How to use lsof command on Linux

If everything in Linux is a file, you'll have more than just the file on your hard drive. This article will show you how to use the lsof command to see all other devices and processes processed as a file.

If everything in Linux is a file, you'll have more than just the file on your hard drive. This article will show you how to use the lsof command to see all other devices and processes processed as a file.

1. Basic Linux commands everyone needs to know
2. 7 commands to manipulate the most basic files and folders everyone must know
3. Search for files and directories in Linux using the command line interface

On Linux, everything is a file

Identifying everything on Linux is a fairly correct file. A file is a collection of bytes. When read in a program or sent to the printer, they create a byte stream. And when written, they accept a byte stream.

Many other system components accept or create byte streams such as keyboards, printers, and communication processes. Because they both accept and create byte streams, these devices can be processed as if they were a very low file.

The concept simplifies the deployment of Linux operating systems. That means a processor of tools, APIs can be created to handle a variety of different resources.

Data and program files on the hard drive are old system files. You can use the **ls** command to list and find information about them.

So how do we find all other processes and devices that are considered files? Let the lsof command handle that. This command will list open files on the system and anything processed as a file.

Lsof command

We need to use the **sudo** command with the **lsof** command because many processes or devices belong to root or are started by root.

The lsof command list is very long, so you should use the **less** command to shorten it.

```
sudo lsof |  less
```

```
dave@howtogeek:~$ sudo lsof | less
```

When running lsoft command on GNOME, users will receive a warning in the terminal window.

```
lsof: WARNING: can't stat () fuse.gvfsd-fuse file system / run / user / 1000 /
K?t qu? thông tin có th? trongcomplete.
```

Lsoft tries to handle all file systems. This warning appears because lsof encountered the GNOME Virtual file system (GVFS) system. This is a special case of the file system in user space (FUSE). It acts as a bridge between GNOME, API and kernel. No one, even root users, can access these file systems except the one who mounts it (in this case, GNOME). You can ignore this warning.

The output of lsof is very long and numerous. You can see the leftmost columns in the picture below:

```
COMMAND     PID  TID            USER   FD      TYPE             DEVICE
systemd       1                 root  cwd       DIR              8,1
systemd       1                 root  rtd       DIR              8,1
systemd       1                 root  txt       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
systemd       1                 root  mem       REG              8,1
:
```

The far right column:

```
    SIZE/OFF       NODE NAME
        4096          2 /
        4096          2 /
     1595792     567035 /lib/systemd/systemd
     1700792     531548 /lib/x86_64-linux-gnu/libm-2.27.so
      121016     560046 /lib/x86_64-linux-gnu/libudev.so.1.6.9
       84032     531526 /lib/x86_64-linux-gnu/libgpg-error.so.0.22.0
       43304     531537 /lib/x86_64-linux-gnu/libjson-c.so.3.0.1
       34872     143155 /usr/lib/x86_64-linux-gnu/libargon2.so.0
      432640     531507 /lib/x86_64-linux-gnu/libdevmapper.so.1.02.1
       18680     531473 /lib/x86_64-linux-gnu/libattr.so.1.1.0
       18712     531488 /lib/x86_64-linux-gnu/libcap-ng.so.0.0.0
       27112     531653 /lib/x86_64-linux-gnu/libuuid.so.1.3.0
       14560     531508 /lib/x86_64-linux-gnu/libdl-2.27.so
      464824     531607 /lib/x86_64-linux-gnu/libpcre.so.3.13.3
      144976     531618 /lib/x86_64-linux-gnu/libpthread-2.27.so
      112672     143797 /usr/lib/x86_64-linux-gnu/liblz4.so.1.7.1
      153984     531545 /lib/x86_64-linux-gnu/liblzma.so.5.2.2
      206872     571034 /lib/x86_64-linux-gnu/libidn.so.11.6.16
       27088     143723 /usr/lib/x86_64-linux-gnu/libip4tc.so.0.1.0
```

Columns in lsof command

Here are the full columns of lsoft command. Open files may not be full of columns, some will be empty.

