

The Oracle logo is displayed in a red, sans-serif font. It is positioned in the upper left area of the slide, partially overlaid by a decorative orange and black pattern. The background of the entire slide is a low-angle photograph of a forest with tall trees and a wooden observation tower in the center, with sunlight filtering through the leaves.

ORACLE

Operational Life Hacks With Oracle AutoUpgrade

DOUG-day 2025, November 2025

Oracle

DBAs

run the world





Daniel Overby Hansen

Distinguished Product Manager

-
-  [dohdatabase](#)
 -  [@dohdatabase.com](#)
 -  <https://dohdatabase.com>

What is a Life Hack?

A life hack is any trick, shortcut, skill, or novelty method that **increases productivity and efficiency**



Operational Life Hack 1



Use the latest version



-- Always use the latest version of AutoUpgrade

-- Available as a direct download from oracle.com or MOS (Doc ID 2485457.1)

```
wget https://download.oracle.com/otn-pub/otn_software/autoupgrade.jar
```

--Collect all logs files for all phases
--including the alert log, broker logs, and more

java -jar autoupgrade.jar -config config.cfg -zip

Operational Life Hack 2



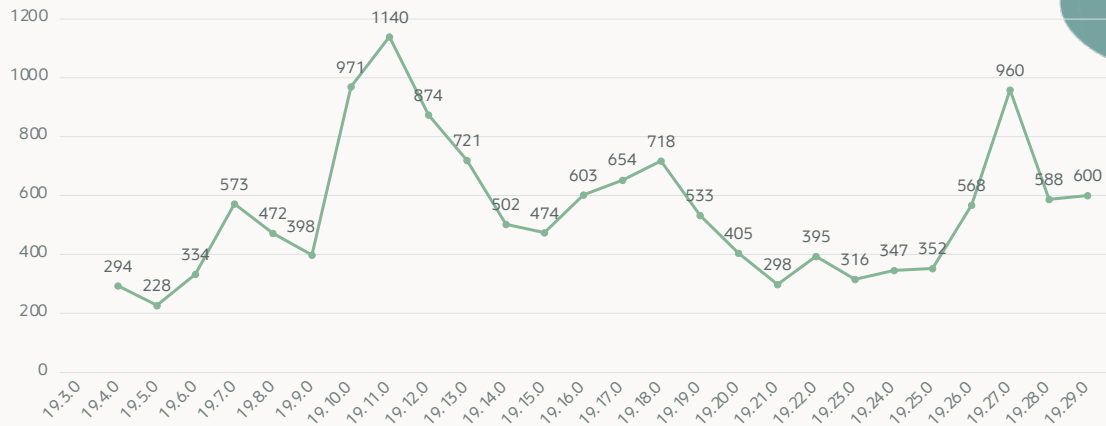
Download patches





How often do you patch your database?

Release Update Contents



[Database 19 Release Updates and Revisions Bugs Fixed Lists \(Doc ID 2523220.1\)](#)



```
global.global_log_dir=/home/oracle/autoupgrade-patching/log  
global.keystore=/home/oracle/autoupgrade-patching/keystore  
global.folder=/home/oracle/patch-repo  
patch1.target_version=19  
patch1.patch=RU
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log  
global.keystore=/home/oracle/autoupgrade-patching/keystore  
global.folder=/home/oracle/patch-repo  
patch1.target_version=19  
patch1.patch=RU19.28
```

```
$ opatch apply
```

```
Oracle Interim Patch Installer version 12.2.0.1.17
```

```
Copyright (c) 2025, Oracle Corporation. All rights reserved.
```

```
...
```

```
The OPatch being used has version 12.2.0.1.17 while the following patch(es)  
require higher versions:
```

```
Patch 38291812 requires OPatch version 12.2.0.1.47.
```

```
Please download latest OPatch from My Oracle Support.
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.target_version=19
patch1.patch=RU,OPATCH
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.target_version=19
patch1.patch=RU,OPATCH,MRP
```

APPLIES TO:

Oracle Database Cloud Exadata Service - Version N/A and later
 Oracle Database - Enterprise Edition - Version 19.10.0.0.0 and later
 Oracle Database Exadata Express Cloud Service - Version N/A and later
 Oracle Database Cloud Schema Service - Version N/A and later
 Oracle Cloud Infrastructure - Database Service - Version N/A and later
 Information in this document applies to any platform.

