

2. Опробовать консольные утилиты для работы с кластером

3. Создаем копируем и удаляем папку

```
student4_10@manager~  
Using username "student4_10".  
Authenticating with public key "imported-openssh-key" from agent  
Last login: Mon May 25 18:03:49 2020 from 2.92.115.137  
[student4_10@manager ~]$  
[student4_10@manager ~]$ whoami  
student4_10  
[student4_10@manager ~]$  
[student4_10@manager ~]$ hdfs dfs -mkdir /student4_10  
[student4_10@manager ~]$ -ls  
-bash: -ls: command not found  
[student4_10@manager ~]$ hdfs dfs -ls/  
-ls/: Unknown command  
[student4_10@manager ~]$ hdfs dfs -ls /  
Found 61 items  
drwxr-xr-x - student4_3 supergroup 0 2020-05-23 09:32 /0000  
drwxr-xr-x - student4_2 supergroup 0 2020-05-23 17:10 /1234  
drwxrwxrwx - student3_2 supergroup 0 2020-05-14 18:35 /ALI_folder  
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:10 /BD  
drwxrwxrwx - dekan supergroup 0 2020-05-14 18:48 /NetCat  
drwxr-xr-x+ - centos supergroup 0 2019-11-25 15:33 /acldir  
drwxr-xr-x - student3_5 supergroup 0 2020-05-25 19:08 /andrey  
drwxrwxrwx - student3_16 supergroup 0 2020-04-08 06:13 /border  
drwxrwxrwx - hdfs supergroup 0 2019-12-03 11:19 /data  
drwxr-xr-x - student3_3 supergroup 0 2020-04-02 08:53 /example  
drwxr-xr-x - flume flume 0 2020-05-06 22:09 /flume  
drwxr-xr-x - student4_3 supergroup 0 2020-05-23 14:19 /folder0  
drwxr-xr-x - student4_3 supergroup 0 2020-05-23 09:44 /folder0hdfs  
drwxr-xr-x - student3_6 supergroup 0 2020-03-24 17:34 /folder_for_new  
drwxr-xr-x - hbase hbase 0 2020-05-21 12:23 /hbase  
drwxrwxrwx - student3_10 supergroup 0 2020-05-23 10:16 /home  
drwxr-xr-x - student3_14 supergroup 0 2020-04-01 22:14 /hw1_3_14  
drwxr-xr-x - student4_5 supergroup 0 2020-05-25 19:26 /lipin_a_s  
drwxr-xr-x - student3_5 supergroup 0 2020-05-23 15:33 /lipin_a_s2  
drwxr-xr-x - student4_5 supergroup 0 2020-05-25 19:25 /lipin_a_s2folder  
_1  
drwxr-xr-x - hdfs supergroup 0 2020-02-04 18:12 /newfolder  
drwxr-xr-x - student3_9 supergroup 0 2020-03-23 14:34 /olha  
drwxrwxrwx - hdfs supergroup 0 2020-05-14 21:30 /opt  
drwxr-xr-x - student3_10 supergroup 0 2020-03-16 07:46 /rozhkov_test
```

```
[student4_10@manager ~]$ hdfs dfs -mkdir /student4_10
```

Проверим

```
student4_10@manager~  
drwxr-xr-x - student3_5 supergroup 0 2020-05-23 15:33 /lipin_a_s2  
drwxr-xr-x - student4_5 supergroup 0 2020-05-25 19:25 /lipin_a_s2folder_1  
drwxr-xr-x - hdfs supergroup 0 2020-02-04 18:12 /newfolder  
drwxr-xr-x - student3_9 supergroup 0 2020-03-23 14:34 /olha  
drwxrwxrwx - hdfs supergroup 0 2020-05-14 21:30 /opt  
drwxr-xr-x - student3_10 supergroup 0 2020-03-16 07:46 /rozhkov test  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:48 /student4_10  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 15:48 /student3_1  
drwxr-xr-x - student3_11 supergroup 0 2020-03-21 11:30 /student3_11  
-rw-r--r-- 3 student3_13 supergroup 9168 2020-04-09 14:25 /student3_13  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:31 /student3_1_test  
-rwxrwxrwx 3 student3_2 supergroup 3820 2020-04-12 15:31 /student3_2  
drwxrwxrwx - student3_2 supergroup 0 2020-04-13 01:51 /student3_2_copy  
drwxr-xr-x - student3_3 supergroup 0 2020-03-25 09:00 /student3_3  
drwxr-xr-x - student3_6 supergroup 0 2020-04-23 00:47 /student3_6  
drwxr-xr-x - student4_6 supergroup 0 2020-05-23 08:33 /student4_6  
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 13:39 /students3_2_copy  
drwxrwxrwx - hdfs supergroup 0 2020-05-13 19:54 /system  
drwxrwxrwx - student4_1 student4_1 0 2020-05-25 18:02 /taisii_dir  
drwxr-xr-x - student3_9 supergroup 0 2020-03-16 06:03 /test  
drwxr-xr-x - student3_5 supergroup 0 2020-03-30 10:15 /test1_mmingalov  
drwxr-xr-x - student3_5 supergroup 0 2020-03-15 05:50 /test2_mmingalov  
drwxr-xr-x - hdfs supergroup 0 2020-03-12 18:05 /test3  
drwxr-xr-x - student3_16 supergroup 0 2020-03-29 06:03 /test33  
drwxr-xr-x - student3_13 supergroup 0 2020-03-19 13:24 /test3_13  
drwxr-xr-x - student3_12 supergroup 0 2020-03-19 07:34 /testHW1  
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:24 /test_MyFolder  
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:22 /test_MyFolderhdfs  
drwxr-xr-x - hdfs supergroup 0 2020-02-29 19:59 /test_datasets  
drwxr-xr-x - hdfs supergroup 0 2020-05-19 18:31 /test_folder  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:19 /test_folder1  
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:08 /test_folder1-ls  
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:07 /test_folder1-mm  
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 16:09 /test_folder2  
drwxr-xr-x - student4_9 supergroup 0 2020-05-25 11:43 /test_folder_student4_9  
drwxr-xr-x - student3_8 supergroup 0 2020-03-21 12:55 /test_for_3_8  
drwxr-xr-x - student3_10 supergroup 0 2020-04-14 09:52 /test_rozhkov  
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 11:47 /test_genashev  
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 10:32 /test_genashev1  
drwxrwxrwx - hdfs supergroup 0 2020-05-24 09:26 /tmp  
drwxr-xr-x - hdfs supergroup 0 2020-03-26 18:19 /ufctable  
drwxrwxrwx - dekan supergroup 0 2020-03-27 00:51 /ufctable_partitioned  
drwxr-xr-x - hdfs supergroup 0 2020-05-23 20:34 /user  
[student4_10@manager ~]$
```

```
[student4_10@manager ~]$ hdfs dfs -ls /
```

