

Server tuning

```
#sudo yum install wget
```

```
#sudo wget https://dl-ssl.google.com/dl/linux/direct/mod-pagespeed-  
stable_current_x86_64.rpm
```

```
#sudo yum localinstall mod-pagespeed-*.rpm
```

```
#sudo systemctl restart httpd
```

```
root@ip-172-31-34-61:~$ ssh -i /usr/share/ssh-key.pem ec2-user@13.200.253.227
The authenticity of host '13.200.253.227 (13.200.253.227)' can't be established.
ED25519 key fingerprint is: SHA256:npuTEZ0VeeFXIhZrg4ibAQ8Rk9z/ieUNb9NA8pz4
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.200.253.227' (ED25519) to the list of known hosts.
root@ip-172-31-34-61:~$ sudo yum install wget
Register this system with Red Hat Insights: rhc connect
Example:
# rhc connect --activation-key <key> --organization <org>
The rhc client and Red Hat Insights will enable analytics and additional
management capabilities on your system.
View your connected systems at https://console.redhat.com/insights
You can learn more about how to register your system
using rhc at https://red.ht/registration
[ec2-user@ip-172-31-34-61 ~]$ sudo yum install wget
[ec2-user@ip-172-31-34-61 ~]$ sudo yum install wget
Updating Subscription Management repositories.
Unable to read consumer identity
This system is not registered with an entitlement server. You can use "rhc" or "
subscription-manager" to register.
Red Hat Enterprise Linux 10 for x86_64 - AppStr 32 MB/s | 4.3 MB 00:00
Red Hat Enterprise Linux 10 for x86_64 - BaseOS 102 MB/s | 44 MB 00:00
Red Hat Enterprise Linux 10 Client Configuratio 42 kB/s | 2.4 kB 00:00
Dependencies resolved.
=====
Package Arch Version Repository Size
=====
Installing:
wget x86_64 1.24.5-5.el10 rhel10-appstream-rhui-rpms 807 k
Transaction Summary
=====
Install 1 Package
Total download size: 807 k
Installed size: 3.3 M
Is this ok [y/n]: y
Downloading Packages:
wget-1.24.5-5.el10.x86_64.rpm 26 MB/s | 807 kB 00:00
Total 16 MB/s | 807 kB 00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction:
Preparing : 1/1
Installing : wget-1.24.5-5.el10.x86_64 1/1
Running scriptlet: wget-1.24.5-5.el10.x86_64 1/1
Installed products updated.
Installed:
```

#b. Frontend Optimization

Even without modules:

Compress and minify CSS, JS, HTML.

Use lazy loading for images.

Use browser caching with .htaccess (Apache):`httpd -M | grep pagespeed`

```
<IfModule mod_expires.c>
```

```
ExpiresActive On
```

```
ExpiresByType image/jpg "access plus 1 year"
```

ExpiresByType text/css "access plus 1 month"

ExpiresByType application/javascript "access plus 1 month"

</IfModule>

Gzip Compression

Gzip reduces the size of transferred files, improving page load times.

Apache

Enable mod_deflate:

sudo yum install httpd

- Add in Apache config /etc/httpd/conf.d/gzip.conf:

<IfModule mod_deflate.c>

AddOutputFilterByType DEFLATE text/html text/plain text/xml text/css
application/javascript application/json

