Oracle Database 12c Release 1 (12.1) Installation On Fedora 24 (F24)

Do not install Oracle on Fedora before reading this! (/articles/linux/do-not-install-oracle-on-fedora-before-reading-this)

This article describes the installation of Oracle Database 12c Release 1 (12.1) 64-bit on Fedora 24 (F24) (http://fedoraproject.org) 64-bit. The article is based on a server installation with a minimum of 2G swap and secure Linux set to permissive. An example of this type of Linux installation can be seen here (/articles/linux/fedora-24-installation).

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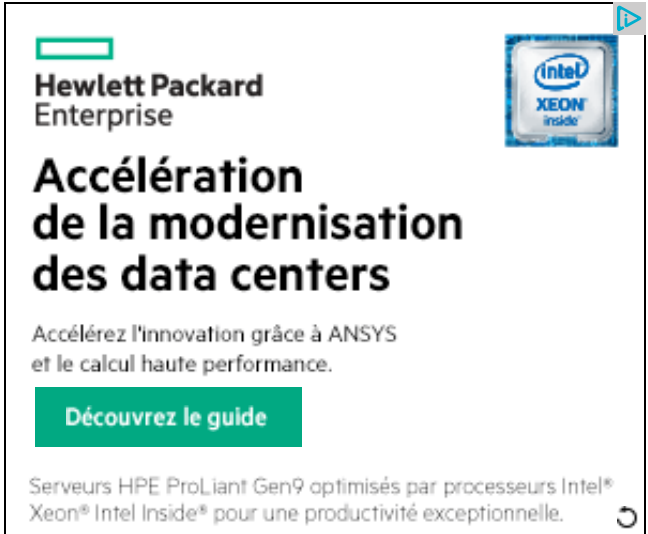- Installation
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Download Software

Download the Oracle software from OTN or MOS depending on your support status.

- OTN: Oracle Database 12c Release 1 (12.1.0.2) Software (64-bit). (http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html)
- edelivery: Oracle Database 12c Release 1 (12.1.0.2) Software (64-bit) (http://edelivery.oracle.com)

Unpack Files

Unzip the files.

```
unzip linuxamd64_12102_database_1of2.zip
unzip linuxamd64_12102_database_2of2.zip
```

You should now have a single directory called "database" containing installation files.

Hosts File

The "/etc/hosts" file must contain a fully qualified name for the server.

```
<IP-address>  <fully-qualified-machine-name>  <machine-name>
```

For example.

```
127.0.0.1       localhost localhost.localdomain localhost4 localhost4.localdomain4
192.168.56.111  fedora24.localdomain   fedora24
```

Set the correct hostname in the "/etc/hostname" file.

```
fedora24.localdomain
```

Set Kernel Parameters

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

```
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.all.rp_filter = 2
net.ipv4.conf.default.rp_filter = 2
fs.aio-max-nr = 1048576
net.ipv4.ip_local_port_range = 9000 65500
```

Run the following command to change the current kernel parameters.

```
/sbin/sysctl -p
```

Add the following lines to a file called "/etc/security/limits.d/oracle-rdbms-server-12cR1-preinstall.conf" file.

```
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
```

Stop and disable the firewall. You can configure it later if you wish.

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

Set SELinux to permissive by editing the "/etc/selinux/config" file, making sure the SELINUX flag is set as follows.

```
SELINUX=permissive
```

The server will need a reboot for the change to take effect.

Setup

Before we consider the packages required by the Oracle installation, it's probably worth making sure some basic package groups are installed.

```
dnf groupinstall "Basic Desktop" -y
dnf groupinstall "GNOME" -y
dnf groupinstall "Development Tools" -y
dnf groupinstall "Administration Tools" -y
dnf groupinstall "System Tools" -y
dnf install firefox -y
```

If you have installed the suggested package groups, the majority of the necessary packages will already be installed. The following packages are listed as required, including the 32-bit version of some of the packages. Many of the packages should be installed already.

```
dnf install binutils -y
dnf install compat-libstdc++-33 -y
dnf install compat-libstdc++-33.i686 -y
dnf install gcc -y
dnf install gcc-c++ -y
dnf install glibc -y
```

```
dnf install glibc.i686 -y
dnf install glibc-devel -y
dnf install glibc-devel.i686 -y
dnf install ksh -y
dnf install libgcc -y
dnf install libgcc.i686 -y
dnf install libstdc++ -y
dnf install libstdc++.i686 -y
dnf install libstdc++-devel -y
dnf install libstdc++-devel.i686 -y
dnf install libaio -y
dnf install libaio.i686 -y
dnf install libaio-devel -y
dnf install libaio-devel.i686 -y
dnf install libXext -y
dnf install libXext.i686 -y
dnf install libXtst -y
dnf install libXtst.i686 -y
dnf install libX11 -y
dnf install libX11.i686 -y
dnf install libXau -y
dnf install libXau.i686 -y
dnf install libxcb -y
dnf install libxcb.i686 -y
dnf install libXi -y
dnf install libXi.i686 -y
dnf install make -y
dnf install sysstat -y
dnf install unixODBC -y
dnf install unixODBC-devel -y
dnf install zlib-devel -y
```

