

1 Refer to  
2 <http://www.tecmint.com/setting-up-prerequisites-for-oracle-12c-installation/>  
3 <http://www.tecmint.com/oracle-12c-installation-in-centos-6/>

### 4 I. Pre-Installation

#### 5 <Requirements>

- 6 -For large-scale installation we need to use multicore processors with High availability.
- 7 -Recommended minimum RAM needed for Oracle is 2GB or more.
- 8 -Swap must be enabled double the size of RAM.
- 9 -Disk space must be more than 8GB, its depends on edition which are we going to choose for installing.
- 10 -/tmp directory must have free space more than 1GB for error free installation.
- 11 -Supported Linux operating systems are RHEL, Centos, Oracle.
- 12 -Both x86\_64 and i686 packages are required for installation.
- 13 -Screen resolution must be more than 1024×768 resolution.

### 14 Step 1: Setting Hostname and Upgrading System

15  
16 1. If you've not set your system hostname, edit the system hosts file '/etc/hosts' and enter your hostname entry along with IP address as shown below.

```
17 127.0.0.1 localhost  
18 ::1 localhost  
19 your_ip hostname(machine name)
```

20  
21  
22 2. Before, heading up for the installation process, first makes sure your / and /tmp partitions has enough available space to carry error free installation.

```
23 # df -h
```

24  
25 3. Next, verify that your system has correct hostname, static IP address and distribution version, using following commands.

```
26 # hostname  
27 # ifconfig | grep inet  
28 # lsb_release -a
```

29  
30 4. Now change the SELinux mode to permissive and restart the system to make Permanent changes for selinux.

```
31 # vi /etc/sysconfig/selinux  
32 SELINUX=permissive
```

33  
34 5. # reboot

### 35 Step 2: Installing Packages and changing Kernel Values

36  
37  
38 6. Once your system boots up properly, you can do a system upgrade and then

install following required dependencies.

```
39 # yum clean metadata && yum upgrade
40 # yum install binutils.x86_64 compat-libcap1.x86_64
    compat-libstdc++-33.x86_64 compat-libstdc++-33.i686 \
41 compat-gcc-44 compat-gcc-44-c++ gcc.x86_64 gcc-c++.x86_64 glibc.i686
    glibc.x86_64 glibc-devel.i686 glibc-devel.x86_64 \
42 ksh.x86_64 libgcc.i686 libgcc.x86_64 libstdc++.i686 libstdc++.x86_64
    libstdc++-devel.i686 libstdc++-devel.x86_64 libaio.i686 \
43 libaio.x86_64 libaio-devel.i686 libaio-devel.x86_64 libXext.i686 libXext.x86_64
    libXtst.i686 libXtst.x86_64 libX11.x86_64 \
44 libX11.i686 libXau.x86_64 libXau.i686 libxcb.i686 libxcb.x86_64 libXi.i686
    libXi.x86_64 make.x86_64 unixODBC unixODBC-devel sysstat.x86_64
```

45

46 7. After installing all the above needed packages, now it's time to do some changes at kernel level parameters in '/etc/sysctl.conf' file.

```
47 # vi /etc/sysctl.conf
```

48

49 Add or change the following values as suggested. Save and quit using wq!.

50

```
51 #-----
```

```
52 # Oracle 12c Release 2 Entries
```

```
53 #-----
```

```
54 kernel.shmmax = 4294967295
```

```
55 kernel.shmall = 2097152
```

```
56 fs.aio-max-nr = 1048576
```

```
57 fs.file-max = 6815744
```

```
58 kernel.shmmni = 4096
```

```
59 kernel.sem = 250 32000 100 128
```

```
60 net.ipv4.ip_local_port_range = 9000 65500
```

```
61 net.core.rmem_default = 262144
```

```
62 net.core.rmem_max = 4194304
```

```
63 net.core.wmem_default = 262144
```

```
64 net.core.wmem_max = 1048576
```

65

66 8. Once you've added above values, now issue following command to take new changes into effect.

```
67 # sysctl -p
```

68

69 9. Now it's time to restart the machine and move further instructions on installing Oracle database.

```
70 # reboot
```

