

1. Перекидываю файл на сервак и распаковываю.

```
Last login: Mon Apr  5 16:37:12 2021 from 145.255.2.187
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ unzip
UnZip 6.00 of 20 April 2009, by Info-ZIP.  Maintained by C. Spieler.  Send
bug reports using http://www.info-zip.org/zip-bug.html; see README for details.

Usage: unzip [-Z] [-opts[modifiers]] file[.zip] [list] [-x xlist] [-d exdir]
Default action is to extract files in list, except those in xlist, to exdir;
file[.zip] may be a wildcard.  -Z => ZipInfo mode ("unzip -Z" for usage).

-p  extract files to pipe, no messages      -l  list files (short format)
-f  freshen existing files, create none     -t  test compressed archive data
-u  update files, create if necessary       -z  display archive comment only
-v  list verbosely/show version info       -T  timestamp archive to latest
-x  exclude files that follow (in xlist)   -d  extract files into exdir

modifiers:
-n  never overwrite existing files          -q  quiet mode (-qq => quieter)
-o  overwrite files WITHOUT prompting       -a  auto-convert any text files
-j  junk paths (do not make directories)   -aa treat ALL files as text
-U  use escapes for all non-ASCII Unicode  -UU ignore any Unicode fields
-C  match filenames case-insensitively     -L  make (some) names lowercase
-X  restore UID/GID info                  -V  retain VMS version numbers
-K  keep setuid/setgid/tacky permissions  -M  pipe through "more" pager
-O  CHARSET specify a character encoding for DOS, Windows and OS/2 archives
-I  CHARSET specify a character encoding for UNIX and other archives

See "unzip -hh" or unzip.txt for more help.  Examples:
unzip data1 -x joe  => extract all files except joe from zipfile data1.zip
unzip -p foo | more => send contents of foo.zip via pipe into program more
unzip -fo foo ReadMe => quietly replace existing ReadMe if archive file newer
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ unzip archive.zip
Archive:  archive.zip
  inflating: vehicles.csv
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ ls -alf
.bash_history  ..  .bashrc  .bash_profile  .bash_logout  .  vehicles.csv  .oracle_jre_usage  .ssh  archive.zip
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ ls -alh
total 1.6G
drwx-----  4 student3_16 student3_16 4.0K Apr 11 16:00 .
drwxr-xr-x. 213 root          root      4.0K Apr  1 16:31 ..
-rw-rw-r--  1 student3_16 student3_16 268M Apr 11 16:00 archive.zip
-rw-----  1 student3_16 student3_16  45 Apr  5 17:55 .bash_history
-rw-r--r--  1 student3_16 student3_16  18 Aug  8 2019 .bash_logout
-rw-r--r--  1 student3_16 student3_16 193 Aug  8 2019 .bash_profile
-rw-r--r--  1 student3_16 student3_16 231 Aug  8 2019 .bashrc
drwxrwxr-x  2 student3_16 student3_16 4.0K Apr  5 15:50 .oracle_jre_usage
drwx-----  2 student3_16 student3_16 4.0K Apr  5 16:40 .ssh
-rw-rw-r--  1 student3_16 student3_16 1.4G Dec  3 17:08 vehicles.csv
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$
```

2. Проверяю содержимое файла.