Create the new groups and users.

```
groupadd -g 54321 oinstall
groupadd -g 54322 dba
groupadd -g 54323 oper
#groupadd -g 54324 backupdba
#groupadd -g 54325 dgdba
#groupadd -g 54326 kmdba
#groupadd -g 54327 asmdba
#groupadd -g 54328 asmoper
#groupadd -g 54329 asmadmin

useradd -u 54321 -g oinstall -G dba,oper oracle
passwd oracle
```

> ✎ We are not going to use the extra groups, but include them if you do plan on using them.

Create the directories in which the Oracle software will be installed.

```
mkdir -p /u01/app/oracle/product/12.1.0.2/db_1
chown -R oracle:oinstall /u01
chmod -R 775 /u01
```

> ✎ Putting mount points directly under root is typically a bad idea. It's done here for simplicity, but for a real installation "/" should be reserved for the OS.

If you are using X Emulation, login as root and issue the following command.

```
xhost +<machine-name>
```

Edit the "/etc/redhat-release" file replacing the current release information "Fedora release 24 (Twenty Four)" with the following.

```
redhat release 7
```

Login as the oracle user and add the following lines at the end of the "/home/oracle/.bash_profile" file.

```
# Oracle Settings
export TMP=/tmp
export TMPDIR=$TMP

export ORACLE_HOSTNAME=fedora24.localdomain
export ORACLE_UNQNAME=cdb1
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/12.1.0.2/db_1
export ORACLE_SID=cdb1

export PATH=/usr/sbin:$PATH
export PATH=$ORACLE_HOME/bin:$PATH

export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
export CLASSPATH=$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib
```

Installation

Log into the oracle user. If you are using X emulation then set the DISPLAY environmental variable.

```
DISPLAY=<machine-name>:0.0; export DISPLAY
```

Start the Oracle Universal Installer (OUI) by issuing the following command in the database directory.

```
./runInstaller
```

Proceed with the installation of your choice. Ignore any warnings about the system configuration.

You can see the type of installation I performed by clicking on the links below to see screen shots of each stage.

1. Configure Security Updates (images/12cR1Database/01-configure-security-updates.jpg)
2. My Oracle Support Credentials (images/12cR1Database/02-mos-credentials.jpg)
3. Select Installation Type (images/12cR1Database/04-select-installation-type.jpg)
4. System Class (images/12cR1Database/05-system-class.jpg)
5. Grid Installation Options (images/12cR1Database/06-grid-installation-options.jpg)
6. Select Install Type (images/12cR1Database/07-select-install-type.jpg)
7. Typical Install Configuration (images/12cR1Database/08-typical-install-configuration.jpg)
8. Create Inventory (images/12cR1Database/09-create-inventory.jpg)
9. Perform Prerequisite Checks (images/12cR1Database/10-perform-prerequisite-checks.jpg)
10. Summary (images/12cR1Database/11-summary.jpg)
11. Install Product (images/12cR1Database/12-install-product.jpg)
12. Execute Configuration Scripts (images/12cR1Database/13-execute-configuration-scripts.jpg)
13. Oracle Database Configuration (images/12cR1Database/14-oracle-database-configuration.jpg)
14. Database Configuration Assistant (images/12cR1Database/15-database-configuration-assistant.jpg)
15. Database Configuration Assistant Complete (images/12cR1Database/16-database-configuration-assistant-complete.jpg)
16. Finish (images/12cR1Database/17-finish.jpg)
17. Database Express 12c Login (images/12cR1Database/18-database-express-12c.jpg)
18. Database Express 12c Dashboard (images/12cR1Database/19-database-express-12c.jpg)

The "Database Configuration Assistant Complete" screen displays the Database Express 12c URL, which will be something like "https://fedora24.localdomain:5500/em".

Post Installation

Edit the "/etc/redhat-release" file restoring the original release information.

```
Fedora release 24 (Twenty Four)
```

Edit the "/etc/oratab" file setting the restart flag for each instance to 'Y'.

```
cdb1:/u01/app/oracle/product/12.1.0.2/db_1:Y
```

For more information see:

- Oracle Database Installation Guide 11g Release 2 (11.2) for Linux (http://docs.oracle.com/database/121/LADBI/toc.htm)
- Automating Database Startup and Shutdown on Linux (/articles/linux/automating-database-startup-and-shutdown-on-linux)

Hope this helps. Regards Tim...

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