**Verification of Kerberos Security**

Since we have enabled Kerberos on our cluster we will have to create a new principal for new user or use existing ones. In cases like hdfs and hive account its already created during installation. There is one file which is required for configuring Kerberos (\\fileserver\EE-J1\kerberos.csv). These are the various principal and *keytabs* created during installation. Below is the method of using the same.

**Kerberos commands**

After writing the Kerberos configuration, it is necessary to test it. For this purpose *kinit* is used. *kinit* is used to obtain and cache Kerberos ticket-granting tickets. A valid set of domain credentials is needed to authenticate against the KDC.

dilip.dave@impetus-i0161:~$ kinit admin/admin@IMPETUS.CO.IN
Password for admin/admin@IMPETUS.CO.IN:

To view the local ticket cache after successful authentication, klist is used.

dilip.dave@impetus-i0161:~$ klist
Ticket cache: FILE:/tmp/krb5cc_15380
Default principal: admin/admin@IMPETUS.CO.IN
 Valid starting      Expires           Service principal
2016-07-12T10:08:59  2016-07-13T10:08:59   krbtgt/IMPETUS.CO.IN@IMPETUS.CO.IN

The output shows that there is currently one Kerberos ticket-granting ticket (krbtgt) ,to delete all tickets *kdestory* can be used without options.

**Process of switching to hdfs account and how to initialize the same. Once initialized it will be active until 7 days or unless you exit. For entering details marked in yellow please referthe \\fileserver\EE-J1\kerberos.csv file.**

sudesh.shettigar@impetus-i0161:~$ sudo su - hdfs

[sudo] password for sudesh.shettigar:

hdfs@impetus-i0161:~$ **kinit -kt /etc/security/keytabs/hdfs.headless.keytab hdfs-EETeamJ1@IMPETUS.CO.IN**

hdfs@impetus-i0161:~$ **klist -? this is to see the validation of ticket/password issued by Kerberos server.**

Ticket cache: FILE:/tmp/krb5cc_29369

Default principal: hdfs-EETeamJ1@IMPETUS.CO.IN

Valid starting Expires Service principal

2016-06-08T21:58:44 2016-06-09T07:58:44 krbtgt/IMPETUS.CO.IN@IMPETUS.CO.IN

 renew until 2016-06-15T21:58:44

hdfs@impetus-i0161:~$ **hdfs dfs -ls /**

Found 10 items

drwxrwxrwx - yarn hadoop 0 2016-06-01 16:25 /app-logs

drwxr-xr-x - hdfs hdfs 0 2016-05-31 17:19 /apps

drwxr-xr-x - yarn hadoop 0 2016-05-31 17:17 /ats

drwxr-xr-x - hdfs hdfs 0 2016-05-31 17:17 /hdp

drwxr-xr-x - mapred hdfs 0 2016-05-31 17:17 /mapred

drwxrwxrwx - mapred hadoop 0 2016-05-31 17:17 /mr-history

drwxr-xr-x - hdfs hdfs 0 2016-06-01 00:33 /ranger

drwxrwxrwx - spark hadoop 0 2016-06-08 21:58 /spark-history

drwxrwxrwx - hdfs hdfs 0 2016-06-08 19:13 /tmp

drwxr-xr-x - hdfs hdfs 0 2016-06-08 19:46 /user

hdfs@impetus-i0161:~$ **hdfs dfs -mkdir -p /user/test2**

hdfs@impetus-i0161:~$ **hdfs dfs -ls /user**

Found 8 items

drwxr-xr-x - admin hdfs 0 2016-06-01 22:12 /user/admin

drwxrwx--- - ambari-qa hdfs 0 2016-06-03 23:14 /user/ambari-qa

drwxr-xr-x - hcat hdfs 0 2016-05-31 17:19 /user/hcat

drwxr-xr-x - hive hdfs 0 2016-06-03 08:10 /user/hive

drwxrwxr-x - oozie hdfs 0 2016-05-31 17:19 /user/oozie

drwxrwxr-x - spark hdfs 0 2016-05-31 17:17 /user/spark

drwxr-xr-x - hdfs hdfs 0 2016-06-08 19:46 /user/test1

drwxr-xr-x - hdfs hdfs 0 2016-06-08 21:59 /user/test2

hdfs@impetus-i0161:~$ exit

logout


**Same process of switching to hive user**


sudesh.shettigar@impetus-i0161:~$ **sudo su - hive**

[sudo] password for sudesh.shettigar:


hive@impetus-i0161:~$ **kinit -kt /etc/security/keytabs/hive.service.keytab hive/impetus-i0161.impetus.co.in@IMPETUS.CO.IN**


hive@impetus-i0161:~$ **klist**

Ticket cache: FILE:/tmp/krb5cc_29361

Default principal: hive/impetus-i0161.impetus.co.in@IMPETUS.CO.IN


Valid starting Expires Service principal

2016-06-08T22:01:27 2016-06-09T08:01:27 krbtgt/IMPETUS.CO.IN@IMPETUS.CO.IN

 renew until 2016-06-15T22:01:27


hive@impetus-i0161:~$ **hive**

WARNING: Use "yarn jar" to launch YARN applications.


Logging initialized using configuration in file:/etc/hive/2.4.2.0-258/0/hive-log4j.properties


**hive>**

**TestCases for Verification of Kerbrose on cluster:**

Output:

root@impetus-i0203:~# kinit admin/admin@IMPETUS.CO.IN

Password for admin/admin@IMPETUS.CO.IN:

root@impetus-i0203:~# kadmin

Authenticating as principal admin/admin@IMPETUS.CO.IN with password.

Password for admin/admin@IMPETUS.CO.IN:

kadmin:

kadmin:  get_policy hdfs-EETeamJ1@IMPETUS.CO.IN

get_policy: Policy does not exist while retrieving policy "hdfs-EETeamJ1@IMPETUS.CO.IN".

kadmin:  get_principal hdfs-EETeamJ1@IMPETUS.CO.IN

Principal: hdfs-EETeamJ1@IMPETUS.CO.IN

Expiration date: [never]

Last password change: Fri Jul 01 13:31:18 IST 2016

Password expiration date: [none]

Maximum ticket life: 0 days 10:00:00

Maximum renewable life: 7 days 00:00:00

Last modified: Fri Jul 01 13:31:18 IST 2016 (admin/admin@IMPETUS.CO.IN)

Last successful authentication: Fri Jul 01 14:19:14 IST 2016

Last failed authentication: [never]

Failed password attempts: 0

Number of keys: 8

Key: vno 1, aes256-cts-hmac-sha1-96, no salt

Key: vno 1, arcfour-hmac, no salt

Key: vno 1, des3-cbc-sha1, no salt

Key: vno 1, des-cbc-crc, no salt

Key: vno 1, des-cbc-md5, Version 4

Key: vno 1, des-cbc-md5, Version 5 - No Realm

Key: vno 1, des-cbc-md5, Version 5 - Realm Only

Key: vno 1, des-cbc-md5, AFS version 3

MKey: vno 1

Attributes: REQUIRES_PRE_AUTH

Policy: [none]

sudesh.shettigar@impetus-i0203:~$ kinit

kinit: Client 'sudesh.shettigar@IMPETUS.CO.IN' not found in Kerberos database while getting initial credentials