



Oracle Checklist

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1 ORACLE Checklist

1.1 General

Information	Status
Version 2.0	Draft

1.2 Understand Oracle Database

Compass recommends first to understand the Oracle tablespace before doing a security assessment on it. The following chapters introduce into the most important commands in order to gain more knowledge about the tablespaces, users, tables, etc.

Check	Comment
tablespaces	Find out, what tablespaces are defined within the Oracle installation
tablespace owner	Find out, which user owns the tablespace.
users	what users are defined and what status do they have. If you know the users, you will better understand the check "tablespace owner".
users default tablespace	Find out about the default tablespace of a user. This helps you to understand which user will be used by what application.
<p>After the 4 checks above, the security expert should have a first impression about the tablespaces, who owns these tablespaces and the defined users within the oracle database. This is basic knowledge needed to do further analysis.</p>	
every user has a password set?	Find out, if every db-user has a valid password set
users profile	Find out, if the users belongs to a profile
roles	Find out definitions of roles

1.3 Application Security Aspects

If you do a Pen-Test on a Oracle database, you should be aware of the application which stores the information within the database. I always think in a scenario, where the attacker gains access to the business logic server in front of the Oracle database. The database should be setup in a way, the database is protected even the business logic server is compromised.

This could be done with the thinking of not trusting anybody per default.

The business logic server has at least 2 ways to get information out of the database

- SQL queries (SQL*NET)
- Stored Procedures

If you setup your business logic server to perform sql queries, you have to make sure, the queries won't be performed by the tablespace owner with insert/delete and other required privileges. You should make sure, the "transaction user" has only the required insert privileges to the tables he really needs. Let's imagine the client feeds his address information into the database. In such a scenario, the business logic server might need insert privileges to the address table.

If you do your job by let the business server perform self written sql queries, the oracle user must be set up carefully.

On the other hand, you could implement all business logic into stored-procedures and only fork the process from the business logic server and deny all sql queries. This makes it very hard for an attacker to gain additional information about the database beside the functionality the stored procedures offer.

My experience is, that most business logic developer use sql queries and because it's easy to develop by the oracle tablespace owner, this will be deployed into production.

My document is more focussed on this kind of questions and the information below will give you a short and brief introduction in how you could perform such analysis.

Any feedback to increase quality is welcomed.

Take Care

Ivan

1.4 SQL Queries

1.4.1 How to perform an SQL query

```

su - oracle
cd $ORACLE_HOME/bin
./svrmgrl
connect / as sysdba
spool results.log
select * from dba_users;
/*perform any other sql statements you would like now*/
/*to find the actual location of the database files run the following sql
statement*/
select * from dba_data_files;

```

1.4.2 Find out „tablespaces“

```
select * from dba_tablespaces;
```

you will get an output like:

```

TABLESPACE_NAME
-----
SYSTEM
TEMP
RBS
APPLICATION_A_DATA
APPLICATION_B_XDATA
USERS

6 rows selected.

SQL>

```

1.4.3 Find out „tablespace owner“

```
select tablespace_name, user from dba_tablespaces;
```

you will get an output like:

```

TABLESPACE_NAME          USER
-----
SYSTEM                   SYSTEM
TEMP                     SYSTEM
RBS                      SYSTEM
APPLICATION_A_DATA       SYSTEM
APPLICATION_B_XDATA      SYSTEM
USERS                    SYSTEM

6 rows selected.

```

1.4.4 Find out „defined users“

select username, account_status from dba_users;

you will get an output like:

USERNAME	ACCOUNT_STATUS
SYS	OPEN
SYSTEM	OPEN
OUTLN	OPEN
DBSNMP	OPEN
APPLICATION_C_REG_TRX	OPEN
APPLICATION_C_TRX	OPEN
CSNCAA	OPEN
CSNCBB	OPEN
APPLICATION_C	OPEN

1.4.5 Find out „users default tablespace“

select username, default_tablespace from dba_users;

USERNAME	DEFAULT_TABLESPACE
SYS	SYSTEM
SYSTEM	SYSTEM
OUTLN	SYSTEM
DBSNMP	SYSTEM
APPLICATION_C_REG_TRX	USERS
APPLICATION_C_TRX	USERS
BUTXOU	USERS
BUTXVT	USERS
APPLICATION_C	APPLICATION_C_SDATA

9 rows selected.

