How to Create a Swap File in the btrfs filesystem?

written by sysadmin | 21 April 2025

The previous article explained how to create a swap file on the Linux server. But the steps in the article can only run if you use the xfs or ext4 filesystem. If you use btrfs in your filesystem, then the article will not be able to run.

Problem

How to create a swap file in the btrfs filesystem?

Solution

I have an openSUSE server and use the btrfs filesystem as shown in the image below:

```
sysadmin@OpenSUSE15:~> df -T
Filesystem     Type     1K-blocks    Used Available Use% Mounted on
/dev/sda2      btrfs     10476524 2737128   6767656  29% /
devtmpfs       devtmpfs      4096       0      4096   0% /dev
tmpfs          tmpfs       494808       0    494808   0% /dev/shm
tmpfs          tmpfs       197924    6636    191288   4% /run
/dev/sda2      btrfs     10476524 2737128   6767656  29% /boot/grub2/i386-pc
/dev/sda2      btrfs     10476524 2737128   6767656  29% /boot/grub2/x86_64-efi
/dev/sda2      btrfs     10476524 2737128   6767656  29% /opt
/dev/sda2      btrfs     10476524 2737128   6767656  29% /home
/dev/sda2      btrfs     10476524 2737128   6767656  29% /root
/dev/sda2      btrfs     10476524 2737128   6767656  29% /srv
/dev/sda2      btrfs     10476524 2737128   6767656  29% /tmp
/dev/sda2      btrfs     10476524 2737128   6767656  29% /usr/local
/dev/sda2      btrfs     10476524 2737128   6767656  29% /var
tmpfs          tmpfs        98960       8     98952   1% /run/user/1000
sysadmin@OpenSUSE15:~>
```

Check the filesystem

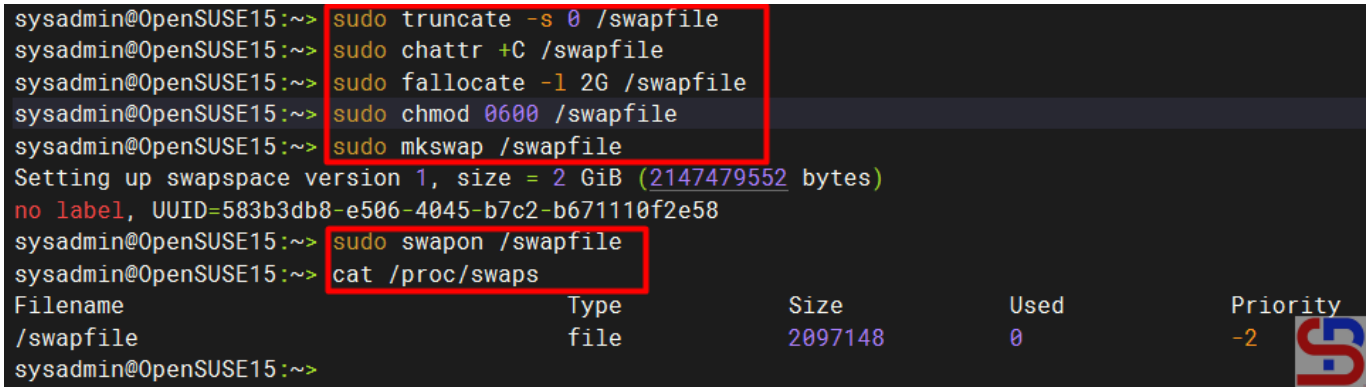
And my server does not have a swap space:

```
sysadmin@OpenSUSE15:~> cat /proc/swaps
Filename                                Type            Size            Used            Priority
sysadmin@OpenSUSE15:~>
```

Check the swap

Therefore, so that my server can have a 2GB swap space, I have to create a swap file by running the commands below:

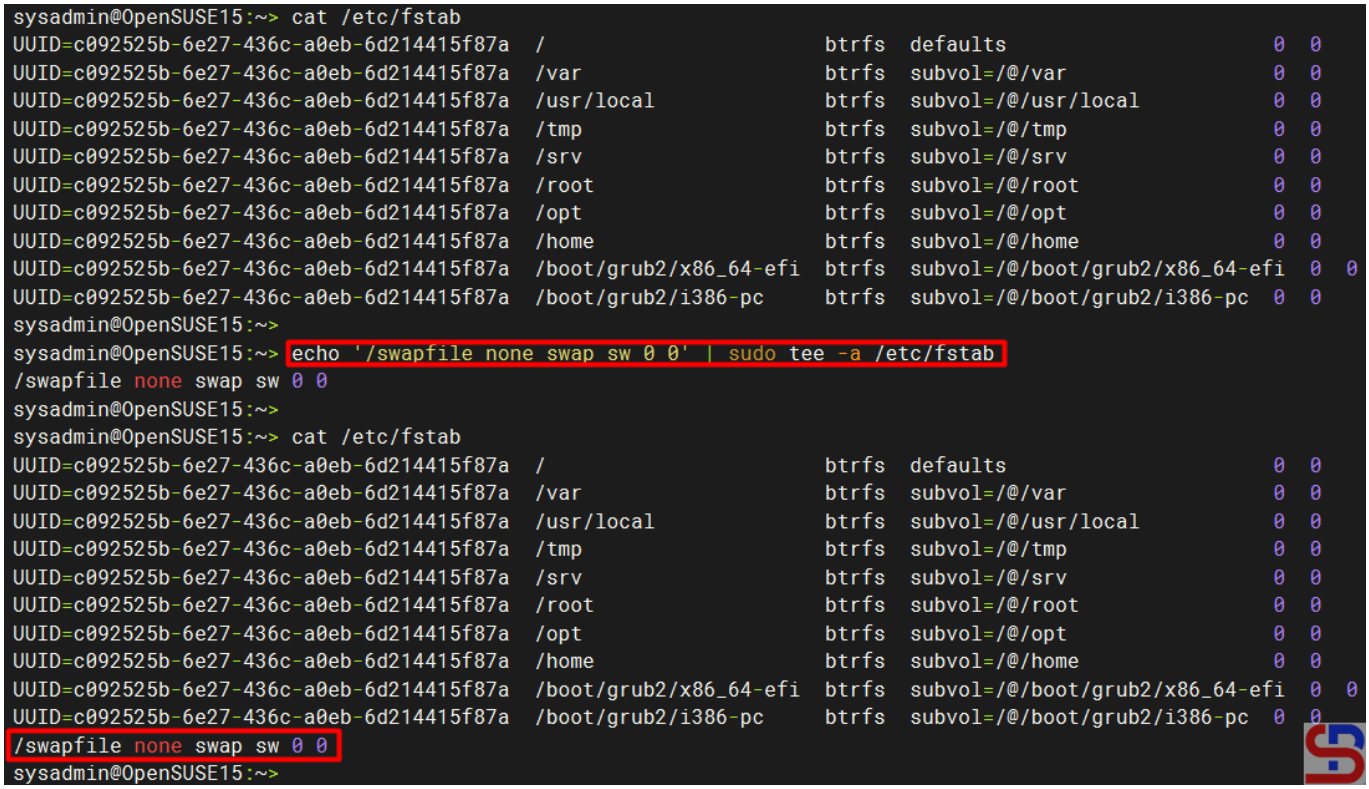
```
sudo truncate -s 0 /swapfile
sudo chattr +C /swapfile
sudo fallocate -l 2G /swapfile
sudo chmod 0600 /swapfile
sudo mkswap /swapfile
sudo swapon /swapfile
cat /proc/swaps
```



Process to create a swap file in btrfs filesystem

From the picture above, you can see that the server has a swap space. After that, you have to add the below script to **/etc/fstab** so that the swap space remains when you reboot the server by running the script below:

```
echo '/swapfile none swap sw 0 0' | sudo tee -a /etc/fstab
```



Add the swap in the fstab file

Note

Swap files in btrfs are supported with the following limitations:

- A swap file can’t be on a snapshotted subvolume. Instead, we recommend that you create a subvolume on which to place the swap file.
- Btrfs doesn’t support swap files on file systems that span several devices.

