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# Patch Smarter, Not Harder Microsoft Windows Special Edition

Virtual Classroom Seminar #28 - April 2026

Oracle

**DBAs**

run the world








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Vice President

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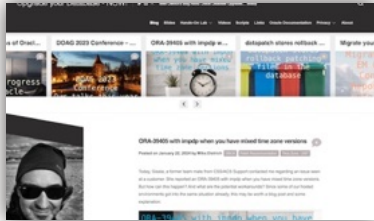
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 [alejandrodiazs](#)

 [axdiaz.bsky.social](#)

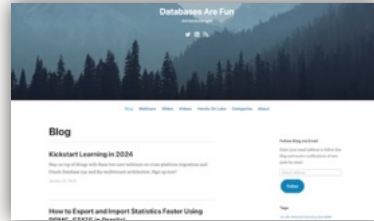
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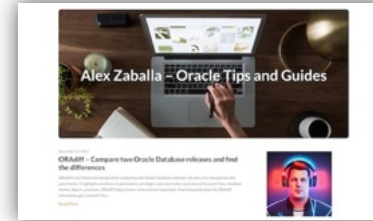
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## Virtual Classroom Seminars

### Episode 16

(replaces Episode 1 from Feb 2021)

[Oracle Database Release and Patching Strategy for 19c and 23c](#)

115 minutes – May 10, 2023



## Slides

### Episode 17

[From SR to Patch – Insights into the Oracle Database Development](#)

[process](#)

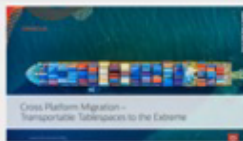
55 minutes – June 22, 2023



### 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



### Episode 21

[One-Button Patching with AutoUpgrade – Easing every DBA's life](#)

55 min – October 24, 2024



# Recorded Web Seminars

<https://MikeDietrichDE.com/videos>

More than 45 hours of technical content  
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# Intro

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Where is 26ai for Windows

## Release Schedule of Current Database Releases

PNEWS1360

Last Updated

Yesterday 10:10 PM

Service

Autonomous Database Dedicated, Autonomous Database Serverless, Gen 2 Exadata Cloud at Customer, Oracle Database - Enterprise Edition, Oracle Database - Personal Edition, Oracle Database - Standard Edition



2.9

### Applies To

All Users

### Summary

#### Disclaimer:

The dates published in this document are for planning and discussion purposes only. It is intended solely to help you plan your I.T. projects. A date that exists in the future should not be considered a firm development date as the release and timing of platform releases are subject to change at any time and are at Oracle's sole discretion.

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The content below represents the most accurate information that Oracle can provide. This is a living document that will change as various milestones are reached and releases go in and out of the product life cycle. It is intended to give you current information about releases that are covered under the Database's Premier Support (PS) and Extended Support (ES) Lifetime policies. Support cannot provide additional dates not listed in this document; do not log a Service Request asking for a future release date.

### What's New

The most recent changes will be highlighted with a "New" or "Updated" icon to help you quickly identify the modifications. (For a history of modifications, see the Change Record Table at the bottom of the document.)

- **NEW** Oracle AI Database 26ai Enterprise Edition now released on Linux x86-64 platform (January 27, 2026)
- Oracle Database 23ai replaced by Oracle AI Database 26ai

Table 2 - Database Release Schedule

	26ai *	21c	19c									
Platform	Long Term Support Release	Innovation Release	Long Term Support Release									
Platform	26ai *	21c	19c	18c	12.2.0.1	12.1.0.2	12.1.0.1	11.2.0.4				
Platform	26ai *	21c	19c	18c	12.2.0.1	12.1.0.2	12.1.0.1	11.2.0.4				
On-Premises Server Releases (includes client)												
<a href="#">(Download here)</a>												
Linux x86	Not Planned	Not Planned	Not planned	Not planned	Not planned	Not planned	Not planned	28-Aug-2013				
Linux x86-64	January 27, 2026	13-Aug-2021	25-Apr-2019	23-Jul-2018	1-Mar-2017	22-Jul-2014	25-Jun-2013	27-Aug-2013				
Linux on Arm	TBA	Not Planned	28-June-2023 Client: May-2021 download	Not Planned	Not Planned	Not Planned	Not Planned	Not Planned				
Oracle Solaris SPARC (64-bit)	*** CY2027	See KB126264	26-Apr-2019	30-Jul-2018	1-Mar-2017	22-Jul-2014	25-Jun-2013	29-Aug-2013				
Oracle Solaris x86-64 (64-bit)	Platform de-supported	Platform de-supported	07-Nov-2019 Terminal Release	6-Aug-2018	1-Mar-2017	22-Jul-2014	25-Jun-2013	29-Aug-2013				
<b>Microsoft Windows x64 (64-bit)</b>	<b>CY2026</b> (Instant Client is available today)	08-Oct-2021	08-Jun-2019	21-Aug-2018	16-Mar-2017	25-Sep-2014	9-Jul-2013	25-Oct-2013				
OpenVMS Itanium	Platform de-supported	Platform de-supported	Platform de-supported	Platform de-supported	Platform de-supported	Platform de-supported	Platform de-supported	Terminal Release				
HP-UX Itanium KB256877	TBA	28-Sept-2021	28-May-2019	20-Nov -2018	13-Apr-2017	14-Nov-2014	9-Jan-2014	10-Oct-2013				
HP-UX PA-RISC (64-bit)	Platform de-supported	Platform de-supported	Platform de-supported	Platform de-supported	Platform de-supported	Platform de-supported	Platform de-supported	2-Jan-2014				

# Just as easy as patching your smart phone

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AutoUpgrade's mission for patching Oracle AI Database

**... also on Windows**

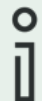
# Database Patching for DBAs

Patch smarter, not harder

- [Recording](#)
- [Slides](#)



# Patching



- [Release Schedule of Current Database Releases \(PNEWS1360\)](#)
- [Webinar: Database Patching for DBAs – Patch smarter, not harder](#)

