



Cloud at Customer Academy 3.0

Upgrade Database to 19C

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Nuestros Valores

Integridad

Ética

Compliance

Innovación

Trabajo en
Equipo

Respeto
Mutuo

Satisfacción
del Cliente

Justicia

Calidad

Comunicación

Como empresa líder en tecnología, aceptamos la **diversidad** en todas sus formas. Realmente creemos que la **innovación** comienza con la **inclusión**. Y esto solo se puede lograr con la cooperación de nuestros **partners**. Afirmamos nuestro **compromiso** de mantener un **ambiente respetuoso** y **libre de discriminación** y esperamos esto de nuestros **socios de negocios**.

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Utilice el código QR para acceder al Código de Ética y Conducta Comercial de Oracle.





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Agenda

Oracle Database Version Timeline

Market Driven Support (MDS)

ExaC@C Database 19c Pre-Upgrade

ExaC@C Database 19c Upgrade

ExaC@C Grid 19c Upgrade

Demo – Prechk Upgrade 19C *Console*

Demo – Apply Upgrade 19C *Console*

Demo – Prechk Upgrade 19c *Dbaascli*

Demo – Apply Upgrade 19C *Dbaascli*

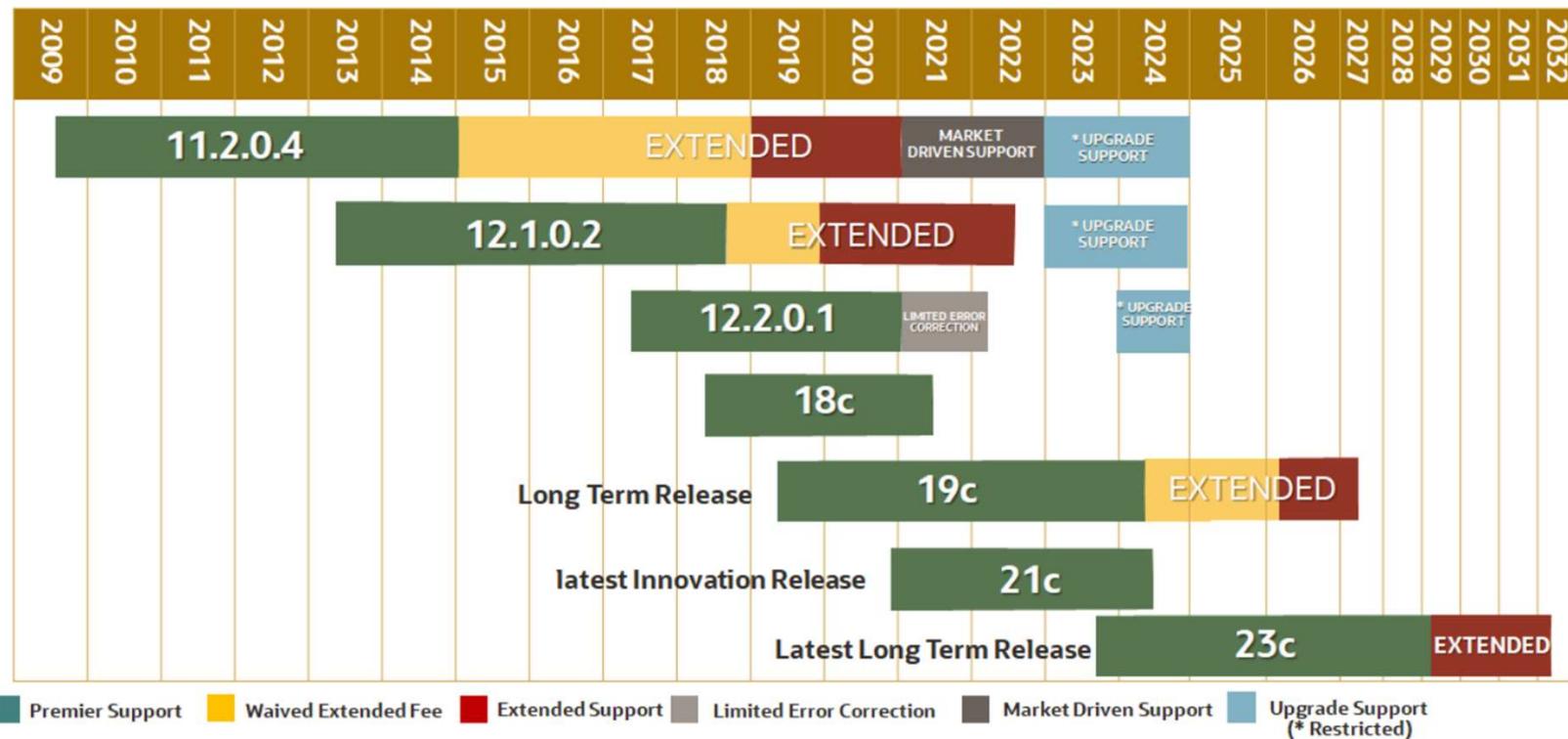
Demo – Apply Rollback 19C *Dbaascli*

Oracle Database Timeline

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Release Schedule of Current Database Releases (Doc ID 742060.1)



