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UNIX & LINUX

How to dd a remote disk using SSH on local machine and save to a local disk

Asked 9 years, 8 months ago Modified 1 year, 6 months ago Viewed 241k times



How can I create a backup of a remote disk using SSH on my local machine and save it to a local disk?

125



I've tried the following:



```
ssh hostname@my.ip.address "sudo dd if=/dev/sdX " | \  
dd of=/home/username/Documents/filename.image`
```



However, I receive the following error:

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asked May 31, 2014 at 4:30



QuOrk

1,391

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If your intent is to backup a remote computer's **HDD A** via SSH to a single file that's on your local computer's HDD, you could do one of the following.

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Examples

run from remote computer



```
$ dd if=/dev/sda | gzip -1 - | ssh user@local dd of=image.gz
```



run from local computer

```
$ ssh user@remote "dd if=/dev/sda | gzip -1 -" | dd of=image.gz
```

Live example

```
$ ssh skinner "dd if=/dev/sda5 | gzip -1 -" | dd of=image.gz
208782+0 records in
208782+0 records out
106896384 bytes (107 MB) copied, 22.7608 seconds, 4.7 MB/s
116749+1 records in
116749+1 records out
59775805 bytes (60 MB) copied, 23.9154 s, 2.5 MB/s
```

```
$ ll | grep image.gz
-rw-rw-r--.  1 saml saml  59775805 May 31 01:03 image.gz
```

Methods for monitoring?

1. Login via `ssh` in another terminal and `ls -l` the file to see what it's size is.
2. You can use `pv` to monitor the progress of a large `dd` operation, for instance, for the

```
@local dd of=image.gz
```

ts. Something like:

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inally left via comments by [@Ryan](#) to make them more obvious.

I tried this for a similar problem (backing up remote computer ONE 's hard drive to remote computer TWO 's storage), like this: `ssh root@TWO dd if=/dev/sda1 | ssh root@ONE dd of=/root/Public/ONE/sda1.img` `
[root@ONE]# dd if=/dev/sda1 | ssh root@TWO dd of=/root/Public/ONE/sda1.img` `
> 409600+0 records in 409600+0 records out 209715200 bytes (210 MB) copied, 0.894929 s, 234 MB/s` Pseudo-terminal will not be allocated because stdin is not a terminal root@TWO's password: The problem is that the `/root/Public/ONE/sda1.img` file was created on ONE , not on TWO as expected. How do I fix this? – [Urhixidur](#) Jul 15, 2015 at 13:59

1 Can someone give us an example of using `pvc` from the local machine? Thank you. – [TCB13](#) Dec 16, 2015 at 15:08

it is better to use `lbzip2` or `pigz` insted of `gzip` – [Shimon Doodkin](#) Mar 10, 2016 at 0:15

12 Regarding monitoring: Newer `dd` versions also have the `status=progress` option. Thus, you do not need to run `pskill -USR1 dd` from another terminal anymore. – [Till Schäfer](#) Jan 2, 2018 at 15:23

2 restore: `gunzip -c xxx.gz | pv | dd of=/dev/sda1` – [nobjta_9x_tq](#) Apr 11, 2020 at 6:12



15



The error you receive is due to the use of `sudo` remotely (you'd be asked for the password but you don't have a `tty` to enter it). On the other hand, as a normal user you can't normally use simply `dd` as suggested in other answer (you don't have the required permissions to the device). You can solve the problem by giving yourself rights to execute `dd` as `sudo` without a password. You can do this by editing the `sudoers` file (on the remote!):



`sudo visudo`



add the following line:

```
userfoo ALL=(ALL) NOPASSWD: /bin/dd if=/dev/sdX
```

`dd if=/dev/sdX of=/test.dd`

... in `sudoers`, allowing you to run `dd` with the minimum you

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Or, you can just run 'sudo ls' at the applicable end (and type in password), just prior to running the 'sudo dd ...' command – [MikeW](#) Feb 19, 2019 at 11:28



[elfantin](#)

- 1 With newer versions of dd adding status=progress even allows monitoring copy progress. – [sensslen](#) May 21, 2019 at 9:16

This is the correct answer regarding the error message. But you could add these alternatives: use `ssh -t` to execute the command with a `tty` allowing for interactive password input / use `sudo -S` to read password from `stdin` even without a `tty` . – [acran](#) Nov 1, 2020 at 14:34

- 3 @MikeW note that this might not work since by default `sudo` only remembers the authentication for the same console session, see `timeout_type` in `man 5 sudoers` . – [acran](#) Nov 1, 2020 at 14:35



I've just used a modified version on a virtual Linux Mint box to clone a physical hard drive on an aging RedHat server.

8

I ran the following as root on the virtual box:



```
ssh root@192.168.1.5 "dd if=/dev/cciss/c0d0" | dd of=/dev/sdb
```



- 192.168.1.5 is the physical Red Hat Enterprise Linux 2.1 box.
- /dev/sdb is a new virtual disk, which when finished cloning will be the basis of a virtual version of the old dying physical box.

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edited Apr 25, 2016 at 1:01



[slm](#) ♦

368k

121

774

878

answered May 20, 2015 at 4:47

[Fred Nerk](#)

[Nerk!](#) 81 1 1

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Combining these answers allowed me to clone to another Linux host and avoid the 'permission denied' error:

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- RPI4 SD card (`/dev/mmcblk0` - this clones the entire card)
- avoid permission issue by prompting for elevated privilege (`sudo -s`)
- see progress as it copies (`status=progress`)
- compressing the copy (`gzip`)
- specify buffer size (`bs=64k`) for improved speed. You can specify higher values. please read [this](#)

```
ssh user@1.1.1.1 "sudo -S dd if=/dev/mmcblk0 bs=64k status=progress | gzip -1 -"
| dd of=rpiimg.gz bs=64k
```

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edited Nov 1, 2020 at 0:18



Hummus_Ful

3 3

answered Nov 28, 2019 at 3:38



Paul Sturm

171 1 3

1 great - works like a charm. – [opinion_no9](#) Mar 9, 2023 at 20:12

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2



I was in a similar situation recently. The difference for me was, that

- due to security measures `root ssh` access was disabled
- `sudo` was not installed (deliberately)

So what I did was:

1. examine device file permissions (grep for appropriate block device naming scheme (`hd`, `sd`, `nvme`, etc.))

```
user@machine:~$ ls -la /dev/ |grep sd
brw-rw---- 1 root disk      8,  0 Nov 22 13:36 sda
brw-rw---- 1 root disk      8,  1 Nov 22 13:36 sda1
brw-rw---- 1 root disk      8,  2 Nov 22 13:36 sda2
brw-rw---- 1 root disk      8,  5 Nov 22 13:36 sda5
```

2. add the user to the `disk` group

```
root@machine:~$ usermod -aG user disk
```

3. then run the `dd` the same way you already tried (but w/o `sudo`)

```
ssh user@my.ip.address "dd if=/dev/sdX " | dd of=/home/username/Documents/
filename.image
```

(or also chain-in the `gzip` as others suggested)

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answered Nov 23, 2020 at 10:03



helvete

151 4

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from spam and non-answer activity.

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