

- Astra Linux Special Edition .10015-01 (1.7), .10015-10
- Astra Linux Special Edition .10015-17
- Astra Linux Special Edition .10015-37 (7.7)
- Astra Linux Special Edition .10015-03 (7.6)
- Astra Linux Special Edition .10152-02 (4.7)
- Astra Linux Special Edition .10015-01 (1.6)
- Astra Linux Special Edition .10015-16 . 1
- Astra Linux Special Edition .10015-16 . 2
- Astra Linux Special Edition .10265-01 (8.1)
- Astra Linux Common Edition 2.12

- `hdparm -I /dev/sda`
 - `ATA`
 - `SMART` : S.M.A.R.T.
- `hdparm -t /dev/sda`
- `dd if=/dev/zero of=/dev/sda bs=1M count=1`
- `dd if=/dev/zero of=/dev/sda bs=1M count=1`
- `dd if=/dev/zero of=/dev/sda bs=1M count=1`

 Web- GNU ddrescue: <https://www.gnu.org/software/ddrescue/>

GNU ddrescue Astra Linux Common Edition 2.12 :

Astra Linux Special Edition Astra Linux Common Edition.

```
sudo ddrescue [ <> ] <_> <_> [ <> ]
```

1. " " ().
2. " " (non-tried). " " (non-trimmed). " " (non-scraped).
3. " " (bad-sector).



: (, /dev/sdb), (/dev/sdb1), .

(. man ddrescue):

- -r N - ;
- -i NNN - ;
- -d - ;
- -f - (, ,).
- -n - "" ;
- -A - .

:

- 1. /dev/sdh - file.tmp map.tmp:

```
sudo ddrescue /dev/sdh file.tmp map.tmp
```

GNU ddrescue 1.21

Press Ctrl-C to interrupt

ipos: 120034 MB, non-trimmed: 0 B, current rate: 24576 B

/s

opos: 120034 MB, non-scraped: 0 B, average rate: 23968 kB

/s

non-tried: 0 B, bad-sector: 0 B, error rate: 0 B

/s

rescued: 120034 MB, bad areas: 0, run time: 1h 23m

27s

pct rescued: 100.00%, read errors: 0, remaining time: n

/a

time since last successful read: n

/a

Finished

- 2. , , , , 3 , (-d):

```
sudo ddrescue -f -d -r3 /dev/sdh file.tmp map.tmp
```



:

- .
- testdisk - .
- photorec - .
- . , , - . :
 - partx kpartx (partx kpartx);
 - losetup (klibc-utils);
 - mount - , , (.).

, , .

- 3. /dev/sdb1 /dev/sdc1 (). :

```
sudo ddrescue -f /dev/sdb1 /dev/sdc1 partmap.tmp
```

```
sudo ddrescue -f -r3 /dev/sdb1 /dev/sdc1 partmap.tmp
```

- 4. -(, -,):
 - , (, ,):

```
sudo ddrescue -f -r3 -i 1234567000 /dev/sdb /dev/sdc map.tmp
```

◦ :

```
sudo ddrescue -f -r3 -R /dev/sdb /dev/sdc map.tmp
```

◦ ():

```
sudo ddrescue -f -r3 -A /dev/sdb /dev/sdc map.tmp
```

- 5. -. - (/dev/sdc), (/dev/sdd) :

```
sudo ddrescue -f -m map.tmp /dev/sdc /dev/sdd newmap.tmp
sudo ddrescue -f -n /dev/sdb /dev/sdd newmap.tmp
sudo ddrescue -f -d -r3 /dev/sdb /dev/sdd newmap.tmp
```

testdisk:



WEB- TestDisk: <http://www.cgsecurity.org>
: [TestDisk Documentation](#)

testdisk Astra Linux, , :

```
sudo apt install testdisk
```

:

- testdisk - ;
- photorec - ;

testdisk

testdisk , , (, , .). (/dev/sdb) , . :

- .
- FAT32/NTFS .
- FAT12/FAT16/FAT32/NTFS.
- FAT.
- MFT MFT.
- ext2/ext3/ext4 (fck -).
- FAT/exFAT/NTFS/ext2.
- FAT/exFAT/NTFS/ext2/ext3/ext4.

.

(, ,):

```
sudo testdisk /dev/sdb
```

testdisk - .

:

TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

TestDisk is free software, and
comes with ABSOLUTELY NO WARRANTY.

Select a media (use Arrow keys, then press Enter):
>Disk /dev/sdb - 8589 MB / 8192 MiB - VBOX HARDDISK

>[Proceed] [Quit]

Note: Disk capacity must be correctly detected for a successful recovery.
If a disk listed above has incorrect size, check HD jumper settings, BIOS
detection, and install the latest OS patches and disk drivers.

Enter, :

TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

Disk /dev/sdb - 8589 MB / 8192 MiB - VBOX HARDDISK

Please select the partition table type, press Enter when done.

