

Департамент образования и науки города Москвы
Государственное автономное образовательное учреждение
высшего образования города Москвы
«Московский городской педагогический университет»
Институт цифрового образования
Департамент информатики, управления и технологий

ДИСЦИПЛИНА: «Распределенные системы»

Отчет по индивидуальному заданию 1

Тема:

«Hadoop_02»

Выполнил: Григорьев П. К.
группа: ТП-191

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1. Развернуть виртуальное окружение

```
hadoop@u20-03:/home/lemp$ start-dfs.sh
Starting namenodes on [localhost]
localhost: namenode is running as process 746040. Stop it first.
pdsh@u20-03: localhost: ssh exited with exit code 1
Starting datanodes
localhost: datanode is running as process 746196. Stop it first.
pdsh@u20-03: localhost: ssh exited with exit code 1
Starting secondary namenodes [u20-03]
u20-03: secondarynamenode is running as process 746419. Stop it first.
pdsh@u20-03: u20-03: ssh exited with exit code 1
2022-11-01 09:14:47,119 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
hadoop@u20-03:/home/lemp$ start-yarn.sh
Starting resourcemanager
resourcemanager is running as process 905020. Stop it first.
Starting nodemanagers
localhost: nodemanager is running as process 905295. Stop it first.
pdsh@u20-03: localhost: ssh exited with exit code 1
```

2. Вывести с помощью команды help описание основных команды shell-клиента

```
hadoop@u20-03:/home/lemp$ hdfs dfs -help
2022-11-01 09:31:10,266 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Usage: hadoop fs [generic options]
    [-appendToFile <localsrc> ... <dst>]
    [-cat [-ignoreCrc] <src> ...]
    [-checksum <src> ...]
    [-chgrp [-R] GROUP PATH...]
    [-chmod [-R] <MODE[,MODE]... | OCTALMODE> PATH...]
    [-chown [-R] [OWNER][:[GROUP]] PATH...]
    [-copyFromLocal [-f] [-p] [-l] [-d] [-t <thread count>] <localsrc> ... <
dst>]
    [-copyToLocal [-f] [-p] [-ignoreCrc] [-crc] <src> ... <localdst>]
    [-count [-q] [-h] [-v] [-t [<storage type>]] [-u] [-x] [-e] <path> ...]
    [-cp [-f] [-p | -p[topax]] [-d] <src> ... <dst>]
    [-createSnapshot <snapshotDir> [<snapshotName>]]
    [-deleteSnapshot <snapshotDir> <snapshotName>]
    [-df [-h] [<path> ...]]
    [-du [-s] [-h] [-v] [-x] <path> ...]
    [-expunge]
```

3. Просмотреть корневую директорию HDFS

```
hadoop@u20-03:/home/lemp$ hdfs dfs -ls hdfs://localhost:9000/user
2022-11-01 09:34:10,342 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Found 1 items
drwxr-xr-x   - hadoop supergroup          0 2022-10-31 20:45 hdfs://localhost:90
00/user/hadoop
```

4. Создать в HDFS в директории /user/mgpi поддиректорию ваше_фио

```
hadoop@u20-03:~$ hadoop fs -mkdir /user
2022-11-01 09:48:47,673 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
mkdir: `/user': File exists
hadoop@u20-03:~$ hadoop fs -mkdir /user/mgpu
2022-11-01 09:48:59,265 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
hadoop@u20-03:~$ hadoop fs -mkdir /user/mgpu/grigorev
2022-11-01 09:49:05,854 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
```

5. Создать в локальной файловой системе случайный текстовый файл размером 10 Mb с именем, образованным вашими инициалами

```
hadoop@u20-03:~$ base64 /dev/urandom | head -c 10000000 > file.txt
```

6. Заархивировать созданный текстовый файл

```
hadoop@u20-03:~$ gzip -c file.txt > file.gz
```

7. Скопировать текстовый файл и архив в директорию /user/mgpu/fio HDFS виртуальной машины

```
hadoop@u20-03:~$ hadoop fs -copyFromLocal file.txt /user/mgpu/grigorev
2022-11-01 09:50:18,452 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
hadoop@u20-03:~$ hadoop fs -copyFromLocal file.gz /user/mgpu/grigorev
2022-11-01 09:50:33,640 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
```

localhost:9870/explorer.html#/user/mgpu/grigorev

Hadoop
Overview
Datanodes
Datanode Volume Failures
Snapshot
Startup Progress
Utilities ▾

Browse Directory

Go!