- Oracle Database 11.2 Market Driven Support (MDS) (Doc ID 2728619.1)

APPLIES TO:

Oracle Database - Enterprise Edition - Version 11.2.0.1 to 11.2.0.4 [Release 11.2]

Oracle Database - Standard Edition - Version 11.2.0.1 to 11.2.0.4 [Release 11.2]

Information in this document applies to any platform.

PURPOSE

This note pulls together the most important information customers need to know regarding the transition from Oracle Database 11.2.0.4 from Extended Support to Market Driven Support or Sustaining Support.

QUESTIONS AND ANSWERS

Oracle Database 11.2.0.4 left Extended Support on December 31, 2020. If a customer needs to continue to complete the upgrade to Oracle Database 19c, we are offering 2 years of Severity 1 patching which will include patches, PSUs, and Security fixes.

1. When Extended Support ends for Database 11g 2. what support options are available?

- On Jan 1, 2021, Oracle Database 11.2 will no longer be supported by Oracle Support. Customers will have the option of moving into Sustaining Support which offers no patching or they can pay up to 2 years for Market Driven Support. See the [data sheet](#) for more details

Oracle Database 12.1.0.2 Market Driven Support (MDS) (Doc ID 2870402.1)

APPLIES TO:

Oracle Database - Standard Edition - Version 12.1.0.2 to 12.1.0.2 [Release 12.1]
Oracle Database - Enterprise Edition - Version 12.1.0.2 to 12.1.0.2 [Release 12.1]
Information in this document applies to any platform.

PURPOSE

This note pulls together the most important information on customers need to know regarding the transition of Oracle Database 12.1.0.2 out of Extended Support.

QUESTIONS AND ANSWERS

Oracle Database left Extended Support on July 1, 2022. Customers who were still in the process of upgrading to the long-term release (19c) could pay for Severity 1 Production Support to cover them until Dec 31, 2022. Beginning Jan 1, 2023, Oracle will bring Market Driven Support for customers running the 12.1 Database on restricted platforms. Please contact your ACS representative or the Renewals office for assistance. MDS includes Severity 1 one-off patches and PSUs. Security fixes are included in the PSU.

1. What is Market Driven Support?

- Oracle has setup Market Driven Support to provide extra assistance to those customers who are actively upgrading to 19c. MDS is offered through ACS and coverage does not extend to new certifications, new products, or new functionality including Java components embedded in the database. No updates related to cryptography and network encryption are provided during this timeframe.

2. How does a customer sign up for MDS Support?

- MDS is a fee-based service provided through Advanced Customer Services; therefore, customers should visit: <https://www.oracle.com/support/advanced-customer-services/contactus-form.html>

19c Database Upgrade - Self Guided Assistance with Best Practices (Doc ID 1919.2)

★ 19c Database Upgrade - Self Guided Assistance with Best Practices (Doc ID 1919.2)

Visibility: EXTERNAL

To Bottom

Document Purpose Upgrade Readiness Verify Certification and Review Best Practices Prepare Target Environment Prepare Source Environment Upgrade Initial Dev/Test Environments Evaluate Performance on DEV/Test Environment Upgrade PROD Environment Recommended Training and Resources

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Document Purpose
Upgrade Readiness
Verify Certification and Review Best Practices
Prepare Target Environment
Prepare Source Environment
Upgrade Initial Dev/Test Environments
Evaluate Performance on DEV/Test Environment

19^c ORACLE® Database



Upgrade Grid to 19C

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Upgrading to 19c Oracle Grid Infrastructure on Exadata Cloud Gen2 (Doc ID 2624992.1)

GOAL

This document provides step-by-step instructions for upgrading Oracle Grid Infrastructure from version 12.2.0.1 or 18c, to version 19c on Exadata Cloud Service (ExaCS) and Exadata Cloud at Customer Gen2 (ExaCC).

SOLUTION

Upgrade Oracle Grid Infrastructure on Exadata Cloud Service

Overview

This document provides step-by-step instructions for upgrading Oracle Grid Infrastructure from release 12.2.0.1 or 18c to 19c on Exadata Cloud Service (ExaCS) and Exadata Cloud at Customer Gen2 (ExaCC). Updates and additional patches may be required for your existing installation before upgrading to Oracle Grid Infrastructure 19c. The note box below provides a summary of the software requirements to upgrade.

