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Cisco IoT Field Network Director — Oracle Upgrade from 18c to 19c

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Cisco IoT Field Network Director — Oracle Upgrade from 18c to 19c

This document provides the latest information about upgrading from Oracle 18c to Oracle19c in support of IoT Field Network Director (IoT FND), Release 4.7 installations.

Organization

This guide includes the following sections.

Conventions	Provides details on the use of bold and italic keywords, brackets and parentheses within the document.
Minimum Hardware Requirements	Summarizes minimum server requirements (RAM, disk space, tmp directory) necessary to support the Oracle 19c database software install.
Installing Oracle 19c Database	Step-by-step instructions for installing Oracle 19c database software.
Upgrading from Oracle 18c to 19c	Step-by-step instructions for upgrading Oracle 18c to Oracle 19c database software.
Post Upgrade Steps, on page 32	Step-by-step instructions on how to start up the IoT-FND with Oracle 19c Database.

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.	
$\{x \mid y \mid z \}$	Required alternative keywords are grouped in braces and separated by vertical bars.	
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.	

Conventions	Indication	
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.	
courier font	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

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.

Item	Requirement
Local disk space for Database software files	7.2 GB

Installing Oracle 19c Database

You can follow the below procedure to install Oracle 19c database.

Procedure

Step 1	Verify that IoT FND is running with Oracle 18c database software.
Step 2	Stop the FND application by entering service cgms stop.
Step 3	Install the Oracle 19c database software on the database server where Oracle 18c is currently running.
Step 4	Follow these steps to install the Oracle 19c database:
	Option 1: Use the "oracle-database-preinstall-19c" package to perform all of your prerequisite setup steps by entering:

yum install -y oracle-database-preinstall-19c

Option 2: If you are unable to use the yum update, then manually set the following parameters as detailed in the Manual Setup of Oracle 19c Database section below.

Prerequisites for Manual Setup of Oracle 19c Database

If you have not used the 'oracle-database-preinstall-19c' package to perform all the prerequisites, you need to manually perform the following setup tasks:

Procedure

Step 1 Add the following lines to the /etc/sysctl.conf file, or in a file called /etc/sysctl.d/98-oracle.conf.

Example:

```
fs.file-max = 6815744
kernel.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.default.rp_filter = 2
fs.aio-max-nr = 1048576
net.ipv4.ip_local_port_range = 9000 65500
```

Step 2 Run one of the following commands to change the current kernel parameters, depending on which file you edited.

Example:

```
/sbin/sysctl -p
# Or
/sbin/sysctl -p /etc/sysctl.d/98-oracle.conf
```

Step 3 Add the following lines to a file called /etc/security/limits.d/oracle-database-preinstall-19c.conf.

Example:

```
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
```

Step 4 Set secure Linux to permissive by editing the /etc/selinux/config file (edits are noted in **bold type**):

Example:

#vi /etc/selinux/config
SELINUX=permissive

Once the change is complete, run the following command:

setenforce Permissive

Step 5 Disable the Linux firewall by entering:

Example:

```
# systemctl stop firewalld
# systemctl disable firewalld
```

Step 6 Create the following Directories in which the Oracle software will be installed:

Example:

```
mkdir -p /home/oracle/app/oracle/product/19.0.0/dbhome_1
chown -R oracle:dba /home/oracle/app/oracle/product/19.0.0/dbhome_1
chmod -R 775 /home/oracle/app/oracle/product/19.0.0/dbhome 1
```

Step 7 Download Oracle19cSoftware and unzip the file by doing the following:

cd /home/oracle/app/oracle/product/product/19.0.0/dbhome_1

unzip -oq /home/oracle/LINUX.X64_193000_db_home.zip

Step 8 Run the installer:

cd /home/oracle/app/oracle/product/19.0.0/dbhome 1/

./runInstaller <--Note that there is a period before the forward slash

Manual Setup of Oracle 19c Database

To complete the setup, enter the settings as shown below.

 Tip
 For each step in this install procedure, click Next to proceed to the next screen until setup is complete.

Procedure



Step 2 Select Single instance database installation option in the Database Installation Option menu.

	Oracle Database 19c Installer - Step 2 of 9	×
Select Database Installa	19° DRACLE	
Configuration Option Database Installation C Install Type Typical Installation Prerequisite Checks Summary Install Product Finish	Select the type of database installation you want to perform.	
Help	< <u>B</u> ac	k Next > Install Cancel

Step 3 Select Enterprise Edition option in Database Edition menu.

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

Step 4 Select Installation Location and enter /home/oracle/app/oracle (with no parenthesis) in the Oracle base field.

