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How to connect a block device manually

This page shows how to connect a block device manually.

Requirements

- You have an account and are logged into cloud.scaleway.com ([//cloud.scaleway.com](https://cloud.scaleway.com))
- You have configured your SSH Key
- You have a running server
- Your server has additional volumes

When you create a server with additional storage, the connection to a block device is automatic at the server boot.

If you want to avoid this behavior and connect additional block devices manually, execute the following command on your server `echo manual > /etc/init/nbd-add-extra-volumes.override` (Ubuntu only).

There are three steps to connect a block device manually:

- Identify NBD server and port
- Connect to a block device
- Format and mount the volume

Important: The maximum number of volumes attach to C1 server is limited to 15 devices.

Step 1 - Identify NBD server and port

The NBD client requires the IP address and the port number of our NBD server exporting your volume.

These settings are available from your server details page on the control panel.



● labs-d1749a

OFF

ON

HARD REBOOT

DELETE

ID	9a58aea2-664b-4275-b9c0-262453ffe6be	
NAME	labs-d1749a	EDIT
TAGS	--	EDIT
HOW TO CONNECT ?	How to connect ?	
PUBLIC IP	212.47.226.108	VIEW DETACH RESERVED IP
PRIVATE IP	10.1.18.230	
FROM IMAGE	Ubuntu Trusty (14.04) on SSD 2014.06.04	
CREATION DATE	Jul 21, 2014 1:45:02 PM	

Volumes

ATTACH AN EXISTING VOLUME

TYPE	DEVICE	NAME	EXPORT URI	SIZE	ACTION
lssd	/dev/nbd0	Ubuntu Trusty RootFS snapshot	nbd://10.1.18.242:4352	20 GB	SNAPSHOT DETACH
lssd	/dev/nbd1	test_vol	nbd://10.1.18.242:4353	40 GB	SNAPSHOT DETACH

The above picture shows the IP address and the port number required to export the volume in our example.

You can also use "server metadata" which gives you a lot of information.
Execute the following command on your server to display server metadata:

```

root@c1-X-Y-Z-T:~# oc-metadata
NAME=myc1
TAGS=1
TAGS_0=test
STATE_DETAIL=booted
PUBLIC_IP=DYNAMIC ID ADDRESS
PUBLIC_IP_DYNAMIC=True
PUBLIC_IP_ID=9915ace8-2729-4289-b962-f6a2f94d44a0
PUBLIC_IP_ADDRESS=212.47.236.31
SSH_PUBLIC_KEYS=1
SSH_PUBLIC_KEYS_0=KEY
SSH_PUBLIC_KEYS_0_KEY='ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDIwtTLiaKl+YPV0LjN/DJtS6hY0AEEX
qAS105z8ft61da+3sG/kd3j9ONiepugG6sanGKRAMvx6520IZDgWbZEC40/7shAoxxbiFXBj3VgPCoKXCNLtT1a4nx9h
R/Xstzf6k3/mODiioWv+TwWimM9SRo5ihwF09BhLw4sftChtUx1LrW6pv0o4ykBPMC90yJl5KrB+7QKwaedbUYwBkXH
NDD0TpBawJppp3hcfPhJjZrCk4NCdNsRhmhwaKMPNmx37hBs+Wu3Y2aAbHd4tAsQAc646/E6Xlip1l8IzkNaH7PGYLhM
mHB9FXI6gavi0UF120C7abzm+MiLDOzRBx1'
PRIVATE_IP=10.1.0.31
VOLUMES=1 0
VOLUMES_1=NAME EXPORT_URI VOLUME_TYPE SERVER ORGANIZATION ID SIZE
VOLUMES_1_NAME=data_vol
-> VOLUMES_1_EXPORT_URI=nbdc://10.1.0.44:4321
VOLUMES_1_VOLUME_TYPE=1_hdd
VOLUMES_1_SERVER=ID NAME
VOLUMES_1_SERVER_ID=838271d7-9744-4b3e-b29c-1c38c7c435e8
VOLUMES_1_SERVER_NAME=myc1
VOLUMES_1_ORGANIZATION=ecc1c86a-1122-43a7-9c0a-77e3123456789
VOLUMES_1_ID=965b38e6-b3bf-466c-a13c-b2004f37214a
VOLUMES_1_SIZE=100000000000
VOLUMES_0=NAME EXPORT_URI VOLUME_TYPE SERVER ORGANIZATION ID SIZE
VOLUMES_0_NAME='Ubuntu Trusty (14.04) on SSD 2014.07.15'
VOLUMES_0_EXPORT_URI=nbdc://10.1.0.44:4320
VOLUMES_0_VOLUME_TYPE=1_ssd
VOLUMES_0_SERVER=ID NAME
VOLUMES_0_SERVER_ID=838271d7-9744-4b3e-b29c-1c38c7c435e8
VOLUMES_0_SERVER_NAME=myc1
VOLUMES_0_ORGANIZATION=ecc1c86a-1122-43a7-9c0a-77e3123456789
VOLUMES_0_ID=b741de3c-6bf7-4e07-b432-baadcef606a3
VOLUMES_0_SIZE=200000000000
ORGANIZATION=ecc1c86a-1122-43a7-9c0a-77e3123456789
ID=838271d7-9744-4b3e-b29c-1c38c7c435e8