# Download



Finding and downloading the right patches





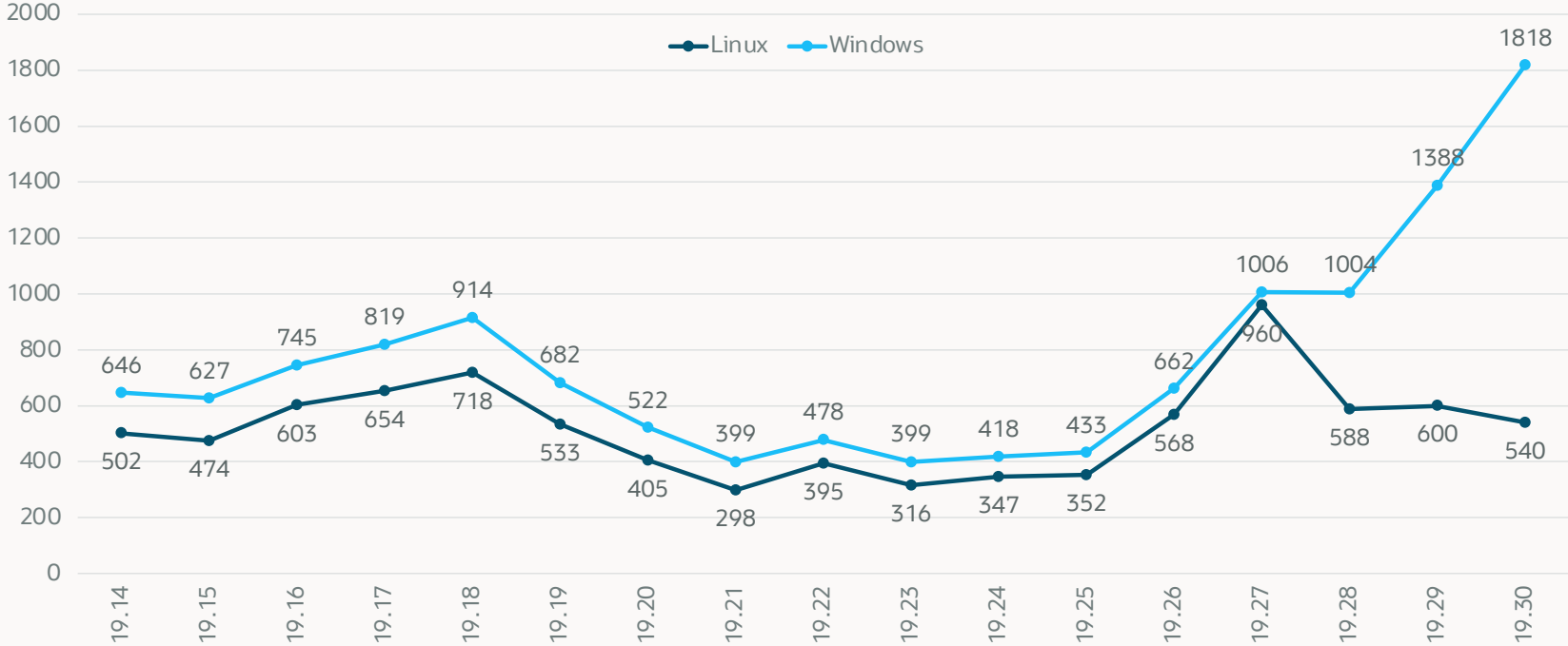
## Bundle Patches are the primary vehicle for delivering patches on Windows

- Term used for Release Updates



If you don't apply a recent Bundle Patch, you will miss **thousands** of fixes

# Bugs Fixed By Platform



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





A Windows Bundle Patch and a Release Update from the same quarter, e.g., January 2026, do **not** contain the same patches



## Why is there a difference?

- One-offs are rare on Windows
- Platform specific fixes
- Static code analysis and similar



The easiest way you can download patches is using AutoUpgrade

-- Always use the latest version of AutoUpgrade  
-- Available via direct download from [oracle.com](https://oracle.com) or [KB123450](#)

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





One single tool for everything  
- on all platforms

`global.global_log_dir=c:\oracle\autoupgrade-patching\log`



`global.global_log_dir=c:\oracle\autoupgrade-patching\log`  
`global.keystore=c:\oracle\autoupgrade-patching\keystore`





## Learn how to configure the keystore in our previous webinar

- [One-Button Patching – makes life easier for every Oracle DBA](#)



```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.keystore=c:\oracle\autoupgrade-patching\keystore
global.folder=c:\oracle\autoupgrade\patches
```



```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.keystore=c:\oracle\autoupgrade-patching\keystore
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.target_version=19
```



```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.keystore=c:\oracle\autoupgrade-patching\keystore
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.target_version=19
patch1.patch=RU
```

```
c:\> 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=c:\oracle\autoupgrade-patching\log
global.keystore=c:\oracle\autoupgrade-patching\keystore
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.target_version=19
patch1.patch=OPATCH,RU
```



Optionally, follow an N-1 approach



```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.keystore=c:\oracle\autoupgrade-patching\keystore
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.target_version=19
patch1.patch=OPATCH, RU:19.30
```





One-off patches are rare on Windows;  
but possible

```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.keystore=c:\oracle\autoupgrade-patching\keystore
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.target_version=19
patch1.patch=OPATCH,RU,38854064
```



## Monthly Recommended Patches does not exist on Windows



Apply the OJVM bundle patch

```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.keystore=c:\oracle\autoupgrade-patching\keystore
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.target_version=19
patch1.patch=OPATCH,RU,OJVM
```



## OJVM is embedded in Release Updates

- No separate download
- Complete RAC Rolling patching support



Don't miss out on all the Data Pump fixes

global.global\_log\_dir=c:\oracle\autoupgrade-patching\log  
global.keystore=c:\oracle\autoupgrade-patching\keystore  
global.folder=c:\oracle\autoupgrade\patches

patch1.target\_version=19  
patch1.patch=OPATCH,RU,OJVM,DPBP

global.global\_log\_dir=c:\oracle\autoupgrade-patching\log  
global.keystore=c:\oracle\autoupgrade-patching\keystore  
global.folder=c:\oracle\autoupgrade\patches

patch1.target\_version=19

~~patch1.patch=OPATCH,RU,OJVM,DPBP~~

patch1.patch=RECOMMENDED



Apply latest JDK patch

*"Why is the JDK in my brand-new Oracle home always **3 months old**, or even older?"*

---

```
%ORACLE_HOME%\jdk\bin\java -version
```

```
java version "1.8.0_471"
```

```
Java(TM) SE Runtime Environment (build 1.8.0_471-b09)
```

```
Java HotSpot(TM) 64-Bit Server VM (build 25.471-b09, mixed mode)
```



## JDK and PERL Patches for Oracle Database Home and Grid Home

KB118730

Last Updated

Feb 17, 2026

Service

Gen 2 Exadata Cloud at Customer, Generation 1 - Exadata Cloud at Customer (First Generation Cloud Machine), Oracle Cloud Infrastructure - Exadata Cloud Service, Oracle Database - Enterprise Edition, Oracle Database - Standard Edition



3.0

# JDK and PERL Patches for Oracle Database Home and Grid Home

## 2.1 Latest JDK Patches for Database

Jan2026 Quarter

Version	Patch	Linux64	Windows64	WindowsNT	Sparc64	Solaris.x64	Linux32	AIX64	HPIA64	ZLinux64	ARM64
26ai	JDK11.0.30	Included in DBRU	***	***	***	***	***	***	***	***	Included in DBRU
21c	JDK8u481 38586761	Released	Released	*	*	*	*	*	*	*	*
19c	JDK8u481 38586770	Released	Released	Released	Released	Released	Released	Released	Released	Released	Released

\* This platform is not planned for 21c, as 21c is an Innovation Release

\*\* Some of the JDK's provided by Oracle are dependent on platform vendors. When those platform vendors provide Oracle with the JDK we then package it for Data base Customers, and document it in this table.

\*\*\* This platform is not planned for 26ai.

## 2.2 Latest Perl Patches for Database

As of January 2023, the latest PERL Patches are included with the quarterly security patches and are no longer provided separately.