71

72 Step 3: Configuring System for Oracle Installation

73

74 10. Create the new groups Oracle inventory, OSDBA and OSOPER for Oracle

installation.

```
75     # groupadd -g 54321 oracle
76     # groupadd -g 54322 dba
77     # groupadd -g 54323 oper
78
79 11. Create the new user oracle and add the user to already created groups.
80     # useradd -u 54321 -g oracle -G dba,oper oracle
81     # usermod -a -G wheel oracle
82     # passwd oracle
83
84 12. If your system is enabled with firewall, you need to disable or configure it
    according to your needs. To disable it, run the following commands.
85     # iptables -F
86     # service iptables save
87     # chkconfig iptables on
88
89 13. Create the following directory for installing Oracle and change the ownership
    and grand permission to the newly created directory using recursive.
90     # mkdir -p /u01/app/oracle/product/12.2.0/db_1
91     # chown -R oracle:oracle /u01
92     # chmod -R 775 /u01
93     # ls -l /u01
94
95 14. Next, we need to add the environmental variable for oracle user. Open and
    edit the profile file of oracle user and append the oracle environment entries.
96     # vi /home/oracle/.bash_profile
97     # vi /etc/profile
98
99 Append the below Environment Entry. Save and exit the vi editor using wq!.
100
101 #-----
102 ## Oracle Env Settings
103 #-----
104 export TMP=/tmp
105 export TMPDIR=$TMP
106 export ORACLE_HOSTNAME=CentOS68
107 export ORACLE_UNQNAME=orcl
108 export ORACLE_BASE=/u01/app/oracle
109 export ORACLE_HOME=$ORACLE_BASE/product/12.2.0/db_1
110 export ORACLE_SID=orcl
111 export PATH=/usr/sbin:$PATH
112 export PATH=$ORACLE_HOME/bin:$PATH
113 export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
114 export CLASSPATH=$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib
115
```

```
116
117     Now exit from root user and switch to oracle user. Again, this step is not
      required, if you are already using root account, just switch to oracle user for
      further instructions.
118
119     # exit
120     # su - oracle
121
122     15. Here we need to check for the resource limits for oracle installing user. Here
      our Oracle installer user is oracle. So we must be logged in as oracle user, while
      doing resource check. Check for the soft and hard limits for file descriptor settings
      before installation.
123     $ ulimit -Sn
124     1024
125     $ ulimit -Hn
126     4096
127     $ ulimit -Su
128     1024
129     $ ulimit -Hu
130     31532
131     $ ulimit -Ss
132     10240
133     $ ulimit -Hs
134     unlimited
135
136     You may get different values in the above command. So, you need to manually
      assign the values for limits in configuration file as shown below.
137
138     $ su
139     # vi /etc/security/limits.conf
140
141     ...
142     #ftp          hard   nproc           0
143     #@student     -      maxlogins      4
144
145     oracle soft nfile 1024
146     oracle hard  nfile 65536
147     oracle soft nproc 2047
148     oracle hard  nproc 16384
149     oracle soft stack 10240
150     oracle hard  stack 32768
151
152     # End of file
153
154
```

155 Next, edit the below file to set the limit for all users.  
156 # vi /etc/security/limits.d/90-nproc.conf

157  
158 By default it was set to  
159 \* soft nproc 1024

160  
161 We need to change it to.  
162 \* - nproc 16384

163  
164 finally  
165 \* - nproc 16384  
166 root soft nproc unlimited

167  
168 Step 4: Downloading Oracle Packages

169  
170 16. Turn on the display  
171 - runInstaller를 실행하기 전에 xdisplay를 일치시켜줘야 한다. root 계정이나 oracle 에서  
xdisplay를 사용하려고 하면 실행되지 않는 부분을 해결하기 위해서는 아래의 명령어를 본인의 사용  
계정에서 설정해줘야 한다. 꼭!! 안그러면 실행 중 오류가 뜬다.  
172 # xhost +  
173 # su - oracle  
174 \$ DISPLAY=:0.0; export DISPLAY

175  
176 II. Installation

177 1. Then its time to pull down the oracle zip package from official site. To  
download Oracle package, you must be registered user or else sing-up and  
download the package using the below link.

178 [http://www.oracle.com/technetwork/database/enterprise-edition/downloads/in  
dex.html?ssSourceSiteId=ocomen](http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index.html?ssSourceSiteId=ocomen)

179  
180 2. Copy the installation files to oracle's home directory  
181 \$ exit  
182 # mv /home/Instructor/Downloads/linux\*.zip ~oracle  
183 # chown oracle:oracle ~oracle/linux\*.zip