Создадим еще одну папку в имеющейся

```
student4_10@manager:~$ hdfs dfs -ls /student4_10/child_folder/finish
drwxr-xr-x - student3_10 supergroup 0 2020-03-16 07:46 /rozhkov test
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:48 /student4_10
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 15:48 /student3_1
drwxr-xr-x - student3_11 supergroup 0 2020-03-21 11:30 /student3_11
-rw-r--r-- 3 student3_13 supergroup 9168 2020-04-09 14:25 /student3_13
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:31 /student3_1_test
-rwxrwxrwx 3 student3_2 supergroup 3820 2020-04-12 15:31 /student3_2
drwxrwxrwx - student3_2 supergroup 0 2020-04-13 01:51 /student3_2_copy
drwxr-xr-x - student3_3 supergroup 0 2020-03-25 09:00 /student3_3
drwxr-xr-x - student3_6 supergroup 0 2020-04-23 00:47 /student3_6
drwxr-xr-x - student4_6 supergroup 0 2020-05-23 08:33 /student4_6
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 13:39 /students3_2_copy
drwxrwxrwx - hdfs supergroup 0 2020-05-13 19:54 /system
drwxrwxrwx - student4_1 student4_1 0 2020-05-25 18:02 /taisiiia_dir
drwxr-xr-x - student3_9 supergroup 0 2020-03-16 06:03 /test
drwxr-xr-x - student3_5 supergroup 0 2020-03-30 10:15 /test1_mmingalov
drwxr-xr-x - student3_5 supergroup 0 2020-03-15 05:50 /test2_mmingalov
drwxr-xr-x - hdfs supergroup 0 2020-03-12 18:05 /test3
drwxr-xr-x - student3_16 supergroup 0 2020-03-29 06:03 /test33
drwxr-xr-x - student3_13 supergroup 0 2020-03-19 13:24 /test3_13
drwxr-xr-x - student3_12 supergroup 0 2020-03-19 07:34 /testHW1
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:24 /test_MyFolder
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:22 /test_MyFolderhdfs
drwxr-xr-x - hdfs supergroup 0 2020-02-29 19:59 /test_datasets
drwxr-xr-x - hdfs supergroup 0 2020-05-19 18:31 /test_folder
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:19 /test_folder1
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:08 /test_folder1-ls
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:07 /test_folder1-mw
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 16:09 /test_folder2
drwxr-xr-x - student4_9 supergroup 0 2020-05-25 11:43 /test_folder_student4_9
drwxr-xr-x - student3_8 supergroup 0 2020-03-21 12:55 /test_for_3_8
drwxr-xr-x - student3_10 supergroup 0 2020-04-14 09:52 /test_rozhkov
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 11:47 /test_senashev
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 10:32 /test_senashev1
drwxrwxrwx - hdfs supergroup 0 2020-05-24 09:26 /tmp
drwxr-xr-x - hdfs supergroup 0 2020-03-26 18:19 /ufctable
drwxrwxrwx - dekan supergroup 0 2020-03-27 00:51 /ufctable_partitioned
drwxr-xr-x - hdfs supergroup 0 2020-05-23 20:34 /user
[student4_10@manager ~]$ hdfs dfs -mkdir -p /student4_10/child_folder/finish
mkdir: Illegal option -p /student4_10/child_folder/finish
Usage: hadoop fs [generic options] -mkdir [-p] <path> ...
[student4_10@manager ~]$ hdfs dfs -mkdir -p /student4_10/child_folder/finish
[student4_10@manager ~]$
```

