Hewlett Packard
Enterprise

Rapid Setting For Oracle

Automatize your Oracle database installation prerequisites with an Ansible role

Yann Allandit – HPE Presales Consultant – Oracle Knowledge Center

What is RSFO?

RSFO is a set of cluster aware scripts that will automate the setting of your Oracle database installation prerequisites

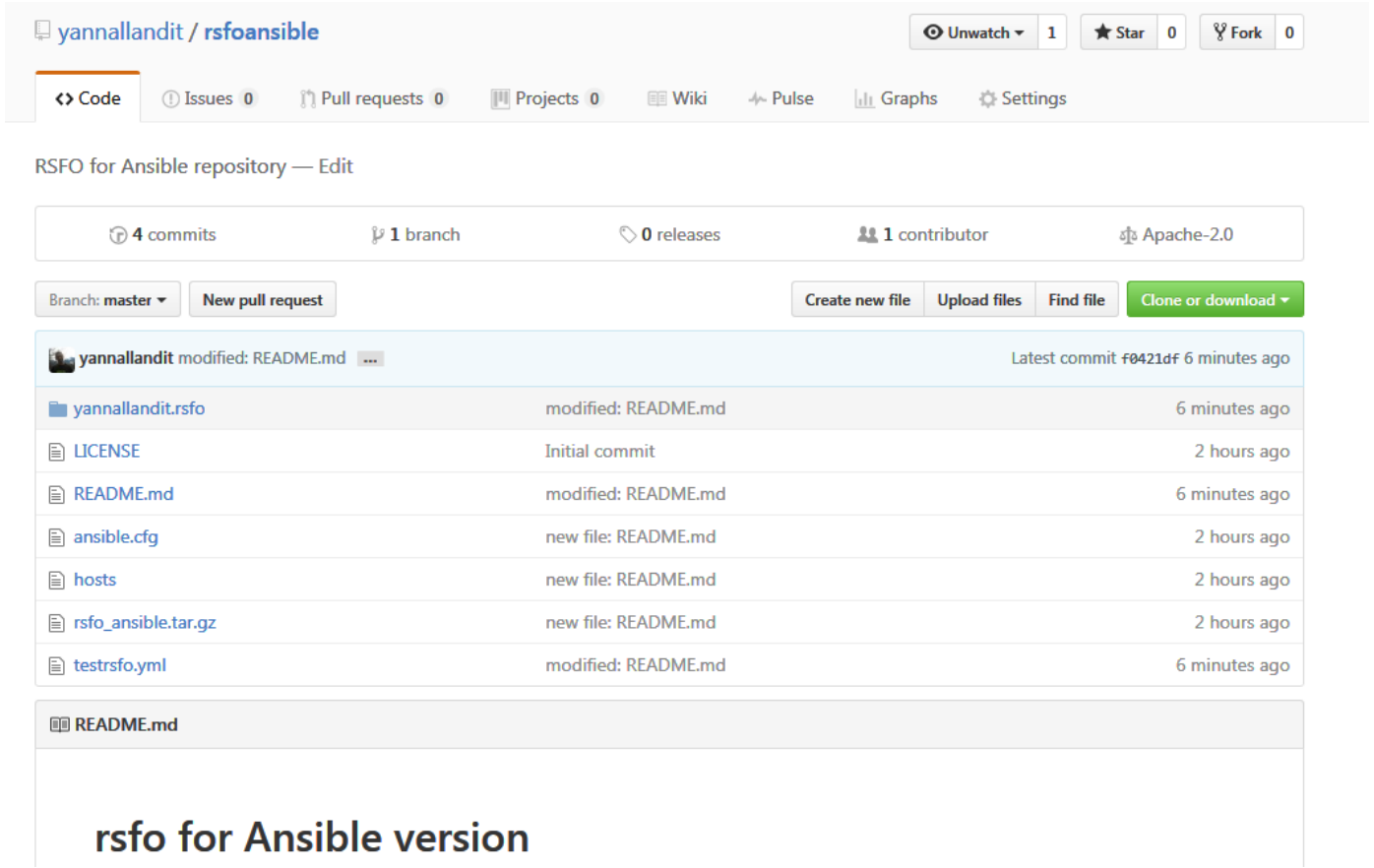
- Cluster aware scripts – from 1 to 12 nodes –
- Oracle 12c prerequisites only
- Perform automatically most of the pre-installation steps
- Supported with RedHat 7
- Focus is mainly for fast setting of demo environment
- Set the environment for Oracle Single Instance and RAC database
- Available via GitHub
- Is installed in /opt/hpe/rsfo