1.4.6 Find out „every user has a password set“

select username, user_id, password from dba_users;

USERNAME	USER_ID	PASSWORD
SYS	0	D4C5016086B2DC6A
SYSTEM	5	D4DF7931AB130E37
OUTLN	11	4A3BA55E08595C81
DBSNMP	16	E066D214D5421CCC
APPLICATION_C_REG_TRX	22	904C82C506C5AA4F
APPLICATION_C_TRX	23	B511BFBC471CA033
BUTXOU	24	DCF29F3E81757D78
BUTXVT	25	04F259FE8690379B
APPLICATION_C	26	893192A28E12164F

9 rows selected.

1.4.7 Find out “users profile”

select username, profile from dba_users;

USERNAME	PROFILE
SYS	DEFAULT
SYSTEM	DEFAULT
OUTLN	DEFAULT
DBSNMP	DEFAULT
APPLICATION_C_REG_TRX	BUT_USER_PROFILE
APPLICATION_C_TRX	BUT_USER_PROFILE
BUTXOU	BUT_USER_PROFILE
BUTXVT	BUT_USER_PROFILE
APPLICATION_C	BUT_USER_PROFILE

9 rows selected.

1.4.8 Find out “roles”

select * from dba_roles;

ROLE	PASSWORD
CONNECT	NO
RESOURCE	NO
DBA	NO
SELECT_CATALOG_ROLE	NO
EXECUTE_CATALOG_ROLE	NO
DELETE_CATALOG_ROLE	NO
EXP_FULL_DATABASE	NO
IMP_FULL_DATABASE	NO
RECOVERY_CATALOG_OWNER	NO
AQ_ADMINISTRATOR_ROLE	NO
AQ_USER_ROLE	NO
SNMPAGENT	NO
OEM_MONITOR	NO
APPLICATION_C_ADMIN	NO
BUT_RESOURCE	NO
BUT_TRX	NO

16 rows selected.

1.5 Grants for the DEMO_DB users

GRANTEE	GRANTED_ROLE	ADM	DEF
APPLICATION_C	BUT_RESOURCE	NO	YES
APPLICATION_C_REG_TRX	BUT_TRX	NO	YES
APPLICATION_C_TRX	BUT_TRX	NO	YES
BUTXOU	APPLICATION_C_ADMIN	NO	YES
BUTXOU	BUT_RESOURCE	NO	YES
BUTXVT	APPLICATION_C_ADMIN	NO	YES
BUTXVT	BUT_RESOURCE	NO	YES

1.6 Definition of GRANTED_ROLE

1.6.1 BUT_RESOURCE

This role is for:

- APPLICATION_C
- BUTXOU

```
SQL> select * from role_sys_privs where role='BUT_RESOURCE';
```

ROLE	PRIVILEGE	ADM
BUT_RESOURCE	ALTER SESSION	NO
BUT_RESOURCE	CREATE CLUSTER	NO
BUT_RESOURCE	CREATE DATABASE LINK	NO
BUT_RESOURCE	CREATE PROCEDURE	NO
BUT_RESOURCE	CREATE SEQUENCE	NO
BUT_RESOURCE	CREATE SESSION	NO
BUT_RESOURCE	CREATE SYNONYM	NO
BUT_RESOURCE	CREATE TABLE	NO
BUT_RESOURCE	CREATE TRIGGER	NO
BUT_RESOURCE	CREATE VIEW	NO

10 rows selected.

1.6.2 BUT_TRX

```
SQL> select * from role_sys_privs where role='BUT_TRX';
```

ROLE	PRIVILEGE	ADM
BUT_TRX	ALTER SESSION	NO
BUT_TRX	CREATE SESSION	NO
BUT_TRX	CREATE SYNONYM	NO

1.6.3 APPLICATION_C_ADMIN

```
SQL> select * from role_sys_privs where role='APPLICATION_C_ADMIN';

no rows selected

SQL>
```

1.6.4 BUT_RESOURCE

ROLE	PRIVILEGE	ADM
BUT_RESOURCE	ALTER SESSION	NO
BUT_RESOURCE	CREATE CLUSTER	NO
BUT_RESOURCE	CREATE DATABASE LINK	NO
BUT_RESOURCE	CREATE PROCEDURE	NO
BUT_RESOURCE	CREATE SEQUENCE	NO
BUT_RESOURCE	CREATE SESSION	NO
BUT_RESOURCE	CREATE SYNONYM	NO
BUT_RESOURCE	CREATE TABLE	NO
BUT_RESOURCE	CREATE TRIGGER	NO
BUT_RESOURCE	CREATE VIEW	NO

10 rows selected.