1. **Command** : The name of the command related to the file opening process.
2. **PID:** Process identification code of the file opening process.
3. **TID** : Task identification code (thread). If you see an empty column, it is not a task but a process.
4. **User** : ID or user name belongs to the process or user ID, login information of the owner of the directory in / proc which lsoft found information about the process.
5. **FD** : Displays the file description.
6. **Type** : Type of button associated with the file.
7. **Device** : Contains the number of devices separated by commas for a special character, special file, regular file, directory or NFS file, the kernel reference address determines the file. In addition, it displays the base address or device name of the Linux device AX.25 socket.
8. **Size / Off** : Displays the file size or distance to the beginning of the file (file offset) in bytes.
9. **Node** : Displays the number of nodes of the local file or the inode number of the NFS file in the host or Internet protocol type. It can display STR for a thread or inode number, IRQ for Linux device AX.25 socket.
10. **Name** : Displays the name of the mount point and the file system with the files on it.

Column FD

Section column FD can be made up of three components: file descriptor, node character and lock character. Some common file descriptions are:

1. **cwd** : Current working directory.
2. **err** : FD information error (see column NAME).
3. **ltx** : **Shared** library text (code and data).
4. **m86** : DOS Merge mapping file.
5. **mem** : Memory mapping file.
6. **mmap** : Memory mapping device.
7. **pd** : Parent folder.
8. **rtd** : root directory.
9. **txt** : Program text (code and data).

Node character:

1. **r** : Read access.
2. **w** : Access recording.
3. **u** : Read and write access.
4. **''** : A space character, if no mode is specified, there is no key character.
5. **-** : Unknown mode and has a lock character.

Key characters:

1. **r** : Lock read on part of the file.
2. **R** : Reading lock on the whole file.
3. **w** : Lock written on part of the file.
4. **W** : Record lock on the entire file.
5. **u** : Read and write keys of any length.

6. **U** : Unknown key type.
7. '' : A space character. No lock.

Column TYPE

More than 70 items may appear in the TYPE column. Some common items you will see are:

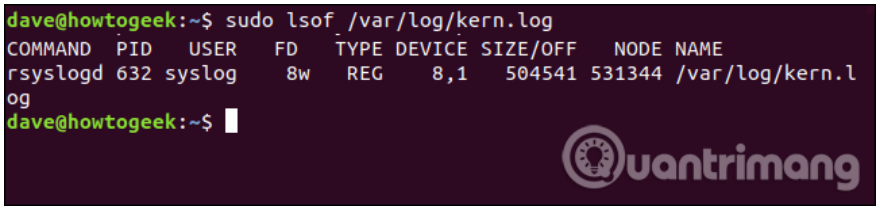
1. **REG** : Regular file system.
2. **DIR** : Folder.
3. **FIFO** : First In First Out.
4. **CHR** : Special character file.
5. **BLK** : File is specially blocked.
6. **INET** : Internet socket
7. **unix** : Socket UNIX domain name

View file opening processes

To see the process of opening a certain file, you need to provide the file name as a parameter for lsof. For example, to see the process of opening the kern.log file, use the following command:

```
sudo lsof /var/log/kern.log
```

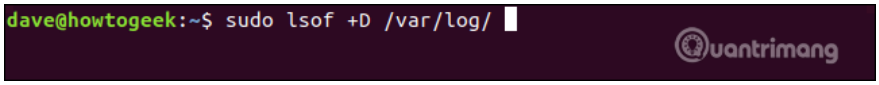
Lsof returns by displaying a single process, rsyslogd is started by the syslog user.



View all files opened from the library

To see files opened from a library and the process of opening them, provide the directory name for lsof as a parameter. You must use the **+ D** option.

