0-CLONING VERSUS IMAGING

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Web location for this presentation:

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or contact

fchao2@yahoo.com

SUMMARY

Cloning and backup are the two ways for you to create a backup of your data files and digital photos.

TOPICS

- Cloning Versus Imaging
- An Example of Cloning
- An Example of Imaging

CLONING VERSUS IMAGING

- **Cloning** means to make an exact copy of a hard drive, a Solid State Drive (SSD), a CD, a DVD, or a thumb drive onto a similar device that is the same size or larger size than the source media device
- Note: most backup or imaging software apps cannot clone a CD or a DVD

CLONING VERSUS IMAGING (continued)

- **Imaging** means to make a copy of a the digital files and digital folders on a , a Solid State Drive (SSD), a CD, a DVD, or a thumb drive onto into another storage device as one or more files and folders that are in a proprietary format. The target files and folders are usually compressed smaller than the source files and folders.

CLONING VERSUS IMAGING (continued)

- In "Rescuezilla", imaging is done when you click on the "Backup" button


Rescuezilla
patreon.com/rescuezilla
Rescuezilla
The Swiss Army Knife of System Recovery
Welcome
Select an Option
Easily create a backup image of your computer, or completely restore from one. Click an option to begin:
Backup
Restore
Clone
Verify Image
Image Explorer (beta)
Back
Next >
2.4.2 (64bit) 2023-03-06T000747
Rescuezilla
10:22 AM
Sun, Apr 14 2024

CLONING VERSUS IMAGING (continued)

- In "Rescuezilla", cloning is done when you click on the "Clone" button


Rescuezilla
patreon.com/rescuezilla
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The Swiss Army Knife of System Recovery
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Clonezilla
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Back
Next >
2.4.2 (64bit) 2023-03-06T000747
Rescuezilla
10:22 AM
Sun, Apr 14 2024

CLONING VERSUS IMAGING (continued)

- A "clone" has to reside on a single, unique storage device (i.e. a single hard drive, a single Solid State Drive, a single USB flash drive, a single CD, a single DVD, etc.)
- Since "images" are proprietary folders, more than one "image" can reside on a single storage device

EXAMPLES OF A **CLONED** DISK

- The cloned disk can be used as a drop-in replacement for the original source disk if the original source disk fails or if the original source disk is infected by malware.
  A cloned disk can be used by any computer operating system as a source of data files and digital photos just by attaching it

EXAMPLES OF A **CLONED** DISK (continued)

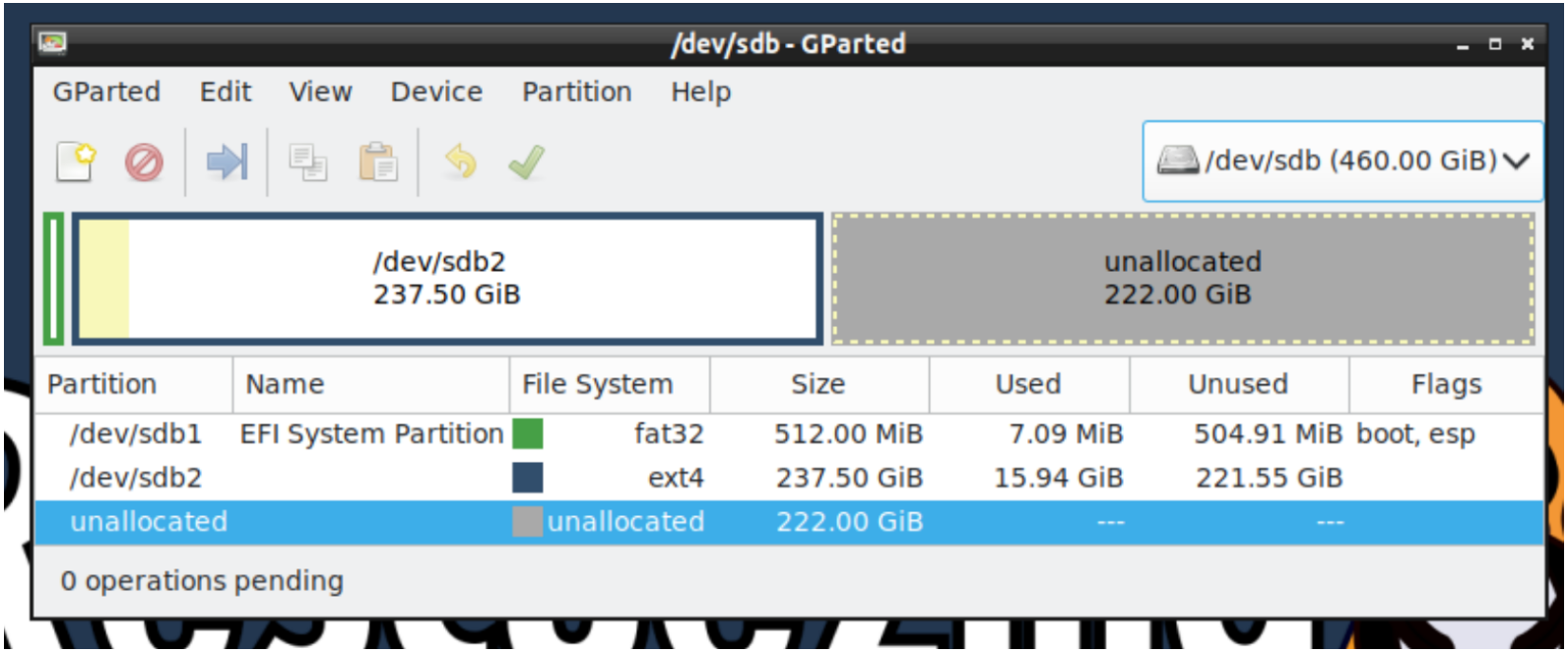
- A cloned disk can be used by any other computer operating system as a source of data files and digital photos just by attaching it, since a cloned disk has all files and partitions in their native format.

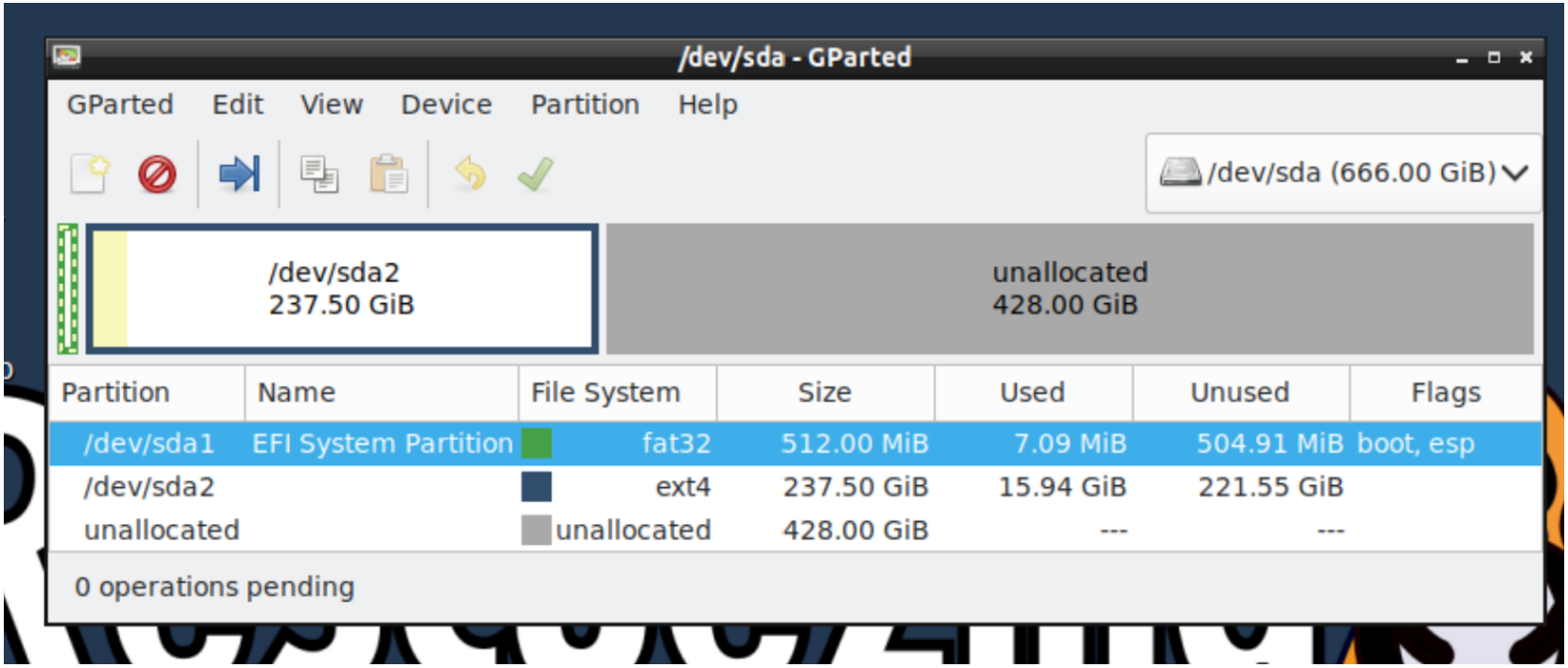
EXAMPLES OF A **CLONED** DISK (continued)

- For example, if you attach a cloned hard drive or solid state drive from a Windows.. computer to a Linux computer, your Linux computer can probably access the digital files and photos on the cloned solid state drive.
  Ditto for a macOS computer.

EXAMPLES OF A **CLONED** DISK (continued)

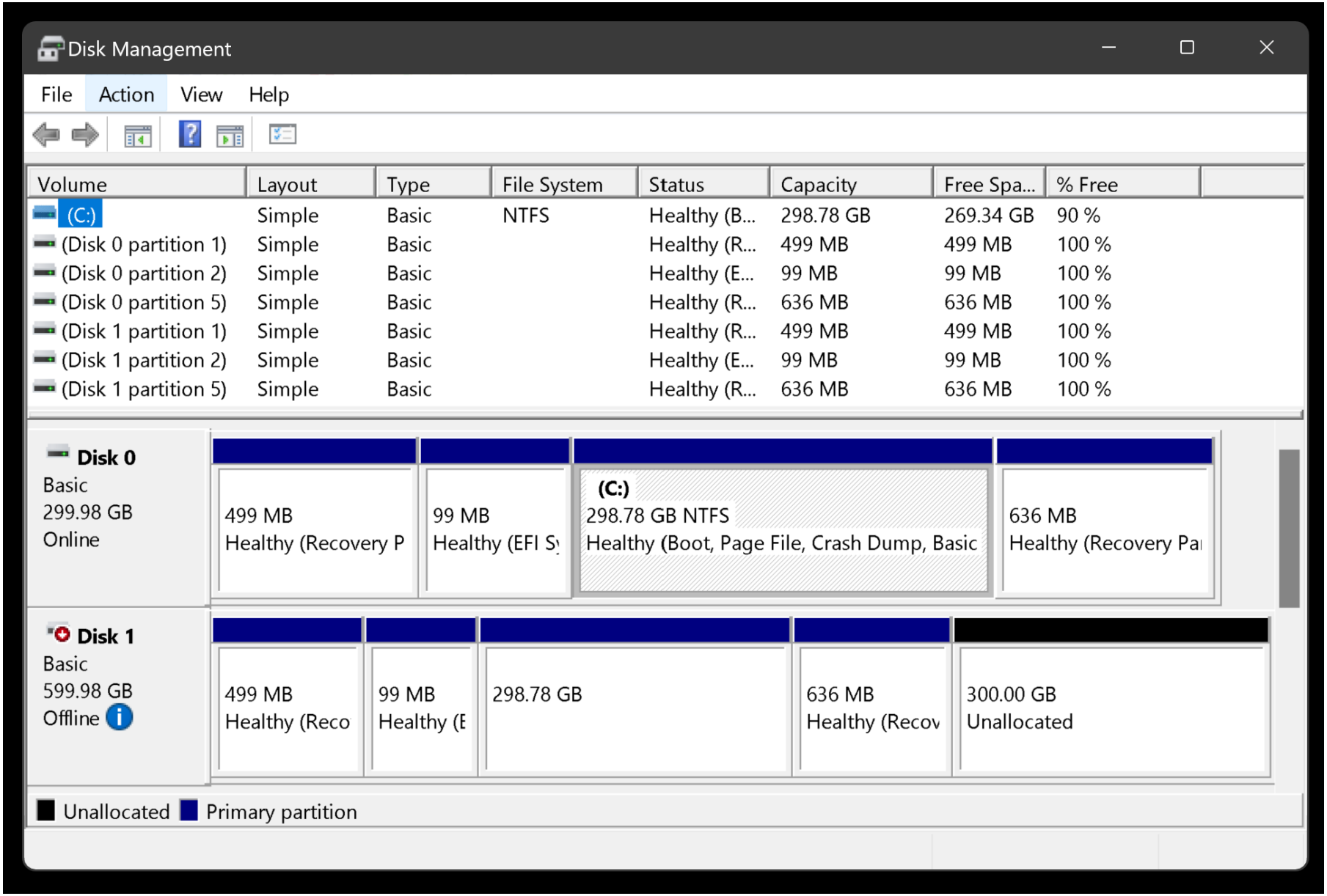
- If you are running a distribution of Linux, your original source disk will look like a mirror image of the cloned disk.
  In this example, the original source disk is shown on top
  and the clone disk is shown below it:


/dev/sdb - GParted
GParted Edit View Device Partition Help
/dev/sdb (460.00 GiB)
/dev/sdb2
237.50 GiB
unallocated
222.00 GiB
Partition Name File System Size Used Unused Flags
/dev/sdb1 EFI System Partition fat32 512.00 MiB 7.09 MiB 504.91 MiB boot, esp
/dev/sdb2 ext4 237.50 GiB 15.94 GiB 221.55 GiB
unallocated unallocated 222.00 GiB --- ---
0 operations pending


/dev/sda - GParted
GParted Edit View Device Partition Help
/dev/sda (666.00 GiB)
/dev/sda2
237.50 GiB
unallocated
428.00 GiB
Partition Name File System Size Used Unused Flags
/dev/sda1 EFI System Partition fat32 512.00 MiB 7.09 MiB 504.91 MiB boot, esp
/dev/sda2 ext4 237.50 GiB 15.94 GiB 221.55 GiB
unallocated unallocated 428.00 GiB --- ---
0 operations pending

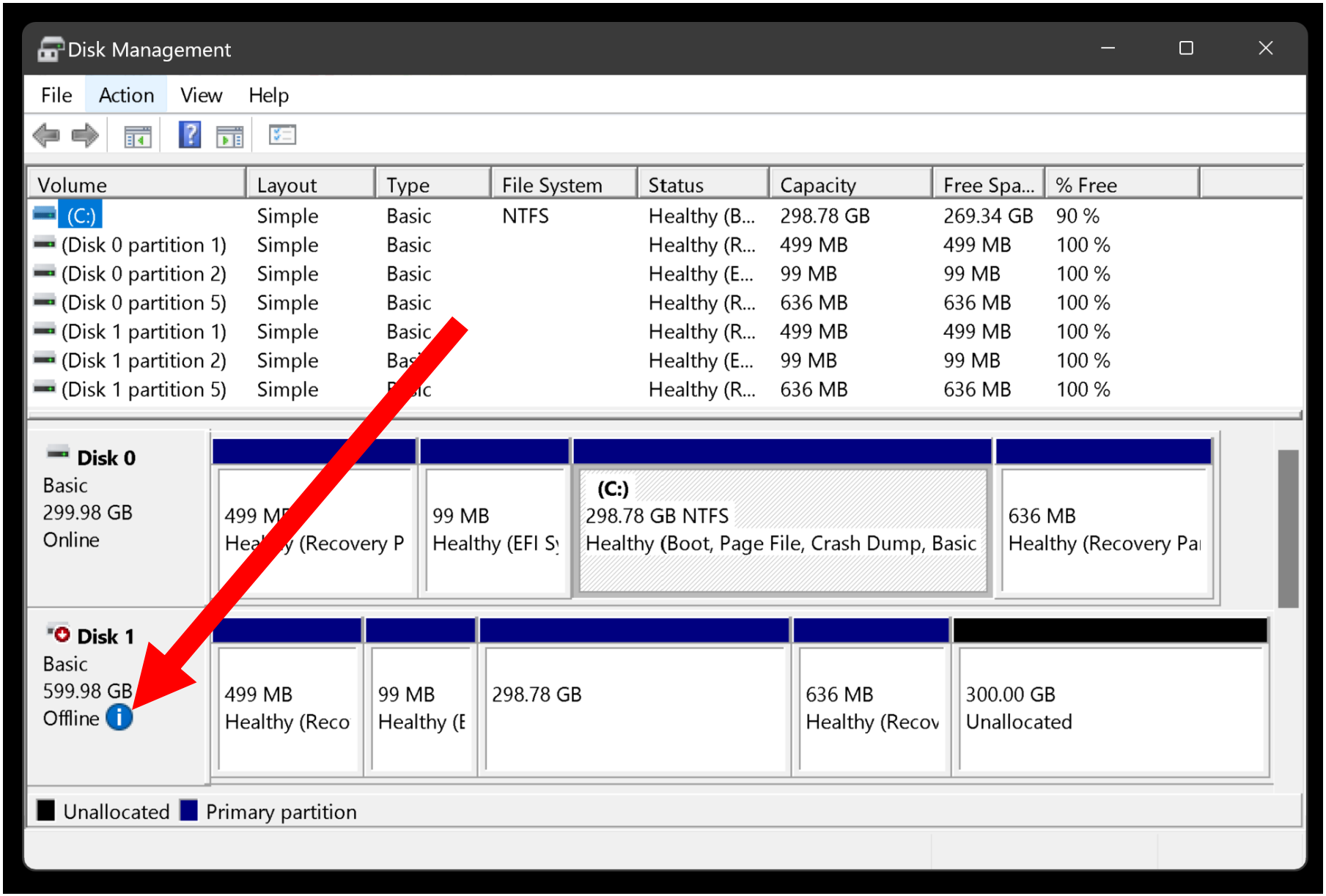
EXAMPLES OF A **CLONED** DISK (continued)

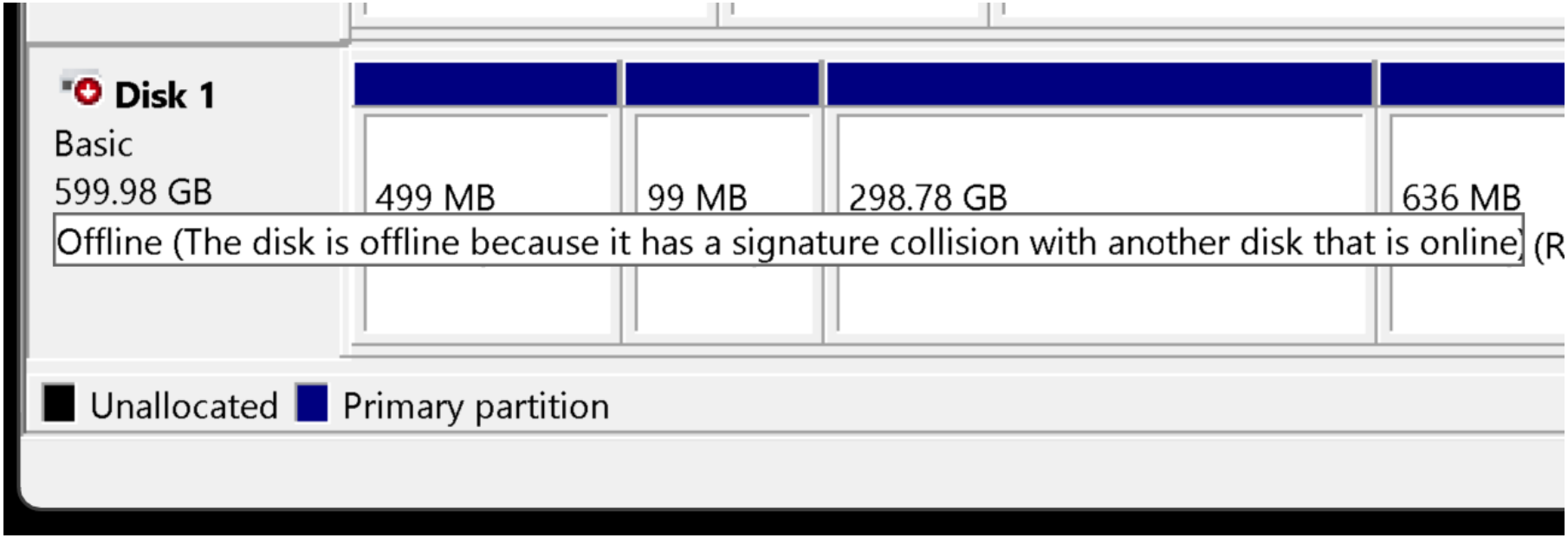
- If you are running a distribution of Windows, your original source disk will also look like a mirror image of the cloned disk.
  In this example, the original source disk is shown on top
  and the clone disk is shown below it:


Disk Management
File
Action
View
Help
Volume
Layout
Type
File System
Status
Capacity
Free Spa...
% Free
(C:)
Simple
Basic
NTFS
Healthy (B...
298.78 GB
269.34 GB
90 %
(Disk 0 partition 1)
Simple
Basic
Healthy (R...
499 MB
499 MB
100 %
(Disk 0 partition 2)
Simple
Basic
Healthy (E...
99 MB
99 MB
100 %
(Disk 0 partition 5)
Simple
Basic
Healthy (R...
636 MB
636 MB
100 %
(Disk 1 partition 1)
Simple
Basic
Healthy (R...
499 MB
499 MB
100 %
(Disk 1 partition 2)
Simple
Basic
Healthy (E...
99 MB
99 MB
100 %
(Disk 1 partition 5)
Simple
Basic
Healthy (R...
636 MB
636 MB
100 %
Disk 0
Basic
299.98 GB
Online
499 MB
Healthy (Recovery P
99 MB
Healthy (EFI Sy
(C:)
298.78 GB NTFS
Healthy (Boot, Page File, Crash Dump, Basic
636 MB
Healthy (Recovery Par
Disk 1
Basic
599.98 GB
Offline
499 MB
Healthy (Reco
99 MB
Healthy (E
298.78 GB
636 MB
Healthy (Recov
300.00 GB
Unallocated
Unallocated
Primary partition

EXAMPLES OF A **CLONED** DISK (continued)

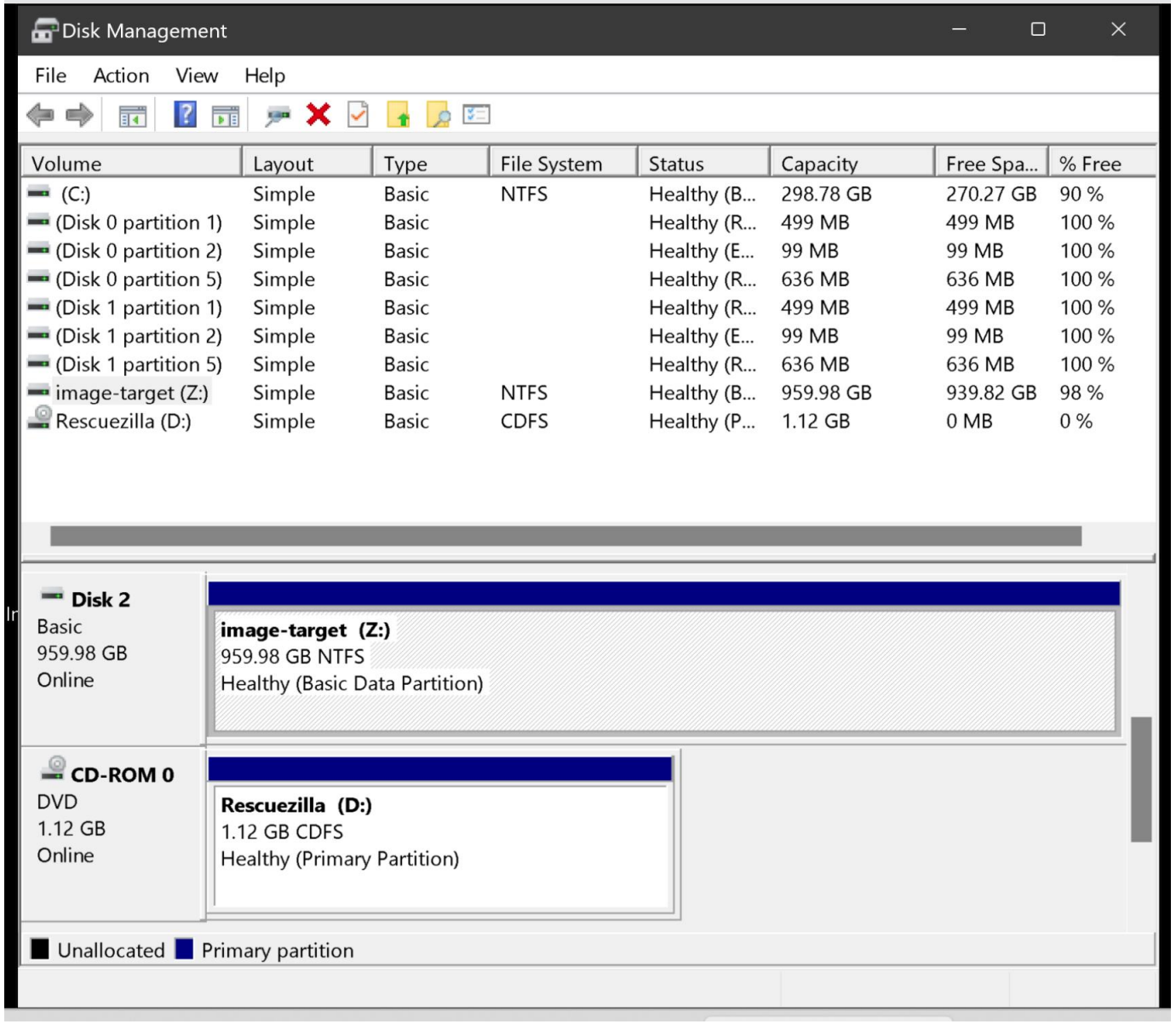
- If you click on the white "i" in the blue circle:


Disk Management
File
Action
View
Help
Volume
Layout
Type
File System
Status
Capacity
Free Spa...
% Free
(C:)
Simple
Basic
NTFS
Healthy (B...
298.78 GB
269.34 GB
90 %
(Disk 0 partition 1)
Simple
Basic
Healthy (R...
499 MB
499 MB
100 %
(Disk 0 partition 2)
Simple
Basic
Healthy (E...
99 MB
99 MB
100 %
(Disk 0 partition 5)
Simple
Basic
Healthy (R...
636 MB
636 MB
100 %
(Disk 1 partition 1)
Simple
Basic
Healthy (R...
499 MB
499 MB
100 %
(Disk 1 partition 2)
Simple
Healthy (E...
99 MB
99 MB
100 %
(Disk 1 partition 5)
Simple
Healthy (R...
636 MB
636 MB
100 %
Disk 0
Basic
299.98 GB
Online
(C:)
298.78 GB NTFS
Healthy (Boot, Page File, Crash Dump, Basic
636 MB
Healthy (Recovery Pa
99 MB
Healthy (EFI Sy
Disk 1
Basic
599.98 GB
Offline
499 MB
Healthy (Reco
99 MB
Healthy (E
298.78 GB
636 MB
Healthy (Recov
300.00 GB
Unallocated
Unallocated
Primary partition


Disk 1
Basic
599.98 GB
499 MB
99 MB
298.78 GB
636 MB
Offline (The disk is offline because it has a signature collision with another disk that is online)
Unallocated
Primary partition

EXAMPLES OF AN **IMAGED** DISK

- If you are running a distribution of Windows.., your original source disk will be stored as a proprietary image on the image folder.
  In this example, the original source disk is shown on top
  and the clone disk is shown below it:


Disk Management
File
Action
View
Help
Volume
Layout
Type
File System
Status
Capacity
Free Spa...
% Free
(C:) Simple Basic NTFS Healthy (B... 298.78 GB 270.27 GB 90 %
(Disk 0 partition 1) Simple Basic Healthy (R... 499 MB 499 MB 100 %
(Disk 0 partition 2) Simple Basic Healthy (E... 99 MB 99 MB 100 %
(Disk 0 partition 5) Simple Basic Healthy (R... 636 MB 636 MB 100 %
(Disk 1 partition 1) Simple Basic Healthy (R... 499 MB 499 MB 100 %
(Disk 1 partition 2) Simple Basic Healthy (E... 99 MB 99 MB 100 %
(Disk 1 partition 5) Simple Basic Healthy (R... 636 MB 636 MB 100 %
image-target (Z:) Simple Basic NTFS Healthy (B... 959.98 GB 939.82 GB 98 %
Rescuezilla (D:) Simple Basic CDFS Healthy (P... 1.12 GB 0 MB 0 %
Disk 2
Basic
959.98 GB
Online
image-target (Z:)
959.98 GB NTFS
Healthy (Basic Data Partition)
CD-ROM 0
DVD
1.12 GB
Online
Rescuezilla (D:)
1.12 GB CDFS
Healthy (Primary Partition)
Unallocated
Primary partition

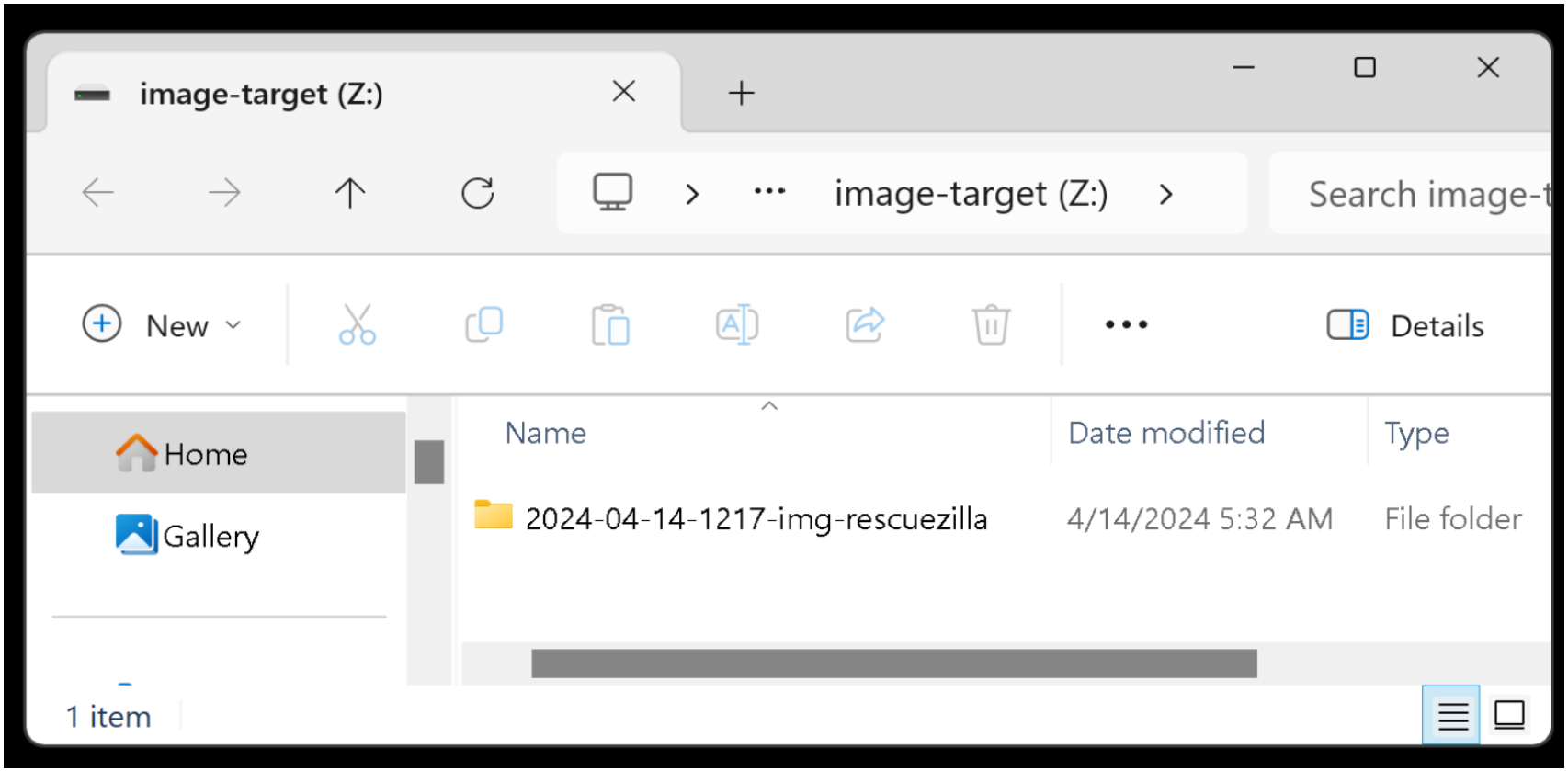
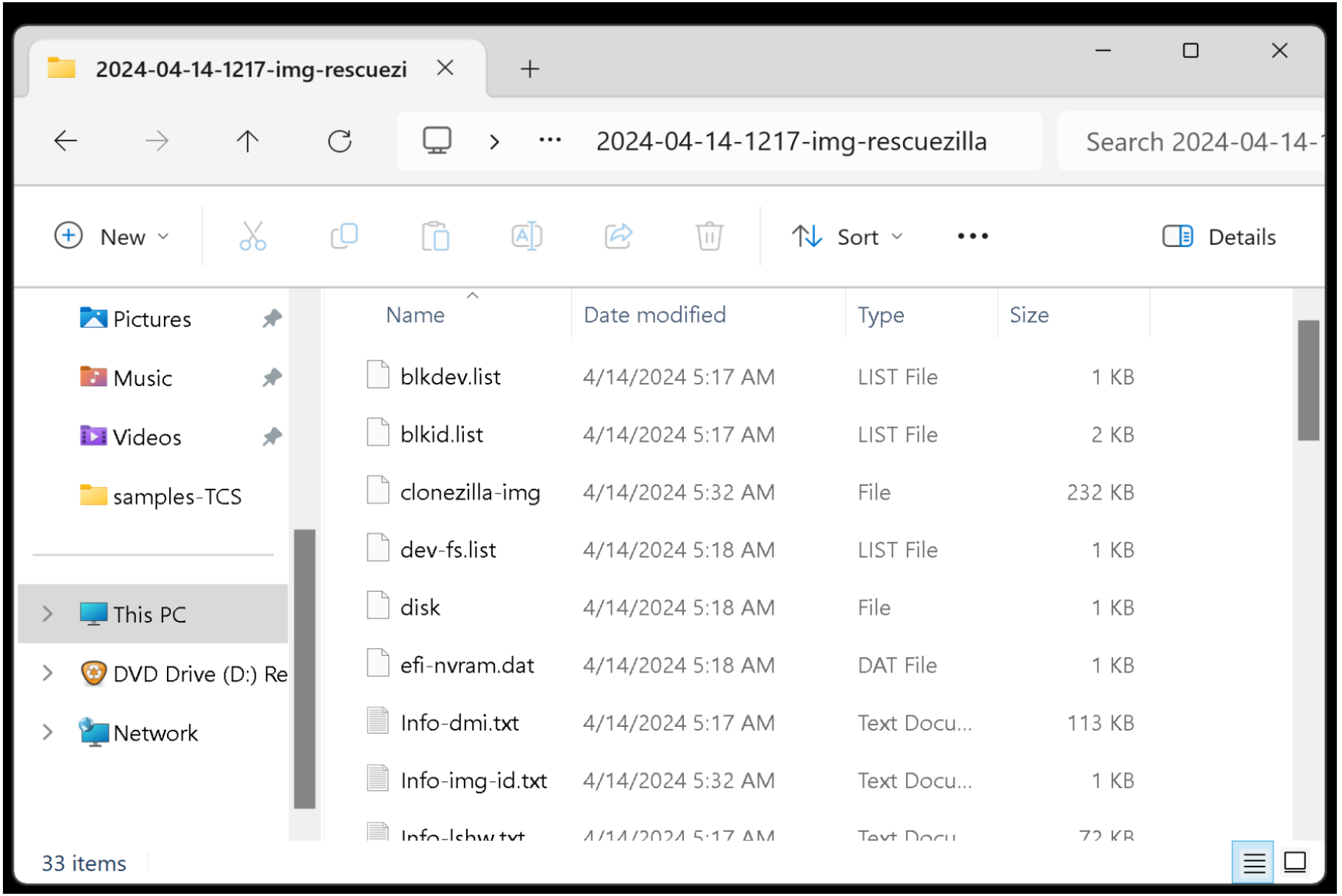


image-target (Z:)
image-target (Z:)
Search image-t
New
Details
Home
Gallery
Name
Date modified
Type
2024-04-14-1217-img-rescuezilla
4/14/2024 5:32 AM
File folder
1 item

