# Grid Infrastructure

## Installation: version 12.2, silent

[Installing and Configuring Oracle Grid Infrastructure for a Standalone Server](https://docs.oracle.com/en/database/oracle/oracle-database/12.2/ladbi/installing-and-configuring-oracle-grid-infrastructure-for-a-standalone-server.html)

This Section Assumes:

Package, Kernel Parameter, and Library Requirements are met

Oracle ASM library driver has been configured and initialized

ASM disks have been created

as ROOT

1. If this is the first Oracle product to be installed:
   1. ] vi /etc/oraInst.loc

inventory\_loc=/u01/app/oraInventory

inst\_group=oinstall

* 1. ] mkdir -p /u01/app/oraInventory
  2. ] mkdir -p /u01/app/oracle
  3. ] chown -R oracle:oinstall /u01/app/oraInventory
  4. ] chown -R oracle:oinstall /u01/app/oracle
  5. ] chmod -R 775 /u01

as ORACLE

1. ] mkdir -p /u01/app/grid/product/12.2.0.1/grid
2. ] unzip linuxx64\_12201\_grid\_home.zip -d /u01/app/grid/product/12.2.0.1/grid
3. ] cd /u01/app/grid/product/12.2.0.1/grid
4. ] ./runcluvfy.sh stage -pre hacfg
5. ] cp ./inventory/response/grid\_install.rsp ~
6. ] vi ~/grid\_install.rsp
   1. Edit the following entries:
      1. Section A

INVENTORY\_LOCATION=/u01/app/oraInventory

oracle.install.option=HA\_CONFIG

ORACLE\_BASE=/u01/app/oracle

ORACLE\_HOME=/u01/app/grid/product/12.2.0.1/grid

* + 1. Section B

oracle.install.asm.OSDBA=dba

oracle.install.asm.OSOPER=dba

oracle.install.asm.OSASM=dba

* + 1. Section G

Passwords may contain only alphanumeric characters from the chosen database character set, underscore (\_), dollar sign ($), or pound sign (#).

oracle.install.asm.SYSASMPassword=<SYSASM\_PASSWORD>

oracle.install.asm.diskGroup.name=DATA

oracle.install.asm.diskGroup.redundancy=NORMAL

oracle.install.asm.diskGroup.AUSize=4

oracle.install.asm.diskGroup.disks=

Provide a comma separated list of all disks that will be used in the DATA (oracle.install.asm.diskGroup.name) partition.

Example: /dev/oracleasm/disks/DATA1,/dev/oracleasm/disks/DATA2

oracle.install.asm.diskGroup.diskDiscoveryString=/dev/oracleasm/disks/\*

oracle.install.asm.monitorPassword=<ASMSNMP\_PASSWORD>

1. ] ./gridSetup.sh -silent -responseFile ~/grid\_install.rsp

as ROOT

1. ] /u01/app/grid/product/12.2.0.1/grid/root.sh

as ORACLE

1. ] /u01/app/grid/product/12.2.0.1/grid/gridSetup.sh -executeConfigTools -responseFile ~/grid\_install.rsp -silent
2. ] echo "GRID:/u01/app/grid/product/12.2.0.1/grid:N" >> /etc/oratab
3. ] . oraenv
   1. ORACLE\_SID: +ASM
4. Create FRA Diskgroup
   1. ] sqlplus / as sysasm
   2. Use CREATE DISKGROUP FRA NORMAL REDUNDANCY command to create FRA diskgroup.