>[Intel] Intel/PC partition
[EFI GPT] EFI GPT partition map (Mac i386, some x86_64...)
[Humax] Humax partition table
[Mac] Apple partition map
[None] Non partitioned media
[Sun] Sun Solaris partition
[XBox] Xbox partition
[Return] Return to disk selection

Note: Do NOT select 'None' for media with only a single partition. It's very
rare for a disk to be 'Non-partitioned'.



testdisk , , . ("[None] Non partitioned media"). ("[Intel] Intel/PC partition") .

, Enter, :

TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

Disk /dev/sdb - 8589 MB / 8192 MiB - VBOX HARDDISK
CHS 1044 255 63 - sector size=512

>[Analyse] Analyse current partition structure and search for lost partitions
[Advanced] Filesystem Utils
[Geometry] Change disk geometry
[Options] Modify options
[MBR Code] Write TestDisk MBR code to first sector
[Delete] Delete all data in the partition table
[Quit] Return to disk selection

Note: Correct disk geometry is required for a successful recovery. 'Analyse'
process may give some warnings if it thinks the logical geometry is mismatched.

"Analyze" :

, . . - "Quick Search" (" ") Enter, "" . "" ().

TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

Disk /dev/sdb - 8589 MB / 8192 MiB - CHS 1044 255 63
Partition Start End Size in sectors
>* Linux 0 32 33 510 14 16 8192000 [first]
P Linux 510 14 17 1044 85 1 8583168 [second]

Structure: Ok. Use Up/Down Arrow keys to select partition.
Use Left/Right Arrow keys to CHANGE partition characteristics:
*=Primary bootable P=Primary L=Logical E=Extended D=Deleted
Keys A: add partition, L: load backup, T: change type, P: list files,
Enter: to continue
ext4 blockSize=4096 Large_file Sparse_SB, 4194 MB / 4000 MiB

Enter, :

TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

Disk /dev/sdb - 8589 MB / 8192 MiB - CHS 1044 255 63

	Partition	Start	End	Size in sectors
1	* Linux	0 32 33	510 14 16	8192000 [first]
2	P Linux	510 14 17	1044 85 1	8583168 [second]

[Quit] >[Deeper Search] [Write]
Try to find more partitions

"" ("Deep Search"), ("Write").

"Advanced":

TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

Disk /dev/sdb - 8589 MB / 8192 MiB - VBOX HARDDISK
CHS 1044 255 63 - sector size=512

[Analyse] Analyse current partition structure and search for lost partitions
>[Advanced] Filesystem Utils
[Geometry] Change disk geometry
[Options] Modify options
[MBR Code] Write TestDisk MBR code to first sector
[Delete] Delete all data in the partition table
[Quit] Return to disk selection

Note: Correct disk geometry is required for a successful recovery. 'Analyse'
process may give some warnings if it thinks the logical geometry is mismatched.

:

TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

Disk /dev/sdb - 8589 MB / 8192 MiB - CHS 1044 255 63

	Partition	Start	End	Size in sectors
> 1 *	Linux	0 32 33	510 14 16	8192000 [first]
2 P	Linux	510 14 17	1044 85 1	8583168 [second]

[Type] >[Superblock] [List] [Image Creation] [Quit]
Locate ext2/ext3/ext4 backup superblock

:

- Type - , ;
- Superblock - fsck. (). , fsck:

TestDisk 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

Disk /dev/sdb - 8589 MB / 8192 MiB - CHS 1044 255 63

	Partition	Start	End	Size in sectors
	Linux	0 32 33	510 14 16	8192000 [first]
	superblock 0,	blocksize=4096	[first]	
	superblock 32768,	blocksize=4096	[first]	
	superblock 98304,	blocksize=4096	[first]	
	superblock 163840,	blocksize=4096	[first]	
	superblock 229376,	blocksize=4096	[first]	
	superblock 294912,	blocksize=4096	[first]	
	superblock 819200,	blocksize=4096	[first]	
	superblock 884736,	blocksize=4096	[first]	

To repair the filesystem using alternate superblock, run
fsck.ext4 -p -b superblock -B blocksize device

- List - ;
- Image Creation - ;

Ext4, Astra Linux, testparm ("q") , :

```
sudo fsck.ext4 -p -b 32768 -B 4096 /dev/sdb1
```

photorec

photorec , , .



, , .

testdisk, , :

```
sudo photorec /dev/sdb1
```

:

PhotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

PhotoRec is free software, and
comes with ABSOLUTELY NO WARRANTY.

Select a media (use Arrow keys, then press Enter):
>Disk /dev/sdb1 - 4194 MB / 4000 MiB (R0) - VBOX HARDDISK
>[Proceed] [Quit]

Note:
Disk capacity must be correctly detected for a successful recovery.
If a disk listed above has incorrect size, check HD jumper settings, BIOS
detection, and install the latest OS patches and disk drivers.

Enter.