To view all open files in / var / log directory / use the following command:



lsof returns a list of all open files in that directory.

```
COMMAND   PID   USER   FD   TYPE DEVICE SIZE/OFF   NODE NAME
systemd-j 227   root  mem    REG    8,1  8388608 524650 /var/log/journal
systemd-j 227   root  mem    REG    8,1 16777216 524483 /var/log/journal
systemd-j 227   root   22u   REG    8,1 16777216 524483 /var/log/journal
systemd-j 227   root   89u   REG    8,1  8388608 524650 /var/log/journal
rsyslogd  632 syslog    7w   REG    8,1   650751 524646 /var/log/syslog
rsyslogd  632 syslog    8w   REG    8,1   504541 531344 /var/log/kern.lo
rsyslogd  632 syslog    9w   REG    8,1    38303 531359 /var/log/auth.lo
cupsd     640   root   14u   REG    8,1      866 524616 /var/log/cups/ac
unattende 752   root    3w   REG    8,1      112 530322 /var/log/unatten
dave@howtogeek:~$
```

To view all files opened from the / home directory, use the following command:

```
sudo lsof + D / home
```

```
dave@howtogeek:~$ sudo lsof +D /home
```

You will see all the files opened in the / home directory. With short descriptions in some columns, the entire list will be narrowed.

```
COMMAND    PID USER   FD   TYPE DEVICE SIZE/OFF   NODE NAME
gdm-x-ses 2403 dave  cwd    DIR    8,1     4096 426514 /home/dave
Xorg      2405 dave  cwd    DIR    8,1     4096 426514 /home/dave
dbus-daem 2412 dave  cwd    DIR    8,1     4096 426514 /home/dave
gnome-ses 2416 dave  cwd    DIR    8,1     4096 426514 /home/dave
at-spi-bu 2556 dave  cwd    DIR    8,1     4096 426514 /home/dave
dbus-daem 2561 dave  cwd    DIR    8,1     4096 426514 /home/dave
at-spi2-r 2564 dave  cwd    DIR    8,1     4096 426514 /home/dave
gnome-she 2582 dave  cwd    DIR    8,1     4096 426514 /home/dave
gvfsd     2588 dave  cwd    DIR    8,1     4096 426514 /home/dave
gvfsd-fus 2593 dave  cwd    DIR    8,1     4096 426514 /home/dave
ibus-daem 2613 dave  cwd    DIR    8,1     4096 426514 /home/dave
ibus-dcon 2617 dave  cwd    DIR    8,1     4096 426514 /home/dave
ibus-x11  2619 dave  cwd    DIR    8,1     4096 426514 /home/dave
ibus-port 2622 dave  cwd    DIR    8,1     4096 426514 /home/dave
gnome-she 2682 dave  cwd    DIR    8,1     4096 426514 /home/dave
evolution 2795 dave  cwd    DIR    8,1     4096 426514 /home/dave
gvfs-udis 2796 dave  cwd    DIR    8,1     4096 426514 /home/dave
gvfs-mtp- 2803 dave  cwd    DIR    8,1     4096 426514 /home/dave
gvfs-afc- 2807 dave  cwd    DIR    8,1     4096 426514 /home/dave
goa-daemo 2811 dave  cwd    DIR    8,1     4096 426514 /home/dave
```

List files that are opened by a specific process

To view files opened by a specific process, use the **-c** option. Note, you can provide multiple search terms for lsoft at the same time.

```
sudo lsof -c ssh -c init
```

```
dave@howtogeek:~$ sudo lsof -c ssh -c init
```

Lsoft provides a list of files opened by processes in the command line.

```
dave@howtogeek:~$ sudo lsof -c ssh -c init
COMMAND     PID USER   FD   TYPE             DEVICE SIZE/OFF   NODE NAME
ssh-agent 1345 dave  cwd    DIR                8,1     4096      2 /
ssh-agent 1345 dave  rtd    DIR                8,1     4096      2 /
ssh-agent 1345 dave  txt    REG                8,1   362640  10387 /usr/
ssh-agent 1345 dave  mem    REG                8,1    14560 531508 /lib/
ssh-agent 1345 dave  mem    REG                8,1  2030544 531485 /lib/
ssh-agent 1345 dave  mem    REG                8,1  2357760 143149 /usr/
ssh-agent 1345 dave  mem    REG                8,1   170960 531457 /lib/
ssh-agent 1345 dave    0u   CHR                1,3      0t0      6 /dev/
ssh-agent 1345 dave    1u   CHR                1,3      0t0      6 /dev/
ssh-agent 1345 dave    2u   CHR                1,3      0t0      6 /dev/
ssh-agent 1345 dave    3u  unix 0xffff9155b72a9c00      0t0  24591 /tmp/
dave@howtogeek:~$
```

