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Installing and Configuring Oracle 19c on Linux for Use with the ETM® System v9.x

IMPORTANT NOTICE:

Contents

Oracle 19c: Installation and Configuration for the ETM® Database

Introduction

This document explains how to install the Oracle 19c software on Linux and then run the Perl scripts to prepare the database for use with the ETM® System.

Oracle 19c Enterprise Edition, Standard Edition, and Standard Edition One are supported.

NOTES:

- Ensure that no cron jobs run while you are running the Oracle Universal Installer or you may encounter installation problems, particularly if temporary files used in the installation are cleaned up before it completes.

- Do not install Oracle Database 19c software into an existing Oracle Home.

Installation and Configuration

Installing Oracle 19c Enterprise Edition

Install the Oracle 19c software in accordance with the Oracle documentation.

<u>IMPORTANT</u>: During software installation. ensure that the following requirements are met for use with the ETM System:

- English language settings are required.

- **Select Installation Option** dialog box—Select **Install database software only**

- **Select Database Installation Option** dialog box—Select **Single instance database installation**

- **System Class** dialog box—Select **Server class**

- **Typical Install Configuration** dialog box—

    o **Database edition**—**Enterprise** or **Standard Edition**

o   Clear **Create container database**

Verifying Perl is in Your System PATH

Perl is used to run the database creation and configuration scripts. Oracle 19c (Enterprise and Standard) includes a version of Perl with the installation.

IMPORTANT Be sure that the Perl "bin" directory is in your system PATH variable.

Running the ETM® Database Configuration Script

IMPORTANT: You must run this script as **Administrator**.

To run the ETM® Database creation and configuration script

1. Open the following script in a text editor:

    <INSTALL_DIR>/scripts/Oracle/ oracle_install.pl

2. Locate the line that reads:

    $cmd = $ORACLE_BIN."orapwd file=$ORAPWD_FILE password=change_on_install";

    This is a temporary password for script execution only; it is not retained in the system. Oracle 19 enforces minimum password complexity requirements and requires the password to contain at least one digit and 1 special character. At a minimum, append a digit and a special character to the end of the supplied password, or replace it with a password that meets Oracle's minimum password complexity requirements.

    $cmd = $ORACLE_BIN."orapwd file=$ORAPWD_FILE password= ThisIsATempPassword123!";

3. Save the file.

4. Open a command prompt as **Administrator** in the ETM **Scripts** directory: **<INSTALL_DIR>/scripts/Oracle**.

5. At the prompt, type: **perl oracle_install.pl**

6. Follow the onscreen prompts.

    •   Some prompts provide default values that you can accept by pressing ENTER. These are denoted by square brackets.

    •   Example input is denoted by parentheses. You must type a value for these items; no default values are provided.

Note: The ETM Database requires the DBMS_JOB package, and uses the CREATE JOB privilege to support DBMS_JOB jobs for backward compatibility with DBMS_SCHEDULER.

Sample Output of
Running
oracle_install.pl

SecureLogix Corporation's DB Creation Utility

Version: 3.0 Supports Oracle 12, 18, and 19

Please enter your OS Type (DOS/UNIX) [DOS]: UNIX

Please enter your Domain Name (securelogix.com): slc.com

slc.com - Is this correct? (y/n) [n]: y

Please enter your Host Address [127.0.0.1]:

127.0.0.1 - Is this correct? (y/n) [n]: y

Please Enter the value for ORACLE_BASE (/u01/app/oracle/): /u01/app/oracle/

Are you sure you want to set ORACLE_BASE to /u01/app/oracle/**? (y/n): y**

Please Specify the Oracle version. (12, 18, or 19): 19

Found Environment variable ORACLE_HOME

Found ORACLE_HOME environment variable /u01/app/oracle/product/12.2.0/db_1/

Found directory /u01/app/oracle/product/19.3.0/db_1/

Set ORACLE_HOME to: '/u01/app/oracle/product/19.3.0/db_1/'? (y/n) [y]: y

Set ORACLE_DATA to: '/u01/app/oracle/product/19.3.0/db_1/oradata/'? (y/n)
[y]: **y**

Please Enter the value for ORACLE SID: ORA19

ORA19 - Is this correct? (y/n) [Y]: y

Please enter the listener port for Oracle [1521]:

1521 - Is this correct? (y/n) [y]: y

Creating Data Directories for SID: ORA19

Would you like the script to create the orapwd file? (y/n) [y]: y

Would you like the script to modify the listener.ora file? (y/n) [y]:

Would you like the script to modify the tnsnames.ora file? (y/n) [y]:

Would you like to create the init.ora file for this database? (y/n) [y]:

Enter password for Oracle service user: **← This is the password for the Oracle user account**
specified during installation of Oracle 19

Instance created. ← **IF SCRIPT PAUSES HERE, PRESS 'ENTER' KEY TO RESUME**

**Would you like to generate the Oracle scripts to generate the database?
(y/n) [y]: y**

Please enter the preferred Tablespacename [ETM]:

Please enter the ETM User name [etmuser]:

Please specify the password for the ETM User: etmpass

Please re-enter the password for the ETM User: etmpass

**Would you like to generate the Oracle scripts to generate a non-owner ETM
application user? (y/n) [n]:**

Create Database Sql script written to:
/u01/app/oracle/admin/ORA19/create/create_db_ORA19.sql

These scripts contain the details of how the database

will be created. If you would like to configure the

tablespaces, redo files, rollback segments, or other

parameters, please modify this file before running it.

