# EC2 Can't resize volume after increasing size

Ask Question

73

53

I have followed the steps for resizing an EC2 volume

1. Stopped the instance
2. Took a snapshot of the current volume
3. Created a new volume out of the previous snapshot with a bigger size in the same region
4. Deattached the old volume from the instance
5. Attached the new volume to the instance at the same mount point

Old volume was 5GB and the one I created is 100GB Now, when i restart the instance and run `df -h I` still see this

```
Filesystem            Size  Used Avail Use% Mounted on
/dev/xvde1            4.7G  3.5G 1021M  78% /
tmpfs                 296M     0  296M   0% /dev/shm
```

This is what I get when running

```
sudo resize2fs /dev/xvde1

The filesystem is already 1247037 blocks long.  Nothing to do!
```

If I run `cat /proc/partitions` I see

```
 202       64  104857600 xvde
 202       65    4988151 xvde1
 202       66     249007 xvde2
```

From what I understand if I have followed the right steps xvde should have the same data as xvde1 but I don't know how to use it

How can I use the new volume or umount xvde1 and mount xvde instead?

I cannot understand what I am doing wrong

I also tried `sudo ifs_growfs /dev/xvde1`

```
xfs_growfs: /dev/xvde1 is not a mounted XFS filesystem
```

Btw, this a linux box with centos 6.2 x86_64

Thanks in advance for your help

amazon-ec2 centos volume image-resizing snapshot

edited Jun 13 '12 at 12:17

Levon
**87.3k** 24 159 162

asked Jun 13 '12 at 12:13

Wilman Arambillete
**563** 1 5 12

**protected** by Community ♦ Dec 3 '14 at 20:55

This question is protected to prevent "thanks!", "me too!", or spam answers by new users. To answer it, you must have earned at least 10 reputation on this site (the association bonus does not count).

13 Answers

65

Thank you Wilman your commands worked correctly, small improvement need to be considered if we are increasing EBSs into larger sizes

1. Stop the instance
2. Create a snapshot from the volume
3. Create a new volume based on the snapshot increasing the size
4. Check and remember the current's volume mount point (i.e. `/dev/sda1` )
5. Detach current volume
6. Attach the recently created volume to the instance, setting the exact mount point
7. Restart the instance
8. Access via SSH to the instance and run `fdisk /dev/xvde`

**WARNING: DOS-compatible mode is deprecated. It's strongly recommended to switch off the mode (command 'c') and change display units to sectors (command 'u')**

9. Hit `p` to show current partitions
10. Hit `d` to delete current partitions (if there are more than one, you have to delete one at a time) NOTE: Don't worry data is not lost
11. Hit `n` to create a new partition
12. Hit `p` to set it as primary
13. Hit `1` to set the first cylinder
14. Set the desired new space (if empty the whole space is reserved)
15. Hit `a` to make it bootable
16. Hit `1` and `w` to write changes
17. Reboot instance OR use `partprobe` (from the `parted`

package) to tell the kernel about the new partition table

18. Log via SSH and run resize2fs /dev/xvde1
19. Finally check the new space running df -h

edited Feb 18 '17 at 16:28

GameScripting
**9,400** 9 43 79

answered Feb 18 '13 at 6:15

dcf
**714** 6 2

1 *"WARNING: DOS-compatible mode is deprecated. It's strongly recommended to switch off the mode (command 'c') and change display units to sectors (command 'u')"* This was not necessary for me (Ubuntu 13.04). It had already switched off DOS compatibility and used Sectors by default. Pressing c and u actually switched TO the deprecated modes. – wisbucky Oct 22 '13 at 0:04

6 The solution worked brilliant but

the instance was stuck on "1/2 checks passed" with an exclamation sign (ReadHat 6.5). To fix this I have set the **"first cylinder" to 16** (like was previously). After that the instance started normal with "2/2 checks passed". Hope this helps someone... – user3586516 Apr 29 '14 at 18:23