References

btrfs.readthedocs.io
forum.endeavouros.com
docs.oracle.com
askubuntu.com

How to Create a Swap File as a Swap Space?

written by sysadmin | 21 April 2025

Swap space is a portion of hard drive storage that has been set aside for the operating system to temporarily store data that it can no longer hold in RAM. So, if the system needs more memory resources and the RAM is full, inactive pages in memory are moved to the swap space. Swap space can be a dedicated swap partition (recommended), a swap file, or a combination of swap partitions and swap files. You can use a swap file as a swap space if your server does not create a partition when installing Linux.

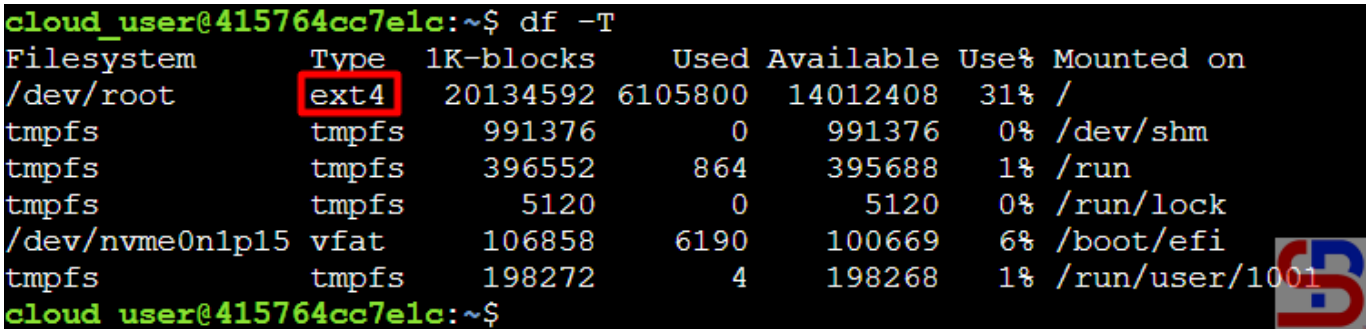
Problem

How to create a swap file as a swap space?

Solution

First, you have to check the type of filesystem that you use by running the command below:

```
df -T
```



Check the filesystem type

If you use the ext4 or xfs filesystem, you can use the steps below in this article. Type the command below to see whether the swap is already on your Linux server or not:

```
cat /proc/swaps
```

If the above command results are as shown below, then your server hasn’t used a swap:

```
cloud_user@415764cc7e1c:~$ cat /proc/swaps
Filename                                Type            Size            Used            Priority
cloud_user@415764cc7e1c:~$
```

Check the swap

After that, check how much hard disk size on your Linux server and determine the size of the swap file you need. You should know that the size of the swap file will reduce the size of your hard disk. Generally, the swap size is twice the size of the RAM server, so if your Linux server RAM is 1 GB, the swap size is 2 GB. In this article, we use 2GB for the swap file. Type the command below to create a 2GB swap file:

```
sudo fallocate -l 2G /swapfile
ls -lh /swapfile
```

```
cloud_user@415764cc7e1c:~$ sudo fallocate -l 2G /swapfile
[sudo] password for cloud_user:
cloud_user@415764cc7e1c:~$
cloud_user@415764cc7e1c:~$ ls -lh /swapfile
-rw-r--r-- 1 root root 2.0G Apr  3 03:47 /swapfile
cloud_user@415764cc7e1c:~$
```

Create the size of the swap file

Then give the command below so that the users can not read the swap file:

```
sudo chmod 0600 /swapfile
```

Set up the swap file with the command:

```
sudo mkswap /swapfile
```

```
cloud_user@415764cc7e1c:~$ sudo mkswap /swapfile
Setting up swapspace version 1, size = 2 GiB (2147479552 bytes)
no label, UUID=29e0aff1-bcc1-4f78-847f-02c4106f86d9
cloud_user@415764cc7e1c:~$
```

Set up the swap file

Enable the new swap space for paging and swapping by typing the following:

```
sudo swapon /swapfile
```

And then run this command to verify:

```
sudo swapon --show
```

```
cloud_user@415764cc7e1c:~$ sudo swapon /swapfile
cloud_user@415764cc7e1c:~$
cloud_user@415764cc7e1c:~$ sudo swapon --show
NAME      TYPE SIZE USED PRIO
/swapfile file   2G   0B   -2
cloud_user@415764cc7e1c:~$
```

Enable the swap file

You can see if the swap space is available on your Linux server after creating a swap file:

```
cloud_user@415764cc7e1c:~$ cat /proc/swaps
Filename                                Type            Size            Used            Priority
/swapfile                               file            2097148         0               -2
cloud_user@415764cc7e1c:~$
```

Check the swap space after creating the swap file

To make the swap file permanent, you have to add the swap file to the fstab file using the command below:

```
echo '/swapfile none swap sw 0 0' | sudo tee -a /etc/fstab
```

```
cloud_user@415764cc7e1c:~$ cat /etc/fstab
LABEL=cloudimg-rootfs   /        ext4   discard,errors=remount-ro       0 1
LABEL=UEFI      /boot/efi       vfat    umask=0077      0 1
cloud_user@415764cc7e1c:~$
cloud_user@415764cc7e1c:~$ echo '/swapfile none swap sw 0 0' | sudo tee -a /etc/fstab
/swapfile none swap sw 0 0
cloud_user@415764cc7e1c:~$
cloud_user@415764cc7e1c:~$ cat /etc/fstab
LABEL=cloudimg-rootfs   /        ext4   discard,errors=remount-ro       0 1
LABEL=UEFI      /boot/efi       vfat    umask=0077      0 1
/swapfile none swap sw 0 0
cloud_user@415764cc7e1c:~$
```

Add the swap file to the fstab file

If you want, you can reboot the server to see whether the swap is still there after you reboot the server.

Note

You can determine how often your Linux system exchanges data from RAM to the swap space using swappiness parameters by giving a value between 0 to 100, representing the percentage. If you give a value that is close to zero, the Linux system will not write data to the disk unless it is necessary. But if you give a value that is close to 100, the Linux system will write more data into the swap to keep more free RAM space. By default, the Linux system gives a value of 60 in the file/proc/sys/vm/swappiness, and if you want to change the value, for example, to 20, then you can change it using the command below:

```
sudo sysctl vm.swappiness=20
```

```
cloud_user@415764cc7e1c:~$ cat /proc/sys/vm/swappiness
60
cloud_user@415764cc7e1c:~$
cloud_user@415764cc7e1c:~$ sudo sysctl vm.swappiness=20
vm.swappiness = 20
cloud_user@415764cc7e1c:~$
cloud_user@415764cc7e1c:~$ cat /proc/sys/vm/swappiness
20
cloud_user@415764cc7e1c:~$
```

Change the swappiness parameter

But if you reboot the server, the swappiness value will

return to the initial value. So if you want the swappiness value to remain, add the script below to the **/etc/sysctl.conf** file:

```
vm.swappiness=20
```

References

digitalocean.com
docs.redhat.com
docs.oracle.com

How to Clear Cache Memory on Linux?

written by sysadmin | 21 April 2025

Cache memory is a type of data storage used to store frequently accessed information for faster response time, and it’s used to improve system performance. In Linux, the kernel uses the buff/cache memory to improve system performance by caching frequently accessed data (disk blocks, inodes, etc.) and buffering I/O operations. So if you have an application that is often used and accessible to many people, you will see that the memory cache on the server will often be used. But sometimes, because of necessity, you have to clean the cache memory.

Problem

How to clear cache memory on Linux?

Solution

Before you delete the cache memory on Linux, you must know some of the terms related to the cache memory:

- Buffer: stores disk blocks that have been recently

accessed or modified.

- PageCache: It improves file I/O performance by storing often-used file data in RAM.
- Dentries: help speed up file name searches by storing cached directory entries.
- Inodes: store important metadata about files and directories, they are also separate from the content or names.

