cisco.



Cisco IoT Field Network Director—Oracle DB Installation and Upgrade Guide

First Published: 2021-11-30 **Last Modified:** 2024-07-05

Americas Headquarters

Cisco Systems, Inc. 170 West Tasman Drive San Jose, CA 95134-1706 USA http://www.cisco.com Tel: 408 526-4000 800 553-NETS (6387) Fax: 408 527-0883 © 2024 Cisco Systems, Inc. All rights reserved.



CONTENTS

CHAPTER 1	Overview 1
	Organization 1
	Conventions 1
CHAPTER 2	- Install Oracle DB 19c 3
	Pre-Installation Steps 3
	Setting Up a Virtual Machine 3
	Oracle Prerequisites 4
	Install Oracle 19c 8
	Run Installer 9
	Configuring Oracle DB with FND 17
	Create, Configure, and Start CG-NMS DB 17
	Install CGMS RPM 20
CHAPTER 3	- Upgrade from Oracle 18c to 19c 21
	Minimum Hardware Requirements 21
	Upgrade Steps 22
	Post Upgrade Steps 33
CHAPTER 4	- Oracle Patch Installation 35
	Oracle Patch Installation (Optional) 35
	Upgrading OPatch 39

Contents



Overview

This document provides steps for Oracle 19c database installation and upgrade from 18c to 19c.

- Organization, on page 1
- Conventions, on page 1

Organization

This guide includes the following sections.

Conventions	Provides details on the use of bold and italic keywords, brackets, and parentheses within the document.
Install Oracle DB 19c, on page 3	Step-by-step instructions for installing Oracle 19c database software.
Upgrade from Oracle 18c to 19c, on page 21	Step-by-step instructions for upgrading the Oracle database from 18c to 19c.
Oracle Patch Installation, on page 35	Step-by-step Oracle patch installation instructions.

Conventions

This document uses the following conventions.

Conventions	Indication
bold font	Commands and keywords and user-entered text appear in bold font.
<i>italic</i> font	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic</i> font.
[]	Elements in square brackets are optional.

Indication
Required alternative keywords are grouped in braces and separated by vertical bars.
Optional alternative keywords are grouped in brackets and separated by vertical bars.
A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
Terminal sessions and information the system displays appear in courier font.
Nonprinting characters such as passwords are in angle brackets.
Default responses to system prompts are in square brackets.
An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.

Caution: Means reader be careful. In this situation, you might perform an action that could result in equipment damage or loss of data.

Warning: IMPORTANT SAFETY INSTRUCTIONS

Means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS



Install Oracle DB 19c

This section provides installation steps for Oracle DB 19c.

- Pre-Installation Steps, on page 3
- Install Oracle 19c, on page 8
- Run Installer, on page 9
- Configuring Oracle DB with FND, on page 17

Pre-Installation Steps

Ensure that the following prerequisites are completed before starting the Oracle 19c installation on RHEL 8.x.

- Setting Up a Virtual Machine, on page 3
- Oracle Prerequisites, on page 4

Setting Up a Virtual Machine

Before you begin

Hardware requirements for the virtual machine:

Hard Disk	200 GB (Minimum 120 GB)	
Memory	16 GB (Minimum 4 GB)	
vCPU	4	

Step 1 Deploy the virtual machine with RHEL ISO file (example: rhel-8.5-x86_64-dvd.iso).

- **Step 2** Run the following commands to activate YUM or DNF from the **local repository**. For more information, see Configuring YUM.
 - a) To mount the CD-ROM ISO contents on an ESXi VM, ensure that the Datastore_ISO_File is selected and in connected state in the Edit_Settings of the VM instance (Mounting CD-ROM on CentOS).
 - b) mount /dev/cdrom /mnt

- c) mkdir /Package
- d) cp -rv /mnt/* /Package
- e) cp -v /Package/media.repo /etc/yum.repos.d/rhel8.repo
- f) chmod 644 /etc/yum.repos.d/rhel8.repo

Add repository entries in the /etc/yum.repos.d/rhel8.repo file.

```
[root@fnd-rhel8-33 ~]# vim /etc/yum.repos.d/rhel8.repo
[InstallMedia-BaseOS]
name=Red Hat Enterprise Linux 8 - BaseOS
metadata_expire=-1
gpgcheck=1
enabled=1
baseurl=file:file:///Package/BaseOS/
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
[InstallMedia-AppStream]
name=Red Hat Enterprise Linux 8 - AppStream
metadata_expire=-1
gpgcheck=1
enabled=1
baseurl=file:///Package/AppStream/
```

gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release

- g) yum clean all
- h) subscription-manager clean
- i) yum repolist
- j) To prevent the following message, go to /etc/yum/pluginconf.d/subscription-manager.conf and change the parameter "enabled=1" to "enabled=0"

"This system is not registered with Red Hat Subscription Management. You can use the subscription-manager to register."

vim /etc/yum/pluginconf.d/subscription-manager.conf

[main]

enabled=0

k) Run yum install nginx to confirm YUM.

What to do next

Oracle Prerequisites, on page 4

Oracle Prerequisites

Before you begin

Setting Up a Virtual Machine, on page 3

Step 1 Login as a root user to create a "dba" group and "Oracle" user.

- a) groupadd dba
- b) adduser -d /home/oracle -g dba -s /bin/bash oracle

Step 2 Create the following directories to install the Oracle software. a) mkdir -p /home/oracle/app/oracle/product/19.0.0/dbhome 1 b) chown -R oracle:dba /home/oracle/app/oracle/product/19.0.0/dbhome 1 c) chmod -R 775 /home/oracle/app/oracle/product/19.0.0/dbhome 1 Step 3 Download Oracle software. a) Log in as a root user and save the zip file in a directory (example: mkdir /usr/programs, choosing the directory is your choice). LINUX.X64_193000_db_home.zip (Oracle19.3 EntEditionLinux x86-64). Step 4 Manual set up to install Oracle 19c. For more information, see Manual setup instructions. a) Add the following lines to either "/etc/sysctl.conf" or "/etc/sysctl.d/98-oracle.conf" file. [root@fnd-rhel8-33 ~]# vim /etc/sysctl.conf fs.file-max = 6815744kernel.sem = 250 32000 100 128 kernel.shmmni = 4096 kernel.shmall = 1073741824 kernel.shmmax = 4398046511104 kernel.panic on oops = 1 net.core.rmem default = 262144 net.core.rmem max = 4194304 net.core.wmem default = 262144 net.core.wmem max = 1048576 net.ipv4.conf.all.rp filter = 2 net.ipv4.conf.default.rp filter = 2 fs.aio-max-nr = 1048576net.ipv4.ip_local_port_range = 9000 65500

b) To change the current kernel parameters, run the following command, which depends on the file you edited in the above step.

```
/sbin/sysctl -p
(or)
/sbin/sysctl -p /etc/sysctl.d/98-oracle.conf
```

c) Add the following lines to the "/etc/security/limits.d/oracle-database-preinstall-19c.conf" file.

```
[root@fnd-rhel8-33 ~]# vim /etc/security/limits.d/oracle-database-preinstall-19c.conf
oracle soft nofile 1024
oracle hard nofile 65536
oracle soft nproc 16384
oracle hard nproc 16384
```

oracle soft stack 10240 oracle hard stack 32768 oracle hard memlock 134217728 oracle soft memlock 134217728

d) Install the pre-install packages.

