

EXPERIMENT NO: 04

Explore forensics tools in kali linux for acquiring, analyzing and duplicating data.

- dd
- dcfldd

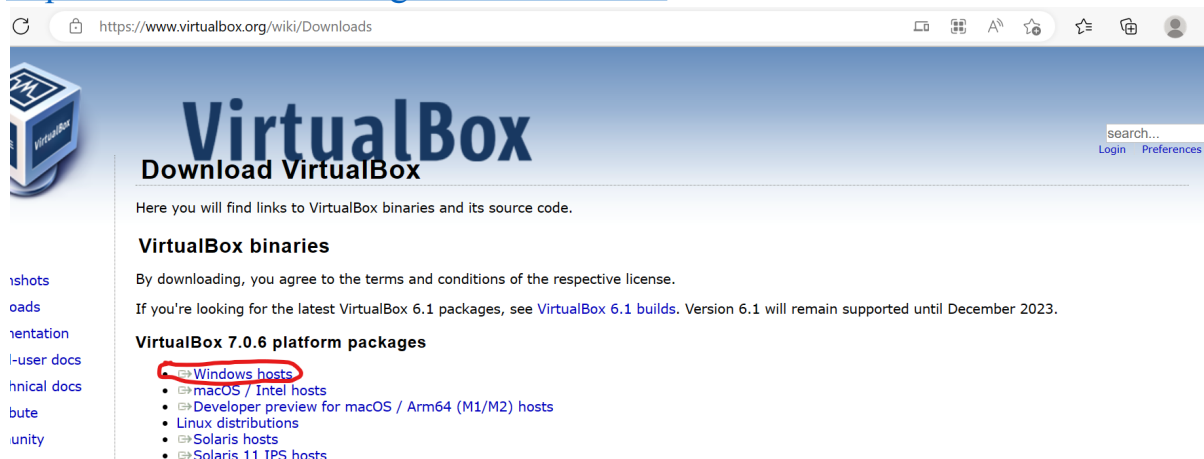
AIM : To Explore forensics tools in kali linux for acquiring, analyzing and duplicating data.

THEORY :

Installation guide for VirtualBox and Kali Linux:

1. Download Virtual Box

<https://www.virtualbox.org/wiki/Downloads>

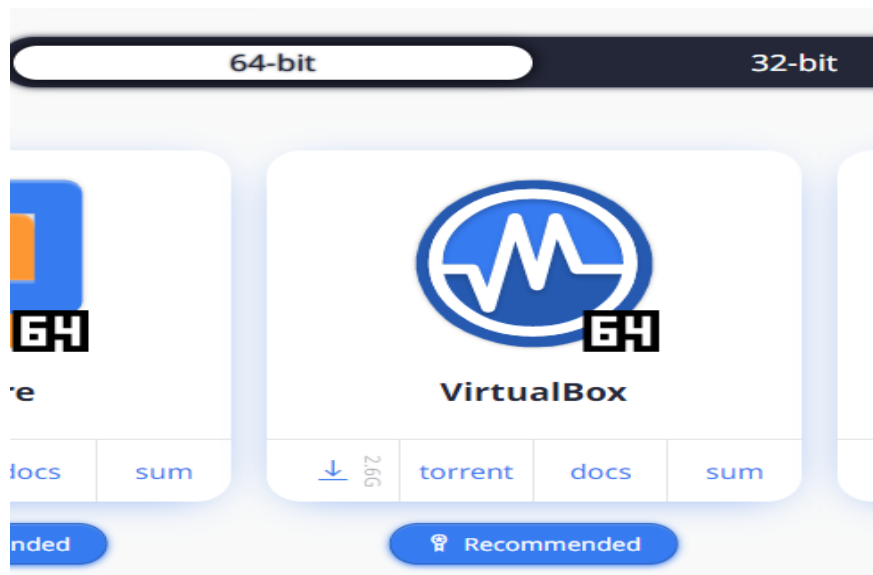


Download the highlighted version

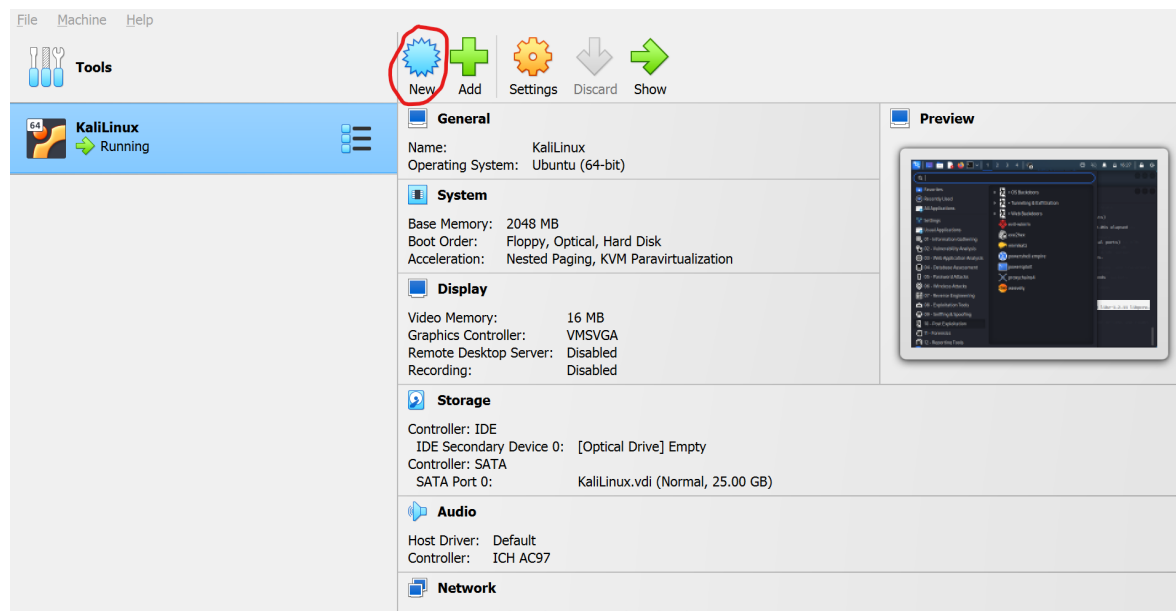
2. Follow the installation steps

3. Download Kali

<https://www.kali.org/get-kali/#kali-virtual-machines>



4. Go to Virtual box



5. Click on New, enter the name of the machine without spaces, select the ISO image that you downloaded and then click on next and follow the steps.

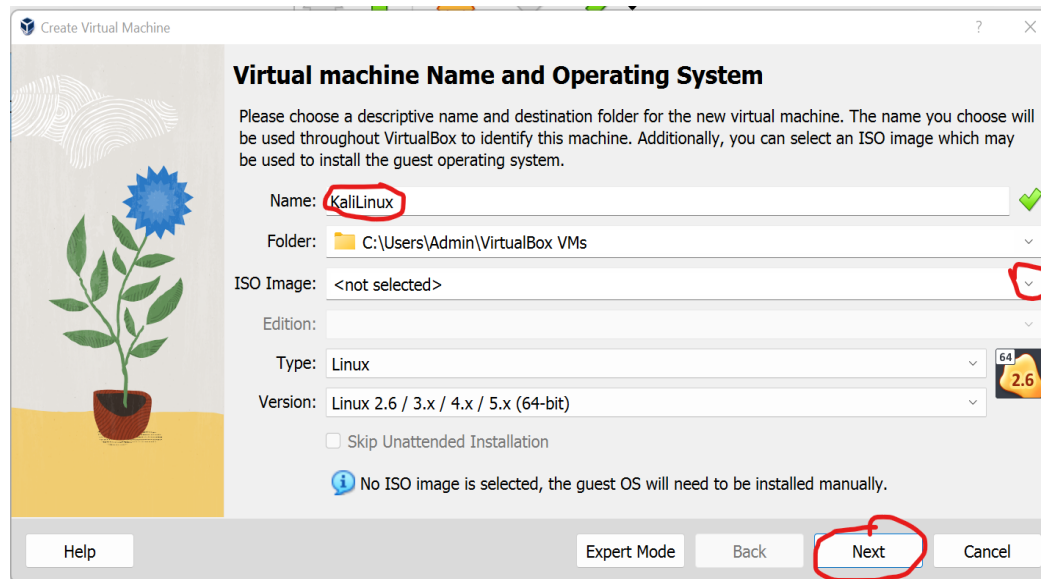


Image acquisition using DD:

DD file is the image file created out of dd commands. It is a powerful and simple command-line that is used to create disk images, copy files, etc. of hard drives on Unix or Linux Operating System.

