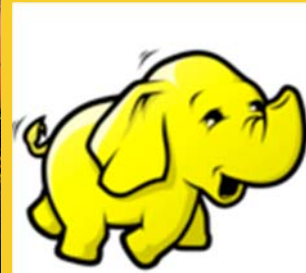




# HBase Java Administrative API

Originals of slides and source code for examples: <http://www.coreservlets.com/hadoop-tutorial/>  
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# Agenda

- **Create Table**
- **Drop Table**

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# Java Admin API

- **Just like HTable is for client API  
HBaseAdmin is for administrative tasks**
  - org.apache.hadoop.hbase.client.HBaseAdmin
- **Recall that only Table and Family names  
have to be pre-defined**
  - Columns can be added/deleted dynamically
  - HBase scheme roughly equals table definitions and their column families

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# Create Table and Column Families

- 1. Construct HBaseAdmin instance**
- 2. Create Table's schema**
  - Represented by HTableDescriptor class
  - Add column families to table descriptor (HColumnDescriptor)
- 3. Execute create via HBaseAdmin class**

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## 1: Construct HBaseAdmin Instance

- **HbaseAdmin's constructor requires an instance of Configuration object**
  - Similar to HTable
  - We already know how to do that

```
Configuration conf = HBaseConfiguration.create();  
HBaseAdmin admin = new HBaseAdmin(conf);
```

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## 2: Create Table Descriptor

- **org.apache.hadoop.hbase.HTableDescriptor**
  - Serves as a container for table name and column families
  - Most importantly, add one or more column families
    - org.apache.hadoop.hbase.HColumnDescriptor
    - HColumnDescriptor serves as a container for column family name, compressions settings, number of versions, in-memory setting, and block size

```
HTableDescriptor table = new HTableDescriptor(toBytes("Table"));
HColumnDescriptor family = new HColumnDescriptor(toBytes("f"));
table.addFamily(family);
HColumnDescriptor family1 = new HColumnDescriptor(toBytes("f1"));
table.addFamily(family1);
```

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## 3: Execute Create via HBaseAdmin

- **HBaseAdmin creates a table via createTable method**
  - Synchronous operation

```
admin.createTable(table);
```

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# CreateTableExample.java

```
public static void main(String[] args) throws IOException {
    Configuration conf = HBaseConfiguration.create();
    HBaseAdmin admin = new HBaseAdmin(conf);

    String name = "NewTable";
    byte [] tableName = toBytes(name);

    HTableDescriptor table = new HTableDescriptor(tableName);
    HColumnDescriptor family =
        new HColumnDescriptor(toBytes("new_family"));
    table.addFamily(family);

    System.out.println("Table "+name+" exist: " +
        admin.tableExists(tableName) );
    System.out.println("Creating "+name+" table...");
    admin.createTable(table);
    System.out.println("Table "+name+" exist: " +
        admin.tableExists(tableName) );
}
```

Descriptor for  
NewTable:new\_family

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# Test CreateTableExample.java

```
$ yarn jar $PLAY_AREA/HadoopSamples.jar hbase.CreateTableExample
```

...

```
Table NewTable exist: false
```

```
Creating NewTable table...
```

```
Table NewTable exist: true
```

```
$ hbase shell
```

```
hbase> describe 'NewTable'
```

```
DESCRIPTION
```

```
ENABLED
```

```
{(NAME => 'NewTable', FAMILIES => [(NAME => 'new_family',
BLOOMFILTER => 'NONE', REPLICATION_SCOPE => '0',
COMPRESSION => 'NONE', VERSIONS => '3', TTL =>
'2147483647', BLOCKSIZE => '65536', IN_MEMORY => 'false',
BLOCKCACHE => 'true')])}
```

```
true
```

```
1 row(s) in 0.0400 seconds
```

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# Drop Table

1. **Construct HBaseAdmin instance**
2. **Disable table**
  - Table must be taken offline in order to perform any schema modifications
3. **Delete table**

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# DropTableExample.java

```
public static void main(String[] args) throws IOException {
    Configuration conf = HBaseConfiguration.create();

    HBaseAdmin admin = new HBaseAdmin(conf);
    byte [] tableName = toBytes("NewTable");

    admin.disableTable(tableName);

    admin.deleteTable(tableName);
}
```

Bytes utility class is imported with 'static' keyword:  
`import static org.apache.hadoop.hbase.util.Bytes.toBytes;`

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# Test DropTableExample.java

```
$ hbase shell
hbase> exists 'NewTable'
Table NewTable does exist
0 row(s) in 0.1420 seconds
hbase> quit

$ yarn jar $PLAY_AREA/HadoopSamples.jar hbase.DropTableExample
...
12/01/16 12:21:44 INFO client.HBaseAdmin: Started disable of NewTable
12/01/16 12:21:46 INFO client.HBaseAdmin: Disabled NewTable
12/01/16 12:21:46 INFO client.HBaseAdmin: Deleted NewTable

$ hbase shell
hbase> exists 'NewTable'
Table NewTable does not exist
0 row(s) in 0.3700 seconds
```

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## Wrap-Up

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# Summary

- **We learned how to**
  - Create new table
  - Drop an existing table

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