Show 25 entries
Search:

<input type="checkbox"/>	Permission	Owner	Group	Size	Last Modified	Replication	Block Size	Name	
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	7.25 MB	Nov 01 09:50	1	128 MB	file.gz	
<input type="checkbox"/>	-rw-r--r--	hadoop	supergroup	9.54 MB	Nov 01 09:50	1	128 MB	file.txt	

Showing 1 to 2 of 2 entries

Previous
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8. Просмотреть файл и архив с помощью утилит cat, text в комбинации с каналами и утилитами head, tail -- привести не менее 3 вариантов команд и просмотра файла

```
hadoop@u20-03:~$ hadoop fs -cat /user/mgpu/grigorev/file.txt
```

```
κRqb0wnGjw3UCeAJZ7lZjDg5fIWkMADLZq+3svd1akviw+m6f2bZDqeEo6N6618dNJa5mXhZrVMK
eSKaT/H0xmVvaVw1TC3uhsekmLxsD6jFvn5QKdvnjbwpflnYbs+jYh721o8jHekhggaUjZhtE5
4nBKpCgapGsLiVnDkkK8ijx9MSVedKTtfiCmzJePDuEflg3qnq+AYXnJQwxpizF0JvUw0LZ6dIp8
yuRoLu57GFiBmSkqva0xfYx9TjkrGC6bUea/n+ahJH+CuTcmwJB2gDUko53SDJMLws/yaQqhm/bw
lNv6ffzqf0U68KIHe0cFLncNchaFIq6nzoVKGf9puu2Qrg1JvV65VklV2zooHLnLMS3Ziu2dqPBC
VnKExZ0vBoKNKGxYXUPHaLtGhwZjJcYIAeK3PgH5SR0nDyWr2tiTEPPNVPF3ugV/fMwHYmL4aklb
SlKNsd8CPMtLC29MhLrEVodHuthQBql9ja0ldeFkmTCm3CGosF0VbbseDjDaSVn0+y8eX7eDhNCG
κ18FvSVbHxrbddG/KgyNEgKpeUj4A5xYAtdc1mr/johcde8roF0qLK5iXemyMEL1Dxgk9hpCM6Sv
VTbfW7Up/Tkoh5wjScfEXVRh3m+Grw2fhX27gB02nTVRa5qzKpnMCyl10eNpn5FkVze7CI8bMNN7
Dr6jVULBR7ptyehjSjWhcW+pCbGVxcekLkg18kKL8qTfIZt+ANxhGhdXs49F1lvrZdzexbTyjUSX
oRAwGS+j4nc+STjn2inYGX2bliwow9hiP2znN/XJsscdagyPxlrjNeRTqd/ehGHwRnuFlGkKDHb
Qyq/pmRDIo4HirLDapmgPIacRLxy6Gw1akYNspZ5fRLsp0mdVDva39/Td+yEyfUVw1HjBFe0YI+H
/ZcM5ho8gvwaCKm5nA0LjvEng+JqgbWWv8wiGcmNLAj9q0bLHoXFWjD3LScZ40igyLdea0ziWX5p
/rv5m/TeqVQ48S61l9vY/yf+PeKlnVPJmMamHGtrSCaF82y8Hca4ntxzfh61uieMD80I3Z1mgj3
3+lbXyqq3zHt8CNEtcYCYXvPpJvg3mkLdPrGcrAZEELtvInW68m0ZW9VHli+9QpKwxbAnsQbnL/
EkqEr/dTlur+QKRdvlDgk2Iw9Qp/Dx2kSlToCsFYCURqaDUv6UNeF/wfEoXRGyWTBp/coARYm5Jb
X3+bIBm0wzR0n8P1R/P4aXkEMb9Du8HRdFSXPvz2dttd0K8Z1JJonBXzXWEE3dtT2WesYfwrX3f
<k1XpEgNesHF76fr1NgkoK2wEmV3sWoX+30ZxljvzFD+Iy02KjJWo4IFuJiW8w3rANRLxHLZ3z80
rEGAnA1/PCAnSKg9rhBntLVLnag1GEF7Y+tk1o2SaagMu1Dnuy7nTkHfAbTufEayk9m10E171o1o
```

```
hadoop@u20-03:~$ hadoop fs -text /user/mgpu/grigorev/file.txt
```

```
xRqb0wnGjw3UCeAJZ7lZjDg5fIWkMADLZq+3svd1akviw+m6f2bZDqeEo6N6618dNJa5mXhZrVMK
eSKaT/H0xmVvaVw1TC3uhsekmLxsD6jFvn5QKdvnjbwpflnYbs+jYh721o8jHekhggaUjZhtE5
4nBKpCgapGsLiVnDkkK8ijx9MSVedKTtfiCmzJePDuEflg3qnq+AYXnJQwxpizF0JvUw0LZ6dIp8
yuRoLu57GFiBmSkqva0xfYx9TjkrGC6bUea/n+ahJH+CuTcmwJB2gDUko53SDJMLws/yaQqhm/bw
lNv6ffzqf0U68KIHe0cFLncNchaFIq6nzoVKGf9puu2Qrg1JvV65VklV2zooHLnLMS3Ziu2dqPBC
NnKExZ0vBoKNKGxYXUPHaLtGhwZjJcYIAeK3PgH5SR0nDyWr2tiTEPPNVPF3ugV/fMwHYmL4aklb
SlKNsd8CPMtLC29MhLrEVodHuthQBql9ja0ldeFkmTCm3CGosF0VbbseDjDaSVn0+y8eX7eDhNCG