PURPOSE

This note provides a list of important recommended patches that resolve issues affecting Database and Grid Infrastructure 19c and 23ai software homes. These patches resolve issues that have a high likelihood of occurring or that can cause significant impact if they do occur.

DETAILS

Recommended Patches for 19.29 DB Home

Below is the list of important patches to consider applying on top of 19.29.

Bug	Fixed in RU	Fixed in MRP	Description	Patches	RAC Rolling Installable	Database Online Installable	Added
37690446			[SQL EXECUTION] ORA-600 [ktatmkref-rs] errors in the alert log post-patch 37260974 (19.26.0.0.250121 dbu and above) - Workarounds Available	[list-patches]	NO	NO	23-SEP-2025
34672698 (replaces 34286265)		Not Applicable	[VOS] DB50: ORA-800: soft external error, arguments: [set priority failed], [vktm] , dism(16)	[list-patches]	YES	NO	22-FEB-2024
34774667		Not Applicable	[AQ] ORA-7445 in Purge Queue Table / High CPU usage in SVCB Service	[list-patches]	NO	NO	11-JUL-2023
29213893		Not Applicable	[QRY OPTIMIZER] DBMS_STATS Failing With Error Ora-1422 When Gathering Stats for User\$ Table	[list-patches]	NO	NO	01-SEP-2021

Version DB 19.29_555.1: 37690446,34672698,34774667,29213893

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.target_version=19
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893
```

```
$ ./opatch lspatches
```

```
37777295;DATAPUMP BUNDLE PATCH 19.27.0.0.0
```

```
37499406;OJVM RELEASE UPDATE: 19.27.0.0.250415 (37499406)
```

```
37642901;Database Release Update : 19.27.0.0.250415 (37642901)
```

```
29585399;OCW RELEASE UPDATE 19.3.0.0.0 (29585399)
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.target_version=19
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW
```



Use the OCW patch
to update Grid Infrastructure

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.target_version=19
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
```



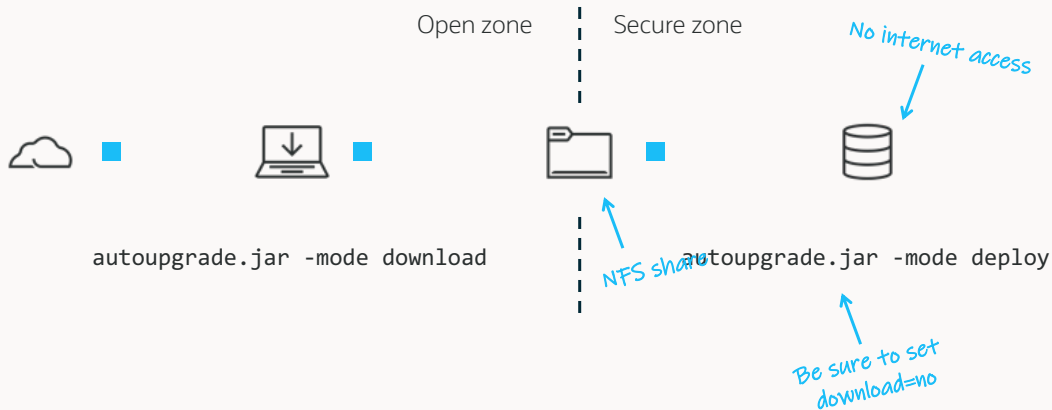
OJVM is embedded in Release Updates

- No separate download
- Complete RAC Rolling patching support

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.target_version=19
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,QJVM
```

```
java -jar autoupgrade.jar ... -mode download
```

Using Download Mode



Using Download Mode

Non-administrator



Windows

Linux
SPARC Solaris
AIX