## 3.0 Historical Patches

### 3.1 Historical JDK Patches for Database

Oct2025 Quarter

Version	Patch	Linux64	Windows64	WindowsNT	Sparc64	Solaris.x64	Linux32	AIX64	HPIA64	ZLinux64	ARM64
26ai	JDK11.0.29	Released	***	***	***	***	***	***	***	***	Included in DBRU

global.global\_log\_dir=c:\oracle\autoupgrade-patching\log  
global.keystore=c:\oracle\autoupgrade-patching\keystore  
global.folder=c:\oracle\autoupgrade\patches

patch1.target\_version=19  
patch1.patch=RECOMMENDED, **JDK**





## The OCW component on Windows

- Used by Oracle RAC Database and Oracle Restart

```
%ORACLE_HOME%\OPatch\opatch lspatches
```

```
38597735;Windows Database Bundle Patch : 19.30.0.0.260120(REL-JAN260130) (38597735)
```

*Where's the OCW component?*





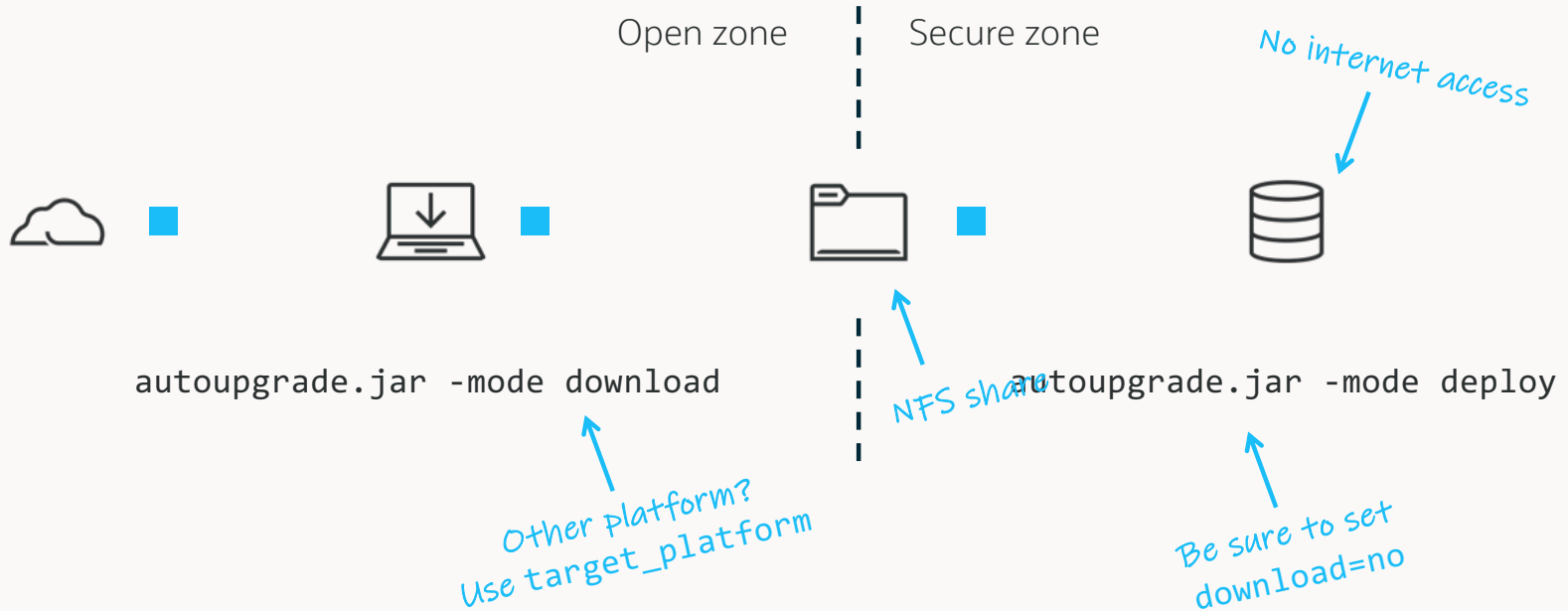
## The Windows Bundle Patch contains the OCW patches

- No need to patch those separately



Your database host  
doesn't have internet access?

# Using Download Mode





## AutoUpgrade download mode does **not** require an elevated command prompt

- On Windows, AutoUpgrade normally requires an elevated command prompt (Run as Administrator)



Let's get those patches



```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.keystore=c:\oracle\autoupgrade-patching\keystore
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.target_version=19
patch1.platform=WINDOWS.X64
patch1.patch=RECOMMENDED,JDK
```

-- Start AutoUpgrade in download mode to get the patches specified in the config file

```
java -jar autoupgrade.jar -config get.cfg -patch -mode download
```





---

When does Oracle release  
the Windows Bundle Patch?

# Oracle Critical Patch Update Advisory - January 2026

## Description

A Critical Patch Update is a collection of patches for multiple security vulnerabilities. These patches address vulnerabilities in Oracle code and in third party components included in Oracle products. These patches are usually cumulative, but each advisory describes only the security patches added since the previous Critical Patch Update Advisory. Thus, prior Critical Patch Update advisories should be reviewed for information regarding earlier published security patches. Refer to [“Critical Patch Updates, Security Alerts and Bulletins”](#) for information about Oracle Security advisories.

**Oracle continues to periodically receive reports of attempts to maliciously exploit vulnerabilities for which Oracle has already released security patches. In some instances, it has been reported that attackers have been successful because targeted customers had failed to apply available Oracle patches. Oracle therefore strongly recommends that customers remain on actively-supported versions and apply Critical Patch Update security patches without delay.**

This Critical Patch Update contains 337 new security patches across the product families listed below. Please note that an MOS note summarizing the content of this Critical Patch Update and other Oracle Software Security Assurance activities is located at [January 2026 Critical Patch Update: Executive Summary and Analysis](#).

## Affected Products and Patch Information

Security vulnerabilities addressed by this Critical Patch Update affect the products listed below.

**Please click on the links in the Patch Availability Document column below to access the documentation for patch availability information and installation instructions.**

Affected Products and Versions	Patch Availability Document
<a href="#">JD Edwards EnterpriseOne Tools, versions 9.2.0.0-9.2.26.0</a>	<a href="#">JD Edwards</a>