Note Some files in the package may not get installed, you can skip them as it may not stop the installation of the rest of the pre-install package.

```
dnf install -y bc
dnf install -y binutils
**** dnf install -y compat-libstdc++-33
dnf install -y elfutils-libelf
dnf install -y elfutils-libelf-devel
dnf install -y fontconfig-devel
dnf install -y glibc
dnf install -y glibc-devel
dnf install -y ksh
dnf install -y libaio
dnf install -y libaio-devel
dnf install -y libXrender
dnf install -y libXrender-devel
dnf install -y libX11
dnf install -y libXau
dnf install -y libXi
dnf install -y libXtst
dnf install -y libgcc
dnf install -y librdmacm-devel
dnf install -y libstdc++
dnf install -y libstdc++-devel
dnf install -y libxcb
dnf install -y make
# dnf install -y net-tools # Clusterware
# dnf install -y nfs-utils # ACFS
# dnf install -y python # ACFS
```

```
# dnf install -y python-configshell # ACFS
# dnf install -y python-rtslib # ACFS
# dnf install -y python-six # ACFS
# dnf install -y targetcli # ACFS
dnf install -y smartmontools
dnf install -y sysstat
dnf install -y unixODBC
# New for OL8
dnf install -y libnsl
dnf install -y libnsl.i686
dnf install -y libnsl2
```

e) Create new groups and users.

```
groupadd -g 54321 oinstall
groupadd -g 54322 dba
groupadd -g 54323 oper
useradd -u 54321 -g oinstall -G dba,oper oracle
```

- f) Set secure Linux to permissive mode by editing the "/etc/selinux/config" file. Ensure that the SELINUX flag is set as follows:
 - 1. vim /etc/selinux/config
 - 2. SELINUX=permissive
- g) Once the SELINUX flag is set (as in the step above), restart the server or run the following command. setenforce Permissive
- h) Disable the Linux firewall (if you had enabled).
 - 1. systemctl stop firewalld
 - 2. systemctl disable firewalld

What to do next

Install Oracle 19c, on page 8

Install Oracle 19c

To install Oracle 19c:

Before you begin

Pre-Installation Steps, on page 3

Step 1	Login as a root user. a) xhost +local:oracle b) cd /home/oracle/app/oracle/product/19.0.0/dbhome_1
Step 2	Unzip the Oracle software that is downloaded from the Oracle website and place it in the /usr/programs directory. For more information, see Oracle Prerequisites.
Step 3	 Run the chown -R and the chmod -R 775 commands on the unzipped directory again. a) chown -R oracle:dba /home/oracle/app/oracle/product/19.0.0/dbhome_1 b) chmod -R 775 /home/oracle/app/oracle/product/19.0.0/dbhome_1
Step 4	<pre>Create a "scripts" directory and make a shell file, "setEnv.sh", with the following content: a) mkdir /home/oracle/scripts b) Copy and paste the following content on the terminal: cat > /home/oracle/scripts/setEnv.sh <<eof #="" eof<="" export="" oracle="" oracle_base="/home/oracle/app/oracle" oracle_home="\\$ORACLE_BASE/product/19.0.0/dbhome_1" oracle_sid="cgms" path="\\$PATH:\\$ORACLE_HOME/bin" pre="" settings=""></eof></pre>
Step 5	Add a reference to the "setEnv.sh" file at the end of the "/home/oracle/.bash_profile" file. echo ". /home/oracle/scripts/setEnv.sh" >> /home/oracle/.bash_profile
Step 6	<pre>Give the permission. a) chown -R oracle:oinstall /home/oracle/scripts b) chmod u+x /home/oracle/scripts/*.sh</pre>
Step 7	<pre>Create an OraInventory. a) mkdir -p /home/oracle/app/oraInventory b) chown -R oracle:dba /home/oracle/app/oraInventory c) chmod -R 775 /home/oracle/app/oraInventory</pre>

Step 8 Must run the following steps on the ESXi VM terminal desktop instance.

L

- a) Login as an Oracle user to set the 'CV_ASSUME_DISTID' to 'OEL8.1' (For more information, see Unexpected Errors During Oracle 19c Installation).
 - 1. su oracle
 - 2. export DISPLAY=:0.0
 - 3. export CV_ASSUME_DISTID=OEL8.1
- b) [Optional] Source the updated .bash_profile on Oracle user.
 - source /home/oracle/.bash_profile
- c) Run the runInstaller.
 - cd /home/oracle/app/oracle/product/19.0.0/dbhome_1/
 - ./runInstaller

Follow the runInstaller GUI instructions for Oracle 19c installation

What to do next

Run Installer, on page 9.

Run Installer

To run the installer:

Before you begin

Install Oracle 19c, on page 8

Step 1 Select Set Up Software Only and click Next.



Step 2 Select **Single instance database installation** and click **Next**

		Oracle Database 19c Installer - Step 2 of 9		-		×
Sele	Select Database Installation Option			ORA Databa	se	. C '
	Configuration Option Database Installation Opt Install Type	Select the type of database installation you want to perform. <u>Single</u> instance database installation Oracle Beal Application Clusters database installation 				
	ypical installation loot script execution "rerequisite Checks iummary nstall Product inish					
•	elp	< Back No	ext > [ini	tall	Cano	el

Step 3 Select Enterprise Edition and click Next.

	Oracle Database 19c Installer - Step 3 of 11	>
Select Database Edition	1:	9° ORACLE Database
Configuration Option Database Installation Options Database Edition	Which database edition do you want to install? Enterprise Edition Oracle Database 19c Enterprise Edition is a self-managing database th performance, high availability, and security features required to run the	hat has the scalability. e most demanding,
Installation Location Create Inventory Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	mission-critical applications. Standard Edition 2 Oracle Database 19c Standard Edition 2 is a full-featured data manage suited to the needs of medium-sized businesses.	ment solution ideally



Browse and select the Oracle base path (/home/oracle/app/oracle) and click Next.

	Oracle	Database 19c Installer - Step 4 of 11		>
pecify Installation Locati	on		19° Dat	RACLE abase
Configuration Option	Specify a pat installation of	h to place all Oracle software and configuration-related when. This location is the Oracle base directory for the	files installed by installation owne	this r.
Database Edition	<u>Oracle base:</u>	/home/oracle/app/oracle	-	Browse
Installation Location	-			
Create Inventory	This software	directory is the Oracle Database home directory.		
Operating System Groups	Software loca	tion: /home/oracle/app/oracle/product/19.0.0/dbhome_	1	
Root script execution				
Prerequisite Checks				
Summary				
Install Product				
Finish				
Help		< Back Next :	> Install	Cancel

Step 5 Browse and select the Inventory Directory (/home/oracle/app/oraInventory) and then select dba from the Group Name drop-down list and click Next.

I

		Oracle Database 19c Installer - Step 5 of 11 >
Cr	eate Inventory	19° Database
个个し	<u>Configuration Option</u> <u>Database Installation Options</u> <u>Database Edition</u> <u>Installation Location</u>	You are starting your first installation on this host. Specify a directory for installation metadata files (for example, install log files). This directory is called the "inventory directory". The installer automatically sets up subdirectories for each product to contain inventory data. The subdirectory for each product typically requires 150 kilobytes of disk space.
0	Create Inventory	
0-0-0-0-0	Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	Specify an operating system group whose members have write permission to the inventory directory (orainventory). orainventory <u>G</u> roup Name: dba •

Step 6 Select dba for all groups and click Next.

	Oracle Database 19c Installer - Step 6 of 11		_ = ×
Privileged Operating Syst	tem groups	19 °	Database
Configuration Option Database Installation Options Database Edition Installation Location Create Inventory Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	SYS privileges are required to create a database using operat Membership in OS Groups grants the corresponding SYS privi grants the SYSDBA privilege. Database Administrator (OSDBA) group: Database Operator (OSOPER) group (Optional): Database Backup and Recovery (OSBACKUPDBA) group: Data Quard administrative (OSDGDBA) group: Encryption Key Management administrative (OSKMDBA) group: Beal Application Cluster administrative (OSRACDBA) group:	ting system (OS) lege, eg. membe dba • dba • dba • dba • dba •	authentication. rship in OSDBA
Help	< <u>B</u> ack	Next >	nstall Cancel

Step 7Check the Automatically run configuration scripts check box and then provide the root user password and click
Next.