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ head vehicles.csv
,id,url,region,region_url,price,year,manufacturer,model,condition,cylinders,fuel,odometer,title_status,transmission,VIN,drive,size,type,paint_color,image_url,description,state,lat,long,posting_date
0,7240372487,https://auburn.craigslist.org/ctd/d/auburn-university-2010-chevy-chevrolet/7240372487.html,auburn,https://auburn.craigslist.org,35990,2010.0,chevrolet,corvette grand sport,good,8 cylinders,gas,
32742.0,clean,other,161YU3DW1A5106980,rwd,,other,,https://images.craigslist.org/00N0N_ipkbHVZYf4w_0gw0co_600x450.jpg,"Carvana is the safer way to buy a car During these uncertain times, Carvana is dedicated
to ensuring safety for all of our customers. In addition to our 100% online shopping and selling experience that allows all customers to buy and trade their cars without ever leaving the safety of their ho
use, we're providing touchless delivery that make all aspects of our process even safer. Now, you can get the car you want, and trade in your old one, while avoiding person-to-person contact with our friend
ly advocates. There are some things that can't be put off. And if buying a car is one of them, know that we're doing everything we can to keep you keep moving while continuing to put your health safety, and
happiness first. Vehicle Stock# 2000721559 Want to instantly check this car's availability? Call us at 334-758-9176Just text that stock number to 855-976-4304 or head to http://www.carvanaauto.com/61434
24-74502 and plug it into the search bar!Get PRE-QUALIFIED for your auto loan in 2 minutes - no hit to your credit:http://finance.carvanaauto.com/6143424-74502Looking for more cars like this one? We have 94
Chevrolet Corvette in stock for as low as $27990!Why buy with Carvana? We have one standard: the highest. Take a look at just some of the qualifications all of our cars must meet before we list them.150-P0
INT INSPECTION: We put each vehicle through a 150-point inspection so that you can be 100% confident in its quality and safety. See everything that goes into our inspections at:http://www.carvanaauto.com/61
43424-74502NO REPORTED ACCIDENTS: We do not sell cars that have been in a reported accident or have a frame or structural damage.7 DAY TEST OWN MONEY BACK GUARANTEE: Every Carvana car comes with a 7-day mon
ey-back guarantee. Why? It takes more than 15-minutes to make a decision on your next car. Learn more about test owning at http://about.carvanaauto.com/FLEXIBLE FINANCING, TRADE INS WELCOME: We're all about
real-time financing without the middle man. Need financing? Pick a combination of down and monthly payments that work for you. Have a trade-in? We'll give you a value in 2 minutes. Check out everything about
t our financing at:http://finance.carvanaauto.com/6143424-74502COST SAVINGS: Carvana's business model has fewer expenses and no bloated fees compared to your local dealership. See how much we can save you a
t http://about.carvanaauto.com/PREMIUM DETAIL: We go the extra mile so that your car is looking as good as new. There are a lot of specifics that we won't list here (we wash, clean, buff, paint, polish, wax,
seal), but trust us that when your car arrives, it's going to look sweet.Vehicle Info for Stock# 2000721559Trim: Grand Sport Convertible 2D ConvertibleMileage: 32k milesExterior Color: GrayInterior Color:
BlackEngine: 6.2L V8 430hp 424ft. lbs.Drive: rwdTransmission: Automatic, 6-Spd w/Paddle ShiftVIN: 161YU3DW1A5106980Dealer Disclosure: Price excludes tax, title, and registration (which we handle for you).Di
sclaimer: You agree that by providing your phone number, Carvana, or Carvana's authorized representatives*, may call and/or send text messages (including by using equipment to automatically dial telephone n
umbers) about your interest in a purchase, for marketing/sales purposes, or for any other servicing or informational purpose related to your account. You do not have to consent to receiving calls or texts t
o purchase from Carvana. While every reasonable effort is made to ensure the accuracy of the information for this Chevrolet Corvette, we are not responsible for any errors or omissions contained in this ad.
Please verify any information in question with Carvana at 334-758-9176Including, but not limited to, Bridgecrest Credit Company, G0 Financial and SilverRock Automotive.*Chevrolet* *Corvette* *Chevy* *Chev
rolet* *Corvette* *ZR1* *Chevrolet* *Corvette* *Z06* *Hardtop* *Chevrolet* *Corvette* *Stingray* *Chevrolet* *Corvette* *3* *LT* *Chevrolet* *Corvette* *C5-R* *Chevrolet* *Corvette* *Grand* *Sport* *Chevro
let* *Corvette* *Corvette* *C6* *ZR1* *Chevrolet* *Corvette* *2LT* *Chevrolet* *Corvette* *4LT* *Sports* *Car* *Coupe* 2021 2020 2019 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 200
7 2006 2005 2004 2003 2002 2001 2000 21 19 18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00",al,32.5475,-85.4682,2020-12-02T08:11:30-0600