Oracle Communications Network Integrity, versions 11.10.0, 11.10.0, 11.10.0, 11.10.0	Oracle Communications Network Integrity
Oracle Communications Operations Monitor, versions 5.2, 6.0, 6.1	Oracle Communications Operations Monitor
Oracle Communications Order and Service Management, versions 7.5.0, 8.0.0	Oracle Communications Order and Service Management
Oracle Communications Policy Management, version 15.0.0.0	Oracle Communications Policy Management
Oracle Communications Pricing Design Center, versions 15.0.0.0.0, 15.0.1.0.0, 15.1.0.0.0	Oracle Communications Pricing Design Center
Oracle Communications Session Border Controller, versions 9.3.0, 10.0.0	Oracle Communications Session Border Controller
Oracle Communications Session Report Manager, versions 9.0.0-9.0.4	Oracle Communications Session Report Manager
Oracle Communications Unified Assurance, versions 6.1.0-6.1.1	Oracle Communications Unified Assurance
Oracle Communications Unified Inventory Management, versions 7.7.0, 7.8.0, 8.0.0	Oracle Communications Unified Inventory Management
Oracle Data Integrator, versions 12.2.1.4.0, 14.1.2.0.0	Fusion Middleware
<b>Oracle Database Server, versions 19.3-19.29, 21.3-21.20, 23.4.0-23.26.0</b>	<b>Database</b>
Oracle E-Business Suite, versions 12.2.3-12.2.15	Oracle E-Business Suite
Oracle Enterprise Communications Broker, versions 4.1.0, 4.2.0, 5.0.0	Oracle Enterprise Communications Broker
Oracle Enterprise Manager Base Platform, versions 13.5, 24.1	Oracle Enterprise Manager
Oracle Essbase, version 21.8.0.0.0	Database
Oracle Financial Services Compliance Studio, version 2.6.0	Oracle Financial Services Compliance Studio
Oracle Financial Services Model Management and Governance, version 8.1.3.2	Oracle Financial Services Model Management and Governance
Oracle FLEXCUBE Investor Servicing, versions 14.5.0.15.0, 14.7.0.8.0, 14.8.0.1.0	Contact Support
Oracle FLEXCUBE Universal Banking, versions 14.0.0.0.0-14.8.0.0.0	Contact Support
Oracle Fusion Middleware, versions 12.2.1.4.0, 14.1.2.0.0	Fusion Middleware
Oracle Global Lifecycle Management NextGen OUI Framework, version 15.1.1.0.0	Fusion Middleware
Oracle GoldenGate, versions 19.1.0.0.0-19.29.0.0.251021, 21.3-21.20, 23.4-23.10	Database
Oracle GoldenGate Big Data and Application Adapters, versions 19.1.0.0.0-19.1.0.0.20, 21.3-21.20, 23.4-23.10	Database
Oracle GoldenGate Stream Analytics, versions 19.1.0.0.0-19.1.0.0.13	Database
Oracle GoldenGate Studio, versions 23.8.0-23.9.0	Database

## Oracle Critical Patch Update (CPU) Jan 2026 for Oracle Database Products

CPU4

Last Updated  
Feb 13, 2026

Service  
Gen 2 Exadata Cloud at Customer, Oracle Cloud Infrastructure - Database Service, Oracle Database - Enterprise Edition, Oracle Database - Standard Edition



1.4

# Critical Patch Update (CPU) Jan 2026 for Oracle Database Products

My Oracle Support CPU4

Released January 20, 2026

This document contains the following sections:

- [Critical Patch Update January 2026 Patch Availability Document \(PAD\)](#)
  - [1 Overview](#)
    - [1.1 How to Use This Document](#)
    - [1.2 Terminology in the Tables](#)
    - [1.3 On-Request Patches](#)
    - [1.4 CPU Program and My Oracle Support Patch Recommendations](#)
    - [1.5 My Oracle Support \(MOS\) Conflict Checker Tool](#)
  - [2 What's New in January 2026](#)
    - [2.1 Final CPU Information \(Error Correction Policies\)](#)
    - [2.2 Post Release Patches](#)
    - [2.3 Separate PADs for Separate Products](#)
    - [2.4 Monthly Recommended Patches \(MRPs\)](#)
  - [3 Patch Availability for Oracle Products](#)
    - [3.1 Oracle Database](#)
    - [3.2 Oracle Sun Middleware](#)
    - [3.3 Tools](#)
  - [4 Final CPU History](#)
  - [5 Sources of Additional Information](#)
  - [6 Modification History](#)
  - [7 Documentation Accessibility](#)

Quick Links: [Read Me First](#) [DB 19c](#)

Patch	Patch Number	Platform	Availability
19.30.0.0.260120 DB RU & COMBO	DB 38632161  Combo 38658587	Linux x86-64:   All Others	Available  To prevent impact to Database systems, the 19.30 DB and GI release update patches for LINUX.X64 have been Re-Released as of 02-FEB-2026. For more information, see MOS KB867473.  20-Feb-2026
19.30.0.0.260120 GI RU & COMBO	GI 38629535  Combo 38658588	Linux x86-64:   All Others	Available  To prevent impact to Database systems, the 19.30 DB and GI release update patches for LINUX.X64 have been Re-Released as of 02-FEB-2026. For more information, see MOS KB867473.  20-Feb-2026
19.30.0.0.260120 OJVM RU	38523609	ALL, Except Windows	20-Feb-2026
<b>19.30.0.0.260120 WIN BP &amp; OJVM</b>	<b>38597735</b>	<b>Windows 64-bit &amp; Windows 32-bit Windows OJVM</b>	<b>20-Feb-2026</b>
19.30 QFSDP for Exadata	38658589	Linux x86-64	Available
19.30 QFSDB for Exadata	38658589	Solaris x86-64	20-Feb-2026
21.21 QFSDP for Exadata	38658590	Linux x86-64	Available
23.26.1 QFSDP for Exadata	38658591	Linux x86-64	Available
Q1.2026 QFSDP	38658593	Supercluster	07-Mar-2026
GoldenGate for Distributed Applications and Analytics 23.26.1.0.0	38858328	Linux x86-64	13-Feb-2026
Oracle GoldenGate for Big Data 21.20.0.0.0 Microservices	38858517	Linux x86-64	20-Feb-2026
Oracle GoldenGate for Big Data			

## Downloading Patches

- [AutoUpgrade Tool](#)
- [ORAdiff](#)
- [Autoupgrade : How to download patches with Autoupgrade ?](#)
- [Assistant: Download Reference for Oracle Database/GI Update, Revision, PSU, SPU\(CPU\), Bundle Patches, Patchsets and Base Releases \(KA958\)](#)
- [JDK and PERL Patches for Oracle Database Home and Grid Home \(KB118730\)](#)
- [Data Pump Recommended Proactive Patches For 19.10 and Above \(KB107134\)](#)
- [Data Pump Recommended Proactive Patches For 23ai / 26ai \(KB160561\)](#)
- [Oracle Critical Patch Update Advisory - April 2026](#)



# Install



Creating Oracle home





---

Create new Oracle home  
- matching the current Oracle home

type install19.cfg

```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
```

```
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.source_home=c:\oracle\product\dbhome_19_30 ← Settings
```

```
patch1.target_home=c:\oracle\product\dbhome_19_31
```

```
patch1.patch=RECOMMENDED
```

↑  
Patches

```
type install19.cfg
```

```
global.global_log_dir=c:\oracle\autoupgrade-patching\log  
global.folder=c:\oracle\autoupgrade\patches  
patch1.source_home=c:\oracle\product\dbhome_19_30  
patch1.target_home=c:\oracle\product\dbhome_19_31  
patch1.patch=RECOMMENDED
```

```
java -jar autoupgrade.jar -config install19.cfg -patch -mode create_home
```





## Override source home setting

```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.source_home=c:\oracle\product\dbhome_19_30
patch1.target_home=c:\oracle\product\dbhome_19_31
patch1.patch=RECOMMENDED
patch1.home_settings.home_name=OraDbHome1931
```

```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.source_home=c:\oracle\product\dbhome_19_30
patch1.target_home=c:\oracle\product\dbhome_19_31
patch1.patch=RECOMMENDED
patch1.home_settings.home_name=OraDbHome1931
patch1.home_settings.account_type=BUILT_IN
```



Services

F... Act... Vi... H...

