**Top 10 ASM Questions  
ASM Architecture**  
  
Top 10 ASM Questions  
Q.1) What init.ora parameters does a user need to  
configure for ASM instances?  
A. The default parameter settings work perfectly for  
ASM. The only parameters needed for 11g ASM:  
• PROCESSES\*  
• ASM\_DISKSTRING\*  
• ASM\_DISKGROUPS  
• INSTANCE\_TYPE  
•ASM is a very passive instance in that it doesn’t have a lot concurrent transactions  
or queries. So the memory footprint is quite small.  
•Even if you have 20 dbs connected to ASM , the ASM SGA does not need to change.  
This is b/c the ASM metadata is not directly tied to the number of clients  
•The 11g MEMORY\_TARGET (DEFAULT VALUE) will be more than sufficient.  
•The processes parameter may need to be modified. Use the formula to determine  
the approp value:  
processes = 40 + (10 + [max number of concurrent database file  
creations, and file extend operations possible])\*n  
Where n is the number of databases connecting to ASM (ASM clients).  
The source of concurrent file creations can be any of the following:  
•Several concurrent create tablespace commands  
•Creation of a Partitioned table with several tablespaces creations  
•RMAN backup channels  
•Concurrent archive logfile creations  
  
Q.2)How does the database interact with the ASM  
instance and how do I make ASM go faster?  
A. ASM is not in the I/O path so ASM does not impede  
the database file access. Since the RDBMS instance  
is performing raw I/O, the I/O is as fast as possible.  
•Cover ASM instance architecture  
•Cover ASM-Communication via ASMB  
•The database communicates with ASM instance using the ASMB  
(umblicus process) process. Once the database obtains the necessary  
extents from extent map, all database IO going forward is processed  
through by the database processes, bypassing ASM. Thus we say  
ASM is not really in the IO path. So, the question how do we make  
ASM go faster…..you don’t have to.  
  
RDBMS and ASM Instance Interaction  
Server  
Operating System  
DATABASE ASM  
(1) Database opens file  
(1A) OPEN  
(1B) Extent Map  
(2) Database Reads file  
(2A) READ  
(2B) I/O Completes  
(3) Database Creates file  
(3A) CREATE  
(3B) Allocates file  
(3C) Extent Map  
(3D) Initializes file  
(3D) Commit  
1A. Database issues open of a database file  
1B. ASM sends the extent map for the file to database instance. Starting  
with 11g, the RDBMS only receives first 60 extents the remaining extents  
in the extent map are paged in on demand, providing a faster open  
2A/2B. Database now reads directly from disk  
3A.RDBMS foreground initiates a create tablespace for example  
3B. ASM does the allocation for its essentially reserving the allocation units  
for the file creation  
3C. Once allocation phase is done, the extent map is sent to the RDBMS  
3D. The RDBMS initialization phase kicks in. In this phase the initializes all  
the reserved AUs  
3E. If file creation is successful, then the RDBMS commits the file creation  
Going forward all I/Os are done by the RDBMS.  
  
Q.3) Do I need to define the RDBMS  
FILESYSTEMIO\_OPTIONS parameter when I use ASM?  
A. No. The RDBMS does I/O directly to the raw disk  
devices, the FILESYSTEMIO\_OPTIONS parameter is  
only for filesystems.  
A. Review what the use of FILESYSTEMIO\_OPTIONS parameter;  
essentially FILESYSTEMIO\_OPTIONS is used for filesystem/block  
storage.  
This parameter controls which IO options are used. The value may be any of  
the following:  
\*asynch - This allows asynchronous IO to be used where supported by the  
OS.  
\*directIO - This allows directIO to be used where supported by the OS.  
Direct IO bypasses any Unix buffer cache. \*setall - Enables both  
ASYNC and DIRECT IO. "none" - This disables ASYNC IO and DIRECT  
IO so that Oracle uses normal synchronous writes, without any direct io  
options.  
A. RDBMS does raw IO against the ASM disks, so need for  
FILESYSTEMIO\_OPTIONS parameter. The only parameter that needs to  
be set is disk\_asyncio=true, which is true by default. If using ASMLIB  
then even the disk\_async does not need to be set.  
ASM is also supported for NFS files as ASM disks. In such cases, the  
required NFS mount options eliminate the need to set  
FILESYSTEMIO\_OPTIONS.  
  