Hdfs dfs -mkdir -p /student4_10/child_folder/finish

```
student4_10@manager:~$ hdfs dfs -ls /student4_10/child_folder
drwxr-xr-x - student3_9 supergroup 0 2020-03-23 14:34 /olha
drwxrwxrwx - hdfs supergroup 0 2020-05-14 21:30 /opt
drwxr-xr-x - student3_10 supergroup 0 2020-03-16 07:46 /rozhkov test
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 15:48 /student3_1
drwxr-xr-x - student3_11 supergroup 0 2020-03-21 11:30 /student3_11
-rw-r--r-- 3 student3_13 supergroup 9168 2020-04-09 14:25 /student3_13
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:31 /student3_1_test
-rwxrwxrwx 3 student3_2 supergroup 3820 2020-04-12 15:31 /student3_2
drwxrwxrwx - student3_2 supergroup 0 2020-04-13 01:51 /student3_2_copy
drwxr-xr-x - student3_3 supergroup 0 2020-03-25 09:00 /student3_3
drwxr-xr-x - student3_6 supergroup 0 2020-04-23 00:47 /student3_6
drwxr-xr-x - student4_6 supergroup 0 2020-05-23 08:33 /student4_6
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 13:39 /students3_2_copy
drwxrwxrwx - hdfs supergroup 0 2020-05-13 19:54 /system
drwxrwxrwx - student4_1 student4_1 0 2020-05-25 18:02 /taisiiia_dir
drwxr-xr-x - student3_9 supergroup 0 2020-03-16 06:03 /test
drwxr-xr-x - student3_5 supergroup 0 2020-03-30 10:15 /test1_mmingalov
drwxr-xr-x - student3_5 supergroup 0 2020-03-15 05:50 /test2_mmingalov
drwxr-xr-x - hdfs supergroup 0 2020-03-12 18:05 /test3
drwxr-xr-x - student3_16 supergroup 0 2020-03-29 06:03 /test33
drwxr-xr-x - student3_13 supergroup 0 2020-03-19 13:24 /test3_13
drwxr-xr-x - student3_12 supergroup 0 2020-03-19 07:34 /testHW1
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:24 /test_MyFolder
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:22 /test_MyFolderhdfs
drwxr-xr-x - hdfs supergroup 0 2020-02-29 19:59 /test_datasets
drwxr-xr-x - hdfs supergroup 0 2020-05-19 18:31 /test_folder
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:19 /test_folder1
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:08 /test_folder1-ls
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:07 /test_folder1-mw
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 16:09 /test_folder2
drwxr-xr-x - student4_9 supergroup 0 2020-05-25 11:43 /test_folder_student4_9
drwxr-xr-x - student3_8 supergroup 0 2020-03-21 12:55 /test_for_3_8
drwxr-xr-x - student3_10 supergroup 0 2020-04-14 09:52 /test_rozhkov
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 11:47 /test_senashev
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 10:32 /test_senashev1
drwxrwxrwx - hdfs supergroup 0 2020-05-24 09:26 /tmp
drwxr-xr-x - hdfs supergroup 0 2020-03-26 18:19 /ufctable
drwxrwxrwx - dekan supergroup 0 2020-03-27 00:51 /ufctable_partitioned
drwxr-xr-x - hdfs supergroup 0 2020-05-23 20:34 /user
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/child_folder
found 1 items
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10/child_folder/finish
[student4_10@manager ~]$
```