Services (Local)

Name	Description	Status	Startup Type	Log On As
OpenSSH Authentication Agent	Agent to h...		Disabled	Local System
OpenSSH SSH Server	SSH protoc...		Disabled	Local System
Optimize drives	Helps the c...		Manual	Local System
Oracle Balloon Service		Running	Automatic	Local System
Oracle Cloud Agent	Oracle Clo...	Running	Automatic	NT SERVICE\O...
Oracle Cloud Agent Cloud Guard Workl...	Oracle Clo...	Running	Manual	NT SERVICE\O...
Oracle Cloud Agent Run Command Serv...	Oracle Clo...	Running	Manual	NT SERVICE\O...
Oracle Cloud Agent Updater	Oracle Clo...	Running	Automatic	NT SERVICE\O...
Oracle Cloud Block Storage Managemen...	Oracle Clo...		Manual	NT SERVICE\O...
Oracle Cloud Operating System Manage...	Oracle Clo...		Manual	NT SERVICE\O...
Oracle Cloud Operating System Manage...	Oracle Clo...		Manual	NT SERVICE\O...
Oracle Cloud Unified Monitoring Install...	Oracle Clo...	Running	Manual	NT SERVICE\O...
Oracle Cloud Vulnerability Scanning Ser...	Oracle Clo...		Manual	NT SERVICE\O...
Oracle Unified Agent	Oracle Unif...	Running	Manual	Local System
Oracle VioGpu Resolution Service		Running	Automatic	Local System
Oracle VirtIO Service	Oracle Virtl...	Running	Automatic	Local System
OracleJobSchedulerDB19			Disabled	.\OraDb
OracleRemExecServiceV2			Manual	Local System
<b>OracleServiceDB19</b>			<b>Automatic</b>	<b>.\OraDb</b>
OracleVssWriterDB19			Automatic	.\OraDb
Payments and NFC/SE Manager	Manages p...		Disabled	Local Service
Performance Counter DLL Host	Enables re...		Manual	Local Service
Performance Logs & Alerts	Performan...		Manual	Local Service
Phone Service	Manages t...		Disabled	Local Service

Extended Standard

# Account Type

patch1.home\_settings.account\_type=**BUILT\_IN**

- Simple and easy configuration
- Service runs as: LocalSystem, LocalService, or NetworkService
- Limited network access by default; domain access limitations
- Unclear auditability
- Not recommended

# Account Type

patch1.home\_settings.account\_type=**VIRTUAL**

- Simple; automatically created by Windows
- Secure; no password management and implements least-privilege principle
- Service runs as: NT SERVICE\OracleService<SID> or NT SERVICE\...Listener
- Domain access requires explicit permissions
- Recommended

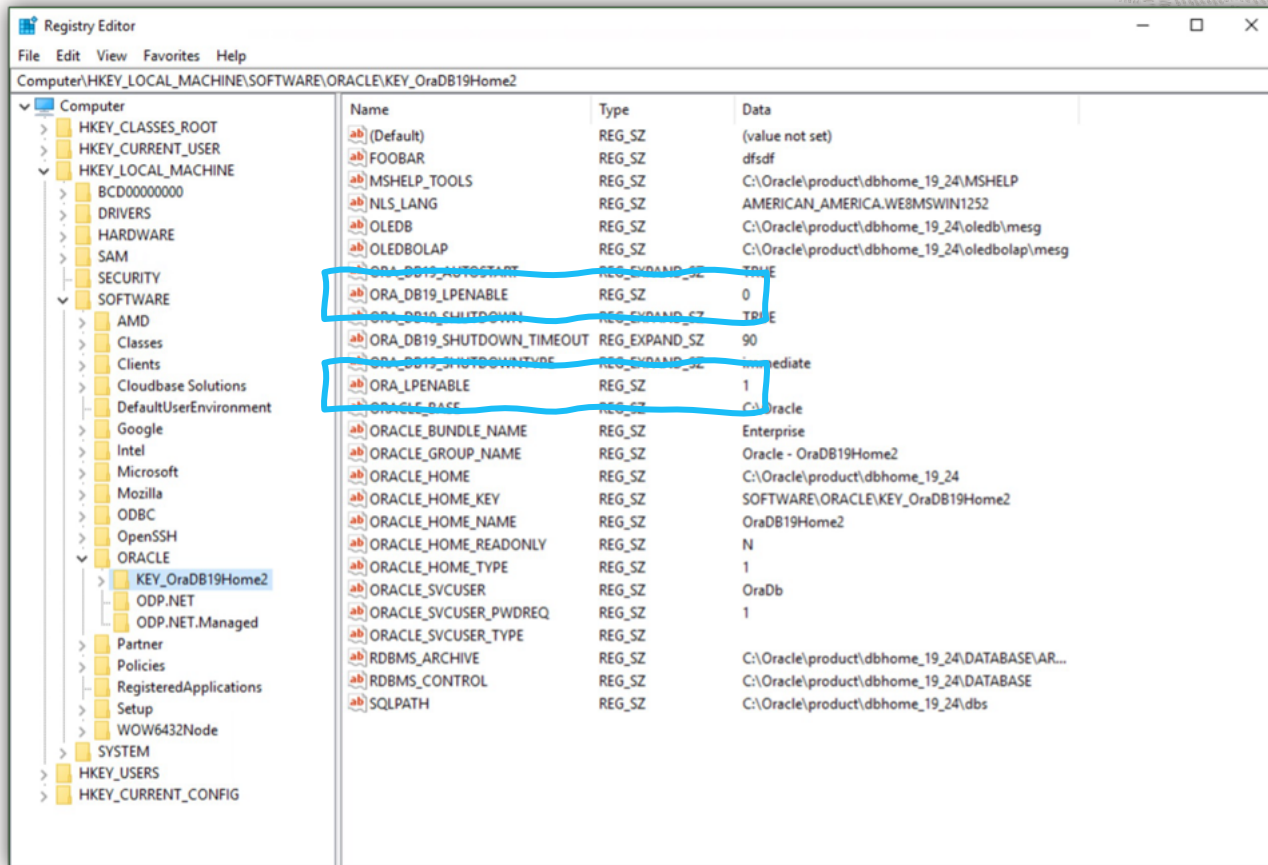
# Account Type

patch1.home\_settings.account\_type=USER

- More complex; password rotation
- Store username/password in **credential file** for use in AutoUpgrade
- Secure; controlled privileges and auditability
- Full domain access
- Recommended
- Example:        **USER:SVC\_ORA**  
                  **USER:CORP\SVC\_ORA**



AutoUpgrade copies the Large Page setting from the source Oracle home



```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.source_home=c:\oracle\product\dbhome_19_30
patch1.target_home=c:\oracle\product\dbhome_19_31
patch1.patch=RECOMMENDED
patch1.home_settings.home_name=OraDbHome1931
patch1.home_settings.account_type=BUILT_IN
patch1.home_settings.ora_lpenable=1
```