Summary of software requirements to upgrade to Oracle Grid Infrastructure 19c:

1. Current Grid Infrastructure version must be 12.2.0.1.190416, 18.6.0.0.190416 or higher.
2. Minimum Exadata System Software version 19.2 is required.
3. Minimum Cloud Tooling version 19.4.4.0.0_200518 is required.



Database 19c Pre-Upgrade

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- **Oracle Exadata Database Machine Exachk** (Doc ID [1070954.1](#))

PURPOSE

This document describes how to obtain, install, execute, and update Exachk for Oracle Exadata Database Machine based implementations. It also describes common use cases and best practices to ensure that your Exadata deployment and configurations remain compliant with Exadata Maximum Availability Architecture (MAA) best practices.

SCOPE

This document applies to all Oracle Exadata Database Machine based implementations:

- Exadata Cloud at Customer, Exadata Cloud Service, and Autonomous Database Services
- Exadata On-Premises
 - Bare Metal
 - Virtual Machines

DETAILS

Exachk Overview

Exachk holistically evaluates Exadata Database Machine engineered systems.

It includes:

- Configuration checks for Database Servers, Storage Servers, and Network Fabric Switches:
 - Firmware
 - Operating System (e.g. Oracle Linux)
 - Exadata software
 - Grid Infrastructure and ASM
 - Database
- MAA Scorecard:
 - MAA Configuration Review
 - Exadata Software Planner
 - Exadata Critical Issue alerts
- Automatic Correction (when applicable):
 - Configuration Correction
 - Critical Issue Avoidance
- Prerequisite checks for DB and GI software updates
- Prerequisite checks for DB and GI upgrades
- Prerequisite checks for application continuity readiness





SCAN ME

Exadata Cloud Exachk commands

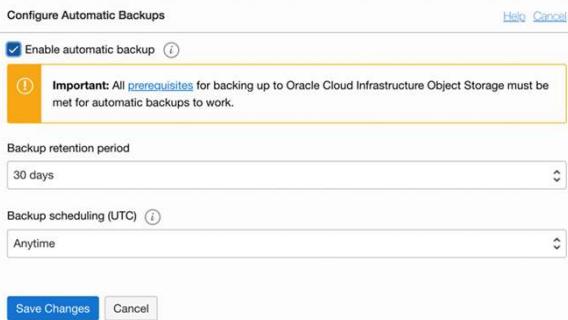
```
# exachk  
  
# ahfctl version -all  
  
# cat /etc/oracle.ahf.loc  
  
# exachk -profile exatier1  
  
# exachk -get all -id autostart  
  
# dbaascli admin updateAHF  
  
# exachk -excludecheck  
9CC87B4EC33DAE8AE053D598EB0A65EF
```

```
[ -a ]  
[ -v ]  
[ -debug ]  
[ -nodaemon ]  
[ -f ]  
[ -upgrade ]  
[ -noupgrade ]  
[ -testemail all |  
  "NOTIFICATION_EMAIL=comma-delimited list of  
  email addresses" ] [ -sendemail  
  "NOTIFICATION_EMAIL=comma-delimited list of  
  email addresses" ]  
[ -dbserial ]  
[ -dbparallel [ n ] ]  
[ -dbparallelmax ]
```



Automatic Database backup Using the OCI Console

- Enable Automatic Incremental backups
- View the list of managed backups for a database
- Create full backups on demand is not allowed on Exadata @Customer
- Backup data is always automatically encrypted using Transparent Data Encryption
- Do not delete any necessary encryption keys from the wallet or vault because this causes database and backup protected by the key to become unavailable



The screenshot shows the 'Configure Automatic Backups' page in the OCI Console. At the top, there's a checkbox labeled 'Enable automatic backup' with an information icon. Below it is a yellow-bordered box containing an exclamation mark icon and the text: 'Important: All [prerequisites](#) for backing up to Oracle Cloud Infrastructure Object Storage must be met for automatic backups to work.' Underneath, there are two dropdown menus: 'Backup retention period' set to '30 days' and 'Backup scheduling (UTC)' set to 'Anytime'. At the bottom are 'Save Changes' and 'Cancel' buttons.



Dbaascli most used Database Backup commands



```
# dbaascli database backup --dbname      --list  [--backupType <value>]  
                                         --start [--level0]  [--level1]  
                                              [--archival --tag <value>]  
                                              [--archivelog]  
                                         --delete --backupTag <value>  
                                         --status --uuid <value>  
                                         --getBackupReport  
                                              [--tag <value>]  
                                              [--latest]  
                                         --showHistory  
                                         --configure  
                                         --validate [--untilTime <value>]  
                                         --getConfig  [--configFile <value>]
```



Exadata Cloud Upgrade to 19c

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Upgrading to 19c Oracle Database on Exadata Cloud (ExaCS) and C@C Gen2 (Doc ID 2628228.1)

APPLIES TO:

Oracle Cloud Infrastructure - Exadata Cloud Service - Version N/A to N/A [Release N/A]

Gen 2 Exadata Cloud at Customer - Version N/A to N/A [Release All Releases]

Information in this document applies to any platform.

