



How to Add Swap Space on Ubuntu 18.04

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Add Swap Space on Ubuntu

Swap is a space on a disk that is used when the amount of physical RAM memory is full. When a Linux system runs out of RAM, inactive pages are moved from the RAM to the swap space.

Swap space can take the form of either a dedicated swap partition or a swap file. In most cases when running Ubuntu on a virtual machine a swap partition is not present so the only option is to create a swap file.

This tutorial covers the steps necessary to add a swap file on Ubuntu 18.04 systems.

Before You Begin

Before continuing with this tutorial, check if your Ubuntu installation already has swap enabled by typing:

```
$ sudo swapon --show
```

If the output is empty, it means that your system does not have swap space enabled.

Otherwise, if you get something like below, you already have swap enabled on your machine.



```
/dev/sda2 partition 1.9G    0B    -2
```

Although possible, it is not common to have multiple swap spaces on a single machine.

Creating a Swap File

The user you are logged in as must have [sudo privileges](#) to be able to activate swap. In this guide, we will add 1G of swap, if you want to add more swap, replace 1G with the size of the swap space you need.

Perform the steps below to add swap space on Ubuntu 18.04.

01. Start by creating a file which will be used for swap:

```
$ sudo fallocate -l 1G /swapfile
```

If `fallocate` is not installed or you get an error message saying `fallocate failed: Operation not supported` then use the following command to create the swap file:

```
$ sudo dd if=/dev/zero of=/swapfile bs=1024 count=1048576
```

02. Only the root user should be able to write and read the swap file. Set the correct [permissions](#) by typing:

```
$ sudo chmod 600 /swapfile
```

03. Use the `mkswap` utility to set up a Linux swap area on the file:

```
$ sudo mkswap /swapfile
```

04. Activate the swap file using the following command:

```
$ sudo swapon /swapfile
```



```
$ sudo nano /etc/fstab
```

and paste the following line:

```
/etc/fstab
```

```
/swapfile swap swap defaults 0 0
```

05. Verify that the swap is active by using either the `swapon` or the [free command](#) as shown below:

```
$ sudo swapon --show
```

Output

NAME	TYPE	SIZE	USED	PRIO
/swapfile	file	1024M	507.4M	-1

```
$ sudo free -h
```

Output

	total	used	free	shared	buff/cache
Mem:	488M	158M	83M	2.3M	246M
Swap:	1.0G	506M	517M		

Adjusting the Swappiness Value

Swappiness is a Linux kernel property that defines how often the system will use the swap space. Swappiness can have a value between 0 and 100. A low value will make the kernel to try to avoid swapping whenever possible while a higher value will make the kernel to use the swap space more aggressively.

The default swappiness value is 60. You can check the current swappiness value by typing the following command:



Output

```
60
```

While the swappiness value of 60 is OK for most Linux systems, for production servers you may need to set a lower value.

For example, to set the swappiness value to 10, type:

```
$ sudo sysctl vm.swappiness=10
```

To make this parameter persistent across reboots append the following line to the `/etc/sysctl.conf` file:

```
/etc/sysctl.conf
```

```
vm.swappiness=10
```

The optimal swappiness value depends on your system workload and how the memory is being used. You should adjust this parameter in small increments to find an optimal value.

Removing a Swap File

To deactivate and remove the swap file, follow these steps:

01. Start by deactivating the swap space by typing:

```
$ sudo swapoff -v /swapfile
```

02. Next, remove the swap file entry `/swapfile swap swap defaults 0 0` from the `/etc/fstab` file.

03. Finally, remove the actual swapfile file using the [rm](#) command:

```
$ sudo rm /swapfile
```



Conclusion

You have learned how to create a swap file and activate and configure swap space on your Ubuntu 18.04 system.

If you hit a problem or have feedback, leave a comment below.