So if you want to delete cache memory, use the format below:

```
sync; echo 1-3 > /proc/sys/vm/drop_caches
```

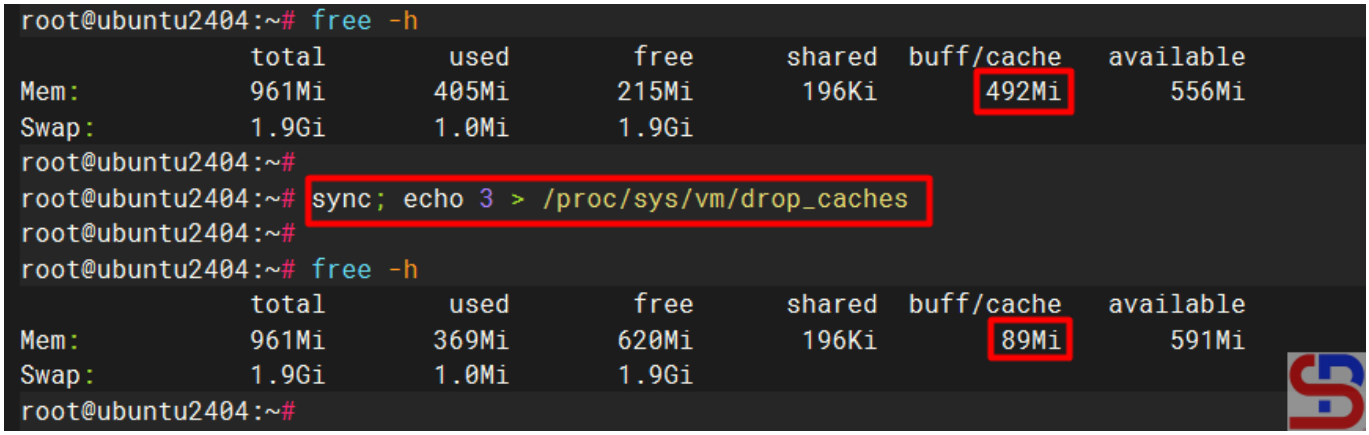
The sync command to clear the buffer and the drop_caches file controls which type of cached data should be cleared and the values are as follows:

- 1 – Clears only the page cache.
- 2 – Clears dentries and inodes.
- 3 – Clears page cache, dentries, and inodes.

So if you want to delete cache memory, use the format below:

```
sync; echo 3 > /proc/sys/vm/drop_caches
```

And the cache memory on your Linux server will be deleted as shown below:



Clear the cache memory

WARNING
You have to be root if you want to run commands to delete cache memory. If you want to use an ordinary user and want to run the command, then use the command below:

sudo sync; sudo sh -c ‘echo 3 >/proc/sys/vm/drop_caches’

Note

It is not dangerous if you run the command to delete the memory cache on Linux but this will cause an increase in I/O disk because of the request that is usually handled by the memory cache because the memory cache is cleaned so that the request will immediately proceed to the hard disk, causing an increase I/O disk. Also on the application side will cause a decrease in performance because the application does not receive a response from the memory cache, but must receive a response from the hard disk, whose response time is slower than from the cache memory.

WARNING
Only clear the cache for **debugging, benchmarking, or emergencies**. For normal usage, **let the kernel manage memory automatically**. Clearing it without a good reason hurts performance.

References

lenovo.com
eukhost.com
scaler.com
tecmint.com
linuxfordevices.com
unix.stackexchange.com
stackoverflow.com

How to Show The Progress Bar In

Linux’s cp and mv Commands?

written by sysadmin | 21 April 2025

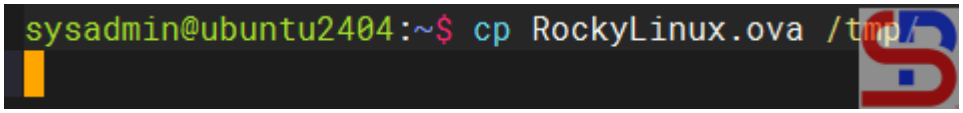
By default, if you do a copy command or move a file in Linux CLI, no progress bar shows how long the commands will take to complete. I think the users will feel bored because they do not know how long the commands will take to complete.

Problem

How to show the progress bar in Linux’s cp and mv commands?

Solution

The image below shows no progress bar when you copy a file in Linux CLI:



Copy the file in Linux CLI

To display progress bars on cp and mv commands on Linux, you need a tool made by a GitHub user named jarun, who modified the source code of Florian Zwicke. But before you can install this tool, you must install the required packages:

RockyLinux/AlmaLinux/CentOS

```
yum install -y tar curl patch make coreutils gcc libattr* libpcap* perl libacl*
```

Debian/Ubuntu

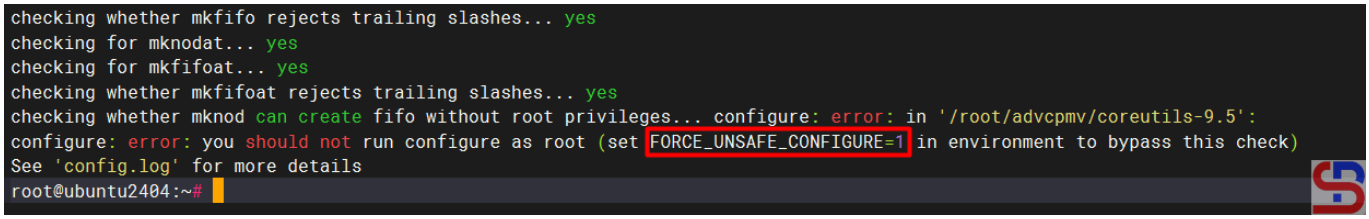
```
apt-get install -y tar curl patch make coreutils gcc libattr* libpcap* perl libacl*
```

OpenSUSE

```
zypper install -y tar curl patch make coreutils gcc libattr* libpcap* perl libacl*
```

After that, install the tool, and it is recommended to use a normal user to install the tool, but if you want to use the root user to install this tool, run the command below:

```
export FORCE_UNSAFE_CONFIGURE=1
```



Error when using the root user

Install the tool on your server by running the command below:

```
curl https://raw.githubusercontent.com/jarun/advcpmv/master/install.sh --create-dirs -o ./advcpmv/install.sh && (cd advcpmv && sh install.sh)
```

After installation completes, it created two new commands under the **advcpmv** folder. You need to replace your original cp and mv commands with these two new commands to get the progress bar while copying files:

```
sudo mv ./advcpmv/advcp /usr/local/bin/cp
sudo mv ./advcpmv/advmv /usr/local/bin/mv
```

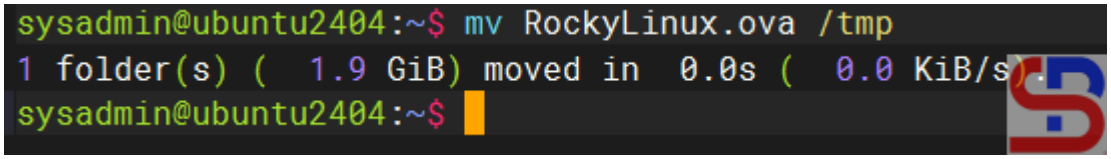
After that, run the commands below:

```
echo "alias cp='/usr/local/bin/cp -g'" >> ~/.bashrc
echo "alias mv='/usr/local/bin/mv -g'" >> ~/.bashrc
source ~/.bashrc
```

Try to copy a file in your Linux CLI, and there should be a progress bar when you copy the file:

The progress bar appears when you copy the file

Likewise, if you are going to move a file on Linux CLI, there will be a notification as below:



The notification appears when you move the file

Note

You should know that if you want to use this tool on a different user from the user where this tool is installed on the server (for example, you installed this tool using another user but you want to use the tool using another user), you need to use the command below using your user so that this tool can be used on that user:

```
echo "alias cp='/usr/local/bin/cp -g'" >> ~/.bashrc
echo "'alias mv='/usr/local/bin/mv -g'" >> ~/.bashrc
source ~/.bashrc
```

References

tecmint.com
ostechnix.com
stackoverflow.com

How to Read a File Line by Line on Linux?

written by sysadmin | 21 April 2025

I have a file containing many IPs that I want to ping the

rest of the IPs.

