

Upgrade Completed Successfully. Has it Really??

*NYOUG
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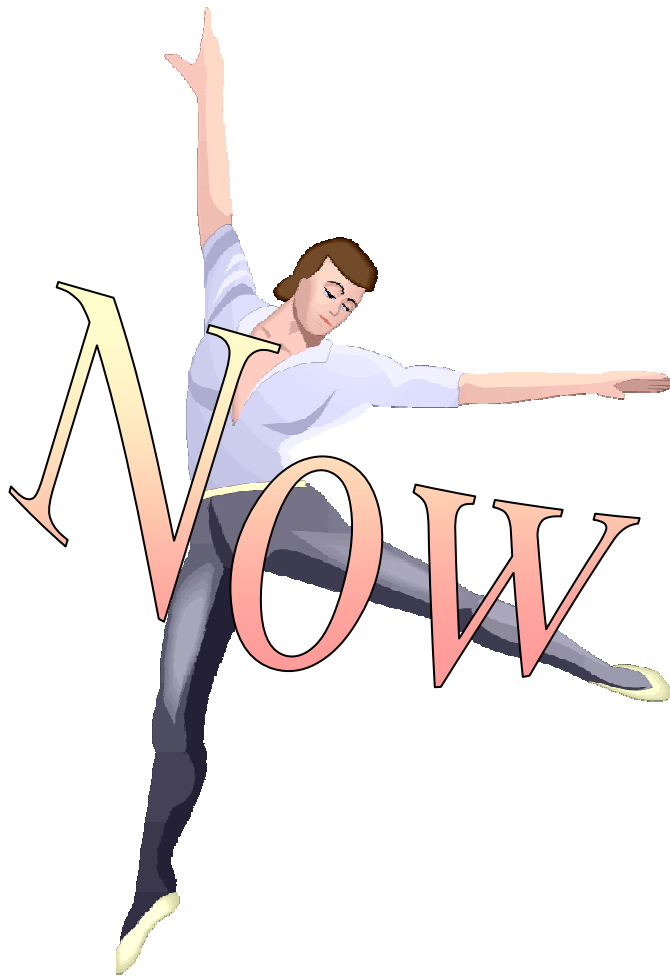
Agenda

- The software / server
- Applications snapshot
- The downgrade
- Best practices



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Finding problems



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Completeness

- Testing is done
- Patch level will be exactly the same as where tests were performed
- Do not take anything for granted even through a minor change (e.g. 9.2.0.5 to 9.2.0.6)
- Downgrade plan is part of upgrade

Completeness

- Pre-installation scripts/checklist
 - validate: shell script that executes the engine on Unix platforms
 - validate.pl: actual rule engine
 - filename.txt: rule text file; this file will be different for each rule set
- [Linux](#) [HP-UX](#) [Itanium](#) [AIX](#) [Solaris](#)

The software

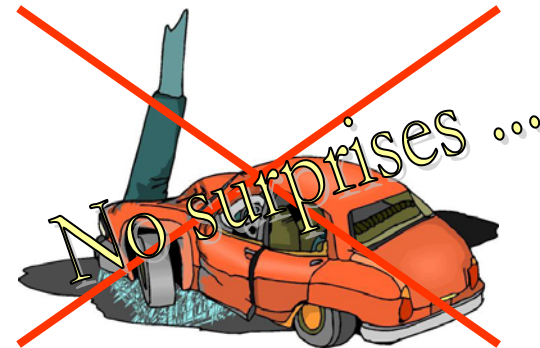
- Base release
 - may be dependent on O/S
 - do not jump to any inclusions based on your familiarity
- Required patchsets (if any)
- Be very careful with ORACLE_HOME selection
- Poor choice of name will bite you later

The software

- Correct version
 - heralds for products used in app
 - SQL*Plus herald for management
 - OEM version / GRID control if applicable
- If patchset applied
 - some tool versions may be different than database
 - co-existing version info on MetaLink

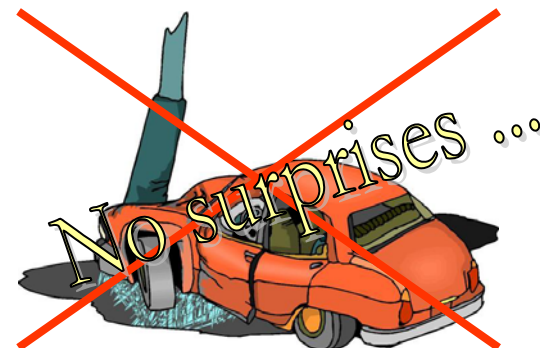
The software

- Installer initiates a relink of required products
- Best to check for yourself
- Examine \$ORACLE_HOME/dbs for *O and *0 files that can be erased
- Scour the link output ... > link.out 2>&1