```
patch1.platform=LINUX.X64
```

```
patch2.platform=SPARC.x64
```

```
patch3.platform=AIX.x64
```

Further Information

Create Oracle home



- Blog post: [The Easiest Way to Download 19.27 Release Update](#)
- Blog post: [AutoUpgrade New Features: Patch OCW Component In Oracle Home](#)
- Blog post: [The Easiest Way To Download Patches for Oracle Grid Infrastructure](#)
- Blog post: [AutoUpgrade New Features: Include Monthly Recommended Patches When Patching](#)

Operational Life Hack 3



Install Oracle home



Always patch out-of-place

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.source_home=/u01/app/oracle/product/dbhome_1928
patch1.target_home=/u01/app/oracle/product/dbhome_1929
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.source_home=/u01/app/oracle/product/dbhome_1928
patch1.target_home=/u01/app/oracle/product/dbhome_%RELEASE%UPDATE%
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.source_home=/u01/app/oracle/product/dbhome_1928
patch1.target_home=/u01/app/oracle/product/dbhome_1929
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
patch1.home_settings.name=DBHOME1929
```

```
cat /u01/app/oraInventory/ContentsXML/inventory.xml
```

```
<?xml version="1.0" standalone="yes" ?>
<!-- Do not modify the contents of this file by hand. -->
<INVENTORY>
  <VERSION_INFO>
    <SAVED_WITH>12.2.0.7.0</SAVED_WITH>
    <MINIMUM_VER>2.1.0.6.0</MINIMUM_VER>
  </VERSION_INFO>
  <HOME_LIST>
    <HOME NAME="OraDB19Home1" LOC="/u01/app/oracle/product/dbhome_1928" TYPE="O" IDX="1"/>
    <HOME NAME="DBHOME1929" LOC="/u01/app/oracle/product/dbhome_1928" TYPE="O" IDX="2"/>
  </HOME_LIST>
</INVENTORY>
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.source_home=/u01/app/oracle/product/dbhome_1928
patch1.target_home=/u01/app/oracle/product/dbhome_1929
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
patch1.home_settings.binopt.dnfs=yes
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.source_home=/u01/app/oracle/product/dbhome_1928
patch1.target_home=/u01/app/oracle/product/dbhome_1929
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
patch1.home_settings.binopt.dnfs=yes
patch1.home_settings.binopt.uniaud=yes
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.source_home=/u01/app/oracle/product/dbhome_1928
patch1.target_home=/u01/app/oracle/product/dbhome_1929
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
patch1.home_settings.binopt.dnfs=yes
patch1.home_settings.binopt.uniaud=yes
patch1.home_settings.read_only=yes
```

```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.source_home=/u01/app/oracle/product/dbhome_1928
patch1.target_home=/u01/app/oracle/product/dbhome_1929
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
patch1.home_settings.binopt.dnfs=yes
patch1.home_settings.binopt.uniaud=yes
patch1.home_settings.read_only=yes
```

```
java -jar autoupgrade.jar ... -mode create_home
```



Works even without a source home

```
global.global_log_dir= c:\oracle\keystore\autoupgrade-patching\log
global.keystore=c:\oracle\keystore
global.folder=c:\oracle\patch-repo
patch1.source_home= c:\oracle\product\dbhome_1928
patch1.target_home=c:\oracle\product\dbhome_1929
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM
patch1.home_settings.binopt.dnfs=yes
patch1.home_settings.binopt.uniaud=yes
patch1.home_settings.read_only=yes
patch1.home_settings.ora_lpenable=1
```



Clean up if you clone Oracle homes
or use in-place patching

-- Checks your Oracle home and removes older patch backups
-- and trims XML files

`./opatch util deleteinactivepatches`

Further Information

Create Oracle home



- Blog post: [AutoUpgrade New Features: Create Oracle Home Path Dynamically](#)
- Blog post: [AutoUpgrade New Features: Custom Oracle Home Name](#)
- Blog post: [AutoUpgrade New Features: Install Oracle Home on Brand-New, Empty Server](#)

Operational Life Hack 4



Update JDK



Our security scan found an *old* JDK
in your Oracle home

```
$ $ORACLE_HOME/jdk/bin/java -version
```

```
java version "1.8.0_461"
```

```
Java(TM) SE Runtime Environment (build 1.8.0_461-b11)
```

```
Java HotSpot(TM) 64-Bit Server VM (build 25.461-b11, mixed mode)
```

APPLIES TO:

Oracle Database Cloud Exadata Service - Version N/A and later
Oracle Cloud Infrastructure - Exadata Cloud Service - Version N/A and later
Oracle Database - Standard Edition - Version 11.2.0.4 and later
Gen 2 Exadata Cloud at Customer - Version All Versions and later
Generation 1 - Exadata Cloud at Customer (First Generation Cloud Machine) - Version N/A and later
Information in this document applies to any platform.

PURPOSE

Provide details on the Quarterly JDK patches that are issued for the Oracle Database product.