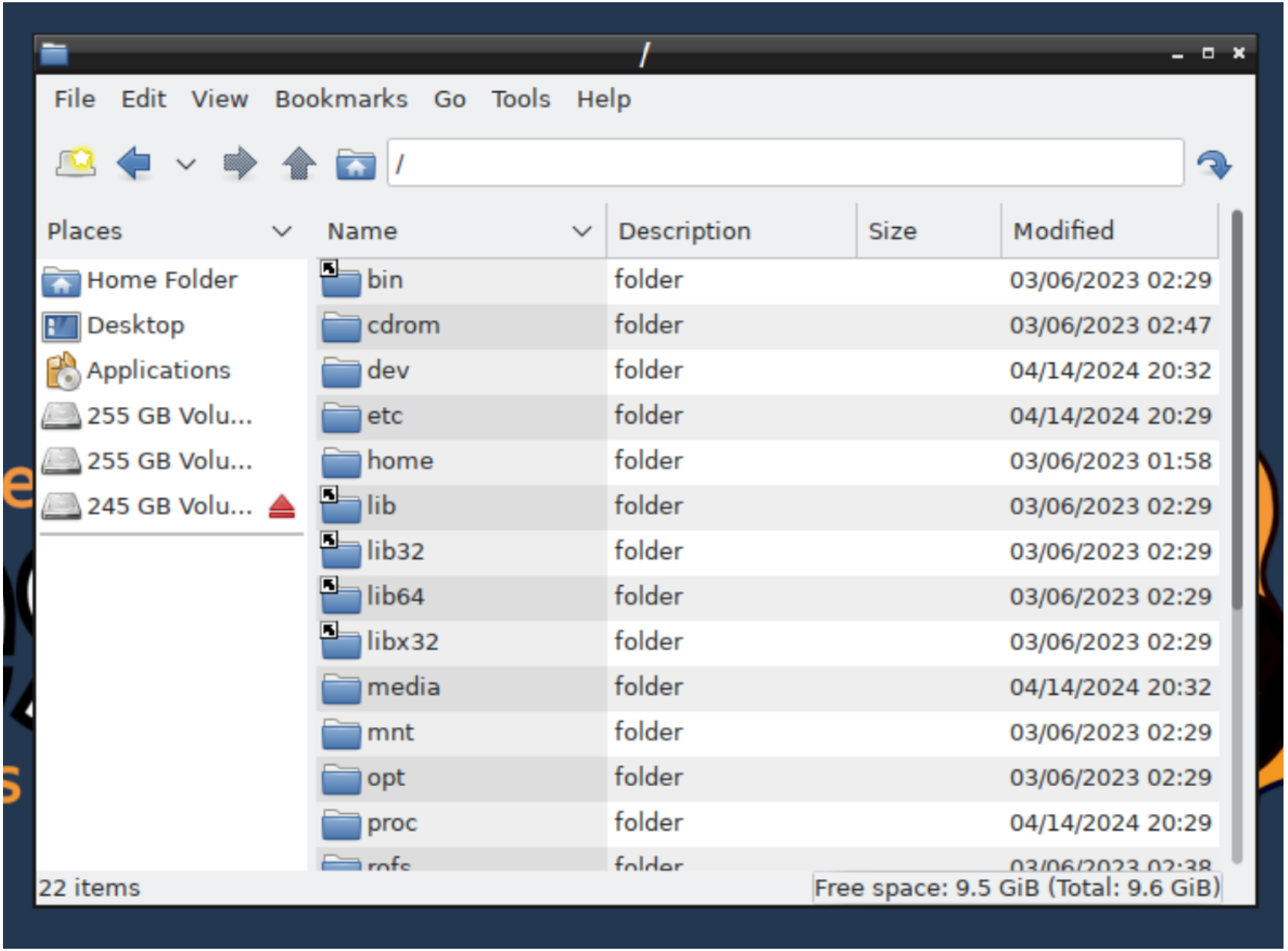

2024-04-14-1217-img-rescuezi
2024-04-14-1217-img-rescuezilla
Search 2024-04-14-
New
Sort
Details
Pictures
Music
Videos
samples-TCS
This PC
DVD Drive (D:) Re
Network
Name
Date modified
Type
Size
blkdev.list 4/14/2024 5:17 AM LIST File 1 KB
blkid.list 4/14/2024 5:17 AM LIST File 2 KB
clonezilla-img 4/14/2024 5:32 AM File 232 KB
dev-fs.list 4/14/2024 5:18 AM LIST File 1 KB
disk 4/14/2024 5:18 AM File 1 KB
efi-nvram.dat 4/14/2024 5:18 AM DAT File 1 KB
Info-dmi.txt 4/14/2024 5:17 AM Text Docu... 113 KB
Info-img-id.txt 4/14/2024 5:32 AM Text Docu... 1 KB
33 items

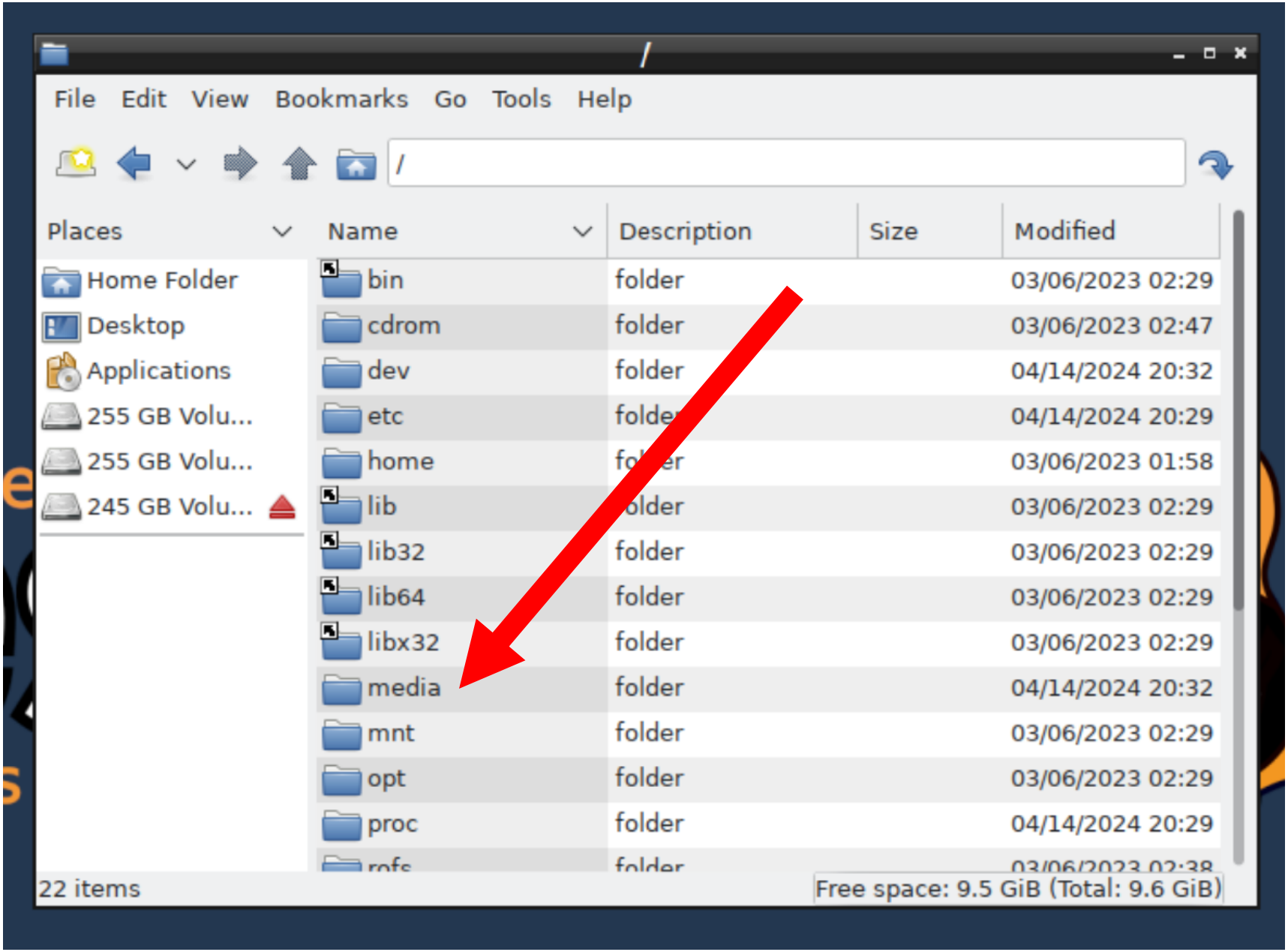
EXAMPLES OF AN **IMAGED** DISK (continued)

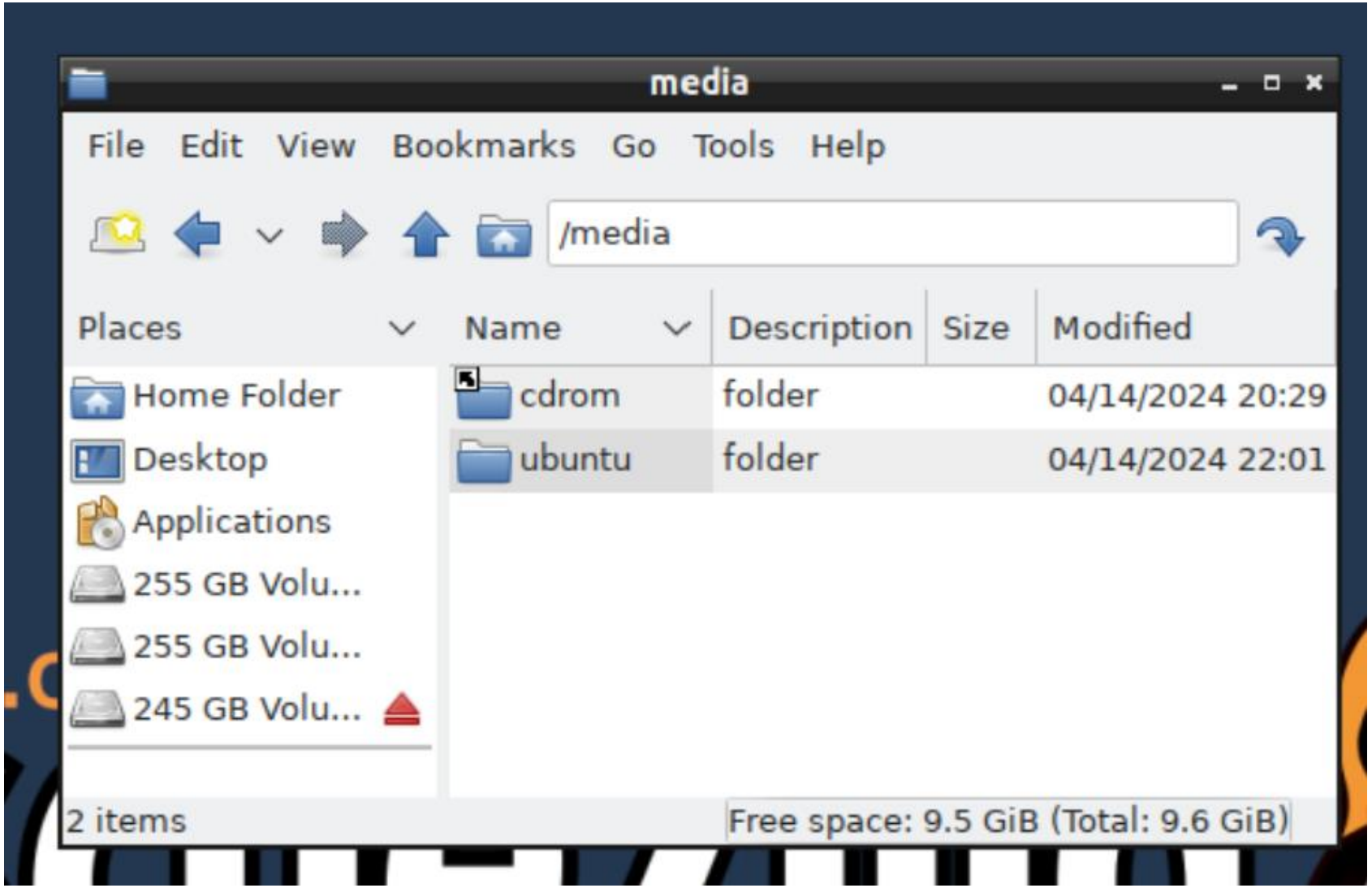
- If you are running a distribution of Linux, the "image files" inside the "image target" hard drive or Solid State Drive will be located at the target drive at a folder such as "2024-04-07-2232-img-rescuezilla"

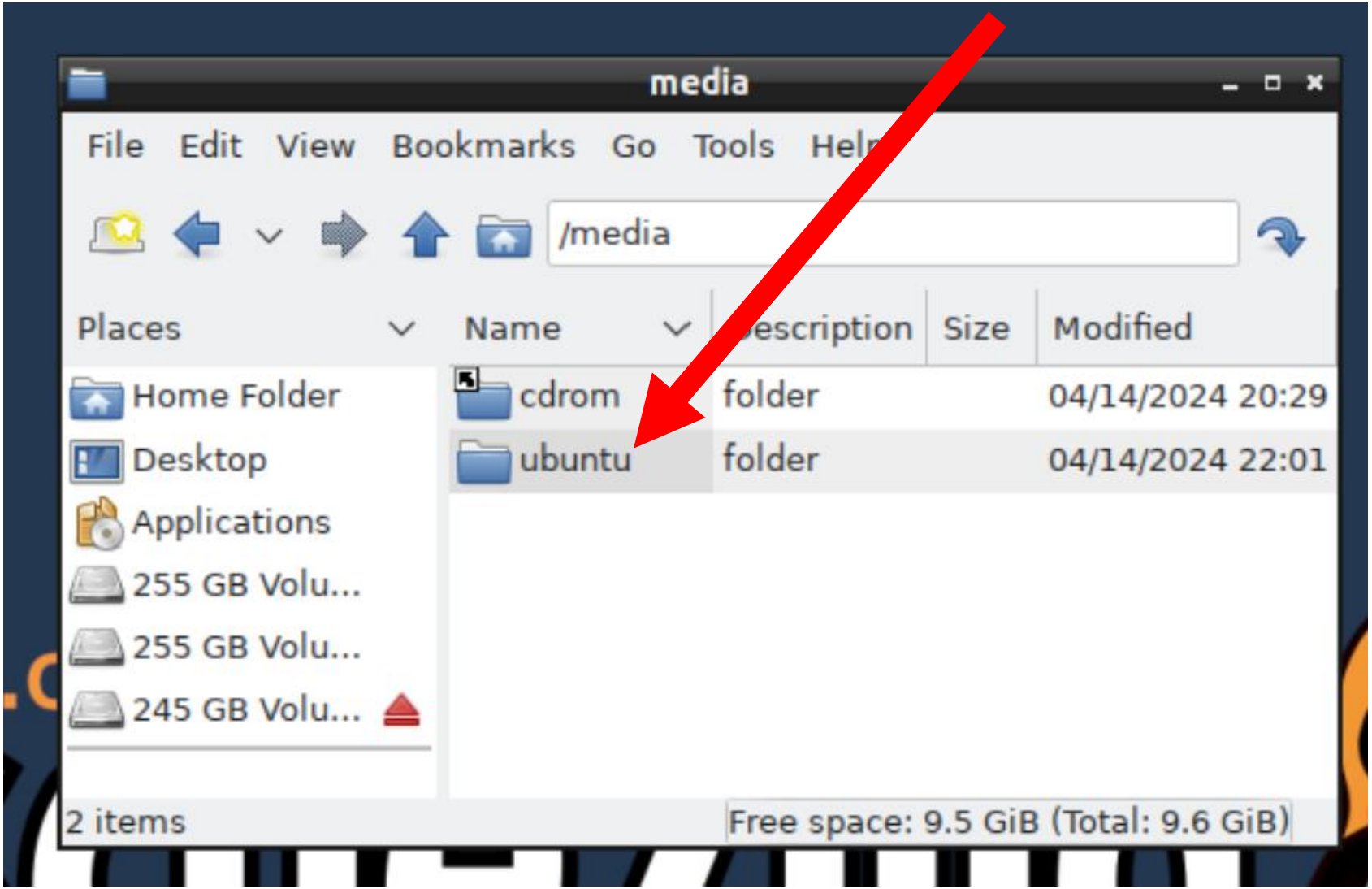
EXAMPLES OF AN **IMAGED** DISK (continued)