Q.4) I read in the ASM Best Practices paper that Oracle  
recommends two diskgroups. Why?  
A. Oracle recommends two diskgroups to provide a  
balance of manageability, utilization, and  
performance.  
To reduce the complexity of managing ASM and its diskgroups, Oracle recommends that  
generally no more than two diskgroups be maintained and managed per RAC cluster or  
single ASM instance  
oDatabase work area: This is where active database files such as datafiles, control files,  
online redo logs, and change tracking files used in incremental backups are stored. This  
location is indicated by DB\_CREATE\_FILE\_DEST.  
oFlash recovery area: Where recovery-related files are created, such as multiplexed copies  
of the current control file and online redo logs, archived redo logs, backup sets, and  
flashback log files. This location is indicated by DB-RECOVERY\_FILE\_DEST.  
•Having one DATA container means only place to store all your database files, and obviates  
the need to juggle around datafiles or having to decide where to place a new tablespace.  
By having one container for all your files also means better storage utilization. Making the IT  
director very happy. If more storage capacity or IO capacity is needed, just add an ASM  
disk….all online activities.  
You have to ensure that this storage pool container houses enough spindles to  
accommodate the IO rate of all the database objects  
Bottom line, one container == one pool manage, monitor, and track  
Note however, that additional diskgroups may be added to support tiered storage classes in  
Information Lifecycle Management (ILM) or Hierarchical Storage Management (HSM)  
deployments  
  
Q.5) We have a 16 TB database. I’m curious about the  
number of disk groups we should use; e.g. 1 large  
disk group, a couple of disk groups, or otherwise?  
A. For VLDBs you will probably end up with different  
storage tiers; e.g with some of our large customers  
they have Tier1 (RAID10 FC), Tier2 (RAID5 FC), Tier3  
(SATA), etc. Each one of these is mapped to a  
diskgroup.  
These custs mapped certain tablespaces to specific tiers; eg, system/rollback/syaux  
and latency senstive tablespaces in Tier1, and not as IO critical on Tier2, etc.  
For 10g VLDBs its best to set an AU size of 16MB, this is more for metadata space  
efficiency than for performance. The 16MB recommendation is only necessary if the  
diskgroup is going to be used by 10g databases. In 11g we introduced variable size  
extents to solve the metadata problem. This requires compatible.rdbms &  
compatible.asm to be set to 11.1.0.0. With 11g you should set your AU size to the largest  
I/O that you wish to issue for sequential access (other parameters need to be set to  
increase the I/O size issued by Oracle). For random small I/Os the AU size does not  
matter very much as long as every file is broken into many more extents than there are  
disks.  
15  
  
Q.6) We have a new app and don’t know our access  
pattern, but assuming mostly sequential access, what  
size would be a good AU fit?  
A. For 11g ASM/RDBMS it is recommended to use 4MB  
ASM AU for disk groups.  
See Metalink Note 810484.1  
For all 11g ASM/DB users, it best to create a disk group using 4 MB ASM AU size. Metalink  
Note 810484.1 covers this  
  
  
Q.7) Would it be better to use BIGFILE tablespaces, or  
standard tablespaces for ASM?  
A. The use of Bigfile tablespaces has no bearing on ASM  
(or vice versa). In fact most database object related  
decisions are transparent to ASM.  
Nevertheless, Bigfile tablespaces benefits:  
Fewer datafiles - which means faster database open (fewer files to  
open),  
Faster checkpoints, as well fewer files to manage. But you'll need  
careful consideration for backup/recovery of these large datafiles.  
  
