

OSDT Tutorial

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RUNNING A SERVER SOURCE AND SINK

The Goal:

Familiarize ourselves with the process of starting a Data Turbine server, source, and sink. Using real world data.

Steps

1. Start a data turbine server
(Start DataTurbine.bat)
2. Put some data in
(Load NTL Data.bat)
3. View the data (RUN RDV.jar)

A LIVE EXAMPLE

NERC Demo

1. Open up RDV

2. Go to file Connect

Host: **184.169.139.37**

Port: **3333**

SOURCES IN GREATER DETAIL

Goal:

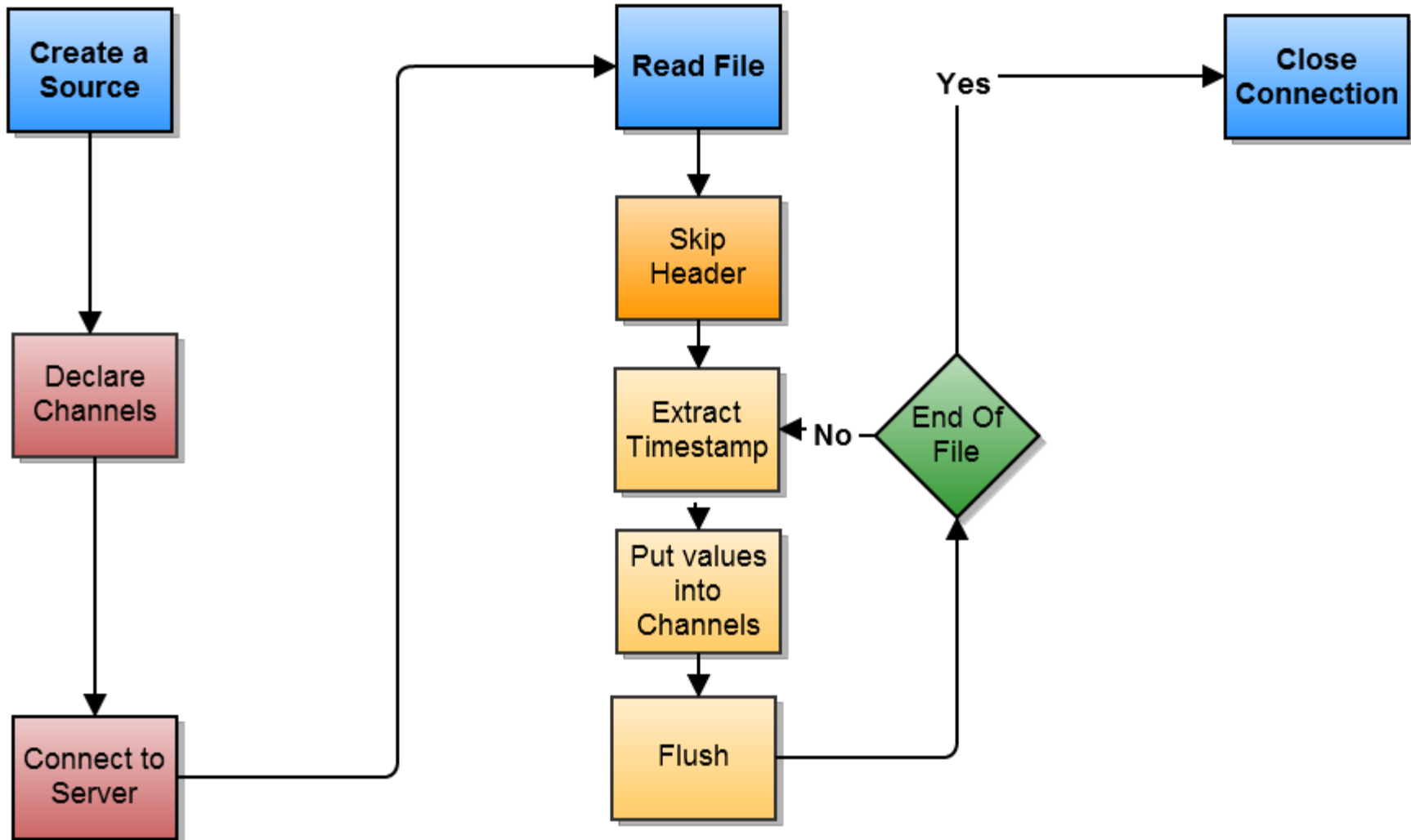
To write a custom source that read a Campbell data file and puts the Data into Data Turbine