The utility is inbuilt and installed in Linux or Unix OS to create raw images of drives, folders, files, etc. for forensic purposes. Users can create the output file either in .img or .dd file or other file formats by specifying the file type at the “of” part.

dd command- data duplication:

```
sudo apt get update
```

Create a file inside a folder and try to copy

```
dd if=/home/vaishali/test2 of=/home/kali/test1.img
```

Few more commands

Following the dd command example, the UNIX device name of the source hard disk is /dev/hda, and device name of the target hard disk is /dev/hdb.

```
# dd if=/dev/sda of=/dev/sdb
```

If there are any errors, the above command will fail. If you give the parameter “conv=noerror” then it will continue to copy if there are read errors.

Input file and output file should be mentioned very carefully. Just in case, you mention source

device in the target and vice versa, you might lose all your data.

To copy, hard drive to hard drive using dd command given below, sync option allows you to copy everything using synchronized I/O.

```
# dd if=/dev/sda of=/dev/sdb conv=noerror, sync
```

To back up a Partition:

You can use the device name of a partition in the input file, and in the output either you can specify your target path or image file as shown in the dd command.

```
# dd if=/dev/hda1 of=~/partition.img
```

To create an image of a Hard Disk:

Instead of taking a backup of the hard disk, you can create an image file of the hard disk and save it in other storage devices. There are many advantages of backing up your data to a disk image, one being the ease of use. This method is typically faster than other types of backups, enabling you to quickly restore data following an unexpected catastrophe. It creates the image of a hard disk /dev/hda.

```
# dd if=/dev/hda of=~/hdadisk.img
```

dcfldd

Sudo apt-get update

Sudo apt install dcfldd

```
dcfldd if=/home/vaishali/test2 of=/home/kali/test2.img
```

dc3dd

Sudo apt-get update

Sudo apt install dc3dd

```
dc3dd if=/home/vaishali/test2 of=/home/kali/test3.img
```

Output:

dd command

1. Backup a Partition

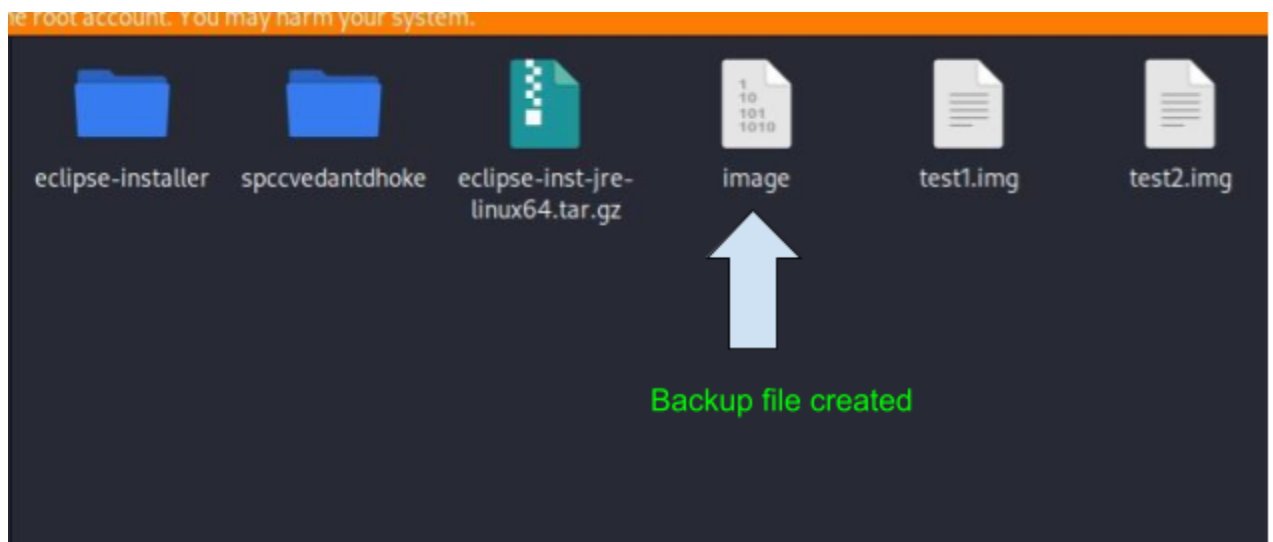
```
File Actions Edit View Help

(root@kali)~/Downloads
# fdisk -l
Disk /dev/sda: 80 GiB, 85899345920 bytes, 167772160 sectors
Disk model: VBOX HARDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xd562e290

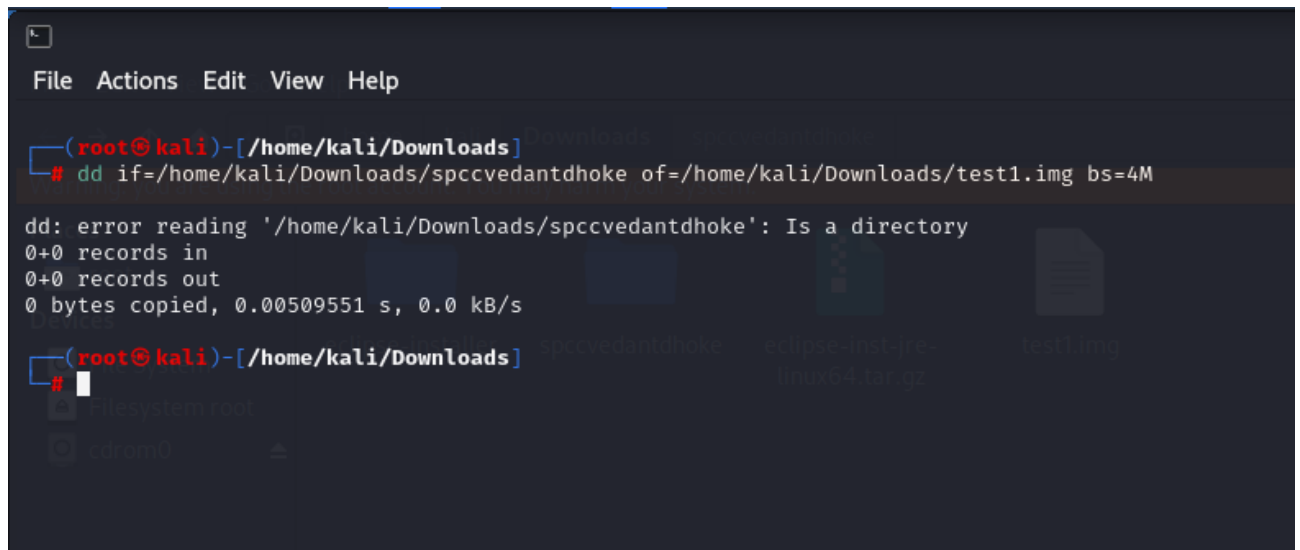
Device      Boot      Start      End  Sectors  Size Id Type
/dev/sda1   *          2048 165771263 165769216   79G 83 Linux
/dev/sda2             165773310 167770111   1996802   975M  5 Extended
/dev/sda5             165773312 167770111   1996800   975M 82 Linux swap / Solaris

(root@kali)~/Downloads
# sudo dd if=/dev/sda5 of=/home/kali/Downloads/image

1996800+0 records in
1996800+0 records out
1022361600 bytes (1.0 GB, 975 MiB) copied, 5.49884 s, 186 MB/s
```