The Github repository

https://github.com/yannallandit/rsfoansible

Contains:

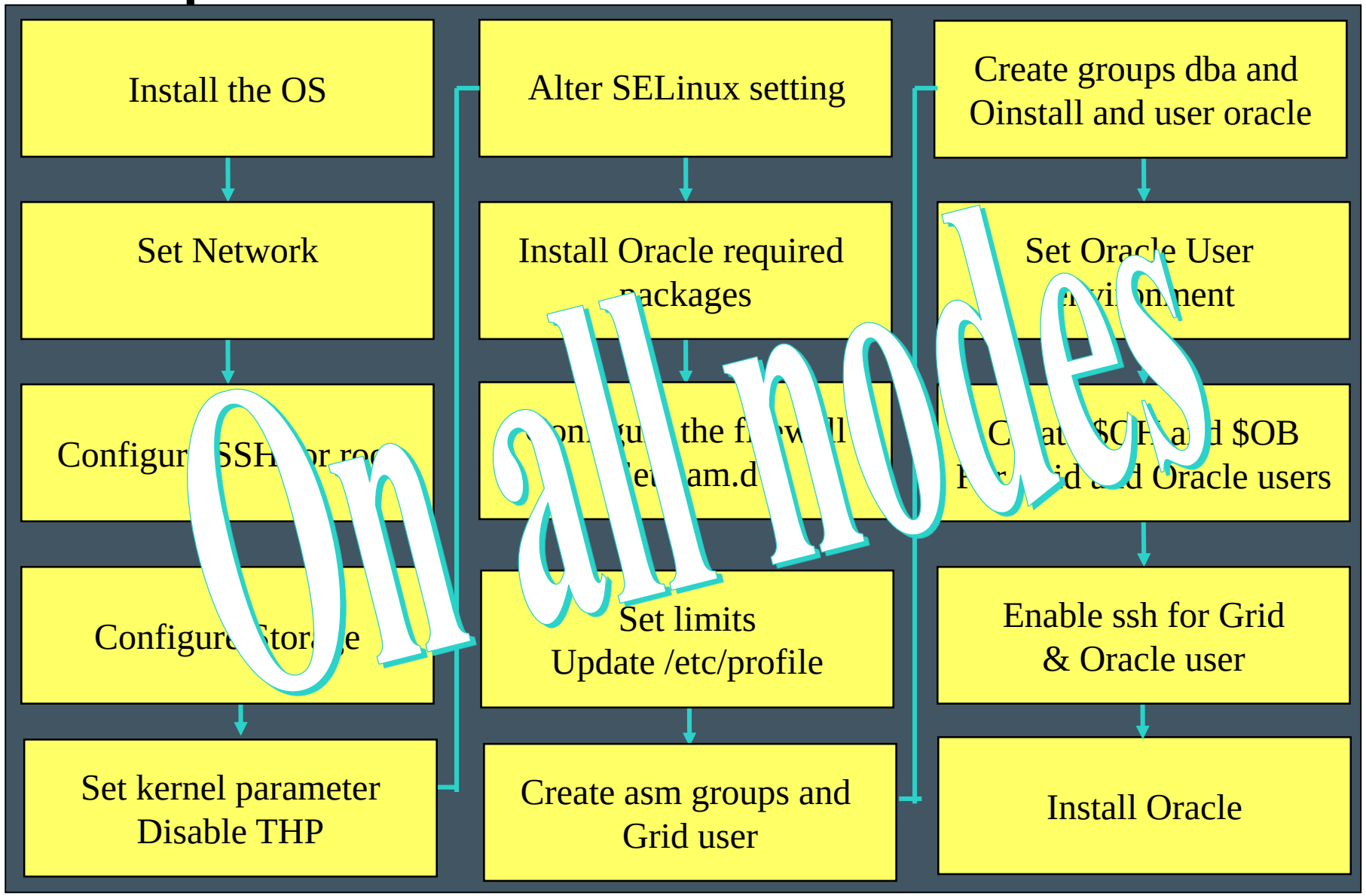
- Role
- Source files
- Playbook example
- Project tracking
- Variables