1.7 Tables of APPLICATION_C_SDATA

```
SQL> select owner, table_name from dba_tables where tablespace_name = 'APPLICATION_C_SDATA';
```

OWNER	TABLE_NAME
APPLICATION_C	PTACCESSORREG
APPLICATION_C	PTAUTHSOURCES
APPLICATION_C	PTCARDPROPERTIES
APPLICATION_C	PTCARDS
APPLICATION_C	PTCARDSECURITY
APPLICATION_C	PTCARDSTATISTICS
APPLICATION_C	PTCARDSTATUS
APPLICATION_C	PTCATEGORIES
APPLICATION_C	PTCLASSEDESCRIPTION
APPLICATION_C	PTCOMMONFIELDS
APPLICATION_C	PTCRAWLERREJECTS

OWNER	TABLE_NAME
APPLICATION_C	PTCRAWLERS
APPLICATION_C	PTCURRENTISSUES
APPLICATION_C	PTDATASOURCES
APPLICATION_C	PTDATABUTCPROVREG
APPLICATION_C	PTDELIVMETHPROVREG
APPLICATION_C	PTDOCTYPEINFO
APPLICATION_C	PTDOCUMENTTYPES
APPLICATION_C	PTDTMIDENTIFIERS
APPLICATION_C	PTDTMSECTIONS
APPLICATION_C	PTFILTERS
APPLICATION_C	PTFOLDERCARDS

OWNER	TABLE_NAME
-------	------------

```

-----
APPLICATION_C          PTFOLDERFILTERS
APPLICATION_C          PTFOLDERIDPATHS
APPLICATION_C          PTFOLDERPATHS
APPLICATION_C          PTFOLDERS
APPLICATION_C          PTFOLDERSECURITY
APPLICATION_C          PTFOLDERSTATUS
APPLICATION_C          PTGADGETPROVREG
APPLICATION_C          PTGADGETS
APPLICATION_C          PTGROUPMEMBERSHIP
APPLICATION_C          PTIMAGEREG
APPLICATION_C          PTINTERNALCARDINFO

OWNER                  TABLE_NAME
-----
APPLICATION_C          PTISSUES
APPLICATION_C          PTJOBCATEGORIES
APPLICATION_C          PTJOBHISTORY
APPLICATION_C          PTJOBLISTS
APPLICATION_C          PTJOBOPHISTORY
APPLICATION_C          PTJOBS
APPLICATION_C          PTJOBSEEVERS
APPLICATION_C          PTMYFOLDERS
APPLICATION_C          PTMYGADGETS
APPLICATION_C          PTMYPREFS
APPLICATION_C          PTMYPUBS

OWNER                  TABLE_NAME
-----
APPLICATION_C          PTOBJECTCOUNTERS
APPLICATION_C          PTOBJECTLOCKS
APPLICATION_C          PTOBJECTPROPERTIES
APPLICATION_C          PTOBJECTSECURITY
APPLICATION_C          PTPROPERTIES
APPLICATION_C          PTPUBLICATIONS
APPLICATION_C          PTSERVERCONFIG
APPLICATION_C          PTTAXONOMISTS
APPLICATION_C          PTUPLOADEDFILES
APPLICATION_C          PTUSERGROUPS
APPLICATION_C          PTUSERS
APPLICATION_C          PTUSERSINFO

56 rows selected.