2. Creating an image(Data Duplication)

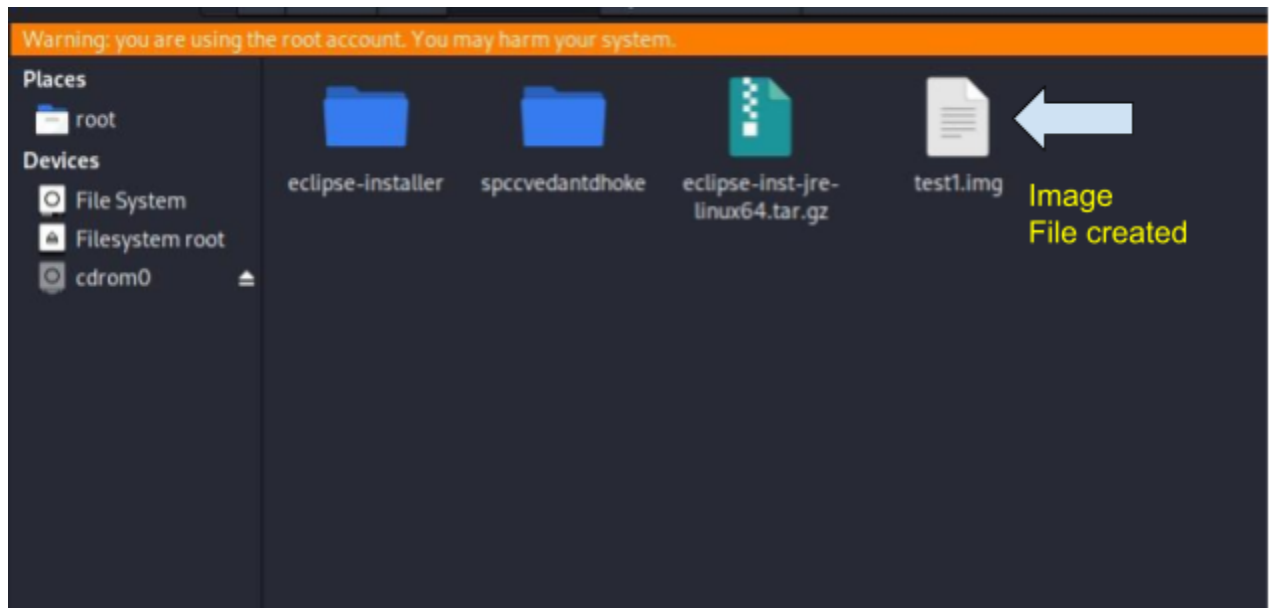


```
(root@kali)-[/home/kali/Downloads]
# dd if=/home/kali/Downloads/spccvedantdhoke of=/home/kali/Downloads/test1.img bs=4M

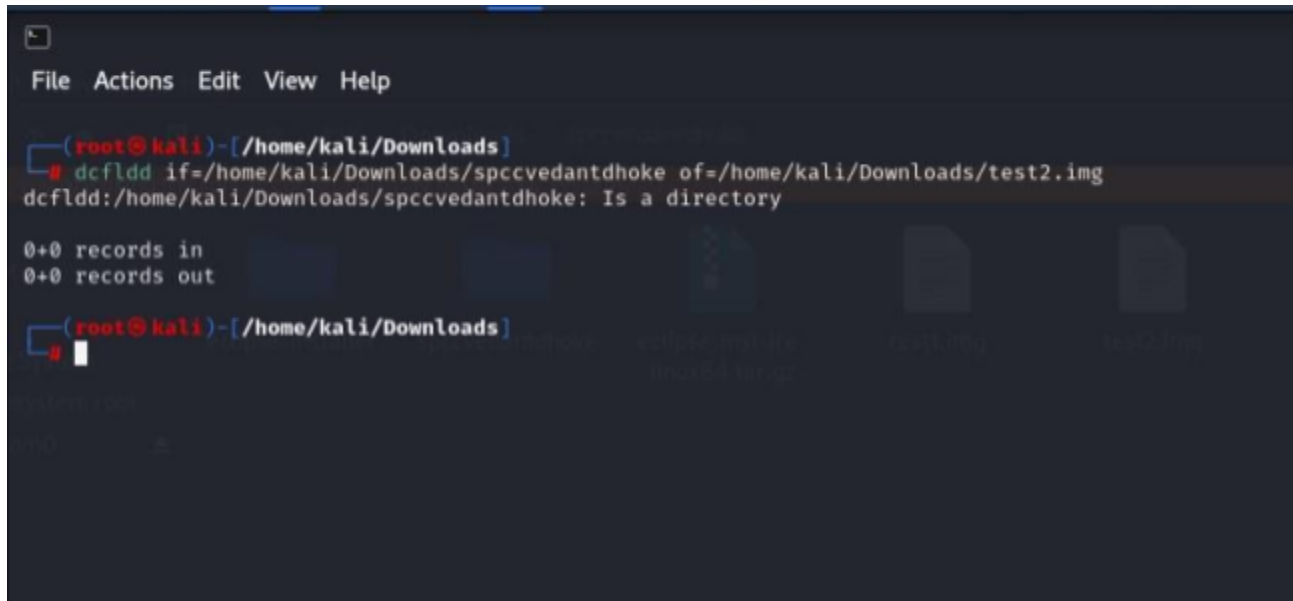
dd: error reading '/home/kali/Downloads/spccvedantdhoke': Is a directory
0+0 records in
0+0 records out
0 bytes copied, 0.00509551 s, 0.0 kB/s

(root@kali)-[/home/kali/Downloads]
#
```

