



Hive Thrift Service

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What is Apache Thrift

Let's consider a scenario, where the user is looking forward to performing an operation on Hive server, and the Hadoop cluster or Hive software setup is not installed in his/her system. The solution for the above scenario is that the user can write codes in other languages and access Hive server using Apache Thrift interface.



What is hive server

HiveServer is a service that allows a remote client to submit requests to Hive, using a variety of programming languages, and retrieve results. It is built on Apache Thrift, therefore it is sometimes called as the Thrift server.

In the context of Hive, Java language can be used to access Hive server. The Thrift interface acts as a bridge, allowing other languages to access Hive, using a Thrift server that interacts with the Java client.



What is hive server

So in short,

Thrift Hive Server / HiveServer

is a service that allows a remote client to submit requests to Hive, using a variety of programming languages, and retrieve results.

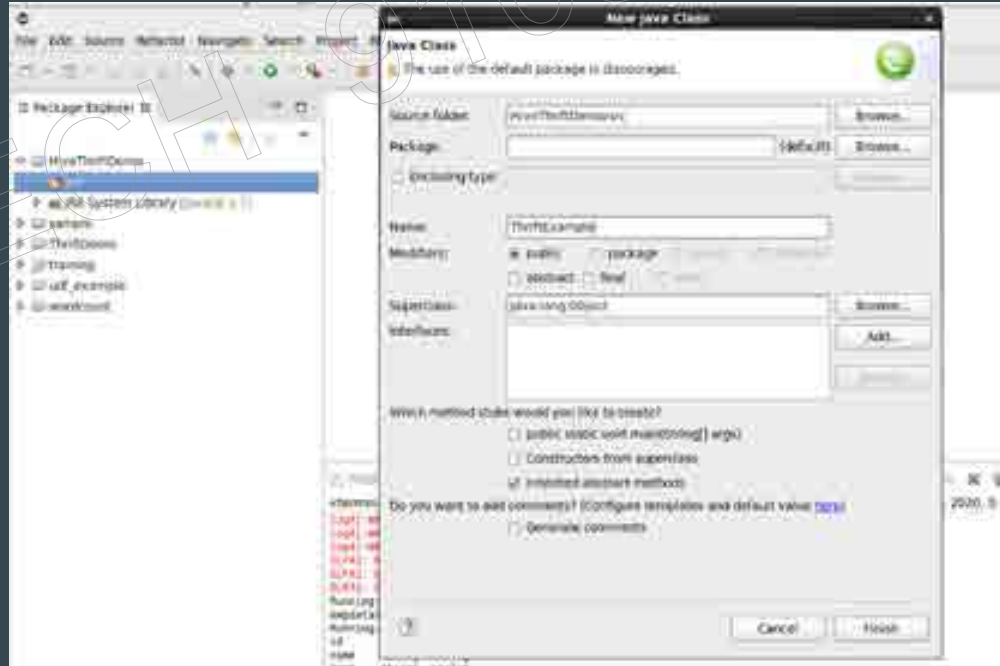
We will see how we can submit the request from java code and execute hive commands.

So we will use java client libraries.



Lets try to connect to hive using java code

**Step 1: Go to eclipse & create a new java project.
Also create a new java class inside the src folder.**





Lets try to connect to hive using java code

Step 2: copy the code in the java class that you just created.

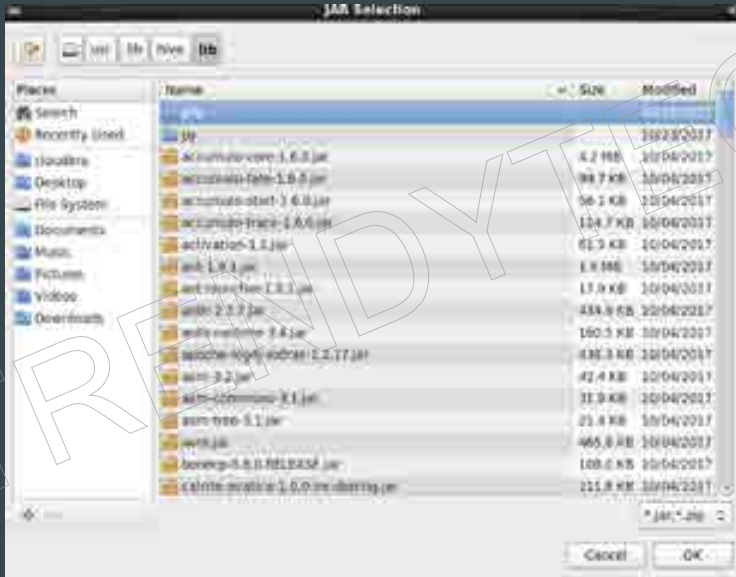
```
2 ThriftExample.java $!  
1 import java.sql.Connection;  
2 import java.sql.DriverManager;  
3 import java.sql.ResultSet;  
4 import java.sql.SQLException;  
5 import java.sql.Statement;  
6  
7 public class ThriftExample {  
8  
9     private static String driverName = "org.apache.hive.jdbc.HiveDriver";  
10  
11     public static void main(String[] args) throws SQLException {  
12         try {  
13             Class.forName(driverName);  
14         } catch (ClassNotFoundException e) {  
15             e.printStackTrace();  
16             System.exit(1);  
17         }  
18  
19         Connection con = DriverManager.getConnection("jdbc:hive2://localhost:10000/default", "", "");  
20         Statement stmt = con.createStatement();  
21  
22         String tableName = "wordstat";  
23         ResultSet res;  
24  
25         // describe table  
26         String sql = "describe " + tableName;  
27         System.out.println("Running: " + sql);  
28         res = stmt.executeQuery(sql);  
29         while (res.next()) {  
30             System.out.println(res.getString(1) + "\t" + res.getString(2));  
31         }  
32  
33         res.close();  
34         stmt.close();  
35         con.close();  
36     }  
37 }
```