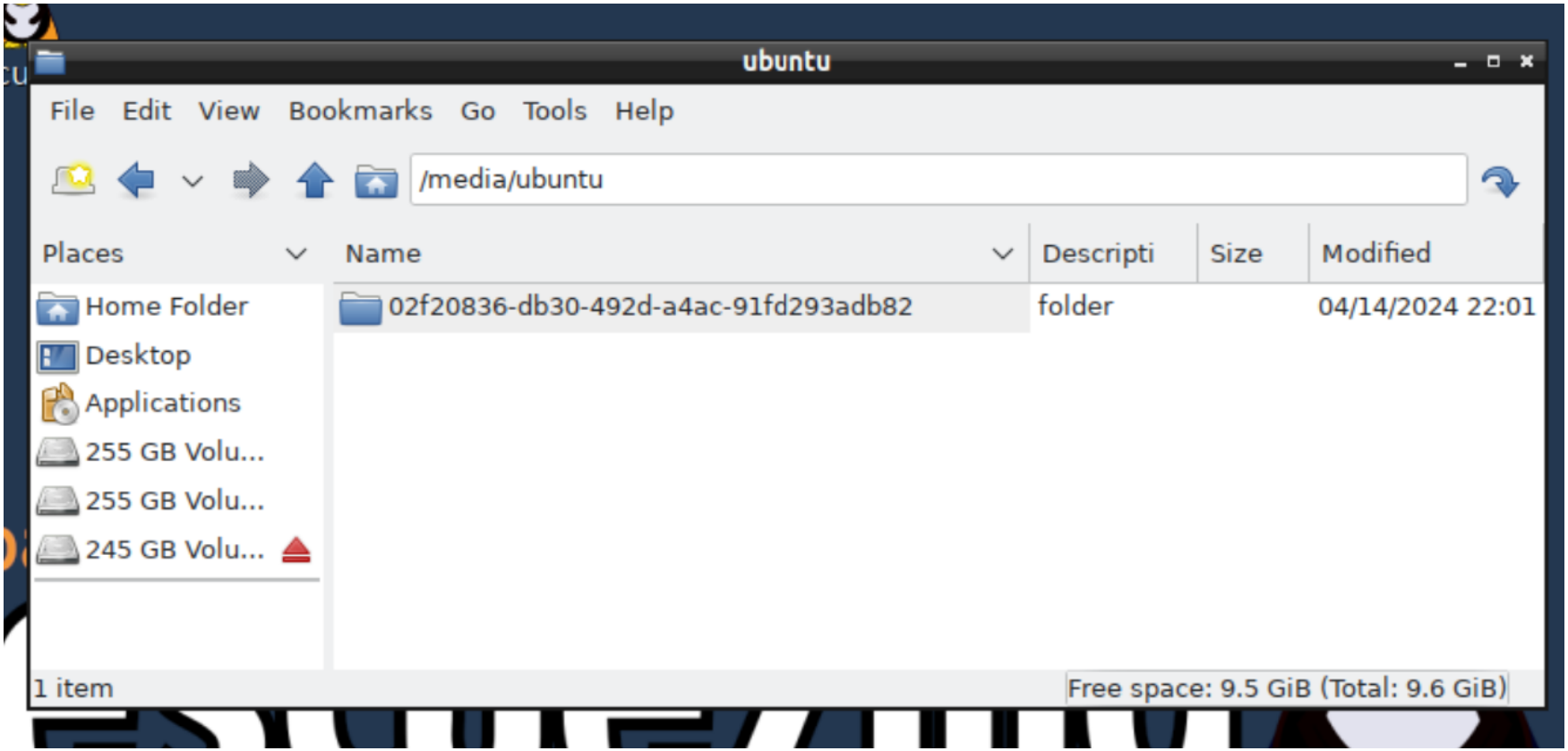
- If you are running Linux Mint, the image target hard drive will be "mounted" at the
"media" folder
since Linux distributions show additional hard drives or Solid State Drives as "mounted" to the "media" folder:

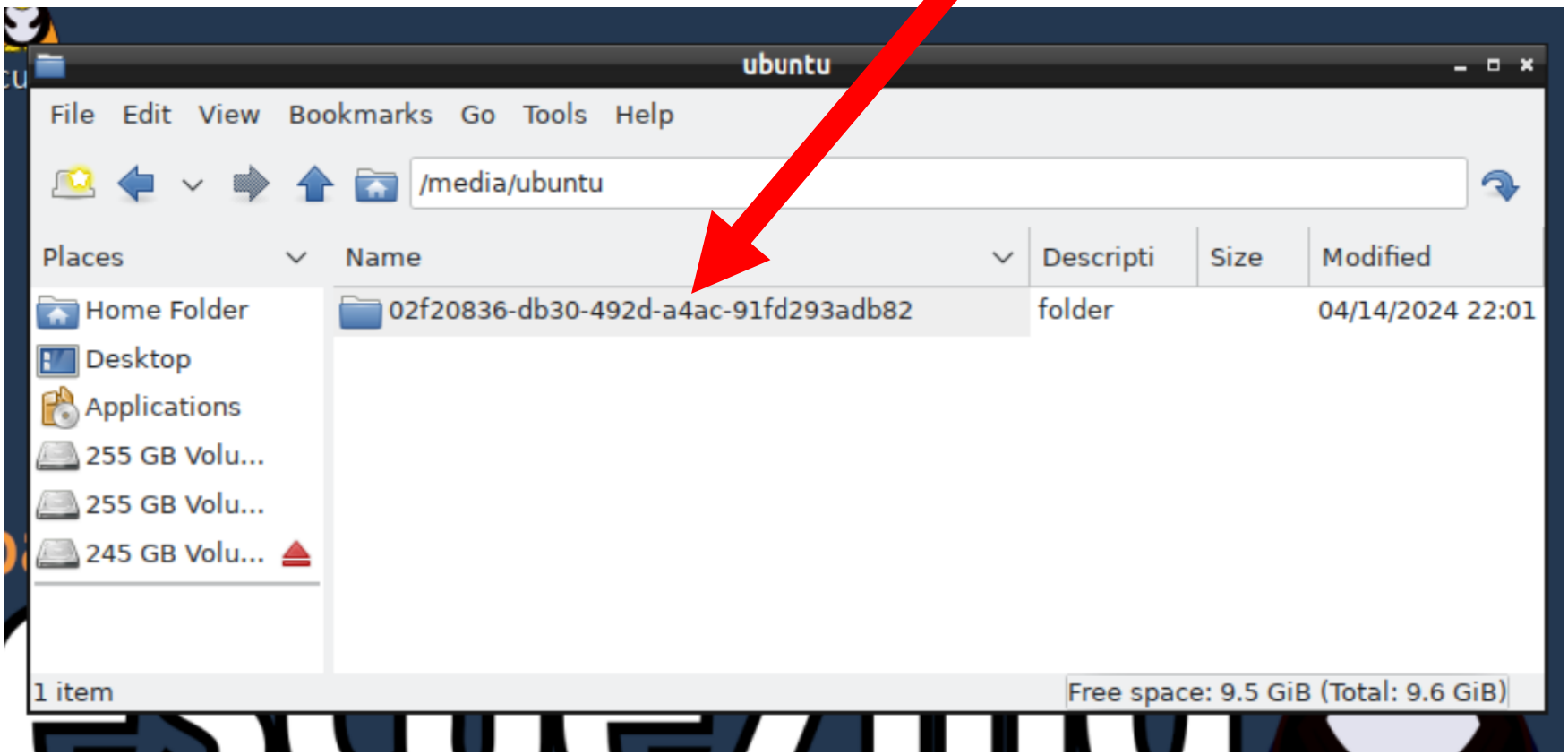

/
File Edit View Bookmarks Go Tools Help
/
Places
Name
Description
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
bin folder 03/06/2023 02:29
cdrom folder 03/06/2023 02:47
dev folder 04/14/2024 20:32
etc folder 04/14/2024 20:29
home folder 03/06/2023 01:58
lib folder 03/06/2023 02:29
lib32 folder 03/06/2023 02:29
lib64 folder 03/06/2023 02:29
libx32 folder 03/06/2023 02:29
media folder 04/14/2024 20:32
mnt folder 03/06/2023 02:29
opt folder 03/06/2023 02:29
proc folder 04/14/2024 20:29
22 items
Free space: 9.5 GiB (Total: 9.6 GiB)

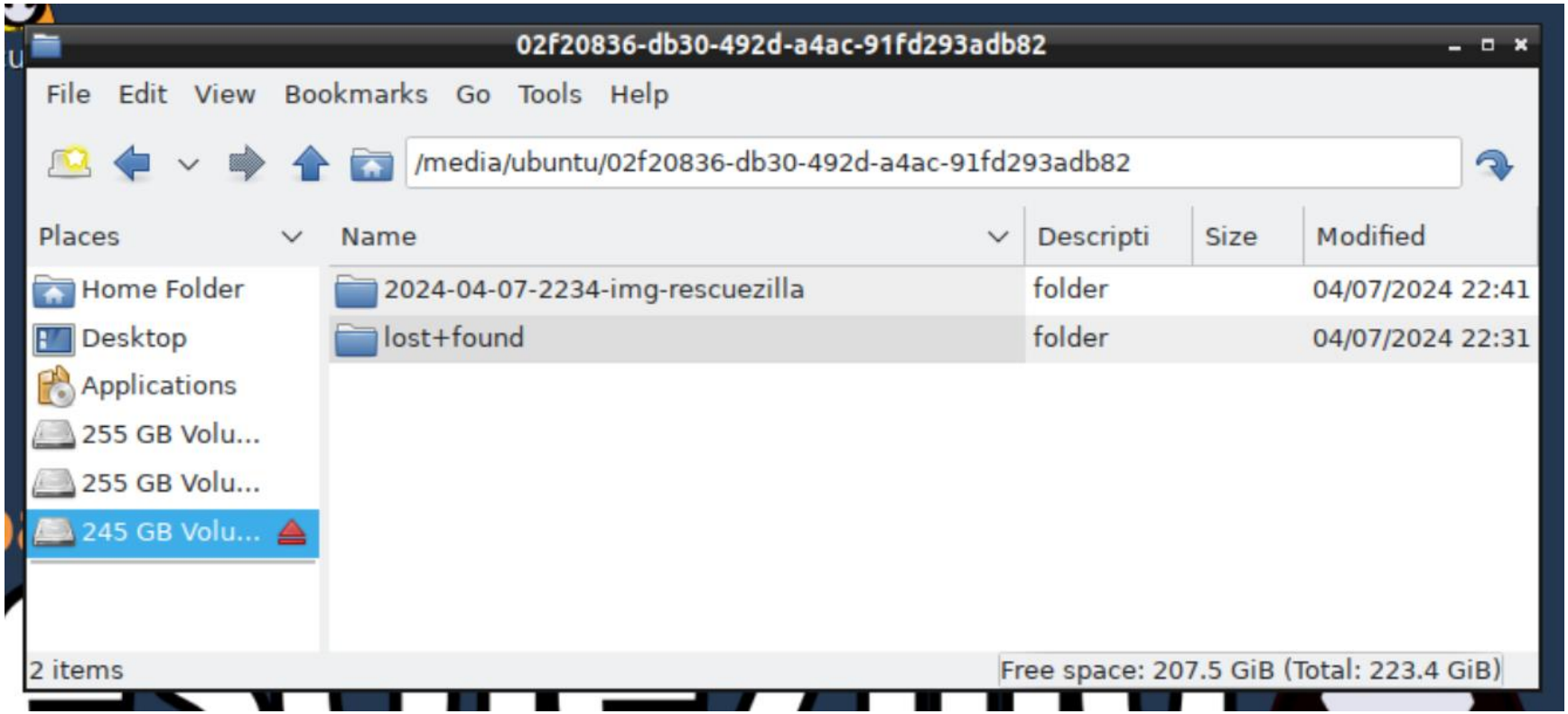

/
File Edit View Bookmarks Go Tools Help
/
Places
Name
Description
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
bin folder 03/06/2023 02:29
cdrom folder 03/06/2023 02:47
dev folder 04/14/2024 20:32
etc folder 04/14/2024 20:29
home folder 03/06/2023 01:58
lib folder 03/06/2023 02:29
lib32 folder 03/06/2023 02:29
lib64 folder 03/06/2023 02:29
libx32 folder 03/06/2023 02:29
media folder 04/14/2024 20:32
mnt folder 03/06/2023 02:29
opt folder 03/06/2023 02:29
proc folder 04/14/2024 20:29
22 items
Free space: 9.5 GiB (Total: 9.6 GiB)