Oracle Database 19c Installer - Step 4 of 11				_ = ×
Specify Installation Location 19° Dat			Database	
Ť	Configuration Option Database Installation Options	Specify a path installation ov	to place all Oracle software and configuration-related files inst iner. This location is the Oracle base directory for the installation	alled by this on owner.
Y	Database Edition	<u>O</u> racle base:	/home/oracle/app/oracle	B <u>r</u> owse
	Installation Location			
	Create Inventory	This software	directory is the Oracle Database home directory.	
4	Operating System Groups	Software loca	tion: /home/oracle/app/oracle/product/19.0.0/dbhome_1	
9	Root script execution			
4	Prerequisite Checks			
4	Summary			
4	Install Product			
6	Finish			
	200000			
•				
	Help		< <u>B</u> ack <u>N</u> ext >	nstall Cancel

Step 5 Select Create Inventory.

- Select **Create Inventory** (left pane) and in the right-pane enter the following path in the Inventory Directory field (right-pane): /home/oracle/app/oraInventory.
- **Note** Installer automatically sets up the relevant sub-directories for each product and its inventory data. Ensure 150 kilobytes of disk space is available.
- Select dba from the oraInventory Group Name drop-down menu.

	Oracle Database 19c Installer - Step 5 of 11 >				
Cr	Create Inventory 19° DRACLE				
	Configuration Option Database Installation Options Database Edition Installation Location	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. Inventory Directory: //home/oracle/app/oralnventory			
	Create Inventory 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 (oralnventory). oralnventory <u>G</u> roup Name: dba 🕶			
0	1.0.150				

Step 6

.

6 Select the 'dba' option in all drop-down menu for all six groups (Privileges).

	Oracle Database 19c Installer - Step 6 of 11	_ = ×
Privileged Operating Syst		
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 Guard administrative (OSDGDBA) group: Encryption Key Management administrative (OSKMDBA) group: Real Application Cluster administrative (OSRACDBA) group:	ing system (OS) authentication. lege, eg. membership in OSDBA dba dba dba dba dba dba
Help	< <u>B</u> ack	Next > Install Cancel

- **Step 7** Root script execution menu
 - In the left pane, select Root script execution.
 - In the right-pane, select the Automatically run configuration scripts check box.
 - In the right-pane, select the Use "root" user credential button and enter the root user password in the Password field.

	0	racle Database 19c Installer - Step 7 of 11	×
Root script execution co	nfiguration		19° Database
Configuration Option Database Installation Optio Database Edition Database Edition Installation Location Create Inventory	During the software con installer perform these of also be used by the inst <u>Automatically run con</u> <u>O Use "root" user of</u>	figuration, certain operations have to be performed as "root" user. operations automatically by specifying inputs for one of the options l aller to perform additional prerequisite checks. figuration scripts redential	You can choose to have the oelow. The input specified will
Operating System Groups	Pass <u>w</u> ord :		
Root script execution	🔘 Use <u>s</u> udo		
Prerequisite Checks Summary Install Product Finish	Program path : User name : Passwgrd :	/usr/bin/sudo oracle :	Browse
Help		< Back Next	> Install Cancel

Step 8 In the Prerequisite Checks Menu, select the **Ignore All** check box (top-right hand corner of screen).

	Oracle Database 19c Installer - Step 8 of 11	×
Perform Prerequisite Ch	ecks	19° DRACLE
Configuration Option Database Installation Option Database Edition Installation Location	Verification Result Some of the minimum requirements for installation are not completed. Review and table, and recheck the system. Check Again Ebc& Check Again Show Failed	I fix the issues listed in the following
<u>Create Inventory</u> <u>Operating System Groups</u> <u>Root script execution</u>	Checks Swap Size	Status Fixable Warning No
Prerequisite Checks Summary Install Product Finish		
	This is a prerequisite condition to test whether sufficient total swap space is availant Expected Value : 15.5009GB (1.6253896E7KB) Actual Value : 3.9766GB (4169724.0KB)	able on the system. <u>(more details)</u>
Help	< <u>B</u> ack	Next > Install Cancel

Step 9 Prerequisite Checks Menu

At the Perform Prerequisite Checks screen, click **Next** >. The Oracle Database 19c Installer Summary screen confirm that all minimum requirements are met.

	Oracle Database 19c Installer - Step 8 of 11	_ ¤ ×
Perform Prerequisite Che	cks	19° Database
T Configuration Option Database Installation Options Database Edition	Yerification Result All minimum requirements are satisfied. You may proceed with Check Again Dx & Check Again Show All	h the installation.
installation Location	Checks	Status Fixable
Create Inventory	Physical Memory	Succeeded *
	Available Physical Memory	Succeeded
Operating System Groups	Swap Size	Succeeded
Poot script execution	🗇 🥵 (Free Space)	
Prerequisite Checks	Succeeded	
Summary Install Product Finish	Group Existence: da Group Existence: da Group Existence: da Group Existence: da	Succeeded Succeeded Succeeded Succeeded
	Group Existence: backupdba	Succeeded
	Group Existence: oper	Succeeded
	CONTRACTOR AND A CONTRACT	CONTRACTOR OF A DECEMBER OF A

Step 10 Summary Menu:

At the Summary screen, click Install.