GOAL

This document provides step-by-step instructions for upgrading Oracle Database, from Oracle Database 11.2.0.4 and higher to Oracle Database Release 19c on Exadata Cloud Service (ExaCS) and Exadata Cloud at Customer Gen2 (ExaCC).

SOLUTION

This document provides step-by-step instructions for upgrading Oracle Database from release 11.2.0.4, 12.1.0.2, 12.2.0.1 or 18c to 19c on Oracle Exadata Cloud Service. Updates and additional patches may be required for your existing installation before upgrading to Oracle Database 19c. Please note that 11.2.0.4 upgrades will result in a non-CDB 19c database. The note box below provides a summary of the software requirements to upgrade.

Summary of software requirements to upgrade to Oracle Database 19c:

1. Current Grid Infrastructure version must be 19.0.0.0.0 or higher
2. Minimum Exadata System Software version 19.2 is required.
3. Minimum Cloud Tooling version 21.3.2.1.0_200907 is required.



Upgrade Database Using Console

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SCAN ME

Pre-Upgrade Database 19c using Console



IN PROGRESS



SUCCEEDED

Precheck Database Upgrade

Work request information

Precheck Database Upgrade

In progress

50% complete

Operation: Precheck Database Upgrade

Accepted: Mon, Sep 25, 2023, 00:40:59 UTC

Precheck Database Upgrade

Work request information

Precheck Database Upgrade

Succeeded

100% complete

Operation: Precheck Database Upgrade

Accepted: Mon, Sep 25, 2023, 00:40:59 UTC

OCID: ...ogcwnq [Show](#) [Copy](#)

Started: Mon, Sep 25, 2023, 00:41:21 UTC

Compartment: oscnas001 (root)/ExaCC/ExaCC6/Exacc6vm3

Finished: Mon, Sep 25, 2023, 00:44:57 UTC



WR

IN PROGRESS

Upgrade Database

Work request information

Upgrade Database

In progress

50% complete

Operation: Upgrade Database

Accepted: Sun, Sep 24, 2023, 12:34:22 UTC

OCID: ...kzbsda [Show](#) [Copy](#)

Started: Sun, Sep 24, 2023, 12:34:30 UTC

WR

SUCCEEDED

Upgrade Database

Work request information

Upgrade Database

Succeeded

100% complete

Operation: Upgrade Database

Accepted: Sun, Sep 24, 2023, 12:34:22 UTC

OCID: ...kzbsda [Show](#) [Copy](#)

Started: Sun, Sep 24, 2023, 12:34:30 UTC

Compartment: oscnas001 (root)/ExaCC/ExaCC6/Exacc6vm3

Finished: Sun, Sep 24, 2023, 13:58:26 UTC



Are you Sure ?

Confirm Upgrade

[Help](#)

Upgrading causes database downtime. Do you want to upgrade the database **PRE12C** by moving it to Database Home **Oracle_home_19c**, which is running Oracle Database version 19.20.0.0.0?

To confirm, enter the name of the database:

[Upgrade Database](#)[Cancel](#)

Upgrade Database using dbaascli

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Dbaascli Database Upgrade Commands

```
# dbaascli database upgrade --dbname <value> --targetHome | --targetHomeName  
          { [--executePrereqs | --postUpgrade | --rollback] }  
          { [--standBy | --allStandbyPrepared] }  
          { [--upgradeOptions <value>] | [--standBy] }  
          [ --removeGRP ]  
          [ --increaseCompatibleParameter ]  
          [ --resume [ --sessionID <value> ] ]  
          [ --waitForCompletion <value> ]
```



Database 19c Pos-Upgrade

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SCAN ME

Exadata Cloud at Customer Pos Upgrade Summary

Upgrade Details

The following summary lists the steps performed during the upgrade process. Log files for all the steps, as well as this summary, are available at "/u02/app/oracle/cfgtoollogs/pre/upgrade/2023-09-24123820/pre".

