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## Oracle 11g ASM on Windows XP sandpit

### Abstract

*As an R&D alternative to Unix or Linux setups, deployment of 11g ASM onto Windows XP can provide a useful sandpit for experimental purposes.*

### Document Status

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### Introduction

11g ASM has a number of new features , notably :

- Fast mirror resyncs – a must when mirroring across hardware disk arrays
- Preferred read plexes – very useful in RAC situations, particularly where instances and disc arrays are deployed across WAN
- Variable ASM extent sizes – useful for VLDB
- Back support for Oracle 10g database instances

This note documents a basic overview of deploying a very simple ( and non-resilient) Oracle 11g ASM installation onto Windows XP for R&D (ie play) purposes.

Much of this technique ( although obviously not any of the new 11g features) is also applicable to Oracle 10g, so where appropriate, Oracle 10g notes/hints have also been included.

It is based upon experience with the following configurations :

Databases →

- Oracle 11.1 – distribution : *win32\_11gR1\_database.zip*
- Oracle 10.2

### Abbreviations & Definitions

- ASM → Automatic Storage Management – Oracle’s disk volume manager
- VLDB → Very Large Database
- WAN → Wide Area Network
- CSS → Oracle Cluster Synchronization Services

## Prerequisites

Download the software distribution

*win32\_11gR1\_database.zip*  
from <http://www.oracle.com/technology/software/products/database/index.html>  
and extract into *c:\temp*.

The following directories will be required →

*C:\oracleASM*  
*C:\oracle\product\11.1.0*

Using the GUI, install the Enterprise Edition software as a ‘software installation only’ into →

*ORACLE\_HOME=C:\oracle\product\11.1.0*

Run all the commands etc with local Windows administrator privilege.

## Cooked Files

Create a number of ‘cooked files’ for use as pseudo ASM disks , (using a shell script or Java program etc)  
→

*C:\oracleASM\db9data01*  
*C:\oracleASM\db9data02*  
*C:\oracleASM\db9data01m*  
*C:\oracleASM\db9data02m*

*C:\oracleASM\db9str01*  
*C:\oracleASM\db9trans01*

Make them each of say 1000 Mb. Additional or larger ‘disks’ can always be created later.

## ASM Directories and PFILE(init.ora)

First create the ASM admin directories, noting the change between 10g and 11g →

```
set ORACLE_HOME=C:\oracle\product\11.1.0
set ORACLE_BASE=%ORACLE_HOME%
```

For 10g and 11g →

```
mkdir %ORACLE_BASE%\admin\ASM\bdump
mkdir %ORACLE_BASE%\admin\ASM\pfile
```

In addition, for 10g only -->

```
mkdir %ORACLE_BASE%\admin\ASM\cdump
mkdir %ORACLE_BASE%\admin\ASM\hdump
mkdir %ORACLE_BASE%\admin\ASM\udump
```

Next create the ASM instance pfile →

```
-----  
  
INSTANCE_TYPE = ASM  
  
DB_UNIQUE_NAME = ASM      # default  
  
#compatible=11.1  
  
#####  
# Allows FS files for testing  
#####  
  
_asm_allow_only_raw_disks=false  
  
#####  
# Use specifically located raw LUNs/devices/files  
#####  
  
ASM_DISKSTRING='c:\oracleASM\db9*'  
  
#####  
# DISC GROUPS to BE MOUNTED  
# - add as required else use spfile  
#####  
  
#ASM_DISKGROUPS = 'db9_data01' etc  
  
#####  
# OTHERS  
#####  
  
ASM_POWER_LIMIT = 1      # default  
  
#event="27094 TRACE NAME ERRORSTACK LEVEL 12"  
  
#####  
# Logs etc  
#####  
  
#background_dump_dest = C:\oracle\product\11.1.0\admin\ASM\bdump # 10g only, deprecated in 11g  
#core_dump_dest       = C:\oracle\product\11.1.0\admin\ASM\bdump  
#user_dump_dest       = C:\oracle\product\11.1.0\admin\ASM\udump      # 10g only,  
deprecated in 11g  
max_dump_file_size    = 100000  
  
DIAGNOSTIC_DEST = C:\oracle\product\11.1.0\admin\ASM\bdump  
  
-----
```