View open user files

To limit the display of files opened by specific users, you should use the **-u** option. In this example, we will find the files opened by the process of ownership or launch instead of Mary users.

```
sudo lsof -u mary
```

```
dave@howtogeek:~$ sudo lsof -u mary
```

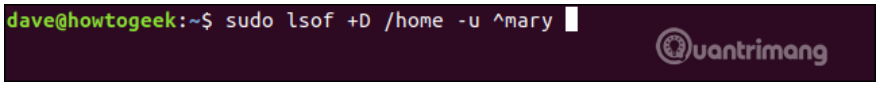
All files opened by Mary users will be listed. It includes files opened in the desktop environment or simply the result of Mary logging into the system.

```
COMMAND   PID USER   FD      TYPE             DEVICE SIZE/OFF    NODE
systemd  4429 mary  cwd       DIR                8,1     4096       2
systemd  4429 mary  rtd       DIR                8,1     4096       2
systemd  4429 mary  txt       REG                8,1  1595792  567035
systemd  4429 mary  mem       REG                8,1  1700792  531548
systemd  4429 mary  mem       REG                8,1   121016  560046
systemd  4429 mary  mem       REG                8,1    84032  531526
systemd  4429 mary  mem       REG                8,1    43304  531537
systemd  4429 mary  mem       REG                8,1    34872  143155
systemd  4429 mary  mem       REG                8,1   432640  531507
systemd  4429 mary  mem       REG                8,1    18680  531473
systemd  4429 mary  mem       REG                8,1    18712  531488
systemd  4429 mary  mem       REG                8,1    27112  531653
systemd  4429 mary  mem       REG                8,1    14560  531508
systemd  4429 mary  mem       REG                8,1   464824  531607
systemd  4429 mary  mem       REG                8,1   144976  531618
systemd  4429 mary  mem       REG                8,1   112672  143797
systemd  4429 mary  mem       REG                8,1   153984  531545
systemd  4429 mary  mem       REG                8,1   206872  571034
systemd  4429 mary  mem       REG                8,1    27088  143723
systemd  4429 mary  mem       REG                8,1  1155768  531524
```

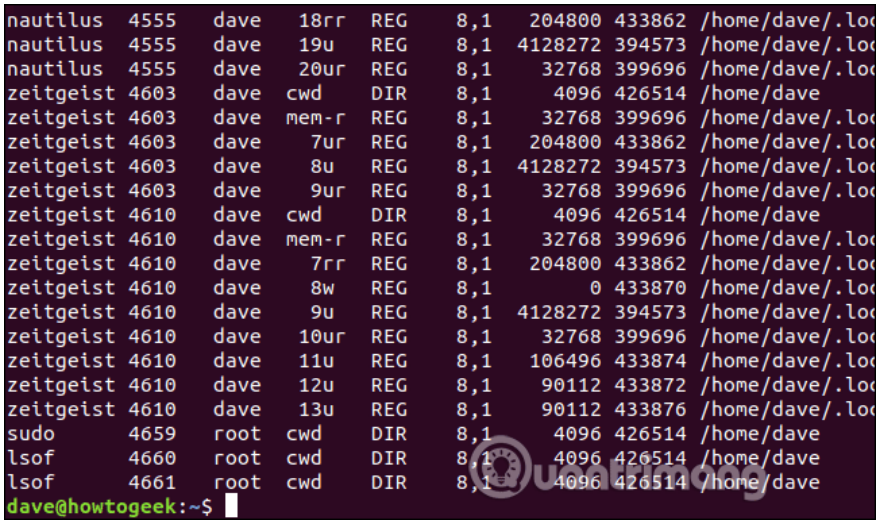
Exclude files opened by users

To exclude files opened by users, use the ^ operator to exclude users from the list. This will help you find information more easily. You must use the **-u** option and add the ^ character to the username.

```
sudo lsof + D / home -u ^ mary
```



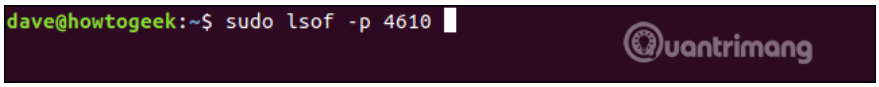
You will see a list of / home directories without any files opened by Mary users.