Step Name	Log File Name	Status	Time
Database Backup	Backup.log	Successful	0:00:01
Pre Upgrade	PreUpgrade.log	Successful	0:04:45
Configure Database in 19.0.0.0 Oracle Home	Migrate_Sid.log	Successful	0:01:03
Database Components Upgrade	CDBRootOracle_Server.log	Successful	0:24:37
Recompile Invalid Objects	CDBRootUtilprp.log	Successful	0:02:09
Timezone Upgrade	CDBRootUpgradeTimezone.log	Successful	0:00:00
CDB Root Post Upgrade	CDBRootPostUpgrade.log	Successful	0:01:30
Enterprise Manager Configuration	emConfigUpgrade.log	Successful	0:00:24
PDBS Components Upgrade	PDBSOracle_Server.log	Successful	0:31:35
PDBS Recompile Invalid Objects	PDBSUtilprp.log	Successful	0:02:55
PDBS Timezone Upgrade	PDBSUpgradeTimezone.log	Successful	0:00:21
PDBS Enable Services	PDBSEnableServices.log	Successful	0:00:12
Generate Summary	generateSummary.log	Successful	0:00:00
Total Upgrade Time			1:09:32



Oracle Database Pos-Upgrade Check Commands

Connected to:

Oracle Database 19c EE Extreme Perf Release 19.0.0.0.0 - Production
Version 19.19.0.0.0

```
SQL> COL OWNER FOR A15
SQL> COL OBJECT_NAME FOR A40
SQL> ALTER SESSION SET NLS_DATE_FORMAT='DD-MM-YYYY HH24:MI:SS';

SQL> select OWNER, OBJECT_NAME, OBJECT_TYPE, CREATED, LAST_DDL_TIME, STATUS from dba_objects where STATUS <> 'VALID';

SQL> col COMP_NAME for a40
SQL> col STATUS for a15

SQL> select COMP_NAME, VERSION, MODIFIED, STATUS from dba_registry;

SQL> COLUMN action_time FORMAT A20
SQL> COLUMN action FORMAT A15
SQL> COLUMN version FORMAT A15
SQL> COLUMN comments FORMAT A50
SQL> COLUMN bundle_series FORMAT A20

SELECT TO_CHAR(action_time, 'DD-MON-YYYY HH24:MI:SS') AS action_time, action, version, id, comments, bundle_series
FROM sys.registry$history
ORDER by action_time;
```



Connected to:
Oracle Database 19c EE Extreme Perf Release 19.0.0.0.0 - Production
Version 19.19.0.0.0

```
SQL> set lines 400
SQL> set pages 400
SQL> col name for a30
SQL> col time for a35
SQL> col SCN for 9999999
```

```
SQL> select NAME,SCN, DATABASE_INCARNATION#, GUARANTEE_FLASHBACK_DATABASE, PRESERVED, time from v$restore_point;
```

```
# dbaascli database status --dbname Demo12c
```

```
# dbaascli database getDetails --dbname Demo12c
```

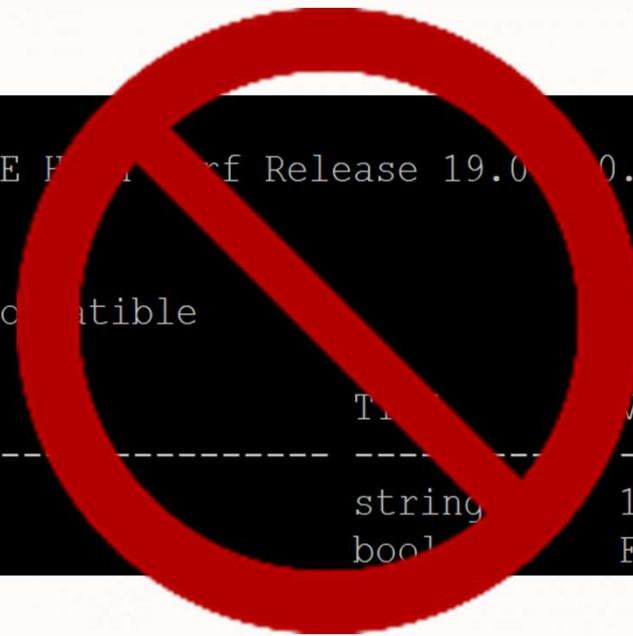
```
# dbaascli diag healthcheck
```

```
# dbaascli database backup --dbname
```



If you are turning off incompatible parameter....

```
Connected to:  
ConOracle Database 19c EE Performance Release 19.0.0.0 - Production  
OraVersion 19.16.0.0.0  
  
SQL> show parameter compatible  
  
NAME          TYPE        VALUE  
---  
compatible    string      19.0.0.0  
noncdb_compatible    boolean    FALSE
```



Troubleshooting and Rollback

Database Upgrade rollback console roles and limitations

The screenshot shows a database named "PRE12C" with a green background containing the letters "DB". Two error messages are displayed: "Database upgrade failed. You can retry the upgrade. [View Details](#)" (red background) and "Automatic backups are not enabled on this database." (orange background). A "Enable automatic backups" button is present next to the second message. Below the database name are several buttons: "Restore Database", "Edit Backup Settings", "Move Database", "Upgrade", and "More actions ▾".



