



ORACLE®

Patches for Oracle Database on OpenVMS systems

Dave Hayter
Sustaining Engineer
OpenVMS Porting Team
(UK based)



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Patches for Oracle Databases



PSU – Patch Set Update

CPU – Critical Patch Update

Deferred Deployment of Relinked Executables

Generic Patches

Patches for Oracle Databases

Patch types:

- One-off patch
- Overlay patch
- PSU – Patch Set Update
- CPU – Critical Patch Update
- PSU-Dependent patch





PSU vs. CPU

October 2009 onward:

- PSU instead of CPU by default for 10.2.0.4
- Both OpenVMS platforms
- Same 'quarterly' schedule for PSUs and CPUs
- CPUs can be provided ON REQUEST



PSU – Patch Set Updates

Patch Set Updates:

- Contain CPU changes (security fixes)
- Contain recommended 'bundle' fixes
- Are not subdivided into molecules



PSU – Patch Set Updates

Patch Set Update availability:

- Database 10.2.0.4 – PSU 10.2.0.4.9
- *Database 10.2.0.5 – after release of 10.2.0.5 patch set*

Patch Set Updates are released every January, April, July and October (on the second Tuesday of the month)



PSU – Patch Set Updates

Patch Set Update are not ‘molecular’

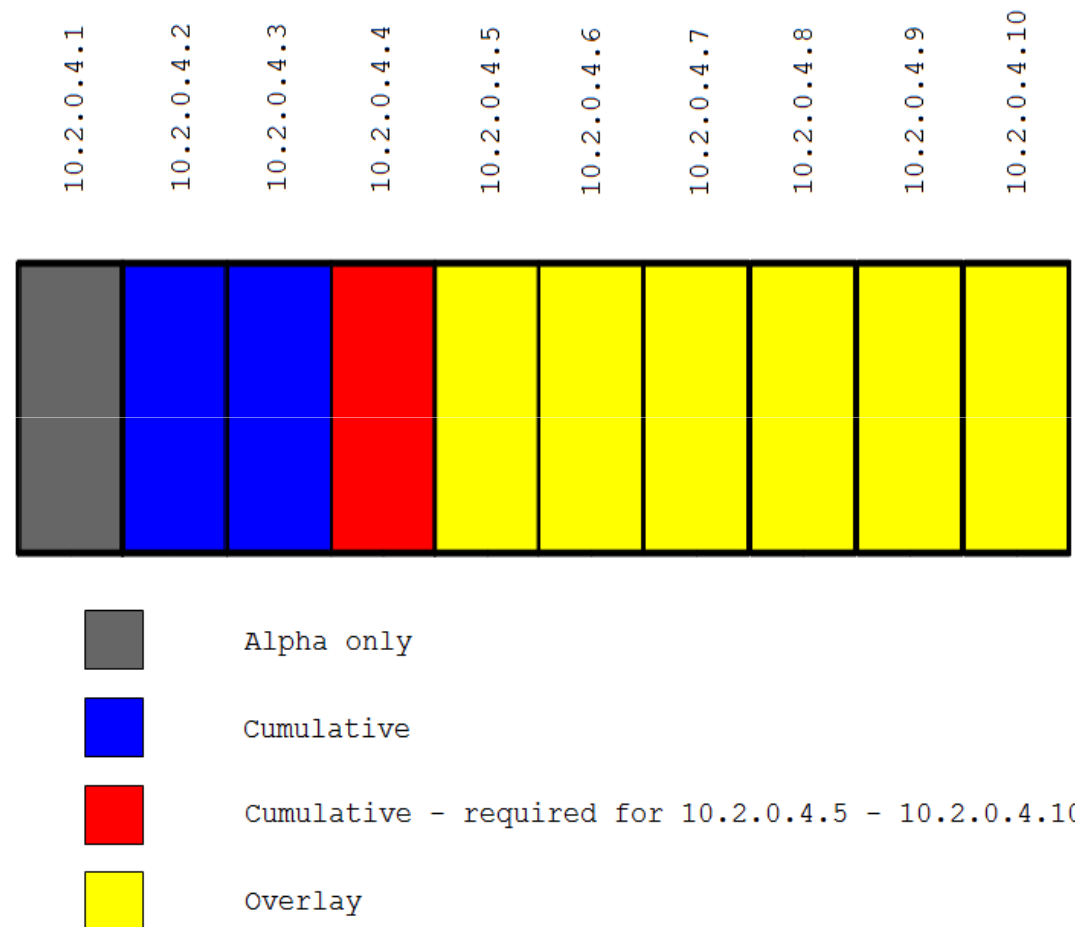
- Delivered as one single patch
- Do not include 'molecules' as CPU patches do.
- PSU 10.2.0.4.4 contains 136 bug fixes
- PSU 10.2.0.4.9 contains numerous new bug fixes