List the file due to the open process according to the process ID

To list the file due to the open process, use the **-p** option and provide the process ID as the parameter.

```
sudo lsof - p 4610
```



All files opened by the process ID you provide are listed in the image below.

```
COMMAND    PID USER   FD      TYPE             DEVICE SIZE/OFF   NODE
zeitgeist 4610 dave  cwd       DIR               8,1     4096 426514
zeitgeist 4610 dave  rtd       DIR               8,1     4096      2
zeitgeist 4610 dave  txt       REG               8,1   137400 144783
zeitgeist 4610 dave  mem       REG               8,1   247720 265892
zeitgeist 4610 dave  mem       REG               8,1   211144 265893
zeitgeist 4610 dave  mem       REG               8,1   311720 531477
zeitgeist 4610 dave  mem       REG               8,1 26904264 143695
zeitgeist 4610 dave  mem       REG               8,1    14560 531508
zeitgeist 4610 dave  mem       REG               8,1   464824 531607
zeitgeist 4610 dave  mem       REG               8,1    31032 143431
zeitgeist 4610 dave  mem       REG               8,1   340232 531554
zeitgeist 4610 dave  mem       REG               8,1   101168 531624
zeitgeist 4610 dave  mem       REG               8,1   154832 531630
zeitgeist 4610 dave  mem       REG               8,1    14232 143366
zeitgeist 4610 dave  mem       REG               8,1  1792008 143705
zeitgeist 4610 dave  mem       REG               8,1  2754872 143697
zeitgeist 4610 dave  mem       REG               8,1  1700792 531548
zeitgeist 4610 dave  mem       REG               8,1    27112 531653
zeitgeist 4610 dave  mem       REG               8,1   116960 531657
zeitgeist 4610 dave  mem       REG               8,1    31680 531626
```

List file open process ID

To view the process ID for a specific file, use the **-t** option and provide the file name for the command line.

```
sudo lsof -t /usr/share/mime/mime.cache
```

```
dave@howtogeek:~$ sudo lsof -t /usr/share/mime/mime.cache
```

The process ID is displayed in a simple list.

```
dave@howtogeek:~$ sudo lsof -t /usr/share/mime/mime.cache
1365
2109
2183
2582
2891
2956
3176
3178
3198
3245
3264
4555
4610
dave@howtogeek:~$
```

Use AND and OR search

As mentioned above, you can use multiple search terms in the command line. For example, to find files opened by Mary users and related to the SSH process use the following command:

```
sudo lsof -u mary -c ssh
```

```
dave@howtogeek:~$ sudo lsof -u mary -c ssh
```

Below is the output of the above command, something is not right here because there are output items that start with root.

```
sshd      4427 root  mem       REG                8,1    39784      5316
sshd      4427 root  mem       REG                8,1   170960      5314
sshd      4427 root    0r      CHR                1,3      0t0
sshd      4427 root    1u      CHR                1,3      0t0
sshd      4427 root    2u      CHR                1,3      0t0
sshd      4427 root    3u     IPv4              45604      0t0        TC
sshd      4427 root    4u     unix 0xffff9ed8bfd28400      0t0      456
sshd      4427 root    5u      CHR                5,2      0t0
sshd      4427 root    6u     unix 0xffff9ed8f79f2c00      0t0      461
sshd      4427 root    7w     FIFO               0,22      0t0
systemd   4429 mary  cwd       DIR                8,1     4096
systemd   4429 mary  rtd       DIR                8,1     4096
systemd   4429 mary  txt       REG                8,1  1595792      5670
systemd   4429 mary  mem       REG                8,1  1700792      5315
systemd   4429 mary  mem       REG                8,1   121016      5600
systemd   4429 mary  mem       REG                8,1    84032      5315
systemd   4429 mary  mem       REG                8,1    43304      5315
systemd   4429 mary  mem       REG                8,1    34872      1431
systemd   4429 mary  mem       REG                8,1   432640      5315
systemd   4429 mary  mem       REG                8,1    18680      5314
systemd   4429 mary  mem       REG                8,1    18712      5314
```

When providing multiple lsoft search terms, it will return any file that matches the first, second, third search term, etc. In other words, it does an OR search.