**Would you like to run the Oracle scripts to generate the database? (y/n)
[y]:**

**Please enter the password for database user 'sys' [change_on_install]:
<type_complex_password_here>**

/u01/app/oracle/product/12.2.0/db_1/bin//sqlplus "sys/<sys_passwprd> AS
SYSDBA" @/u01/app/oracle/admin/ORA19/create/create_db_ORA19.sql

SQL*Plus: Release 19.0.0.0.0 - Production on Thu Jun 4 09:06:49 2020

Version 19.3.0.0.0

Copyright (c) 1982, 2018, Oracle. All rights reserved.

Connected to an idle instance.

SQL>

SQL> REM * Actually starts the database instance

SQL> startup nomount pfile="/u01/app/oracle/admin/ETM/pfile/init.ora"

ORACLE instance started.

```
Total System Global Area  536868920 bytes
Fixed Size                  8898616 bytes
Variable Size             159383552 bytes
Database Buffers          360710144 bytes
Redo Buffers                7876608 bytes
SQL>
SQL> REM * Creates the physical database.  Feel free to customize the redo
logs here.
SQL> CREATE DATABASE ETM
  2   MAXLOGFILES 32
  3   MAXLOGMEMBERS 2
  4   MAXLOGHISTORY 1
  5   MAXDATAFILES 254
  6   MAXINSTANCES 1
  7   MAXLOGHISTORY 5000
  8   DATAFILE
'/u01/app/oracle/product/19.3.0/dbhome_1/oradata/ETM/system01.dbf' SIZE 150M
REUSE AUTOEXTEND ON NEXT  10240K MAXSIZE UNLIMITED
  9   EXTENT MANAGEMENT LOCAL
 10   SYSAUX DATAFILE
'/u01/app/oracle/product/19.3.0/dbhome_1/oradata/ETM/sysaux01.dbf' SIZE 120M
REUSE AUTOEXTEND ON NEXT  10240K MAXSIZE UNLIMITED
 11   SMALLFILE DEFAULT TEMPORARY TABLESPACE TEMP TEMPFILE
'/u01/app/oracle/product/19.3.0/dbhome_1/oradata/ETM/temp01.dbf' SIZE 500M
REUSE AUTOEXTEND ON
 12   SMALLFILE UNDO TABLESPACE "UNDOTBS1" DATAFILE
'/u01/app/oracle/product/19.3.0/dbhome_1/oradata/ETM/undotbs01.dbf' SIZE
500M REUSE AUTOEXTEND ON
 13   LOGFILE
'/u01/app/oracle/product/19.3.0/dbhome_1/oradata/ETM/redo01.log' SIZE 10M,
 14    '/u01/app/oracle/product/19.3.0/dbhome_1/oradata/ETM/redo02.log' SIZE
10M,
 15    '/u01/app/oracle/product/19.3.0/dbhome_1/oradata/ETM/redo03.log' SIZE
10M;


Database created.
```

```
SQL>

SQL> ALTER USER system IDENTIFIED BY manager;


User altered.


SQL>

SQL> CREATE TABLESPACE "ETM" LOGGING
  2     DATAFILE
'/u01/app/oracle/product/19.3.0/dbhome_1/oradata/ETM/ETM01.dbf' SIZE 100M
  3     AUTOEXTEND ON NEXT 10M
  4     EXTENT MANAGEMENT LOCAL;


Tablespace created.


SQL>

SQL> REM * Create the default user for use with the system.

SQL> CREATE USER etmuser PROFILE "DEFAULT" IDENTIFIED BY "THIS_PWD"
  2     DEFAULT
  3     TABLESPACE "ETM" TEMPORARY
  4     TABLESPACE "TEMP" ACCOUNT UNLOCK;


User created.


SQL>

SQL> REM * Explicitly grant the required system privileges. We explicitly
grant

SQL> REM * the privileges as opposed to granting them via roles due to the
fact

SQL> REM * that when running jobs via DBMS_JOB.RUN() roles are ignored.
Since

SQL> REM * we use DBMS_JOB to run various maintenance procedures, we go
ahead

SQL> REM * and explicitly grant the privileges to cover all our bases. (For
more
```

```
SQL> REM * information refer to the Oracle Database documentation sets for
the
SQL> REM * corresponding Oracle version regarding the DBMS_JOB package).
SQL> GRANT ALTER SESSION TO etmuser;

Grant succeeded.

SQL> GRANT CREATE PROCEDURE TO etmuser;

Grant succeeded.

SQL> GRANT CREATE SEQUENCE TO etmuser;

Grant succeeded.

SQL> GRANT CREATE SESSION TO etmuser;

Grant succeeded.

SQL> GRANT CREATE MATERIALIZED VIEW TO etmuser;

Grant succeeded.

SQL> GRANT CREATE TABLE TO etmuser;

Grant succeeded.

SQL> GRANT CREATE TRIGGER TO etmuser;

Grant succeeded.

SQL> GRANT CREATE VIEW TO etmuser;
```

```
Grant succeeded.


SQL> GRANT CREATE ANY SYNONYM TO etmuser;


Grant succeeded.


SQL> GRANT DROP ANY SYNONYM TO etmuser;


Grant succeeded.


SQL> GRANT SELECT ANY DICTIONARY TO etmuser;


Grant succeeded.


SQL> GRANT CREATE JOB TO etmuser;


Grant succeeded.


SQL>
SQL> REM * By default, just grant the user unlimited use of the tablespaces.
SQL> REM * DBAs may optionally revoke this grant and set up specific quotas
SQL> REM * for the various tablespaces.
SQL> GRANT UNLIMITED TABLESPACE TO etmuser;


Grant succeeded.


SQL>
SQL>
SQL>
SQL> spool off
SQL> EXIT
Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0
- Production
```