Example: CREATE DISKGROUP FRA NORMAL REDUNDANCY DISK '/dev/oracleasm/disks/FRA1','/dev/oracleasm/disks/FRA2';

## Minimum Package Requirements for RHEL 6

[Grid Infrastructure Installation and Upgrade Guide](https://docs.oracle.com/en/database/oracle/oracle-database/12.2/cwlin/grid-infrastructure-installation-and-upgrade-guide-linux.pdf)

rpm -q bc binutils.x86\_64 compat-libcap1.x86\_64 compat-libstdc++-33.x86\_64 e2fsprogs.x86\_64 e2fsprogs-libs.x86\_64 gcc-c++ glibc.i686 glibc.x86\_64 glibc-devel.x86\_64 kmod-oracleasm ksh libaio.x86\_64 libaio.i686 libaio.x86\_64 libX11.i686 libX11.x86\_64 libXau.i686 libXau.x86\_64 libXi.x86\_64 libXtst.x86\_64 libgcc.i686 libgcc.x86\_64 libstdc++.x86\_64 libstdc++-devel.x86\_64 libxcb.i686 libxcb.x86\_64 libXrender.i686 libXrender.x86\_64 libXrender-devel.i686 libXrender-devel.x86\_64 make.x86\_64 net-tools.x86\_64 nfs-utils.x86\_64 oracleasmlib oracleasm-support smartmontools.x86\_64 sysstat.x86\_64

# Oracle Database

## Installation: version 12.2, silent

This Section Assumes:

Package, Kernel Parameter, and Library Requirements are met

as ROOT

1. If this is the first Oracle product to be installed:
   1. ] vi /etc/oraInst.loc

inventory\_loc=/u01/app/oraInventory

inst\_group=oinstall

* 1. ] mkdir -p /u01/app/oraInventory
  2. ] mkdir -p /u01/app/oracle
  3. ] chmod 775 /u01/app
  4. ] chown -R oracle:oinstall /u01/app/oraInventory
  5. ] chown -R oracle:oinstall /u01/app/oracle
  6. ] chmod -R 775 /u01/app/oracle

as ORACLE

1. ] mkdir -p /u01/app/oracle/product/12.2.0.1/db
2. ] unzip linuxx64\_12201\_database.zip
3. ] cp ./database/response/db\_install.rsp ~
4. ] vi ~/db\_install.rsp
   1. Edit the following entries:

oracle.install.option=INSTALL\_DB\_SWONLY

UNIX\_GROUP\_NAME=oinstall

INVENTORY\_LOCATION=/u01/app/oraInventory

ORACLE\_HOME=/u01/app/oracle/product/12.2.0.1/db

ORACLE\_BASE=/u01/app/oracle

oracle.install.db.InstallEdition=EE

oracle.install.db.OSDBA\_GROUP=dba

oracle.install.db.OSOPER\_GROUP=dba

oracle.install.db.OSBACKUPDBA\_GROUP=dba

oracle.install.db.OSDGDBA\_GROUP=dba

oracle.install.db.OSKMDBA\_GROUP=dba

oracle.install.db.OSRACDBA\_GROUP=dba

1. ] ./database/runInstaller -silent -responseFile ~/db\_install.rsp

as ROOT

1. ] /u01/app/oracle/product/12.2.0.1/db/root.sh
2. ] echo "12c:/u01/app/oracle/product/12.2.0.1/db:N" >> /etc/oratab

## Patching

# Oracle Enterprise Manager

## Agent Deployment

This Section Assumes:

An SSH keypair for the Oracle user of the Enterprise Manager Server has been generated.

Required Inbound Ports:

22 from Enterprise Manager for agent deployment

3872 from Enterprise Manager for agent communications

On Target Host, as ROOT

1. Verify required packages are installed
   1. ] rpm -q binutils gcc glibc-common libaio libstdc++ make sysstat
2. ] more /etc/sysconfig/iptables
   1. Verify the following entry exists:

-A INPUT -p tcp -m state --state NEW -m tcp --dport 3872 -j ACCEPT

* 1. If the entry is missing
     1. ] iptables -I INPUT 1 -p tcp -m state --state NEW -m tcp --dport 3872 -j ACCEPT
     2. ] service iptables save
     3. ] service iptables restart

Changes to iptables will need to be reflected in the Terraform userdata

1. ] more /etc/fstab | grep /tmp
   1. If the /tmp partition has the noexec option, it will need to be removed for future installs to succeed.

Information about this is found in Oracle Support document 2473731.1

Changes to fstab will need to be reflected in the Terraform userdata

* 1. Perform the following as a workaround:
     1. ] mount -o remount,exec /tmp

This will remount /tmp without the noexec flag until the next time it is remounted with the information from fstab.