```

The application tablespace is not owned by a privileged user = OK

1.8 Tables of APPLICATION_C_XDATA

```

SQL> select owner, table_name from dba_tables where tablespace_name = 'APPLICATION_C_XDATA';

no rows selected

SQL>

```

1.9 PT Tables

```

SQL> desc APPLICATION_C.ptusers;
Name                               Null?    Type
-----
OBJECTID                           NOT NULL NUMBER(38)

```

```

NAMECRC_A          NOT NULL NUMBER(38)
NAMECRC_B          NOT NULL NUMBER(38)
CATEGORY           VARCHAR2(255)
OWNERID            NOT NULL NUMBER(38)
NAME               NOT NULL VARCHAR2(255)
DESCRIPTION        VARCHAR2(255)
CREATED            NOT NULL DATE
LASTMODIFIED       NOT NULL DATE
AUTHSOURCEID       NOT NULL NUMBER(38)
AUTHUSERNAME       VARCHAR2(255)
PASSWORD         VARCHAR2(50)

SQL> desc APPLICATION_C.ptusergroups;
Name               Null?    Type
-----
OBJECTID           NOT NULL NUMBER(38)
CATEGORY           VARCHAR2(255)
OWNERID            NOT NULL NUMBER(38)
NAME               NOT NULL VARCHAR2(255)
DESCRIPTION        VARCHAR2(255)
CREATED            NOT NULL DATE
LASTMODIFIED       NOT NULL DATE
AUTHSOURCEID       NOT NULL NUMBER(38)
GROUPTYPE          NOT NULL NUMBER(38)
SYNCHGROUPNAME    VARCHAR2(255)

```

1.10 PTUSERGROUPS

```

SQL> select name, description from APPLICATION_C.ptusergroups;

NAME
-----
DESCRIPTION
-----
Administrators Group
HoboBut Administrators Group

Everyone
The Everyone group includes all users in HoboBut

Food Forum Group
Used to give access to the food forum gadget

NAME
-----
DESCRIPTION
-----
BannerAdmin
Administering the banner

SigmaAdmin
Only for sigma admin

```

1.11 What is APPLICATION_C_REG_TRX allowed to?

```
SQL> select TABLE_NAME, PRIVILEGE from dba_tab_privs where grantee='APPLICATION_C_REG_TRX';
```

TABLE_NAME	PRIVILEGE
PTUSERSINFO	INSERT

1.12 What is APPLICATION_C_TRX allowed to?

```
SQL> select TABLE_NAME, PRIVILEGE from dba_tab_privs where grantee='APPLICATION_C_TRX';
```

TABLE_NAME	PRIVILEGE
PTACCESSORREG	DELETE
PTACCESSORREG	INSERT
PTACCESSORREG	SELECT
PTACCESSORREG	UPDATE
PTAUTHSOURCES	DELETE
PTAUTHSOURCES	INSERT
PTAUTHSOURCES	SELECT
PTAUTHSOURCES	UPDATE
PTCARDPROPERTIES	DELETE
PTCARDPROPERTIES	INSERT
PTCARDPROPERTIES	SELECT
PTCARDPROPERTIES	UPDATE
PTCARDS	DELETE
PTCARDS	INSERT
PTCARDS	SELECT
PTCARDS	UPDATE
PTCARDSECURITY	DELETE
PTCARDSECURITY	INSERT
PTCARDSECURITY	SELECT
PTCARDSECURITY	UPDATE
PTCARDSTATISTICS	DELETE
PTCARDSTATISTICS	INSERT
PTCARDSTATISTICS	SELECT
PTCARDSTATISTICS	UPDATE
PTCARDSTATUS	DELETE
PTCARDSTATUS	INSERT
PTCARDSTATUS	SELECT
PTCARDSTATUS	UPDATE
PTCATEGORIES	DELETE
PTCATEGORIES	INSERT
PTCATEGORIES	SELECT
PTCATEGORIES	UPDATE
PTCLASSDESCRIPTION	DELETE
PTCLASSDESCRIPTION	INSERT
PTCLASSDESCRIPTION	SELECT
PTCLASSDESCRIPTION	UPDATE
PTCOMMONFIELDS	DELETE
PTCOMMONFIELDS	INSERT
PTCOMMONFIELDS	SELECT
PTCOMMONFIELDS	UPDATE
PTCRAWLERREJECTS	DELETE
PTCRAWLERREJECTS	INSERT
PTCRAWLERREJECTS	SELECT
PTCRAWLERREJECTS	UPDATE