The [documentation](#) lists  
all the Oracle home options



## Are you using Oracle RAC Database? Also works for cluster Oracle homes!

- Automatically detected
- No additional configuration



---

Create new Oracle home  
- on brand new server

```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.folder=c:\oracle\autoupgrade\patches
```

```
install1.patch=RECOMMENDED
```

```
install1.target_version=26
```

```
install1.target_home=c:\oracle\product\dbhome_26_1
```

```
install1.home_settings.oracle_base=c:\oracle
```

```
install1.home_settings.edition=EE
```



## DEMO

# Create Oracle home on Windows




[Watch on YouTube](#)



---

Use placeholders in target home naming



```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.sid=CDB19
```

```
patch1.patch=RECOMMENDED
```

```
patch1.source_home=c:\oracle\product\dbhome_19_30
```

```
patch1.target_home=c:\oracle\product\dbhome_19_31
```

```
global.global_log_dir=c:\oracle\autoupgrade-patching\log
global.folder=c:\oracle\autoupgrade\patches
```

```
patch1.sid=CDB19
```

```
patch1.patch=RECOMMENDED
```

```
patch1.source_home=c:\oracle\product\dbhome_19_30
```

```
patch1.target_home=c:\oracle\product\dbhome_19_31
```

```
patch1.target_home=c:\oracle\product\dbhome_%RELEASE%_%UPDATE%
```

# Aliases

Example:

23.26.1.0.2

%RELEASE%	23
%UPDATE%	26.1

# Aliases

Example:

23.26.1.0.2

%RELEASE%	23
%UPDATE%	26.1
%V1D%	23
%V2D%	26
%V3D%	1
%V4D%	0
%V5D%	2



You need an elevated command prompt to install an Oracle home

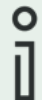
- Use the *"Run as administrator"* option



On Windows there is no root scripts

# Further Information

## Installing Oracle Home



- [\(KB104015\) OPatch 12.2.0.1.37+ Introduces a New Feature to Delete Inactive Patches in the ORACLE\\_HOME/.patch\\_storage Directory](#)
- [Autoupgrade : How to install Oracle Home using Autoupgrade ? \(KB753244\)](#)
- Blog post: [AutoUpgrade New Features: Install Oracle Home on Brand-New, Empty Server](#)
- Blog post: [Cleaning up older patch artifacts – improving opatch performance](#)
- Hands-on lab: [Patch Me If You Can](#)





Generally, you patch single instance,  
Data Guard and RAC just like on Linux

```
global.global_log_dir=c:\oracle\autoupgrade-patching\logs  
global.keystore=c:\oracle\autoupgrade-patching\keystore
```

```
patch1.sid=CDB19
```

```
patch1.source_home=c:\oracle\product\19.0.0\dbhome_1
```

```
patch1.target_home=c:\oracle\product\19.0.0\dbhome_2
```



```
global.global_log_dir=c:\oracle\autoupgrade-patching\logs  
global.keystore=c:\oracle\autoupgrade-patching\keystore
```

```
patch1.sid=CDB19
```

```
patch1.source_home=c:\oracle\product\19.0.0\dbhome_1
```

```
patch1.target_home=c:\oracle\product\19.0.0\dbhome_2
```

```
patch1.rman_catalog_connect_string=catalogdb
```



```
global.global_log_dir=c:\oracle\autoupgrade-patching\logs
global.keystore=c:\oracle\autoupgrade-patching\keystore
```

```
patch1.sid=CDB19
```

```
patch1.source_home=c:\oracle\product\19.0.0\dbhome_1
```

```
patch1.target_home=c:\oracle\product\19.0.0\dbhome_2
```

```
patch1.rman_catalog_connect_string=catalogdb
```

```
patch1.emcli_path=c:\oracle\oem
```

```
patch1.em_target_name=CDB19_myhost.domain.int
```



```
global.global_log_dir=c:\oracle\autoupgrade-patching\logs
global.keystore=c:\oracle\autoupgrade-patching\keystore
```

```
patch1.sid=CDB19
```

```
patch1.source_home=c:\oracle\product\19.0.0\dbhome_1
```

```
patch1.target_home=c:\oracle\product\19.0.0\dbhome_2
```

```
patch1.rman_catalog_connect_string=catalogdb
```

```
patch1.emcli_path=c:\oracle\oem
```

```
patch1.em_target_name=CDB19_myhost.domain.int
```

```
patch1.before_action=c:\oracle\scripts\before_db.ps1 Y
```

```
patch1.after_action=c:\oracle\scripts\after_db.cmd N
```



-- Patch the database according to the specification in the config file  
-- This takes care of all the necessary steps, including pre- and post-tasks

```
java -jar autoupgrade.jar -config CDB19.cfg -mode deploy
```



**DEMO**

# Patch Single Instance in Windows

 [Watch on YouTube](#)

# Patching on Windows

AutoUpgrade handles:

- Update of registry
  - Move entries to new Oracle home
  - Also copies large page setting; `ORA_<SID>_LPENABLE`



Check if all Registries were updated

```
PS> Get-ChildItem "HKLM:\SOFTWARE\Oracle\" -Recurse -ErrorAction SilentlyContinue |
Where-Object { $_.PSChildName -like "KEY_*" } |
Sort-Object PSChildName |
ForEach-Object {
    if ($prevKey -and $prevKey -ne $_.PSChildName) { "" }

    Get-ItemProperty $_.PSPath -ErrorAction SilentlyContinue |
    Select-Object @{N='KeyName';E={$_.PSChildName}}, * |
    ForEach-Object { $_ }

    $prevKey = $_.PSChildName
}
```

# KEY\_OraDB19Home1

```
ORACLE_HOME           : c:\oracle\product\19.0.0\dbhome_1
ORACLE_HOME_NAME      : OraDB19Home1
ORACLE_GROUP_NAME     : Oracle - OraDB19Home1
ORACLE_BUNDLE_NAME    : Enterprise
NLS_LANG              : AMERICAN_AMERICA.WE8MSWIN1252
OLEDBOLAP             : c:\oracle\product\19.0.0\dbhome_1\oledbolap\mesg
OLEDB                 : c:\oracle\product\19.0.0\dbhome_1\oledb\mesg
ORACLE_HOME_READONLY  : N
ORACLE_HOME_TYPE      : 1
ORACLE_SVCUSER        : ORA_OraDB19Home1_SVCACCTS
ORACLE_SVCUSER_TYPE   : V
ORACLE_SVCUSER_PWDREQ : 0
ORACLE_BASE           : c:\oracle
ORACLE_HOME_KEY       : SOFTWARE\ORACLE\KEY_OraDB19Home1
SQLPATH               : c:\oracle\product\19.0.0\dbhome_1\dbs
MSHELP_TOOLS          : c:\oracle\product\19.0.0\dbhome_1\MSHELP
RDBMS_CONTROL         : c:\oracle\product\19.0.0\dbhome_1\DATABASE
RDBMS_ARCHIVE         : c:\oracle\product\19.0.0\dbhome_1\DATABASE\ARCHIVE
ORACLE_SID            : cdb19
ORA_cdb19_AUTOSTART   : TRUE
ORA_cdb19_SHUTDOWN    : TRUE
ORA_cdb19_SHUTDOWNNTYPE : immediate
ORA_cdb19_SHUTDOWN_TIMEOUT : 90
```