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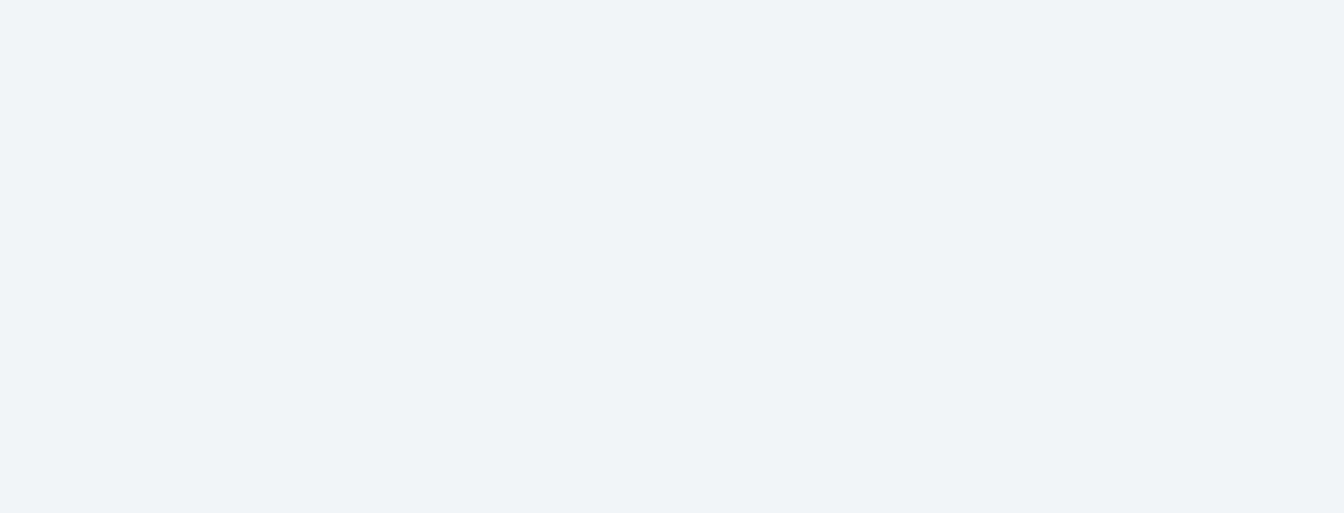
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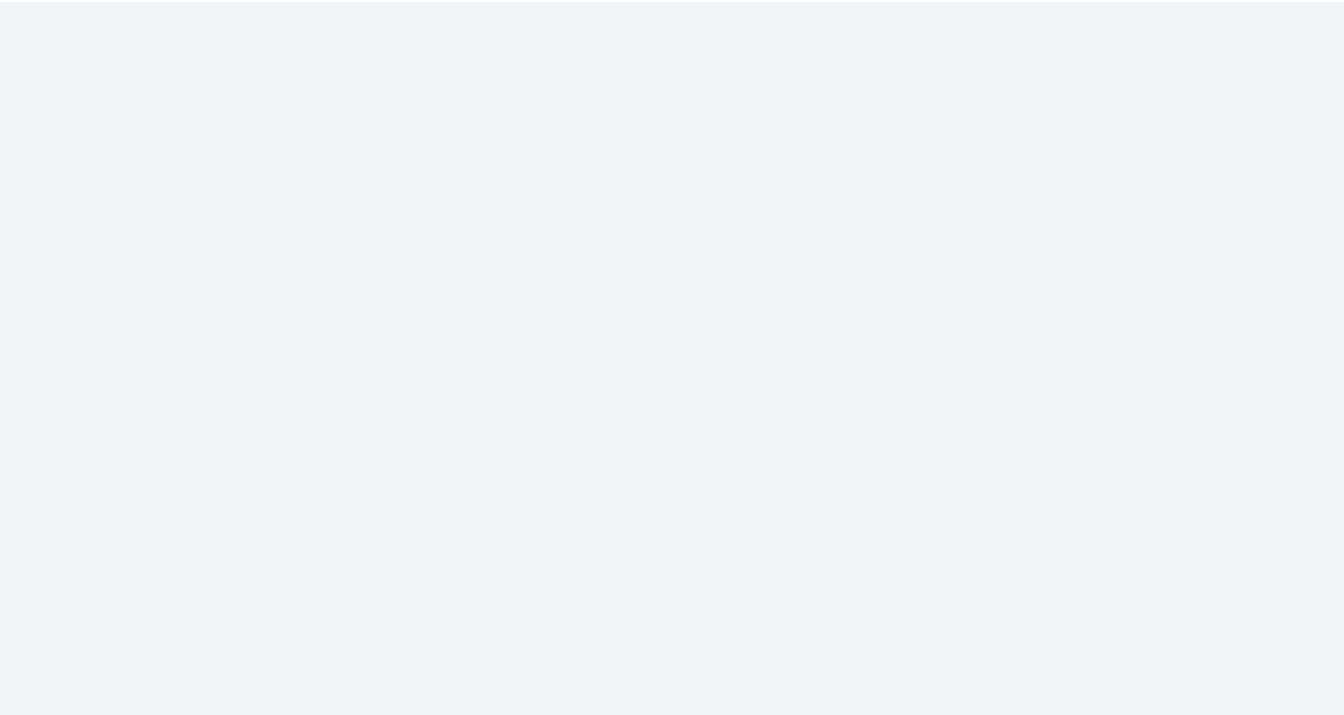
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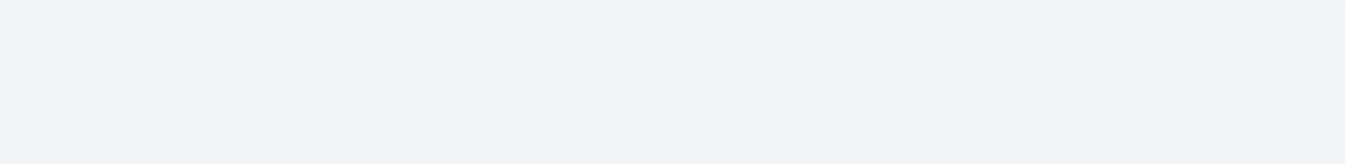
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