184  
185 3. Change user to oracle  
186 # su - oracle  
187 \$ whoami

188  
189 4. Unzip  
190 \$ unzip linux\*.zip

191  
192 5. Install Oracle  
193 - Now you simply cd into the database directory and run the runInstaller  
program:

```
194    $ chmod 777 -R database
195    $ cd database
196    $ ./runInstaller -ignoreSysPrereqs
197
198    Wait few seconds. It will launch Oracle 12c installation wizard.
199
200    Starting Oracle Universal Installer...
201
202    Checking Temp space: must be greater than 500 MB.  Actual 31113 MB
    Passed
203    Checking swap space: must be greater than 150 MB.  Actual 4095 MB  Passed
204    Checking monitor: must be configured to display at least 256 colors.  Actual
    16777216  Passed
205    Preparing to launch Oracle Universal Installer from
    /tmp/OraInstall2017-03-16_11-58-11PM. Please wait ...
206
207
208    <Configure Security Updates>
209    6. I'm going to skip this step as I don't want security updates. Un-check the
    check box and mark the checkbox that says "I Wish to receive security updates
    via My Oracle Support".
210
211    Click on Next, you will get a error saying that you've not provided and email
    address click Yes to continue.
212
213    <Installation Option>
214    7. Next, choose the type of installation, I'm choosing the first option to [Create
    and configure a database].
215    Click on Next.
216
217    <System Class>
218    8. I'm going to choose [Server class] here. If we need to install in any Desktop
    machines we can choose the above Option as Desktop Class.
219    Click on Next.
220
221    <Database Installation Options>
222    9. We are going to setup only [Single instance database installation] here. So,
    select the first option.
223    Click on Next.
224
225    <Install Type>
226    10. Choose the Advance install option to get more option while going through
    Installation steps.
227    Click on Next.
228
```

229 <Database Edition>  
230 11. Time to choose which edition of database installation we looking for. For large  
scale Productions we can use Enterprise or if we need standard edition or we can  
choose the options as mentioned there. We need more than 7.5 GB space for  
Enterprise installation because database Population will grow soon/increase.  
Select [Enterprise Edition (7.5GB)  
231 Click on Next.  
232  
233 <Installation Location>  
234 12. Enter the Oracle base installation location, here all installed configurations  
files will be stored. Here you need to define the location of oracle installation  
path, as we created the location in step #12 in the first part of this article.  
235 Click on Next.  
236  
237 <Creating Inventory>  
238 13. For the first time installation, every Inventory files will be created under  
'/u01/app/oralInventory' directory. We have created the group oracle for  
installation. So now the oracle group has permission to access Inventory  
Directory. Let us choose the Oracle as the Group for Operating system group.  
239 Click on Next.  
240  
241 <Configuration Type>  
242 14. Select the type of database, you want to create. Since, we are using for  
[General purpose], so choosing general from the below options and click Next.  
243  
244 <Database identifiers>  
245 15. Specify the Global Database name for uniquely identified and un-check the  
Create as Container database, as here we are not going to create multiple  
databases.  
246 Click on Next.  
247  
248 <Configuration Options>  
249 16. In my installation, I have assigned 4GB of Memory to my virtual machine,  
but this is not enough for Oracle. Here we need to Enable allocate memory  
automatically for the use of system global Area.  
250  
251 Check the box that says Enable Automatic Memory Management and keep the  
default allocate memory. If we need some sample schema's we can check and  
continue for installation.  
252  
253 [Character sets] tab  
254 Verify [Use Unicode (AL32UTF8)  
255  
256 [Sample schemas] tab  
257 Check [Install sample schemas in the database]

258  
259 Click on Next.  
260  
261 <Database Storage>  
262 17. We need to choose the location to store the database storage. Here I'm going to assign '/u01/app/oracle/oradata' location to save the databases and Click Next to continue to installer steps.  
263  
264 <Management Options>  
265 18. I don't have a Cloud control manager credentials from oracle, so I have to skip this step.  
266  
267 <Recovery Options>  
268 19. If we have to Enable recovery options, then we have to check the Enable Recovery. In real environment these options are Compulsory to setup. Here to enable this option we need to add separate group and we need to define one of the file system location rather than default location where our database save.  
269  
270 <Schema Passwords>  
271 20. We need to define the password for starter database which is all pre-loaded while the installations. Password must contain alphanumeric, upper\_case and lower\_case. For example, my password is Redhat123. This password we will use in web interface login too.  
272  
273 <Operating system Groups>  
274 21. We need to provide system privileges to create database for that we need to choose the oracle group. Choose oracle for every options.  
275  
276 <Prerequisite Checks>  
277 22. Check [Ignore All]  
278 Click on Next.  
279  
280 <Summary>  
281 23. At last we can review every settings before database population. If we need any changes we can edit the settings.  
282 Click on Install.  
283  
284 24. During setup process, it will ask to run two scripts as a root user.  
285 Login into your Oracle Server as root user and switch to '/' partition and execute below scripts as shown.  
286  
287 # cd /  
288 # ./u01/app/oralInventory/orainstRoot.sh  
289 # ./u01/app/oracle/product/12.1.0/db\_1/root.sh  
290



291 25. After successfully execution of above two scripts, we need to move forward  
by clicking on OK.