Lets try to connect to hive using java code

Step 3: Add the relevant jars

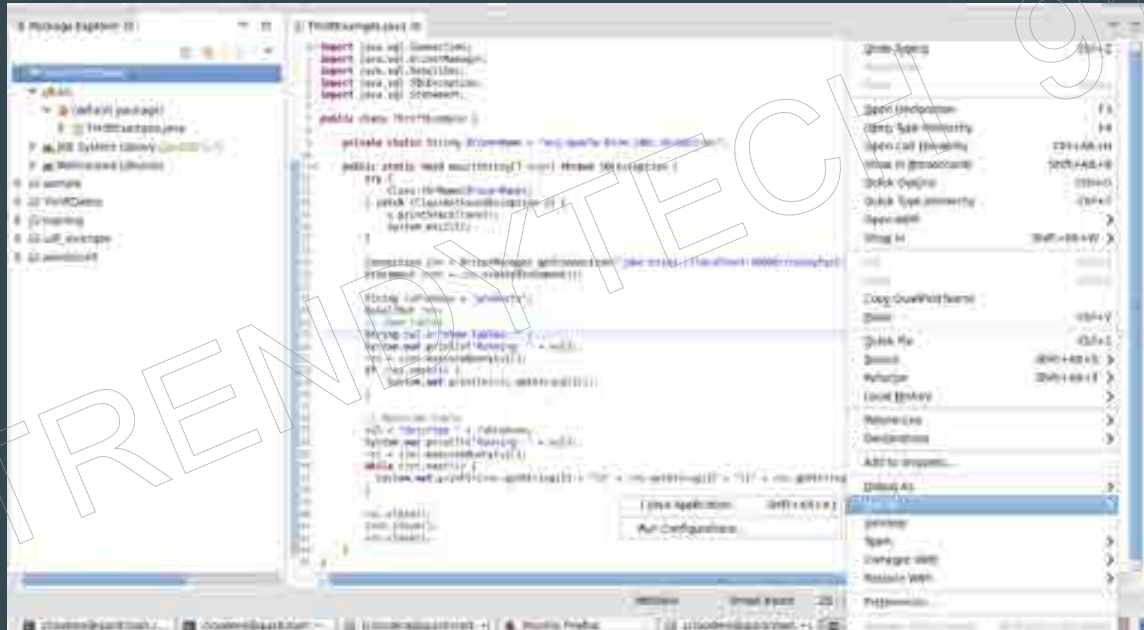
right click on project -> build path -> configure build path -> add external jars. Add all the jars residing in /usr/lib/hive/lib folder.





Lets try to connect to hive using java code

Step 4: we are all set. Now open your java class file. Right click somewhere on the screen and select “Run as” -> “Java Application”





Lets try to connect to hive using java code

We will see the results. In our java code we wrote the code to print the schema for one of the table.

The screenshot shows an IDE with a Package Explorer on the left and a Console window on the right. The Package Explorer shows a project named 'ThriftyExample' with a package 'com.example.thrifty'. The Console window shows the output of the Java application, which is a Hive query result. The output is a table with 3 columns: 'id', 'name', and 'email'. The data rows are:

id	name	email
1	John	john.doe@example.com
2	Jane	jane.doe@example.com
3	Bob	bob.doe@example.com

The Java code in the 'ThriftyExample.java' file is as follows:

```
public class ThriftyExample {  
    private static String driverName = "org.apache.hive.jdbc.HiveDriver";  
  
    public static void main(String[] args) throws SQLException {  
        try {  
            Class.forName(driverName);  
        } catch (ClassNotFoundException e) {  
            e.printStackTrace();  
            System.exit(1);  
        }  
    }  
}
```



Accessing thrift UI to see the previous jobs

Thrift UI is available on port 10002

So type **http://localhost:10002** in the browser and hit enter

The screenshot shows the Thrift UI web interface in a browser window. The address bar shows 'localhost:10002'. The interface has a navigation bar with links: Home, Hive Open, Recent Query, Job Performance, and Hive Thrift. The main content area is divided into three sections:

Open Queries

User Name	Query	Execution Engine	State	Opened Timestamp	Opened (s)	Latency (s)	Drilldown Link
Total number of queries: 0							

Last Max 25 Closed Queries

User Name	Query	Execution Engine	State	Opened (s)	Closed Timestamp	Latency (s)	Drilldown Link
abon/moo	describe empdept1	mr	FINISHED	2	Sun/May 03 14:47:27 PDT 2020	-2	Drilldown
Total number of queries: 1							

Software Attributes

Attribute Name	Value	Description
Hive Version	1.11.0-cdh5.13.0, HdkMoo	Hive version and buildid
Hive Compile	Wed Oct 4 11:08:55 PDT 2017, jenkins	When Hive was compiled and by whom



We have learnt about Thrift server

Happy Learning!!!



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