Configuration Option During the software configuration, certain operations have to be performed as "root" user. You can choose to have the installer perform these operations automatically by specifying user for one of the options below. The input specified will also be used by the installer to perform Database Edition During the software configuration, certain operations have to be performed as "root" user. You can choose to have the installer perform these operations automatically by specifying user for one of the options below. The input specified will also be used by the installer to perform Database Edition Installation Location Create Inventory Ouse guido Pereaulate Checks Summary Install Product Program path Prior/Database Installer Checks Ouse guido Program path Install Product Phinth Passwgrd :		Oracle Databa	se 19c Installer - Step 7 of 11	×
Configuration Option Database Installation Option Database Edition Installation Location Create Inventory Operating System Groups Noot script execution Prerequisite Checks Summary Install Product Finish	Root script execution co	nfiguration	1	9° Database
Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish Passwgrd : Passwgrd : Image: Checks Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Program path /usr/bin/sude Passwgrd : Passwgrd : Program path /usr/bin/sude Program path <	Configuration Option Database Installation Options Database Edition Installation Location Create Inventory	During the software con can choose to have the one of the options below additional prerequisite of additional prerequisite of add	figuration, certain operations have to be perfor installer perform these operations automatically w. The input specified will also be used by the in thecks. ifiguration scripts gredential	ned as "root" user. You y by specifying inputs for staller to perform
Root script execution O Use gudo Prerequisite Checks Program path [/usr/bin/sudo Browse Summary Install Product Password : Dessword : Password : Dessword : Dessword : Dessword : Image: Summary install Product Dessword : Dessword : Dessword : Image: Summary install Product Dessword : Dessword : Dessword : Image: Summary install Product Dessword : Dessword : Dessword : Image: Summary install Product	Operating System Groups	Pass <u>w</u> ord :	<u>،</u>	
Prerequisite Checks Program path /usr/bin/sudo Browse Summary Inistall Product Password : Imitall Product Finish Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Product Visit I Product Password : Imitall Product Imitall Produ	Root script execution	◯ Use <u>s</u> udo		
	Prerequisite Checks Summary Install Product Finish	Program path User name Passwgrd :	/usr/bir/sudo oracle	Browse
	•			

Step 8

Check the Ignore All check box to force install and click Next.

		Databa	se
Configuration Option Database Installation Options Database Edition Installation Location	Verification Result Some of the minimum requirements for installation are not comlisted in the following table, and recheck the system. Check Again Bx & Check Again Show All	pleted. Review and fix the	issues gnore Al
Create Investory	Checks	Status Fixa	ble
Create Inventory	(B) Checks		
Operating System Groups	Physical Memory	Succeeded	
Root script execution	Available Physical Memory	Succeeded	
Presequisite Charks	Swap Size	Warning No	
Summary Install Product	[Free Space] Free Space: fnd_rhel8_32:/tmp [User Existence]	Succeeded	
Finish	Users With Same UID: 1001	Succeeded	1
	Group Existence: dba	Succeeded	
	Group Membership: dba	Succeeded	
	Run Level	Succeeded	-
		Succeeded	

Click **Yes** in the confirmation pop-up.

Gracie Database 190 installer - Step 6 or 11	-	
ecks 19	C Of Dat	abase
Yerification Result Some of the minimum requirements for installation are not completed. Revisitisted in the following table, and recheck the system. Check Again Bx & Check Again Show Failed *	iew and fo	the issues
Checks	Status	Fixable
B Checks		
Swap Size Ign	ored	No
This is a prerequisite condition to test whether sufficient total swap space is system. [more details] Expected Value : 15.4611GB (1.6212124E7KB) Actual Value : 7.8906GB (8273916.0KB)	s available	on the
	cks 19 Verification Result Some of the minimum requirements for installation are not completed. Revellisted in the following table, and recheck the system. Check Again Bk & Check Again Show Failed *	cks 19° O Yerification Result Some of the minimum requirements for installation are not completed. Review and for listed in the following table, and recheck the system. Check Again Ex & Check Again Checks Status Checks Status

Step 9 On completion of the required settings, click **Install**.

	Oracle Database 19c Installer - Step 9 of 11 ×
Summary	19° DRACLE
Configuration Option Database Installation Options Database Edition Installation Location Create Inventory Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	Oracle Database 19c Installer Database edition: Enterprise Edition (Set Up Software Only) [Edit] Oracle base: /home/oracle/app/oracle/product/19.0.0/dbhome_1 Software location: /home/oracle/app/oracle/product/19.0.0/dbhome_1 Privileged Operating System groups: dba (OSDBA), dba (OSOPER), dba (OSBACKUPDBA), Root script execution configuration: Root user credential [Edit] Inventory information Inventory location: /home/oracle/app/oralnventory [Edit] oralnventory group: dba [Edit]
	Save Response File
Help	< Back Next > Install Cancel

Step 10 The **Install Product** section starts to install Oracle 19c.

Note The pop-up error can be fixed by installing the required modules/packages to proceed further.

	Oracle Database 19c Installer - Step 10 of 11	_ 0 ×
Install Product	19	9 ORACLE Database
Configuration Option Database Installation Options Database Edition Installation Location	Progress 11% Linking in progress]
Create Inventory Operating System Groups	Oracle Database 19c Installer ×	In Progress Succeeded
Prerequisite Checks Summary	Unable to find make utility in location: /usr/bin/make	In Progress Pending Pending Pending
Finish	Abort Betry Continue	
		igvert] [Beby] [Skip]
4 Deb	19 Database	Change Count

Step 11 On successful completion of the installation, the following message appears.

	Oracle Database 19c Installer - Step 11 of 11	_ 0	×
Finish		19° Database	Ξ.
Configuration Option Database Installation Options Database Edition Installation Location Create Inventory Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	The registration of Oracle Database was successful.	Database	
1			
Help	< Back	Next > install Close	

In case if you missed selecting the **Automatically run configuration scripts** option and root password, the following screen appears. You should execute the following scripts manually on another terminal.

		Oracle Database 19c Installer - Step 10	of 11 _ 0
stall Pro	oduct		19° ORACL Database
	ration Option	Progress	
	a installation Options	63%	
Databas	se Edition	Saving inventory	
Create I	ion Location	Status	
	ng System Groups	Configure Local Node	Succeeded
- present	ing of statem strong s	✓ • Prepare	Succeeded
Rootsci	ript execution	 Link binaries 	Succeeded
Prerequ	isite Checks	 ✓ • Setup 	Succeeded
Summa	nv -	Setup Oracle Base	Succeeded
		- Execute Root Scripts	in Progress
Finish		Execute Configuration Scripts	×
	The following script ne	reds to be executed as the "root" user.	
		Scripts	
	(home/orainventory/or	rainstRoot sh	
	/home/oracle/app/orac	cle/product/19.0.0/dbhome_1/root.sh	ert] [Betry] [Ski
	4	11111	
Help	To execute the configu 1. Open a terminal 2. Login as "root" 3. Run the scripts 4. Return to this win	uration scripts: window ndow and click "OK" to continue	Install
Teib			

a. Login as a root user.

su - root

b. Go to the cd /home/oracle/app/oraInventory/ directory and run the following script.

./orainstRoot.sh

c. Go to the cd /home/oracle/app/oracle/product/19.0.0/dbhome_1/ directory and run the following script.