PTCRAWLERS	DELETE
PTCRAWLERS	INSERT
PTCRAWLERS	SELECT
PTCRAWLERS	UPDATE
PTCURRENTISSUES	DELETE
PTCURRENTISSUES	INSERT
PTCURRENTISSUES	SELECT
PTCURRENTISSUES	UPDATE
PTDATASOURCES	DELETE
PTDATASOURCES	INSERT
PTDATASOURCES	SELECT
PTDATASOURCES	UPDATE
PTDATABUTCPROVREG	DELETE
PTDATABUTCPROVREG	INSERT
PTDATABUTCPROVREG	SELECT
PTDATABUTCPROVREG	UPDATE
PTDELIVMETHPROVREG	DELETE
PTDELIVMETHPROVREG	INSERT
PTDELIVMETHPROVREG	SELECT
PTDELIVMETHPROVREG	UPDATE
PTDOCTYPEINFO	DELETE
PTDOCTYPEINFO	INSERT
PTDOCTYPEINFO	SELECT
PTDOCTYPEINFO	UPDATE
PTDOCUMENTTYPES	DELETE
PTDOCUMENTTYPES	INSERT
PTDOCUMENTTYPES	SELECT
PTDOCUMENTTYPES	UPDATE
PTDTMIDENTIFIERS	DELETE
PTDTMIDENTIFIERS	INSERT
PTDTMIDENTIFIERS	SELECT
PTDTMIDENTIFIERS	UPDATE
PTDTMSECTIONS	DELETE
PTDTMSECTIONS	INSERT
PTDTMSECTIONS	SELECT
PTDTMSECTIONS	UPDATE
PTFILTERS	DELETE
PTFILTERS	INSERT
PTFILTERS	SELECT
PTFILTERS	UPDATE
PTFOLDERCARDS	DELETE
PTFOLDERCARDS	INSERT
PTFOLDERCARDS	SELECT
PTFOLDERCARDS	UPDATE
PTFOLDERFILTERS	DELETE
PTFOLDERFILTERS	INSERT
PTFOLDERFILTERS	SELECT
PTFOLDERFILTERS	UPDATE
PTFOLDERIDPATHS	DELETE
PTFOLDERIDPATHS	INSERT
PTFOLDERIDPATHS	SELECT
PTFOLDERIDPATHS	UPDATE
PTFOLDERPATHS	DELETE
PTFOLDERPATHS	INSERT
PTFOLDERPATHS	SELECT
PTFOLDERPATHS	UPDATE
PTFOLDERS	DELETE
PTFOLDERS	INSERT
PTFOLDERS	SELECT
PTFOLDERS	UPDATE
PTFOLDERSECURITY	DELETE
PTFOLDERSECURITY	INSERT
PTFOLDERSECURITY	SELECT
PTFOLDERSECURITY	UPDATE
PTFOLDERSTATUS	DELETE
PTFOLDERSTATUS	INSERT
PTFOLDERSTATUS	SELECT

PTFOLDERSTATUS	UPDATE
PTGADGETPROVREG	DELETE
PTGADGETPROVREG	INSERT
PTGADGETPROVREG	SELECT
PTGADGETPROVREG	UPDATE
PTGADGETS	DELETE
PTGADGETS	INSERT
PTGADGETS	SELECT
PTGADGETS	UPDATE
PTGROUPMEMBERSHIP	DELETE
PTGROUPMEMBERSHIP	INSERT
PTGROUPMEMBERSHIP	SELECT
PTGROUPMEMBERSHIP	UPDATE
PTIMAGEREG	DELETE
PTIMAGEREG	INSERT
PTIMAGEREG	SELECT
PTIMAGEREG	UPDATE
PTINTERNALCARDINFO	DELETE
PTINTERNALCARDINFO	INSERT
PTINTERNALCARDINFO	SELECT
PTINTERNALCARDINFO	UPDATE
PTISSUES	DELETE
PTISSUES	INSERT
PTISSUES	SELECT
PTISSUES	UPDATE
PTJOBCATEGORIES	DELETE
PTJOBCATEGORIES	INSERT
PTJOBCATEGORIES	SELECT
PTJOBCATEGORIES	UPDATE
PTJOBHISTORY	DELETE
PTJOBHISTORY	INSERT
PTJOBHISTORY	SELECT
PTJOBHISTORY	UPDATE
PTJOBLISTS	DELETE
PTJOBLISTS	INSERT
PTJOBLISTS	SELECT
PTJOBLISTS	UPDATE
PTJOBOPHISTORY	DELETE
PTJOBOPHISTORY	INSERT
PTJOBOPHISTORY	SELECT
PTJOBOPHISTORY	UPDATE
PTJOBS	DELETE
PTJOBS	INSERT
PTJOBS	SELECT
PTJOBS	UPDATE
PTJOBSERVERS	DELETE
PTJOBSERVERS	INSERT
PTJOBSERVERS	SELECT
PTJOBSERVERS	UPDATE
PTMYFOLDERS	DELETE
PTMYFOLDERS	INSERT
PTMYFOLDERS	SELECT
PTMYFOLDERS	UPDATE
PTMYGADGETS	DELETE
PTMYGADGETS	INSERT
PTMYGADGETS	SELECT
PTMYGADGETS	UPDATE
PTMYPREFS	DELETE
PTMYPREFS	INSERT
PTMYPREFS	SELECT
PTMYPREFS	UPDATE
PTMYPUBS	DELETE
PTMYPUBS	INSERT
PTMYPUBS	SELECT
PTMYPUBS	UPDATE
PTOBJECTCOUNTERS	DELETE
PTOBJECTCOUNTERS	INSERT

