

## Lab 7 - Sqoop & Flume

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- Submit your *own work* on time. No credit will be given if the lab is submitted after the due date.
  - Note that the completed lab should be submitted in .doc, .docx, .rtf, .pdf format only.
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This document is divided into two parts.

### 1. Demo

- a. [For Sqoop](#)
- b. [For Flume](#)

You can try to run through all the steps and see if they work properly for you.  
No need to submit this part.

### 2. Homework

- a. [For Sqoop](#)
- b. [For Flume](#)

You need to submit a simple document (not .zip) wherein I should be able to find all the instructions and commands for both the Sqoop and Flume HW.

Paste screenshots wherever applicable.

# Sqoop Demo

## Part A - Importing from MySQL to HDFS

### 1. Setting up the table in MySQL

- 1) `mysql --version`
- 2) `mysql -u root -p`
- 3) Enter password as cloudera
- 4) `show databases;`
- 5) `create database cs523;`
- 6) `use cs523;`
- 7) `create table student (id int not null primary key, name varchar(20), address varchar(20));`
- 8) `describe student;`
- 9) `insert into student values (1, "John", "12th Ave, Iowa"), (2, "Mary", "Boston"), (3, "Bob", "Des Moines"), (4, "Lina", "San Francisco");`
- 10) `select * from student;`
- 11) `quit;`

### 2. Run the following *sqoop import* command.

```
sqoop import --connect jdbc:mysql://quickstart.cloudera/cs523 --username root -P --table student --target-dir=/user/cloudera/sqoopImportOutput
```

#### **OR**

```
sqoop import --connect jdbc:mysql://localhost/cs523 --username root -P --table student --target-dir=/user/cloudera/sqoopImportOutput -m 1
```

### 3. Verify the part-m files created in the output folder *sqoopImportOutput* from Cloudera HDFS browser.

## Part B - Exporting from HDFS to MySQL

1. Delete the "student" data from MySQL DB which is created in Part A above. So now the student table is empty in the cs523 database.
2. Run the following command to export data from part-m files in HDFS to the MySQL table "student".

```
sqoop export --export-dir=/user/cloudera/sqoopImportOutput/ --connect jdbc:mysql://localhost/cs523 --username root -P --table student -m 1
```

## Flume Demo

1. I've a sample log file (logfile.txt) stored at **/home/cloudera/cs523/flume/log**  
You can also create a similar file at some location in your local file system.
2. Inside folder **/home/cloudera/cs523/flume/conf**, create "**myFlumeConf.conf**" file and add the following lines to it.

```
agent1.sources = mySource  
agent1.channels = ch1  
agent1.sinks = hdfsSink
```

```
agent1.sources.mySource.type = exec  
agent1.sources.mySource.channels = ch1  
agent1.sources.mySource.command = tail -F  
/home/cloudera/cs523/flume/log/logFile.txt
```

```
agent1.sinks.hdfsSink.type = hdfs  
agent1.sinks.hdfsSink.hdfs.path = hdfs://localhost/user/cloudera/flumeImport/  
agent1.sinks.hdfsSink.hdfs.filePrefix = myFlume  
agent1.sinks.hdfsSink.hdfs.fileType = DataStream  
agent1.sinks.hdfsSink.hdfs.rollInterval = 3000  
agent1.sinks.hdfsSink.hdfs.rollSize = 300  
agent1.sinks.hdfsSink.hdfs.rollCount = 0  
agent1.sinks.hdfsSink.channel = ch1
```

```
agent1.channels.ch1.type = memory  
agent1.channels.ch1.capacity = 200
```

3. From the terminal, start the flume agent with the following command.

```
flume-ng agent -n agent1 -c /home/cloudera/cs523/flume/conf/ -f  
/home/cloudera/cs523/flume/conf/myFlumeConf.conf
```

4. Check the files getting created and updated in HDFS at the path given in the conf file. (user/cloudera/flumeImport)

## Sqoop Homework

- (1) [4] **Create a table named "stocks" in MySQL with the following sample schema and data.** You can create some more data if you want.

id	symbol	quote_date	open_price	high_price	low_price
1	AAPL	2009-01-02	85.88	91.04	85.16
2	AAPL	2008-01-02	199.27	200.26	192.55
3	AAPL	2007-01-03	86.29	86.58	81.9

- [3] **Import this table in "tab" separated format in HDFS.**

NOTE: Only import columns "id", "symbol" and "open\_price" and only those rows where the *low\_price* is less than 100.

**Write all the commands to complete the above requirement.**

- [0.5] **Paste a screenshot of the HDFS browser to show the imported files.**

- [0.5] **Paste the contents of the imported file.**

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**Optionally try to load the MySQL data directly into a Hive table using Sqoop.**

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# Flume Homework

## Fan Out

It is important to understand this term before solving this HW.

*Fan out* is the term for delivering events from one source to multiple channels, so they reach multiple sinks. For example, the configuration shown in the following figure delivers events to both an HDFS sink (sink1a via channel1a) and a logger sink (sink1b via channel1b).

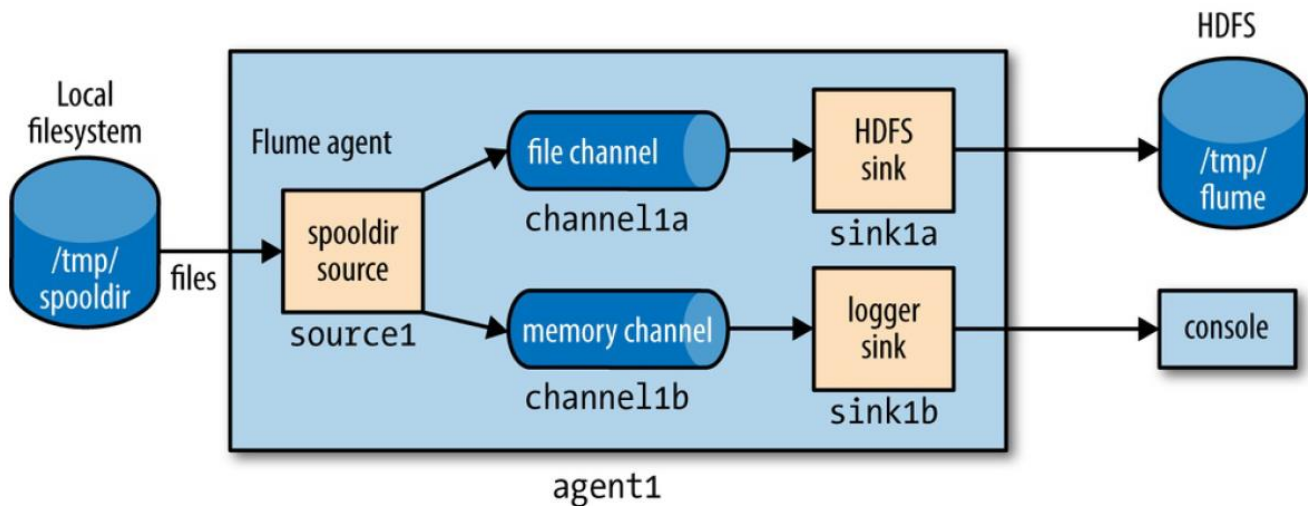


Figure 14-2. Flume agent with a spooling directory source and fanning out to an HDFS sink and a logger sink

- (2) [6] **Your task is to create a Flume configuration file using a spooling directory source, fanning out to an HDFS sink and a logger sink.**

**Write down the command to start your flume agent and test it out.**

[3] **Submit the conf file.**

[3] **Submit step by step screenshots of the testing process.**

Check out this [link](#) if you need some help.