Pennsylvania

Department of Public Welfare

Office of Information Systems

Instance Configuration

Version 1.0

November 5, 2001

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Instance Configuration

Introduction

Purpose

In order to ease creation and maintenance issues DBA has created a blueprint that should be followed when creating an Oracle Instance. The blueprint creates a baseline for instance creation that includes directory structures, objects, users etc.

Document Change Log

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Change Date** | **Version** | **CR #** | **Change Description** | **Author and Organization** |
| 11/05/01 | 1.0 |  | Initial creation. | Unknown |

Non-Database File Directory Structures

The creation of an Oracle Instance requires many supporting files for the creation, reporting, and subsequent maintenance activities. The Location of these objects is to a degree Operating System dependent. The following chart depicts various object locations by Operating System:

|  |  |  |
| --- | --- | --- |
| **Object** | **Unix** | **Windows 2000** |
| Trace Files | /export/home/orauser/SID/trace | d:\oracle\SID\trace |
| InitSID.ora  | /export/home/orauser/SID/dbs | d:\oracle\SID\dbs |
| Admin Scripts | /export/home/orauser/SID/utils | d:\oracle\SID\admin |
| Creation Scripts | /export/home/orauser/SID/create | d:\oracle\SID\create |

Database Block Size

The Department has standardized upon two distinct Database Block sizes to be used when creating an Instance. The distinction is based upon the type of application, OLAP vs. OLTP.

 OLAP Instances 16K

 OLTP Instance 8K

InitSID.ora Parameters

Although there are several hundred possible Init.ora parameters that can be altered, the Department has identified the following parameters as being mandatory:

|  |  |
| --- | --- |
| Optimizer mode | choose |
| Timed statistics | True |
| Audit trail  | True |
| Db files | 1024 |
| *\_*trace files public  | True |
| always anti join  | Hash |
| log checkpoints to alert | False |
| nls date format | MM/DD/YYYY |
| resource limit | True |

The setting of other Init.ora parameters should be based upon the specific nature of the Instance being created. All changes to the init.ora file should be documented in the file and should reflect when the change was made, who made the change and what the change was. Changing more the 1 performance related parameter at a time is not suggested.

Tablespaces

When an Oracle instance is created, several tablespaces such as System, RBS, etc. must be created. In addition to those mandatory tablespaces we have determined that each Oracle Instance will have at minimum the following Tablespaces created:

SYSTEM

RBS

TEMP

TOOLS

USERS\_DATA

USERS\_IDX

The storage allocated to each of these tablespaces is dependent upon the Nature Of the Instance being created.

The actual naming of additional tablespaces is composed of 2 facets. The first is a name to reflect the content or purpose of objects in the tablespace. The second is a suffix of \_DATA or \_IDX to designate tables vs. Indexes.

An example would be EMPLOYEE\_DATA, EMPLOYEE\_IDX.

If the volume of the data and/or processing requirements indicates that it would be beneficial to utilize Oracle Partitioning, a sequential number would be appended to the Tablespace name to support various partitions.

An example would be EMPLOYEE\_DATA\_01, EMPLOYEE\_IDX\_01.

Database Data File Naming

The name of database data file should reflect the tablespace name in order to relate the database file to the tablespace. The data file is composed of the following four components in the following sequence:

AA..AABBC.DDD

AA..AA is the Tablespace Name

BB is a value of 01 (for partitioned tablespaces the value corresponds to the partition number)

C is a alphabetic character starting at a (this permits multiple datafiles for a tablespace)

DDD is a constant expression of .dbf

Example: IM4Q\_RESP\_DATA\_01a.dbf | 2 files for the tablespace

 IM4Q\_RESP\_DATA\_01a.dbf | IM4Q\_RESP\_DATA

Rollback Segments

By default Oracle will create rollback segments in the System Tablespace. In

Order to eliminate fragmentation and reduce unnecessary access to the System

Tablespace rollback segments should be created in the RBS tablespace. The actual number and storage attributes of each rollback segment are dependent upon the nature of the Instance being created. Rollback Segments should be named RBSXX where XX is a sequential number starting at 01.

Archive Log Files

If the requirements of the application being developed require that the Instance function in Archive Log mode the following placement and naming conventions for Archive Log files will apply.

 Directory for Archived Log Files /oradata/arch/SID

 Log File Names LOG%s\_%t.arc

Redo Log Files

All Oracle Instances will utilize at a minimum 3 Redo Log Files. The Redo Log

Files will be placed on /oradata/fs\_10/SID through /oradata/fs\_19/SID file systems which are hardware mirrored so Oracle Software mirroring of redo log files will not be utilized.

The redo log files will be named redoXX.log where XX is a sequential number starting at 01.

Control Files

All Oracle Instances will utilize 3 Control Files. The Control Files will be placed on /oradata/fs\_10/SID through /oradata/fs\_19/SID file systems that are hardware mirrored.

The Control Files will be named ctrlX.ctl where X is a number from 1 to 3.

Default Users

Depending upon the Oracle Server software installed several default schemas will be created when the Instance is created. Since these user schemas are created with known passwords it is imperative that the passwords of these users are modified immediately to avoid security issues.

In additional by default the Temporary and default tablespace assignments point to the System tablespace. The Default tablespace should be modified to point to Tools and the Temporary tablespace should point to Temp.

Roles

In order to facilitate user creation and access several roles will be created and included in each Oracle Instance. These roles will address Connectivity and Object creation.

The privileges for the Connect\_User role include:

 Create Session

 Alter Session

The privileges for the Object\_Creation role include:

 Create Procedure, Create Sequence, Create Trigger, Create Synonym,

 Create Table, Create View

Profiles

In order to enforce database security and limit resource consumption a user profile will be created and included in each Oracle Instance.

The attributes of the Password\_Security profile include:

|  |  |
| --- | --- |
| Number of Failed Login Attempts | 5 |
| Number of Days account is locked | 1 |
| Lifetime of Password | 90 days |
| Password Reuse | 270 days |
| Grace Period for changing password | 10 days |
| Idle time per session | 60 minutes |
| Concurrent sessions | 5 |