	Oracle Database 19c Installer - Step 9 of 11	×
Summary	19	Database
Configuration Option Database Installation Option Database Edition Installation Location Create Inventory Operating System Groups Root script execution Prerequisite Checks Summary Install Product Finish	 Oracle Database 19c Installer Global settings Database edition: Enterprise Edition (Set Up Software Only) [Edit] Oracle base: /u01/app/oracle [Edit] Software location: /usr/oracle/database Privileged Operating System groups: dba (OSDBA), oper (OSOPER), backupdba (OSBACKUPDB: Root script execution configuration: Root user credential [Edit] Inventory information Inventory location: /u01/app/oralnventory [Edit] oralnventory group: oinstall [Edit] 	4), dgdba (OSDGDB
		Ve Response File
 ▲ Help 	< Back Next > In	stall Cancel

Step 11Database Upgrade Summary

Review the Summary panel. Take a screenshot of the page for future reference. Then, click **Finish** to complete the Oracle 19c database installation and registration.



Step 12 The Oracle 19c registration is successful.

The Finish screen appears confirming successful registration of the Oracle 19c database. Click Close.

	Oracle Database 19c Installer - Step 11 of 11		-	•	×
Finish		19°	ORA Databa	Se	. C '
Configuration Option Database Installation Options Database Edition Installation Location Create Inventory Operating System Groups Root script execution Prerequisite Checks Summary Install Product	The registration of Oracle Database was successful.				
Finish	< Back	Next > [m	stall	Clos	e

You must now upgrade from Oracle 18c to Oracle 19c by following the steps below.

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;
```

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.

Procedure

```
Create a patches directory under the /home/oracle folder to place the patch zip files.
Step 1
          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.
          Unzip the patch files (p34765931 190000 Linux-x86-64.zip) in the /home/oracle/patches folder.
Step 4
          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
                       : /home/oracle/app/oracle/product/19.0.0/dbhome 1
          Oracle Home
          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 19.

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/oraInventory
from : /home/oracle/app/oracle/product/19.0.0/dbhome 1/oraInst.loc
OPatch version : 12.2.0.1.36
                 : 12.2.0.7.0
OUT version
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.tg4msql, 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....
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, 19.0.0.0.0...
Patching component oracle.rdbms, 19.0.0.0...
Patching component oracle.rdbms.rsf, 19.0.0.0.0...
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....
Patching component oracle.ctx, 19.0.0.0....
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, 19.0.0.0.0...
Patching component oracle.network.rsf, 19.0.0.0.0...
Patching component oracle.odbc.ic, 19.0.0.0....
Patching component oracle.ons, 19.0.0.0...
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, 19.0.0.0.0...
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....
Patching component oracle.rdbms.oci, 19.0.0.0....
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....
Patching component oracle.network.listener, 19.0.0.0.0...
Patching component oracle.rdbms.lbac, 19.0.0.0....
Patching component oracle.nlsrtl.rsf, 19.0.0.0.0...
Patching component oracle.rdbms.hs common, 19.0.0.0...
Patching component oracle.network.client, 19.0.0.0....
Patching component oracle.sdo.locator, 19.0.0.0...
Patching component oracle.xdk.rsf, 19.0.0.0.0.
Patching component oracle.rdbms.drdaas, 19.0.0.0.0...
Patching component oracle.oraolap, 19.0.0.0....
Patching component oracle.rdbms.dv, 19.0.0.0...
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, 19.0.0.0.0...
Patching component oracle.rdbms.hsodbc, 19.0.0.0...
Patching component oracle.xdk, 19.0.0.0.0...
Patching component oracle.mgw.common, 19.0.0.0.0...
Patching component oracle.oraolap.dbscripts, 19.0.0.0...
Patching component oracle.xdk.xquery, 19.0.0.0.0...
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....
Patching component oracle.oraolap.api, 19.0.0.0....
Patching component oracle.rdbms.scheduler, 19.0.0.0.0.
Patching component oracle.rdbms.install.common, 19.0.0.0...
Patching component oracle.xdk.parser.java, 19.0.0.0....
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...
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, 19.0.0.0.0...
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/OPatch/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
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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
        : /home/oracle/app/oracle/product/19.0.0/dbhome 1/oraInst.loc
from
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 07-16-05AM 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:
/home/oracle/app/oracle/product/19.0.0/dbhome_1/cfgtoollogs/opatch/opatch2023-02-10 07-16-05AM 1.log
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.