x18FvSVbHxrbddG/KgyNEgKpeUj4A5xYAtdc1mr/johcde8roF0qLK5iXemyMEL1Dxgk9hpCM6Sv
NTbfW7Up/Tkoh5wjScfEXVRh3m+Grw2fhX27gB02nTVRa5qzKpnMCyl10eNpn5FkVze7CI8bMNN7
Dr6jVULBR7ptyehjSjWhcW+pCbGVxcekLkg18kKL8qTfIZt+ANxhGhdXs49F1lvrZdzexbTyjUSX
oRAwGS+j4nc+STjn2inYGX2bliwow9hiP2znN/XJsscdagyPxlrjNeRTqd/ehGHwRnuFlGkKDHb
Qyq/pmRDIo4HirLDapmgPIacRLxy6Gw1akYNspZ5fRLsp0mdVDva39/Td+yEyfUVw1HjBFe0YI+H
```

```
Wmq6k0H+9fhadoop@u20-03:~$ hadoop fs -tail /user/mgpu/grigorev/file.txt
2022-11-01 09:57:59,456 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
8RZWxYLg0n5c
9Pqgzd9L176naN5CRIMot7vm+a+grr9khsQUHCDSMdysjgyc8YL1sXttvme0gnLy8BYPPD7LVmwW
VMGEjEkd40jrY6+xzIGoX4bQgy8PuxNa8NVgRo8+iEmP+QA4vxjsFoHlJqDt0QGVQMwEsEe73aq8
FTHyqX/YVYStQtdvYspEMsvdVMUkzUDGnAXrV4Gp5IQAoSHmYPTAoyo7Bak7baEGfBCLFVe3XasG
0K4TmFLjUGErCg/8HpLlXIHczVuQTTkqNT35R7hUct4nXaZTx37Rleo8qaGeA0MrfVSzGJxazg83
MsldXLQ3J8e/nfCcJM/r02Iy0f9A5QZQB1+aWF0p5okLZ7FUccxakLUayLWEz+FGqfii6aXunXao
yc+t46wXM5pJKvx04TinIzEvL9E83s0wWkaq4Thni8DguE5JZV5LmX/2FyIweHT08cR6+QfR73s7
oelSkqipwFxFkL52R4FkpoBXwnmhPfbXxa59thuHBIDTMapq4UloXnh19wyUiG0b7yhdvUY2Jge+6
jHaFGbQlslGTq1XkQL49VcT5B0Y12+CFdKtsxtxfM0JV+0jllxp/LTeetJK8McuavU3TH6uxeTqj
syvhpGWGKbJCJQ5uxyCpgYZITZGIBo4/elZNBxJH55dGVu89n7yvMHm8fnPschiv7vugGBWrr6ne
xktifaHGXdX1gEJQf3gbTglQ+Av7aFbcfwK5oyX+kcCDKjBg2a99kmHraIbG0rarF8F7s1116jfp
2V54cfzx3GnR5R8H9hVPW0FcWil/l6P+bHSy68veX0A3LKwAKRqGbHGwS74zHooQCLodM9Y+QMTA
sNb3dGshgdASGSptHLklxX8icId3za00Cu7ynFWGuq7JJWrScj4VLcFaAynB0/Ejp3BBj0Cftz/a
0h8Az0jy8GVM2LhtKpsGnKWMrRRF4N9/f09bRS0eHlEopIzXnhwQlix0DRBfeHzXs3djtcUF0TQR
```



```
hadoop@u20-03:~$ hadoop fs -head /user/mgpu/grigorev/file.txt
2022-11-01 09:58:33,460 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
86y5wi9/QkPeTUiKwzcGHCFkhbA5BAA7+GzE6LNpxUAKKwOzfWBVGReZjVRWmW4Pk/McXEpVW0b1
GF/qj0f1rIcS64nipy4cs12RrCQbxdCSmZ8K0WPDsRVE94uxrsbLVXIafnaG3ahJyT8WAT1bWhiP
h8l9Anmtou/j9lY9LBAL0sd0ESqihGSYwUesb0LjmiltT9Vu067HHAzFCmEJQ7A1LVoJkgwjevGi
M6gYVDsAxP3R1oqRIjaj/w4zrtva9nyniW2kRLWQf6nQhFRBoFKnu0laJaLDPatJEXEb0qtzBdpz
vUNQKqZcbFLVFE0y0snBMr9btVQqy/cQo56jra6EMM+9s4QgKbAmmzonW32JVNxeXErqwxxyghKMM
rrkLe7ez6z4+e3MIXhICtc82IFfl304S21KLvoFTIcc+WlpKVNfqnjY2jJM5qT84rCCnKwggp1oU
1WRJkYIqNQ7WDwmyDM0287pVHmj7vtk2XQ49X4qEZYRy5Vn5fNC2hBqYKl/1v7v0iDq6eyssjGOF
xTEPeG5m3l8fZ+1x55idAkYxeq0SNkbIGfgXilpeiBJrdmiJt9e9CQnZr6vDQz0a4mr8TXkMQdNy
re3KjBC7MTMrTGPxSeER3PkU0mTxdzyANmMCzqZVU39touQN/0xb6mUaeaev/zdkdyiTg2cd/NZI
/bxIqnnG1BDcXathwB32GEI4gzggPpQ2fB2xdfr9GRmUTiltSk6u/zC6FsFN8Io8ZjbWN90EwoOp
GH0dbNB/yrt1IqsBb00oyd2QD1xaxdaykzpLwXvcnYp5DK4Rw5ALUEuSJFVdypvFXdhWkYb/9ueZ
KrCg0klgk6sQ9VWYt3oQ++dPHSW98RLYi3CrSdTWZvc8VWYuoRNBMOk7bVLzeJ0gElq0m43DJ5XL
DLS/OVKGKDPFB0c9eU8Yj7Y7DjR98yrl2lsAvpi5LMW4E0QwfMWiKNBDRL0Axi0E91QcnPzpgsoD
6NeS1eFNbrK8GUUZ/uQ8l6zhadoop@u20-03:~$
```