## ASM Service set up

ASM requires the use of *Oracle Cluster Synchronization Services* (CSS), even for a standalone database, but CSS is not automatically installed if RAC is not be used, so it needs to be deployed →

```
%ORACLE_HOME%\bin\localconfig add
```

Now create the Windows service for the ASM instance →

```
oradim -new -asmsid ASM -sypwd oracle -pfile C:\oracle\product\11.1.0\admin\ASM\pfile\initASM.ora  
-startmode manual -shutmode immediate
```

Next , use the GUI network configuration utility to startup the Oracle listener service.

## ASM Diskgroup Configuration

Start up the ASM instance →

```
set ORACLE_SID=ASM  
sqlplus /nolog  
connect / as sysdba;
```

```
SQL> startup nomount pfile=C:\oracle\product\11.1.0\admin\ASM\pfile\initASM.ora
```

and verify that all 6 ‘ASM disks’ are available to the ASM instance →

```
SELECT group_number, disk_number, mount_status, header_status, state, path FROM v$asm_disk ;
```

Should be able to see all 6 ASM disks !

Now create a ‘mirrored’ disk group for the data – this would be the main experimental disc group for taking discs online, offline and checking fast mirror resync etc etc

```
CREATE DISKGROUP db9_data01  
NORMAL REDUNDANCY  
FAILGROUP mirror1 DISK 'C:\oracleASM\db9data01','c:\oracleASM\db9data02'  
FAILGROUP mirror2 DISK 'C:\oracleASM\db9data01m','c:\oracleASM\db9data02m';
```

In addition, for 11g only →

```
ALTER DISKGROUP db9_data01 SET ATTRIBUTE 'compatible.asm' = '11.1' ;  
ALTER DISKGROUP db9_data01 SET ATTRIBUTE 'compatible.rdbms' = '11.1' ;  
ALTER DISKGROUP db9_data01 SET ATTRIBUTE 'disk_repair_time' = '1.0h' ;
```

```
ALTER DISKGROUP db9_data01 CHECK ALL; -- checks metadata
```

Note the ‘disk\_repair\_time’ at diskgroup level – this sets the time limit during which fast mirror resyncs will be available.

Create other diskgroups for logs, temp, undo, archived logfiles, RMAN tracking files etc →

```
CREATE DISKGROUP db9_str01
external REDUNDANCY
DISK 'C:\oracleASM\db9str01';
```

```
CREATE DISKGROUP db9_transient01
external REDUNDANCY
DISK 'C:\oracleASM\db9trans01';
```

Finally a little verification →

*SQL>*

```
select group_number, name, total_mb, free_mb, state, type from v$asm_diskgroup;
```

```
select group_number, disk_number, mount_status, header_status, state, path, failgroup from v$asm_disk;
```

```
SELECT dg.name AS diskgroup, SUBSTR(a.name,1,24) AS name, SUBSTR(a.value,1,24) AS value FROM
V$ASM_DISKGROUP dg, V$ASM_ATTRIBUTE a
WHERE dg.group_number = a.group_number;
```

### **Automate the ASM Windows Service**

Uncomment the ASM\_DISKGROUPS parameter in the pfile/init.ora and bounce the ASM instance.

Modify the Windows service for automatic startup →

```
oradim -edit -asmsid ASM -startmode a
```

Bounce the Windows Oracle ASM service to verify – the service should restart but not the ASM instance!

To have the service successfully autostart the ASM instance itself, connect as *sysdba* and create an *spfile* →

```
shutdown;
create spfile from pfile='C:\oracle\product\11.1.0\admin\ASM\pfile\initASM.ora';
startup;
```

Bounce the Windows Oracle ASM service to verify – now both the service and the ASM instance should start up!

## **Concluding Remarks**

This brief paper demonstrates, for R&D/information purposes, the deployment of Oracle 11g ASM onto Windows XP.

DO NOT use this type of deployment for production use.

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