</IfModule>

```
root@ip-172-31-34-61:~#  
mod_http2-2.0.29-3.el10.x86_64  
mod_lua-2.4.63-4.el10.1.3.x86_64  
redhat-logos-httpd-100.2-1.el10.noarch  
complete  
(root@ip-172-31-34-61 ~)# sudo systemctl restart httpd  
(root@ip-172-31-34-61 ~)# httpd -M | grep pagespeed  
pagespeed_module (shared)  
(root@ip-172-31-34-61 ~)# cd /var/www/html  
(root@ip-172-31-34-61 html)# sudo vi .htaccess  
(root@ip-172-31-34-61 html)# sudo systemctl restart httpd  
(root@ip-172-31-34-61 html)# sudo nano /etc/httpd/conf/httpd.conf  
sudo: nano: command not found  
(root@ip-172-31-34-61 html)# sudo vi /etc/httpd/conf/httpd.conf  
(root@ip-172-31-34-61 html)# cd  
(root@ip-172-31-34-61 ~)# sudo yum install httpd  
Updating Subscription Management repositories.  
Unable to read consumer identity  
This system is not registered with an entitlement server  
You can use "rhc" or "subscription-manager" to register.  
mod-pagespeed 8.0 kB/s | 2.4 kB 00:00  
Package httpd-2.4.63-4.el10.1.3.x86_64 is already installed.  
Dependencies resolved.  
Nothing to do.  
complete  
(root@ip-172-31-34-61 ~)# sudo a2enmod deflate  
sudo: a2enmod: command not found  
(root@ip-172-31-34-61 ~)# vi /etc/httpd/conf.d/gzip.conf  
(root@ip-172-31-34-61 ~)# sudo systemctl restart httpd  
(root@ip-172-31-34-61 ~)# vi /etc/n  
networks nftables/  
networks nftables/  
networks nftables/  
networks nftables/  
networks nftables/  
networks nftables/  
networks nftables/  
networks nftables/  
(root@ip-172-31-34-61 ~)# systemctl restart nginx  
called to restart nginx.service: Unit nginx.service not found.  
(root@ip-172-31-34-61 ~)# sudo systemctl restart httpd  
(root@ip-172-31-34-61 ~)# sudo systemctl status httpd  
● httpd.service - The Apache HTTP Server  
Loaded: loaded (/usr/lib/systemd/system/httpd.service; vendor preset: enabled)  
Active: active (running) since Fri 2026-02-06 04:40:00 UTC; 1min 10s ago  
Invocation: e307b2ab3c544b3d889e2ab5c043cd  
Docs: man:httpd.service(8)  
Main PID: 2234 (httpd)  
Status: "Total requests: 0; Idle/Busy workers 100/0"  
Tasks: 177 (limit: 5076)
```

Tuned Daemon (System Performance Tuning)

tuned is a daemon on RHEL that applies system profiles to optimize performance based on workload.

a. Install & Enable Tuned

```
sudo yum install tuned
```

```
sudo systemctl enable tuned --now
```

b. List Available Profiles

```
sudo tuned-adm list
```

Examples of profiles:

balanced – default, good for most workloads.

throughput-performance – optimize for network or disk throughput.

latency-performance – minimize latency for real-time apps.

c. Set a Profile

```
sudo tuned-adm profile throughput-performance
```

d. Check Active Profile

```
tuned-adm active
```

```

root@ip-172-31-34-61:~#
[root@ip-172-31-34-61 ~]# sudo yum install tuned
Updating Subscription Management repositories.
Unable to read consumer identity

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

Last metadata expiration check: 0:13:30 ago on Fri Feb
6 04:56:48 2026.
Package tuned-2.26.0-1.el10.1.1.noarch is already instal
led.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-34-61 ~]# sudo systemctl enable tuned --
now
[root@ip-172-31-34-61 ~]# sudo tuned-adm list
Available profiles:
- accelerator-performance - Throughput performance b
ased tuning with disabled higher latency STOP states
- aws - Optimize for aws ec2 ins
tances
- balanced - General non-specialized
tuned profile
- balanced-battery - Balanced profile biased
towards power savings changes for battery
- desktop - Optimize for the desktop
use-case
- hpc-compute - Optimize for HPC compute
workloads
- intel-sst - Configure for Intel Spee
d Select Base Frequency
- latency-performance - Optimize for determinist
ic performance at the cost of increased power consumptio
n
- network-latency - Optimize for determinist
ic performance at the cost of increased power consumptio
n, focused on low latency network performance
- network-throughput - Optimize for streaming n
etwork throughput, generally only necessary on older CPU
s or 40G+ networks
- optimize-serial-console - Optimize for serial cons
ole use.
- powersave - Optimize for low power c
onsumption
- throughput-performance - Broadly applicable tunin
g that provides excellent performance across a variety o
f common server workloads
- virtual-guest - Optimize for running ins
talls in a virtual guest
- virtual-host - Optimize for running KVM
guests
Current active profile: virtual-guest
[root@ip-172-31-34-61 ~]# sudo tuned-adm profile through
put-performance
[root@ip-172-31-34-61 ~]# tuned-adm active
Current active profile: throughput-performance