Hdfs dfs -ls /student4_10/child_folder

Исправим ошибку с именем, поменяем имя student4_10 на student4_10

```
student4_10@manager~  
drwxr-xr-x - student4_5 supergroup 0 2020-05-25 19:25 /lipin_a2folder_1  
drwxr-xr-x - hdfs supergroup 0 2020-02-04 18:12 /newfolder  
drwxr-xr-x - student3_9 supergroup 0 2020-03-23 14:34 /olha  
drwxrwxrwx - hdfs supergroup 0 2020-05-14 21:30 /opt  
drwxr-xr-x - student3_10 supergroup 0 2020-03-16 07:46 /rozhkov_test  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 15:48 /student3_1  
drwxr-xr-x - student3_11 supergroup 0 2020-03-21 11:30 /student3_11  
-rw-r--r-- 3 student3_13 supergroup 9168 2020-04-09 14:25 /student3_13  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:31 /student3_1_test  
-rwxrwxrwx 3 student3_2 supergroup 3820 2020-04-12 15:31 /student3_2  
drwxrwxrwx - student3_2 supergroup 0 2020-04-13 01:51 /student3_2_copy  
drwxr-xr-x - student3_3 supergroup 0 2020-03-25 09:00 /student3_3  
drwxr-xr-x - student3_6 supergroup 0 2020-04-23 00:47 /student3_6  
drwxr-xr-x - student4_6 supergroup 0 2020-05-23 08:33 /student4_6  
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 13:39 /students3_2_copy  
drwxrwxrwx - hdfs supergroup 0 2020-05-13 19:54 /system  
drwxrwxrwx - student4_1 student4_1 0 2020-05-25 18:02 /taisia_dir  
drwxr-xr-x - student3_9 supergroup 0 2020-03-16 06:03 /test  
drwxr-xr-x - student3_5 supergroup 0 2020-03-30 10:15 /test1_mmingalov  
drwxr-xr-x - student3_5 supergroup 0 2020-03-15 05:50 /test2_mmingalov  
drwxr-xr-x - hdfs supergroup 0 2020-03-12 18:05 /test3  
drwxr-xr-x - student3_16 supergroup 0 2020-03-29 06:03 /test33  
drwxr-xr-x - student3_13 supergroup 0 2020-03-19 13:24 /test3_13  
drwxr-xr-x - student3_12 supergroup 0 2020-03-19 07:34 /testHW1  
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:24 /test_MyFolder  
drwxr-xr-x - hdfs supergroup 0 2020-03-22 07:22 /test_MyFolderhdfs  
drwxr-xr-x - hdfs supergroup 0 2020-02-29 19:59 /test_datasets  
drwxr-xr-x - hdfs supergroup 0 2020-05-19 18:31 /test_folder  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:19 /test_folder1  
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:08 /test_folder1-ls  
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:07 /test_folder1-mm  
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 16:09 /test_folder2  
drwxr-xr-x - student4_9 supergroup 0 2020-05-25 11:43 /test_folder_student4_9  
drwxr-xr-x - student3_8 supergroup 0 2020-03-21 12:55 /test_for_3_8  
drwxr-xr-x - student3_10 supergroup 0 2020-04-14 09:52 /test_rozhkov  
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 11:47 /test_senashev  
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 10:32 /test_senashev1  
drwxrwxrwx - hdfs supergroup 0 2020-05-24 09:26 /tmp  
drwxr-xr-x - hdfs supergroup 0 2020-03-26 18:19 /ufetable  
drwxrwxrwx - dekan supergroup 0 2020-03-27 00:51 /ufetable_partitioned  
drwxr-xr-x - hdfs supergroup 0 2020-05-23 20:34 /user  
[student4_10@manager ~]$ hdfs dfs -mv /student4_10 /student4_10  
[student4_10@manager ~]$
```

hdfs dfs -mv /student4_10 /student4_10

Удаляем папку child_folder

```
student4_10@manager~  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10  
^[[AFound 3 items  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 21:52 /student4_10/Malik Moroz  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10/child_folder  
-rw-r--r-- 6 student4_10 supergroup 0 2020-05-25 20:47 /student4_10/myfile.txt  
[student4_10@manager ~]$ hdfs dfs -rm -r /student4_10/child_folder/  
20/05/26 10:44:05 INFO fs.TrashPolicyDefault: Moved: 'hdfs://manager.novalocal:8020/student4_10/child_folder' to trash at: hdfs://manager.novalocal:8020/user/student4_10/.Trash/Current/student4_10/child_folder  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10  
Found 2 items  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 21:52 /student4_10/Malik Moroz  
-rw-r--r-- 6 student4_10 supergroup 0 2020-05-25 20:47 /student4_10/myfile.txt  
[student4_10@manager ~]$
```

Hdfs dfs -rm -r /student4_10/child_folder/

Положите в HDFS любой файл

Создам пустой файл

```
student4_10@manager~  
[student4_10@manager ~]$ hdfs dfs -touchz /student4_10/myfile.txt  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10  
Found 3 items  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:48 /student4_10/Malik Moroz  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10/child_folder  
-rw-r--r-- 3 student4_10 supergroup 0 2020-05-25 20:47 /student4_10/myfile.txt  
[student4_10@manager ~]$
```