1,7240309422,https://auburn.craigslist.org/cto/d/auburn-2014-hyundai-sonata-20t/7240309422.html,auburn,https://auburn.craigslist.org,7500,2014.0,hyundai,sonata,excellent,4 cylinders,gas,93600.0,clean,automa
tic,SNPEC4AB0EH813529,fwd,,sedan,,https://images.craigslist.org/00S0s_gBHymJ5o7yM_0ne0hg_600x450.jpg,"I'll move to another city and try to sell my car. The car is in very good condition, everything works a
nd fully cleaned. It equipped with a heated seat, power seat, backup camera, Bluetooth, keyless entry and start. If you are interested in my car, please email me.",al,32.5475,-85.4682,2020-12-02T02:11:50-06
00
2,7240224296,https://auburn.craigslist.org/cto/d/auburn-2006-bmw-x3/7240224296.html,auburn,https://auburn.craigslist.org,4900,2006.0,bmw,x3 3.0i,good,6 cylinders,gas,87046.0,clean,automatic,,,SUV,blue,http
s://images.craigslist.org/00B0B_5zgEGWP0rt0_07L0ak_600x450.jpg,"Clean 2006 BMW X3 3.0i. Beautiful and rare Blue Water Metallic exterior and tan interior color combination. 5-speed automatic transmission, A
WD, CD/AM/FM radio, cold A/C (just serviced along w/oil change), alloy wheels, split rear-seats, driver/passenger air bags, multi-function remote w/ keyless entry, electric windows/door locks, cruise contro
l, lighted vanity mirrors and many other extras. Missing tow eye cover in rear (~$20 to replace), tires ~50% tread remaining and a few blemishes on the exterior (scuffs, scratches, normal wear & tear). Wo
uld make an excellent, safe run-around town or college vehicle. Title in hand, priced to sell!",al,32.616807,-85.464149,2020-12-01T19:50:41-0600
3,7240103965,https://auburn.craigslist.org/cto/d/lanett-truck/7240103965.html,auburn,https://auburn.craigslist.org,2000,1974.0,chevrolet,c-10,good,4 cylinders,gas,190000.0,clean,automatic,,rwd,full-size,pic
kup,blue,https://images.craigslist.org/00M0M_6o7KcDpArwl_0CI0t2_600x450.jpg,1974 chev. truck (LONG BED) NEW starter front and back breaks,al,32.8616,-85.2161,2020-12-01T15:54:45-0600
4,7239983776,https://auburn.craigslist.org/cto/d/auburn-2005-ford-f350-lariat/7239983776.html,auburn,https://auburn.craigslist.org,19500,2005.0,ford,f350 lariat,excellent,8 cylinders,diesel,116000.0,lien,au
tomatic,,4wd,full-size,pickup,blue,https://images.craigslist.org/00p0p_b95lEGuflv_0CI0t2_600x450.jpg,"2005 Ford F350 Lariat (Bullet Proofed). This truck was bullet proofed early on and has been well mainta
ined. Truck is equipped with a 6.0 liter turbo diesel. Currently has 116K miles. Everything on the truck works as it should, truck is in excellent condition. Truck is in all original condition (except for th
e Bullet Proof upgrades). Truck comes equipped with gooseneck hitch, 15,000 lbs bumper hitch, brake controller, and upfitter switches. Has 430 limited slip gears. Fully loaded interior with heated leather p
ower seats and power sliding back glass. It is an excellent choice for hauling a 5th wheel camper or for anyone needing to haul heavy loads. If you are looking for a pre-emission controlled diesel, you will
not find a better truck than this one. Price is firm, Call Mark at show contact info",al,32.5475,-85.4682,2020-12-01T12:53:56-0600
5,7239776805,https://auburn.craigslist.org/ctd/d/auburn-university-2016-toyota-tacoma/7239776805.html,auburn,https://auburn.craigslist.org,29590,2016.0,toyota,tacoma double cab sr5,good,6 cylinders,gas,3329
0.0,clean,other,3TMAZ5CNG6M020355,,pickup,red,https://images.craigslist.org/00k0k_9nUNSLCBLMT_0gw0co_600x450.jpg,"Carvana is the safer way to buy a car During these uncertain times, Carvana is dedicated
to ensuring safety for all of our customers. In addition to our 100% online shopping and selling experience that allows all customers to buy and trade their cars without ever leaving the safety of their house
, we're providing touchless delivery that make all aspects of our process even safer. Now, you can get the car you want, and trade in your old one, while avoiding person-to-person contact with our friendly
advocates. There are some things that can't be put off. And if buying a car is one of them, know that we're doing everything we can to keep you keep moving while continuing to put your health safety, and ha
ppiness first. Vehicle Stock# 2000766616 Want to instantly check this car's availability? Call us at 334-758-9176Just text that stock number to 855-976-4304 or head to http://www.carvanaauto.com/6173463-
74502 and plug it into the search bar!Get PRE-QUALIFIED for your auto loan in 2 minutes - no hit to your credit:http://finance.carvanaauto.com/6173463-74502Looking for more cars like this one? We have 155 T
oyota Tacoma Double Cab in stock for as low as $18990!Why buy with Carvana? We have one standard: the highest. Take a look at just some of the qualifications all of our cars must meet before we list them.15
```

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ head -n 1 vehicles.csv
,id,url,region,region_url,price,year,manufacturer,model,condition,cylinders,fuel,odometer,title_status,transmission,VIN,drive,size,type,paint_color,image_url,description,state,lat,long,posting_date
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$
```

