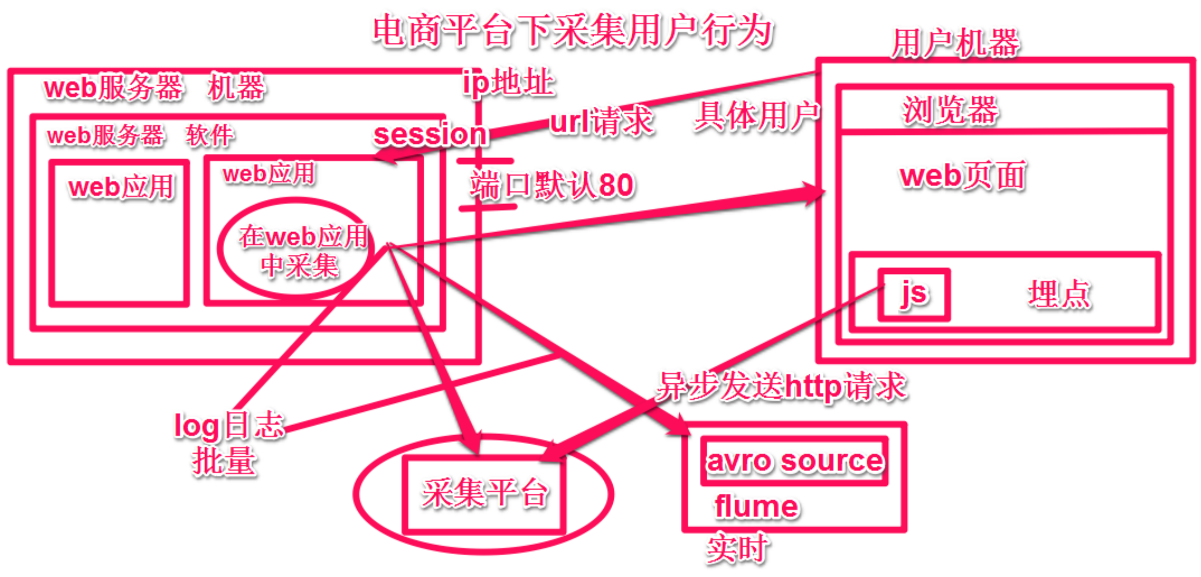
Day21_flume & Interceptor

大数据-张军锋 Day21 flume Interceptor



一个source对应两个channel

```
a1.sources = r1
a1.channels = c1 c2
a1.sinks = s1 s2

a1.sources.r1.type=avro
a1.sources.r1.bind=master
a1.sources.r1.port=9999

a1.channels.c1.type= memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

a1.channels.c2.type= memory
a1.channels.c2.capacity = 1000
a1.channels.c2.transactionCapacity = 100

a1.sinks.s2.type = logger
a1.sinks.s1.type = hdfs
a1.sinks.s1.hdfs.path = hdfs://master:9000/flumelog/%Y%m%d
a1.sinks.s1.hdfs.fileSuffix = .log
a1.sinks.s1.hdfs.rollInterval = 0
a1.sinks.s1.hdfs.rollSize = 0
a1.sinks.s1.hdfs.rollCount = 100
a1.sinks.s1.hdfs.fileType = DataStream
a1.sinks.s1.hdfs.writeFormat = Text
a1.sinks.s1.hdfs.useLocalTimeStamp = true

a1.sources.r1.channels=c1 c2
a1.sinks.s1.channel=c1
a1.sinks.s2.channel=c2
```