Hdfs dfs -touchz /student4_10/myfile.txt

Переносим myfile.txt в ACLDIR/ETC

```
student4_10@manager~  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:40 /acldir/etc/libn1  
-rw-r--r-- 3 centos supergroup 2391 2019-11-25 15:40 /acldir/etc/libuser.conf  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:40 /acldir/etc/llama  
-rw-r--r-- 3 centos supergroup 38 2019-11-25 15:40 /acldir/etc/locale.conf  
-rw-r--r-- 3 centos supergroup 118 2019-11-25 15:40 /acldir/etc/localtime  
-rw-r--r-- 3 centos supergroup 2028 2019-11-25 15:40 /acldir/etc/login.defs  
-rw-r--r-- 3 centos supergroup 662 2019-11-25 15:40 /acldir/etc/logrotate.conf  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:40 /acldir/etc/logrotate.d  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:40 /acldir/etc/lsb-release.d  
-rw-r--r-- 3 centos supergroup 33 2019-11-25 15:40 /acldir/etc/machine-id  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:40 /acldir/etc/magic  
-rw-r--r-- 3 centos supergroup 1968 2019-11-25 15:41 /acldir/etc/mail.rc  
drwxr-xr-x - centos supergroup 272 2019-11-25 15:41 /acldir/etc/mailcap  
-rw-r--r-- 3 centos supergroup 5122 2019-11-25 15:41 /acldir/etc/makedumpfile.conf.sample  
drwxr-xr-x - centos supergroup 5171 2019-11-25 15:41 /acldir/etc/man_db.conf  
-rw-r--r-- 3 centos supergroup 51787 2019-11-25 15:41 /acldir/etc/mime.types  
-rw-r--r-- 3 centos supergroup 936 2019-11-25 15:41 /acldir/etc/mke2fs.conf  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/modprobe.d  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/modules-load.d  
-rw-r--r-- 3 centos supergroup 0 2019-11-25 15:41 /acldir/etc/motd  
-rw-r--r-- 3 centos supergroup 570 2019-11-25 15:41 /acldir/etc/my.cnf  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/my.cnf.d  
-rw-r--r-- 3 centos supergroup 767 2019-11-25 15:41 /acldir/etc/netconfig  
-rw-r--r-- 3 centos supergroup 58 2019-11-25 15:41 /acldir/etc/networks  
-rw-r--r-- 3 centos supergroup 955 2019-11-25 15:41 /acldir/etc/nfs.conf  
-rw-r--r-- 3 centos supergroup 3390 2019-11-25 15:41 /acldir/etc/nfsmount.conf  
-rw-r--r-- 3 centos supergroup 1746 2019-11-25 15:41 /acldir/etc/nsswitch.conf  
-rw-r--r-- 3 centos supergroup 1735 2019-11-25 15:41 /acldir/etc/nsswitch.conf.bak  
-rw-r--r-- 3 centos supergroup 1938 2019-11-25 15:41 /acldir/etc/nsswitch.conf.rpmnew  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/openldap  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/opt  
-rw-r--r-- 3 centos supergroup 393 2019-11-25 15:41 /acldir/etc/os-release  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/pam.d  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10  
Found 3 items  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:48 /student4_10/Malik Moroz  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10/child_folder  
-rw-r--r-- 3 student4_10 supergroup 0 2020-05-25 20:47 /student4_10/myfile.txt  
[student4_10@manager ~]$ hdfs dfs -copyToLocal /student4_10/myfile.txt /acldir/etc/myfile.txt  
copyToLocal: '/acldir/etc/myfile.txt': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyToLocal /student4_10/myfile.txt /etc/myfile.txt  
copyToLocal: /etc/myfile.txt: _COPYING_ (Permission denied)  
[student4_10@manager ~]$
```

Хотел скопировать но как я понял у меня нет на это прав

Hdfs dfs -copyToLocal /student4_10/myfile.txt /etc/myfile.txt

5.Скопировать/удалить файл

```
student4_10@manager~  
-rw-r--r-- 3 centos supergroup 111 2019-11-25 15:40 /acldir/etc/magic  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:40 /acldir/etc/mahout  
-rw-r--r-- 3 centos supergroup 1968 2019-11-25 15:41 /acldir/etc/mail.rc  
-rw-r--r-- 3 centos supergroup 272 2019-11-25 15:41 /acldir/etc/mailcap  
-rw-r--r-- 3 centos supergroup 5122 2019-11-25 15:41 /acldir/etc/makedumpfile.conf.sample  
-rw-r--r-- 3 centos supergroup 5171 2019-11-25 15:41 /acldir/etc/man_db.conf  
-rw-r--r-- 3 centos supergroup 51787 2019-11-25 15:41 /acldir/etc/mime.types  
-rw-r--r-- 3 centos supergroup 936 2019-11-25 15:41 /acldir/etc/mke2fs.conf  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/modprobe.d  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/modules-load.d  
-rw-r--r-- 3 centos supergroup 0 2019-11-25 15:41 /acldir/etc/motd  
-rw-r--r-- 3 centos supergroup 570 2019-11-25 15:41 /acldir/etc/my.cnf  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/my.cnf.d  
-rw-r--r-- 3 centos supergroup 767 2019-11-25 15:41 /acldir/etc/netconfig  
-rw-r--r-- 3 centos supergroup 58 2019-11-25 15:41 /acldir/etc/networks  
-rw-r--r-- 3 centos supergroup 955 2019-11-25 15:41 /acldir/etc/nfs.conf  
-rw-r--r-- 3 centos supergroup 3390 2019-11-25 15:41 /acldir/etc/nfsmount.conf  
-rw-r--r-- 3 centos supergroup 1746 2019-11-25 15:41 /acldir/etc/nsswitch.conf  
-rw-r--r-- 3 centos supergroup 1735 2019-11-25 15:41 /acldir/etc/nsswitch.conf.bak  
-rw-r--r-- 3 centos supergroup 1938 2019-11-25 15:41 /acldir/etc/nsswitch.conf.rpmnew  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/openssl  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/opt  
-rw-r--r-- 3 centos supergroup 393 2019-11-25 15:41 /acldir/etc/os-release  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/pam.d  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10  
Found 3 items  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:48 /student4_10/Malik_Moroz  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10/child_folder  
-rw-r--r-- 3 student4_10 supergroup 0 2020-05-25 20:47 /student4_10/myfile.txt  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10/Malik_Moroz/my.cnf  
copyFromLocal: '/student4_10-Malik_Moroz/my.cnf': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyToLocal /student4_10/myfile.txt /etc/  
copyToLocal: /etc/myfile.txt: COPIING (Permission denied)  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10-Malik_Moroz/  
copyFromLocal: '/student4_10-Malik_Moroz/': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10/Malik_Moroz/  
copyFromLocal: '/student4_10-Malik_Moroz/': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10/Malik_Moroz/  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Error: Could not find or load main class dfhs  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Found 1 items  
-rw-r--r-- 3 student4_10 supergroup 570 2020-05-25 21:11 /student4_10/Malik_Moroz/my.cnf  
[student4_10@manager ~]$
```