Q.8) What is the best LUN size for ASM  
A. There is no best size! In most cases the storage  
team will dictate to you based on their standardized  
LUN size. The ASM administrator merely has to  
communicate the ASM Best Practices and application  
characteristics to storage folks :  
• Need equally sized / performance LUNs  
• Minimum of 4 LUNs  
• The capacity requirement  
• The workload characteristic (random r/w, sequential r/w) &  
any response time SLA  
Using this info , and their standards, the storage folks should build a  
nice LUN group set for you.  
In most cases the storage team will dictate to you what the standardized LUN size  
is. This is based on several factors,  
including RAID LUN set builds (concatenated, striped, hypers, etc..). Having too  
many LUNs elongates boot  
time and is it very hard to manage On the flip side, having too few LUNs makes array  
cache management difficult to  
control and creates un-manageable large LUNs (which are difficult to expand).  
The ASM adminstrator merely has to communicate to SA/storage folks that you need  
equally sized/performance LUNs and what the capacity requirement is, say 10TB.  
Using this info, the workload characteristic (random r/w, sequential r/w), and their  
standards, the storage folks should build a nice LUN group set for you  
Having too many LUNs elongates boot time and is it very hard to manage (zoning,  
provisioning, masking, etc..)...there's a $/LUN barometer!  
  
Q.9) In 11g RAC we want to separate ASM admins from  
DBAs and create different users and groups. How do  
we set this up?  
A. For clarification  
• Separate Oracle Home for ASM and RDBMS.  
• RDBMS instance connects to ASM using OSDBA group of the ASM instance.  
Thus, software owner for each RDBMS instance connecting to ASM must be  
a member of ASM's OSDBA group.  
• Choose a different OSDBA group for ASM instance (asmdba) than for  
RDBMS instance (dba)  
• In 11g, ASM administrator has to be member of a separate SYSASM group to  
separate ASM Admin and DBAs.  
Operating system authentication using membership in the group or groups  
designated  
as OSDBA, OSOPER, and OSASM is valid on all Oracle platforms.  
A typical deployment could be as follows:  
ASM administrator:  
User : asm  
Group: oinstall, asmdba(OSDBA), asmadmin(OSASM)  
Database administrator:  
User : oracle  
Group: oinstall, asmdba(OSDBA of ASM), dba(OSDBA)  
ASM disk ownership : asm:oinstall  
Remember that Database instance connects to ASM instance as  
sysdba. The user id the database instance runs as needs to be the  
OSDBA group of the ASM instance.  
  
A typical deployment could be as follows:  
ASM administrator:  
User : asm  
Group: oinstall, asmdba(OSDBA), asmadmin(OSASM)  
Database administrator:  
User : oracle  
Group: oinstall, asmdba(OSDBA of ASM), dba(OSDBA)  
A typical deployment could be as follows:  
ASM administrator:  
User : asm  
Group: oinstall, asmdba(OSDBA), asmadmin(OSASM)  
Database administrator:  
User : oracle  
Group: oinstall, asmdba(OSDBA of ASM), dba(OSDBA)  
  
Q.10) Can my RDBMS and ASM instances run different  
versions?  
A. Yes. ASM can be at a higher version or at lower  
version than its client databases. There’s two  
components of compatiblity:  
• Software compatibility  
• Diskgroup compatibility attributes:  
• compatible.asm  
• compatible.rdbms  
This is a diskgroup level change and not an instance level change…no  
rolling upgrade here!  
  