Mapping for multiplexing selector

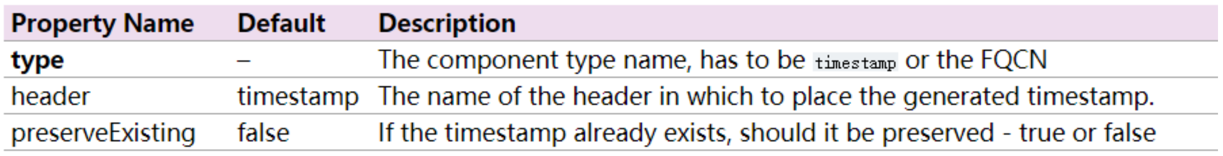
```
a1.sources = r1
a1.sinks = s1 s2 s3 s4
a1.channels = c1 c2 c3 c4

a1.sources.r1.type = avro
a1.sources.r1.bind = master
a1.sources.r1.port = 8888

a1.channels.c1.type= memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

a1.channels.c2.type= memory
a1.channels.c2.capacity = 1000
a1.channels.c2.transactionCapacity = 100

a1.channels.c3.type= memory
a1.channels.c3.capacity = 1000
a1.channels.c3.transactionCapacity = 100

a1.channels.c4.type= memory
a1.channels.c4.capacity = 1000
a1.channels.c5.transactionCapacity = 100

a1.sinks.s1.type = hdfs
a1.sinks.s1.hdfs.path = hdfs://master:9000/flumelog/%Y%m%d/henan
a1.sinks.s1.hdfs.fileSuffix = .log
a1.sinks.s1.hdfs.rollInterval = 0
a1.sinks.s1.hdfs.rollSize = 0
a1.sinks.s1.hdfs.rollCount = 100
a1.sinks.s1.hdfs.fileType = DataStream
a1.sinks.s1.hdfs.writeFormat = Text
a1.sinks.s1.hdfs.useLocalTimeStamp = true

a1.sinks.s2.type = hdfs
a1.sinks.s2.hdfs.path = hdfs://master:9000/flumelog/%Y%m%d/hebei
a1.sinks.s2.hdfs.fileSuffix = .log
a1.sinks.s2.hdfs.rollInterval = 0
a1.sinks.s2.hdfs.rollSize = 0
a1.sinks.s2.hdfs.rollCount = 100
a1.sinks.s2.hdfs.fileType = DataStream
a1.sinks.s2.hdfs.writeFormat = Text
a1.sinks.s2.hdfs.useLocalTimeStamp = true

a1.sinks.s3.type = hdfs
a1.sinks.s3.hdfs.path = hdfs://master:9000/flumelog/%Y%m%d/shandong
a1.sinks.s3.hdfs.fileSuffix = .log
a1.sinks.s3.hdfs.rollInterval = 0
```

```
a1.sinks.s3.hdfs.rollSize = 0
a1.sinks.s3.hdfs.rollCount = 100
a1.sinks.s3.hdfs.fileType = DataStream
a1.sinks.s3.hdfs.writeFormat = Text
a1.sinks.s3.hdfs.useLocalTimeStamp = true

a1.sinks.s4.type = hdfs
a1.sinks.s4.hdfs.path = hdfs://master:9000/flumelog/%Y%m%d/qita
a1.sinks.s4.hdfs.fileSuffix = .log
a1.sinks.s4.hdfs.rollInterval = 0
a1.sinks.s4.hdfs.rollSize = 0
a1.sinks.s4.hdfs.rollCount = 100
a1.sinks.s4.hdfs.fileType = DataStream
a1.sinks.s4.hdfs.writeFormat = Text
a1.sinks.s4.hdfs.useLocalTimeStamp = true

a1.sinks.s1.channel=c1
a1.sinks.s2.channel=c2
a1.sinks.s3.channel=c3
a1.sinks.s4.channel=c4

a1.sources.r1.channels = c1 c2 c3 c4
a1.sources.r1.selector.type = multiplexing
a1.sources.r1.selector.header = province
a1.sources.r1.selector.mapping.henan = c1
a1.sources.r1.selector.mapping.hebei = c2
a1.sources.r1.selector.mapping.shandong = c3
a1.sources.r1.selector.default.qita = c4
```