Скопировал готовый файл с etc а также проверил
Hdfs dfs -copyFromLocal /etc/my.cnf /student4_10/Malik_Moroz

Question почему когда пишу полный путь с acldir не работает
- Hdfs dfs -copyFromLocal /acldir/etc/my.cnf /student4_10/Malik_Moroz
А вот без acldir работает

Скопировал файл

```
student4_10@manager~  
-rw-r--r-- 3 centos supergroup 936 2019-11-25 15:41 /acldir/etc/mke2fs.conf  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/modprobe.d  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/modules-load.d  
-rw-r--r-- 3 centos supergroup 0 2019-11-25 15:41 /acldir/etc/motd  
-rw-r--r-- 3 centos supergroup 570 2019-11-25 15:41 /acldir/etc/my.cnf  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/my.cnf.d  
-rw-r--r-- 3 centos supergroup 767 2019-11-25 15:41 /acldir/etc/netconfig  
-rw-r--r-- 3 centos supergroup 58 2019-11-25 15:41 /acldir/etc/networks  
-rw-r--r-- 3 centos supergroup 955 2019-11-25 15:41 /acldir/etc/nfs.conf  
-rw-r--r-- 3 centos supergroup 3390 2019-11-25 15:41 /acldir/etc/nfsmount.conf  
-rw-r--r-- 3 centos supergroup 1746 2019-11-25 15:41 /acldir/etc/nsswitch.conf  
-rw-r--r-- 3 centos supergroup 1735 2019-11-25 15:41 /acldir/etc/nsswitch.conf.bak  
-rw-r--r-- 3 centos supergroup 1938 2019-11-25 15:41 /acldir/etc/nsswitch.conf.rpmnew  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/openssl  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/opt  
-rw-r--r-- 3 centos supergroup 393 2019-11-25 15:41 /acldir/etc/os-release  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/pam.d  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10  
Found 3 items  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:48 /student4_10/Malik_Moroz  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10/child_folder  
-rw-r--r-- 3 student4_10 supergroup 0 2020-05-25 20:47 /student4_10/myfile.txt  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10-Malik_Moroz/my.cnf  
copyFromLocal: '/student4_10-Malik_Moroz/my.cnf': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyToLocal /student4_10/myfile.txt /etc/  
copyToLocal: /etc/myfile.txt: COPIING (Permission denied)  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10-Malik_Moroz/  
copyFromLocal: '/student4_10-Malik_Moroz/': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10/Malik_Moroz/  
copyFromLocal: '/student4_10-Malik_Moroz/': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10/Malik_Moroz/  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Error: Could not find or load main class dfhs  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Found 1 items  
-rw-r--r-- 3 student4_10 supergroup 570 2020-05-25 21:11 /student4_10/Malik_Moroz/my.cnf  
[student4_10@manager ~]$ hdfs dfs -cp /student4_10/my.cnf /student4_10/my.cnf_2  
cp: '/student4_10/my.cnf': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -cp /student4_10/Malik_Moroz/my.cnf /student4_10/Malik_Moroz/my.cnf_2  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Found 2 items  
-rw-r--r-- 3 student4_10 supergroup 570 2020-05-25 21:11 /student4_10/Malik_Moroz/my.cnf  
-rw-r--r-- 3 student4_10 supergroup 570 2020-05-25 21:20 /student4_10/Malik_Moroz/my.cnf_2  
[student4_10@manager ~]$
```