3. Перекидываю файл в hdfs командой - `hdfs dfs -put vehicles.csv`, проверяю наличие файла

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -ls
Found 1 items
-rw-r--r--    2 student3_16 student3_16 1437679401 2021-04-11 16:05 vehicles.csv
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$
```

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -ls -h
Found 1 items
-rw-r--r--    2 student3_16 student3_16      1.3 G 2021-04-11 16:05 vehicles.csv
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$
```

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -du -h vehicles.csv
1.3 G    2.7 G    vehicles.csv
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$
```

4. Удаляю файл из hdfs без переноса файла в корзину и проверяю наличие файла

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -rm -skipTrash vehicles.csv
Deleted vehicles.csv
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -ls
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$
```


5. Создаю папку командой `hdfs dfs -mkdir used_cars`, перекидываю файл командой `hdfs dfs -put vehicles.csv` и перемещаю файл в папку `hdfs dfs -mv vehicles.csv used_cars/`. Далее вывожу на экран начало файла.

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -ls used_cars/vehicles.csv
-rw-r--r--  3 student3_16 student3_16 1437679401 2021-04-11 16:14 used_cars/vehicles.csv
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -du -h used_cars/vehicles.csv
1.3 G  4.0 G  used_cars/vehicles.csv
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$
```

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -cat used_cars/vehicles.csv | head
id,url,region,region_url,price,year,manufacturer,model,condition,cylinders,fuel,odometer,title,status,transmission,VIN,drive,size,type,paint,color,image_url,description,state,lat,long,posting_date
0,7240372487,https://auburn.craigslist.org/cto/d/auburn-university-2010-chevy-chevrolet/7240372487.html,auburn,https://auburn.craigslist.org,35990,2010.0,chevrolet,corvette grand sport,good,8 cylinders,gas,
32742.0,clean,other,1G1YU3DW1A5106980,rwd,,other,,https://images.craigslist.org/00N0N_ipkbHVZYf4w_0gw0co_600x450.jpg,"Carvana is the safer way to buy a car During these uncertain times, Carvana is dedicated
to ensuring safety for all of our customers. In addition to our 100% online shopping and selling experience that allows all customers to buy and trade their cars without ever leaving the safety of their ho
use, we're providing touchless delivery that make all aspects of our process even safer. Now, you can get the car you want, and trade in your old one, while avoiding person-to-person contact with our friend
ly advocates. There are some things that can't be put off. And if buying a car is one of them, know that we're doing everything we can to keep you keep moving while continuing to put your health safety, and
happiness first. Vehicle Stock# 2000721559 Want to instantly check this car's availability? Call us at 334-758-9176 Just text that stock number to 855-976-4304 or head to http://www.carvanaauto.com/61434
24-74502 and plug it into the search bar! Get PRE-QUALIFIED for your auto loan in 2 minutes - no hit to your credit: http://finance.carvanaauto.com/6143424-74502 Looking for more cars like this one? We have 94
Chevrolet Corvette in stock for as low as $27990! Why buy with Carvana? We have one standard: the highest. Take a look at just some of the qualifications all of our cars must meet before we list them. 150-P
INT INSPECTION: We put each vehicle through a 150-point inspection so that you can be 100% confident in its quality and safety. See everything that goes into our inspections at: http://www.carvanaauto.com/61
43424-74502 NO REPORTED ACCIDENTS: We do not sell cars that have been in a reported accident or have a frame or structural damage. 7 DAY TEST OWN MONEY BACK GUARANTEE: Every Carvana car comes with a 7-day mon
ey-back guarantee. Why? It takes more than 15 minutes to make a decision on your next car. Learn more about test owning at http://about.carvanaauto.com/FLEXIBLE FINANCING, TRADE INS WELCOME: We're all about
