 PM (UTC-04:00)	10
<a href="#">Step: SQL Sci</a>	orcl	<b>Succeeded</b>	Jul 19, 2007 3:40:32 PM (UTC-04:00)	Jul 19, 2007 3:40:32 PM (UTC-04:00)	0

[Delete Run](#) [Create Like](#) [Edit](#) [View Definition](#)

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**PREPROCESSING A CAPTURED WORKLOAD USING APIS**

To preprocess a captured workload, use the PROCESS\_CAPTURE procedure:

```
SQL> BEGIN
      2 DBMS_WORKLOAD_REPLAY.PROCESS_CAPTURE (capture_dir => 'API_DIR');
      3 END;
      4 /
```

PL/SQL procedure successfully completed.

You can see some of the files in Blue color been created by Pre-processing procedure.

```
[db02pn]$ ls -ltr /home/oracle/api_dir
total 10712
-rw-r--r-- 1 oracle oinstall      0 Jul 26 20:33 wcr_rec_0000k.start
-rw-r--r-- 1 oracle oinstall    8508 Jul 26 20:59 wcr_4da9xmn002mpq.rec
-rw-r--r-- 1 oracle oinstall   2220 Jul 26 20:59 wcr_4daa3dh002dqh.rec
-rw-r--r-- 1 oracle oinstall   2228 Jul 26 20:59 wcr_4daa3dc002dqd.rec
-rw-r--r-- 1 oracle oinstall      0 Jul 26 20:59 wcr_4daa3fn002f3k.rec
-rw-r--r-- 1 oracle oinstall   1833 Jul 26 20:59 wcr_4daa3g0002f43.rec
-rw-r--r-- 1 oracle oinstall   2217 Jul 26 20:59 wcr_4daa3g4002f4z.rec
-rw-r--r-- 1 oracle oinstall   2220 Jul 26 20:59 wcr_4daa3g4002f4f.rec
-rw-r--r-- 1 oracle oinstall  302257 Jul 26 20:59 wcr_4daa3dn002dqs.rec
-rw-r--r-- 1 oracle oinstall   1756 Jul 26 20:59 wcr_4daa3gw002fdx.rec
-rw-r--r-- 1 oracle oinstall      0 Jul 26 20:59 wcr_4daa3h0002fff.rec
...
-rw-r--r-- 1 oracle oinstall  208370 Jul 26 22:27 wcr_4daa3j4002fp1.rec
-rw-r--r-- 1 oracle oinstall    2921 Jul 26 22:28 wcr_4daas7h002pxp.rec
-rw-r--r-- 1 oracle oinstall    2499 Jul 26 22:28 wcr_4daas7h002pxk.rec
-rw-r--r-- 1 oracle oinstall    1542 Jul 26 22:28 wcr_4daas8s002pxu.rec
-rw-r--r-- 1 oracle oinstall  245619 Jul 26 22:28 wcr_4daa3j4002fp3.rec
-rw-r--r-- 1 oracle oinstall  141037 Jul 26 22:28 wcr_4daa3h4002fm2.rec
-rw-r--r-- 1 oracle oinstall  199428 Jul 26 22:28 wcr_4daa3j4002fnz.rec
-rw-r--r-- 1 oracle oinstall  1652832 Jul 26 22:28 wcr_4daa3h0002fgv.rec
-rw-r--r-- 1 oracle oinstall  273182 Jul 26 22:28 wcr_4daa3g8002f59.rec
-rw-r--r-- 1 oracle oinstall  221307 Jul 26 22:28 wcr_4daa3h0002ff5.rec
-rw-r--r-- 1 oracle oinstall  1370639 Jul 26 22:28 wcr_4daa3d4002dq4.rec
-rw-r--r-- 1 oracle oinstall    3622 Jul 26 22:29 wcr_cr.text
-rw-r--r-- 1 oracle oinstall   11334 Jul 26 22:29 wcr_cr.html
-rw-r--r-- 1 oracle oinstall     264 Jul 26 22:29 wcr_capture.wmd
-rw-r--r-- 1 oracle oinstall    4782 Jul 26 22:33 wcr_login.pp
-rw-r----- 1 oracle oinstall   36864 Jul 26 22:33 wcr_seq_data.extb
-rw-r----- 1 oracle oinstall   53248 Jul 26 22:33 wcr_scn_order.extb
-rw-r--r-- 1 oracle oinstall     35 Jul 26 22:33 wcr_process.wmd
-rw-r----- 1 oracle oinstall   12288 Jul 26 22:33 wcr_conn_data.extb
```

```
SQL> select id,          name,          directory,
           status,      start_time,   end_time,
           duration_secs,dir_path
from dba_workload_captures
```

ID	NAME	DIRECTORY	STATUS	START TIME	END TIME	DURATION
<u>DIR_PATH</u>						
18	capture07	API_DIR	COMPLETED	26/07/2007 20:33:50	26/07/2007 22:29:03	6913
/home/oracle/api_dir						