Hdfs dfs -cp /student4_10/Malik_Moroz/my.cnf /student4_10/Malik_Moroz/my.cnf_2

Удалил два файла my.cnf и my.cnf_2


```
student4_10@manager:~  
-rw-r--r-- 3 centos supergroup 393 2019-11-25 15:41 /acldir/etc/os-release  
drwxr-xr-x - centos supergroup 0 2019-11-25 15:41 /acldir/etc/pam.d  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10  
Found 3 items  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:48 /student4_10/Malik_Moroz  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10/child_folder  
-rw-r--r-- 3 student4_10 supergroup 0 2020-05-25 20:47 /student4_10/myfile.txt  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10/Malik_Moroz/my.cnf  
copyFromLocal: '/student4_10-Malik_Moroz/my.cnf': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyToLocal /student4_10/myfile.txt /etc/  
copyToLocal: /etc/myfile.txt_COPYING (Permission denied)  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10-Malik_Moroz/  
copyFromLocal: '/student4_10-Malik_Moroz/': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10-Malik_Moroz/  
copyFromLocal: '/student4_10-Malik_Moroz/': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -copyFromLocal /etc/my.cnf /student4_10-Malik_Moroz/  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Error: Could not find or load main class dfhs  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Found 1 items  
-rw-r--r-- 3 student4_10 supergroup 570 2020-05-25 21:11 /student4_10/Malik_Moroz/my.cnf  
[student4_10@manager ~]$ hdfs dfs -cp /student4_10/my.cnf /student4_10/my.cnf2  
cp: '/student4_10/my.cnf': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -cp /student4_10/Malik_Moroz/my.cnf /student4_10/Malik_Moroz/my.cnf_2  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Found 2 items  
-rw-r--r-- 3 student4_10 supergroup 570 2020-05-25 21:11 /student4_10/Malik_Moroz/my.cnf  
-rw-r--r-- 3 student4_10 supergroup 570 2020-05-25 21:20 /student4_10/Malik_Moroz/my.cnf_2  
[student4_10@manager ~]$ hdfs dfs -rm /student4_10/Malik_Moroz/my.cnf  
20/05/25 21:50:41 INFO fs.TrashPolicyDefault: Moved: 'hdfs://manager.novalocal:8020/student4_10/Malik_Moroz/my.cnf' to trash at: hdfs://manager.novalocal:8020/user/stud  
ent4_10/.Trash/Current/student4_10/Malik_Moroz/my.cnf  
[student4_10@manager ~]$ hdfs dfs -rm /student4_10/Malik_Moroz/my.cnf2  
rm: '/student4_10/Malik_Moroz/my.cnf2': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
-ls/student4_10/Malik_Moroz/: Unknown command  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
Found 1 items  
-rw-r--r-- 3 student4_10 supergroup 570 2020-05-25 21:20 /student4_10/Malik_Moroz/my.cnf_2  
[student4_10@manager ~]$ hdfs dfs -rm /student4_10/Malik_Moroz/my.cnf_2  
20/05/25 21:52:01 INFO fs.TrashPolicyDefault: Moved: 'hdfs://manager.novalocal:8020/student4_10/Malik_Moroz/my.cnf_2' to trash at: hdfs://manager.novalocal:8020/user/st  
udent4_10/.Trash/Current/student4_10/Malik_Moroz/my.cnf_2  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
[student4_10@manager ~]$ hdfs dfs -ls /student4_10/Malik_Moroz/  
[student4_10@manager ~]$
```

Hdf dfs -rm /student4_10/Malik_Moroz/my.cnf

6.Посмотреть размер любой папки

```
student4_10@manager:~  
drwxrwxrwx - hdfs supergroup 0 2020-05-14 21:30 /opt  
drwxr-xr-x - student3_10 supergroup 0 2020-03-16 07:46 /rozzhkov test  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 15:48 /student3_1  
drwxr-xr-x - student3_11 supergroup 0 2020-03-21 11:30 /student3_11  
-rw-r--r-- 3 student3_13 supergroup 9168 2020-04-09 14:25 /student3_13  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:31 /student3_1_test  
-rwxrwxrwx 3 student3_2 supergroup 3820 2020-04-12 15:31 /student3_2  
drwxrwxrwx - student3_2 supergroup 0 2020-04-13 01:51 /student3_2_copy  
drwxr-xr-x - student3_3 supergroup 0 2020-03-25 09:00 /student3_3  
drwxr-xr-x - student3_6 supergroup 0 2020-04-23 00:47 /student3_6  
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 20:47 /student4_10  
drwxr-xr-x - student4_6 supergroup 0 2020-05-23 08:33 /student4_6  
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 13:39 /students3_2_copy  
drwxrwxrwx - hdfs supergroup 0 2020-05-13 19:54 /system  
drwxrwxrwx - student4_1 student4_1 0 2020-05-25 18:02 /talsiia_dir  
drwxr-xr-x - student3_9 supergroup 0 2020-03-16 06:03 /test  
drwxr-xr-x - student3_5 supergroup 0 2020-03-30 10:15 /test1_mmingalov  
drwxr-xr-x - student3_5 supergroup 0 2020-03-15 05:50 /test2_mmingalov  
drwxr-xr-x - hdfs supergroup 0 2020-03-12 18:05 /test3  
drwxr-xr-x - student3_16 supergroup 0 2020-03-29 06:03 /test33  
drwxr-xr-x - student3_13 supergroup 0 2020-03-19 13:24 /test3_13  
drwxr-xr-x - student3_12 supergroup 0 2020-03-19 07:34 /testHW1  
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:24 /test_MyFolder  
drwxr-xr-x - student3_12 supergroup 0 2020-03-22 07:22 /test_MyFolderhdfs  
drwxr-xr-x - hdfs supergroup 0 2020-02-29 19:59 /test_datasets  
drwxr-xr-x - hdfs supergroup 0 2020-05-19 18:31 /test_folder  
drwxr-xr-x - student3_1 supergroup 0 2020-05-07 13:19 /test_folder1  
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:08 /test_folder1-ls  
drwxr-xr-x - student3_2 supergroup 0 2020-03-28 13:07 /test_folder1-nm  
drwxr-xr-x - student3_2 supergroup 0 2020-03-16 16:09 /test_folder2  
drwxr-xr-x - student4_9 supergroup 0 2020-05-25 11:43 /test_folder_student4_9  
drwxr-xr-x - student3_8 supergroup 0 2020-03-21 12:55 /test_for_3_8  
drwxr-xr-x - student3_10 supergroup 0 2020-04-14 09:52 /test_rozhkov  
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 11:47 /test_senashev  
drwxr-xr-x - student3_4 supergroup 0 2020-03-22 10:32 /test_senashev1  
drwxrwxrwx - hdfs supergroup 0 2020-05-24 09:26 /tmp  
drwxr-xr-x - hdfs supergroup 0 2020-03-26 18:19 /ufctable  
drwxrwxrwx - dekan supergroup 0 2020-03-27 00:51 /ufctable_partitioned  
drwxr-xr-x - hdfs supergroup 0 2020-05-23 20:34 /user  
[student4_10@manager ~]$ hdfs dfs -du -h -s /etc/  
du: '/etc/': No such file or directory  
[student4_10@manager ~]$ hdfs dfs -du -h -s /acldir/etc/  
9.7 M 29.2 M /acldir/etc  
[student4_10@manager ~]$
```