real-time financing without the middle man. Need financing? Pick a combination of down and monthly payments that work for you. Have a trade-in? We'll give you a value in 2 minutes. Check out everything about
t our financing at: http://finance.carvanaauto.com/6143424-74502 COST SAVINGS: Carvana's business model has fewer expenses and no bloated fees compared to your local dealership. See how much we can save you a
t http://about.carvanaauto.com PREMIUM DETAIL: We go the extra mile so that your car is looking as good as new. There are a lot of specifics that we won't list here (we wash, clean, buff, paint, polish, wax,
seal), but trust us that when your car arrives, it's going to look sweet. Vehicle Info for Stock# 2000721559 Trim: Grand Sport Convertible 2D Convertible Mileage: 32k miles Exterior Color: Gray Interior Color:
Black Engine: 6.2L V8 430hp 424ft. lbs. Drive: rwd Transmission: Automatic, 6-Spd w/Paddle Shift VIN: 1G1YU3DW1A5106980 Dealer Disclosure: Price excludes tax, title, and registration (which we handle for you). Di
sclaimer: You agree that by providing your phone number, Carvana, or Carvana's authorized representatives*, may call and/or send text messages (including by using equipment to automatically dial telephone n
umbers) about your interest in a purchase, for marketing/sales purposes, or for any other servicing or informational purpose related to your account. You do not have to consent to receiving calls or texts t
o purchase from Carvana. While every reasonable effort is made to ensure the accuracy of the information for this Chevrolet Corvette, we are not responsible for any errors or omissions contained in this ad.
Please verify any information in question with Carvana at 334-758-9176* Including, but not limited to, Bridgecrest Credit Company, G0 Financial and SilverRock Automotive.*Chevrolet* *Corvette* *Chevy* *Chev
rolet* *Corvette* *vZr1* *Chevrolet* *Corvette* *Z06* *Hardtop* *Chevrolet* *Corvette* *Stingray* *Chevrolet* *Corvette* *3* *Lt* *Chevrolet* *Corvette* *C5-R* *Chevrolet* *Corvette* *Grand* *Sport* *Chevro
let* *Corvette* *Corvette* *C6* *ZR1* *Chevrolet* *Corvette* *2LT* *Chevrolet* *Corvette* *4LT* *Sports* *Car* *Coupe* 2021 2020 2019 2018 2017 2016 2015 2014 2013 2012 2011 2010 2009 2008 200
7 2006 2005 2004 2003 2002 2001 2000 21 19 18 17 16 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00",al,32.59,-85.48,2020-12-02T08:11:30-0600
1,7240309422,https://auburn.craigslist.org/cto/d/auburn-2014-hyundai-sonata-20t/7240309422.html,auburn,https://auburn.craigslist.org,7500,2014.0,hyundai,sonata,excellent,4 cylinders,gas,93600.0,clean,automa
tic,5NPCE4AB0EH813529,fwd,,sedan,,https://images.craigslist.org/00s0s_gBHymJ5o7yM_0ne0hq_600x450.jpg,"I'll move to another city and try to sell my car. The car is in very good condition, everything works a
nd fully cleaned. It equipped with a heated seat, power seat, backup camera, Bluetooth, keyless entry and start. If you are interested in my car, please email me.",al,32.5475,-85.4682,2020-12-02T02:11:50-06
00
2,7240224296,https://auburn.craigslist.org/cto/d/auburn-2006-bmw-x3/7240224296.html,auburn,https://auburn.craigslist.org,4900,2006.0,bmw,x3 3.0i,good,6 cylinders,gas,87046.0,clean,automatic,,SUV,blue,http
s://images.craigslist.org/00B0B_5zoEGWP0rt0_07L0ak_600x450.jpg,"Clean 2006 BMW X3 3.0I. Beautiful and rare Blue Water Metallic exterior and tan interior color combination. 5-speed automatic transmission, A
WD, CD/AM/FM radio, cold A/C (just serviced along w/oil change), alloy wheels, split rear-seats, driver/passenger air bags, multi-function remote w/ keyless entry, electric windows/door locks, cruise contro
l, lighted vanity mirrors and many other extras. Missing tow eye cover in rear (~$20 to replace), tires ~50% tread remaining and a few blemishes on the exterior (scuffs, scratches, normal wear & tear). Wo
uld make an excellent, safe run-around town or college vehicle. Title in hand, priced to sell!",al,32.616807,-85.464149,2020-12-01T19:50:41-0600
3,7240103965,https://auburn.craigslist.org/cto/d/lanett-truck/7240103965.html,auburn,https://auburn.craigslist.org,2000,1974.0,chevrolet,c-10,good,4 cylinders,gas,190000.0,clean,automatic,,rwd,full-size,pic
```