292

293 26. After finishing all the above tasks successfully, we will receive the Database  
Configuration Assistant window with the all the details and it will show you the EM  
Database Express URL. Click OK to move forward.

294

295 <https://CentOS68:5500/em>

296

297 If you wish to change the database accounts password, you can use the  
password management.

298 That's it! We've successfully completed Database Configuration, now click Next to  
continue installation process.

299

300 Finally Oracle Database installation was successfully completed. Click on Close to  
quit the Oracle Installer.

301

302

303 III. Post-Installation Oracle

304 1. After completing the Database installation, now move ahead to do some Post  
installation configuration. Open file 'oratab' using vi editor.

305

306 # vim /etc/oratab

307

308 After opening file, search for the the following line.

309

310 orcl:/u01/app/oracle/product/12.2.0/db\_1:N

311 And change the parameter N to Y as shown.

312

313 orcl:/u01/app/oracle/product/12.2.0/db\_1:Y

314

315 Restart the machine to take new changes.

316 # reboot

317

318 2. After restarting machine, verify that the listener is up and running using 'lsnrctl  
status' command.

319 If it does not start automatically, you will need to start it manually using 'lsnrctl  
start' command.

320

321 \$ su - oracle

322 \$ lsnrctl status

323 \$ lsnrctl start

324

325 Note: If the lsnrctl does not start, read the troubleshooting step (mentioned at  
the end of the article) to get fix the errors if any and try to start the listener.

```
326
327 3. Next login into Oracle database as a Operating system user using sysdba and
    start-up the database.
328
329 $ sqlplus /nolog
330 SQL> conn sys as sysdba
331 Enter password:
332 Connected to an idle instance.
333 SQL> startup
334 ORACLE instance started.
335
336 Total System Global Area 1610612736 bytes
337 Fixed Size                 8621232 bytes
338 Variable Size             1056965456 bytes
339 Database Buffers          536870912 bytes
340 Redo Buffers               8155136 bytes
341 Database mounted.
342 Database opened.
343 SQL> exit
344 $ lsnrctl status
345
346 ...
347 ...
348 Services Summary...
349 Service "orcl" has 1 instance(s).
350   Instance "orcl", status READY, has 1 handler(s) for this service...
351 ...
352 ...
353 The command completed successfully.
354
355 4. Now it's time to access Oracle Web interface at the following addresses.
356
357 https://CentOS68:5500/em
358 OR
359 https://192.168.56.5:5500/em
360
361 When EM Express prompts you for your username and password, Use to log in as
    a user with DBA privilege such as SYS or SYSTEM and use the password which we
    used for Schema password.
362
363 Login User = SYSTEM
364 Password = javaoracle
365
366 5. After login into the Oracle panel, you can see the main interface as Database
    Home and few screen shot.
```

```
367
368 Step: Troubleshooting Oracle
369
370 1. If listener does not start, you need to replace the domain name with local IP
    address 127.0.0.1 in below file.
371
372 /u01/app/oracle/product/12.2.0/db_1/network/admin/listener.ora
373
374 2. https://localhost:1158/em Unable to Connect
375     emctl start dbconsole
376     emctl status dbconsole
377
378 3. "ORA-12505, TNS:listener does not currently know of SID "
379     $ORACLE_HOME/network/admin/listener.ora, tnslistener.ora
380     두 파일 모두 (HOST = IP)(PORT = 1521) 호스트 이름을 넣지 말고 IP를 넣을 것
381     $ ping hostname 을 넣었을 때 연결된 ip 가 나와야 함.
382     #> lsnrctl stop | start | status | service
383
384 4. ORA-01950 : no privileges on tablespace 'USERS'[closed]
385     ORA-01950 : 테이블 스페이스 'USERS'에 대한 권한이 없습니다"
386
387     Solution>ALTER USER <user> quota unlimited on <tablespace name>;
388     ALTER USER scott DEFAULT TABLESPACE USERS QUOTA UNLIMITED ON
    USERS;
```