Version 19.3.0.0.0

Database creation script executed. Verify output and press 'y' to continue (y/n) [y]:

Would you like to generate the initialization script that needs to be run by sys? (y/n) [y]:

Sys Init Sql script written to: /u01/app/oracle/admin/ORA19/create/sys_init_ORA19.sql

Would you like to run the 'sys db init' scripts to initialize the database? (y/n) [y]:

Depending on the system, this script may require up to 30 minutes to complete.

Please be patient. To verify script is running, you can check the log file at:

/u01/app/oracle/admin/ORA19/create/sys_init_ORA19.log and make sure data is being written to file.

/u01/app/oracle/product/193000/db_1/bin//sqlplus "sys/<sys pwd> AS SYSDBA" @/u01/app/oracle/product/193000/admin/ORA19/create/sys_init_ORA19.sql > NULL

Sys Init Sql script executed. Check sys_init_ORA19.log to verify status

Would you like to generate the initialization script that needs to be run by system? (y/n) [y]:

System Init Sql script written to: /u01/app/oracle/product/193000/admin/ORA19/create/system_init_ORA19.sql

Would you like to run the 'system db init' scripts to initialize the database? (y/n) [y]:

Please enter the password for database user 'system' [manager]:

/u01/app/oracle/product/193000/db_1/bin//sqlplus "system/<system pwd> AS SYSDBA" @/u01/app/oracle/product/193000/admin/ORA19/create/sys_init_ORA19.sql > NULL

System Init Sql script executed. Check system_init_ORA19.log to verify status

SQL*Plus: Release 19.0.0.0.0 - Production on Thu Jun 4 11:18:13 2020

Version 19.3.0.0.0

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```
Connected to:

Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production

Version 19.3.0.0.0


Disconnected from Oracle Database 19c Enterprise Edition Release 19.0.0.0.0
- Production

Version 19.3.0.0.0


End of SecureLogix Corporation's DB Creation Utility
```

Configure the TNS Listener

A listener with a default name of LISTENER is created when you install the Oracle software, but it must be started or restarted to update it with the configuration for the ETM Database.

To configure the TNS Listener

1. Open a command prompt as root. and type `lsnrctl status`.

2. If a message similar to the following appears, the listener is not running.

```
LSNRCTL for Linux: Version 19.0.0.0.0 - Production on 15-JUL-2019
   01:09:40


Copyright (c) 1991, 2019, Oracle.  All rights reserved.


Connecting to
   (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=host01.example.com)(POR
   T=1521)))

STATUS of the LISTENER


Enter password:
```
 ← **Enter the password of the user specified during Oracle installation**

```
ERROR:

ORA-12541: TNS: no listener
```

3. If the listener is not running, type: `lsnrctl start`

`Starting tnslsnr: please wait...`

`Enter oracle's password :`   **← Enter the password of the user specified during Oracle installation**

4. If the listener is running, stop it by typing: `lsnrctl stop`

5. When it stops, restart it by typing: `lsnrctl start`

`Starting tnslsnr: please wait...`

`Enter oracle's password :`   **← Enter the password of the user specified during Oracle installation**

6. When it starts, output should appear showing that it is listening for the ETM instance.

Copy the Database Driver to Required Locations

After installing and configuring the database, copy the supported database driver to each of the following ETM System installation directories:

- The ETM Server.

- Any remote Report Server.

- Any remote ETM Database Maintenance Tool.

Remote ETM System Clients do not require the driver file.

Only the following configuration is supported with Oracle 19c:

- **ETM® System 9.x** using the following driver:

  - **ojdbc8** from Oracle 19c

You can download the supported driver from the Oracle website.

Edit Configuration Files

Due to changes in that Oracle 19c driver, configuration files for the ETM Server, Report Server, and ETM Database Maintenance Tool must be edited to enable the ETM System to connect to the database.

ETM® Server Configuration File

To edit the ETM Server configuration file

1. On the ETM Server host, open the file **ETMManagementServer.cfg** in a text editor. This file is at the root of the ETM Management Server installation directory.

2. Locate the line labeled :

`# Java switches to supply to the Java Virtual Machine.`

3. At the end of the line, append the following switch:

```
                                              -Doracle.jdbc.autoCommitSpecCompliant=false
```

4. The new line should look like the following:

```
switches=-Xmx512M -Djava.rmi.server.useLocalHostName=true -
Dsun.java2d.noddraw=true -Doracle.jdbc.autoCommitSpecCompliant=false
```

5. Save the file.

Report Server
Configuration File

To edit the Report Server configuration file

1. On the Report Server host, open the file **ETMReportServer.cfg** in a text editor. This file is at the root of the ETM System installation directory.

2. Locate the line labeled:

```
# The switches to use when creating the java environment that will run the

# ServerActivator.
```

3. At the end of the line, append the following switch:

```
                                    -Doracle.jdbc.autoCommitSpecCompliant=false
```

4. The new line should look like the following::

```
App_Switches=-Djava.security.policy=policy -Dsun.java2d.noddraw=true -
Doracle.jdbc.autoCommitSpecCompliant=false
```

5. Locate the line labeled:

```
        # The switches to use when launching the rmid executable
```

6. At the end of the line, append the following switch:

```
                                    -Doracle.jdbc.autoCommitSpecCompliant=false
```

7. The new line should look like the following::

```
RMID_Switches=-J-Xrs -J-Djava.rmi.server.useLocalHostName=true -J-
Djava.security.policy=policy -J-Dsun.java2d.noddraw=true -J-
Djava.rmi.server.logCalls=true -C-server -C-Xmx512M -C-
Djava.rmi.server.useLocalHostName=true -C-Djava.security.policy=policy
-C-Dsun.java2d.noddraw=true -C-
Djava.class.path=".;..;activation.jar;comm.jar;jakarta-oro-
2.0.jar;log4j-
1.2.8.jar;mail.jar;ojdbc6.jar;ojdbc14.jar;report11_pro.jar;report12_pro
.jar;slc-crypt.jar;TeleWall.jar" -C-
Doracle.jdbc.autoCommitSpecCompliant=false
```

8. Save the file.

Database
Maintenance Tool
Configuration File

To edit the Database Maintenance Tool configuration file

1. On the Database Maintenance Tool host, open the file **ETMDBMaintTool.cfg** in a text editor. This file is at the root of the ETM System installation directory.

2. Locate the line labeled:

```
# Java switches to supply to the Java Virtual Machine.
```

1. At the end of the line, append the following switch:

```
-Doracle.jdbc.autoCommitSpecCompliant=false
```

```
The new line should look like the following:
```

```
switches=-client -Xmx200M -Dsun.java2d.noddraw=true
-Doracle.jdbc.autoCommitSpecCompliant=false
```

2. Save the file.

Where to Go From Here

The Oracle 19c Enterprise Edition database is now installed, running, and configured with the ETM System user and necessary permissions and privileges. If the ETM Management Server is installed on a different computer from the database, see "Install the Oracle Client" below. If the ETM Server is on the same computer as the database, continue with "Connect with the ETM® Database Maintenance Tool" on page 23.

See the *ETM® System Installation Guide* for complete ETM Software installation and configuration instructions.

Install the Oracle Client

If the ETM® Management Server is installed on the same computer as Oracle, you do not need to install the Oracle Client separately, since they are installed as part of the database software. Continue with the next topic. However, if the ETM Management Server is installed on a different computer from the database, you need to install the Oracle Client on the computer on which the ETM Management Server is installed. The Oracle Client is used for CCMI and Directory imports.

The Oracle Database Client software is available on installation media or you can download it from the Oracle Technology Network (OTN) website, or Oracle Software Delivery Cloud Web site.

Refer to the applicable procedure below depending on whether the ETM Management Server is installed on Windows or Linux.

Installing the Oracle Client on a Windows Management Server

Notes:

- Ensure you log on as a member of the Administrators group to install the software and use **Run as Administrator**.

- Oracle Database Client 19c cannot share Oracle base with Oracle homes from earlier database versions.

- The screenshots below show Oracle 18c, but the procedure is the same for 19c.

To install the Oracle Client

1. Download the Windows Oracle 19c Client Tools zip-file distribution ([WINDOWS.X64_193000_client.zip](#)) from the Oracle web site. https://www.oracle.com/database/technologies/oracle19c-windows-downloads.html

2. Unzip the contents of the Oracle zip-file into your preferred Oracle installation location. Example:
   `C:\app\oracle\product\WINDOWS.X64_193000_client\client`

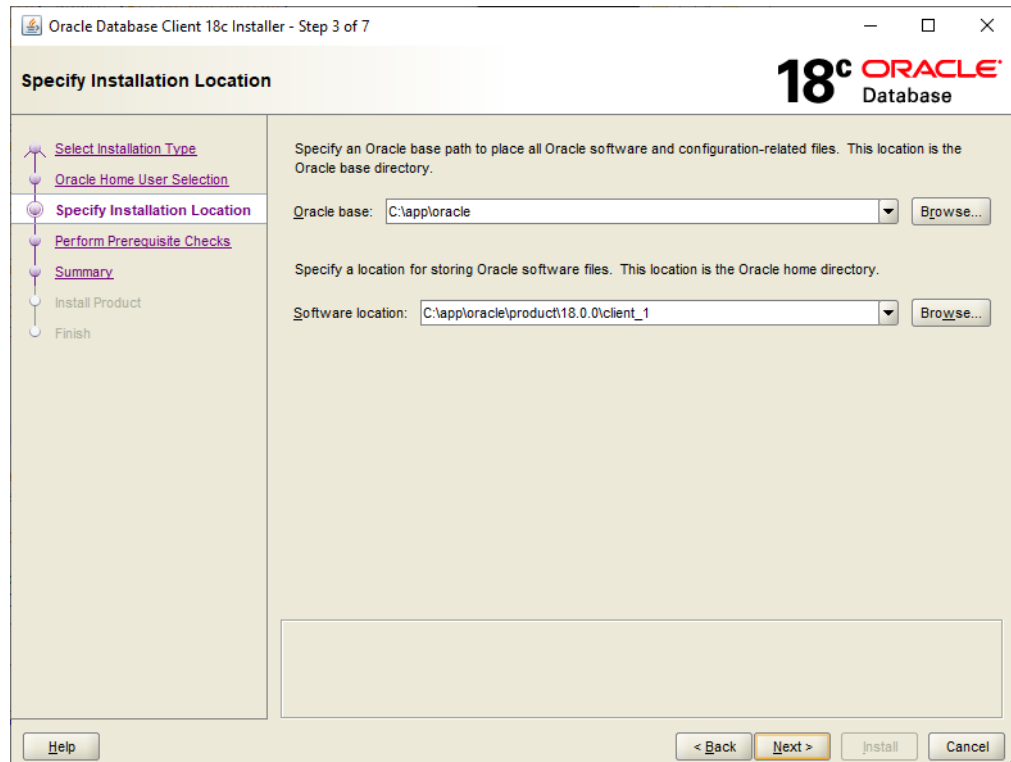3. Right-click **setup.exe** and select **Run as Administrator** to start the Oracle UI.
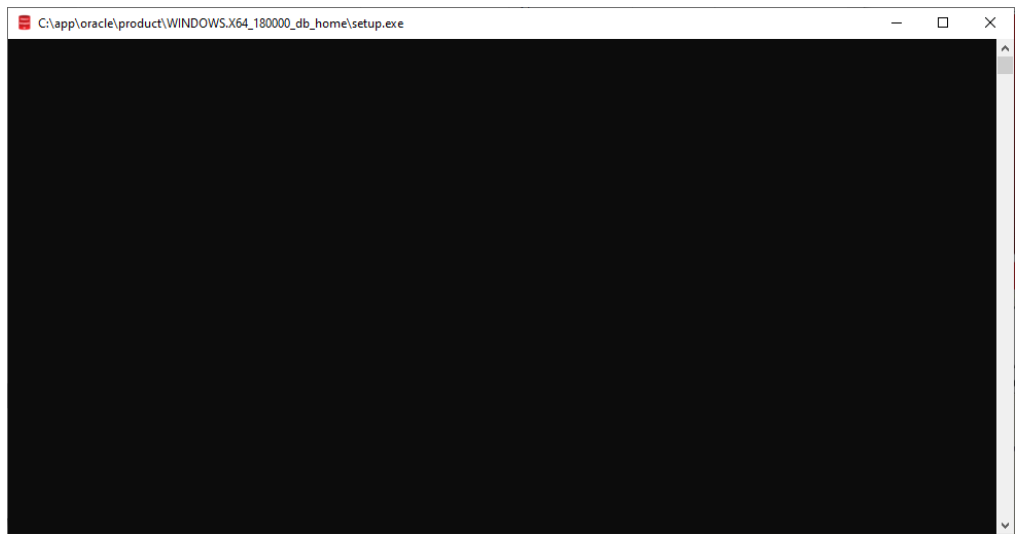
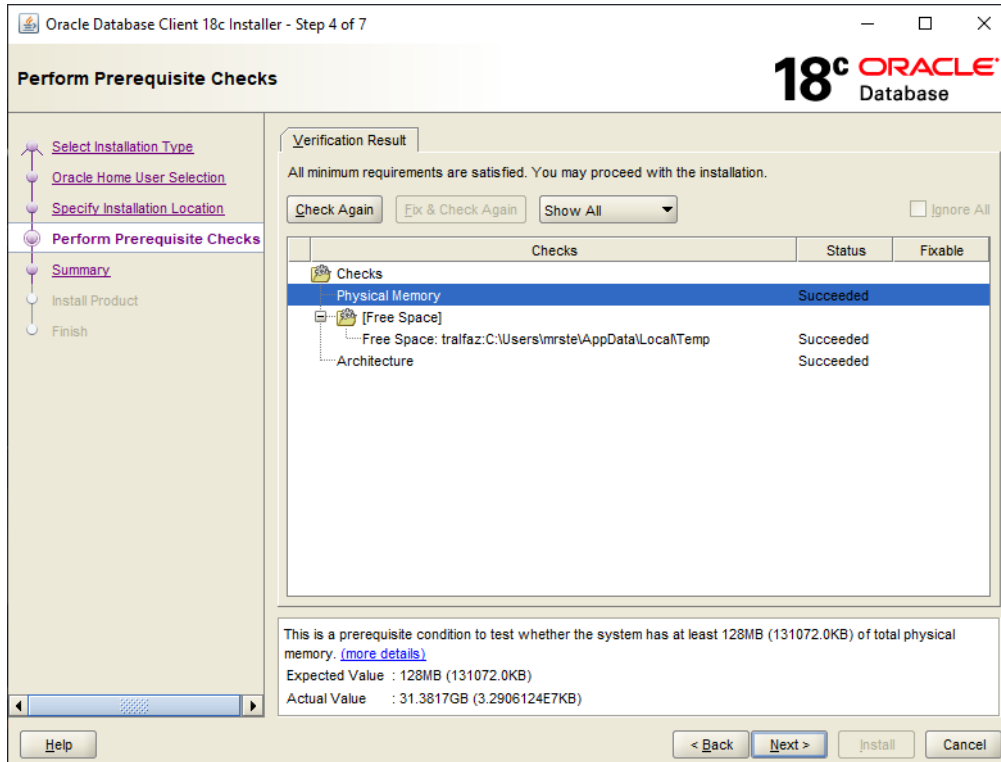4. The **Select Installation Type** dialog box appears.
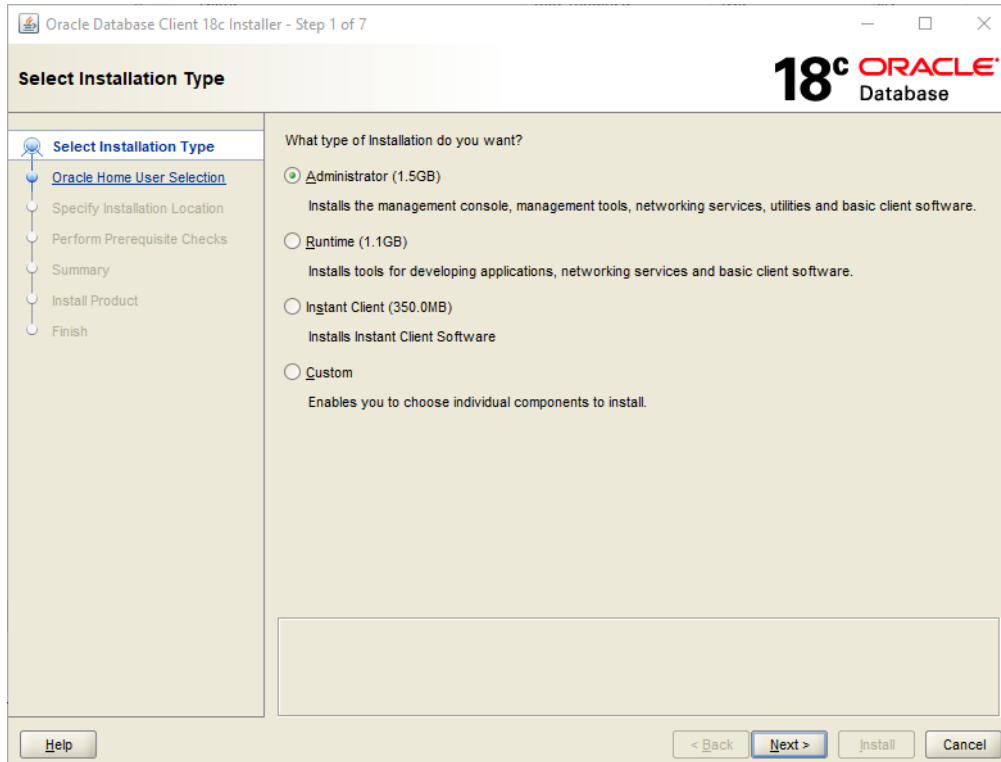