./root.sh

After executing the above scripts as a root user, click **OK** in the **Execute Configuration Scripts** pop-up window to complete the installation. Click **Finish** on successful completion.

```
File Edit View Search Terminal Help
[root@fnd_rhel8_32 ~]# cd /home/oracle/app/oracle/product/19.0.0/dbhome_1/
[root@fnd_rhel8_32 dbhome_1]#
[root@fnd_rhel8_32 dbhome_1]#
[root@fnd_rhel8_32 dbhome_1]#
[root@fnd_rhel8_32_dbhome_1]# ./root.sh
Performing root user operation.
The following environment variables are set as:
    ORACLE OWNER= oracle
    ORACLE_HOME= /home/oracle/app/oracle/product/19.0.0/dbhome_1
Enter the full pathname of the local bin directory: [/usr/local/bin]:
   Copying dbhome to /usr/local/bin ...
   Copying oraenv to /usr/local/bin ...
   Copying coraenv to /usr/local/bin ...
Creating /etc/oratab file.
Entries will be added to the /etc/oratab file as needed by
Database Configuration Assistant when a database is created
Finished running generic part of root script.
Now product-specific root actions will be performed.
Oracle Trace File Analyzer (TFA - Standalone Mode) is available at :
    /home/oracle/app/oracle/product/19.0.0/dbhome_1/bin/tfactl
Note :
1. tfactl will use TFA Service if that service is running and user has been granted acces
  tfactl will configure TFA Standalone Mode only if user has no access to TFA Service or
 TFA is not installed
[root@fnd rhel8 32 dbhome 1]#
```

What to do next

Create, Configure, and Start CG-NMS DB, on page 17

Configuring Oracle DB with FND

This section talks about configuring Oracle DB with FND.

Create, Configure, and Start CG-NMS DB

Before you begin

Run Installer, on page 9

Step 1	Download the cgms-oracle rpm from the Cisco Software Download page and save the rpm in a directory of your choice.
	(Example: You can save the rpm in the /usr/programs directory).
Step 2	Install the rpm.

rpm -ivh cgms-oracle-<release number>-<build number>86 64.rpm

- **Step 3** Run the /opt/cgms-oracle/scripts/installCgmsOracleScripts.sh script after updating the following scripts with 19.0.0 version.
 - a) Go to cd /opt/cgms-oracle/scripts

- b) Update the Oracle version in the /opt/cgms-oracle/scripts/common.sh script with 19.0.0 (from 11.2.0 to 19.0.0)
 - ORACLE_VERSION=19.0.0
 - DEFAULT ORACLE HOME=/home/oracle/app/oracle/product/19.0.0/dbhome 1
 - Also, update the /opt/cgms-oracle/scripts/installcgmsOracleScripts.sh script with version 19.0.0

[root@fnd-rhel8-33 scripts]# ./installCgmsOracleScripts.sh 02-11-2022 10:06:17 EST: INFO: ====== IoT-FND Oracle Scripts Installation Started ========= 02-11-2022 10:06:17 EST: INFO: Log file: /tmp/cgms oracle scripts installation.log Are you sure you want to install IoT-FND Oracle scripts, templates & tools in /home/oracle/app/oracle//cgms (y/n)? y 02-11-2022 10:06:22 EST: INFO: User response: y Enter 'y' if this is a secondary database server in HA configuration. Else enter 'n' (y/n)? 02-11-2022 10:06:26 EST: INFO: User response: n 02-11-2022 10:06:26 EST: INFO: Oracle SID: cqms Enter the ORACLE HOME directory [/home/oracle/app/oracle/product/19.0.0/dbhome 1]: 02-11-2022 10:06:34 EST: INFO: Oracle home directory: /home/oracle/app/oracle/product/19.0.0/dbhome 1 02-11-2022 10:06:34 EST: INFO: Copying files ... PSK generation started ... Base dir : /home/oracle/app/oracle//cgms Warning: The JCEKS keystore uses a proprietary format. It is recommended to migrate to PKCS12 which is an industry standard format using "keytool -importkeystore -srckeystore /home/oracle/app/oracle//cgms/scripts/fnd_psk.keystore -destkeystore /home/oracle/app/oracle//cgms/scripts/fnd psk.keystore -deststoretype pkcs12". New PSK generation completed 02-11-2022 10:06:35 EST: INFO: Setting permissions ... 02-11-2022 10:06:35 EST: INFO: Updating /home/oracle/.bashrc file ... 02-11-2022 10:06:35 EST: INFO: ====== IoT-FND Oracle Scripts Installation Completed Successfully ======== [root@fnd-rhel8-33 scripts]#

Note The /opt/cgms-oracle/scripts/installCgmsOracleScripts.sh script automatically updates the following:

- Copies scripts, templates, and tools from /opt/cgms-oracle to /home/oracle/app/oracle/cgms folder.
- Sets all the required env variable in the /home/oracle/.bashrc file.
- **Step 4** Run the setupCgmsDb.sh script as an Oracle user:
 - a) su oracle
 - b) # export ORACLE_BASE=/home/oracle/app/oracle
 - c) cd \$ORACLE BASE/cgms/scripts
 - d) ./setupCgmsDb.sh
 - Enter cgmsDba123 for sys DBA password and cgms123 for CG-NMS Database password.

Note On successful completion, the setCgmsDb.sh script starts Oracle automatically.

[oracle@fnd-rhel8-33 scripts]\$./setupCgmsDb.sh 02-11-2022 10:15:46 EST: INFO: ====== CGMS Database Setup Started ====== 02-11-2022 10:15:46 EST: INFO: Log file: /tmp/cgmsdb_setup.log Are you sure you want to setup IoT-FND database (y/n)? y 02-11-2022 10:15:55 EST: INFO: User response: y 02-11-2022 10:15:55 EST: INFO: CGMS database does not exist. Enter new password for SYS DBA:

```
02-11-2022 10:16:10 EST: INFO: User entered SYS DBA password.
Enter new password for IoT-FND database:
                                           <coms123>
Re-enter new password IoT-FND database:
                                           <coms123>
02-11-2022 10:16:17 EST: INFO: User entered IoT-FND DB password.
02-11-2022 10:16:17 EST: INFO: Stopping listener ...
02-11-2022 10:16:58 EST: INFO: Listener already stopped.
02-11-2022 10:16:58 EST: INFO: Deleting database files ...
02-11-2022 10:16:58 EST: INFO: Creating listener ...
02-11-2022 10:16:58 EST: INFO: Listener creation completed successfully.
02-11-2022 10:16:58 EST: INFO: Configuring listener ...
02-11-2022 10:16:58 EST: INFO: Listener successfully configured.
02-11-2022 10:16:58 EST: INFO: Oracle version : 19c
02-11-2022 10:16:58 EST: INFO: Creating database. This may take a while. Please be patient
02-11-2022 10:23:43 EST: INFO: Database creation completed successfully.
02-11-2022 10:23:43 EST: INFO: Updating /etc/oratab ...
02-11-2022 10:23:43 EST: INFO: /etc/oratab updated.
02-11-2022 10:23:43 EST: INFO: Configuring database ...
02-11-2022 10:23:44 EST: INFO: Starting listener ...
02-11-2022 10:23:54 EST: INFO: Listener start completed successfully.
02-11-2022 10:23:54 EST: INFO: Starting database configuration ...
02-11-2022 10:24:51 EST: INFO: Database configuration completed successfully.
02-11-2022 10:24:51 EST: INFO: Starting Oracle ...
02-11-2022 10:24:51 EST: INFO: Starting Oracle in mount state ...
ORACLE instance started.
Total System Global Area 4982831096 bytes
Fixed Size
                           8906744 bytes
Variable Size
                         905969664 bytes
                        4060086272 bytes
Database Buffers
Redo Buffers
                           7868416 bytes
Database mounted.
02-11-2022 10:25:03 EST: INFO: Opening database for read/write ...
Database altered.
02-11-2022 10:25:04 EST: INFO: ======= CGMS Database Setup Completed Successfully ========
[oracle@fnd-rhel8-33 scripts]$
```