1 I too had to change first cylinder, but I had to change it to 2048. I would recommend checking your current partition setting before deleting it. – Doyley Nov 10 '14 at 14:58

9 After I rebooted my instance, I'm unable to connect via SSH. Connection times out and the aws console shows that it cannot start its Status Checks. I think it is dead. Any idea what to do? – Richard Jan 27 '15 at 5:48

3 This answer is now deprecated now that AWS supports online resizing for EBS volumes. – Dale Anderson Jul 6 '17 at 17:49

Did you make a partition on this

2

volume? If you did, you will need to grow the partition first.

answered Jun 13 '12 at 15:41

chantheman
**4,032** 2 18 32

no I did not. Should I?How do I do that? Remember this new volume I have attached is supposed to have all the previous data because it is a snapshot of the original volume – Wilman Arambillete Jun 13 '12 at 16:00

No. But I have gotten that error if there was a partition attached. Go and double check you made the volume the correct size, and double check you mounted the new volume. – chantheman Jun 13 '12 at 17:06

Also, you don't have to stop the instance to do this. It is safe to if you have writes on that volume, but you can snapshot it with the instance running. – chantheman Jun 13 '12 at 17:06

16

[SOLVED]

This is what it had to be done

1. Stop the instance
2. Create a snapshot from the volume
3. Create a new volume based on the snapshot increasing the size
4. Check and remember the current's volume mount point (i.e. /dev/sda1)
5. Detach current volume
6. Attach the recently created volume to the instance, setting the exact mount point
7. Restart the instance
8. Access via SSH to the instance and run `fdisk /dev/xvde`
9. Hit `p` to show current partitions
10. Hit `d` to delete current partitions (if there are more than one, you have to delete one at a time) NOTE: Don't worry data is not lost

11. Hit `n` to create a new partition
12. Hit `p` to set it as primary
13. Hit `1` to set the first cylinder
14. Set the desired new space (if empty the whole space is reserved)
15. Hit `a` to make it bootable
16. Hit `1` and `w` to write changes
17. Reboot instance
18. Log via SSH and run `resize2fs /dev/xvde1`
19. Finally check the new space running `df -h`

This is it

Good luck!

edited Oct 22 '13 at 0:01

wisbucky
**11.3k** 3 64 57

answered Jul 3 '12 at 20:52

Wilman Arambillete
**563** 1 5 12

1 In Amazon EBS volumes it seems to be important to use the same mount point in resize2fs as you use with fdisk. df shows up something like /dev/xvda1 as the attached EBS volume, but the resize2fs command only worked for me when I used the /dev/sdf1 identifier, which I had used when I did the new partition in fdisk. – Garreth McDaid Feb 5 '14 at 17:26

This is in the AWS documentation. What is poor is their procedures are still incomplete after 3 years of this going on. If you have an image you can fall back, sure. It is always possible to temporarily hang the new disk from an instance running a desktop as well, but needing it to be mounted for a resize can be a problem if you were thinking of using gparted. gcloud resizes on the fly. – mckenzm Apr 23 '16 at 23:39

My storage device (/dev/xvda1) started at sector 16065, not sector 1. So step 13 (Hit 1 to set the first cylinder) had to be 16065 in my case. – Simon Paarlberg Jan 16 '17 at 21:40

Thanks man Woked For me –

piyushmandovra Feb 10 '17 at 10:49

Don't go with these solution you might loose your data. Actually, I figured out don't go for delete partition option if show partition list values in the partition table, cause if the list is there then it literally deletes the partition, so data will be lost even if answer says "It won't delete". There is a way to do extend partition size, check at the bottom there are other utilities which will help in extending your partition size smoothly. – piyushmandovra Mar 21 '17 at 17:29