# KEY\_OraDB19Home2

```
ORACLE_HOME           : c:\oracle\product\19.0.0\dbhome_2
ORACLE_HOME_NAME      : OraDB19Home2
ORACLE_GROUP_NAME     : Oracle - OraDB19Home2
ORACLE_BUNDLE_NAME    : Enterprise
NLS_LANG              : AMERICAN_AMERICA.WE8MSWIN1252
OLEDBOLAP             : c:\oracle\product\19.0.0\dbhome_2\oledbolap\mesg
OLEDB                 : c:\oracle\product\19.0.0\dbhome_2\oledb\mesg
ORACLE_HOME_READONLY  : N
ORACLE_HOME_TYPE      : 1
ORACLE_SVCUSER        : ORA_OraDB19Home2_SVCACCTS
ORACLE_SVCUSER_TYPE   : V
ORACLE_SVCUSER_PWDREQ : 0
ORACLE_BASE           : c:\oracle
ORACLE_HOME_KEY       : SOFTWARE\ORACLE\KEY_OraDB19Home2
SQLPATH               : c:\oracle\product\19.0.0\dbhome_2\dbs
MSHELP_TOOLS          : c:\oracle\product\19.0.0\dbhome_2\MSHELP
RDBMS_CONTROL         : c:\oracle\product\19.0.0\dbhome_2\DATABASE
RDBMS_ARCHIVE         : c:\oracle\product\19.0.0\dbhome_2\DATABASE\ARCHIVE
```

# KEY\_OraDB19Home1 → KEY\_OraDB19Home2

```
ORACLE_HOME           : c:\oracle\product\19.0.0\dbhome_1
ORACLE_HOME_NAME      : OraDB19Home1
ORACLE_GROUP_NAME     : Oracle - OraDB19Home1
ORACLE_BUNDLE_NAME    : Enterprise
NLS_LANG              : AMERICAN_AMERICA.WE8MSWIN1252
OLEDBOLAP             : c:\oracle\product\19.0.0\dbhome_1\oledbolap\mesg
OLEDB                 : c:\oracle\product\19.0.0\dbhome_1\oledb\mesg
ORACLE_HOME_READONLY  : N
ORACLE_HOME_TYPE      : 1
ORACLE_SVCUSER        : ORA_OraDB19Home1_SVCACCTS
ORACLE_SVCUSER_TYPE   : V
ORACLE_SVCUSER_PWDREQ : 0
ORACLE_BASE           : c:\oracle
```



# Patching on Windows

AutoUpgrade handles:

- Recreation of Windows service
  - Update `oracle.exe` path to new Oracle home
  - Configure automatic start-up
  - Sets the service to run as specified user

Services

F... Act... Vi... H...

Services (Local)

Name	Description	Status	Startup Type	Log On As
OpenSSH Authentication Agent	Agent to h...		Disabled	Local System
OpenSSH SSH Server	SSH protoc...		Disabled	Local System
Optimize drives	Helps the c...		Manual	Local System
Oracle Balloon Service		Running	Automatic	Local System
Oracle Cloud Agent	Oracle Clo...	Running	Automatic	NT SERVICE\O...
Oracle Cloud Agent Cloud Guard Workl...	Oracle Clo...	Running	Manual	NT SERVICE\O...
Oracle Cloud Agent Run Command Serv...	Oracle Clo...	Running	Manual	NT SERVICE\O...
Oracle Cloud Agent Updater	Oracle Clo...	Running	Automatic	NT SERVICE\O...
Oracle Cloud Block Storage Manageme...	Oracle Clo...		Manual	NT SERVICE\O...
Oracle Cloud Operating System Manage...	Oracle Clo...		Manual	NT SERVICE\O...
Oracle Cloud Operating System Manage...	Oracle Clo...		Manual	NT SERVICE\O...
Oracle Cloud Unified Monitoring Install...	Oracle Clo...	Running	Manual	NT SERVICE\O...
Oracle Cloud Vulnerability Scanning Ser...	Oracle Clo...		Manual	NT SERVICE\O...
Oracle Unified Agent	Oracle Unif...	Running	Manual	Local System
Oracle VioGpu Resolution Service		Running	Automatic	Local System
Oracle VirtIO Service	Oracle Virtl...	Running	Automatic	Local System
OracleJobSchedulerDB19			Disabled	.\OraDb
OracleRemExecServiceV2			Manual	Local System
OracleServiceDB19			Automatic	.\OraDb
OracleVssWriterDB19			Automatic	.\OraDb
Payments and NFC/SE Manager	Manages p...		Disabled	Local Service
Performance Counter DLL Host	Enables re...		Manual	Local Service
Performance Logs & Alerts	Performan...		Manual	Local Service
Phone Service	Manages t...		Disabled	Local Service

Extended Standard



AutoUpgrade uses a **credential file** to pass credentials to the service interface

```
global.global_log_dir=c:\oracle\autoupgrade-patching\logs  
global.keystore=c:\oracle\autoupgrade-patching\keystore
```

```
patch1.sid=CDB19
```

```
patch1.source_home=c:\oracle\product\19.0.0\dbhome_1
```

```
patch1.target_home=c:\oracle\product\19.0.0\dbhome_2
```

```
patch1.wincredential=c:\oracle\credfile
```



-- Loads the credentials for the Windows service  
-- into a credential file that AutoUpgrade may use later on

```
java -jar autoupgrade.jar -config CDB19.cfg -patch -load_win_credential CDB19
```

-- After creating the credential file, you can use AutoUpgrade  
-- AutoUpgrade uses the credential file when recreating the Windows service

```
java -jar autoupgrade.jar -config CDB19.cfg -patch -mode deploy
```



## DEMO

Patch on Windows  
Use credential file

 [Watch on YouTube](#)

```
global.global_log_dir=c:\oracle\autoupgrade-patching\logs  
global.keystore=c:\oracle\autoupgrade-patching\keystore
```

```
patch1.sid=CDB19
```

```
patch1.source_home=c:\oracle\product\19.0.0\dbhome_1
```

```
patch1.target_home=c:\oracle\product\19.0.0\dbhome_2
```

```
patch1.wincredential=c:\oracle\credfile
```

```
patch1.delete_credential_file=false
```





Check if all Services were moved

```
PS> Get-CimInstance Win32_Service |  
Where-Object {$_.PathName -like "c:\oracle\*"} |  
Select-Object Name, `
                DisplayName, `
                State, `
                Status, `
                StartMode, `
                StartName, `
                ProcessId, `
                PathName
```

## Before | After

Name : OracleServicecdb19  
State : Running  
Status : OK  
StartMode : Manual  
StartName : NT SERVICE\OracleServicecdb19  
ProcessId : 6152  
PathName : c:\oracle\product\19.0.0\dbhome\_1\bin\ORACLE.EXE cdb19