To make lsoft perform an AND search, use the **-a** option. That means only files matching the first and second conditions are listed.

```
sudo lsof -u mary -c ssh -a
```

```
dave@howtogeek:~$ sudo lsof -u mary -c ssh -a
```

Now, all files in the list are opened by or on behalf of Mary and are related to the SSH command.

```
COMMAND  PID USER   FD   TYPE             DEVICE SIZE/OFF    NODE NAME
sshd    4529 mary  cwd    DIR               8,1     4096       2 /
sshd    4529 mary  rtd    DIR               8,1     4096       2 /
sshd    4529 mary  txt    REG               8,1   786856      27 /usr/sb
sshd    4529 mary  mem    REG               8,1   258040  564838 /lib/x8
sshd    4529 mary  mem    REG               8,1    42920  531675 /lib/x8
sshd    4529 mary  mem    REG               8,1    14464  530962 /lib/x8
sshd    4529 mary  mem    REG               8,1    22872  530982 /lib/x8
sshd    4529 mary  mem    REG               8,1    10312  530990 /lib/x8
sshd    4529 mary  mem    REG               8,1    10336  530994 /lib/x8
sshd    4529 mary  mem    REG               8,1    14576  530900 /lib/x8
sshd    4529 mary  mem    REG               8,1   258040  565613 /lib/x8
sshd    4529 mary  mem    REG               8,1    10376  531026 /lib/x8
sshd    4529 mary  mem    REG               8,1    10280  530980 /lib/x8
sshd    4529 mary  mem    REG               8,1    10336  530989 /lib/x8
sshd    4529 mary  mem    REG               8,1    18736  531009 /lib/x8
sshd    4529 mary  mem    REG               8,1    10264  530996 /lib/x8
sshd    4529 mary  mem    REG               8,1    22768  531490 /lib/x8
sshd    4529 mary  mem    REG               8,1    10080  531663 /lib/x8
sshd    4529 mary  mem    REG               8,1     6104  530997 /lib/x8
sshd    4529 mary  mem    REG               8,1     5776  530956 /lib/x8
```


Automatically refresh results

We can use the **+ | -r option** to put lsof into repeat mode. You can use the repeat option in two ways **+ r** or **-r** . You need to add the number of seconds you want lsof to wait before refreshing the result.

Use the repeat option with one of the two formats that lsoft displays as normal, but it adds a broken line to the bottom of the screen. It will wait for the number of seconds you provided in the command line and then refresh the screen with a new set of results.

With the **-r** option it will continue to repeat the process, want to stop, press `Ctrl` + `C` With the **+ r** format, it will continue until no results are displayed or press `Ctrl` + `C`

```
sudo lsof -u mary -c ssh -a -r5
```

```
dave@howtogeek:~$ sudo lsof -u mary -c ssh -a -r5
```


Note, the dashed line at the end of the data split list is displayed when the output is refreshed.

```
sshd    4529 mary  mem    REG                8,1  2357760 143149 /usr/li
sshd    4529 mary  mem    REG                8,1   536648 565627 /lib/x8
sshd    4529 mary  mem    REG                8,1   154832 531630 /lib/x8
sshd    4529 mary  mem    REG                8,1    55848 530899 /lib/x8
sshd    4529 mary  mem    REG                8,1   124848 531475 /lib/x8
sshd    4529 mary  mem    REG                8,1    39784 531655 /lib/x8
sshd    4529 mary  mem    REG                8,1   170960 531457 /lib/x8
sshd    4529 mary    0u   CHR                1,3      0t0      6 /dev/nu
sshd    4529 mary    1u   CHR                1,3      0t0      6 /dev/nu
sshd    4529 mary    2u   CHR                1,3      0t0      6 /dev/nu
sshd    4529 mary    3u  IPv4             45604      0t0    TCP howtoge
sshd    4529 mary    4u  unix 0xffff9ed8bfd28400      0t0  45645 type=DG
sshd    4529 mary    5u  unix 0xffff9ed8f79f3000      0t0  46177 type=ST
sshd    4529 mary    6r  FIFO               0,12      0t0  46181 pipe
sshd    4529 mary    7w  FIFO               0,22      0t0    812 /run/sy
sshd    4529 mary    8w  FIFO               0,12      0t0  46181 pipe
sshd    4529 mary    9u   CHR                5,2      0t0     86 /dev/pt
sshd    4529 mary   11u   CHR                5,2      0t0     86 /dev/pt
sshd    4529 mary   12u   CHR                5,2      0t0     86 /dev/pt
=======
```

Display files related to Internet connection.