- **Step 5** To start Oracle automatically on a system reboot, execute the <code>\$ORACLE_BASE/cgms/scripts/installOracleJob.sh</code> script as an Oracle user.
 - a) su oracle
 - b) cd \$ORACLE_BASE/cgms/scripts
 - c) ./installOracleJob.sh

```
[oracle@fnd-rhel8-33 scripts]$ ./installOracleJob.sh
02-15-2022 17:26:24 IST: INFO: ======= Started =======
02-15-2022 17:26:24 IST: INFO: Log file: /tmp/cgms_oracle_cronjob.log
02-15-2022 17:26:24 IST: INFO: Creating Oracle cronjob ...
no crontab for oracle
ORACLE_HOME=/home/oracle/app/oracle/product/19.0.0/dbhome_1
ORACLE_BASE=/home/oracle/app/oracle
DISPLAY=localhost:0
ORACLE_SID=cgms
@reboot /home/oracle/app/oracle/cgms/scripts/startOracle.sh
02-15-2022 17:26:24 IST: INFO: Successfully created Oracle cronjob.
02-15-2022 17:26:24 IST: INFO: ======= Completed Successfully =======
```

What to do next

Install CGMS RPM, on page 20

Install CGMS RPM

To install CGMS rpm:

Before you begin

Create, Configure, and Start CG-NMS DB, on page 17

Step 1 Install the cgms rpm.

a) rpm -ivh cgms-<release number>-<build number>86 64.rpm

Step 2 [This step is Optional] Copy the cgms_keystore and cgms.properties from any working FND server into the /opt/cgms/server/cgms/conf/ directory.

Step 3 Run db-migrate.

- a) cd /opt/cgms/bin/
- b) ./db-migrate

```
[root@fnd-rhel8-33 bin]#./db-migrate
Enter database password: <cgms123>
02-11-2022 10:48:11 EST: INFO: Log file: /opt/cgms/bin/../server/cgms/log/cgms_setup.log
02-11-2022 10:48:11 EST: INFO: Performing pre migration. This may take a while. Please wait ...
02-11-2022 10:48:12 EST: INFO: Pre migration completed.
02-11-2022 10:48:12 EST: INFO: Performing migration. This may take a while. Please wait ...
02-11-2022 10:48:58 EST: INFO: Migration completed.
02-11-2022 10:48:58 EST: INFO: Migration completed.
02-11-2022 10:48:58 EST: INFO: Performing post migration. This may take a while. Please wait ...
02-11-2022 10:51:57 EST: INFO: Post migration completed.
[root@fnd-rhel8-33 bin]#
```

Step 4 Start the cgms service.

service cgms start

Step 5 Check the cgms service status.

[root@fnd-rhel8-33 ~]# service cgms status

IoT-FND Version 4.8.1-8
02-14-2022 14:43:30 IST: INFO: IoT-FND database server: localhost
02-14-2022 14:43:31 IST: INFO: IoT-FND database connection verified.
02-14-2022 14:43:32 IST: INFO: IoT-FND application server is up and running.
02-14-2022 14:43:32 IST: INFO: IoT-FND is up and running.
[root@fnd-rhel8-33 ~]#

What to do next

For the patch installation steps, if necessary, see Patch Installation.



Upgrade from Oracle 18c to 19c

This section provides steps for upgrading Oracle DB from 18c to 19c.

- Minimum Hardware Requirements, on page 21
- Upgrade Steps, on page 22
- Post Upgrade Steps, on page 33

Minimum Hardware Requirements

Ensure that your FND system meets the following physical memory requirements in the below table.

The recommendations in the Minimum Hardware Requirements table below are specified in the Server Configuration Checklist for Oracle Database Installation and Storage Checklist for Oracle Database Installation. Additional RAM and swap space may be required to tune and/or improve the RDBMS performance as provided in Additional Requirements to Support Oracle Install table.

Table 1: Minimum Hardware Requirements to Upgrade from 18c to 19c

RAM	Swap Space Allocation Relative to RAM
Between 1GB (minimum) and 2GB (recommended)	1.5 times the size of RAM
Between 2GB and 16GB	Equal to the size of RAM
Greater than 16GB	16GB

Table 2: Additional Requirements to Support Oracle Install

Item	Requirement
Disk space allocated to the /tmp directory	At least 1 GB of space in the /tmp directory.
Local disk space for Database software files	7.2 GB

Upgrade Steps

After you have successfully installed the Oracle 19c database, you can now upgrade your Oracle 18c software to Oracle 19c software by following the information noted under each step (for example, 1, 2 and 3, etc.) and sub-step (a, b, c, etc.) summarized below:

Before you begin

Install Oracle DB 19c, on page 3

Step 1	Go to the following directory:
	/home/oracle/app/oracle/product/19.0.0.0/dbhome_1/bin
Step 2	Before running the upgrade process, run the following queries on the 18c database:
	/home/oracle/app/oracle/product/18.1.0/dbhome_1/jdk/bin/java-jar
	/home/oracle/app/oracle/product/19.0.0.0/dbhome_1/rdbms/admin/preupgrade.jar
	$SQL > @/home/oracle/app/oracle/cfgtoollogs/CGMS/preupgrade/preupgrade_fixups.sql = 0.0000000000000000000000000000000000$
	SQL>@\$ORACLE_HOME/rdbms/admin/utlrp.sql
	Remove Spatial
	connect / as sysdba
	alter session set current_schema="MDSYS";
	@?/md/admin/deinssdo.sql
	Remove Oracle Multimedia
	connect / as sysdba
	@?/ord/im/admin/imremov.sql
	Enter "Y" when prompted
	• Remove the parameters:
	NLS_SORT='BINARY'_CI'
	NLS_COMP='LINGUISTIC'
	by entering the following commands
	alter system reset NLS_SORT;
	alter system reset NLS_COMP;
	• connect / as sysdba
	@\$ORACLE_HOME/rdbms/admin/utlrp.sql
	• SET SERVEROUTPUT ON;
	EXECUTE DBMS PREUP.INVALID OBJECTS:

Once done, start the upgrade process by entering: **//dbua**. Follow the screen instructions in the Database Upgrade Assistant.

Select the database and click **Next** >. The Database Upgrade Assistant ensures the database meets the necessary requirements by performing a prerequisite check.

Select Database				19° ORACLE
🥥 Select Database	Select a database for	upgrade or move.		
Prerequisite Checks	Database Filter :			<i> <u>R</u>efresh</i>
Select Upgrade Options	Source Datab	ase Version 🔺	Type	Oracle Home
Select Recovery Options	egms	18.0.0.0 SI	/h	ome/oracle/app/oracle/product/18.0
Configure Management				
Summary				
Progress				
O Results				
	Database Upgrade As	sistant will collect the	information of th	e selected database by connecting to be needed if OS based authentication
	is disabled. Specify th	e credentials, if need	ed.	
	<u>S</u> YSDBA Username:	cgmsdba		
	Password:			
	L			
Help			< <u>B</u> ack	Next > Einish Cancel

Step 3 Database Upgrade Assistant : Prerequisite Checks

Click **Next** >. The upgrade begins. If there are any issues with the upgrade, a screen displays the issues that need to be resolved.

	Database Upgrade Assistant - Step 2 of 9 _ 🗖 🗙
Prerequisite Checks	19° DRACLE Database
Y Select Database	Verifying that the selected database meets minimum configuration requirements for upgrade. This can take time.
Prerequisite Checks	Performing Pre Ungrade Checks
Select Upgrade Options	Performing He opyrade checks
Select Recovery Options	
🔶 Configure Network	
Configure Management	
Summary	
Progress	
O Results	
Help	< Back Next > Finish Cancel

Step 4 Database Upgrade Assistant : Displays Issues to Fix Before and After Upgrade

After resolving any outstanding issues noted under Checks to be fixed, click Next >.