PSU – Patch Set Updates

- PSU 10.2.0.4.1 – Alpha only
- PSU 10.2.0.4.2 – Alpha and IA64
- PSU 10.2.0.4.3 – Cumulative
- PSU 10.2.0.4.4 – Cumulative
- PSU 10.2.0.4.5 thru 10.2.0.4.9 – Overlay
- PSU 10.2.0.4.10 – Overlay

PSU – Patch Set Updates





PSU – Patch Set Updates

- May be applied over the top of previous PSU
- PSU 10.2.0.4.5 **must** be applied **on top of** 10.2.0.4.4
- PSU 10.2.0.4.3 need not be de-installed
- PSU 10.2.0.4.5 thru 10.2.0.4.10 are **Overlay Patches**
- PSU 10.2.0.4.4 must be applied first



PSU – Patch Set Updates

Install scripts control whether patches can be overlaid.

WARNING: Do NOT attempt to deinstall a PSU if a later PSU has been applied.

Example: Do NOT attempt to deinstall PSU 10.2.0.4.4 if you have applied PSU 10.2.0.4.5 or later

WARNING: Do NOT attempt to apply a CPU patch over the top of any PSU.



PSU – Patch Set Updates

Patch Set Update 10.2.0.4.10

- PSU 10.2.0.4.10 will also be an **Overlay Patch**
- Includes fixes from PSU 10.2.0.4.5 thru 10.2.0.4.9
- **Must** be applied **on top of** 10.2.0.4.4
- No need to de-install PSU 10.2.0.4.5/6/7/8/9
- Release date: 18-OCT-2011



PSU – Patch Set Updates

PSU dependent patches

- Some patches are dependent upon a particular PSU
- PSU 10.2.0.4.3 dependent patches must be applied to 10.2.0.4.3
- Deinstall 10.2.0.4.3 dependent patches **and** PSU 10.2.0.4.3 BEFORE applying the 10.2.0.4.4 dependent patch.
- PSU 10.2.0.4.4 dependent patches must be applied to 10.2.0.4.4



PSU – Patch Set Updates

PSU dependent patches

- Because PSU 10.2.0.4.5 thru 10.2.0.4.9 are Overlay Patches, PSU 10.2.0.4.4 dependent patches can still be applied.
- PSU 10.2.0.4.10 will also be an Overlay Patch so 10.2.0.4.4 and later dependent patches can still be applied.
- Most patches are not PSU dependent and can be applied to 10.2.0.4.0 or on top of any PSU.



PSU – Patch Set Updates

My Oracle Support articles:

- **Document 854428.1** Introduction to Database Patch Set Updates
- **Document 881989.1** Patch Set Update (PSU) information unique to the OpenVMS platforms

README files:

- **README.html** contains information such as which bugs are fixed and installation instructions for Unix platforms.
- **README.TXT** contains installation instructions for OpenVMS platforms.



PSU – Patch Set Updates

Best Practices

- Copy the zip file to `ORA_ROOT:[PATCHES]`
- Unzip the zip file from `ORA_ROOT:[PATCHES]`
- This creates subdirectory `[.PATCHnnnnnnnnn_BASEBUGxxxxxxxx]`
- Read the `README.TXT` file before applying PSU



PSU – Patch Set Updates

Best Practices

- Shut down CRS, all databases and listeners BEFORE applying PSU.
- Take a backup of the databases and of the entire ORA_ROOT / Oracle Home directory structure.
- **@INSTALL_PSU.COM**
- Review *.LOG files for errors before continuing.