System Setting for Oracle 12c on RedHat 7

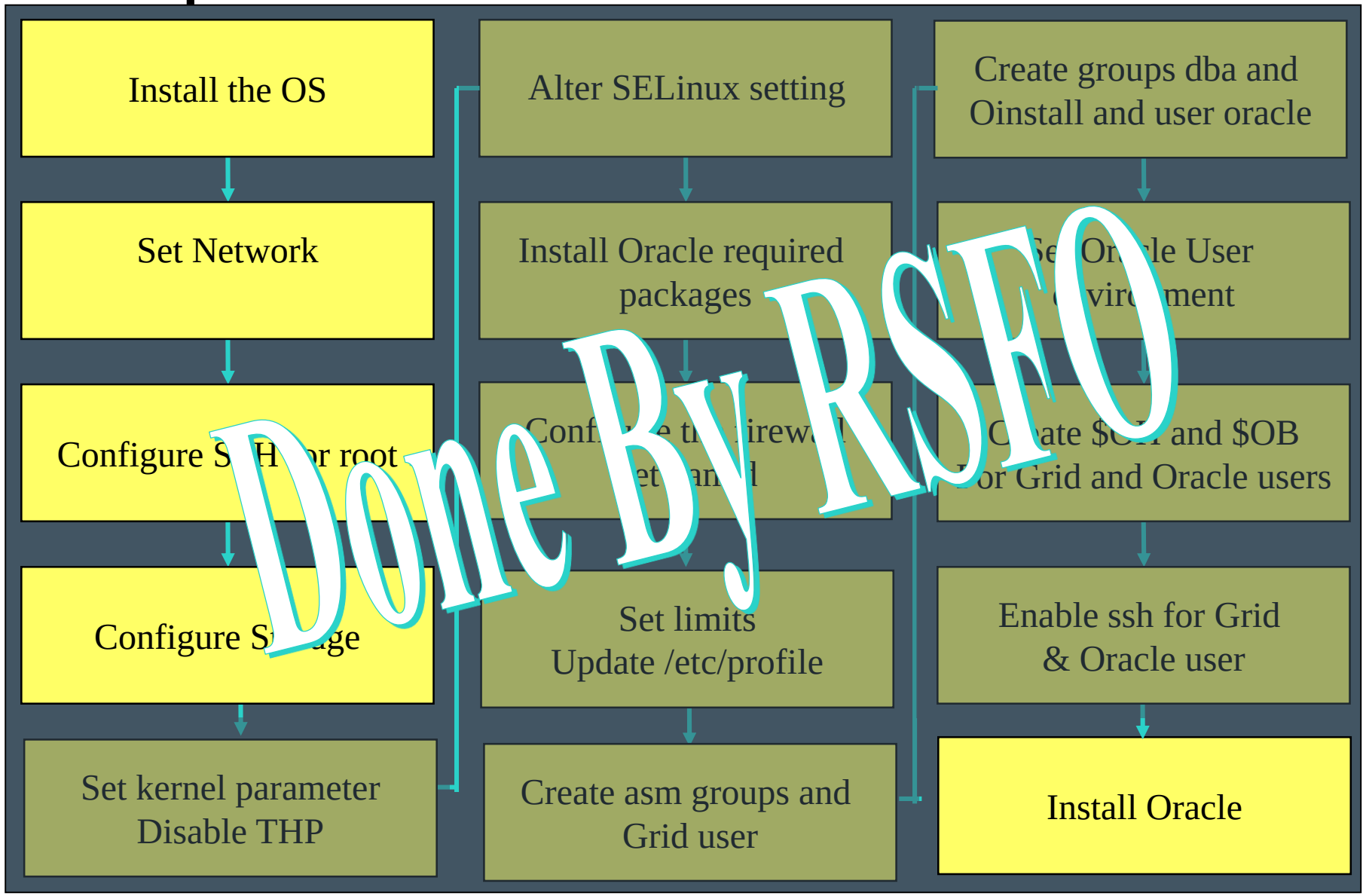
Hewlett Packard
Enterprise

Oracle Pre-Requisites on RedHat



Hewlett Packard Enterprise

Oracle Pre-Requisites on RedHat with RSFO



Hewlett Packard Enterprise

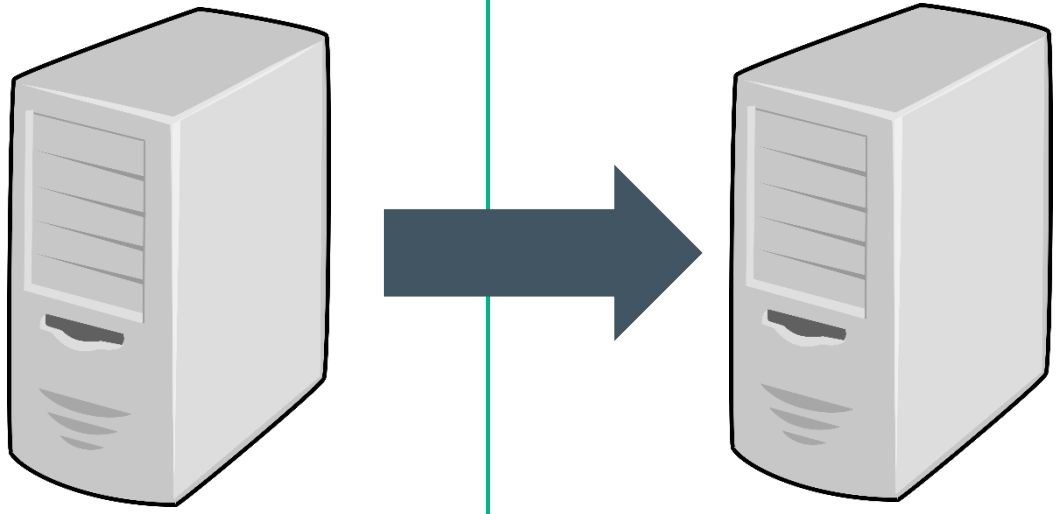
RSFO Deployment model

Single Node installation with RSFO

Control Node

- $ ansible --version
- ansible 2.1.1.0

- RSFO role installed
- vars/main.yml updated



Managed Node

- Devops:users created
- Sudo without pwd

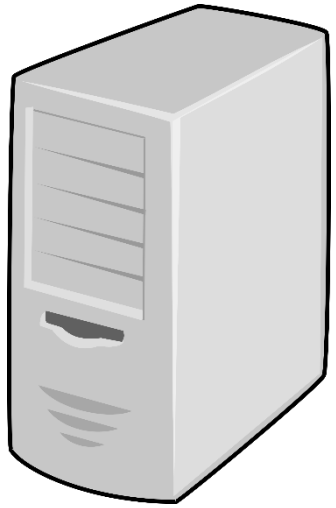
- Root can ssh localhost Without pwd
- YUM repo avialble

Multiple Node installation with RSFO

Ansible Control Node

- $ ansible --version
- ansible 2.1.1.0

- RSFO role installed
- vars/main.yml updated



Ansible Managed Nodes (Oracle nodes)

Main Node

- Devops:users created
- Sudo without pwd

- Root can ssh localhost without pwd
- YUM repo available

- Root main node must ssh all target nodes without pwd
- YUM repo available

Target Nodes

Hewlett Packard Enterprise

RSFO Prerequisites and usage

Ansible RSFO prerequisites

– The Role have to be installed on the control node

– The Main managed node need to have a devops:users OS users

– devops can sudo without password

RSFO Prerequisites

- A YUM repository with the distribution packages need to be available. RSFO will install from it the missing rpms
- SSH for root need to be configured and allowing connection without password nor passphrase including on the local node
  - In case of multiple single installation, the ssh setting has to be define only from the first node to all the other nodes (one way)
  - In Case of RAC installation, SSH need to be defined both ways
- look at "ssh_setting.txt" for the configuration procedure

How to use Ansible RSFO

– Download the latest role from the Github page https://github.com/yannallandit/rsfoansible

– Update the variable in `yannallandit.rsfo/vars/main.yml`

  – MAIN_NODE is the node from where Ansible will drive the deployment of RSFO.