9. Создать копию файла file.txt вида date_file.txt, где в начале имени файла-копии указана текущая дата. Вывести листинг

```
hadoop@u20-03:~$ cp file.txt `date +%d%m%Y`_file.txt
hadoop@u20-03:~$ LS
LS: команда не найдена
hadoop@u20-03:~$ ls
01112022_file.txt      file.gz                pin_o.csv
CaP_out.csv            file.txt               pin_out.csv
'date +%d%b%Y_file.txt' hadoop                 pin__Output.csv
'date +%d%m%y_file.txt' hadoop-3.1.2.tar.gz    pin_Output.csv
'date +%d%m%Y_file.txt' hadoopdata
ds_practice            pds-practice
```

10. Вывести статистику по директории /user/mgpu/fio виртуальной машины

```
hadoop@u20-03:~$ hdfs dfs -df /user/mgpu/grigorev
2022-11-01 10:20:10,723 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
Filesystem              Size         Used    Available  Use%
hdfs://localhost:9000  78143852544  21528576  42765811712    0%

hadoop@u20-03:~$ hdfs dfs -du /user/mgpu/grigorev
2022-11-01 10:20:28,518 WARN util.NativeCodeLoader: Unable to load native-hadoop
library for your platform... using builtin-java classes where applicable
7599490    7599490    /user/mgpu/grigorev/file.gz
100000000  100000000  /user/mgpu/grigorev/file.txt
```