Pre	erequisite Checks	1	9° 🔁	RACL
ų	Select Database	Check Again Fix & Check Again Show Warnings and Errors	Show All C	ontainers
0	Prerequisite Checks	Validation	Severity	Fixable
5	Select Upgrade Options	Checks to be fixed		
Ţ.	Salact Bacquani Ontions	There should be no INVALID objects in SYS/SYSTEM or user sc	Warning	Manual
T	Select Recovery options	Post Upgrade Recommendations		
Ý	Configure Network	Dictionary statistics provide essential information to the Oracle		
ģ.	Configure Management	nxed object statistics provide essential information to the orac		
4	Summany			
Ť	Sammary			
Y	Progress			
		Select a prerequisite check from the above table to view the details here	L.	

A page displays Recommendations for items that you should address after the upgrade completes (Post Upgrade).



Step 5Displays Issues to Fix After UpgradeClick Next > to go to the next screen.

	Database Upgrade Assistant - Step 2 of 9		- • ×
Prerequisite Checks	1:	9° Or Data	RACLE'
y Select Database	Check Again Fix & Check Again Show Warnings and Errors	Show All Co	ntainers 👻
Prerequisite Checks	Validation	Severity	Fixable
Select Upgrade Options Select Recovery Options Configure Network Configure Management Summary Progress Results	Post Upgrade Recommendations Dictionary statistics provide essential information to the Oracle Fixed object statistics provide essential information to the Orac Select a prerequisite check from the above table to view the details here.		
Help	< Back Next >	Einish	Cancel

Step 6Select Upgrade Options. Uncheck the Recompile Invalid Object During Post Upgrade option.Ensure that the Enable Parallel Upgrade and Unable Timezone Data options remain checked. Click Next >.

		Database Upgrade Assistant - Step 3 of 9	_ = ×
Se	lect Upgrade Options		19° Database
C-C-C-C-E-	Select Database Prerequisite Checks Select Upgrade Options Select Recovery Options Configure Network Configure Management Summary Progress Results	 ✓ Enable Parallel Upgrade ✓ Recompile Invalid Objects During Post Upgrade ✓ Upgrade Timezone Data Specify the Custom SQL Scripts to be executed Before Upgrade: After Upgrade: 	Browse
	Help	< <u>B</u> ack	Next > Finish Cancel

 Step 7
 Select Recovery Options. Select Use Flashback and Guaranteed Restore Point and Create a New Guaranteed Restore Point. Click Next >.

Se	lect Recovery Options	19° Databa	se
0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-	Select Database Prerequisite Checks Select Upgrade Options Select Recovery Options Configure Network Configure Management Summary Progress Results	Select an option to recover the database in case of upgrade failure.	
		Latest RMAN Backup Timestamp : N/A View/Edit Restor	e Script
	Help	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cancel

Step 8 Configure Network. In the Listener Selection window, select the check box for 'CGMSTNS' (if not already checked). Click **Next** >.

I

Configu Selec Prere Selec Selec	t Database equisite Checks	∫ <u>L</u> istener Selection]	19 °	ORA Databa	ISE
y Select y Prere y Select y Select	<u>ct Database</u> equisite Checks ct Upgrade Options	Listener Selection]			
	ct Recovery Options	Name CGMSTNS	Port 1522	Oracle home /home/oracle/app/oracle/product/18.0.0/dbhome_1	Status Up	Migrate Yes
Conf Confi	f igure Network igure Management					
Sumr	mary					
J Resul	lts					
		<u>C</u> reate a new list	tener			
		Listener n <u>a</u> me:				
		Listener <u>p</u> ort	5500			
		Oracle home:	/home	/oracle/app/oracle/product/19.0.0/dbhome_1		

Step 9 Configure Management. Ensure that the check box next to Configure Enterprise Manager (EM) database express option is unchecked. Click **Next** >.

Configure Management			19° ORACLE. Database
Select Database Prerequisite Checks Select Upgrade Options Select Recovery Options Configure Network	Specify the management options for the database. Configure Enterprise Manager (EM) database express EM database express port: Configure EM database express port as global port	5500	
Configure Management	<u>Register with Enterprise Manager (EM) cloud control</u>		
Yrogress Results	QMS host:		
Help	< Back	Next :	> Einish Cancel

Step 10Database Upgrade Summary Page

At the Database Upgrade Summary page, click **Finish**. The Database Upgrade Assistant page appears noting that the Oracle 18c to Oracle 19c upgrade was a success.

Summary	19° DRACLE
Select Database Prerequisite Checks Select Upgrade Options Select Recovery Options Configure Network Configure Management Summary Progress Results	Database Upgrade Summary Source Database Name: cgms [Edit] Release: 18.0.0.0.0 Oracle Home: /home/oracle/app/oracle/product/18.0.0/dbhome_1 [Edit] Target Database Name: cgms Release: 19.0.0.0.0 Oracle Home: /home/oracle/app/oracle/product/19.0.0/dbhome_1 Pre-Upgrade Checks INFO: It is good practice to have the catalog schema the same or higher version than INFO: Minimum tablespace sizes for upgrade are estimates. [CGMS] RECOMMEND: Dictionary statistics provide essential information to the Oracle optimize RECOMMEND: Fixed object statistics provide essential information to the Oracle optimi WARNING: Starting in Release 18c, symbolic links are not allowed in directory object p. Target Initialization Parameters The following initialization parameters will be used to perform the operation on the da db_name: CGMS db_name: CGMS instance_name: CGMS instance_name: CGMS instance_name: CGMS instance_name: CGMS idap_directory_access: NONE

The database upgrade results are displayed.

	Da	tabase Upgrade Assis	tant - Step 9 of	9		-	•	×
Results					19°	Databa	CL se	e
Select Database Precessitate Checks Select Upprade Optimus Select Residency Optimus Caroligate Network	Databas use.	U e upgrade has been co	pgrade Re	sults	he database	is ready	to	• 100 - 100 -
Canfigure Management		Source Database Target Database						H
Summary.	Hames	cgma		ogme				
Propress	Release	180000		19.0.0.0				
de Results	Oracle Homas	thormal or adal applor adal pro	duct/18 0 Ordbhorne_1	(home/oracle	i appioracle/prod	uct/15.0 0/c	thom	
	Upgra	de Details						
	The following as this sum home/or a	ng summary lists the steps per mary, are available at acleiappioracleicfgtoollogsidbu	formed during the up alupgrade2020-08-26	yrade process ,02-45-45AM/c	Log files for all t gms*.	he steps, a	fees 1	
	Step Har	me	Log file	Bame	Status	Time		-
	4					I		-

Post Upgrade Steps

Step 1 Once the DBUA process is successfully executed, update the /home/oracle/.bashrc file with the Oracle 19.0.0 path by removing the old 18c path.

vim /home/oracle/.bashrc

```
#Oracle Settings updated with Oracle 19.0.0 path
export ORACLE_BASE=/home/oracle/app/oracle
export ORACLE_HOME=/home/oracle/app/oracle/product/19.0.0/dbhome_1
export PATH=$PATH:/home/oracle/app/oracle/product/19.0.0/dbhome_1/bin
export LD_LIBRARY_PATH=/home/oracle/app/oracle/product/19.0.0/dbhome_1/lib:
export ORACLE_SID=cgms
```

Step 2 Restart the Database.

su - oracle

cd /opt/cgms-oracle/scripts

./stopOracle.sh

./startOracle.sh

Step 3	Update Cron job points to Oracle 19.0.0 to auto-start the Oracle for VM reboot.
	./deinstallOracleJob.sh
	./installOracleJob.sh
Step 4	Start FND service by entering: service cgms start
Step 5	Check whether the listener is pointing to 19.0.0.0 database instead of 18c by entering: ps -ef grep oracle 00:00:02 /home/oracle/app/oracle/product/19.0.0.0/dbhome_1/bin/tnslsnr CGMSTNS -inherit
Step 6	Once FND service is started, log into the FND UI and verify the data. If there is no issue, the Oracle 18c to 19c upgrade process is completed.

. ~ - --. .

. ~

. . ~

~

.



Oracle Patch Installation

This section provides the steps for Oracle patch installation.