hdfs dfs -du -h -s /acldir/etc

7.Посмотреть как Файл хранится на файловой сисмеме (см. команду fsck)

```
student4_10@manager:~$ hdfs fsck /student4_10
Connecting to namenode via http://manager.novalocal:50070/fsck?ugi=student4_10&path=%2Fstudent4_10
FSCK started by student4_10 (auth:SIMPLE) from /89.208.221.132 for path /student4_10 at Mon May 25 22:00:50 UTC 2020
Status: HEALTHY
Total size: 0 B
Total dirs: 4
Total files: 1
Total symlinks: 0
Total blocks (validated): 0
Minimally replicated blocks: 0
Over-replicated blocks: 0
Under-replicated blocks: 0
Mis-replicated blocks: 0
Default replication factor: 3
Average block replication: 0.0
Corrupt blocks: 0
Missing replicas: 0
Number of data-nodes: 3
Number of racks: 1
FSCK ended at Mon May 25 22:00:50 UTC 2020 in 1 milliseconds

The filesystem under path '/student4_10' is HEALTHY
[student4_10@manager ~]$
```

Hdfs dfs fsck /student4_10

8.Установить нестандартный фактор репликации (см. команду setrep)

```
student4_10@manager:~$ hdfs dfs -ls /student4_10/
Found 3 items
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 21:52 /student4_10/Malik_Moroz
drwxr-xr-x - student4_10 supergroup 0 2020-05-25 19:57 /student4_10/child_folder
-rw-r--r-- 3 student4_10 supergroup 0 2020-05-25 20:47 /student4_10/myfile.txt
[student4_10@manager ~]$ hdfs dfs -setrep -R -w 6 /student4_10/myfile.txt
Replication 6 set: /student4_10/myfile.txt
Waiting for /student4_10/myfile.txt ... done
[student4_10@manager ~]$
```

Hdfs dfs -setrep -R -w 6 /student4_10/myfile.txt

Перевёл с 3 до 6 репликацией

9. Опробовать rest-доступ для работы с кластером

10. Используя утилиты CURL

```
student4_10@manager:~$ curl -X GET 'http://node2.novalocal:14000/webhdfs/v1/acldir?user.name=student4_10&op=LISTSTATUS'
{"FileStatuses":{"FileStatus":[{"pathSuffix":"etc","type":"DIRECTORY","length":0,"owner":"centos","group":"supergroup","permission":"755","accessTime":0,"modificationTime":1574696487181,"blockSize":0,"replication":0}]}}
[student4_10@manager ~]$ curl -X GET 'http://node2.novalocal:14000/webhdfs/v1/acldir?user.name=student4_10&op=GETCONTENTSUMMARY'
{"ContentSummary":{"directoryCount":123,"fileCount":801,"length":10210950,"quota":-1,"spaceConsumed":30632850,"spaceQuota":-1}}
[student4_10@manager ~]$
```

11. Используя python3 и библиотеки request

Возникли проблемы с библиотеками, если можно то я настрою библиотеки и потом еще раз вышлю

```
11. Используя python3 и библиотеку requests

не получилось установить библиотеку libhdfs3, написал код в слепую

from hdfs3 import HDFFileSystem hdfs=HDFFileSystem(host='manager.novalocal',port=8020)
hdfs.ls('/student4_10')

In [ ]: import requests
import json
from pprint import pprint

[student4_10@manager ~]$ curl -X GET 'http://node2.novalocal:14000/webhdfs/v1/acldir?user.name=student4_10&op=LISTSTATUS'

In [ ]: import requests

params = (
    ('user.name', 'student4_10'),
    ('op', 'LISTSTATUS'),
)

response = requests.get('http://node2.novalocal:14000/webhdfs/v1/acldir', params=params)
response = json.loads(response)
pprint(response)
```