Procedure

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	e OPatch file is: p6880880_190000_Linux-x86-64.zip				
	a)	Change directory to <pre>\$ORACLE_HOME/OPatch/</pre>				
		[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.				
		<pre>[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/</pre>				
	d)	Remove the OPatch folder.				

) Remove the Of den 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.
```

What to do next

Continue with Step 6 in the Oracle Patch Installation procedure.

Upgrading from Oracle 18c to 19c

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:

Procedure

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 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.

elect Database				19° ORACL
Select Database Se	elect a database for u	ipgrade or move.		
Prerequisite Checks	atabase Filter :			Refres
Select Upgrade Options	Source Databa	se Version A	Type	Oracle Home
Select Recovery Options) cgms	18.0.0.0 SI	1960	/home/oracle/app/oracle/product/18.0
Configure Management				
Summary				
Progress				
Results				
Da it is SY	atabase Upgrade Ass using OS based auth disabled. Specify the YSDBA Username: c	istant will collect the entication. Database credentials, if need gmsdba	information credentials led.	of the selected database by connecting t may be needed if OS based authenticatio
Da it is <u>S</u> Y P <u>a</u>	atabase Upgrade Ass using OS based auth disabled. Specify the /SDBA Username: c ussword: •	istant will collect the entication. Databas credentials, if need gmsdba	information credentials i led.	of the selected database by connecting to may be needed if OS based authenticatio]]

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
Y Select Database	Verifying that the selected database meets minimum configuration requirements for upgrade. This can take time.
Prerequisite Checks	De francisco Des Une ser de Chercher
Select Upgrade Options	Performing Pre Opgrade Checks
Select Recovery Options	
Configure Network	
Configure Management	
Summary	
Progress	
- 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 >.



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



 Step 5
 Displays Issues to Fix After Upgrade

Click **Next** > to go to the next screen.



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	_ = ×
Select Upgrade Options		19° Database
 <u>Select Database</u> <u>Prerequisite Checks</u> Select Upgrade Options 	 ✓ Enable Parallel Upgrade ✓ Recompile Invalid Objects During Post Upgrade ✓ Upgrade Timezone Data 	
Configure Network	Specify the Custom SQL Scripts to be executed	
Configure Management	Before Upgrade:	Browse
Progress Results		
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 >.

Select Recovery Options	1	9° ORACLE. Database
 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. Use Flashback and Guaranteed Restore Point Create a New Guaranteed Restore Point Use Available Guaranteed Restore Point Use RMAN Backup Create a New Offline RMAN Backup Backup Location /admin/cgms/backup_2020-06-25_09-37-37PM Create a New Partial Offline RMAN Backup with User Tablespac Use Latest Available Full RMAN Backup Latest RMAN Backup Timestamp : N/A I have my own backup and restore strategy 	B <u>r</u> owse ⊻iew/Edit Restore Script
Help	< Back Next >	Einish Cancel

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

		Database	Upgrad	le Assistant - Step 5 of 9	-	n x
С	onfigure Network			19 °	Databa	
C	Select Database Prerequisite Checks Select Upgrade Options Select Recovery Options Configure Network Configure Management Summary Progress Results	Listener Selection	Port 1522	Oracle home /home/oracle/app/oracle/product/18.0.0/dbhome_1	Status Up	Migrate Yes
		Create a new list Listener name: Listener gort: Oracle home:	ener 5500 /home,	/oracle/app/oracle/product/19.0.0/dbhome_1		
	Help			< Back Next >	nish	Cancel

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>		
Summary Progress Results	QMS host:		
Help	< <u>B</u> ack	<u>N</u> ext >	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.



The database upgrade results are displayed.

	Distances of	opgione Assistan	n - Step S or .	·		-	-
Results					19°	Database	
Select Database Prerequisite Checks Select Upprade Optimus Select Recursivy Optimus	Database upgrad	Up de has been comp	grade Re	sults fully, and th	ie database i	s ready to	,
Configure Management	Source	Database		Target Dat	ahase		
Summary.	Hames come		ogme				
Propress	Releases 18.000.	0		190000			
e Results	Oracle Home/oracle/app/oracle/product/28.0.0/dbhome_1 /home/oracle/app/oracle/product/25.0.0/dbhome						
	Upgrade Details						
	The following summar as this summary, are "/home/oracle/app/ora	y lists the steps perfor available at acle/cfgtoollogs/dbua/up	med during the up ograde2020-08-26	yrade process 02-46-45AM/c	Log files for all th gma ^e .	ve steps, as r	
	Step Name		Log File	Barne	Status	Time	
	4						1.

Post Upgrade Steps

Procedure

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.					

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