1

This will work for xfs file system just run this command

```
xfs_growfs /
```

edited Feb 4 '13 at 8:35

xlecoustillier

**13.9k** 12 48 74

answered Feb 4 '13 at 8:15

Saurabh Chandra Patel
**5,936** 1 50 61

1

Bootable flag (a) didn't worked in my case (EC2, centos6.5), so i had to re-create volume from snapshot. After repeating all steps EXCEPT bootable flag - everything worked flawlessly so i was able to resize2fs after. Thank you!

answered Feb 17 '14 at 16:04



sandr
**11** 1

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Don't have enough rep to comment above; but also note per the comments above that you can corrupt your instance if you start at 1; if you hit 'u' after starting fdisk before you list your partitions with 'p' this will infact give you the correct start number so you don't corrupt your volumes. For centos 6.5 AMI, also as

mentioned above 2048 was correct for me.

answered Mar 26 '15 at 20:57

Reece

**185** 2 12

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207

+100

**There's no need to stop instance and detach EBS volume to resize it anymore!**

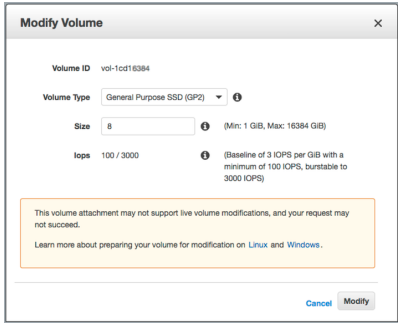
13-Feb-2017 Amazon announced: "Amazon EBS Update – New Elastic Volumes Change Everything"

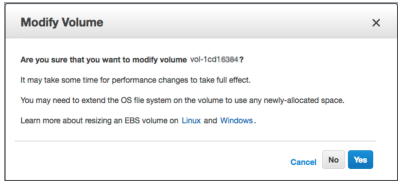
The process works even if the volume to extend is the root volume of running instance!

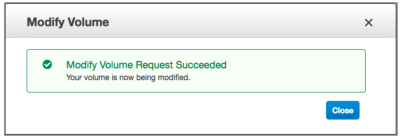
Say we want to increase boot drive of Ubuntu from 8G up to 16G "on-the-fly".

step-1) login into AWS web console -> EBS -> right mouse click on the one you wish to resize -> "Modify Volume"

-> change "Size" field and click [Modify] button




step-2) ssh into the instance and resize the partition:

let's list block devices attached to our box:

```
lsblk
NAME    MAJ:MIN RM SIZE RO TYPE M(
xvda    202:0    0  16G  0 disk
└─xvda1 202:1    0   8G  0 part /
```

As you can see /dev/xvda1 is still 8 GiB partition on a 16 GiB device and there are no other partitions on the volume. Let's use "growpart" to resize 8G partition up to 16G:

```
# install "cloud-guest-utils" if :
apt install cloud-guest-utils

# resize partition
growpart /dev/xvda 1
```

Let's check the result (you can see /dev/xvda1 is now 16G):

```
lsblk
NAME    MAJ:MIN RM SIZE RO TYPE M(
xvda    202:0    0  16G  0 disk
└─xvda1 202:1    0  16G  0 part /
```

Lots of SO answers suggest to use fdisk with delete / recreate partitions, which is nasty, risky, error-prone process especially when we change boot drive.

step-3) resize file system to grow all the way to fully use new partition space

```
# Check before resizing ("Avail" s
df -h
Filesystem      Size  Used Avail U
/dev/xvda1      7.8G  6.3G  1.1G

# resize filesystem
resize2fs /dev/xvda1

# Check after resizing ("Avail" no
df -h
Filesystem      Size  Used Avail U
/dev/xvda1       16G  6.3G  8.7G
```

So we have zero downtime and lots of new space to use.
Enjoy!

edited Mar 14 '17 at 20:11

answered Mar 14 '17 at 16:10

Dmitry Shevkoplyas
**3,058** 2 14 22

22 This is so helpful I HAVE to login and upvote it. – Gabriel Mar 14 '17 at 22:54

Very useful! Thanks – J.C. Gras Mar 17 '17 at 16:33

2 Will someone please accept this as the correct answer? Just because... it is. – eduardohl Apr 5 '17 at 6:17

2 Huh, the official docs don't mention growpart, which is why I couldn't get this to work before. Thanks! – Ibrahim May 19 '17 at 18:31

