

Configuring and Using Automatic Storage Management

What is Automatic Storage Management?

Automatic Storage Management (ASM) is a database service that allows the efficient management of disk drives with 24x7 availability. ASM can provide management for single SMP machines, or across multiple nodes of a cluster for Oracle Real Application Clusters (RAC) support.

ASM has the following characteristics:

- ❑ It automatically does load balancing in parallel across all available disk drives to prevent hot spots and maximize performance, even with rapidly changing data usage patterns.
- ❑ It prevents fragmentation so that there is never a need to relocate data to reclaim space.
- ❑ It does automatic online disk space reorganization for the incremental addition or removal of storage capacity
- ❑ It can maintain redundant copies of data to provide fault tolerance, or it can be built on top of vendor supplied reliable storage mechanisms.
- ❑ Data management is done by selecting the desired reliability and performance characteristics for classes of data rather than with human interaction on a per file basis.

ASM solves many of the difficult management problems of Oracle Databases. As the size of a database server increases in terms of disk drives, and nodes in a cluster, the traditional techniques for management stop working. They do not scale efficiently. They become too prone to human error, and they require independent effort on every node of a cluster. Other tasks, such as manual load balancing, become so complex that it is no longer a viable solution. These problems are solved if you have expanding storage needs, and you are faced with storage management problems that are wasting too many cycles of your time.

ASM does not eliminate any existing database functionality. Existing databases are able to operate as they always have. Existing databases using file-systems, RAW devices, or based on Oracle Managed Files, can operate as they always have. New files may be created as ASM files while old ones are administered in the old way. Databases can have a mixture of ASM files, Oracle Managed Files, and manually managed files (RAW), all at the same time. Existing files can also be migrated to ASM.

How does ASM Work?

To see how ASM works, you can view a series of viewlets that have been created.

Creating an ASM Instance using DBCA



Automatic rebalancing/stripping and migration to ASM



Mirroring a Disk