Disk Group Compatibility Example  
• Start with 10g ASM and RDBMS  
• Upgrade ASM to 11g  
• Advance compatible.asm  
• ALTER DISKGROUP data  
SET ATTRIBUTE  
‘compatible.asm’ = ’11.1.0.7.0’  
• 10g RDBMS instances are still supported  
• 10g ASM instance can no longer mount the disk  
group  
22  
Disk Group Compatibility Example  
• Upgrade RDBMS to 11g  
• In the RDBMS instance set initialization parameter  
• compatible = 11.0  
• Advance compatible.rdbms  
• ALTER DISKGROUP data  
SET ATTRIBUTE  
‘compatible.rdbms’ = ’11.1.0.7.0’  
• New capabilities enabled  
• Variable size extents  
• Fast mirror resync  
• Preferred read  
• AUs > 16MB  
• 10g RDBMS instances can no longer access the disk group  
23  
Disk Group Compatibility Example  
• Compatibility may be set during disk group creation  
• CREATE DISKGROUP data  
DISK ‘/dev/sdd[bcd]1’  
ATTRIBUTE  
‘compatible.asm’ = ’11.1.0.7.0’,  
‘compatible.rdbms’ = ’11.1.0.7.0’,  
‘au\_size’ = ’4M’  
•compatible.asm and compatible.rdbms cannot  
be reversed  
  
Q.11) Where do I run my database listener from; i.e., ASM  
HOME or DB HOME?  
A. It is recommended to run the listener from the ASM  
HOME. This is particularly important for RAC env,  
since the listener is a node-level resource. In this  
config, you can create additional [user] listeners from  
the database homes as needed.  
- Allows registering multiple databases on the node to register with the  
listener without being tied to a specific database home  
- From configuration tool standpoint (netca), we promote best practice  
of creating one listener per node with node name suffix (that is  
registered with CRS) and subsequent tools that create/upgrade  
databases will register instances to that listener. One can always  
create multiple listeners in different homes and use'em but that would  
complicate the configuration  
Backups for ASM:  
  
Top 10 ASM Questions  
Q.1) How do I backup my ASM instance?  
A. Not applicable! ASM has no files to backup  
Unlike the database, ASM does require a controlfile type structure or  
any other external metadata to bootstrap itself. All the data ASM needs  
to startup is on on-disk structures (disk headers and other disk group  
metadata).  
A Disk Group is the fundamental object managed by ASM. It is  
composed of multiple ASM disks. Each Disk Group is self-describing,  
like a standard file system. All the metadata about the usage of the  
space in the disk group is completely contained within the disk group.  
If ASM can find all the disks in a disk group it can provide access to  
the disk group without any additional metadata  
  
Q.2)When should I use RMAN and when should I use  
ASMCMD copy?  
A. RMAN is the recommended and most complete and  
flexible method to backup and transport database files  
in ASM.  
ASMCMD copy is good for copying single files  
• Supports all Oracle file types  
• Can be used to instantiate a Data Guard environment  
• Does not update the controlfile  
• Does not create OMF files  
RMAN is the most complete and versatile means to backup databases  
stored in ASM.  
However, many customers use BCV/split-mirrors as backups for ASM  
based databases. Many combine BCV mirrors with RMAN backup  
of the mirrors. Why would you want to do that? RMAN ensures the  
integrity of the database data blocks by running sanity checks as it  
backs up the blocks  
Now most of you are wondering about the 11g asmcmd copy  
command, and how that fits in here. asmcmd cp is not intended to  
do wholesale backups (plus you’ll have to put the database in hot  
backup).  
In 10g the possible ways to migrate - DBMS\_FILE\_TRANSFER, rman (copy vs.  
backup), or XMLDB FTP  
In 11g, we introduced the asmcmd copy command. Key point here is that copy files  
out is great for:  
1. archive logs  
2. Controlfiles  
3. Datafiles for debugging  
4. Dumpsets (can be done across platforms)  
Copying files in:  
TTS  
Copy in only supported files.  
28  
ASMCMD Copy  
ASMCMD> ls  
+fra/dumpsets/expdp\_5\_5.dat  
ASMCMD> cp expdp\_5\_5.dat sys@rac1.orcl1:+DATA/dumpsets/ex  
pdp\_5\_5.dat  
source +fra/dumpsets/expdp\_5\_5.dat  
target +DATA/dumpsets/expdp\_5\_5.dat  
copying file(s)...  
file, +DATA/dumpsets/expdp\_5\_5.dat,  
copy committed.  
  