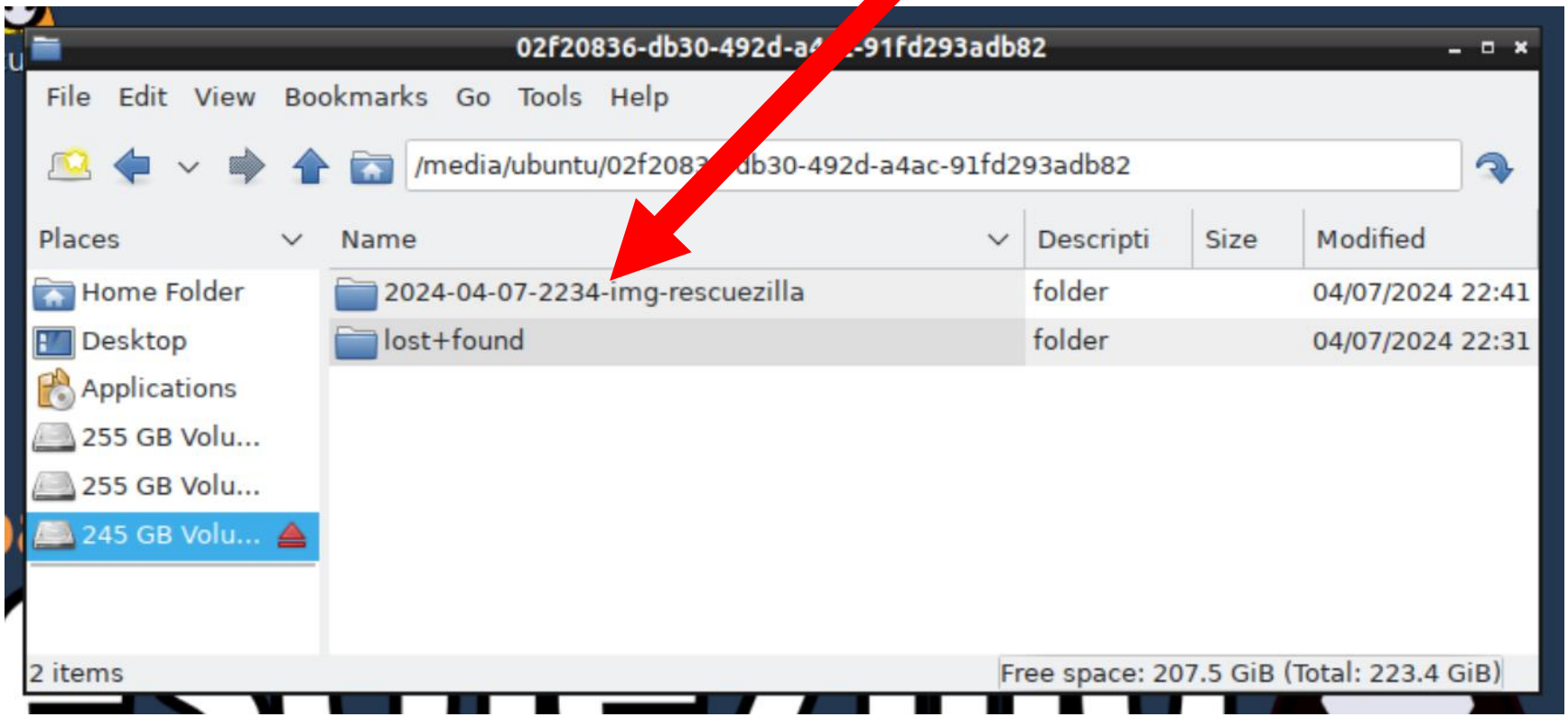

media
File Edit View Bookmarks Go Tools Help
/media
Places
Name
Description
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
cdrom
folder
04/14/2024 20:29
ubuntu
folder
04/14/2024 22:01
2 items
Free space: 9.5 GiB (Total: 9.6 GiB)

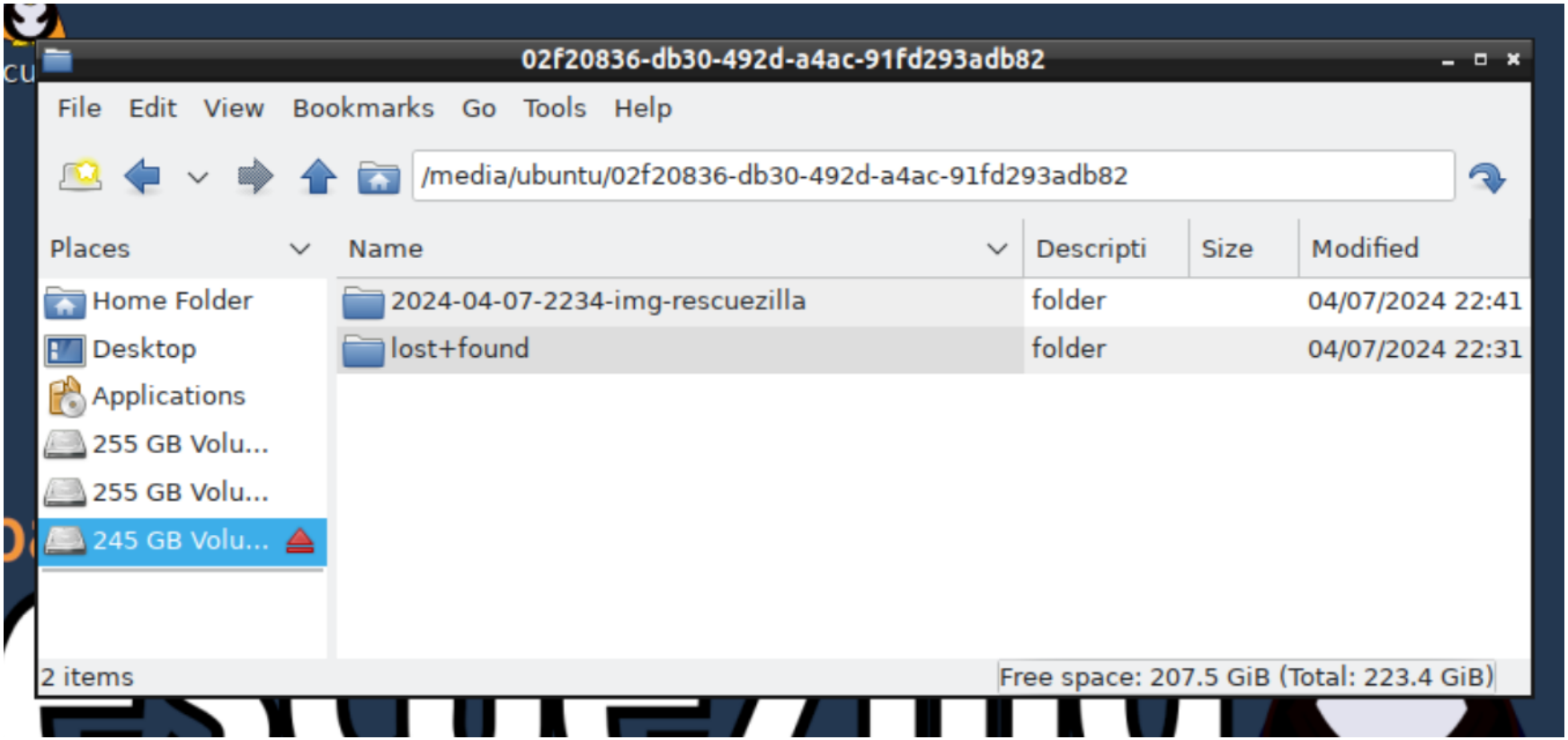

media
File Edit View Bookmarks Go Tools Help
/media
Places
Name
Description
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
cdrom
folder
04/14/2024 20:29
ubuntu
folder
04/14/2024 22:01
2 items
Free space: 9.5 GiB (Total: 9.6 GiB)

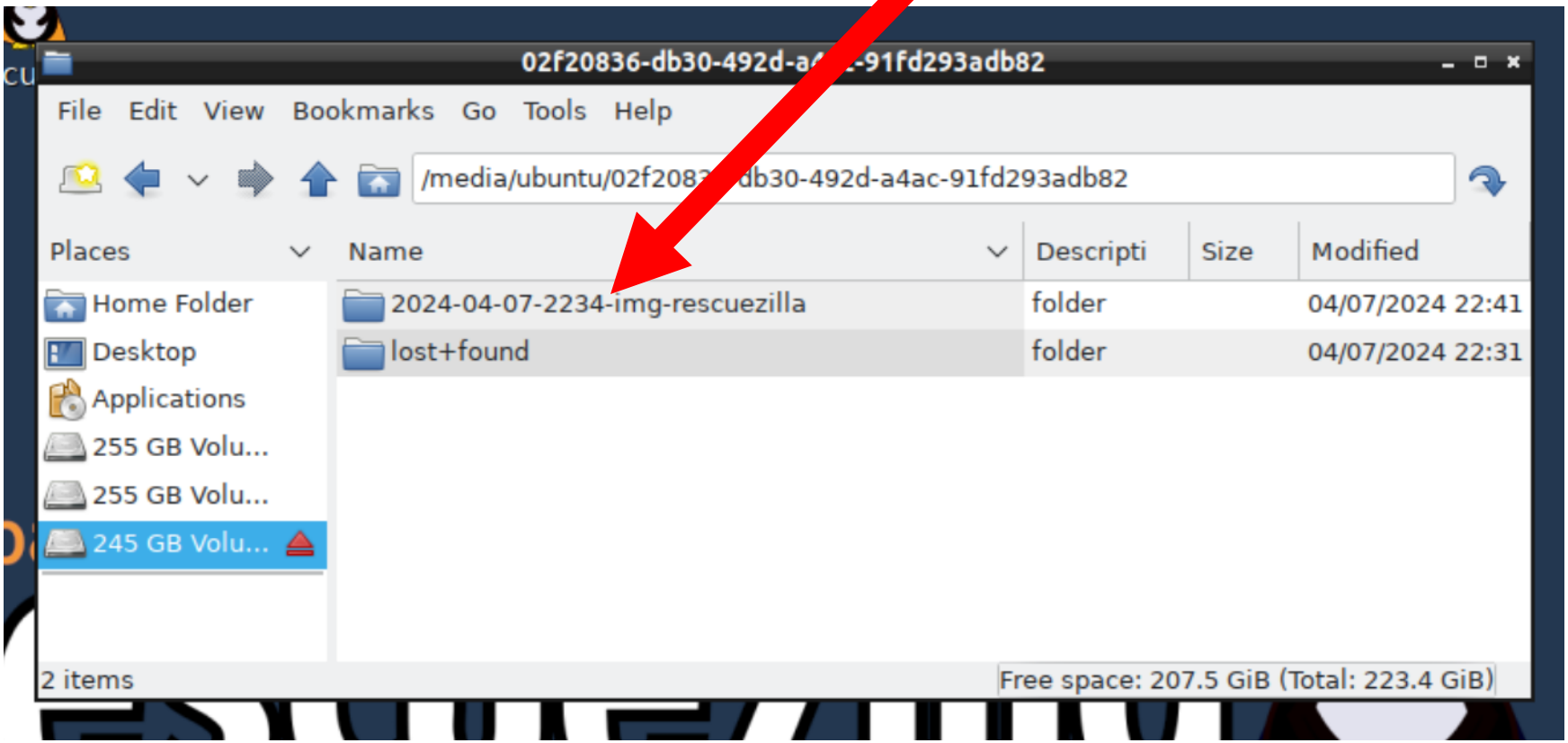

ubuntu
File Edit View Bookmarks Go Tools Help
/media/ubuntu
Places
Name
Descripti
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
02f20836-db30-492d-a4ac-91fd293adb82
folder
04/14/2024 22:01
1 item
Free space: 9.5 GiB (Total: 9.6 GiB)