The server

- Will the o/s support the production configuration:
 - get a copy of the init file
 - satisfy directory requests
 - sqlplus '/ as sysdba'
 - startup nomount
- Semaphores and shared memory problems



The server

- Network configuration files
 - listener.ora (with appropriate Host changes)
 - tnsnames.ora (ditto)
- Backup and monitoring scripts
- Copy of crontab
 - verify all called scripts exist in proper location
 - fully-pathed UNIX command locations same?

Applications snapshot

- Status of ALL application-related schemas
- Run just prior to upgrade
- Status of objects organized by schema:

```
break on owner on object_type skip 1

col owner form a8
set pages 0 lines 80 trimsp on

select owner,object_type,status,count(*)
  from dba_objects
 where owner in ('PRECISE','LOAN','TRACKER')
 group by owner,object_type,status
 order by 1,2;
```

Applications snapshot

TRACKER	DATABASE LINK	VALID	1
	FUNCTION	VALID	22
	INDEX	VALID	133
	INDEX PARTITION	VALID	205
	LOB	VALID	1
	PACKAGE	VALID	13
	PACKAGE BODY	INVALID	1
		VALID	13
	PROCEDURE	INVALID	1
		VALID	62
	SEQUENCE	VALID	28
	SYNONYM	VALID	18
	TABLE	VALID	79
	TABLE PARTITION	VALID	95
	TRIGGER	VALID	63
	VIEW	INVALID	11
		VALID	34

Odd?

Applications snapshot

- Invalid object details

```
break on owner on object_type skip 1

col owner form a8
col object_name form a40
set pages 0 lines 80 trimsp on

select owner,object_type,object_name
       from dba_objects
       where owner in ('PRECISE','LOAN','TRACKER')
              and status = 'INVALID'
       order by 1,2
```

Applications snapshot

TRACKER

PACKAGE BODY

IMPLEMENT_EMAIL_SWITCH

PROCEDURE

SET_ALL_COMPLETE

VIEW

ACORN_VW

APPLE_VW

CRONTAB_VW

DESERT_VW

EXTRAS_VW

HERBICIDE_VW

MONTREAL_VW

SARNIA_VW

TORONTO_VW

WESTERN_VW

Applications snapshot

- NOT VALIDATED constraints

```
break on owner skip 1

set pages 0 lines 80 trimsp on
col owner form a12

select owner,constraint_type,count(*)
  from dba_constraints
 where validated = 'NOT VALIDATED'
 group by owner,constraint_type
 order by 1,2;
```

Applications snapshot

TRACKER	O	4
	P	2
	R	5

- NOT VALIDATED constraint details

```
select owner,constraint_name,constraint_type  
from dba_constraints  
where validated = 'NOT VALIDATED'  
order by 1,2,3;
```


Applications snapshot

TRACKER	O	SYS_C00093
		SYS_C00095
		SYS_C00190
		SYS_C00231
	P	ALLOWANCE_PK
		DESERTION_PK
	R	STATUS_OBS_FK
		SUBTERR_FK
		TREADMILL_FK1
		TREADMILL_FK2
		UNDERPIN_FK2

Applications snapshot

- DISABLED triggers

```
break on owner skip 1

set pages 0 lines 80 trimsp on
col owner form a12

select owner,count(*)
  from dba_triggers
 where status = 'DISABLED'
 group by owner
 order by 1;
```

Applications snapshot

HR	3
PRECISE	2
TRACKER	6

- DISABLED trigger details

```
select owner,trigger_name  
  from dba_triggers  
 where status = 'DISABLED'  
 order by 1;
```

Applications snapshot

HR

PRECISE

TRACKER

SECURE_EMPLOYEES

CTACTHIST_PROBACKN_LOGGER

SPTTMDTL_ALL_SUPT_TRG

SERVER\$SHUTDOWN

SERVER\$STARTUP

VM_CREATE

VM_DROP

LOGOFF

LOGON

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Applications snapshot

- Ensure SQL*Plus environment exactly the same
- Spool to smartly named file
- Run UNIX diff command against output

Proper status restored afterwards via SQL
resembling *alter {object_type} disable;*

How does one invalidate stored objects?