```

- VOLUMES_0 / VOLUMES_0_* always match the root volume of the server. Server connects and mounts it automatically at boot time.
- VOLUMES_[1-15] / VOLUMES_[1-15]* are additional volumes attached to the server.

VOLUMES_[1-15_EXPORT_URI=nbdc://10.1.0.44:4321 this entry shows NBD server IP address and the port number of our NBD server exporting your volume.

Step 2 - Connect to a block device

An instance of the NBD client must be started for each block device to import.

For instance: `` root@c1-X-Y-Z-T:~# nbd-client 10.1.0.44 4321 /dev/nbd1 Negotiation: ..size = 9536MB bs=1024, sz=9999998976 bytes

```

root@c1-X-Y-Z-T:~# fdisk -l -u /dev/nbd1 Disk /dev/nbd1: 100.0 GB, 99999997952 bytes 255
heads, 63 sectors/track, 12157 cylinders, total 195312496 sectors Units = sectors of 1 * 512 = 512
bytes Sector size (logical/physical): 512 bytes / 512 bytes I/O size (minimum/optimal): 512 bytes /
512 bytes Disk identifier: 0x00000000 ``

```

In the above example, `nbd-client 10.1.2.21 4129 /dev/nbd1` connects to the NBD server. The output of `fdisk -l -u /dev/nbd1` command shows that the block device `/dev/nbd1` is attached to the server with success.

Step 3 - Format and mount the volume

Format additional volumes

If the new volume has never been formatted, you need to format the volume using `mkfs` before you can mount it.

For instance, the following command creates an `ext4` file system on the volume:

```
root@c1-X-Y-Z-T:~# mkfs -t ext4 /dev/nbd1
mke2fs 1.42.9 (4-Feb-2014)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
610800 inodes, 2441406 blocks
122070 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2503999488
75 block groups
32768 blocks per group, 32768 fragments per group
8144 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done
```

Mount additional volumes manually

To mount the device manually as `/mnt/data`, run the following commands:

```
root@c1-X-Y-Z-T:~# mkdir -p /mnt/data
root@c1-X-Y-Z-T:~# mount /dev/nbd1 /mnt/data
root@c1-X-Y-Z-T:~# ls -la /mnt/data/
total 24
drwxr-xr-x 3 root root 4096 Jan  1 00:07 .
drwxr-xr-x 3 root root 4096 Jan  1 00:07 ..
drwx----- 2 root root 16384 Jan  1 00:07 lost+found
```

Mount additional volumes with fstab (automatic mount)

To mount additional volumes automatically, you have to reference your devices in the `/etc/fstab` file.

`/etc/fstab` references all devices to mount when they are connected.

For instance to mount `/dev/nbd1` device automatically to the `/mnt/data` directory, the `/etc/fstab` has the following content:

```
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point> <type> <options> <dump> <pass>

/dev/nbd1 /mnt/data auto defaults,nobootwait,errors=remount-ro 0 2
```

The configuration above mounts the `/dev/nbd1` device to the `/mnt/data` directory with `fstab` default option and `nobootwait`.

`nobootwait` is set to prevent boot problems in the case your volume is not yet downloaded to the local storage.

Create the `/mnt/data` directory if it doesn't exist.

```
root@c1-X-Y-Z-T:~# mkdir -p /mnt/data
```

To check devices are mounted properly, run the `mount -a` command to mount all devices.

Important: On the next server boot, your volumes will be mount automatically.

Now run the `df -h` command, this command will list all your devices and where they are mounted:

```
root@c1-X-Y-Z-T:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/nbd0        23G  420M   22G   2% /
none            1010M   36K 1010M   1% /dev
none            203M   80K  203M   1% /run
none             5.0M     0   5.0M   0% /run/lock
none            1012M     0  1012M   0% /run/shm
none            100M     0   100M   0% /run/user
/dev/nbd1        9.2G  149M   8.6G   2% /mnt/data
```

3 replies

[Dec '15](#)



[max](#)

I am getting the error when performing the `nbd-client` command:

```
Error: Socket failed: Connection timed out
Exiting.
```

[1 reply](#)

[Dec '15](#) ▶ [max](#)



[edouard](#) **Core Team**

Which volume are you trying to connect?

Can you paste the command line?

[1 reply](#)

[Dec '15](#) ▶ [edouard](#)



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