The **-i** option allows you to view files opened by network related processes and the Internet.

```
lsof -i
```

```
dave@howtogeek:~$ sudo lsof -i
```

All files are opened due to internet connection and the network is displayed.

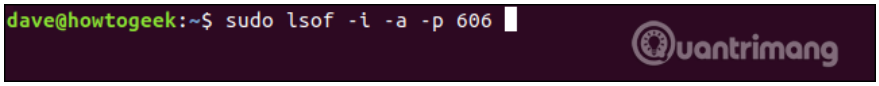
```
dave@howtogeek:~$ sudo lsof -i
COMMAND    PID            USER   FD   TYPE DEVICE SIZE/OFF NODE NAME
systemd-r  320 systemd-resolve   12u  IPv4  15085      0t0  UDP localhos
systemd-r  320 systemd-resolve   13u  IPv4  15086      0t0  TCP localhos
avahi-dae  606           avahi   12u  IPv4  17545      0t0  UDP *:mdns
avahi-dae  606           avahi   13u  IPv6  17546      0t0  UDP *:mdns
avahi-dae  606           avahi   14u  IPv4  17547      0t0  UDP *:42613
avahi-dae  606           avahi   15u  IPv6  17548      0t0  UDP *:34120
cupsd     2320            root    6u  IPv6  27085      0t0  TCP ip6-loca
cupsd     2320            root    7u  IPv4  27086      0t0  TCP localhos
cups-brow 2322            root    7u  IPv4  27094      0t0  UDP *:ipp
sshd      4158            root    3u  IPv4  39573      0t0  TCP *:ssh (l
sshd      4158            root    4u  IPv6  39584      0t0  TCP *:ssh (l
dhclient  4274            root    6u  IPv4  44230      0t0  UDP *:bootpc
sshd      4427            root    3u  IPv4  45604      0t0  TCP howtogee
sshd      4529            mary    3u  IPv4  45604      0t0  TCP howtogee
dave@howtogeek:~$
```

Displays the file associated with the Internet connection by the process ID

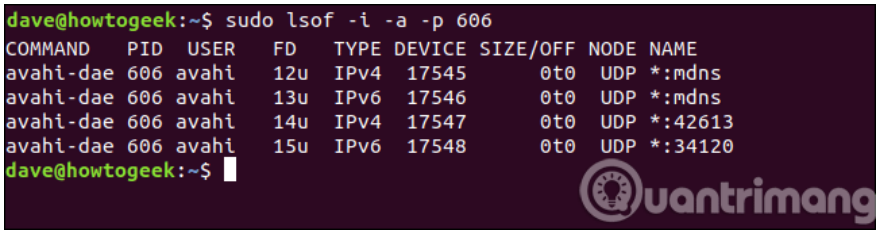
To view files opened by a process related to an Internet connection using a specific process ID, add the **-p** option and **-a** option.

We will find the files related to the Internet connection or the network opened by the 606 process ID.

```
sudo lsof -i -a -p 606
```



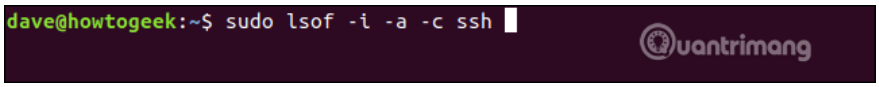
All files opened by the ID 606 process associated with the Internet and the network are displayed.