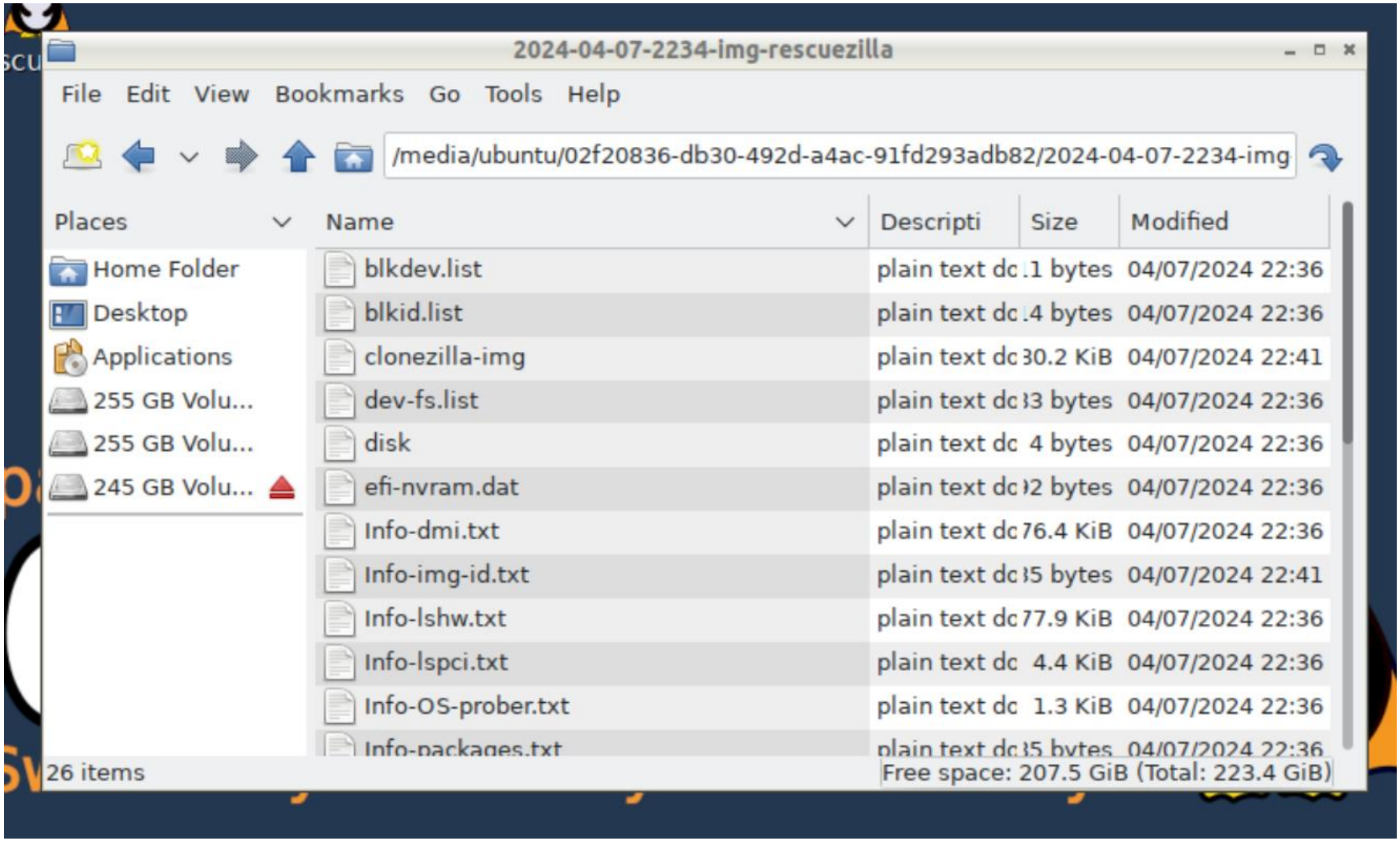

ubuntu
File Edit View Bookmarks Go Tools Help
/media/ubuntu
Places
Name
Descripti
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
02f20836-db30-492d-a4ac-91fd293adb82
folder
04/14/2024 22:01
1 item
Free space: 9.5 GiB (Total: 9.6 GiB)


02f20836-db30-492d-a4ac-91fd293adb82
File Edit View Bookmarks Go Tools Help
/media/ubuntu/02f20836-db30-492d-a4ac-91fd293adb82
Places
Name
Descripti
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
2024-04-07-2234-img-rescuezilla
folder
04/07/2024 22:41
lost+found
folder
04/07/2024 22:31
2 items
Free space: 207.5 GiB (Total: 223.4 GiB)


02f20836-db30-492d-a4
-91fd293adb82
File Edit View Bookmarks Go Tools Help
/media/ubuntu/02f208
db30-492d-a4ac-91fd293adb82
Places
Name
Descripti
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
2024-04-07-2234-img-rescuezilla
folder
04/07/2024 22:41
lost+found
folder
04/07/2024 22:31
2 items
Free space: 207.5 GiB (Total: 223.4 GiB)


02f20836-db30-492d-a4ac-91fd293adb82
File Edit View Bookmarks Go Tools Help
/media/ubuntu/02f20836-db30-492d-a4ac-91fd293adb82
Places
Name
Descripti
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
2024-04-07-2234-img-rescuezilla
folder
04/07/2024 22:41
lost+found
folder
04/07/2024 22:31
2 items
Free space: 207.5 GiB (Total: 223.4 GiB)


02f20836-db30-492d-a4ac-91fd293adb82
File Edit View Bookmarks Go Tools Help
/media/ubuntu/02f2083 db30-492d-a4ac-91fd293adb82
Places
Name
Descripti
Size
Modified
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
2024-04-07-2234-img-rescuezilla
folder
04/07/2024 22:41
lost+found
folder
04/07/2024 22:31
2 items
Free space: 207.5 GiB (Total: 223.4 GiB)

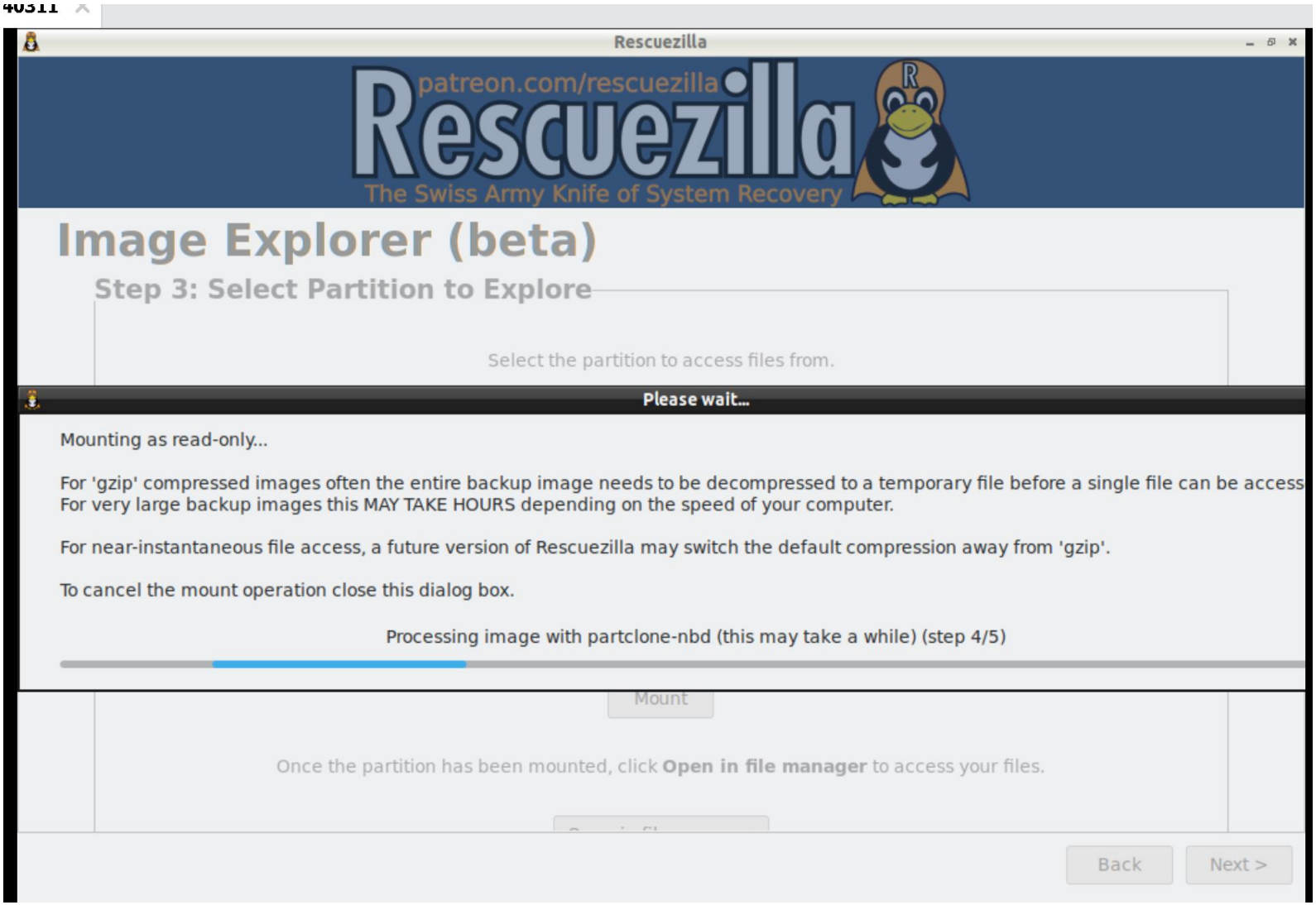

2024-04-07-2234-img-rescuezilla
File Edit View Bookmarks Go Tools Help
/media/ubuntu/02f20836-db30-492d-a4ac-91fd293adb82/2024-04-07-2234-img
Places
Home Folder
Desktop
Applications
255 GB Volu...
255 GB Volu...
245 GB Volu...
Name
Descripti
Size
Modified
blkdev.list plain text dc 1 bytes 04/07/2024 22:36
blkid.list plain text dc 4 bytes 04/07/2024 22:36
clonezilla-img plain text dc 30.2 KiB 04/07/2024 22:41
dev-fs.list plain text dc 3 bytes 04/07/2024 22:36
disk plain text dc 4 bytes 04/07/2024 22:36
efi-nvram.dat plain text dc 2 bytes 04/07/2024 22:36
Info-dmi.txt plain text dc 76.4 KiB 04/07/2024 22:36
Info-img-id.txt plain text dc 5 bytes 04/07/2024 22:41
Info-lshw.txt plain text dc 77.9 KiB 04/07/2024 22:36
Info-lspci.txt plain text dc 4.4 KiB 04/07/2024 22:36
Info-OS-prober.txt plain text dc 1.3 KiB 04/07/2024 22:36
Info-packages.txt plain text dc 5 bytes 04/07/2024 22:36
26 items
Free space: 207.5 GiB (Total: 223.4 GiB)

EXAMPLES OF AN **IMAGED** DISK (continued)

- You can sometimes extract/recover digital files and/or photo files from the image using the "Image Explorer (beta)" of Rescuezilla.
  However it is very beta at the present time and usually fails:


Rescuezilla
patreon.com/rescuezilla
Rescuezilla
The Swiss Army Knife of System Recovery
Welcome
Select an Option
Easily create a backup image of your computer, or completely restore from one. Click an option to begin:
Backup
Restore
Clone
Verify Image
Clonezilla
Image Explorer (beta)
Back
Next >
2.4.2 (64bit) 2023-03-06T000747
Rescuezilla
10:22 AM
Sun, Apr 14 2024


Rescuezilla
patreon.com/rescuezilla
Rescuezilla
The Swiss Army Knife of System Recovery
Welcome
Select an Option
Easily create a backup image of your computer, or completely restore from one. Click an option to begin:
Backup
Restore
Clone
Verify Image
Clonezilla
Image Explorer (beta)
Back
Next >
2.4.2 (64bit) 2023-03-06T000747
Rescuezilla
10:22 AM
Sun, Apr 14 2024


40311
Rescuezilla
patreon.com/rescuezilla
Rescuezilla
The Swiss Army Knife of System Recovery
Image Explorer (beta)
Step 3: Select Partition to Explore
Select the partition to access files from.
Please wait...
Mounting as read-only...
For 'gzip' compressed images often the entire backup image needs to be decompressed to a temporary file before a single file can be access
For very large backup images this MAY TAKE HOURS depending on the speed of your computer.
For near-instantaneous file access, a future version of Rescuezilla may switch the default compression away from 'gzip'.
To cancel the mount operation close this dialog box.
Processing image with partclone-nbd (this may take a while) (step 4/5)
Mount
Once the partition has been mounted, click Open in file manager to access your files.
Back
Next >

EXAMPLES OF AN **IMAGED** DISK (continued)

- You can **"restore"** the image to another blank hard drive or blank SSD in order to get an exact copy of the original source hard drive or source SSD.
  The "restore" process has to be done with either "Rescuezilla" or "CLONEZILLA LIVE".