The terminal window shows a failed attempt to create an image file. The command `dd if=/home/kali/Downloads/spccvedantdhoke of=/home/kali/Downloads/test1.img bs=4M` was executed, but it failed with the error `dd: error reading '/home/kali/Downloads/spccvedantdhoke': Is a directory`. The prompt indicates that the user is in the `/home/kali/Downloads` directory.



dcfldd command

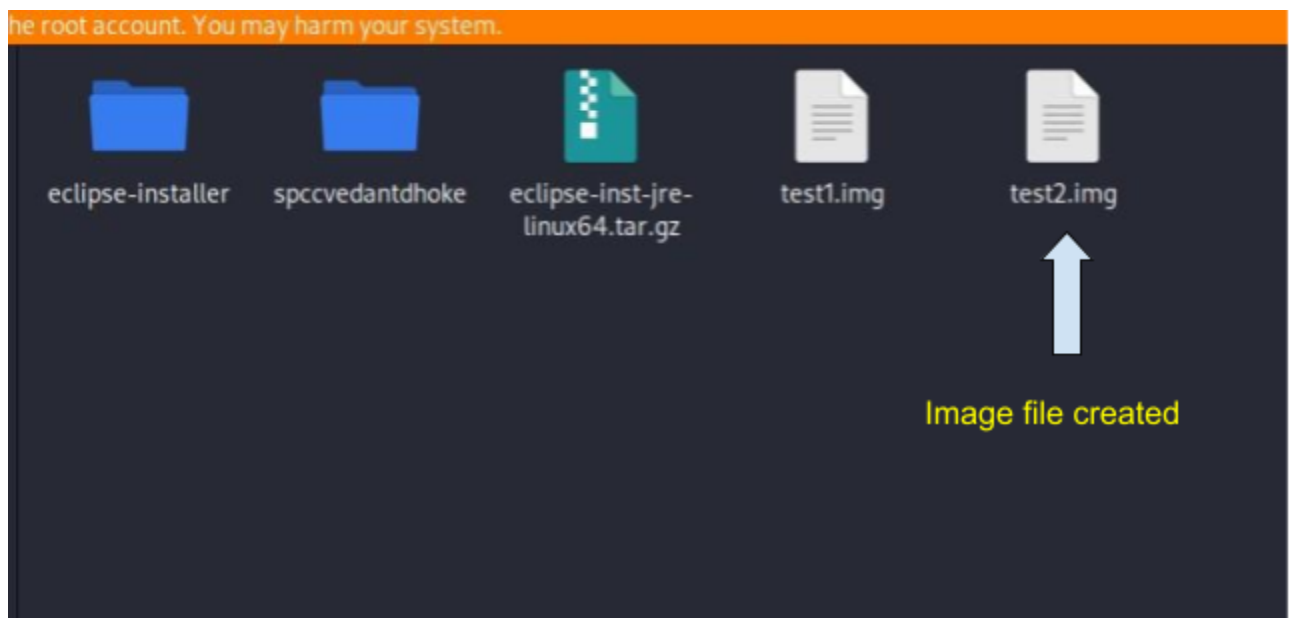


```
File Actions Edit View Help

(root@kali)-[/home/kali/Downloads]
# dcfldd if=/home/kali/Downloads/spccvedantdhoke of=/home/kali/Downloads/test2.img
dcfldd:/home/kali/Downloads/spccvedantdhoke: Is a directory

0+0 records in
0+0 records out

(root@kali)-[/home/kali/Downloads]
```



Conclusion: In conclusion, dd and dcfldd are both powerful command-line tools used for copying and converting data. Both tools are widely used in Linux and other Unix-like operating systems for various purposes, such as creating backups, cloning drives, and creating disk images. These tools are powerful and can cause serious damage if used incorrectly.