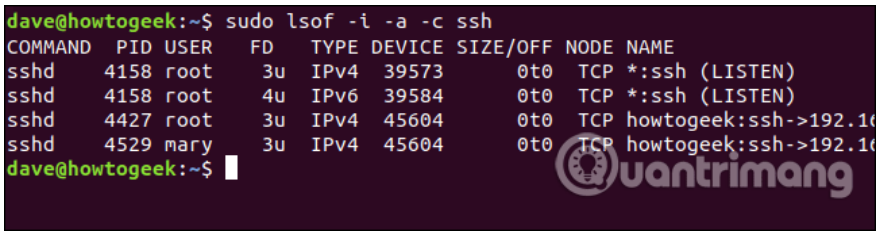
Display files associated with commands and Internet connection

We can use the **-c** (command) option to search for files opened by specific processes. To find files opened with processes related to Internet connection or networks associated with the ssh process, use the following command:

```
lsof -i -a -c ssh
```



All files are opened because the ssh process is listed.



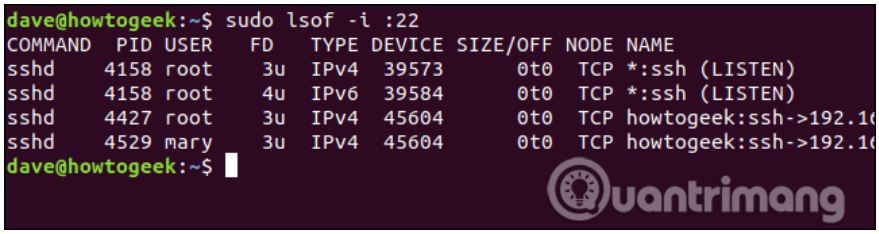
Display files related to Internet connection and ports

Lsoft can report files opened by Internet connection and network on specific port. To do that, use the character **:** following the port number.

Below lsoft lists the files opened by network connection or Internet using port 22.

```
lsof -i: 22
```

All files are opened by the process related to port 22 (this is the default port for SSH connection).

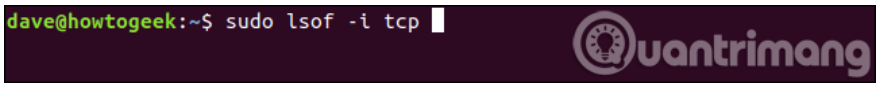


Display files related to Internet connection and protocol

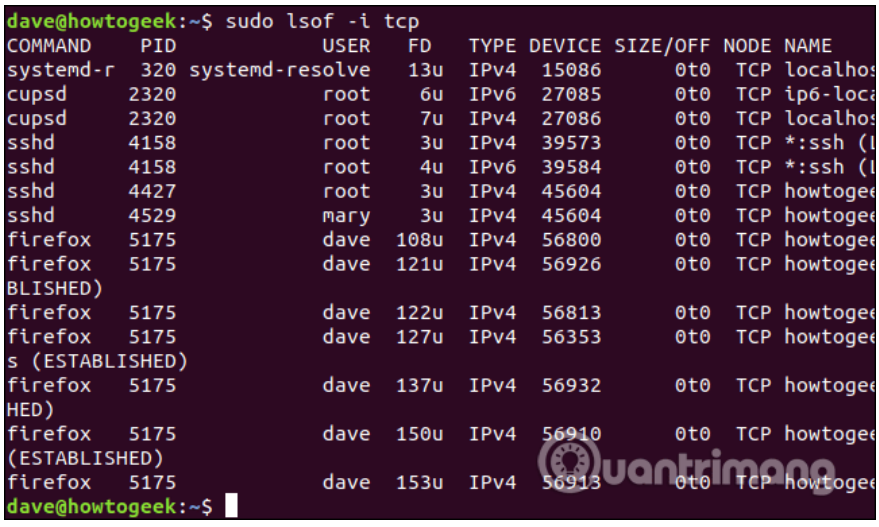
You can request lsof to display the file opened by the process related to network and Internet connection, using specific protocol. You can choose from TCP, UDP and SMTP. Here we find the file using TCP protocol.

1. The difference between TCP and UDP protocols

```
sudo lsof -i tcp
```



This is the output that is opened by processes using TCP protocol.



Here are some ways to use lsoft command you can use to search files on Linux.

I wish you all success!