PTOBJECTCOUNTERS	SELECT
PTOBJECTCOUNTERS	UPDATE
PTOBJECTLOCKS	DELETE
PTOBJECTLOCKS	INSERT
PTOBJECTLOCKS	SELECT
PTOBJECTLOCKS	UPDATE
PTOBJECTPROPERTIES	DELETE
PTOBJECTPROPERTIES	INSERT
PTOBJECTPROPERTIES	SELECT
PTOBJECTPROPERTIES	UPDATE
PTOBJECTSECURITY	DELETE
PTOBJECTSECURITY	INSERT
PTOBJECTSECURITY	SELECT
PTOBJECTSECURITY	UPDATE
PTPROPERTIES	DELETE
PTPROPERTIES	INSERT
PTPROPERTIES	SELECT
PTPROPERTIES	UPDATE
PTPUBLICATIONS	DELETE
PTPUBLICATIONS	INSERT
PTPUBLICATIONS	SELECT
PTPUBLICATIONS	UPDATE
PTSERVERCONFIG	DELETE
PTSERVERCONFIG	INSERT
PTSERVERCONFIG	SELECT
PTSERVERCONFIG	UPDATE
PTTAXONOMISTS	DELETE
PTTAXONOMISTS	INSERT
PTTAXONOMISTS	SELECT
PTTAXONOMISTS	UPDATE
PTUPLOADEDFILES	DELETE
PTUPLOADEDFILES	INSERT
PTUPLOADEDFILES	SELECT
PTUPLOADEDFILES	UPDATE
PTUSERGROUPS	DELETE
PTUSERGROUPS	INSERT
PTUSERGROUPS	SELECT
PTUSERGROUPS	UPDATE
PTUSERS	DELETE
PTUSERS	INSERT
PTUSERS	SELECT
PTUSERS	UPDATE
PTUSERSINFO	DELETE
PTVAUTHSOURCES	DELETE
PTVAUTHSOURCES	INSERT
PTVAUTHSOURCES	SELECT
PTVAUTHSOURCES	UPDATE
PTVCRAWLERS	DELETE
PTVCRAWLERS	INSERT
PTVCRAWLERS	SELECT
PTVCRAWLERS	UPDATE
PTVDATASOURCES	DELETE
PTVDATASOURCES	INSERT
PTVDATASOURCES	SELECT
PTVDATASOURCES	UPDATE
PTVDOCUMENTTYPES	DELETE
PTVDOCUMENTTYPES	INSERT
PTVDOCUMENTTYPES	SELECT
PTVDOCUMENTTYPES	UPDATE
PTVFILTERS	DELETE
PTVFILTERS	INSERT
PTVFILTERS	SELECT
PTVFILTERS	UPDATE
PTVFOLDERSECURITY	DELETE
PTVFOLDERSECURITY	INSERT
PTVFOLDERSECURITY	SELECT
PTVFOLDERSECURITY	UPDATE

