TP HBase

API Client HBase

- En plus de hbase shell, Il existe une API java pour interagir avec HBase ➔Java HBase Client
- Dispose d'une large palette de fonctions :
  - Administration : **Class HBaseAdmin**
    - Création
    - Suppression
    - Enable/Disable
    - List
    - …
  - Manipulation
    - Lecture : **Class Get**
    - Ecriture : **Class Put**
    - Suppression **: Class Delete**
    - Scan **:** `Scan scan = new Scan();`

Rappel : HBase shell (Commandes)

- **DDL**
  - create
  - list
  - disable & is_disable
  - enable & is_enable
  - describe
  - alter
  - exists
  - drop & drop_all

- **DML**
  - put & get
  - Delete & deleteall
  - Count
  - Truncate

- **Commandes usuelles**
  - status
  - version
  - table_help
  - whoami

Rappel : HBase shell (run it)

```
[root@sandbox-hdp ~]# hbase shell
HBase Shell; enter 'help<RETURN>' for list of suppor
ted commands.
Type "exit<RETURN>" to leave the HBase Shell
Version 1.1.2.2.6.4.0-91, r2a88e694af7238290a5747f96
3a4fa0079c55bf9, Thu Jan  4 10:32:40 UTC 2018

hbase(main):001:0> status
1 active master, 0 backup masters, 1 servers, 0 dead
, 8.0000 average load

hbase(main):002:0> list
TABLE
ATLAS_ENTITY_AUDIT_EVENTS
atlas_titan
emp
iemployee
4 row(s) in 0.0580 seconds

=> ["ATLAS_ENTITY_AUDIT_EVENTS", "atlas_titan", "emp
", "iemployee"]
hbase(main):003:0>
```

Rappel : HBase shell (run it)

```
hbase(main):002:0> create 'emp', 'personal data', 'professional data'
0 row(s) in 1.1300 seconds
=> Hbase::Table - emp

hbase(main):005:0> put 'emp','1','personal data:name','mouchene'
0 row(s) in 0.6600 seconds

hbase(main):007:0> put 'emp','1','professional data:salary','50000'
0 row(s) in 0.0240 seconds


hbase(main):022:0> scan 'emp'
   ROW                          COLUMN+CELL
1 column=personal data:name, timestamp=1417524185058, value=mouchene
1 column=professional data:salary, timestamp=1417524244109, value=50000
```

Configuration d'une connexion

```
Configuration conf = HBaseConfiguration.create();
conf.set("hbase.zookeeper.property.clientPort", "2181");
conf.set("hbase.zookeeper.quorum", "hbase-host-name");
conf.set("zookeeper.znode.parent", "/hbase-unsecure");

Connection conn = ConnectionFactory.createConnection(conf);
Admin admin = conn.getAdmin();

TableName tableName = TableName.valueOf("my_table");
boolean tableExist = admin.tableExists(tableName);

if (!tableExist) {
    admin.createTable(new HTableDescriptor(tableName)
            .addFamily(new HColumnDescriptor("cf")));
}
```

Quelques méthodes (1)

- Class HTable

```
void close();
void delete(Delete delete);
boolean exists(Get get);
Result get(Get get);
Configuration getConfiguration();
TableName getName();
HTableDescriptor getTableDescriptor();
byte[] getTableName();
void put(Put put);
```

- Class Put

```
Put(byte[] row);
Put(byte[] rowArray, int rowOffset, int rowLength);
Put(byte[] rowArray, int rowOffset, int rowLength, long ts);
Put(byte[] row, long ts);

// Methods
Put add(byte[] family, byte[] qualifier, byte[] value);
Put add(byte[] family, byte[] qualifier, long ts, byte[] value);
Put add(byte[] family, ByteBuffer qualifier, long ts, ByteBuffer value);
```

Quelques méthodes (2)

- **Class GET**

```
//Constructors
Get(byte[] row);

Get(Get get);

// Methods
Get addColumn(byte[] family, byte[] qualifier);

Get addFamily(byte[] family);
```

- **Class Result**

```
Result();

// Methods
byte[] getValue(byte[] family, byte[] qualifier);

byte[] getRow();
```

- Class Delete

```
// Constructors
Delete(byte[] row);

Delete(byte[] rowArray, int rowOffset, int rowLength);

Delete(byte[] rowArray, int rowOffset, int rowLength, long ts);

Delete(byte[] row, long timestamp);

// Methods
Delete addColumn(byte[] family, byte[] qualifier);

Delete addColumns(byte[] family, byte[] qualifier, long timestamp)

Delete addFamily(byte[] family);

Delete addFamily(byte[] family, long timestamp);
```

Création de table

```
Connection conn = ConnectionFactory.createConnection(conf);
Admin admin = conn.getAdmin();

// Instantiating table descriptor class
HTableDescriptor tableDescriptor = new HTableDescriptor(TableName.valueOf("emp"));

// Adding column families to table descriptor
tableDescriptor.addFamily(new HColumnDescriptor("personal"));
tableDescriptor.addFamily(new HColumnDescriptor("professional"));

// Execute the table through admin
admin.createTable(tableDescriptor);
System.out.println(" Table created ");
```

Lister les tables

```
Connection conn = ConnectionFactory.createConnection(conf);
Admin admin = conn.getAdmin();

// Getting all the list of tables using HBaseAdmin object
HTableDescriptor[] tableDescriptor = admin.listTables();

// printing all the table names.
for (int i=0; i<tableDescriptor.length;i++ ){
    System.out.println(tableDescriptor[i].getNameAsString());
}
```

Enable/Disable table

```
Connection conn = ConnectionFactory.createConnection(conf);
Admin admin = conn.getAdmin();

HTableDescriptor tableDescriptor = new HTableDescriptor(TableName.valueOf("emp"));

  // Verifying weather the table is disabled
  Boolean bool = admin.isTableDisabled(tableDescriptor.getTableName());
  System.out.println(bool);

  // Disabling the table using HBaseAdmin object
  if(!bool){
     admin.disableTable(TableName.valueOf("emp"));
     System.out.println("Table disabled");
  }
```

http://www.corejavaguru.com/bigdata/hbase-tutorial/hbase-java-client-api-examples