"File Opt" - :

PhotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

Disk /dev/sdb1 - 4194 MB / 4000 MiB (R0) - VBOX HARDDISK

Partition	Start	End	Size in sectors
Unknown	0 0 1	509 236 47	8192000 [Whole disk]
> P ext4	0 0 1	509 236 47	8192000 [first]

>[Search] [Options] [File Opt] [Quit]
Start file recovery

, "".

hotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

PhotoRec will try to locate the following files

```
>[X] custom Own custom signatures
[X] 1cd Russian Finance 1C:Enterprise 8
[X] 3dm Rhino / openNURBS
[X] 7z 7zip archive file
[X] DB
[X] a Unix Archive/Debian package
[X] abr Adobe Brush
[X] acb Adobe Color Book
[X] accdb Access Data Base
[X] ace ACE archive
[X] ab MAC Address Book
[X] ado Adobe Duotone Options
[X] ahn Ahnenblatt
[X] aif Audio Interchange File Format
[X] all Cubase Song file: .all
[X] als Ableton Live Sets
[X] amd AlphaCAM (amd/amt/atd/att)
[X] amr Adaptive Multi-Rate
[X] apa APA Style Helper
[X] ape Monkey's Audio compressed format
[X] apple AppleSingle/AppleDouble
[X] ari ARRI Raw Video
[X] arj ARJ archive
[X] asf ASF, WMA, WMV: Advanced Streaming Format used for Audio/Video
[X] asl Adobe Layer Style
[X] asm Pro/ENGINEER Assembly
[X] atd Agelong Tree Database/Abs0luteDatabase
[X] au Sun/NeXT audio data
[X] axx AxCrypt
[X] bac Bacula backup
[X] db Berkeley DB (Little Endian)
[X] bim Broadcast Interface Module
[X] binvox Binvox Voxel File
[X] bkf MS Backup file
[X] blend blender
[X] bmp BMP bitmap image
[X] bz2 bzip2 compressed data
[X] cab Microsoft Cabinet archive
[X] caf Core Audio Format
[X] cam Casio QV Digital Camera Image
[X] catdrawing CATIA
[X] cdt cdl/cdt/cdd Concept Draw
[X] chm MS Windows HtmlHelp Data
[X] class Java Class
[X] comicdoc Comic Life
[X] cp_ MS compress file (SZDD)
[X] cow Qemu Image
[X] crw Canon Raw picture
Next
Press s to disable all file families, b to save the settings
>[ Quit ]
Return to main menu
```

, Enter.
, , Enter:

PhotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

P ext4 0 0 1 509 236 47 8192000 [first]

To recover lost files, PhotoRec need to know the filesystem type where the file were stored:

>[ext2/ext3] ext2/ext3/ext4 filesystem
[Other] FAT/NTFS/HFS+/ReiserFS/...

("Free" - , "Whole" -) Enter:

PhotoRec 7.0, Data Recovery Utility, April 2015
Christophe GRENIER <grenier@cgsecurity.org>
<http://www.cgsecurity.org>

P ext4 0 0 1 509 236 47 8192000 [first]

Please choose if all space need to be analysed:
[Free] Scan for file from ext2/ext3 unallocated space only
>[Whole] Extract files from whole partition

"C", .

extundelete

extundelete Astra Linux, .

```
sudo apt install extundelete
```

```
sudo extundelete --restore-all /dev/sdh1
```

```
NOTICE: Extended attributes are not restored.  
Loading filesystem metadata ... 232 groups loaded.  
Loading journal descriptors ... Segmentation fault
```

ext4magic



ext4magic Astra Linux Debian: <http://ftp.de.debian.org/debian/pool/main/e/ext4magic/>.

man ext4magic, :

1. () :

```
sudo ext4magic -M /dev/___
```

2. :

```
sudo ext4magic -m /dev/___
```

RECOVERED .

R-Linux

Web- R-Tools Technology: <https://www.r-tt.com/ru/>

R-Linux — Ext2/Ext3/Ext4, Linux Unix (). - R-Tools Technology (). , . , .

R-Linux Web- :

```
wget https://www.r-studio.com/downloads/RLinux5_x64.deb
sudo apt install ./RLinux5_x64.deb
```

"" , :

```
sudo rlinux
```



:

R-Linux 5.6.175721 - Панель дисков

Диск Создать Инструменты Просмотр Помощь

Обновить Показать содержимое диска Сканировать Открыть образ... Создать образ... Создать регион... Remove Остановить

Панель дисков

Устройство/Диск	Метка	Формат файловой системы	Начало	Размер
Локальный компьютер				
VBOX HARDDISK 1.0	VBc0aa977e...	SATA2	0 Bytes	32 GB
/		Ext4	1 MB	28.00 GB
Раздел2			28.00 GB	4.00 GB
Свободное Место05			32.00 GB	1 MB

Свойства

Имя	Значение
Тип Диска	Раздел, Логический
Имя	Раздел2
Размер	4.00 GB (8384512 Sectors)
Смещение Раздела	28.00 GB (58722304 Sectors)
Размер Раздела	4.00 GB (8384512 Sectors)
Тип Раздела	Linux (swap) (0x82)

Журнал

Тип	Дата	Время	Текст
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Готово

(), . / .
, , , R-Link .
R-Linux S.M.A.R.T , .