PTVGADGETS	DELETE
PTVGADGETS	INSERT
PTVGADGETS	SELECT
PTVGADGETS	UPDATE
PTVISSUES	DELETE
PTVISSUES	INSERT
PTVISSUES	SELECT
PTVISSUES	UPDATE
PTVJOBS	DELETE
PTVJOBS	INSERT
PTVJOBS	SELECT
PTVJOBS	UPDATE
PTVMYPUBS	DELETE
PTVMYPUBS	INSERT
PTVMYPUBS	SELECT
PTVMYPUBS	UPDATE
PTVPROPERTIES	DELETE
PTVPROPERTIES	INSERT
PTVPROPERTIES	SELECT
PTVPROPERTIES	UPDATE
PTVPUBLICATIONS	DELETE
PTVPUBLICATIONS	INSERT
PTVPUBLICATIONS	SELECT
PTVPUBLICATIONS	UPDATE
PTVTAXONOMISTS	DELETE
PTVTAXONOMISTS	INSERT
PTVTAXONOMISTS	SELECT
PTVTAXONOMISTS	UPDATE
PTVUSERGROUPS	DELETE
PTVUSERGROUPS	INSERT
PTVUSERGROUPS	SELECT
PTVUSERGROUPS	UPDATE
PTVUSERS	DELETE
PTVUSERS	INSERT
PTVUSERS	SELECT
PTVUSERS	UPDATE

281 rows selected.

1.13 Passwords

```
SQL> select name, password from APPLICATION_C.ptusers where name='hobo';

NAME
-----
PASSWORD
-----
hobo
92048EAC6E8EA06E72C98F1374391E0309855D2063A4B248B5

SQL> select name, password from APPLICATION_C.ptusers where password="";

no rows selected

SQL>
```

The passwords can not be read in plain text in the database, they are encrypted.

1.14 Every Oracle user has a valid password?

```
SQL> select username,password from dba_users;

USERNAME                                PASSWORD
-----                                -
SYS                                       D4C5016086B2DC6A
SYSTEM                                   D4DF7931AB130E37
OUTLN                                    4A3BA55E08595C81
DBSNMP                                   E066D214D5421CCC
APPLICATION_C_REG_TRX                    904C82C506C5AA4F
APPLICATION_C_TRX                        B511BFBC471CA033
BUTXOU                                    DCF29F3E81757D78
BUTXVT                                    04F259FE8690379B
APPLICATION_C                             893192A28E12164F

9 rows selected.
```

OK -> every user has a password set

1.15 Verify OS I&A is not used for database I&A

```
SQL> select username from dba_users where username like '%OPS%';

no rows selected

SQL>
```

1.16 Access Control

Verify that permissions on the database system tables have not been modified

```
SQL> select * from dba_sys_privs where privilege='SELECT ANY TABLE';

GRANTEE                                PRIVILEGE                                ADM
-----                                -
DBA                                     SELECT ANY TABLE                        YES
EXP_FULL_DATABASE                      SELECT ANY TABLE                        NO
IMP_FULL_DATABASE                      SELECT ANY TABLE                        NO
SYS                                     SELECT ANY TABLE                        YES
```

1.17 Unix Permissions

```
$ pwd
/opt/hobo/oracle/product/8.1.7
$ ls -al
total 76
drwxr-xr-x 42 oracle dba          1024 Nov 14 20:35 .
drwxr-xr-x  3 oracle dba           512 Nov 14 19:07 ..
-rw-----  1 oracle dba           252 Nov 14 19:32 .sh_history
drwxr-xr-x 11 oracle dba          1024 Nov 14 20:10 Apache
lrwxrwxrwx  1 oracle dba            21 Nov 14 19:55 JRE -> /opt/oracle/jre/1.1.8
drwxr-xr-x  5 oracle dba            96 Nov 14 20:10 assistants
drwxr-xr-x  2 oracle dba          4096 Nov 14 20:39 bin
drwxr-xr-x  6 oracle dba            96 Nov 14 19:55 classes
drwxr-xr-x  2 oracle dba            96 Nov 14 20:05 converters
drwxr-xr-x 11 oracle dba          1024 Nov 14 20:36 ctx
drwxr-xr-x  5 oracle dba          1024 Dec 11 21:41 dbs
```