Top 10 ASM Questions  
Migration  
  
Top 10 ASM Questions  
Q. I’m going to do add disks to my ASM diskgroup,  
how long will this rebalance take?  
A. Rebalance time is heavily driven by the three items:  
• Amount of data currently in the diskgroup  
• IO bandwidth available on the server  
• ASM\_POWER\_LIMIT or Rebalance Power Level  
Use v$asm\_operation  
31  
  
Q. We are migrating to a new storage array. How do I  
move my ASM database from storage A to storage B?  
A. Given that the new and old storage are both visible to  
ASM, simply add the new disks to the ASM disk group  
and drop the old disks. ASM rebalance will migrate  
data online. Note 428681.1 covers how to move  
OCR/Voting disks to the new storage array  
If this is a RAC environment, the Note 428681.1 covers how to move  
OCR/Voting disks to the new storage array  
  
ASM\_SQL> alter diskgroup DATA  
drop disk  
data\_legacy1, data\_legacy2,  
data\_legacy3  
add disk  
‘/dev/sddb1’, ‘/dev/sddc1’,  
‘/dev/sddd1’;  
  
ASM Rebalancing  
• Automatic online rebalance whenever  
storage configuration changes  
• Only move data proportional to storage  
added  
• No need for manual I/O tuning  
Disk Group DATA (legacy disks)  
  
ASM Rebalancing  
• Automatic online rebalance whenever  
storage configuration changes  
• Online migration to new storage  
Disk Group DATA  
  
ASM Rebalancing  
• Automatic online rebalance whenever  
storage configuration changes  
• Online migration to new storage  
Disk Group DATA  
  
ASM Rebalancing  
• Automatic online rebalance whenever  
storage configuration changes  
• Online migration to new storage  
Disk Group DATA  
  
ASM Rebalancing  
• Automatic online rebalance whenever  
storage configuration changes  
• Online migration to new storage  
Disk Group DATA (new disks)  
  
Top 10 ASM Questions  
Q. Is it possible to unplug an ASM disk group from one  
platform and plug into a server on another platform  
(for example, from Solaris to Linux)?  
A. No. Cross-platform disk group migration not  
supported. To move datafiles between endian-ness  
platforms, you need to use XTTS, Datapump or  
Streams.  
The first problem that you run into here is that Solaris and Linux  
format their disks differently. Solaris and Linux do not recognize each  
other’s partitions, etc.  
ASM does track the endian-ness of its data. However, currently, the  
ASM code does not handle disk groups whose endian-ness does not  
match that of the ASM binary.  
Experiments have been done to show that ASM disk groups can be  
migrated from platforms that share a common format and endian-ness  
(i.e. Windows to Linux), but this functionality is not currently officially  
supported because is not regularly tested yet.  
The following links show how to migrate across platforms  
http://downloadwest.  
oracle.com/docs/cd/B19306\_01/server.102/b25159/outage.htm#CA  
CFFIDD  
http://www.oracle.com/technology/deploy/availability/pdf/MAA\_WP\_10  
gR2\_PlatformMigrationTTS.pdf  
  