6. Смотрю каким образом хранится файл. Разделен на 11 блоков, фактор репликации =3, первая реплика первого блока файла хранится на 10.0.0.20, вторая реплика первого блока файла хранится на 10.0.0.19, третья реплика первого блока файла хранится на 10.0.0.35

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs fsck used_cars/vehicles.csv -files -blocks -locations
Connecting to namenode via http://bigdataanalytics2-head-shdpt-v31-1-0.novalocal:50070/fsck?ugi=student3_16&files=1&blocks=1&locations=1&path=%2Fuser%2Fstudent3_16%2Fused_cars%2Fvehicles.csv
FSCK started by student3_16 (auth:SIMPLE) from /10.0.0.7 for path /user/student3_16/used_cars/vehicles.csv at Sun Apr 11 16:25:47 UTC 2021
/user/student3_16/used_cars/vehicles.csv 1437679401 bytes, replicated: replication=3, 11 block(s): OK
0. BP-1159087252-10.0.0.7-1616250271725:blk_1073867850_127049 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK]]
1. BP-1159087252-10.0.0.7-1616250271725:blk_1073867851_127050 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK]]
2. BP-1159087252-10.0.0.7-1616250271725:blk_1073867852_127051 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK]]
3. BP-1159087252-10.0.0.7-1616250271725:blk_1073867856_127055 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK]]
4. BP-1159087252-10.0.0.7-1616250271725:blk_1073867857_127056 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK]]
5. BP-1159087252-10.0.0.7-1616250271725:blk_1073867858_127057 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK]]
6. BP-1159087252-10.0.0.7-1616250271725:blk_1073867859_127058 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK]]
7. BP-1159087252-10.0.0.7-1616250271725:blk_1073867860_127059 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK]]
8. BP-1159087252-10.0.0.7-1616250271725:blk_1073867861_127060 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.20:50010,DS-cb4091d5-e24d-4dc4-a859-3155baff1c0d,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK]]
9. BP-1159087252-10.0.0.7-1616250271725:blk_1073867862_127061 len=134217728 Live repl=3 [DatanodeInfoWithStorage[10.0.0.26:50010,DS-cecc13e4-53c6-41ed-93fa-8fb2bd56be29,DISK], DatanodeInfoWithStorage[10.0.0.31:50010,DS-68fc8905-126c-4cf3-b4d7-00f8aaa52df4,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK]]
10. BP-1159087252-10.0.0.7-1616250271725:blk_1073867863_127062 len=95502121 Live repl=3 [DatanodeInfoWithStorage[10.0.0.26:50010,DS-cecc13e4-53c6-41ed-93fa-8fb2bd56be29,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.6:50010,DS-0c5c7546-1be5-4398-8a02-351ae5508c9b,DISK]]

Status: HEALTHY
Number of data-nodes: 6
Number of racks: 1
Total dirs: 0
Total symlinks: 0

Replicated Blocks:
Total size: 1437679401 B
Total files: 1
Total blocks (validated): 11 (avg. block size 130698127 B)
Minimally replicated blocks: 11 (100.0 %)
Over-replicated blocks: 0 (0.0 %)
Under-replicated blocks: 0 (0.0 %)
Mis-replicated blocks: 0 (0.0 %)
Default replication factor: 2
Average block replication: 3.0
Missing blocks: 0
Corrupt blocks: 0
Missing replicas: 0 (0.0 %)

Erasure Coded Block Groups:
Total size: 0 B
Total files: 0
Total block groups (validated): 0
Minimally erasure-coded block groups: 0
Over-erasure-coded block groups: 0
Under-erasure-coded block groups: 0
Unsatisfactory placement block groups: 0
Average block group size: 0.0
Missing block groups: 0
Corrupt block groups: 0
Missing internal blocks: 0
FSCK ended at Sun Apr 11 16:25:47 UTC 2021 in 3 milliseconds
```

7. Меняю фактор репликации на 2, смотрю как теперь хранятся файлы. Файл разделен на 11 блоков, фактор репликации =2, первая реплика первого блока файла хранится на 10.0.0.35, вторая реплика первого блока файла хранится на 10.0.0.19.