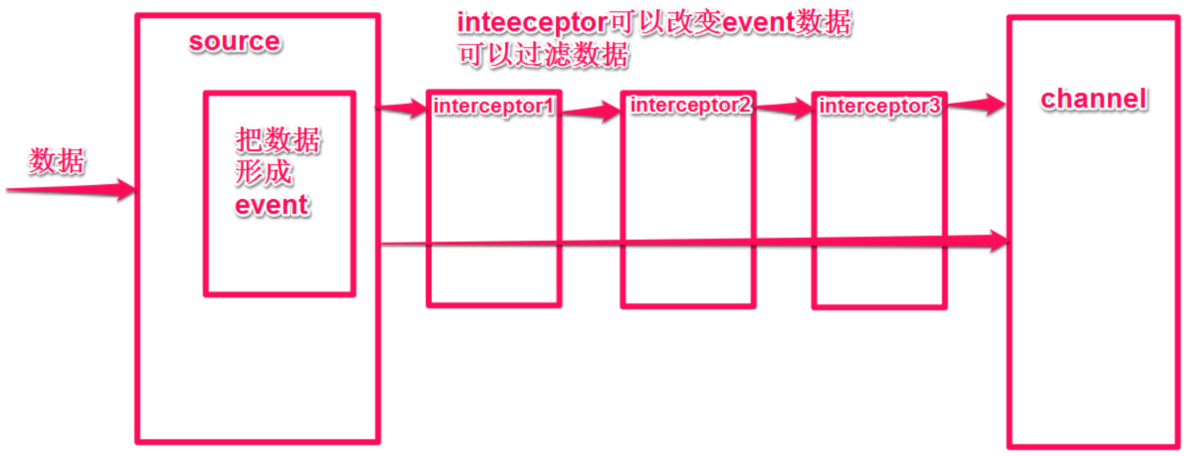
Flume Interceptors

Timestamp Interceptor

> This interceptor inserts into the event headers, the time in millis at which it processes the event. This interceptor inserts a header with key **timestamp** (or as specified by the **header** property) whose value is the relevant timestamp. This interceptor can preserve an existing timestamp if it is already present in the configuration.



Property Name	Default	Description
type	–	The component type name, has to be `timestamp` or the FQCN
header	timestamp	The name of the header in which to place the generated timestamp.
preserveExisting	false	If the timestamp already exists, should it be preserved - true or false

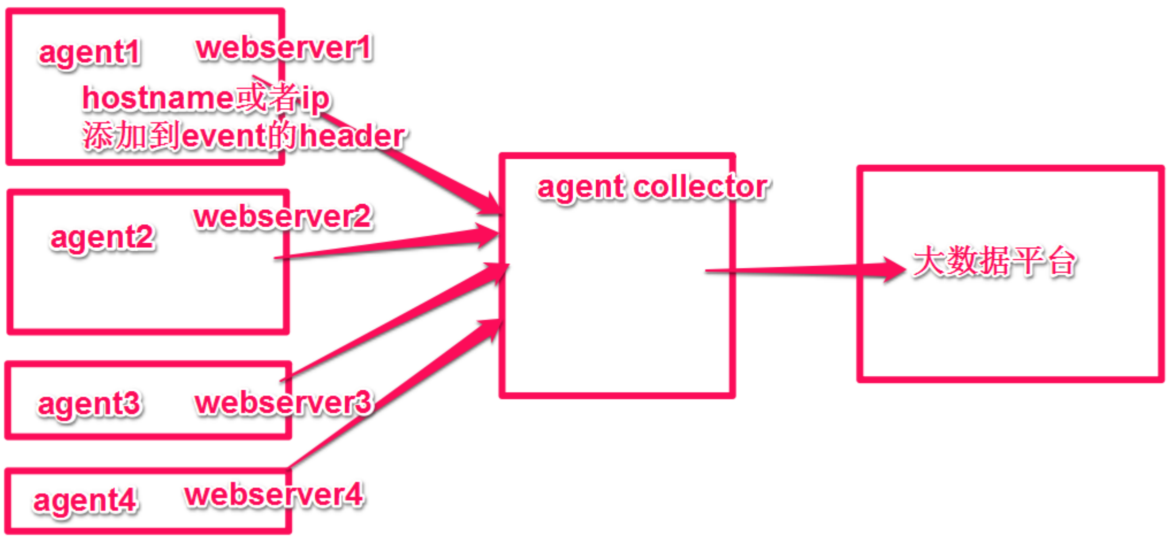


```
a1.sources = r1
a1.sinks = s1
a1.channels = c1

a1.sources.r1.type = avro
a1.sources.r1.bind = master
a1.sources.r1.port = 8888

a1.sinks.s1.type = logger

a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.transactionCapacity = 100

a1.sources.r1.channels = c1
a1.sinks.s1.channel = c1

a1.sources.r1.interceptors = i1
a1.sources.r1.interceptors.i1.type = timestamp
```