Top 10 ASM Questions  
3rd Party Software  
40  
Top 10 ASM Questions  
Q. How does ASM work with multipathing software?  
A. It works great! Multipathing software is at a layer  
lower than ASM, and thus is transparent.  
You may need to adjust ASM\_DISKSTRING to specify  
only the path to the multipathing pseudo devices.  
Multipathing tools provides the following benefits:  
oProvide a single block device interface for a multi-pathed LUN  
oDetect any component failures in the I/O path; e.g., fabric port, channel adapter, or  
HBA.  
oWhen a loss of path occurs, ensure that I/Os are re-routed to the available paths,  
with no process disruption.  
oReconfigure the multipaths automatically when events occur.  
oEnsure that failed paths get revalidated as soon as possible and provide autofailback  
capabilities.  
oConfigure the multi-paths to maximize performance using various load balancing  
methods; e.g., round robin, least I/Os queued, or least service time.  
When a given disk has several paths defined, each one will be presented as a unique path  
name at the OS level; e.g.; /dev/rdsk/c3t19d1s4 and /dev/rdsk/c7t22d1s4 could be pointing  
to same disk device. ASM, however, can only tolerate the discovery of one unique device  
path per disk. For example, if the asm\_diskstring is ‘/dev/rdsk/\*’, then several paths to the  
same device will be discovered, and ASM will produce an error message stating this.  
When using a multipath driver, which sits above this SCSI-block layer, the driver will  
generally produce a pseudo device that virtualizes the sub-paths. For example, in the  
case of EMC’s PowerPath, you can use the following asm\_diskstring setting of  
‘/dev/rdsk/emcpower\*’. When I/O is issued to this disk device, the multipath driver will  
intercept it and provide the necessary load balancing to the underlying subpaths.  
As long as ASM can open/read/write to the multipathing pseudo device, it should  
work. Most all MP products are known to work w/ ASM. But remember ASM does not  
certify MP products, though we have a list products that work w/ ASM, this is more of  
a guide of what’s available by platform/OS.  
Examples of multi-pathing software include EMC PowerPath, Veritas DMP, Sun Traffic  
Manager, Hitachi HDLM, and IBM SDDPCM. Linux 2.6 has a kernel based multipathing  
  
ASM/RDBMS  
/dev/  
Multipath driver  
/dev/sda1 /dev/sdb1  
Controller Controller  
Cache  
Disk  
IO cloud  
  
Top 10 ASM Questions  
Q. Is ASM constantly rebalancing to manage “hot  
spots”?  
A. No…No…Nope!!  
Bad rumor. ASM provides even distribution of extents across all disks  
in a disk group. Since each disk will equal number of extents, no  
single disk will be hotter than another. Thus the answer NO, ASM does  
not dynamically move hot spots, because hot spots simply do not  
occur in ASM configurations.  
Rebalance only occurs on storage configuration changes (e.g. add,  
drop, or resize disks).  
43  
I/O Distribution  
• ASM spreads file extents evenly across all disks in disk group  
• Since ASM distributes extents evenly, there are no hot spots  
Average IOPS per disk during OLTP workload  
0  
50  
100  
150  
200  
250  
300  
Total  
Disk  
IOPS  
FG1: - cciss/c0d2  
FG1: - cciss/c0d3  
FG1: - cciss/c0d4  
FG1: - cciss/c0d5  
FG1: - cciss/c0d6  
FG2: - cciss/c0d2  
FG2: - cciss/c0d3  
FG2: - cciss/c0d4  
FG2: - cciss/c0d5  
FG2: - cciss/c0d6  
FG3: - cciss/c0d2  
FG3: - cciss/c0d3  
FG3: - cciss/c0d4  
FG3: - cciss/c0d5  
FG3: - cciss/c0d6  
FG4: - cciss/c0d2  
FG4: - cciss/c0d3  
FG4: - cciss/c0d4  
FG4: - cciss/c0d5  
FG4: - cciss/c0d6  
As indicated, ASM implements the policy of S.A.M.E. that stripes and mirrors  
files across all the disks in a Disk Group. If the disks are highly reliable as  
the case may be with a high-end array, mirroring can be optionally disabled  
for a particular Disk Group. This policy of striping and mirroring across all  
disks in a disk group greatly simplifies storage management and provides a  
configuration of balanced performance.  
  