SCOPE

This information will be of interest to those assigned to maintain Oracle Database software.

DETAILS

In this document:

[1.0 Introduction](#)

[2.0 Current Patches](#)

2.1 Latest JDK Patches for Database

Oct2025 Quarter

Version	Patch	Linux64	Windows64	WindowsNT	Sparc64	Solaris.x64	Linux32	AIX64	HPA64	ZLinux64	ARM64
26ai ****	JDK11.0.29 Patch 38378853	Released	***	***	***	***	***	***	***	***	Included in DBRU
21c	JDK8u471 Patch 38245225	Released	Released	*	*	*	*	*	*	*	*
19c	JDK8u471 Patch 38245243	Released	Released	Released	Released	Released	Released	**	**	**	Released



```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
global.keystore=/home/oracle/autoupgrade-patching/keystore
global.folder=/home/oracle/patch-repo
patch1.source_home=/u01/app/oracle/product/dbhome_1928
patch1.target_home=/u01/app/oracle/product/dbhome_1929
patch1.patch=RU,OPATCH,37690446,34672698,34774667,29213893,OCW,DPBP,OJVM,JDK
```

Operational Life Hack 5



Underscores



--This is a list of our most favorite underscore parameters

```
alter system set "_cursor_obsolete_threshold"=1024;  
alter system set "_sql_plan_directive_mgmt_control"=0;  
alter system set "_column_tracking_level"=1;  
alter system set "_exclude_pdb_seed_view"=false;
```



```
$ cat my_underscores.ora
```

```
_cursor_obsolete_threshold=1024  
_sql_plan_directive_mgmt_control=0  
_column_tracking_level=1  
_exclude_pdb_seed_view=false
```

```
global.autoupg_log_dir=/home/oracle/autoupgrade-patching/log
patch1.source_home=/u01/app/oracle/product/19_28
patch1.target_home=/u01/app/oracle/product/19_29
patch1.sid=UPGR
patch1.add_after_upgrade_pfile=/home/oracle/my_underscores.ora
```

But you don't want underscores?

```
global.autoupg_log_dir=/home/oracle/autoupgrade-patching/log  
patch1.source_home=/u01/app/oracle/product/19_28  
patch1.target_home=/u01/app/oracle/product/19_29  
patch1.sid=UPGR  
patch1.remove_underscore_parameters=yes
```

Operational Life Hack 6

—
RMAN Catalog



```
RMAN> backup database;
```

```
connected to target database: SALES (DBID=4951822621)
```

```
connected to recovery catalog database
```

```
PL/SQL package CAT.DBMS_RCVCAT version 19.28.00.00. in RCVCAT database is not current
```

```
PL/SQL package CAT.DBMS_RCVMAN version 19.28.00.00 in RCVCAT database is not current
```



```
RMAN> backup database;
```

```
connected to target database: SALES (DBID=4951822621)
```

```
connected to recovery catalog database
```

```
PL/SQL package CAT.DBMS_RCVCAT version 19.28.00.00. in RCVCAT database is not current
```

```
PL/SQL package CAT.DBMS_RCVMAN version 19.28.00.00 in RCVCAT database is not current
```

```
RMAN> upgrade catalog noprompt;
```



```
java -jar autoupgrade ... -load_password
```



```
java -jar autoupgrade ... -load_password
```

```
group rman
```

```
add <ORACLE_SID> -user <catalog_schema_name>
```

```
global.autoupg_log_dir=/home/oracle/autoupgrade-patching/log  
patch1.source_home=/u01/app/oracle/product/19_28  
patch1.target_home=/u01/app/oracle/product/19_29  
patch1.sid=UPGR  
patch1.rman_catalog_connect_string=catalogdb
```

Further Information

RMAN Catalog



- Blog post: [AutoUpgrade New Features: Upgrade RMAN Catalog Schema](#)

