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Oracle DB

RHEL

Oracle Database

RHEL

3가 가

- tuned tuned-profiles-oracle
- <https://access.redhat.com/labs/rheltfo/>
-

tuned profile

Oracle RDBMS

tuned-profiles-oracle

- RHEL6 : rhel-6-server-optional-rpms
- RHEL7 : rhel-7-server-optional-rpms
- RHEL8 : rhel-8-for-x86_64-baseos-rpms

()



Enterprise Linux

Red Hat

가

/etc/sysctl.conf

- Oracle Swap 가

```
vm.swappiness=10
```

- dirty page 가 1000 가
가 dirty_background_ratio가 3% 30 가

```
vm.dirty_background_ratio=3
```

- dirty page 가 1000 가 40%
400 가

```
vm.dirty_ratio=40
```

- 가 (1/100):

```
vm.dirty_expire_centisecs=500
```

- pdflush가 (1/100):

```
vm.dirty_writeback_centisecs=100
```

HugePages

- /proc/meminfo Hugepagesize

```
$ grep Huge /proc/meminfo
HugePages_Total:      0
HugePages_Free:      0
HugePages_Rsvd:      0
Hugepagesize:        2048 kB
```

- Oracle Hugepagesize SGA (System Global Area)
HugePages . SGA
Oracle . PGA (Program Global Area) Hugepages

SGA / huge page size

20GB SGA 10240 Hugepages

```
Hugepagesize = 2048 KB
20 GB SGA = 20971520 KB
(20971520 / 2048) = 10240
```

- /etc/sysctl.conf 가 .

```
vm.nr_hugepages=10240
vm.hugetlb_shm_group=<insert oracle group ID here>
```

- HugePage grub

HugePages

```
kernel /vmlinuz-<kernel-version> ro root=/dev/vg01/lv01 hugepages=10240
<other boot options>
```

- Hugepages가 nr_hugepages
-
- Huge Pages Oracle Oracle

/etc/security/limits.conf

Oracle 가 Red Hat Enterprise Linux Huge Pages
 /etc/security/limits.conf oracle ulimit memlock
 memlock KB Oracle Huge Pages
 memlock (512 * Hugepagesize) 가 512 Huge Pages
 1048576KB (512 * 2048)가

```
oracle soft memlock 1048576
oracle hard memlock 1048576
```

- SHMALL ceil(SHMMAX/PAGE_SIZE)
- SHMMAX ()
- ()

```
mem=$(free -b | awk '/Mem/ {print $2}')
```

- ()가 :

```
page=$(getconf PAGE_SIZE)
```

- SHMALL 75%

```
all=$(expr $mem \* 75 / 100 / $page + 1)
```

- SHMALL SHMMAX

```
max=$(expr $all \* $page)
```

- /etc/sysctl.conf SHMMAX SHMALL .

```
echo "kernel.shmmax = $max" >> /etc/sysctl.conf
echo "kernel.shmall = $all" >> /etc/sysctl.conf
```

- /etc/sysctl.conf SHMMNI .

```
echo "kernel.shmmni = 4096" >> /etc/sysctl.conf
```

- :

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

- SEMMSL
- SEMMNS
- SEMOPM
- SEMMNI

```
# sysctl -w "kernel.sem = 250 32000 100 128"
# echo "kernel.sem = 250 32000 100 128" >> /etc/sysctl.conf
```

Oracle open files

```
# vi /etc/security/limits.conf

#<domain> <type> <item> <value>
oracle hard nofile 10000
```

Red Hat Enterprise Linux 6 7

TPP(Transparent hugepages)

- tuned가 tuned ktune

```
# service tuned stop
# chkconfig tuned off
# service ktune stop
# chkconfig ktune off
```

tuned-adm off



tuned-adm 가 .
 , THP . Red Hat
 Enterprise Linux 6 TPP (Transparent
 hugepages) 가 .

- /boot/grub/grub.conf transparent_hugepage=never 가

```
kernel /boot/vmlinuz-2.6.32-358.el6.x86_64 ro
root=UUID=a216d1e5-884f-4e5c-859a-6e2e2530d486 rhgb quiet
transparent_hugepage=never
```

- .

reboot

I / O

CFQ I/O IO .

- deadline
- noop 가

NUMA

- NUMA
- RHEL7 numa_balancing . Oracle
 NUMA .
- /etc/sysctl.conf kernel.numa_balancing = 0 sysctl -p

- <https://access.redhat.com/solutions/39188>

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