```
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs dfs -setrep -w 2 used_cars/vehicles.csv
Replication 2 set: used_cars/vehicles.csv
Waiting for used_cars/vehicles.csv ...
WARNING: the waiting time may be long for DECREASING the number of replications.
.. done
[student3_16@bigdataanalytics2-head-shdpt-v31-1-0 ~]$ hdfs fsck used_cars/vehicles.csv -files -blocks -locations
Connecting to namenode via http://bigdataanalytics2-head-shdpt-v31-1-0.novalocal:50070/fsck?ugi=student3_16&files=16&blocks=16&locations=16&path=%2Fuser%2Fstudent3_16%2Fused_cars%2Fvehicles.csv
FSCK started by student3_16 (auth:SIMPLE) from /10.0.0.7 for path /user/student3_16/used_cars/vehicles.csv at Sun Apr 11 16:29:20 UTC 2021
/user/student3_16/used_cars/vehicles.csv 1437679401 bytes, replicated: replication=2, 11 block(s): OK
0. BP-1159087252-10.0.0.7-1616250271725:blk_1073867850_127049 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK]]
1. BP-1159087252-10.0.0.7-1616250271725:blk_1073867851_127050 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK]]
2. BP-1159087252-10.0.0.7-1616250271725:blk_1073867852_127051 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-68fc8905-126c-4cf3-b4d7-00f8aaa52df4,DISK]]
3. BP-1159087252-10.0.0.7-1616250271725:blk_1073867856_127055 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.26:50010,DS-cecc13e4-53c6-41ed-93fa-8fb2bd56be29,DISK]]
4. BP-1159087252-10.0.0.7-1616250271725:blk_1073867857_127056 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.6:50010,DS-0c5c7546-1be5-4398-8a02-351ae5508c9b,DISK]]
5. BP-1159087252-10.0.0.7-1616250271725:blk_1073867858_127057 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.6:50010,DS-0c5c7546-1be5-4398-8a02-351ae5508c9b,DISK]]
6. BP-1159087252-10.0.0.7-1616250271725:blk_1073867859_127058 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.6:50010,DS-0c5c7546-1be5-4398-8a02-351ae5508c9b,DISK]]
7. BP-1159087252-10.0.0.7-1616250271725:blk_1073867860_127059 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK], DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK]]
8. BP-1159087252-10.0.0.7-1616250271725:blk_1073867861_127060 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.19:50010,DS-431f0d4d-3c82-44c6-958f-63871829ac95,DISK], DatanodeInfoWithStorage[10.0.0.35:50010,DS-65e2f301-54d0-411b-a8f5-7502f1decbb8,DISK]]
9. BP-1159087252-10.0.0.7-1616250271725:blk_1073867862_127061 len=134217728 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.26:50010,DS-cecc13e4-53c6-41ed-93fa-8fb2bd56be29,DISK], DatanodeInfoWithStorage[10.0.0.31:50010,DS-68fc8905-126c-4cf3-b4d7-00f8aaa52df4,DISK]]
10. BP-1159087252-10.0.0.7-1616250271725:blk_1073867863_127062 len=95502121 Live_repl=2 [DatanodeInfoWithStorage[10.0.0.26:50010,DS-cecc13e4-53c6-41ed-93fa-8fb2bd56be29,DISK], DatanodeInfoWithStorage[10.0.0.6:50010,DS-0c5c7546-1be5-4398-8a02-351ae5508c9b,DISK]]

Status: HEALTHY
Number of data-nodes: 6
Number of racks: 1
Total dirs: 0
Total symlinks: 0

Replicated Blocks:
Total size: 1437679401 B
Total files: 1
Total blocks (validated): 11 (avg. block size 130698127 B)
Minimally replicated blocks: 11 (100.0 %)
Over-replicated blocks: 0 (0.0 %)
Under-replicated blocks: 0 (0.0 %)
Mis-replicated blocks: 0 (0.0 %)
Default replication factor: 2
Average block replication: 2.0
Missing blocks: 0
Corrupt blocks: 0
Missing replicas: 0 (0.0 %)

Erasure Coded Block Groups:
Total size: 0 B
Total files: 0
Total block groups (validated): 0
Minimally erasure-coded block groups: 0
Over-erasure-coded block groups: 0
Under-erasure-coded block groups: 0
Unsatisfactory placement block groups: 0
Average block group size: 0.0
Missing block groups: 0
Corrupt block groups: 0
Missing internal blocks: 0
FSCK ended at Sun Apr 11 16:29:20 UTC 2021 in 2 milliseconds
```