Operational Life Hack 7



Enterprise Manager





Our monitoring shows
the *ORANGE* database is down

```
global.autoupg_log_dir=/u01/app/oracle/cfgtoollogs/autoupgrade
upg1.log_dir=/u01/app/oracle/cfgtoollogs/autoupgrade
upg1.sid=ORANGE
upg1.source_home=/u01/app/oracle/product/19.0.0/dbhome_1
upg1.target_home=/u01/app/oracle/product/19.0.0/dbhome_2
upg1.emcli_path=/u01/app/oracle/emcli
upg1.em_target_name=ORANGE.internal
upg1.em_blackout_suffix=snc1724ol95
```

```
global.autoupg_log_dir=/u01/app/oracle/cfgtoollogs/autoupgrade
upg1.log_dir=/u01/app/oracle/cfgtoollogs/autoupgrade
upg1.sid=ORANGE
upg1.source_home=/u01/app/oracle/product/19.0.0/dbhome_1
upg1.target_home=/u01/app/oracle/product/19.0.0/dbhome_2
upg1.emcli_path=/u01/app/oracle/emcli
upg1.em_target_name=ORANGE.internal
upg1.em_blackout_suffix=snc1724ol95
```

Blackouts

Auto Refresh 15 seconds Page 1

Blackouts allow you to suspend monitoring on one or more targets in order to perform maintenance operations. Notification Blackouts only suppress the notifications on targets during the notification blackout duration. The Agent continues to monitor the target during the blackout. Meanwhile, the OMS will show the actual target status along with an indication that the target is currently under notification blackout. To place a target under blackout, you need to have at least Blackout Target privilege on the target.

View By ☒ Targets ☐ Blackout Name

Search

Blackout
Timeframe All

Target Type

All

Target Name

Advanced

View

Create...

Target	Target Type	Name	Type	Target Blackout Status	Overall Blackout Status	Full	Blackout
ORANGE.internal_PDBORANGE01	Pluggable Database	blackout_AutoUpgrade_ORANGE_snc1724c	Blackout	Started	Started	n/a	
ORANGE.internal_CDBROOT	Pluggable Database	blackout_AutoUpgrade_ORANGE_snc1724c	Blackout	Started	Started	n/a	
ORANGE.internal_PDBORANGE02	Pluggable Database	blackout_AutoUpgrade_ORANGE_snc1724c	Blackout	Started	Started	n/a	
ORANGE.internal	Database Instance	blackout_AutoUpgrade_ORANGE_snc1724c	Blackout	Started	Started	n/a	

Courtesy of [Martin Berger](#)



AutoUpgrade also updates
the target configuration

Further Information

Enterprise Manager



- Blog post: [AutoUpgrade New Features: Update Enterprise Manager Configuration](#)

Operational Life Hack 8



Config file



-- Create a sample config file

```
$ java -jar autoupgrade.jar -create_sample_file config
```

```
global.global_log_dir=<${ORACLE_BASE}/cfgtoollogs/upgrade or /tmp/upgrade>  
upg1.sid=<${ORACLE_SID} or {SID}>  
upg1.source_home=<${ORACLE_HOME} or /u01/app/oracle/product/12.2/dbhome_1>  
upg1.target_home=<${ORACLE_TARGET_HOME} or /u01/app/oracle/product/23/dbhome_1>
```

```
#global.keystore=/u01/app/oracle/admin/ORCL/keystore  
#upg1.drop_grp_after_upgrade=  
#upg1.restoration=  
#upg1.add_after_upgrade_pfile=  
#upg1.drop_after_upgrade_pfile=  
#upg1.before_action=/u01/app/oracle/admin/ORCL/before_upgrade.sh  
#upg1.after_action=/u01/app/oracle/admin/ORCL/after_upgrade.sh  
#upg1.drop_win_src_service=  
#upg1.wincredential=C:\Users\oraclecred  
#upg1.log_dir=/u01/app/oracle/admin/ORCL/upgrade_logs  
#upg1.raise_compatible=  
#upg1.run_dictionary_health=  
#upg1.timezone_upg=
```

(output truncated)

```
$ env | grep ORA
```

```
ORACLE_SID=UPGR
```

```
ORACLE_BASE=/u01/app/oracle
```

```
ORACLE_HOME=/u01/app/oracle/product/19
```

```
$ env | grep ORA
```

```
ORACLE_SID=UPGR
```

```
ORACLE_BASE=/u01/app/oracle
```

```
ORACLE_HOME=/u01/app/oracle/product/19
```

```
$ java -jar autoupgrade.jar -auto_config
```

DEMO

Generate config file



AutoUpgrade Composer

Marcus Vinicius Miguel Pedro
Practice Director LATAM at Accenture



Further Information

AutoUpgrade config file



- [AutoUpgrade Composer](#)