Rescuezilla
patreon.com/rescuezilla
Rescuezilla
The Swiss Army Knife of System Recovery
Welcome
Select an Option
Easily create a backup image of your computer, or completely restore from one. Click an option to begin:
Backup
Restore
Clone
Verify Image
Image Explorer (beta)
Back
Next >
2.4.2 (64bit) 2023-03-06T000747
Rescuezilla
10:22 AM
Sun, Apr 14 2024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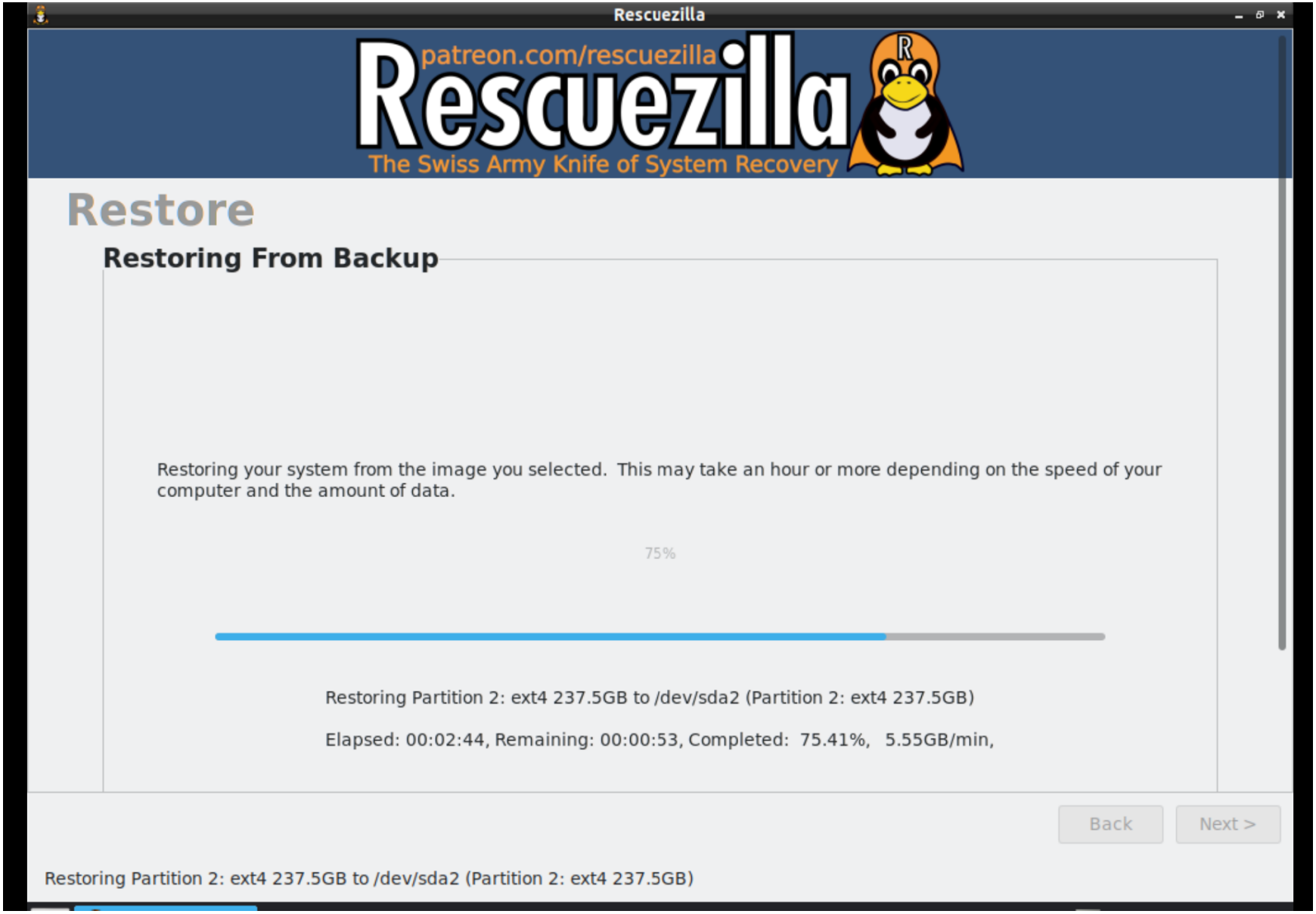
2.4.2 (64bit) 2023-03-06T000747
Rescuezilla
10:22 AM
Sun, Apr 14 2024


Rescuezilla
patreon.com/rescuezilla
Rescuezilla
The Swiss Army Knife of System Recovery
Restore
Restoring From Backup
Restoring your system from the image you selected. This may take an hour or more depending on the speed of your computer and the amount of data.
75%
Restoring Partition 2: ext4 237.5GB to /dev/sda2 (Partition 2: ext4 237.5GB)
Elapsed: 00:02:44, Remaining: 00:00:53, Completed: 75.41%, 5.55GB/min,
Back
Next >
Restoring Partition 2: ext4 237.5GB to /dev/sda2 (Partition 2: ext4 237.5GB)


Rescuezilla
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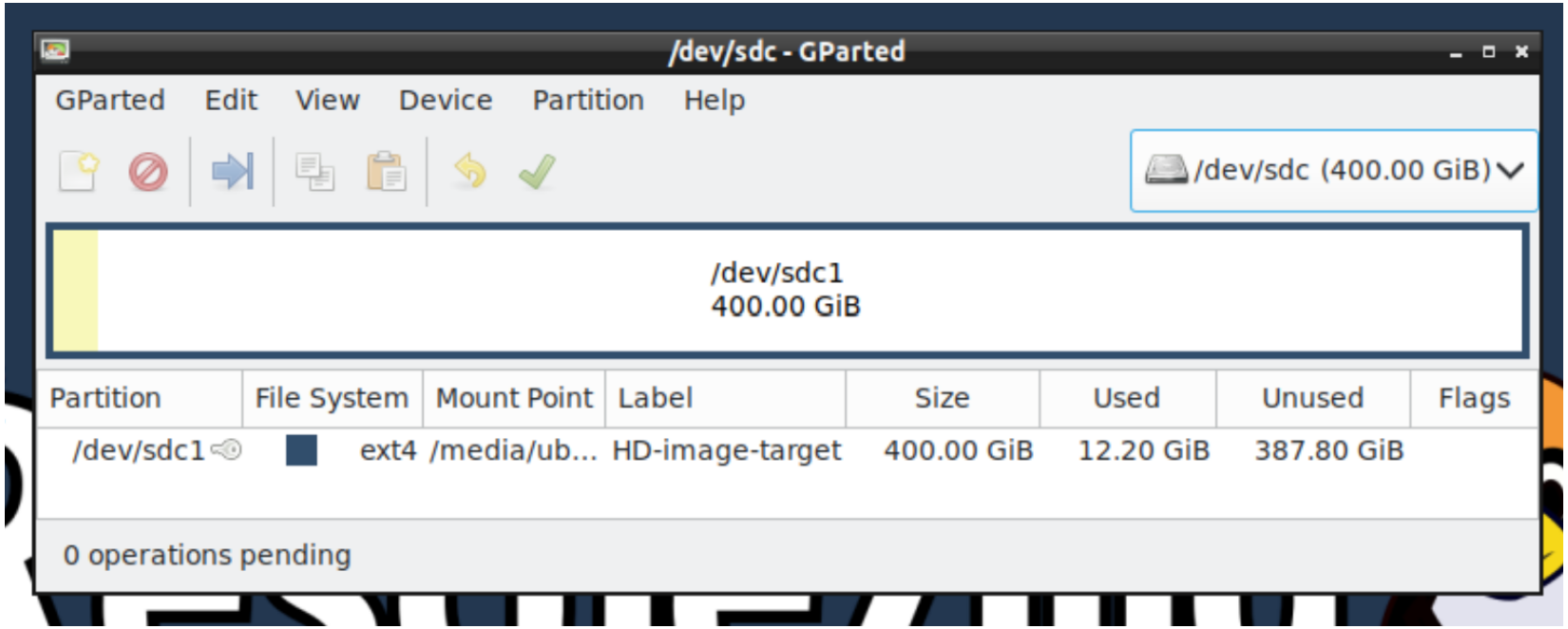
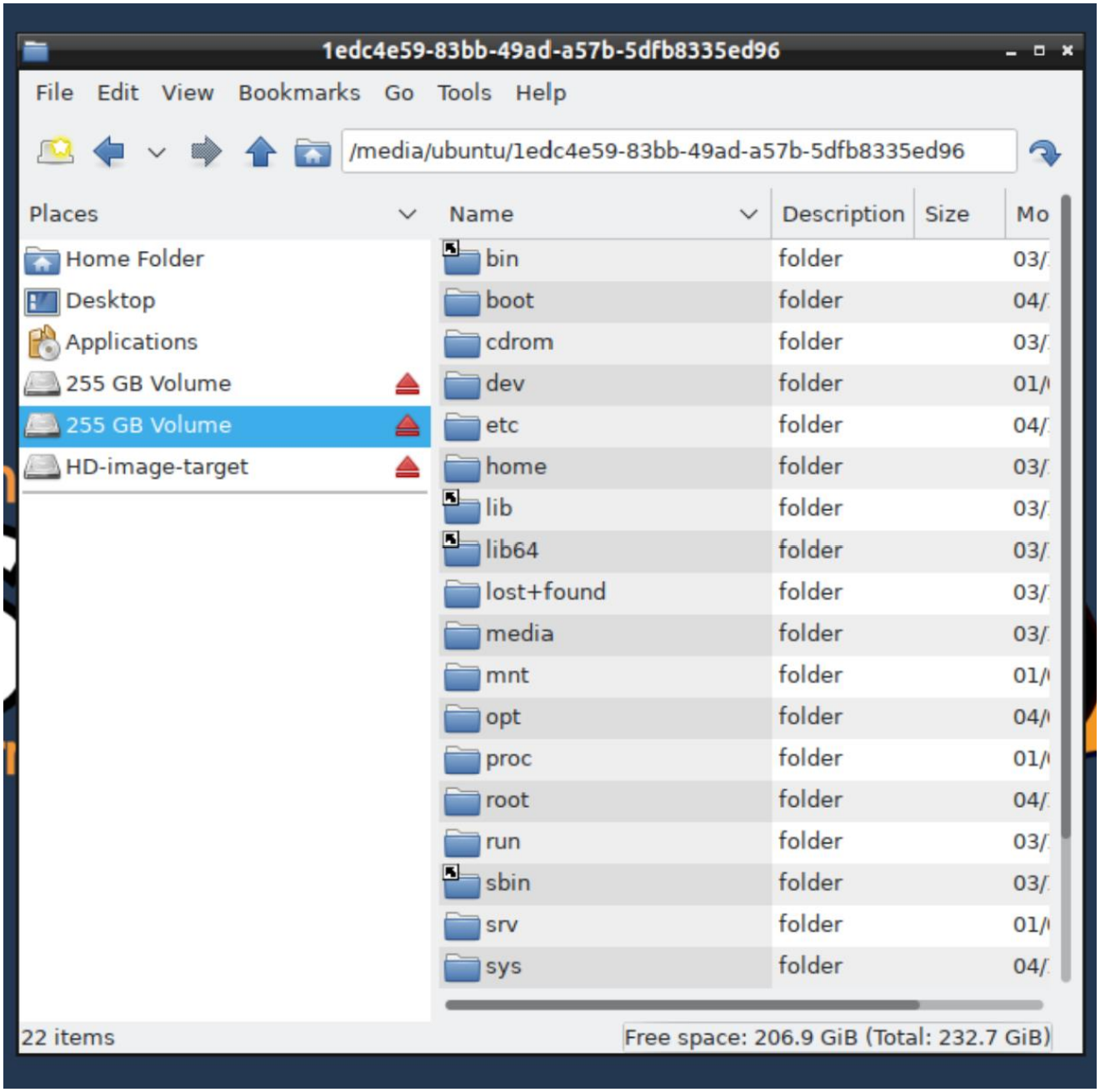
Rescuezilla
The Swiss Army Knife of System Recovery
Restore
Summary of Restore
Confirm the restore summary.
Restore Summary
Source image: /mnt/backup/2024-04-13-0209-img-rescuezilla/parts
Successfully restored partition table.
Successfully restored image partition sda1 to /dev/sda1.
Successfully restored image partition sda2 to /dev/sda2.
Did not update GRUB bootloader (if any)
Successfully updated initramfs
Successfully updated EFI NVRAM
Operation took 6.1 minutes.
Back
Next >

EXAMPLES OF AN **IMAGED** DISK (continued)

- The restored target will be an exact copy of the original source hard drive that was used to make the image:


/dev/sdc - GParted
GParted
Edit
View
Device
Partition
Help
/dev/sdc (400.00 GiB)
/dev/sdc1
400.00 GiB
Partition
File System
Mount Point
Label
Size
Used
Unused
Flags
/dev/sdc1
ext4
/media/ub...
HD-image-target
400.00 GiB
12.20 GiB
387.80 GiB
0 operations pending


1edc4e59-83bb-49ad-a57b-5dfb8335ed96
File Edit View Bookmarks Go Tools Help
/media/ubuntu/1edc4e59-83bb-49ad-a57b-5dfb8335ed96
Places
Home Folder
Desktop
Applications
255 GB Volume
255 GB Volume
HD-image-target
Name
Description
Size
Mo
bin folder 03/
boot folder 04/
cdrom folder 03/
dev folder 01/
etc folder 04/
home folder 03/
lib folder 03/
lib64 folder 03/
lost+found folder 03/
media folder 03/
mnt folder 01/
opt folder 04/
proc folder 01/
root folder 04/
run folder 03/
sbin folder 03/
srv folder 01/
sys folder 04/
22 items
Free space: 206.9 GiB (Total: 232.7 GiB)