1 @Shihas, yes. That's the whole point. Even bootable "root" mounted drive can be increased safely without reboot required! – Dmitry Shevkoplyas Mar 8 '18 at 13:08

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Thanks, @Dimitry, it worked like a charm with a small change to match my file system.

source: http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ebs-expand-volume.html#recognize-expanded-volume-linux

Then use the following command, substituting the mount point of the filesystem (XFS file systems must be mounted to resize them):

```
[ec2-user ~]$ sudo xfs_growfs -d /
meta-data=/dev/xvdf              :
         =                       s
data     =                       b
         =                       s
naming   =version 2              b
log      =internal               b
         =                       s
realtime =none                   e
data blocks changed from 262144 to
```

Note If you receive an xfsctl failed: Cannot allocate memory error, you may need to update the Linux kernel on your instance. For more information, refer to your specific

operating system documentation. If you receive a The filesystem is already nnnnnnn blocks long. Nothing to do! error, see Expanding a Linux Partition.

answered Apr 17 '17 at 19:28

user2125117
**589** 5 4

6

1. login into AWS web console -> EBS -> right mouse click on the one you wish to resize -> "Modify Volume" -> change "Size" field and click [Modify] button
2. `growpart /dev/xvda 1`
3. `resize2fs /dev/xvda1`

This is a cut-to-the-chase version of Dmitry Shevkoplyas' answer. AWS documentation does not show the `growpart` command. This works ok for ubuntu AMI.

answered May 24 '17 at 11:39

jperelli
**4,601** 4 34 74

What could be an equivalent command for Windows? – Mubasshir Pawle Sep 28 '17 at 8:31

28

Prefect comment by jperelli above.

I faced same issue today. AWS documentation does not clearly mention growpart. I figured out the hard way and indeed the two commands worked perfectly on M4.large & M4.xlarge with Ubuntu

```
sudo growpart /dev/xvda 1
sudo resize2fs /dev/xvda1
```

edited Jun 4 '17 at 13:34

pacholik
**5,625** 8 31 46

answered Jun 4 '17 at 13:16

Sachin Shintre
**326** 3 3

Thank you you save my night ! – A STEFANI Jan 23 '18 at 14:59

will work for t2.micro also? – Shihas Mar 8 '18 at 7:54

yes it works in t2. – pedro.olimpio Mar 15 '18 at 15:26

the second answer for attaching and this answer is for resizing – Adiii May 31 '18 at 7:19

Amazing! worked on my t2.small instance. Whew. Thought it would be bloodier than that. Thanks! – publicknowledge Dec 6 '18 at 2:09

6

1. sudo growpart /dev/xvda 1
2. sudo resize2fs /dev/xvda1

the above two commands saved my time for AWS ubuntu ec2 instances.

answered May 17 '18 at 22:19

HD298
**76** 1 6

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So in Case anyone had the issue where they ran into this issue with 100% use , and no space to even run growpart command (because it creates a file in /tmp)

Here is a command that i found that bypasses even while the EBS volume is being used , and also if you have no space left on your ec2 , and you are at 100%

```
/sbin/parted ---pretend-input-tty
```

see this site here:

https://www.elastic.co/blog/autoresize-ebs-root-volume-on-aws-amis

answered May 29 '18 at 22:03

CodeJunkie
**41** 4

This command should be followed by `sudo resize2fs /dev/xvda1` to update

`/etc/fstab` , only after that `df -h` will show the grown disk space
– karmendra Mar 1 at 14:16

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Just in case if anyone here for GCP google cloud platform ,
Try this:

```
sudo growpart /dev/sdb 1
sudo resize2fs /dev/sdb1
```

answered Jan 18 at 10:07

yunus
**547** 3 9