Problem

How to read a file line by line on Linux?

Solution

I have an ip.txt file that contains IP addresses, and in this article, I will only limit it to 3 IP addresses:

192.168.56.2
192.168.56.12
192.168.56.100

To read a file line by line on Linux, you can use the format below:

```
cat your_file | while read line
do
         the-commands-that-you-want-to-run
         .......
         .......
done
```

In this case, the format above has changed as below to ping each IP in the file:

```
cat ip.txt | while read line
do
        ping -c 3 $line
        echo
done
```

The command above means to run the ping command 3x on each IP in the ip.txt file by separating one line for each IP. If we run the command, it will look like the image below:

```
[sysadmin@RockyLinux9 ~]$ cat ip.txt | while read line; do ping -c 3 $line; echo; done
PING 192.168.56.2 (192.168.56.2) 56(84) bytes of data.
64 bytes from 192.168.56.2: icmp_seq=1 ttl=64 time=0.053 ms
64 bytes from 192.168.56.2: icmp_seq=2 ttl=64 time=0.091 ms
64 bytes from 192.168.56.2: icmp_seq=3 ttl=64 time=0.045 ms

--- 192.168.56.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 0.045/0.063/0.091/0.020 ms

PING 192.168.56.12 (192.168.56.12) 56(84) bytes of data.
64 bytes from 192.168.56.12: icmp_seq=1 ttl=64 time=2.25 ms
64 bytes from 192.168.56.12: icmp_seq=2 ttl=64 time=0.869 ms
64 bytes from 192.168.56.12: icmp_seq=3 ttl=64 time=1.67 ms

--- 192.168.56.12 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 0.869/1.598/2.252/0.567 ms

PING 192.168.56.100 (192.168.56.100) 56(84) bytes of data.
64 bytes from 192.168.56.100: icmp_seq=1 ttl=64 time=2.47 ms
64 bytes from 192.168.56.100: icmp_seq=2 ttl=64 time=2.19 ms
64 bytes from 192.168.56.100: icmp_seq=3 ttl=64 time=2.02 ms

--- 192.168.56.100 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2006ms
rtt min/avg/max/mdev = 2.018/2.225/2.469/0.185 ms

[sysadmin@RockyLinux9 ~]$
```

Ping the IPs from the file

Change the script above to be as below if you want to enter the results of each ping IP into one file:

```
cat ip.txt | while read line
do
    ping -c 3 $line
    echo
done > ping_ip.txt
```

Look at the picture below:

```
[sysadmin@RockyLinux9 ~]$ cat ip.txt | while read line; do ping -c 3 $line; echo; done > ping_ip.txt
[sysadmin@RockyLinux9 ~]$
[sysadmin@RockyLinux9 ~]$ cat ping_ip.txt
PING 192.168.56.2 (192.168.56.2) 56(84) bytes of data.
64 bytes from 192.168.56.2: icmp_seq=1 ttl=64 time=0.052 ms
64 bytes from 192.168.56.2: icmp_seq=2 ttl=64 time=0.058 ms
64 bytes from 192.168.56.2: icmp_seq=3 ttl=64 time=0.073 ms

--- 192.168.56.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2053ms
rtt min/avg/max/mdev = 0.052/0.061/0.073/0.008 ms

PING 192.168.56.12 (192.168.56.12) 56(84) bytes of data.
64 bytes from 192.168.56.12: icmp_seq=1 ttl=64 time=1.71 ms
64 bytes from 192.168.56.12: icmp_seq=2 ttl=64 time=2.01 ms
64 bytes from 192.168.56.12: icmp_seq=3 ttl=64 time=2.19 ms

--- 192.168.56.12 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 1.709/1.972/2.194/0.200 ms

PING 192.168.56.100 (192.168.56.100) 56(84) bytes of data.
64 bytes from 192.168.56.100: icmp_seq=1 ttl=64 time=2.84 ms
64 bytes from 192.168.56.100: icmp_seq=2 ttl=64 time=2.40 ms
64 bytes from 192.168.56.100: icmp_seq=3 ttl=64 time=1.84 ms

--- 192.168.56.100 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 1.837/2.359/2.840/0.410 ms

[sysadmin@RockyLinux9 ~]$
```

Ping IP results are saved in one file

But if you want to enter the results of each ping IP into several files based on the IP, change the script above to be as below:

```
cat ip.txt | while read line
do
    ping -c 3 $line
    echo
done > ping_ip.txt
```

There should be new files after you run the script above, and each file will contain the results of the ping IP as in the image below:

```
[sysadmin@RockyLinux9 ~]$ ls
ip.txt
[sysadmin@RockyLinux9 ~]$
[sysadmin@RockyLinux9 ~]$ cat ip.txt | while read line; do ping -c 3 $line > $line.txt; echo; done



[sysadmin@RockyLinux9 ~]$ ls
192.168.56.100.txt  192.168.56.12.txt  192.168.56.2.txt  ip.txt
[sysadmin@RockyLinux9 ~]$
[sysadmin@RockyLinux9 ~]$ cat 192.168.56.2.txt
PING 192.168.56.2 (192.168.56.2) 56(84) bytes of data.
64 bytes from 192.168.56.2: icmp_seq=1 ttl=64 time=0.040 ms
64 bytes from 192.168.56.2: icmp_seq=2 ttl=64 time=0.118 ms
64 bytes from 192.168.56.2: icmp_seq=3 ttl=64 time=0.100 ms

--- 192.168.56.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2033ms
rtt min/avg/max/mdev = 0.040/0.086/0.118/0.033 ms
[sysadmin@RockyLinux9 ~]$
[sysadmin@RockyLinux9 ~]$ cat 192.168.56.12.txt
PING 192.168.56.12 (192.168.56.12) 56(84) bytes of data.
64 bytes from 192.168.56.12: icmp_seq=1 ttl=64 time=1.31 ms
64 bytes from 192.168.56.12: icmp_seq=2 ttl=64 time=1.30 ms
64 bytes from 192.168.56.12: icmp_seq=3 ttl=64 time=2.64 ms

--- 192.168.56.12 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2006ms
rtt min/avg/max/mdev = 1.296/1.748/2.640/0.630 ms
[sysadmin@RockyLinux9 ~]$
```

Ping IP results are saved in each file

Note

In addition to using the script above, you can use the script below to read line by line in a Linux file:

```
while IFS= read -r line; do ping -c 3 $line ; echo; done < ip.txt
```

```
[sysadmin@RockyLinux9 ~]$ while IFS= read -r line; do ping -c 3 $line ; echo; done < ip.txt
PING 192.168.56.2 (192.168.56.2) 56(84) bytes of data.
64 bytes from 192.168.56.2: icmp_seq=1 ttl=64 time=0.042 ms
64 bytes from 192.168.56.2: icmp_seq=2 ttl=64 time=0.174 ms
64 bytes from 192.168.56.2: icmp_seq=3 ttl=64 time=0.073 ms

--- 192.168.56.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 0.042/0.096/0.174/0.056 ms

PING 192.168.56.12 (192.168.56.12) 56(84) bytes of data.
64 bytes from 192.168.56.12: icmp_seq=1 ttl=64 time=0.763 ms
64 bytes from 192.168.56.12: icmp_seq=2 ttl=64 time=1.90 ms
64 bytes from 192.168.56.12: icmp_seq=3 ttl=64 time=1.99 ms

--- 192.168.56.12 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 0.763/1.550/1.988/0.557 ms

PING 192.168.56.100 (192.168.56.100) 56(84) bytes of data.
64 bytes from 192.168.56.100: icmp_seq=1 ttl=64 time=1.66 ms
64 bytes from 192.168.56.100: icmp_seq=2 ttl=64 time=2.60 ms
64 bytes from 192.168.56.100: icmp_seq=3 ttl=64 time=2.07 ms

--- 192.168.56.100 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 1.658/2.109/2.604/0.387 ms

[sysadmin@RockyLinux9 ~]$
```

Another method to read line by line

References

cyberciti.biz
linuxhint.com
linuxize.com
stackoverflow.com

How to Turn Off Windows OS in One Click?

written by sysadmin | 21 April 2025

By default, if you want to turn off the Windows OS on a PC, laptop, or server, there are usually three stages to do that. You will press the **Start** button first, then press the **Power** button, and after that select the **Shut down** option.

