

Author – A.Kishore/Sachin
<http://appsdba.info>

Advanced Compression in Oracle Apps R12

Oracle Database 11g introduces the Advanced Compression Option to help customers cope with rapid growth in data volume, reduce resource requirements and costs for all components of our IT infrastructure, including memory and network bandwidth. The Oracle Database 11g Advanced Compression Option offers a comprehensive set of compression capabilities to help customers maximize resource utilization and reduce costs. It allows database administrators to significantly reduce their overall database storage by enabling compression for all types of data. It may be regular structured data (numbers, characters), unstructured data (documents, spreadsheets, XML and other files), or backup data. In other words, the Advanced Compression is that it can make our E-Business Suite database smaller and faster.

▶ Advanced Compression Features

Advanced compression features in Oracle Database 11g include the followings:

- Online transaction processing (OLTP) Table Compression.
- SecureFiles Deduplication.
- SecureFiles Compression
- Backup Data Compression
- Network Traffic Compression

We will discuss all the features one by one.

- **Online transaction processing (OLTP) Table Compression** :It allows structured or relational data to be compressed during all types of data manipulation operations, including regular INSERT, UPDATE or DELETE. This new feature enables compression for any application and leverages a sophisticated and intelligent algorithm that minimizes the compression overhead during write operation, thereby making it viable for all application workloads. Additionally, compressed data uses less space on disk and utilizes memory more efficiently so it significantly improves performance of queries by reducing disk I/Os and improving memory efficiency. Lets take an example:

```
CREATE TABLE emp (  
    emp_id NUMBER  
    , first_name VARCHAR2(128)  
    , last_name VARCHAR2(128)  
    ) COMPRESS FOR OLTP;
```

Author – A.Kishore/Sachin
<http://appsdba.info>

- **SecureFiles Deduplication** :It is an intelligent new feature that eliminates duplicate copies of files stored in Oracle Database 11g. Besides reducing storage, this feature also dramatically improves the performance of write and copy operations involving duplicate content.

Lets take an example:

```
CREATE TABLE images (  
  image_id NUMBER,  
  image BLOB)  
  LOB(image) STORE AS SECUREFILE  
(TABLESPACE lob_tbs DEDUPLICATE);
```

- **SecureFiles Compression** :It compresses the unstructured or file data stored within the database. Two levels of compression are available so you have a choice of higher compression by using additional system (CPU) resources.

Lets take an example:

```
CREATE TABLE images (  
  image_id NUMBER,  
  image BLOB)  
  LOB(image) STORE AS SECUREFILE  
(TABLESPACE lob_tbs COMPRESS);
```

- **Backup Data Compression**: The storage requirements for maintaining database backups and backup performance are directly impacted by database size. To that end, Advanced Compression includes compression for backup data when you employ Recovery Manager (RMAN) or Oracle Data Pump for database backups. There are three levels of RMAN Compression: LOW, MEDIUM, and HIGH. The amount of storage savings increases from LOW to HIGH, while potentially consuming more CPU resources

Lets take an example:

Syntax for setting the RMAN compression algorithm:

```
RMAN> SET COMPRESSION ALGORITHM 'LOW|MEDIUM|HIGH';
```

Syntax for taking a compressed RMAN backup:

```
RMAN> backup as COMPRESSED BACKUPSET database archivelog all;
```

Incase of DATA PUMP, we have the following options to determine which parts of a dump file set should be compressed:

Author – A.Kishore/Sachin
<http://appsdba.info>

- ALL enables compression for the entire export operation.
- DATA-ONLY results in all data being written to the dump file in compressed format.
- METADATA-ONLY results in all metadata being written to the dump file in compressed format. This is the default.
- NONE disables compression for the entire export operation.

To enable DATA PUMP compression.

```
expdp hr FULL=y DUMPFILE=dpump_dir:full.dmp COMPRESS;
```

- **Network Traffic Compression:** Advanced Compression Option offers the capability to compress Oracle Data Guard (standby databases) redo data as it is sent over the network. This improves the efficiency of network utilization and speeds up gap resolution up to two times.

▶ **Benefits:**

Advanced Compression is a technique with interesting possibilities. Advanced Compression is a native RDBMS-feature that is completely transparent to applications that make use of the database. That's why Advanced Compression can be implemented in an EBS-environment without additional interoperability-steps.

Advanced Compression innovations in Oracle Database 11g help customers reduce the resources and costs of managing large data volumes. With rapid data growth, organizations must quickly adapt to the changing technology without compromising performance and costs. The Advanced Compression Option of Oracle Database 11g provides a robust set of compression capabilities that enable IT managers to succeed in these growing, complex environments.