• Oracle Patch Installation (Optional), on page 35

Oracle Patch Installation (Optional)

To install the Oracle patch:

Before you begin



Note

This is an illustration of the Oracle 19c patch installation (from 19.3.0.0.0 to 19.18.0.0.0).

1. Check the current Oracle version.

```
[root@iot-fnd-oracle ~]# su - oracle
[oracle@iot-fnd-oracle ~]$ sqlplus / as sysdba
SQL*Plus: Release 19.0.0.0.0 - Production on Wed Mar 29 20:59:44 2023
Version 19.3.0.0.0
```

Copyright (c) 1982, 2019, Oracle. All rights reserved.

Connected to: Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production Version 19.3.0.0.0

SQL> exit;

2. Stop the FND application (if running).

service cgms stop

3. Log into Oracle.

su - oracle

4. Stop the Oracle service (if running).

```
cd /opt/cgms-oracle/scripts
./stopOracle.sh
```

5. Apply the patch file: p34765931 190000 Linux-x86-64.zip.

```
Step 1 Create a patches directory under the /home/oracle folder to place the patch zip files.
```

mkdir /home/oracle/patches

- Step 2 Download the database patch zip file (p34765931_190000_Linux-x86-64.zip) from Oracle Database 19c Release Update & Release Update Revision January 2023 Known Issues.
- **Step 3** Copy the patch zip files to the /home/oracle/patches folder.
- **Step 4** Unzip the patch files (p34765931_190000_Linux-x86-64.zip) in the /home/oracle/patches folder.

```
su - oracle
cd /home/oracle/patches/
unzip p34765931 190000 Linux-x86-64.zip
```

Step 5 Go to the patch directory cd /home/oracle/patches/34765931/ and run the following command to check if the prerequisites are passing.

```
[oracle@iot-fnd-oracle 34765931]$
/home/oracle/app/oracle/product/19.0.0/dbhome_1/OPatch/opatch prereq
CheckConflictAgainstOHWithDetail -ph ./
Oracle Interim Patch Installer version 12.2.0.1.17
Copyright (c) 2023, Oracle Corporation. All rights reserved.
```

PREREQ session

```
Oracle Home : /home/oracle/app/oracle/product/19.0.0/dbhome_1
Central Inventory : /home/oracle/app/oraInventory
from : /home/oracle/app/oracle/product/19.0.0/dbhome_1/oraInst.loc
OPatch version : 12.2.0.1.17
OUI version : 12.2.0.7.0
Log file location :
/home/oracle/app/oracle/product/19.0.0/dbhome_1/cfgtoollogs/opatch/opatch2023-02-10_07-15-33AM_1.log
```

Invoking prereq "checkconflictagainstohwithdetail"

Prereq "checkConflictAgainstOHWithDetail" passed.

OPatch succeeded.

The minimum OPatch version required is 12.2.0.1.34. The patch installation FAILS if the OPatch version is below 12.2.0.1.34. For more information on applying the minimum OPatch version, see Upgrading OPatch, on page 39.

Step 6 Run the following command to apply the patch.

```
[oracle@iot-fnd-oracle 34765931]$
/home/oracle/app/oracle/product/19.0.0/dbhome_1/OPatch/opatch apply
Oracle Interim Patch Installer version 12.2.0.1.36
Copyright (c) 2023, Oracle Corporation. All rights reserved.
Oracle Home : /home/oracle/app/oracle/product/19.0.0/dbhome_1
Central Inventory : /home/oracle/app/oralnventory
from : /home/oracle/app/oracle/product/19.0.0/dbhome_1/oraInst.loc
OPatch version : 12.2.0.1.36
OUI version : 12.2.0.7.0
Log file location :
/home/oracle/app/oracle/product/19.0.0/dbhome_1/cfgtoollogs/opatch/opatch2023-03-23_11-45-20AM_1.log
Verifying environment and performing prerequisite checks...
```

```
OPatch continues with these patches: 34765931
Do you want to proceed? [y|n] y
User Responded with: Y
All checks passed.
Please shutdown Oracle instances running out of this ORACLE HOME on the local system.
(Oracle Home = '/home/oracle/app/oracle/product/19.0.0/dbhome 1')
Is the local system ready for patching? [y|n] y
User Responded with: Y
Backing up files...
Applying interim patch '34765931' to OH '/home/oracle/app/oracle/product/19.0.0/dbhome 1'
ApplySession: Optional component(s) [ oracle.network.gsm, 19.0.0.0.0 ] ,
[ oracle.rdbms.ic, 19.0.0.0.0 ] , [ oracle.rdbms.tg4db2, 19.0.0.0.0 ] ,
[ oracle.tfa, 19.0.0.0.0 ] , [ oracle.sdo.companion, 19.0.0.0.0 ]
[ oracle.options.olap.api, 19.0.0.0.0 ] , [ oracle.oid.client, 19.0.0.0.0 ] ,
[ oracle.xdk.companion, 19.0.0.0.0 ] , [ oracle.network.cman, 19.0.0.0.0 ] ,
[ oracle.rdbms.tg4msq1, 19.0.0.0.0 ] , [ oracle.ons.eons.bwcompat, 19.0.0.0.0 ] ,
[ oracle.net.cman, 19.0.0.0.0 ] , [ oracle.rdbms.tg4tera, 19.0.0.0.0 ] ,
[ oracle.options.olap, 19.0.0.0.0 ] , [ oracle.rdbms.tg4sybs, 19.0.0.0.0 ] ,
[ oracle.ons.cclient, 19.0.0.0.0 ] , [ oracle.rdbms.tg4ifmx, 19.0.0.0.0 ] ,
[ oracle.jdk, 1.8.0.191.0 ] not present in the Oracle Home or a higher version is found.
Patching component oracle.slax.rsf, 19.0.0.0....
Patching component oracle.ordim.jai, 19.0.0.0.0...
Patching component oracle.bali.jewt, 11.1.1.6.0...
Patching component oracle.bali.ewt, 11.1.1.6.0...
Patching component oracle.help.ohj, 11.1.1.7.0...
Patching component oracle.rdbms.locator, 19.0.0.0....
Patching component oracle.perlint.expat, 2.0.1.0.4...
Patching component oracle.rdbms.util, 19.0.0.0...
Patching component oracle.rdbms, 19.0.0.0...
Patching component oracle.rdbms.rsf, 19.0.0.0....
Patching component oracle.assistants.acf, 19.0.0.0.0...
Patching component oracle.assistants.deconfig, 19.0.0.0.0...
Patching component oracle.assistants.server, 19.0.0.0.0...
Patching component oracle.blaslapack, 19.0.0.0....
Patching component oracle.buildtools.rsf, 19.0.0.0.0...
Patching component oracle.ctx, 19.0.0.0.0...
Patching component oracle.dbdev, 19.0.0.0...
Patching component oracle.dbjava.ic, 19.0.0.0....
Patching component oracle.dbjava.jdbc, 19.0.0.0.0...
Patching component oracle.dbjava.ucp, 19.0.0.0....
Patching component oracle.duma, 19.0.0.0...
Patching component oracle.javavm.client, 19.0.0.0.0...
Patching component oracle.ldap.owm, 19.0.0.0....
Patching component oracle.ldap.rsf, 19.0.0.0...
Patching component oracle.ldap.security.osdt, 19.0.0.0....
Patching component oracle.marvel, 19.0.0.0....
Patching component oracle.network.rsf, 19.0.0.0.0...
Patching component oracle.odbc.ic, 19.0.0.0.0...
Patching component oracle.ons, 19.0.0.0.0...
Patching component oracle.ons.ic, 19.0.0.0.0...
Patching component oracle.oracore.rsf, 19.0.0.0.0...
Patching component oracle.perlint, 5.28.1.0.0...
Patching component oracle.precomp.common.core, 19.0.0.0....
Patching component oracle.precomp.rsf, 19.0.0.0....
Patching component oracle.rdbms.crs, 19.0.0.0...
Patching component oracle.rdbms.dbscripts, 19.0.0.0.0...
Patching component oracle.rdbms.deconfig, 19.0.0.0.0...
Patching component oracle.rdbms.oci, 19.0.0.0.0...
Patching component oracle.rdbms.rsf.ic, 19.0.0.0.0...
```

```
Patching component oracle.rhp.db, 19.0.0.0.0...
Patching component oracle.sdo, 19.0.0.0...
Patching component oracle.sdo.locator.jrf, 19.0.0.0.0...
Patching component oracle.sqlplus, 19.0.0.0....
Patching component oracle.sqlplus.ic, 19.0.0.0.0...
Patching component oracle.wwg.plsql, 19.0.0.0....
Patching component oracle.ldap.rsf.ic, 19.0.0.0.0.
Patching component oracle.network.listener, 19.0.0.0.0...
Patching component oracle.rdbms.lbac, 19.0.0.0.0...
Patching component oracle.nlsrtl.rsf, 19.0.0.0.0...
Patching component oracle.rdbms.hs common, 19.0.0.0.0...
Patching component oracle.network.client, 19.0.0.0.0...
Patching component oracle.sdo.locator, 19.0.0.0...
Patching component oracle.xdk.rsf, 19.0.0.0....
Patching component oracle.rdbms.drdaas, 19.0.0.0....
Patching component oracle.oraolap, 19.0.0.0....
Patching component oracle.rdbms.dv, 19.0.0.0.0...
Patching component oracle.javavm.server, 19.0.0.0.0...
Patching component oracle.ldap.ssl, 19.0.0.0.0...
Patching component oracle.ctx.atg, 19.0.0.0....
Patching component oracle.rdbms.hsodbc, 19.0.0.0....
Patching component oracle.xdk, 19.0.0.0.0...
Patching component oracle.mgw.common, 19.0.0.0...
Patching component oracle.oraolap.dbscripts, 19.0.0.0.0...
Patching component oracle.xdk.xquery, 19.0.0.0....
Patching component oracle.rdbms.rman, 19.0.0.0.0...
Patching component oracle.odbc, 19.0.0.0....
Patching component oracle.rdbms.install.plugins, 19.0.0.0.0...
Patching component oracle.oraolap.api, 19.0.0.0.0...
Patching component oracle.rdbms.scheduler, 19.0.0.0...
Patching component oracle.rdbms.install.common, 19.0.0.0.0...
Patching component oracle.xdk.parser.java, 19.0.0.0.0...
Patching component oracle.ovm, 19.0.0.0...
Patching component oracle.ctx.rsf, 19.0.0.0...
Patching component oracle.ldap.client, 19.0.0.0.0...
Patching component oracle.install.deinstalltool, 19.0.0.0...
Patching component oracle.dbtoolslistener, 19.0.0.0.0...
Patching component oracle.precomp.lang, 19.0.0.0.0...
Patching component oracle.precomp.common, 19.0.0.0....
Patching component oracle.jdk, 1.8.0.201.0...
Patch 34765931 successfully applied.
Sub-set patch [29517242] has become inactive due to the application of a super-set patch [34765931].
Please refer to Doc ID 2161861.1 for any possible further required actions.
og file location:
/home/oracle/app/oracle/product/19.0.0/dbhome 1/cfgtoollogs/opatch/opatch2023-03-23 11-45-20AM 1.log
```