But you can turn off the Windows OS just by pressing one click.

Problem

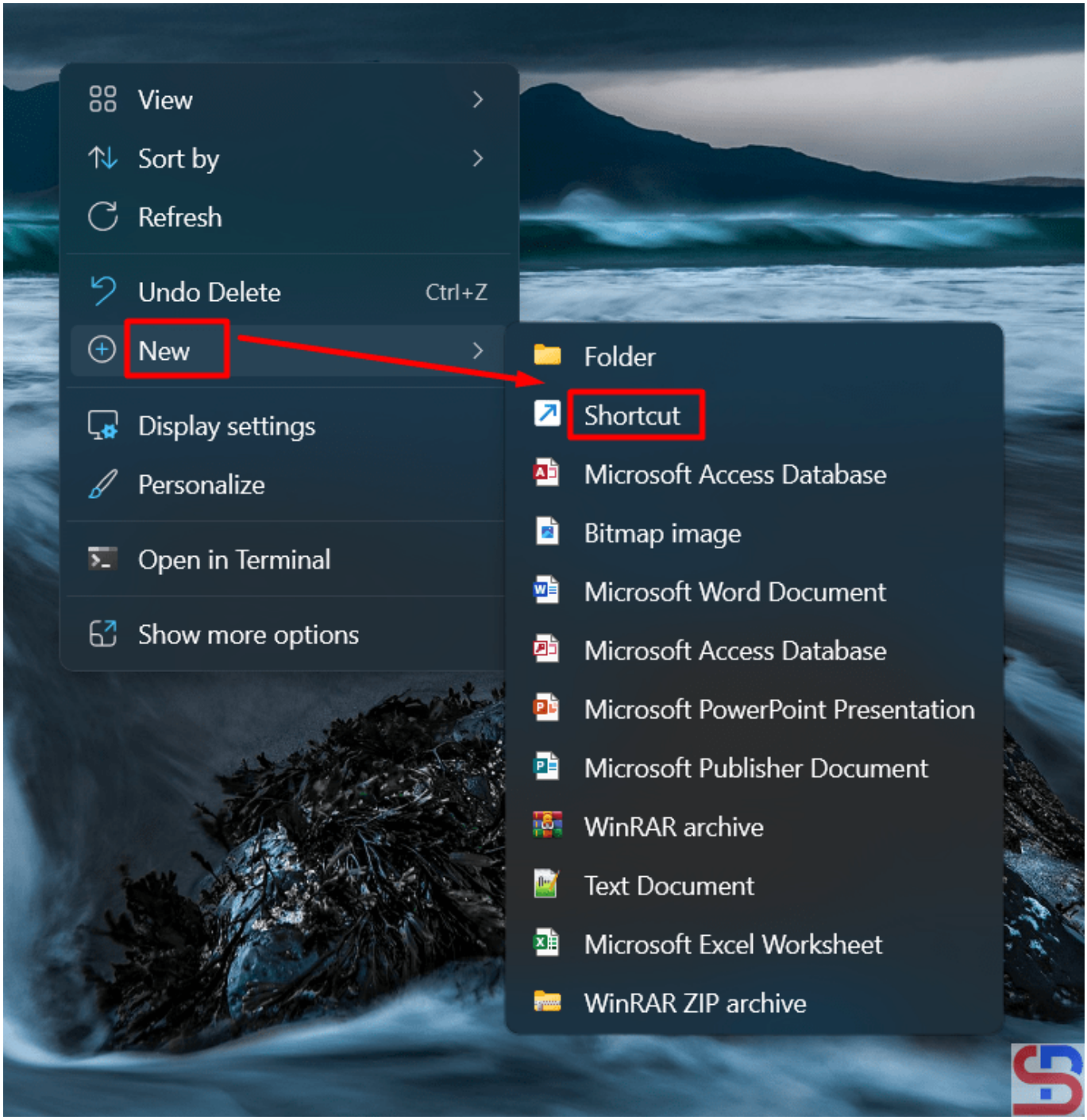
How to turn off windows OS in one click?

Solution

The following steps to turn off the Windows OS in one click:

1. Create a shortcut

Go to the desktop, then **right click** and select **New** – **Shortcut** as shown below:



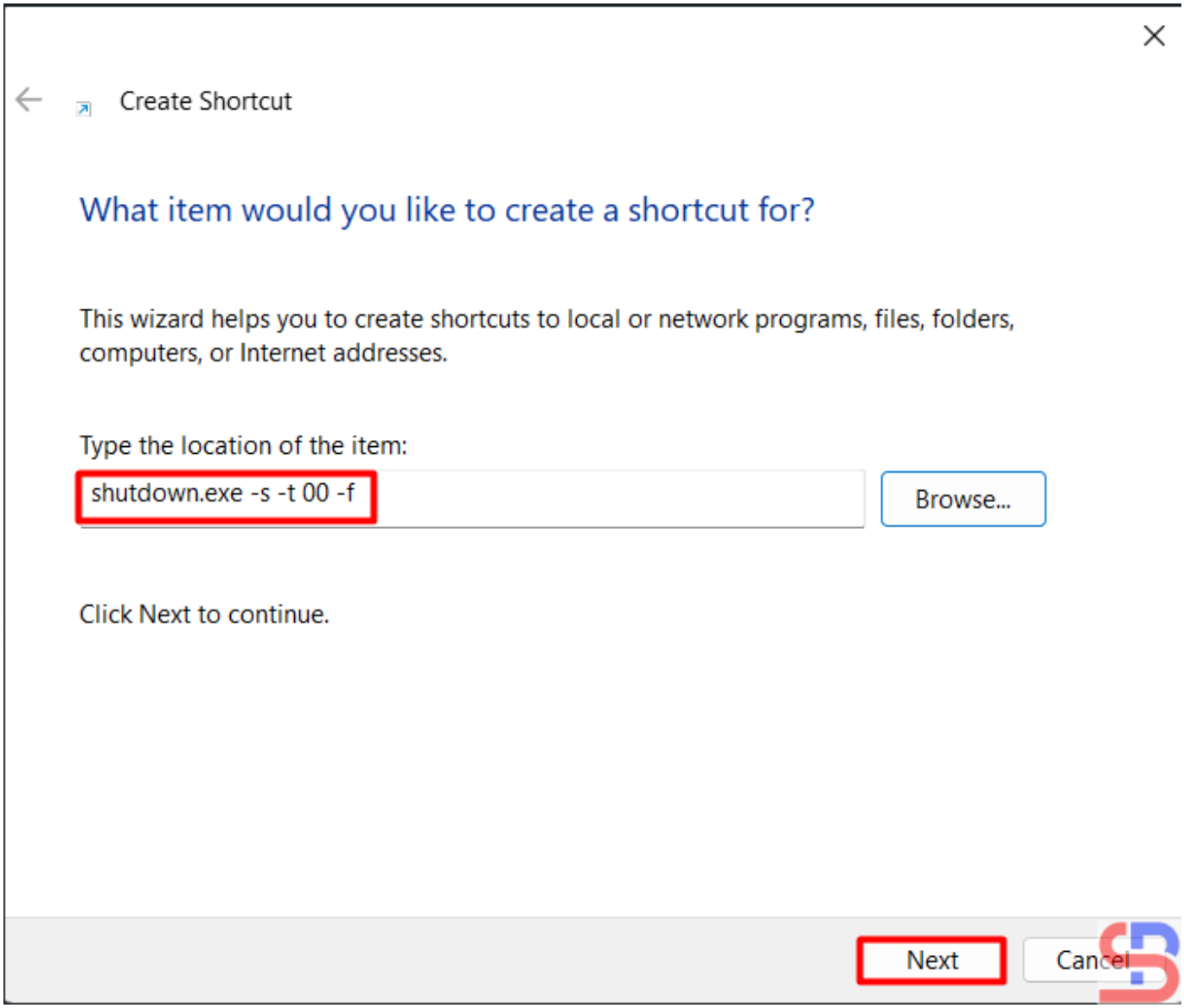
Click New – Shortcut in the desktop

2. Write a script

Write the script below:

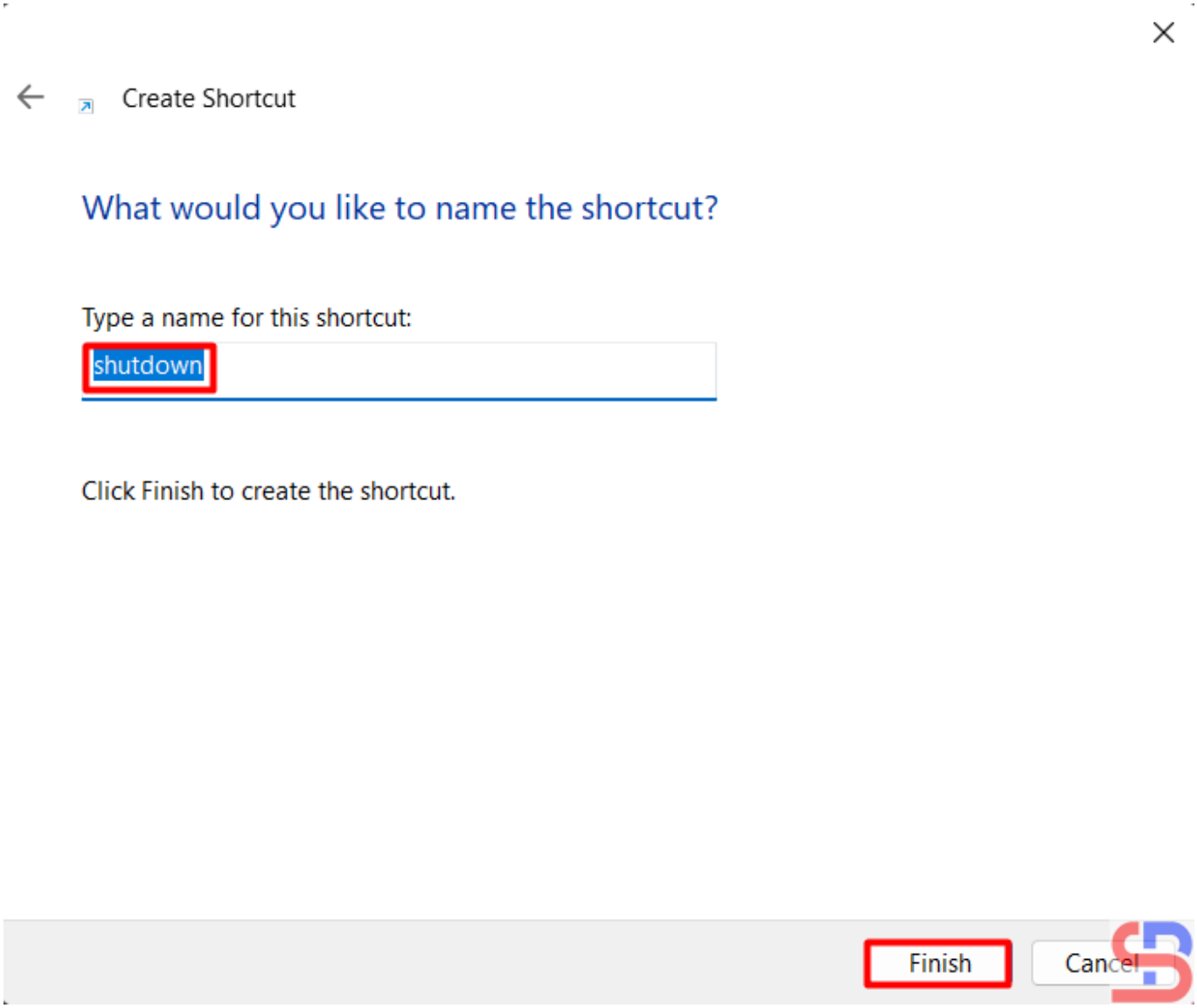
```
shutdown.exe -s -t 00 -f
```

In the section as shown below:



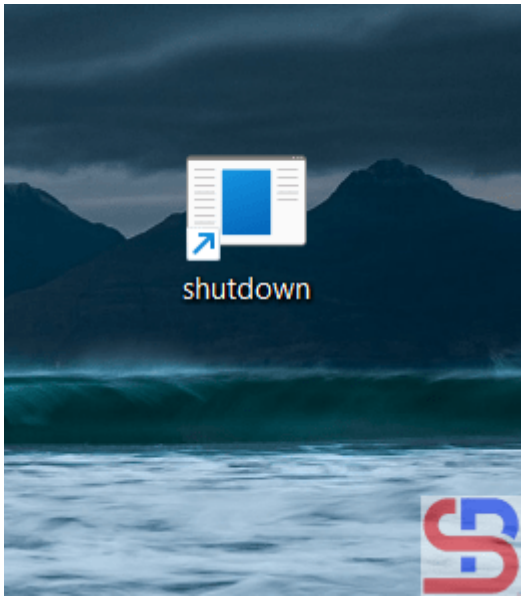
Write the script

Then press the **Next** button, and then there will be a display as below:



Create a name for the shortcut

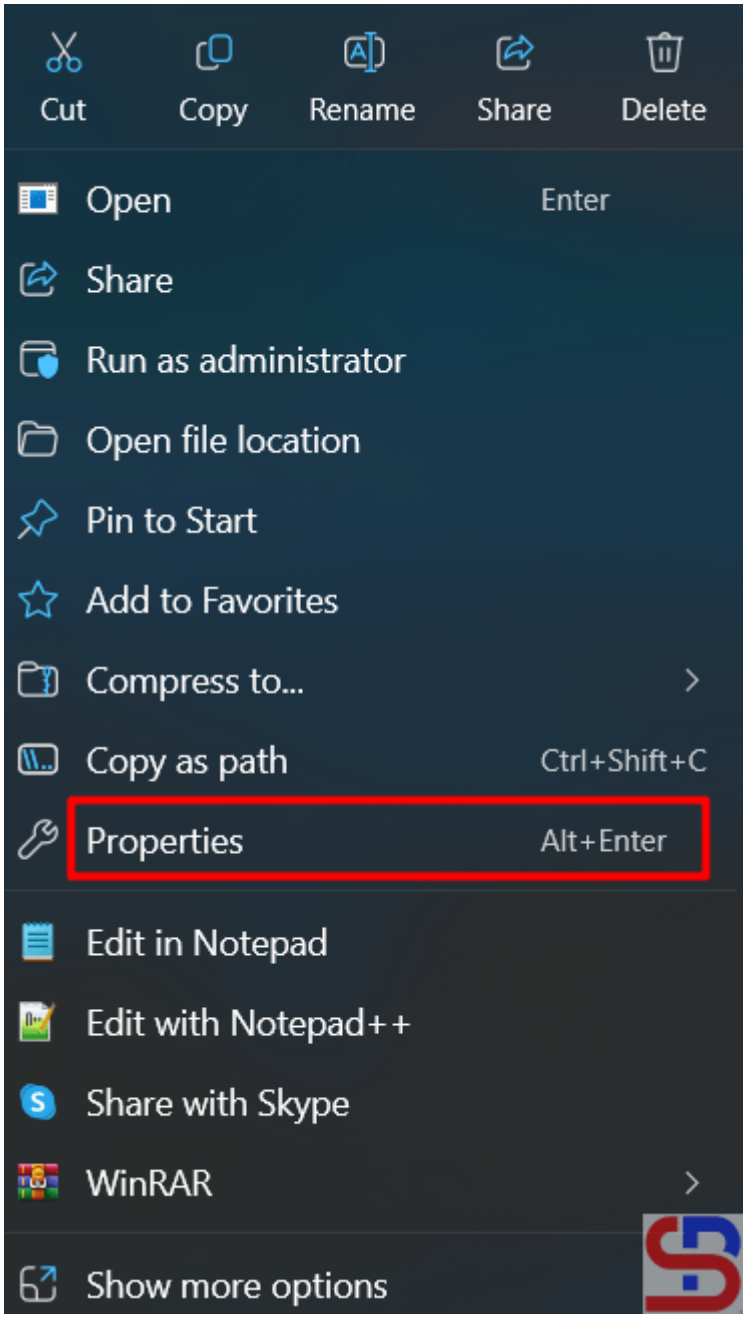
You can change the name for the shortcut, and after that, press the **Finish** button, then there will be a display as below:



Display of the shortcut icon

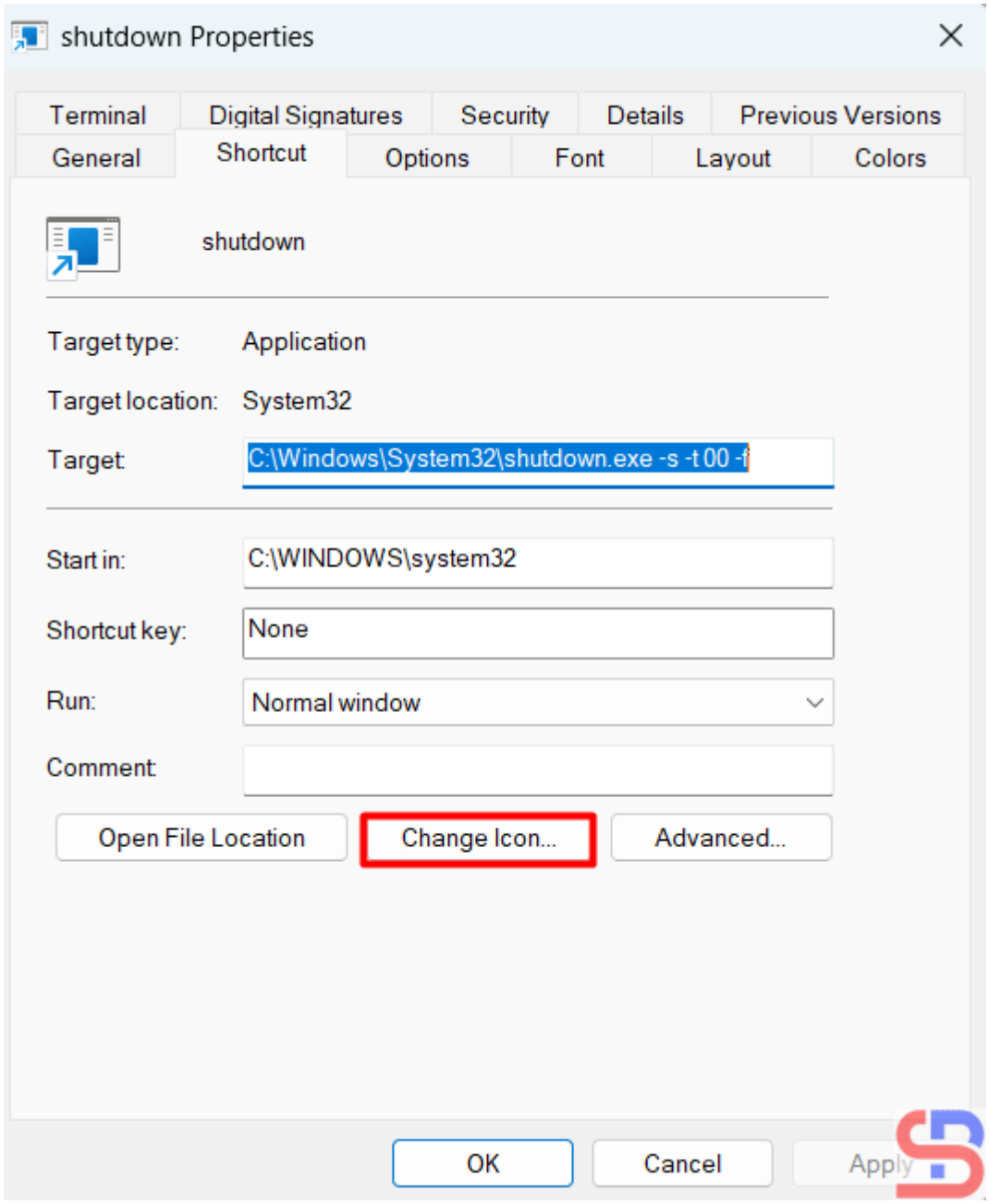
3. Change the icon

Right-click on the icon, select **Properties** as shown below:



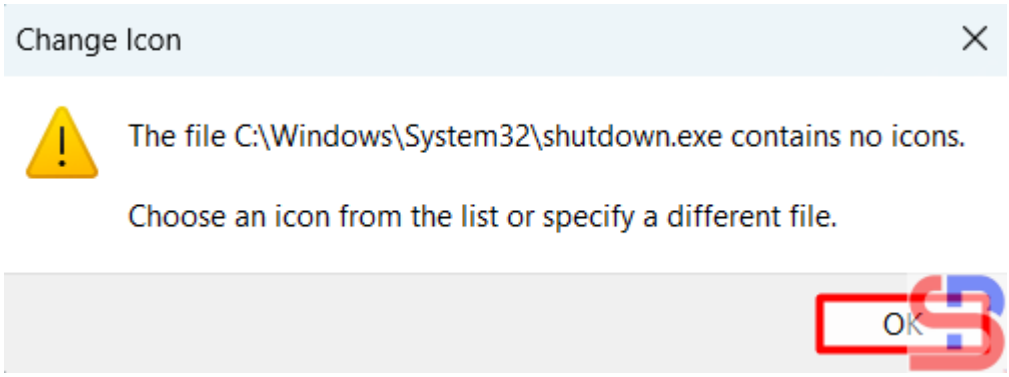
Click the Properties of the icon

Then click **Change Icon**, there will be a display as below:



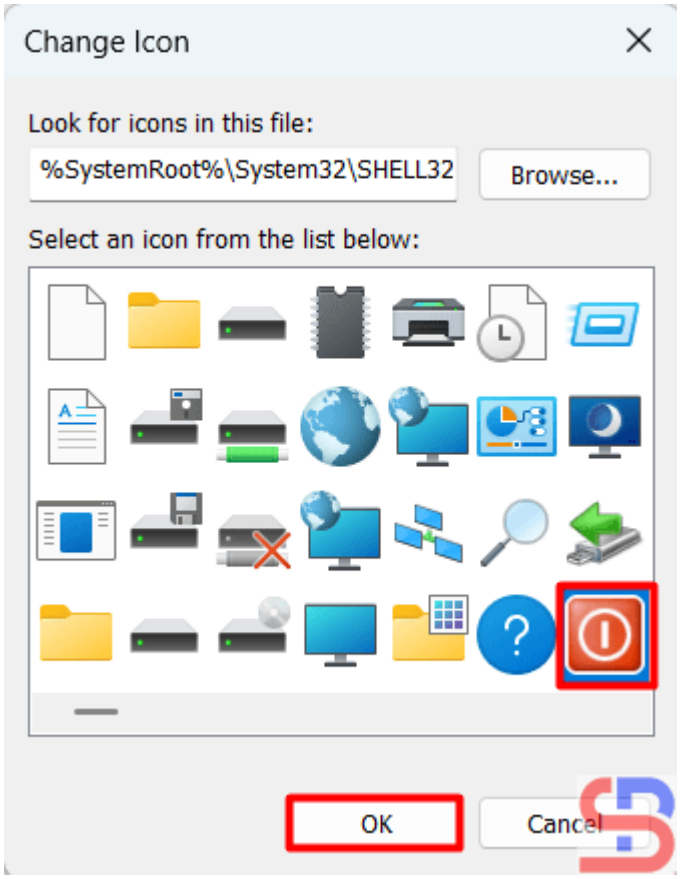
Click the change Icon

There will be a display as below:



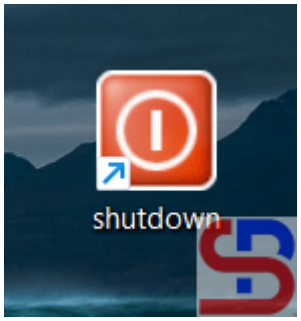
Click the OK button

Click the **OK** button and after that,, you can choose the icon you like, but I chose the icon in the red box, press **OK**, then there will be a display as below:



Choose the icon

The shortcut icon will change to what you chose in the previous section. After that, press OK, the shortcut icon will change the image according to what you choose.



The icon is changed

4. Move the icon

Move the icon to the taskbar by dragging it as shown below:

Drag the icon

After the icon has been moved to the taskbar, you can delete the icon from the desktop.

5. Test the result

After that, try clicking the icon in the taskbar, and your Windows OS should do the shutdown process.

Note

In the second part of the script writing, the time used is 0, so there is no time lag after you click the icon with the shutdown process. You can change it to the time you want, for example, to 5 seconds, so that the script becomes like below:

```
shutdown.exe -s -t 5 -f
```

Then there will be a break of 5 seconds after you finish clicking the icon and the shutdown process.

References

wikihow.com
cnet.com
facebook.com

How to Get The Value Between Two Special Characters on Linux?

written by sysadmin | 21 April 2025

I need to get a value between 2 special characters I use for my other purposes in the log file on the Linux server.

Problem

How to get the value between two special characters on Linux?

Solution

Special characters are the punctuation characters on your keyboard, such as **!**, **@**, **#**, and so on. After I searched on the internet, there were 2 solutions to get the value between these two special characters: using the grep command or using the cut command.

1. Using the grep command

To get the value between two special characters using the grep command, use the following format:

```
grep -Po "(?<=\special_character).*?(?=\character_special)"
```

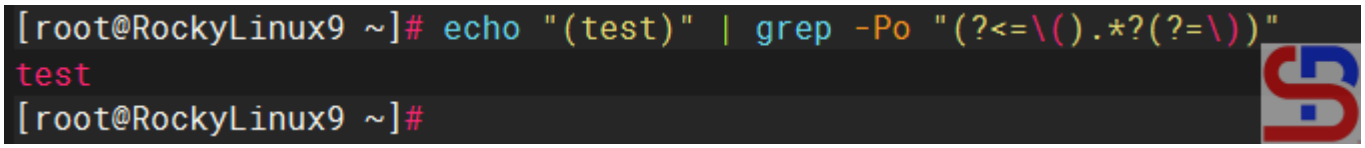
For example, if the special character is brackets or (), then the format above changes to:

```
grep -Po "(?<=\().*?(?=\()"
```

Type the command below to get the value between the brackets:

```
echo "(test)" | grep -Po "(?<=\().*?(?=\))"
```

Look at the example in the image below:



Using the grep command

2. Using the cut command

To get the value between two special characters using the grep command, use the following format:

```
cut -d "special_character" -f2 | cut -d "special_character" -f1
```

For example, if the special character is pound or #, then the format above changes to:

```
cut -d "#" -f2 | cut -d "#" -f1
```

Type the command below to get the value between the pounds:

```
echo "#test#" | cut -d "#" -f2 | cut -d "#" -f1
```

Look at the example in the image below:

```
[root@RockyLinux9 ~]# echo "#test#" | cut -d "#" -f2 | cut -d "#" -f1
test
[root@RockyLinux9 ~]#
```

Using the cut command

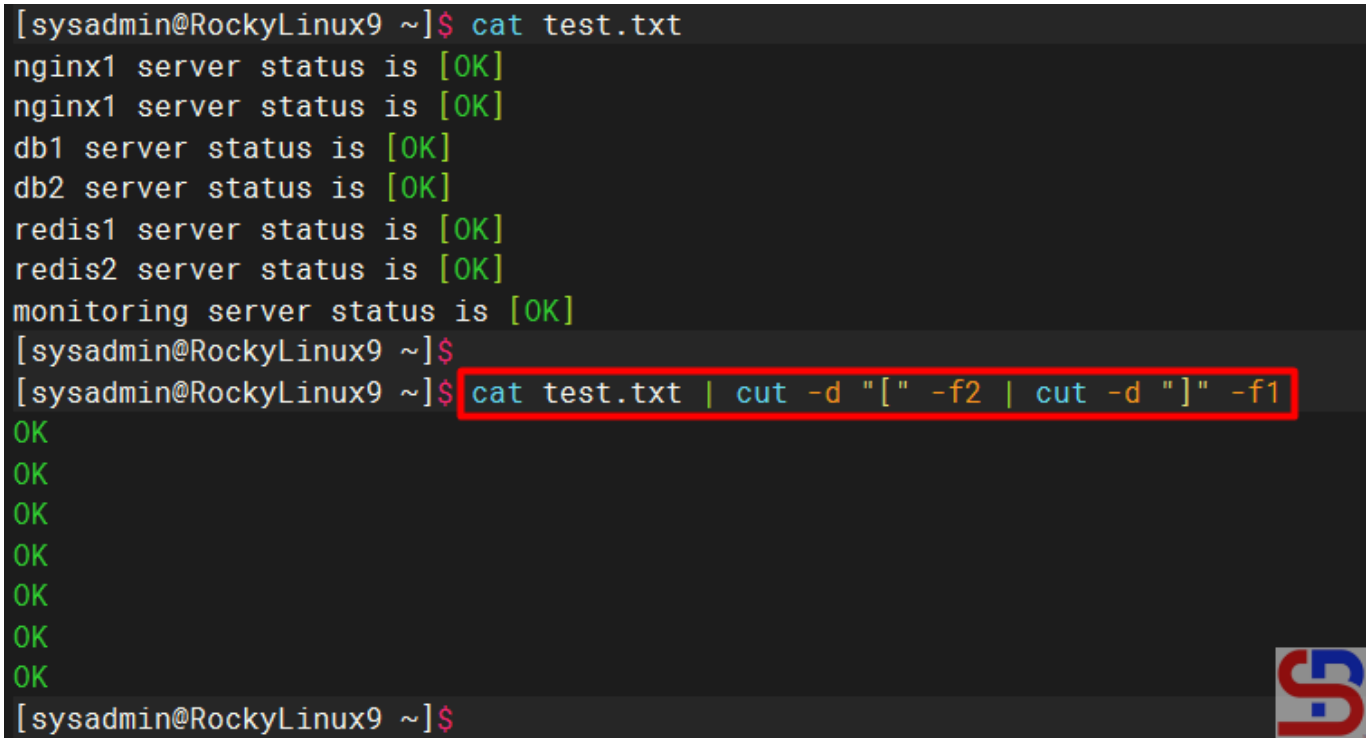
Note

If you have a log file in Linux, for example, the content of the file is as image below:

```
nginx1 server status is [OK]
nginx1 server status is [OK]
db1 server status is [OK]
db2 server status is [OK]
redis1 server status is [OK]
redis2 server status is [OK]
monitoring server status is [OK]
```

You can use one of the commands above to get the value between 2 special characters, and I use the cut command as in the command below:

```
cat test.txt | cut -d "[" -f2 | cut -d "]" -f1
```



The result

References

ers.texas.gov
stackoverflow.com