PSU – Patch Set Updates

Best Practices

- `@ORA_ROOT:[BIN]RELINK ALL`
- Examine `ORA_ROOT:[INSTALL]MAKE.LOG` for errors
- Follow the Post Installation Tasks in the `README.TXT` file.



CPU – Critical Patch Updates

Critical Patch Updates contain:

- Security fixes
- Molecules (10.2.0.4 onward)



CPU – Critical Patch Updates

Critical Patch Update availability:

- CPU patches for tier-1 platforms are generally available.
- ALL CPU patches for OpenVMS platforms are “On Request”
- Database 10.2.0.4 : CPUJan2010
- Database 10.1.0.5 : CPUApr2011
- Database 9.2.0.8 : CPUJul2010
- CPUJul2010 was the terminal CPU for 9.2.0.8



CPU – Critical Patch Updates

Critical Patch Update availability:

If you require the latest CPU patch, contact Oracle Support (midrange team) who will file a request on your behalf.

Have your request filed before the release date if possible.



CPU – Critical Patch Updates

Molecules

Molecules are included in CPU patches for 10.2.0.4 onward.

Each successive CPU patch includes molecules from the previous CPU plus a small number of new molecules.

When a CPU is applied, the `INSTALL_CPU.COM` script will only apply molecules that have not already been applied.

Molecules can be applied individually:

```
@INSTALL_CPU -molecule 12,13,16,21
```

Molecules can be skipped:

```
@INSTALL_CPU -skip 7,8,10
```



CPU – Critical Patch Updates

Rollback

To deinstall or rollback a CPU patch (to the previous CPU):

```
@INSTALL_CPU -rollback
```

To deinstall or rollback ALL CPU patches:

```
@INSTALL_CPU -rollback -all
```

Molecules can be rolled back individually:

```
@INSTALL_CPU -rollback -molecule 23,24
```

After rollback, those molecules cannot be reapplied unless you

use: `@INSTALL_CPU -molecule x,y,z`



CPU – Critical Patch Updates

Install Script: `INSTALL_CPU.COM`

- Used for both apply and rollback.
- Detects clashes with one-off patches.
- Takes care of which molecules are applied and rolled back.
- Please observe any warnings!



CPU – Critical Patch Updates

My Oracle Support article:

- [Document 265987.1 CPU Knowledge Browser Page](#)

README files:

- **README.html** contains information such as which bugs are fixed and installation instructions for Unix platforms.
- **README.TXT** contains installation instructions for OpenVMS platforms.



Deferred Deployment of Relinked Images





Deferred Deployment of Relinked Images

How are Oracle executables are relinked under 10.2.0.4 presently?

- `@ORA_ROOT:[BIN]RELINK <option>`
- e.g. `@ORA_ROOT:[BIN]RELINK ORACLE`
- `RELINK.COM` results in executables being moved to `ORA_ROOT:[BIN]` immediately after being relinked.



Deferred Deployment of Relinked Images

How are Oracle executables are relinked under 10.2.0.4 presently?

- ORACLE.EXE must be removed (**REMORACLE**) before the relink.
- REMORACLE needs the database(s) to be **SHUTDOWN** before the relink.
- Database(s) must be **SHUTDOWN** for the duration of the relink.



Deferred Deployment of Relinked Images

How are Oracle executables are relinked under 10.2.0.4 – summary:

- SHUTDOWN database(s) and listener(s) etc.
- REMORACLE
- **Relink – may take 5 to 60 minutes**
- INSORACLE
- STARTUP database(s) and listener(s) etc.



Deferred Deployment of Relinked Images

How deferred deployment works

- RELINK.COM adds to a list of relinked images that have yet to be deployed.
- Other images may be added to list depending on RELINK option, e.g. `@ORA_ROOT:[BIN]RELINK ALL`
- Relinked ORACLE.EXE has not yet been moved to its target directory `ORA_ROOT:[BIN]`
- REMORACLE is not yet required
- Database SHUTDOWN is not yet required



Deferred Deployment of Relinked Images

How deferred deployment works

- When all executables have been relinked,
`ORA_ROOT:[BIN]RELINK.COM` terminates successfully.