drwxr-xr-x	7	oracle	dba	96	Nov	14	20:39	hs
drwxr-xr-x	3	oracle	dba	96	Nov	14	20:39	install
drwxr-xr-x	2	oracle	dba	1024	Nov	14	20:01	jar
drwxr-xr-x	8	oracle	dba	1024	Nov	14	20:06	javavm
drwxr-xr-x	5	oracle	dba	96	Nov	14	19:51	jdbc
drwxr-xr-x	9	oracle	dba	1024	Nov	14	20:08	jis
drwxr-xr-x	2	oracle	dba	1024	Nov	14	19:58	jlib
drwxr-xr-x	6	oracle	dba	96	Nov	14	20:07	jsp
drwxr-xr-x	12	oracle	dba	1024	Nov	14	19:58	ldap
drwxr-xr-x	3	oracle	dba	4096	Nov	14	20:38	lib
drwxr-xr-x	2	oracle	dba	96	Nov	14	16:59	lost+found
drwxr-xr-x	5	oracle	dba	96	Nov	14	20:35	md
drwxr-xr-x	14	oracle	dba	1024	Nov	14	20:39	network
drwxr-xr-x	3	oracle	dba	96	Nov	14	19:51	ocommon
drwxr-xr-x	7	oracle	dba	1024	Nov	14	20:39	odg
drwxr-xr-x	11	oracle	dba	1024	Nov	14	20:34	oem_webstage
drwxr-xr-x	4	oracle	dba	96	Nov	14	20:10	oracore
drwxr-xr-x	11	oracle	dba	1024	Nov	14	20:36	ord
drwxr-xr-x	7	oracle	dba	96	Nov	14	19:54	otrace
drwxr-xr-x	4	oracle	dba	96	Nov	14	19:56	owm
drwxr-xr-x	7	oracle	dba	96	Nov	14	20:07	plsql
drwxr-xr-x	8	oracle	dba	1024	Nov	14	19:52	precomp
drwxr-xr-x	12	oracle	dba	1024	Nov	14	20:39	rdbsms
drwxr-xr-x	7	oracle	dba	1024	Nov	14	20:35	relnotes
-rwxr-xr-x	1	oracle	dba	8044	Nov	14	20:39	root.sh
drwxr-xr-x	3	oracle	dba	96	Nov	14	19:52	slax
drwxr-xr-x	5	oracle	dba	1024	Nov	14	20:06	sqlj
drwxr-xr-x	7	oracle	dba	96	Nov	14	19:57	sqlplus
drwxr-xr-x	3	oracle	dba	96	Nov	14	20:06	stage_tmp
drwxr-xr-x	2	oracle	dba	1024	Nov	14	20:11	starterdb
drwxr-xr-x	4	oracle	dba	96	Nov	14	19:55	svrmgr
drwxr-xr-x	10	oracle	dba	1024	Nov	14	20:03	sysman
drwxr-xr-x	3	oracle	dba	96	Nov	14	20:11	wwg
drwxr-xr-x	9	oracle	dba	1024	Nov	14	20:10	xdk
\$								

ORACLE_HOME does not have permission 750 (recommended)

1.18 Unix Accounts

```

$ cat /etc/passwd
root:x:0:1:Super-User:/:/sbin/sh
daemon:x:1:1:/:
bin:x:2:2:/:usr/bin:
sys:x:3:3:/:
adm:x:4:4:Admin:/var/adm:
lp:x:71:8:Line Printer Admin:/usr/spool/lp:
uucp:x:5:5:uucp Admin:/usr/lib/uucp:
nuucp:x:9:9:uucp Admin:/var/spool/uucppublic:/usr/lib/uucp/uucico
listen:x:37:4:Network Admin:/usr/net/nls:
nobody:x:60001:60001:Nobody:/:
noaccess:x:60002:60002:No Access User:/:
nobody4:x:65534:65534:SunOS 4.x Nobody:/:
oracle:x:11000:202:oracle user account:/opt/hobo/oracle/oracle_home:/bin/ksh
guest:x:1001:1::/export/home/guest:/bin/sh
tngagent:x:11001:1::/opt/tngagent:/bin/csh

$ cat /etc/group
root::0:root
other::1:
bin::2:root,bin,daemon
sys::3:root,bin,sys,adm
adm::4:root,adm,daemon
uucp::5:root,uucp
mail::6:root
tty::7:root,tty,adm
lp::8:root,lp,adm
nuucp::9:root,nuucp
staff::10:
daemon::12:root,daemon

```



```
sysadmin::14:  
nobody::60001:  
noaccess::60002:  
nogroup::65534:  
dba::202:
```

Only the user oracle belongs to the group dba = OK.