```

```

root@ip-172-31-34-61:~#
[root@ip-172-31-34-61 ~]# tuned-adm active
Current active profile: throughput-performance
[root@ip-172-31-34-61 ~]# sudo vi /etc/httpd/conf/httpd.
conf
[root@ip-172-31-34-61 ~]# sudo vi /etc/httpd/conf/httpd.
conf
[root@ip-172-31-34-61 ~]# sudo systemctl restart httpd
[root@ip-172-31-34-61 ~]# sudo vi /etc/httpd/conf/httpd.
conf
[root@ip-172-31-34-61 ~]# sudo yum install tuned -y
Updating Subscription Management repositories.
Unable to read consumer identity

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

Last metadata expiration check: 0:27:02 ago on Fri Feb
6 04:56:48 2026.
Package tuned-2.26.0-1.el10.1.1.noarch is already instal
led.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-34-61 ~]# sudo vi /etc/sysctl.conf
[root@ip-172-31-34-61 ~]# sudo sysctl -p
vm.swappiness = 10
[root@ip-172-31-34-61 ~]# cat /proc/sys/vm/swappiness
10
[root@ip-172-31-34-61 ~]# tuned-adm list
Available profiles:
- accelerator-performance - Throughput performance b
ased tuning with disabled higher latency STOP states
- aws - Optimize for aws ec2 ins
tances
- balanced - General non-specialized
tuned profile
- balanced-battery - Balanced profile biased
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use-case
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n, focused on low latency network performance
- network-throughput - Optimize for streaming n
etwork throughput, generally only necessary on older CPU
s or 40G+ networks
- optimize-serial-console - Optimize for serial cons
ole use.
- powersave - Optimize for low power c
onsumption

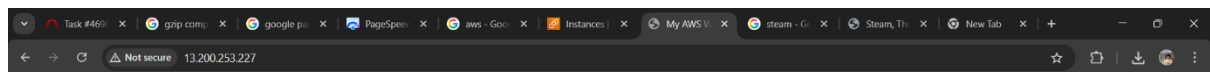
```

To test

#ab -n 1000 -c 50 http://13.200.253.227/

```
root@ip-172-31-34-61:~#  
Current active profile: throughput-performance  
[root@ip-172-31-34-61 ~]# sudo tuned-adm profile throughput-performance  
[root@ip-172-31-34-61 ~]# tuned-adm active  
Current active profile: throughput-performance  
[root@ip-172-31-34-61 ~]# ab -n 1000 -c 50 http://13.200.253.227/  
This is ApacheBench, Version 2.3.3,Revision: 1923142  
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/  
Licensed to The Apache Software Foundation, http://www.apache.org/  
  
Benchmarking 13.200.253.227 (be patient)  
Completed 100 requests  
Completed 200 requests  
Completed 300 requests  
Completed 400 requests  
Completed 500 requests  
Completed 600 requests  
Completed 700 requests  
Completed 800 requests  
Completed 900 requests  
Completed 1000 requests  
Finished 1000 requests  
  
Server Software: Apache  
Server Hostname: 13.200.253.227  
Server Port: 80  
Document Path: /  
Document Length: 154 bytes  
Concurrency Level: 50  
Time taken for tests: 0.382 seconds  
Complete requests: 1000  
Failed requests: 0  
Total transferred: 430000 bytes  
HTML transferred: 154000 bytes  
Requests per second: 2616.29 [#/sec] (mean)  
Time per request: 19.111 [ms] (mean)  
Time per request: 0.382 [ms] (mean, across all concurrent requests)  
Transfer rate: 1098.64 [kbytes/sec] received  
  
Connection Times (ms)  
min mean[+/-sd] median max  
Connect: 0 0 0.2 0 1  
Processing: 1 19 17.6 13 155  
Waiting: 1 18 17.2 12 155  
Total: 2 19 17.6 13 156  
  
Percentage of the requests served within a certain time (ms)  
50% 13  
66% 18  
75% 22
```

By searching the ip



Hello from AWS RHEL Server

Apache is working!

Search the page speed