  – TARGET_NODES need to be defined in a case of multi-node deployment (preparation for RAC implementation for instance).

  – GRID_BASE is the loation of the BASE directory for the GRID components.

  – ORA_BASE is the loation of the BASE directory for the Oracle database components

– Include the role in a playbook as below

```
---
- name: test module for RSFO
  hosts: "{{ MAIN_NODE }}"
  roles:
    - role: yannallandit.rsfo
```

Setting performed by RSFO

System setting performed by RSFO

Package installation: If needed, install the packages requested by Oracle

Firewall: Enable the ports 22, 1521 & 5500

SELinux: Set to persistently SELinux state to permissive

Pam.d: required session update

Transparent Hugepages: disabled

Tuned-adm: Oracle optimized profile (no THP, disable barriers, cpu governance to performance…

Kernel parameters:

```
kernel.sem = 250 32000 100 128
kernel.shmall = 80% of the RAM in 4KB pages
kernel.shmmax = 70% of the RAM in Bytes
kernel.shmmni = 4096
fs.file-max = 6815744
net.ipv4.ip_local_port_range = 9000 65500
net.core.rmem_default = 262144
net.core.wmem_default = 262144
net.core.rmem_max = 4194304
net.core.wmem_max = 4194304
fs.aio-max-nr = 1048576
vm.swappiness = 0
vm.dirty_background_ratio = 3
vm.dirty_ratio = 80
vm.dirty_expire_centisecs = 500
vm.dirty_writeback_centisecs = 100
vm.nr_hugepages = 25% of the RAM
vm.hugetlb_shm_group = oinstall gid
```

```
List of packages for RH7 (*)
binutils.x86_64
compat-libcap1.x86_64
compat-libstdc++-33.i686
compat-libstdc++-33.x86_64
gcc.x86_64
gcc-c++.x86_64
glibc.i686
glibc.x86_64
glibc-devel.i686
glibc-devel.x86_64
ksh.x86_64 libgcc.i686
libgcc.x86_64
libstdc++.i686
libstdc++.x86_64
libstdc++-devel.i686
libstdc++-devel.x86_64
libaio.i686 libaio.x86_64
libaio-devel.i686
libaio-devel.x86_64
libXext.i686
libXext.x86_64
libXtst.i686
libXtst.x86_64
libX11.i686
libX11.x86_64
libXau.i686
libXau.x86_64
libxcb.i686
libxcb.x86_64
libXi.i686
libXi.x86_64
make.x86_64
sysstat.x86_64
unixODBC-devel.x86_64
unixODBC.x86_64

(*) slightly different on RH6
```

User related setting performed by RSFO

Groups: oinstall, dba, asmadmin, asmdba

Users: oracle, grid

User equivalence: “uid” and “gid” have to be the same on all for a user or a group (see notes)

Environment variables: are set in the .bash_profile based on user provided $ORACLE_BASE

Directories: HOME and BASE directories with ownership and rights are automatically created based on user input

OraInventory: Set up $GRID_BASE/../oraInventory

SSH: enable ssh between the Oracle users of the cluster

/etc/profile: Limit update

Limits: Oracle and grid limits are set

```
grid                soft    nproc   2047
grid                hard    nproc   16384
grid                soft    nofile  1024
grid                hard    nofile  65536
grid                soft    stack   10240
grid                hard    stack   32768
grid                soft    memlock  41984000
grid                hard    memlock  41984000
```

```
oracle              soft    memlock  41984000
oracle              hard    memlock  41984000
oracle              soft    nproc   2047
oracle              hard    nproc   16384
oracle              soft    nofile  1024
oracle              hard    nofile  65536
oracle              soft    stack   10240
oracle              hard    stack   32768
```