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The downgrade

- Plan in case something goes wrong
- 9i back down to 8i
 - `d0801070.sql` will take you back to 8.1.7.4
 - need 8.1.7.4 software to go further back
 - not always possible, so be prepared
- 9.x.x.x → lower version of 9
 - no downgrade script
 - need more planning

The ~~down~~ upgrade

```
[ ] sqlplus '/ as sysdba
[ ] shutdown immediate
[ ] startup restrict
[ ] shutdown
[ ] backup database files
    online redo logs
    control files
[ ] lsnrctl stop
[ ] reconcile count and size
    of backup files
[ ] point at later release
[ ] sqlplus '/ as sysdba'
[ ] verify right tool version
[ ] startup upgrade|migrate

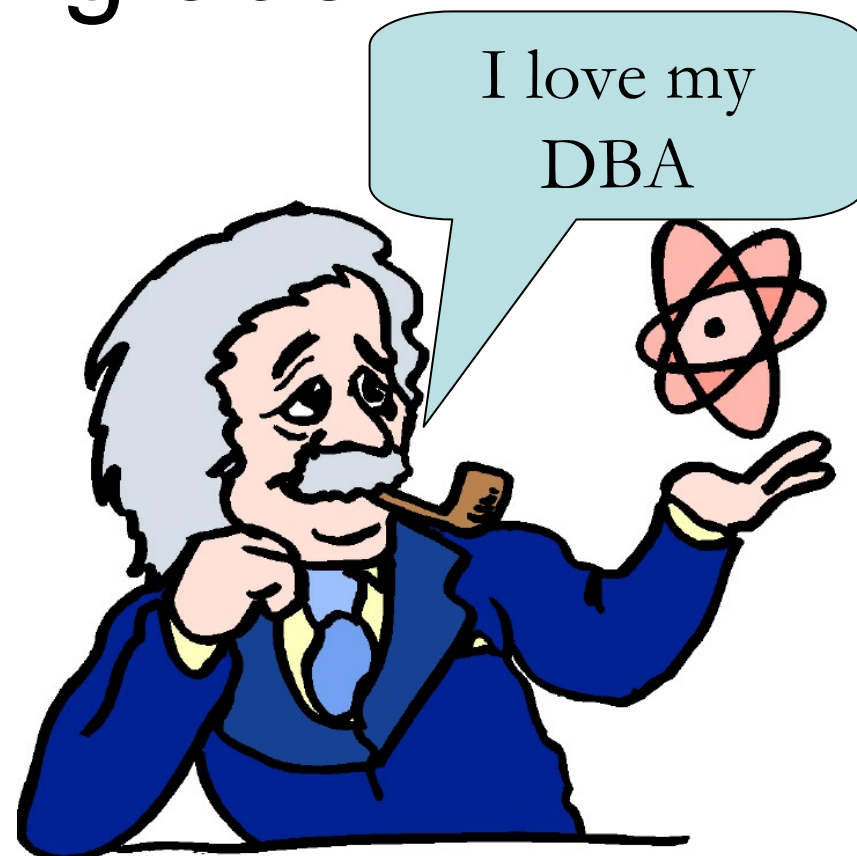
[ ] @?/rdbms/admin/catpatch
[ ] @?/rdbms/admin/utlrlp
[ ] attend to warnings
[ ] object status reconciliation
[ ] lsnrctl start
[ ] sqlplus '/ as sysdba'
[ ] disable restricted session
```



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The downgrade

```
[ ] sqlplus '/ as sysdba  
[ ] shutdown immediate  
[ ] startup restrict  
[ ] shutdown  
[ ] restore backup  
[ ] lsnrctl stop  
[ ] point back at later release  
[ ] sqlplus '/ as sysdba'  
[ ] verify right tool version  
[ ] startup
```



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Best practices

- Manual relink after the installer completes
- Keep distribution medium online as long as possible ... sometimes *runInstaller* is hard to find after the fact
- Follow recommendations for resizing memory structures
 - save current values for re-setting

Best practices

- Wish list
 - delete statistics and re-collect with new version
 - keep backup online for at least the first few hours of the new version
 - keep physical standby on previous release for a business day
- Install new version and patchset early

Best practices

- Make a detailed checklist
- Discuss with colleagues
- At least one other set of eyes
- Rehearse with fellow DBA
 - more fault tolerant
 - no single-point of failure
- Can never have too many backups

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Best practice

5 words to take home with
you from this presentation

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YAHOO!



fenderpbs



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