What is the Use of Tuned Daemon in RedHat Linux ?

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What is the use of TUNED Daemon in Linux ?

OR

How we optimize the machine performance using TUNED Daemon ?

OR

System Tunning profiles

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Operating system ==> KERNEL ==> Parameters ==> /etc/sysctl.conf ==> parameters ==> Value set as per need

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Tune Systems

System administrators optimize the performance of a system by adjusting device settings based on various use case workloads. The tuned daemon applies tuning adjustments both statically and dynamically by using tuning profiles that reflect particular workload requirements.

Static Method

The tuned daemon applies system settings when the service starts or on selecting a new tuning profile. Static tuning configures predefined kernel parameters in profiles that the tuned daemon applies at runtime. With static tuning, the tuned daemon sets kernel parameters for overall performance expectations, without adjusting these parameters as activity levels changes

Dynamic method OR Configure Dynamic Tuning

With dynamic tuning, the tuned daemon monitors system activity and adjusts settings according to runtime behavior changes. Dynamic tuning continuously adjusts tuning to fit the current workload, starting with the initial declared settings in your selected tuning profile.

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Configure YUM repo to install required packages ?

```
[root@localhost ~]# lsblk
NAME        MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
sda           8:0    0  50G  0 disk
 ├─sda1       8:1    0   1G  0 part /boot
 └─sda2            8:2      0   49G   0 part
   ├─rhel-root 253:0    0  44G  0 lvm  /
   └─rhel-swap 253:1    0   5G  0 lvm  [SWAP]
sr0          11:0    1   8G  0 rom  /run/media/root/RHEL-9-0-0-BaseOS-x86_64
[root@localhost ~]#
[root@localhost ~]#
[root@localhost ~]# mount /dev/sr0  /mnt
mount: /mnt: WARNING: source write-protected, mounted read-only.
[root@localhost ~]#
[root@localhost ~]# ls /mnt
AppStream  EFI   extra_files.json  images    media.repo            RPM-GPG-KEY-redhat-release
BaseOS     EULA  GPL              isolinux  RPM-GPG-KEY-redhat-beta
```

```
[root@localhost ~]#
[root@localhost ~]# vim /etc/yum.repos.d/abc.repo

[path-1]
name=abc
baseurl=file:///mnt/BaseOS
enabled=1
gpgcheck=0
[path-2]
name=xyz
baseurl=file:///mnt/AppStream
enabled=1
gpgcheck=0

:wq!

[root@localhost ~]# yum clean all
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-manager to register.

0 files removed
[root@localhost ~]#
[root@localhost ~]# yum repolist all
Updating Subscription Management repositories.
Unable to read consumer identity

This system is not registered with an entitlement server. You can use subscription-manager to register.

repo id                                repo name                              status
path-1                                 abc                                 enabled
path-2                                 xyz                                 enabled
[root@localhost ~]#



[root@node20 ~]# yum install tuned -y


[root@node20 ~]# systemctl restart tuned
[root@node20 ~]# systemctl enable tuned

[root@node20 ~]#
[root@node20 ~]#
[root@node20 ~]# tuned-adm list

[root@node20 ~]# tuned-adm  active
Current active profile: virtual-guest
[root@node20 ~]#
```

Method:-1

How we can activate dynamic tunning feature ?

```
[root@node20 ~]# vim  /etc/tuned/tuned-main.conf

dynamic_tuning = 1


update_interval = 10
```

:wq!

[root@node20 ~]# systemctl restart tuned.service
[root@node20 ~]#
[root@node20 ~]#
[root@node20 ~]# tuned-adm active
Current active profile: virtual-guest
[root@node20 ~]#
[root@node20 ~]#

Method:-2

How we can active activate static tunning method ?

[root@node20 ~]# vim /etc/tuned/tuned-main.conf

dynamic_tuning = 0

:wq!

[root@node20 ~]# systemctl restart tuned.service

[root@node20 ~]#
[root@node20 ~]# tuned-adm active
Current active profile: virtual-guest
[root@node20 ~]#
[root@localhost ~]# tuned-adm profile_info
Profile name:
virtual-guest

Profile summary:
Optimize for running inside a virtual guest

Profile description:

[root@localhost ~]# tuned-adm profile_mode
Profile selection mode: manual
[root@localhost ~]#

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How we can check recommended Profile in current machine as per current workload ?

[root@node20 ~]# tuned-adm list
Available profiles:
- accelerator-performance   - Throughput performance based tuning with disabled higher latency STOP states
- balanced   - General non-specialized tuned profile
- desktop   - Optimize for the desktop use-case
- hpc-compute   - Optimize for HPC compute workloads
- intel-sst   - Configure for Intel Speed Select Base Frequency
- latency-performance   - Optimize for deterministic performance at the cost of increased power consumption
- network-latency   - Optimize for deterministic performance at the cost of increased power consumption, focused on low latency network performance
- network-throughput   - Optimize for streaming network throughput, generally only necessary on older CPUs or 40G+ networks
- optimize-serial-console   - Optimize for serial console use.
- powersave   - Optimize for low power consumption
- throughput-performance   - Broadly applicable tuning that provides excellent performance across a variety of common server workloads

```
- virtual-guest             - Optimize for running inside a virtual guest
- virtual-host              - Optimize for running KVM guests
Current active profile: virtual-guest
[root@node20 ~]#

[root@node20 ~]# tuned-adm  recommend
virtual-guest
[root@node20 ~]#

[root@node20 ~]# tuned-adm  profile  virtual-guest
[root@node20 ~]#
[root@node20 ~]#
[root@node20 ~]# tuned-adm  active
Current active profile: virtual-guest
[root@node20 ~]#
[root@node20 ~]#

[root@node20 ~]# cd /proc/sys
[root@node20 sys]# ls
abi  crypto  debug  dev  fs  kernel  net  user  vm
[root@node20 sys]#
[root@node20 sys]# cd kernel
[root@node20 kernel]# ls
[root@node20 ~]# cd  /usr/lib/tuned
[root@node20 tuned]# ls
accelerator-performance  desktop   hpc-compute  latency-performance  network-throughput     powersave   throughput-
performance  virtual-host
balanced                 functions  intel-sst   network-latency      optimize-serial-console  recommend.d  virtual-guest
[root@node20 tuned]#
[root@node20 tuned]#
[root@node20 tuned]#
[root@node20 tuned]# cd virtual-guest
[root@node20 virtual-guest]#
[root@node20 virtual-guest]# ls
tuned.conf
[root@node20 virtual-guest]#
[root@node20 virtual-guest]# cat tuned.conf

 191  cd /etc/tuned
 192  ls
 193  cat  tuned-main.conf

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