Collect DB Upgrade/Migrate Diagnostic Information (dbupgdiag.sql) (Doc ID 556610.1)

APPLIES TO:

Oracle Database Cloud Schema Service - Version N/A and later
Gen 1 Exadata Cloud at Customer (Oracle Exadata Database Cloud Machine) - Version N/A and later
Oracle Cloud Infrastructure - Database Service - Version N/A and later
Oracle Database Cloud Exadata Service - Version N/A and later
Oracle Database Backup Service - Version N/A and later
Information in this document applies to any platform.

GOAL

This script is intended to provide a user friendly output to diagnose the status of the database either before (or) after upgrade. The script will create a file called db_upg_diag_<sid>_<timestamp>.log.
On Container Database , this should be run individually on each container.

SOLUTION

Requirements

The script needs to be run in SQL*Plus both before the upgrade on the source database and after the upgrade on the upgraded database as SYS user.

This will help to determine the status of the database before and after upgrade.



Oracle Database Upgrade to 19c Hangs At Phase #:53 (Doc ID 2735282.1)

APPLIES TO:

Oracle Database - Enterprise Edition - Version 19.5.0.0.0 and later
Information in this document applies to any platform.

SYMPTOMS

Upgrading to 19c hangs at Phase #:53

```
***** Upgrading Java and non-Java *****
Serial Phase #:53 [SID] Files:2
```

CHANGES

CAUSE

At Phase 53 while running the emremove.sql script to remove the EM repository upgrade is taking time

SOLUTION

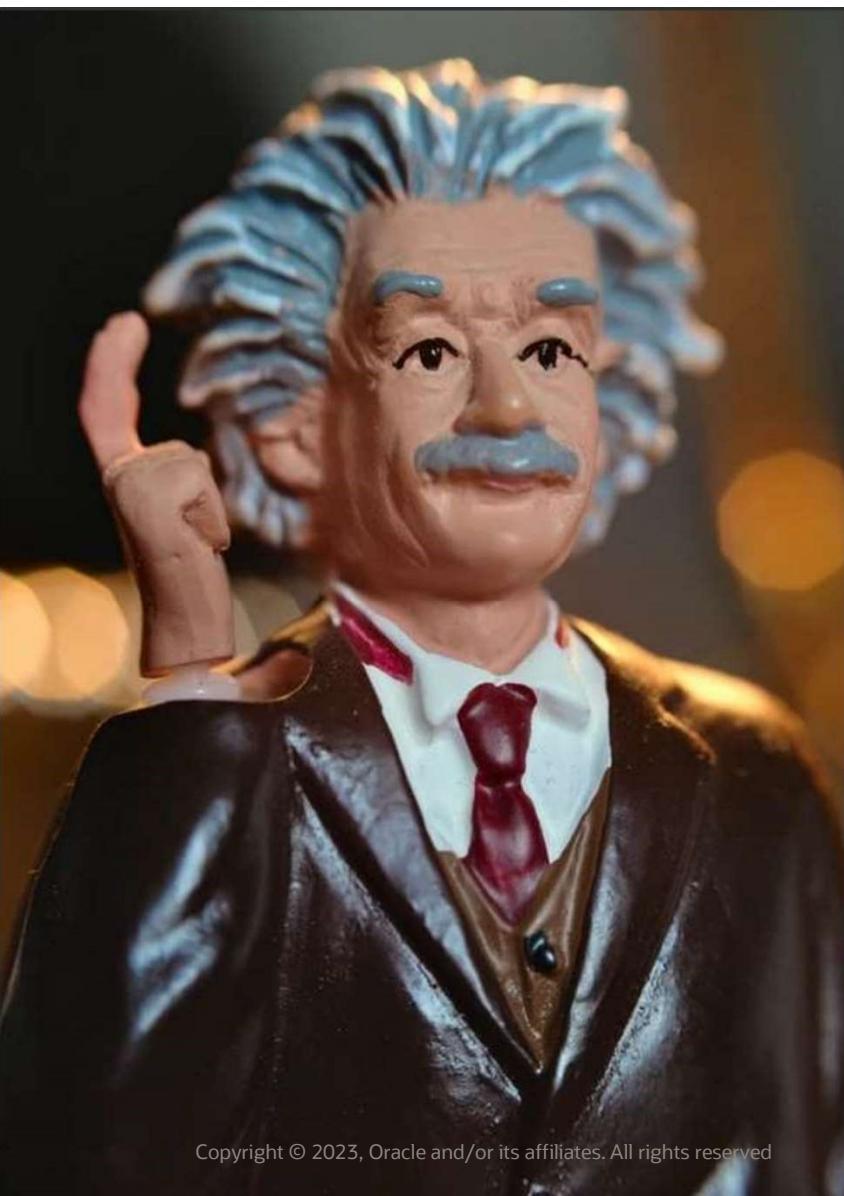
Run the emremove.sql script to remove the EM repository upgrade.



