Step by Step Setup

Oracle 19c 2-Node RAC

RHEL 7.8

Virtual Box 6.1.30

This tutorial is divided into multiple parts

Part 1 – Overview
Part 2 – Install RHEL 7.8
Part 3 – Clone the Nodes for RAC Cluster
Part 4 – Setup Shared Disks
Part 5 – Install Grid Home (Clusterware) & Create Cluster
Part 6 – Install Database Home
Part 7 – Create Database

Part1: Overview and Preparation

1. Build Virtual Machine using **Red Hat Enterprise Linux 7.8**
2. Allocate at-least **8GB RAM** per Node
3. Allocate at-least **10GB of SWAP** to avoid SWAP Warnings
4. Setup Networking
    a. 1 Private IP for Interconnect and ASM per node
    b. 1 Public IP per node
    c. Make sure to have IP come online automatically
5. Setup **/etc/hosts**
6. Disable **firewall**
7. Setup **NTP/chrony (3rd Adapter is needed)**
8. Create necessary users – **oracle** and **grid**
9. Setup SSH between **oracle** User – or let oracle do it.
10. Setup SSH between **grid** User – or let oracle do it.
11. Create necessary directories – for installation of **grid home** and **oracle home**
12. Install Oracle 19c Pre-Install –
    oracle-database-preinstall-19c-1.0-1.el7.x86_64.rpm
13. Set kernel Parameters – or let oracle do it (above preinstall will do it)
14. Install Oracle **ASMLIB** and **ASM-SUPPORT**
15. Clone the machines
16. Setup Shared Storage
    a. **20GB** for **ASM Data**
    b. **4GB** for **OCR**
17. Create ASM Disk
18. Unzip **Grid Software** on Node 1
19. Unzip **Database Software** on Node 1
20. Install **cvuqdisk-1.0.10-1.rpm**
21. Optionally run Cluster Verification Utility

    /runcluvfy.sh stage -pre crsinst -n db1,db2

22. Run **gridSetup.sh** as **grid** user to create the cluster
23. Run **runInstaller** as **oracle** user to install Database Home.
24. Set the ASM Disks for DATA
25. Run **dbca** as **oracle** user to create the database.

IP Configuration for Reference

Node/Server	Private IP	Public IP	Virtual IP
db1	192.168.0.101	192.168.1.101	192.168.1.111
db2	192.168.0.102	192.168.1.102	192.168.1.112

SCAN IP	192.168.1.121
	192.168.1.122
	192.168.1.123

Part 2: Install RHEL 7.8

Due to amount of steps involved, separate document is created to install RHEL 7.8

Part 3: Clone Nodes from Base Image

Change the MAC address in the Virtual Box Adapter
Boot the 2nd Node
Change the hostname
Change the IP address of 2nd Node

```
hostnamectl set-hostname db2.db.com
```

Note – No changes are required to first node.

Part 3: Setup Shared Storage

Add 2 Shared Disks to both Nodes

20GB for ASM Data
4GB for OCR
Make sure Disks are of type FIXED.

```
fdisk -l | grep /dev/sd

printf "o\nn\np\n1\n\n\nw\n" | sudo fdisk /dev/sdb

printf "o\nn\np\n1\n\n\nw\n" | sudo fdisk /dev/sdc

oracleasm createdisk ASMDATA1 /dev/sdb1
oracleasm createdisk ASMOCR   /dev/sdc1

oracleasm scandisks
oracleasm listdisks

/dev/oracleasm/disks/*
```

Part 5: Install Grid as Grid User

```
# as grid user

cd /media/sf_D_DRIVE/VM_Softwares/

unzip -qq Oracle_DB_19cR300_Grid_LIN64_Home.zip -d /dbi/oracle/V19Grid

# as root

cd /dbi/oracle/V19Grid/cv/rpm

CVUQDISK_GRP=dba; export CVUQDISK_GRP
rpm -i cvuqdisk-1.0.10-1.rpm

# as grid user run the gridSetup on First Node

/dbi/oracle/V19Grid/gridSetup.sh
```

Add entry in /etc/oratab

```
+ASM1:/dbi/oracle/V19Grid:Y
```

Part 6: Install Oracle Home as oracle User

```
# as oracle user

cd /media/sf_D_DRIVE/VM_Softwares/

unzip -qq Oracle_DB_19cR300_Enterprise_LIN64_Home.zip -d /dbi/oracle/V19Database/

# as oracle user run the runInstaller on First Node

/dbi/oracle/V19Database/runInstaller
```

Part 7: Create Database

Create ASM Data disk for the Database.

```
# as grid user

. oraenv
+ASM1

sqlplus / as sysasm

CREATE DISKGROUP ASMDATA1 EXTERNAL REDUNDANCY DISK
'/dev/oracleasm/disks/ASMDATA1';

SELECT STATE, NAME FROM V$ASM_DISKGROUP;

ALTER DISKGROUP ASMDATA1 MOUNT;

COL name          FOR A10;
COL compatibility FOR A15;
SELECT name, compatibility FROM v$asm_diskgroup;

ALTER DISKGROUP ASMDATA1 SET ATTRIBUTE 'compatible.asm' = '19.0';
```

Run DBCA to create the Database as oracle user.

Add entry in /etc/oratab

```
+ora19c1:/dbi/oracle/V19Database:Y
```