OPatch succeeded.

Step 7 Check if the upgraded patch version is 19.18.0 in the interim patches.

[oracle@iot-fnd-oracle ~]\$
/home/oracle/app/oracle/product/19.0.0/dbhome_1/0Patch/opatch lsinventory -details

Patch 34765931 : applied on Thu Mar 23 11:51:24 EDT 2023 Unique Patch ID: 25098466 Patch description: "DATABASE RELEASE UPDATE : 19.18.0.0.230117 (REL-JAN230131) (34765931)" Created on 27 Jan 2023, 11:25:14 hrs UTC

Step 8 Confirm the upgraded patch.

[root@iok-oracle ~]# su - oracle
[oracle@iok-oracle ~]\$ sqlplus / as sysdba
SQL*Plus: Release 19.0.0.0.0 - Production on Wed Mar 29 15:34:04 2023

```
Version 19.18.0.0.0
Copyright (c) 1982, 2022, Oracle. All rights reserved.
Connected to:
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.18.0.0.0
SQL> exit;
Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production
Version 19.18.0.0.0
[oracle@iok-oracle ~]$exit
```

What to do next

Start Oracle.

```
su - oracle
  cd /opt/cgms-oracle/scripts
  ./startOracle.sh
```

Upgrading OPatch

To apply the Oracle patch 19.18, the minimum required OPatch version is 12.2.0.1.34. If the OPatch version is low, you will see the following error. You can resolve this issue by applying the minimum OPatch version 12.2.0.1.34.

```
[oracle@iot-fnd-oracle 34765931]$
/home/oracle/app/oracle/product/19.0.0/dbhome 1/OPatch/opatch apply
Oracle Interim Patch Installer version 12.2.0.1.17
Copyright (c) 2023, Oracle Corporation. All rights reserved.
Oracle Home
               : /home/oracle/app/oracle/product/19.0.0/dbhome_1
Central Inventory : /home/oracle/app/oraInventory
from
            : /home/oracle/app/oracle/product/19.0.0/dbhome 1/oraInst.loc
OPatch version : 12.2.0.1.17
                : 12.2.0.7.0
OUI version
Log file location :
/home/oracle/app/oracle/product/19.0.0/dbhome 1/cfgtoollogs/opatch/opatch2023-02-10 07-16-05AM 1.log
Verifying environment and performing prerequisite checks...
Prerequisite check "CheckMinimumOPatchVersion" failed.
The details are:
The OPatch being used has version 12.2.0.1.17 while the following patch(es) require higher
versions:
Patch 34765931 requires OPatch version 12.2.0.1.34.
Please download latest OPatch from My Oracle Support.
UtilSession failed: Prerequisite check "CheckMinimumOPatchVersion" failed.
Log file location:
OPatch failed with error code 73
```

The steps are an illustration for requesting the minimum OPatch version 12.2.0.1.34 to apply the 19.18 patch on an old OPatch version 12.2.0.1.17.

- Step 1 To upgrade the OPatch version, download the 12.2.0.1.36 OPatch version from the Oracle support Patch 6880880 (oracle.com).
- **Step 2** Place the zip file in the **\$ORACLE_HOME** directory and follow the steps that are given below.

The OPatch file is: p6880880_190000_Linux-x86-64.zip

a) Change directory to \$ORACLE HOME/OPatch/

[oracle@iot-fnd-oracle 34765931]\$
cd \$ORACLE_HOME/OPatch/

b) Check the current version of OPatch.

```
[oracle@iot-fnd-oracle OPatch]$ ./opatch version
OPatch Version: 12.2.0.1.17
OPatch succeeded.
```

c) Take backup of the present OPatch in the following directory.

```
[oracle@iot-fnd-oracle ]$
cd /home/oracle/app/oracle/product/19.0.0/dbhome_1
[oracle@iot-fnd-oracle dbhome_1]$
tar -cvzPpf OPatch_backup.tar OPatch/
```

d) Remove the OPatch folder.

```
[oracle@iot-fnd-oracle dbhome_1]$
rm -rf OPatch
```

e) Unzip 12.2.0.1.36 the OPatch version and check if the OPatch folder is created under the dbhome_1 directory.

[oracle@iot-fnd-oracle dbhome_1]\$
unzip p6880880_190000_Linux-x86-64.zip

f) Check the upgraded OPatch version.

```
[oracle@iot-fnd-oracle dbhome_1]$ cd OPatch
[oracle@iot-fnd-oracle OPatch]$ ./opatch version
OPatch Version: 12.2.0.1.36
OPatch succeeded.
```