Demo

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Demo 1 – Pre-Upgrade Database 19c

- Pre-chk Using OCI Console
- Pre-chk using *dbaascli*



Demo 2 – Upgrade Database to 19c

- Upgrade database using *dbaascli*

Demo 3 – Post - Upgrade 19c

- Database Health check

Demo 4 – Rollback database to 12c

- Rollback database to 12c using *dbaascli*

Resources

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mikedietrichde.com



A screenshot of the mikedietrichde.com website. The header features the site's name and a subtext "Mike Dietrich's Blog About Oracle Database Upgrades... Mostly". It includes social media links for Twitter, LinkedIn, and X. The main navigation menu includes Blog, Slides, Hands-On Lab, Events, Videos, Scripts, Links, Oracle Documentation, Privacy, and About. Below the header is a large image of a snowy mountain range at sunset. Overlaid on the image is the text "Patching my environments with the January 2023 Bundle Patches". A blue callout box in the bottom right corner contains the text "Rolling back or removing all patch SQL changes". At the bottom of the image, a small credit "Photo by karokrasinska" is visible. A red "Click Here" button is overlaid on the bottom right of the image area.

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dohdatabase.com



Databases Are Fun

dohdatabase.com

Slides

[Main slide deck](#)



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Generate APEX application checksum in PL/SQL

In Oracle APEX, generating the application checksum is useful to compare if the application you exact copy of the application running somewhere else. To create this checksum, you ...

This post is also available in: 🇧🇷 Português

ABOUT



Webinars

Web Seminar	Duration	Released	Slides
Episode 1 Release and Patching Strategy	105 minutes	Feb 4, 2021	A thumbnail image showing a presentation slide with the title "Oracle Release and Patching Strategy" and a background image of a bridge over water.

[Click Here](#)

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Exadata Cloud Oracle on Architecture Center



The screenshot shows the Oracle Architecture Center homepage. At the top, there is a navigation bar with a magnifying glass icon, the text "Architecture Center", and a search input field containing "exadata cloud at customer". A red box highlights the search input field. Below the navigation bar, the page title is "Oracle Architecture Center" with a subtitle: "Design, develop, and implement your cloud, hybrid, and on-premises workloads with guidance from Oracle architects, developers, and other experts versed in Oracle technologies and solutions." A "Contact a Cloud Expert" button is visible. The main content area features a large image of a colorful abstract painting. Below the image, there is a section titled "Try our free hands-on labs and tutorials" with a "Learn more" button. To the right, there is a sidebar with a "Reference Architecture" section and a "Deploy a containerized Jenkins CI/CD pipeline by using Terraform on Oracle Cloud Infrastructure" section, both with "Automation Available" buttons.

[Click here](#)

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SCAN ME

Exadata Cloud on Oracle **Live Labs**

Oracle Autonomous Database Dedicated for Fleet Administrators



As fleet administrator, set up your dedicated ADB platform in the OCI and on Exadata Cloud@Customer.

⌚ 7 hrs

5463 Views

Oracle Exadata Platform Performance Features



Get hands-on with Oracle Exadata, Exadata Database Service on Cloud@Customer, and Exadata Database (..)

⌚ 1 hr, 20 mins

717 Views

Get Started with Oracle Exadata Database Service on Cloud@Customer



Explore getting started with Oracle Exadata Database Service on Cloud@Customer.

⌚ 1 hr

[Click Here](#)





SCAN ME

Exadata Cloud at Customer on Up to August, 31th 2023

The screenshot shows the Oracle University MyLearn platform interface. At the top, there's a search bar with the placeholder "What do you want to learn?". Below it, a navigation bar includes links for "MyLearn", "Oracle University", and "Community". A "Home" button is also present.

The main content area displays a course titled "Oracle Base Database Services Professional Workshop". On the left, there's a sidebar with the text "Mission-critical cloud database capabilities where you need them" and some icons. The main video player window shows a slide with the title "Exceptional Performance, Availability, and Security" and a bulleted list:

- Superior architecture with unique software optimizations
- Full-stack redundancy and integrated disaster recovery
- Defense in-depth security

The video player shows a progress bar at 28:56 / 30:20. Below the video, the course title "Database Services Oracle Base Database Services Professional (2023)" is displayed, along with a "Data Architect" badge.