On Target Host, as ORACLE

1. ] mkdir ~/.ssh
2. ] vi ~/.ssh/authorized\_keys
3. Enter the public key for the Oracle user of the Enterprise Manager Server.

In Enterprise Management Console

1. Setup > Add Target > Add Targets Manually
2. Add Targets Manually
   1. Choose “Install Agent on Host” under “Add Host Targets”.
3. Add Host Targets
   1. +Add.
   2. Enter the FQDN of the Target Host under “Host” and choose “Linux x86-64” for the platform.
   3. Next.
   4. Installation Base Directory: /u01/app/oracle/agent
   5. Named Credential:

The Named Credential is the one containing the key pair for the Oracle user of the Enterprise Manager Server

* 1. Next.
  2. Deploy Agent.
  3. The Remote Prerequisite Check will complete with the following warning, which can be ignored:

The "visiblepw" is not set the sudoers file and as a result, the user will not be able to run sudo over ssh.

* 1. Continue > Continue, All Hosts.
  2. Done.

On Target Host, as ROOT

1. ] /u01/app/oracle/agent/agent\_13.3.0.0.0/root.sh

## Agent Uninstall

1. ] AGENT\_HOME=<AGENT\_HOME>
2. ] $AGENT\_HOME/bin/emctl stop agent
3. ] $AGENT\_HOME/perl/bin/perl $AGENT\_HOME/sysman/install/AgentDeinstall.pl -agentHome $AGENT\_HOME

## Granting a User FULL\_CREDENTIAL access to all Named Credentials by Owner

] export PATH=$OMS\_HOME/bin:$PATH

] emcli login -username=sysman

] emcli sync

] USERNAME=<USERNAME>

] OWNER=<OWNER>

] for CRED in $(emcli list -resource=NamedCredentials -columns="CredName,CredOwner" -script -noheader | grep $OWNER | awk '{print $1}'); do emcli grant\_privs -name="$USERNAME" -privilege="FULL\_CREDENTIAL;CRED\_NAME=$CRED:CRED\_OWNER=$OWNER"; done

## Installation: version 13.1

[Configuring Enterprise Manager for Firewalls](https://docs.oracle.com/cd/cloud-control-13.3/EMADV/GUID-E00C6B3B-D5E2-4E2F-9F94-8A136E3D696E.htm#EMADV625)

This Section Assumes:

Package, Kernel Parameter, and Library Requirements are met

Grid Infrastructure and Oracle Database software are installed

DATA and FRA diskgroups have been created

Required Inbound Ports:

1521 from Management IPs for database access

3872 from Management IPs for local agent communications

4903 from Target Hosts for agent communications

7102 from Management IPs for WebLogic console access

7802 from Management IPs for Enterprise Manager console access

as ORACLE

1. Create Repository Database
   1. . oraenv
      1. ORACLE\_SID: 12c
   2. ] cp $ORACLE\_HOME/assistants/dbca/dbca.rsp ~
   3. ] vi ~/dbca.rsp
      1. Edit the following values:

gdbName=<DB\_NAME>.<DB\_DOMAIN>

sid=<DB\_NAME>

databaseConfigType=SI

templateName=General\_Purpose.dbc

sysPassword=<SYS\_PASSWORD>

systemPassword=<SYSTEM\_PASSWORD>

dbsnmpPassword=<DBSNMP\_PASSWORD>

datafileDestination=+DATA

recoveryAreaDestination=+FRA

storageType=ASM

diskGroupName=DATA

recoveryGroupName=FRA

characterSet=AL32UTF8

totalMemory=

* 1. ] $ORACLE\_HOME/bin/dbca -createDatabase -silent -responseFile ~/dbca.rsp

1. Configure Repository Database
   1. ] . oraenv
      1. ORACLE\_SID: <DB\_NAME>
   2. ] sqlplus / as sysdba
   3. SQL> alter system set "\_allow\_insert\_with\_update\_check"=TRUE scope=both;
   4. SQL> alter system set session\_cached\_cursors=500 scope=spfile;
   5. SQL> alter system set shared\_pool\_size=600M scope=both;
   6. SQL> alter database add logfile group 4 ('+DATA', '+FRA') size 200M;
   7. SQL> alter database add logfile group 5 ('+DATA', '+FRA') size 200M;
   8. SQL> alter database add logfile group 6 ('+DATA', '+FRA') size 200M;
   9. SQL> shutdown immediate;
   10. SQL> startup mount;
   11. SQL> alter database archivelog;
   12. SQL> alter database open;
   13. SQL> exit
2. ] mkdir -p /u01/app/oracle/agent
3. ] mkdir -p /u01/app/oracle/middleware
4. ] chmod +x ./em13300\_linux64.bin
5. ] ./em13300\_linux64.bin -getResponseFileTemplates -outputLoc /home/oracle -J-Djava.io.tmpdir=/backup
6. ] vi ~/new\_install.rsp
   1. : %s/<string>//g
   2. Edit the following entries:

UNIX\_GROUP\_NAME="oinstall"

INVENTORY\_LOCATION="/u01/app/oraInventory"

DECLINE\_SECURITY\_UPDATES=true

INSTALL\_UPDATES\_SELECTION="skip"

ORACLE\_MIDDLEWARE\_HOME\_LOCATION="/u01/app/oracle/middleware"

ORACLE\_HOSTNAME="<HOSTNAME>"

AGENT\_BASE\_DIR="/u01/app/oracle/agent"

WLS\_ADMIN\_SERVER\_USERNAME="weblogic"

WLS\_ADMIN\_SERVER\_PASSWORD="<WEBLOGIC\_PASSWORD>"

WLS\_ADMIN\_SERVER\_CONFIRM\_PASSWORD="<WEBLOGIC\_PASSWORD>"

NODE\_MANAGER\_PASSWORD="<NODEMANAGER\_PASSWORD>"

NODE\_MANAGER\_CONFIRM\_PASSWORD="<NODEMANAGER\_PASSWORD>"

ORACLE\_INSTANCE\_HOME\_LOCATION="/u01/app/oracle/gc\_inst"

SOFTWARE\_LIBRARY\_LOCATION="/u01/app/oracle/swlib"

DATABASE\_HOSTNAME="<HOSTNAME>"

LISTENER\_PORT="1521"

SERVICENAME\_OR\_SID="<DB\_NAME>.<DB\_DOMAIN>"

SYS\_PASSWORD="<SYS\_PASSWORD>"

SYSMAN\_PASSWORD="<SYSMAN\_PASSWORD>"

SYSMAN\_CONFIRM\_PASSWORD="<SYSMAN\_PASSWORD>"

DEPLOYMENT\_SIZE=SMALL

MANAGEMENT\_TABLESPACE\_LOCATION="+DATA"

CONFIGURATION\_DATA\_TABLESPACE\_LOCATION="+DATA"

JVM\_DIAGNOSTICS\_TABLESPACE\_LOCATION="+DATA"

AGENT\_REGISTRATION\_PASSWORD="<AGENT\_PASSWORD>"

AGENT\_REGISTRATION\_CONFIRM\_PASSWORD="<AGENT\_PASSWORD>"

1. ] ./em13300\_linux64.bin -silent -responseFile ~/new\_install.rsp -J-Djava.io.tmpdir=/backup

as ROOT

1. ] /u01/app/oracle/middleware/allroot.sh

## Issue Resolution

### Agent Metric Evaluation error after deployment during restrictive port level security

Agent is not monitoring internal targets:

] cat $AGENT\_HOME/agent\_inst/sysman/emd/targets.xml

Add internal targets to the Agent monitoring targets:

] $AGENT\_HOME/agent\_13.3.0.0.0/bin/emctl config agent addinternaltargets

### Open Cursor Count Metric not respecting threshold in OEM Template

BEGIN

DBMS\_SERVER\_ALERT.set\_threshold (

metrics\_id => DBMS\_SERVER\_ALERT.OPEN\_CURSORS\_CURRENT,

warning\_operator => DBMS\_SERVER\_ALERT.OPERATOR\_GT,

warning\_value => '<VALUE>',

critical\_operator => DBMS\_SERVER\_ALERT.OPERATOR\_GT,

critical\_value => '<VALUE>',

observation\_period => 1,

consecutive\_occurrences => 3,

instance\_name => '<INSTANCE\_NAME>',

object\_type => DBMS\_SERVER\_ALERT.OBJECT\_TYPE\_SYSTEM,

object\_name => NULL);

COMMIT;

END;

/

## Patching

### Quarterly Procedure

Stop All Services

] OMS\_HOME=/u01/app/oracle/middleware

] $OMS\_HOME/bin/emctl stop oms -all

] AGENT\_HOME=/u01/app/oracle/agent/agent\_13.3.0.0.0

] $AGENT\_HOME/bin/emctl stop agent

Patch Oracle Database

Patch WebLogic

] emctl start oms

as ORACLE

1. Oracle Enterprise Manager
   1. ] export ORACLE\_HOME=/u01/app/oracle/middleware
   2. Update OPatch and OMSPatcher to newest version, if necessary.

To install OPatch 13.9:

] $ORACLE\_HOME/oracle\_common/jdk/bin/java -jar opatch\_generic.jar -silent ORACLE\_HOME=$ORACLE\_HOME

* 1. ] export PATH=$ORACLE\_HOME/bin:$ORACLE\_HOME/OMSPatcher:$PATH
  2. ] unzip -d /backup p<PATCH\_NUMBER>\_133000\_Generic.zip
  3. ] cd /backup/<PATCH\_NUMBER>
  4. ] omspatcher apply –analyze
     1. WebLogic admin server URL: <default>
     2. WebLogic admin server username: <default>
     3. WebLogic admin server Password: <WEBLOGIC\_PASSWORD>
  5. ] emctl stop oms
  6. ] omspatcher apply
     1. WebLogic admin server URL: <default>
     2. WebLogic admin server username: <default>
     3. WebLogic admin server Password: <WEBLOGIC\_PASSWORD>
  7. ] emctl start oms

Patch Agents

1. Verify Repository
   1. Download the current version of REPVFY from Oracle Support document 1426973.1 and install.
      1. ] . oraenv
         1. ORACLE\_SID: <DB\_NAME>
      2. ] unzip -d $ORACLE\_HOME/emdiag repvfy12.zip
      3. ] cd $ORACLE\_HOME/emdiag/bin
      4. ] ./repvfy upgrade

To install repvfy:

] ./repvfy install

* 1. Execute REPVFY
     1. ] ./repvfy execute optimize -tns $ORACLE\_SID
     2. ] ./repvfy verify -level 9 -detail -tns $ORACLE\_SID
        1. Execute recommended fix commands.

1. Deploy Newest Plugins

Perform the following steps only If REPVFY returns recommendation “6039. Newer version available for deployed OMS plugin”

* 1. ] emctl exportconfig oms

In Enterprise Management Console

* 1. Setup > Extensibility > Self Update
     1. Choose the “Plug-In” Folder.
  2. Plug-in Updates
     1. For Each Plugin listed in the REPVFY recommendation:
        1. Highlight the newest version of plugin with a status of “Available”.
        2. Click “Download”.
        3. Schedule an immediate download.
  3. Setup > Extensibility > Plug-ins
     1. For Each Plugin:
        1. Choose the plugin.

The ‘Latest Downloaded’ version of the plugin should be greater than the version ‘On Management Server’.

* + - 1. Deploy On… > Management Servers…
         1. Follow the steps to deploy the plugin.

OEM will become unavailable for 10-15 minutes, until the plugin deployment is completed.

* + - 1. If the plugin is deployed to Management Agents
         1. Choose the plugin.
         2. Deploy On… > Management Agent…

Follow the steps to deploy the plugin to all agents.

# WebLogic

## Patching