Operational Life Hack 9

Automation





AutoUpgrade is smart,
but we're smarter



```
java -jar autoupgrade.jar ... -noconsole
```



```
global.global_log_dir=/home/oracle/autoupgrade-patching/log
```



AutoUpgrade keystore is a **local keystore**

spawn java

```
-jar "{{ autoupgrade_base }}/autoupgrade.jar"  
-config "{{ autoupgrade_base }}/get-patches.config"  
-patch -load_password
```

```
expect {  
    "Enter password:" {  
        send "$keystore_password\r"  
        exp_continue  
    }  
}
```



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Operational Life Hack 10

SNEAK PEAK: Patching Metadata



Our monitoring shows your
SYSTEM tablespace is growing

```
select ru_version, dbms_lob.getlength(patch_directory)/1024/1024 as size_mb
from   dba_registry_sqlpatch_ru_info;
```

ru_version	size_mb
Release Update 19.25.0.0.0	175
Release Update 19.26.0.0.0	184
Release Update 19.27.0.0.0	194
Release Update 19.28.0.0.0	203
Release Update 19.3.0.0.0	4



```
$ORACLE_HOME/OPatch/datapatch -purge_old_metadata
```

```
select ru_version, dbms_lob.getlength(patch_directory)/1024/1024 as size_mb
from   dba_registry_sqlpatch_ru_info;
```

ru_version	size_mb
Release Update 19.25.0.0.0	
Release Update 19.26.0.0.0	
Release Update 19.27.0.0.0	
Release Update 19.28.0.0.0	203
Release Update 19.3.0.0.0	

Datapatch Purge

- Removes the rollback scripts for all patches (except the currently applied)
- Doesn't prevent rolling back the currently applied patches
- Doesn't remove the patching history, just the rollback scripts

Major retailer in the US

Saved **20 TB/year** in total:

- *5000 DBs*
- *5 PDBs (3 PDBs + Root + Seed)*
- *200 Mb in each per patch*
- *4 patches annually*



Coming soon in AutoUpgrade

Operational Life Hack 11

—
Enhancement



Help us **shape the future**

Coming next!



Planned for [next releases](#)

- AutoUpgrade auto-update
- RAC Rolling support
- Download and use Gold Images

It's better to fail in our lab, than in production

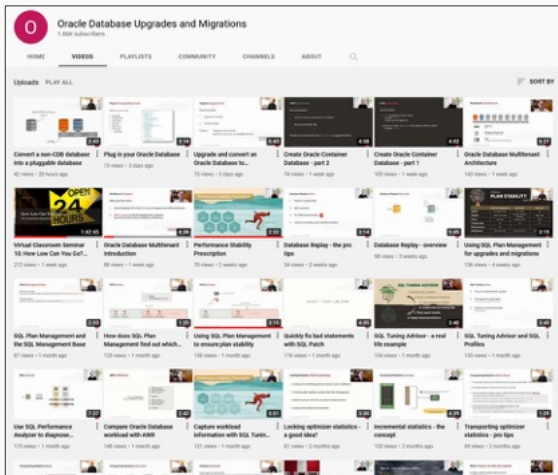
Oracle LiveLabs:
Hitchhiker's Guide for Upgrading to Oracle AI Database

Key Learnings



- 1 Use the latest version of AutoUpgrade
- 2 Stop downloading patches manually
- 3 Provide your feedback

YouTube | Oracle Database Upgrades and Migrations



<https://www.youtube.com/@upgradenow>

- 300+ videos
- New videos every week
- No marketing
- No buzzword
- All tech



Find Slides and Much More on Our Blogs



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Virtual Classroom Seminars

Episode 16

(replaces Episode 1 from Feb 2021)

Oracle Database Release and Patching Strategy for 19c and 23c

115 minutes – May 10, 2023



Episode 17

From SR to Patch – Insights into the Oracle Database Development process

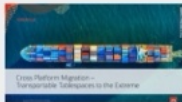
55 minutes – June 22, 2023



Episode 18

Cross Platform Migration – Transportable Tablespaces to the Extreme

145 min – February 22, 2024



Episode 19

Move to Oracle Database 23ai – Everything you need to know about Multitenant PART 1

145 min – May 16, 2024



Episode 20

Move to Oracle Database 23ai – Everything you need to know about Multitenant PART 2

100 min – June 28, 2024



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