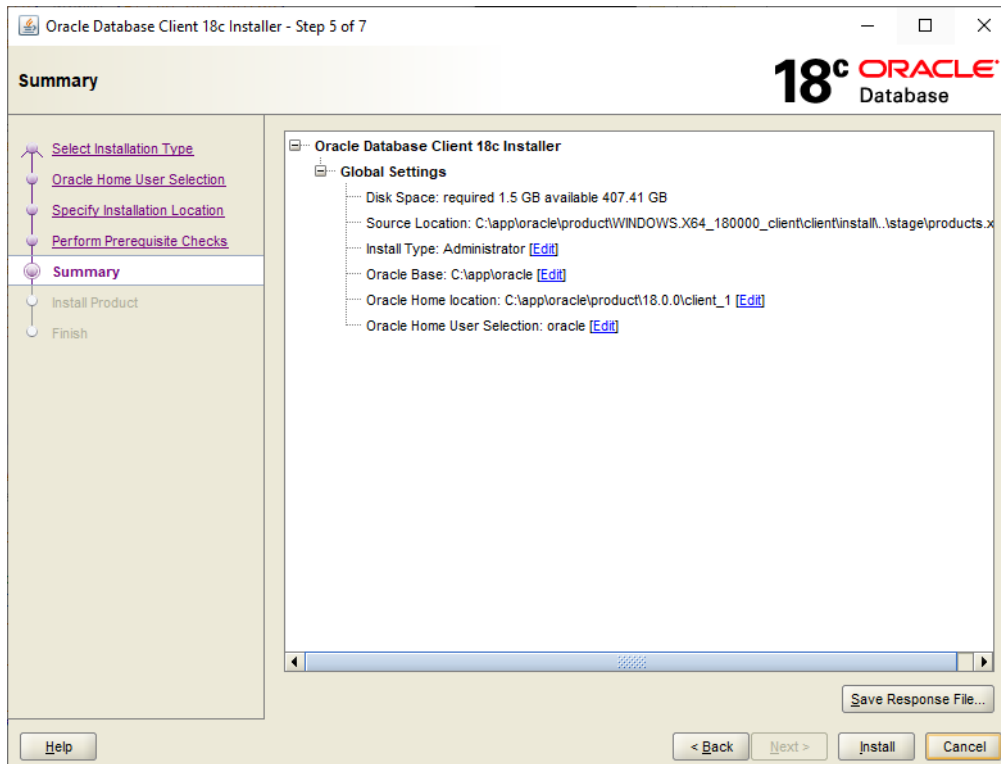5. Select **Administrator** and click **Next**.
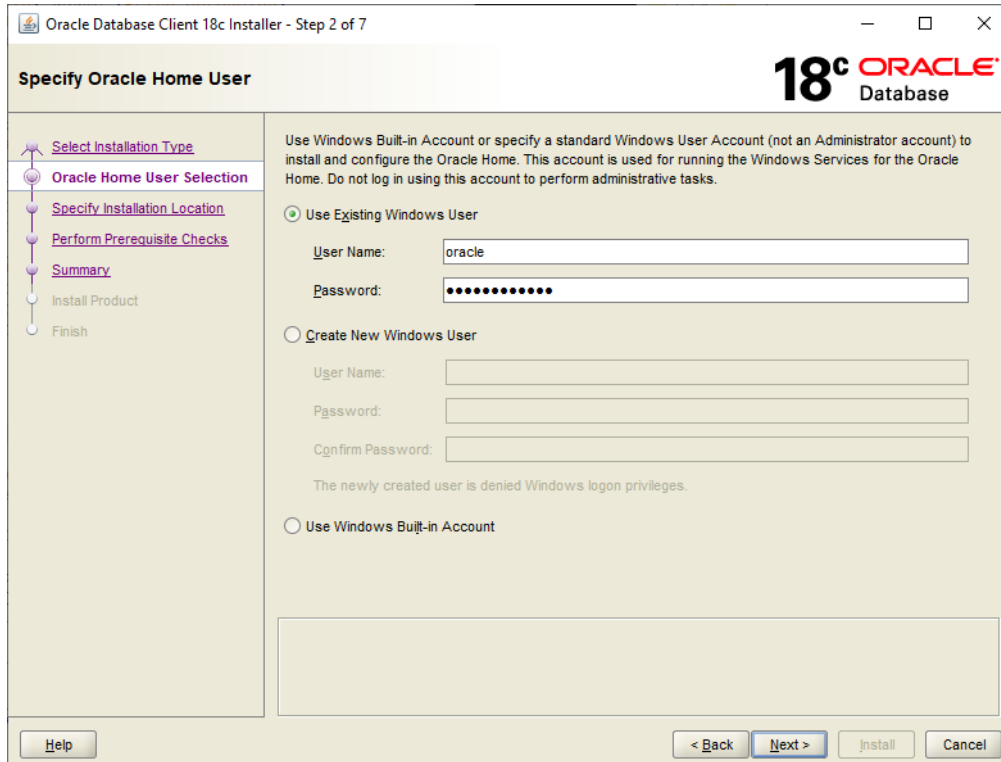
6. The **Download Software Updates** dialog box appears. Make an applicable selection and click **Next**.
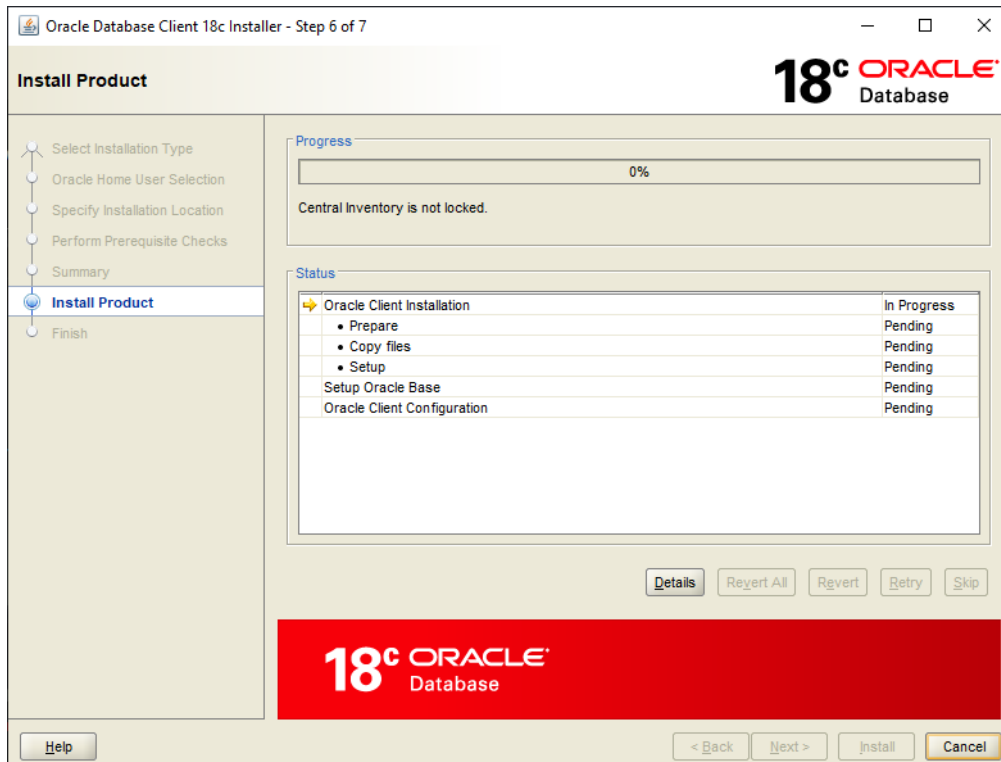
7. The **Specify Installation Location** dialog box appears. Make an applicable selection and click **Next**.

8. The **Perform Prerequisite Checks** dialog box appears. When it completes, click **Next** .

9. After the prerequisite checks complete, the **Summary** dialog box appears reflecting the settings you chose.. Make applicable changes and click **Install.** `

10. When installation completes, click **Close**.

11. Continue with "Edit the **tnsnames.ora** File" below.

Installing the Oracle Client on a Linux Management Server

Note:

- Oracle Database Client 19c cannot share Oracle Base with Oracle Homes from earlier database versions.

Download the Linux Oracle 19c Client zip-file distribution from the Oracle web site.

Install the Oracle 19c software in accordance with the Oracle documentation.

********* **IMPORTANT:** Ensure that the following requirements are met during installation for use with the ETM System:. **********

- **Select Installation Type** dialog box—Select **Administrator**.

- **Select Product Languages** dialog box—English language settings are required.

Continue with "Edit the **tnsnames.ora** File" below.

Edit the tnsnames.ora File

The **tnsnames.ora** file tells the ETM® Server where to find the ETM Database. The **tnsnames.ora** file is in the directory **<ORACLE_HOME>/network/admin** and can be edited in a text editor such as Notepad. When the Database is on the same system as the Management Server, the script edits this file. When they are on separate systems, the file must be edited after you install the Oracle Client.

The **tnsnames.ora** file appears similar to the following:

```
ORA19_10.1.1.173 =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST =
            10.1.1.173)(PORT = 1521))
    )
(CONNECT_DATA = (SID = ORA19)(SERVER = DEDICATED))
```

where ORA19 is the database SID, `10.1.1.173` is the IP address of the database host computer, and `1521` is the TCP/IP port used by the Listener.

To edit the tnsnames.ora file

- Edit the database instance name, IP address, and port number to reflect your database configuration.

Connect with the ETM® Database Maintenance Tool

You connect to the database with the ETM Database Maintenance Tool to complete database configuration. See the *ETM® System Installation Guide* for instructions. The instructions vary depending on whether you are creating a standalone database or a database repository for managed databases.