## Before | After

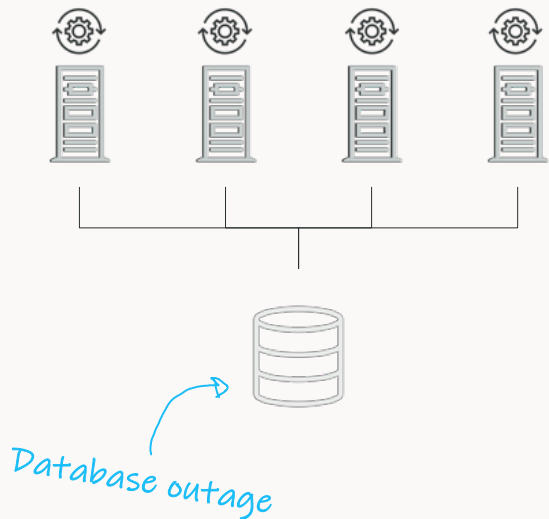
Name : OracleServicecdb19  
State : Running  
Status : OK  
StartMode : Manual  
StartName : NT SERVICE\OracleServicecdb19  
ProcessId : 7241  
PathName : c:\oracle\product\19.0.0\dbhome\_2\bin\ORACLE.EXE cdb19



---

## AutoUpgrade supports RAC database on Windows

# Windows Patching with AutoUpgrade



## ALL NODE

- All nodes patched at one time
- One long database outage
- Works for all patches, including non-rolling
- Cluster at full capacity except for outage

Rolling Patch - OPatch Support for RAC (Doc ID 244241.1)



## AutoUpgrade uses RAC tools to perform actions on other nodes

- SSH is not required

# Further Information

## Patching Database



- [Update Enterprise Manager Configuration](#)
- [Upgrade RMAN Catalog Schema](#)
- [Easier Patching of Oracle Database on Windows](#)
- [Better Automation To Patch Oracle Database on Windows](#)

# Finalize

A few things more ...



## Don't Forget To ...



- Patch your clients
- Optimizer fixes
- Don't raise **COMPATIBLE**
- Purge patch information



## Generate your config file using [AutoUpgrade Composer](#)

- Created by Marcus Vinicius Miguel Pedro,  
Oracle ACE Director



## DB1 Log Directory:

## Source Home:

## Target Home:

Dynamic Path  DBA defined path

Ignore PreReq Failure

Microsoft Windows

## Windows Credential File:

Delete Windows Credential File

Target Version

19 ▾

## Generated Config

```
# Created by AutoUpgrade Composer
# Patch, ExecMode: Deploy

global.global_log_dir=C:\Oracle\AutoUpgrade\Log

patch1.sid=DB1
patch1.log_dir=C:\Oracle\AutoUpgrade\Log\DB1
patch1.source_home=C:\Oracle\Product\19.15\dbhome_1
patch1.target_home=C:\Oracle\Product\19.30\dbhome_1
patch1.wincredential=C:\Oracle\AutoUpgrade\Credential
patch1.target_version=19
patch1.platform=WINDOWS.X64
patch1.restoration=YES
patch1.folder=C:\Oracle\AutoUpgrade\Patches
patch1.patch=RU
patch1.download=NO
```

[DOWNLOAD CONFIG FILE](#)

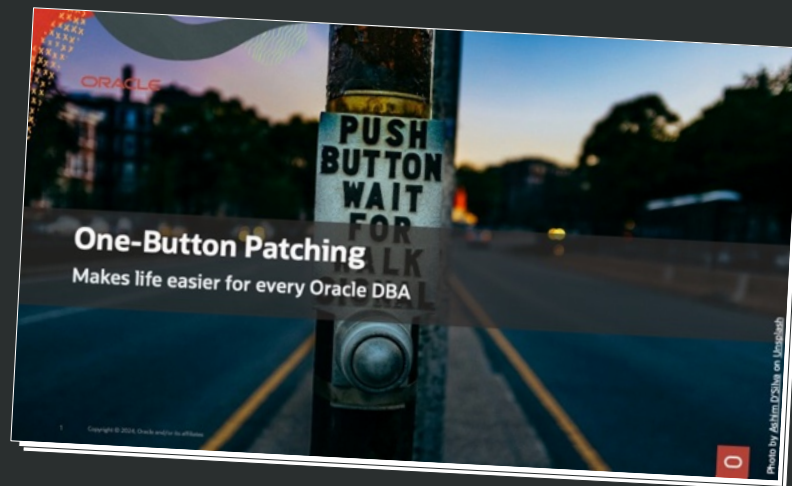
[COPY TO CLIPBOARD](#)

# Webinar

## One-Button Patching

*Makes life easier for every Oracle DBA*

Recording on [YouTube](#)  
Get the [slides](#)



# Hands-on Lab

## Patch Me If You Can

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



[Access lab on Oracle Live Labs](#)

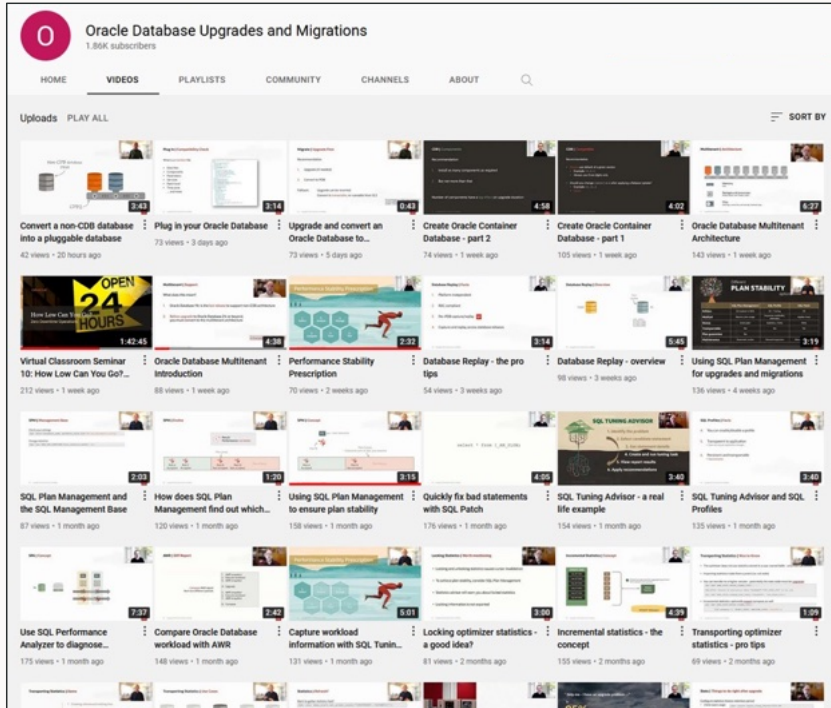
Oracle

**DBAs**

run the world



# YouTube Channel



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

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



# Key Learnings



- 1 Download with AutoUpgrade
- 2 Install with AutoUpgrade
- 3 Patch with AutoUpgrade

# Thank You

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