To the right, a "Playlist" tab is selected, showing the course duration as "7h 41m". There are also "Student Guides" and "About" tabs. Below the playlist, a section titled "2 : Exadata Database Service" lists several video lessons:

- Exadata Database Service Overview (30m)
- Exadata: Network, Infrastructure, VM Cluster Overview (28m)
- Exadata Infrastructure and VM Cluster Management (28m)
- Database Lifecycle Management (New 38m)
- Management Tools (21m)

At the bottom right of the interface is a red square button with a white "O" icon.

OPN Web Page



Oracle PartnerNetwork (OPN) Members

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Expertise is the cornerstone of OPN - customer success is the reward.

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- **Go-to-Market** using tools and guidance on how to take your solutions and services to market
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Take a quick tour now of the marketing resources available to you from Oracle. This Partner's Guide to Oracle Marketing Resources infographic will help you explore and discover valuable steps to boost your business.

[Get Started](#)

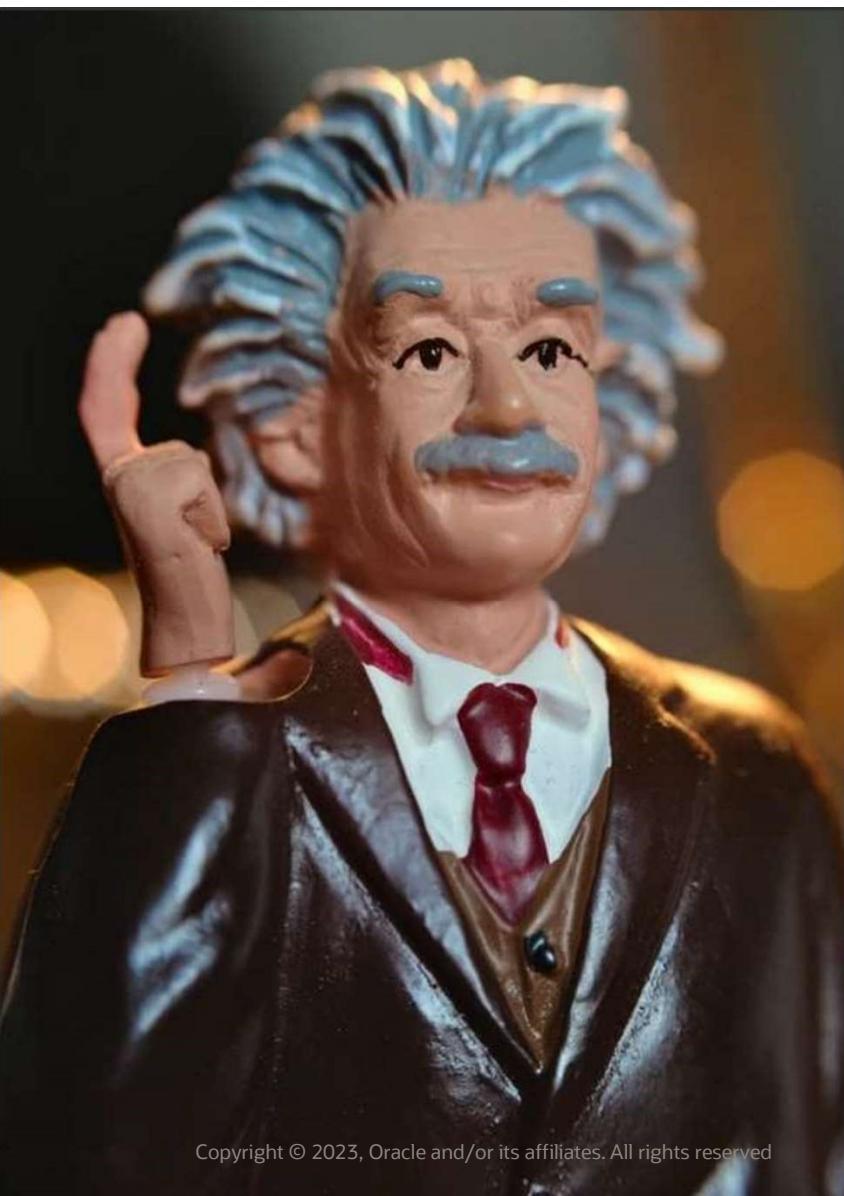
[Click here](#)



Demo

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Demo 1 – Pre-Upgrade Database 19c

- Pre-chk Using OCI Console
- Pre-chk using *dbaascli*



Demo 2 – Upgrade Database to 19c

- Upgrade database using *dbaascli*

Demo 3 – Post- Upgrade 19c

- Database Health check

Demo 4 – Rollback database to 12c

- Rollback database to 12c using *dbaascli*



Thank You ☺

Questions / Feedback / Training Suggestions

alexandre.af.fagundes@oracle.com

marcel.lamarca@oracle.com

Ask for help ☺

ORACLE

O