The Data File

```
"TOA5","CrystalBog","CR1000","17241","CR1000.Std.17","CPU:CB2011.CR1","8360",  
"TIMESTAMP","RECORD","locCode","loggerBatt","radioBatt","airTemp","relHum",  
"","","Smp","Smp","Smp","Smp","Smp","Smp","Smp","Smp","Smp","Smp","Smp",  
"2011-04-26 13:39:00",1539,"CrystalBog",12.63,11.49,2.23304,93.67072,2.125,6.09,6.31,  
"2011-04-26 13:40:00",1540,"CrystalBog",12.63,11.6,2.300816,93.73861,1.925,6.11,6.33,  
"2011-04-26 13:41:00",1541,"CrystalBog",12.63,11.59,2.300816,93.60325,2.6,6.13,6.33,  
"2011-04-26 13:42:00",1542,"CrystalBog",12.62,11.6,2.233208,93.87414,2.6875,6.14,6.3,  
"2011-04-26 13:43:00",1543,"CrystalBog",12.63,11.6,2.233208,93.60341,3.9375,6.17,6.2  
"2011-04-26 13:44:00",1544,"CrystalBog",12.63,11.59,2.233265,93.46817,2,6.17,6.27,6.  
"2011-04-26 13:45:00",1545,"CrystalBog",12.63,11.59,2.300945,93.46817,2.65,6.17,6.2  
"2011-04-26 13:46:00",1546,"CrystalBog",12.63,11.58,2.233311,93.53596,3.1875,6.17,  
"2011-04-26 13:47:00",1547,"CrystalBog",12.63,11.58,2.097946,93.60364,3.4625,6.11  
"2011-04-26 13:48:00",1548,"CrystalBog",12.63,11.47,2.165668,93.73908,2.625,6.05,  
"2011-04-26 13:49:00",1549,"CrystalBog",12.63,11.58,2.097984,93.94212,3.8625,5.98,  
"2011-04-26 13:50:00",1550,"CrystalBog",12.63,11.58,2.165695,93.94219,2.975,5.98,  
"2011-04-26 13:51:00",1551,"CrystalBog",12.63,11.59,2.098011,94.07755,2.8125,5.98,
```

What We need to do

- Create a connection to DataTurbine running on local machine
- Read Campbell Data File
 - Skip the headers (first 3 lines)
 - Remove invalid characters such as quotes
 - Split the lines into individual values (delimited by commas)
 - Read the date and converts it to a numeric timestamp
- Puts the Data into DataTurbine



The Code

```
import java.io.BufferedReader;import java.io.FileReader;  
import java.io.IOException;  
import com.rbnb.sapi.SAPIException;  
public class LTER_DEMO {  
    public static final int    LINES_TO_SKIP = 3;  
    public static final String DELIMITER = ",";  
    public static final String INVALID_CHARS = "\"";  
    public static final String DATE_FORMAT = "yyyy-MM-dd HH:mm:ss";  
  
    public static void runDemo() throws SAPIException, IOException{  
  
    private static void readFile(SimpleSource source, String file)  
    throws IOException, NumberFormatException, SAPIException{  
  
    public static void main(String[] args) {}  
  
}
```

Create a Source

//Connect to the DataTurbine Server

```
SimpleSource source = new SimpleSource("NTL Sample File");
```

//Declare Channels

```
source.addChannel("loggerBatt");  
source.addChannel("radioBatt");  
source.addChannel("airTemp");  
source.addChannel("relHum");  
source.addChannel("windSpeed");  
source.addChannel("TpLn000");  
source.addChannel("TpLn025");  
source.addChannel("TpLn050");  
source.addChannel("TpLn075");  
source.addChannel("TpLn100");
```

...

Create a Source (cont)

```
source.addChannel("TpLn125");  
source.addChannel("TpLn150");  
source.addChannel("TpLn175");  
source.addChannel("TpLn200");  
source.addChannel("TpLn225");  
source.addChannel("doptoTemp");  
source.addChannel("doptoSat");  
source.addChannel("doptoPPM");
```

Read The File

//Read The Data File

```
BufferedReader fileReader = new BufferedReader(new  
FileReader(file));
```

//Skip the Heading lines

```
for(int i=0; i < LINES_TO_SKIP; i++)  
    fileReader.readLine();
```

Read the File Line by Line

```
//Read the file line by line
```

```
String line;  
    while((line = fileReader.readLine()) != null)  
{
```

```
//Split each line into values
```

```
String[] field =  
line.replaceAll(INVALID_CHARS, "").split(DELIMITER);
```

```
//Calculate Timestamp
```

```
double timestamp = source.calcTimeStamp(field[0],  
DATE_FORMAT);
```


Insert the Values into DataTurbine

```
source.putAsDouble("loggerBatt",    field[3], timestamp);
source.putAsDouble("radioBatt",     field[4], timestamp);
source.putAsDouble("airTemp",       field[5], timestamp);
source.putAsDouble("relHum",        field[6], timestamp);
source.putAsDouble("windSpeed",     field[7], timestamp);
source.putAsDouble("TpLn000",       field[8], timestamp);
source.putAsDouble("TpLn025",       field[9], timestamp);
source.putAsDouble("TpLn050",       field[10], timestamp);
source.putAsDouble("TpLn075",       field[11], timestamp);
source.putAsDouble("TpLn100",       field[12], timestamp);
source.putAsDouble("TpLn125",       field[13], timestamp);
source.putAsDouble("TpLn150",       field[14], timestamp);
source.putAsDouble("TpLn175",       field[15], timestamp);
source.putAsDouble("TpLn200",       field[16], timestamp);
source.putAsDouble("TpLn225",       field[17], timestamp);
source.putAsDouble("doptoTemp",     field[18], timestamp);
source.putAsDouble("doptoSat",      field[19], timestamp);
source.putAsDouble("doptoPPM",      field[20], timestamp);
```

Finish up

//Flush the data

```
source.flush();
```

```
}
```

//Close the Connections

```
source.close();
```