Completed LINK operation.

To deploy new executables:

- Shut down CRS on all nodes
- Then from the RAC Oracle Home:
 - Execute the command `REMORACLE` on all nodes
 - Execute `@ORA_ROOT:[BIN]RELINK DEPLOY`
 - Execute the command `INSORACLE` on all nodes
- Restart CRS on all nodes



Deferred Deployment of Relinked Images

How deferred deployment works

- Where the relink is in a non-RAC environment, the message will be different:

Completed LINK operation.

To deploy new executables:

- Shut down all listeners, databases and other services associated with this Oracle Home.
- Execute the command REMORACLE
- Execute @ORA_ROOT:[BIN]RELINK DEPLOY
- Execute the command INSORACLE
- Restart required listeners, databases and other services.



Deferred Deployment of Relinked Images

How deferred deployment works

- Database(s) and Listener(s) must be SHUTDOWN.
- CRS/RAC installations must use `INIT_CRG STOP`
- **REMORACLE** must be executed to remove the Oracle shared image from memory.



Deferred Deployment of Relinked Images

How deferred deployment works

- New images must be released to target directories:
`@ORA_ROOT:[BIN]RELINK DEPLOY`

```
EXECUTING RELINK DEPLOY
```

- deploying recently linked executables to ORA_ROOT:[BIN]
- files deployed: 1 / 1

```
relink DEPLOY completed...
```

- INSORACLE, restart database(s) and listener(s)



Deferred Deployment of Relinked Images

How deferred deployment works

- The latest relink / deployment status can be checked:
`@ORA_ROOT:[BIN]RELINK STATUS`

`RELINK STATUS: Nothing to deploy`

or

`RELINK STATUS: Executables yet to be deployed: 112`

To deploy new executables:

- Shut down all listeners, databases and other services associated with this Oracle Home.
- Execute the command `REMORACLE`
- Execute `@ORA_ROOT:[BIN]RELINK DEPLOY`
- Execute the command `INSORACLE`
- Restart required listeners, databases and other services.



Deferred Deployment of Relinked Images

How deferred deployment works – summary:

- Relink – may take 5 to 60 minutes
- **SHUTDOWN** database(s) and listener(s) etc.
- **REMORACLE**
- Deploy new images to target directories – **a few seconds**
- **INSORACLE**
- **STARTUP** database(s) and listener(s) etc.



Deferred Deployment of Relinked Images

How deferred deployment works – advantages:

- Much reduced production down time.
- Easier to plan for Oracle patches.
- Relink problems don't disrupt production systems



Deferred Deployment of Relinked Images

Patch considerations

- Post-installation instructions – MUST DEPLOY FIRST!
- SQL scripts
- PSU / CPU



Deferred Deployment of Relinked Images

Availability

- Currently being tested internally
- Targeted for 10.2.0.5
- Possibly a 10.2.0.4 patch



Generic Patches



Generic Patches

What are they?

- May be applied 'on any platform'
- Released by Base Development
- Contain non-platform-specific files, e.g. SQL scripts
- Designed for application with OPatch utility
- OPatch is not available on OpenVMS



Generic Patches

How to apply on OpenVMS

- Patches have previously been repackaged for OpenVMS
- Delayed availability for OpenVMS customers
- Could theoretically be applied 'manually'
- New script: `INSTALL_GENERIC_PATCH.COM`



Generic Patches

INSTALL_GENERIC_PATCH.COM

- Replaces the requirement for repackaging of patches
- Generic patches are immediately available on OpenVMS
- Same checks and controls as INSTALL_PATCH.COM



Generic Patches

INSTALL_GENERIC_PATCH.COM

- Download from MyOracleSupport document: 1180764.1
- May be included with 10.2.0.5 (TBD)
- Check with Oracle Support before applying **any** generic patch



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