Key Value Propositions  
• Manageability  
• Simple provisioning  
• Storage Array migration  
• VM/FS co-existence  
• SQL, EM, Command line  
• Consolidation  
• Self-tuning  
• Performance  
• Distribute load across all  
available storage  
• No ASM code in data path  
• Availability  
• Automatic mirror rebuild  
• Automatic bad block correction  
• Rolling upgrades  
• Online patches  
• RAC and clusterware support  
• Cost Savings  
• Shared storage pool  
• Just-in-Time provisioning  
• No license fees  
• No support fees  
45  
Summary:  
• ASM requires very few parameters to run  
• ASM based databases inherently leverage raw disk  
performance  
• No additional database parameters needed to support  
ASM  
• Mixed ASM-database version support  
• Facilitates online storage changes  
• RMAN recommended for backing up ASM based  
databases  
• Spreads I/O evenly across all disks to maximize  
performance and eliminates hot spots  
ASM provides filesystem and volume manager capabilities built into the Oracle database kernel. With  
this capability, ASM simplifies storage management tasks, such as creating/laying out databases and  
disk space management. Since ASM allows disk management to be done using familiar  
create/alter/drop SQL statements, DBAs do not need to learn a new skill set or make crucial decisions  
on provisioning.  
The following are some key benefits of ASM:  
oASM spreads I/O evenly across all available disk drives to prevent hot spots and maximize  
performance.  
oASM eliminates the need for over provisioning and maximizes storage resource utilization facilitating  
database consolidation.  
oInherent large file support.  
oPerforms automatic online redistribution after the incremental addition or removal of storage  
capacity.  
oMaintains redundant copies of data to provide high availability, or leverages 3rd party RAID  
functionality.  
oSupports Oracle Database as well as Oracle Real Application Clusters (RAC).  
oCapable of leveraging 3rd party multipathing technologies.  
oFor simplicity and easier migration to ASM, an Oracle database can contain ASM and non-ASM files.  
Any new files can be created as ASM files whilst existing files can also be migrated to ASM.  
oRMAN commands enable non-ASM managed files to be relocated to an ASM disk group.  
oEnterprise Manager Database Control or Grid Control can be used to manage ASM disk and file  
activities.  
ASM reduces Oracle Database cost and complexity without compromising performance or availability  
46  
ASM Collateral and Content  
http://www.oracle.com/technology/asm  
• ASM 11g New Features  
• ASM Best Practices  
• ASM vendor papers  
• ASM-RAC Customer Case Studies  
  
Top 10 ASM Questions  
Extra credit questions  
  
Top 10 ASM Questions  
Q. Is ASMLIB required on Linux systems and are there  
any benefits to using it?  
A. ASMLIB is not required to run ASM, but it is certainly  
recommended.  
ASMLIB has following benefits:  
• Simplified disk discovery  
• Persistent disk names  
• Efficient use of system resources  
o Reduced Overhead  
ASMLIB provides the capability for a process (RBAL) to perform a global open/close  
on the disks that are being dropped or closed.  
This reduces the number of open file descriptors on the system, thus reduces the  
probability of running out of global file descriptors on the system. Also, the open  
and close operations are reduced, ensuring orderly cleanup of file descriptors when  
storage configurations changes occur.  
A side benefit of the aforementioned items is a faster startup of the database.  
o Disk Management and Discovery  
With ASMLib the ASM disk name is automatically taken from the name given it by the  
administrative tool. This simplifies adding disks and correlating OS names with ASM  
names, as well as eliminates erroneous disk management activities since disks are  
already pre-named.  
The default discovery string for ASM is NULL, however, if ASMLIB is used, the  
ASMLIB default string replaces the NULL string, making disk discovery much more  
straightforward. Note, disk discovery has been one of the big challenges for  
administrators.  
The ASMLib permissions are persistent across reboot and in the event of major/minor  
number changes  
In RAC environments, disk identification and discovery as simply as single instance.  
Once the disks are labeled on one node, the other clustered nodes simply use the  
default disk discovery string, and discovery is seamless.  
o No requirement to setup raw links  
With ASMLib, there is not a requirement to modify the initializations (e.g. “/etc/init.d”)  
  
Top 10 ASM Questions  
Q. Is it possible to do rolling upgrades on ASMLIB in a  
RAC configuration  
A. ASMLIB is independent of Oracle Clusterware and  
Oracle Database, and thus can be upgraded on its  
own  
Upgrading ASMLIB one a given node will require that ASMLIB be  
disabled/stop, will require the database and ASM to also be  
shutdown on that node. Once the ASMLIB is upgarded then the stack can be  
restarted.  
  
  
  
Best regards,  
  
Rafi.