Host Interceptor

> This interceptor inserts the hostname or IP address of the host that this agent is running on. It inserts a header with key host or a configured key whose value is the hostname or IP address of the host, based on configuration.

Property Name	Default	Description
type	–	The component type name, has to be `host`
preserveExisting	false	If the host header already exists, should it be preserved - true or false
useIP	true	Use the IP Address if true, else use hostname.
hostHeader	host	The header key to be used.



```
a1.sources = r1
a1.sinks = s1
a1.channels = c1

a1.sources.r1.type = avro
a1.sources.r1.bind = master
a1.sources.r1.port = 8888

a1.sinks.s1.type = logger

a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.transactionCapacity = 100

a1.sources.r1.channels = c1
a1.sinks.s1.channel = c1

a1.sources.r1.interceptors = i1
a1.sources.r1.interceptors.i1.type = host
```

Static Interceptor

> Static interceptor allows user to append a static header with static value to all events.
>
> The current implementation does not allow specifying multiple headers at one time. Instead user might chain multiple static interceptors each defining one static header.

Property Name	Default	Description
type	–	The component type name, has to be `static`
preserveExisting	true	If configured header already exists, should it be preserved - true or false
key	key	Name of header that should be created
value	value	Static value that should be created

```
a1.sources = r1
a1.sinks = s1
a1.channels = c1

a1.sources.r1.type = avro
a1.sources.r1.bind = master
a1.sources.r1.port = 8888

a1.sinks.s1.type = logger

a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.transactionCapacity = 100

a1.sources.r1.channels = c1
a1.sinks.s1.channel = c1

a1.sources.r1.interceptors = i1
a1.sources.r1.interceptors.i1.type = static
a1.sources.r1.interceptors.i1.key  =  数据中心
a1.sources.r1.interceptors.i1.value  =  NEW_YORK
```

Search and Replace Interceptor

> This interceptor provides simple string-based search-and-replace functionality based on Java regular expressions. Backtracking / group capture is also available. This interceptor uses the same rules as in the Java Matcher.replaceAll() method.

Property Name	Default	Description
type	–	The component type name has to be `search_replace`
searchPattern	–	The pattern to search for and replace.
replaceString	–	The replacement string.
charset	UTF-8	The charset of the event body. Assumed by default to be UTF-8.

```
a1.sources = r1
a1.channels = c1
a1.sinks = s1

a1.sources.r1.type = avro
a1.sources.r1.bind = master
a1.sources.r1.port = 8888

a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

a1.sinks.s1.type = logger

a1.sources.r1.channels = c1
a1.sinks.s1.channel = c1

a1.sources.r1.interceptors = i1
a1.sources.r1.interceptors.i1.type = search_replace
a1.sources.r1.interceptors.i1.searchPattern = (\\d{3})\\d{4}
(\\d{4})
a1.sources.r1.interceptors.i1.replaceString = $1xxxx$2
```

Regex Filtering Interceptor

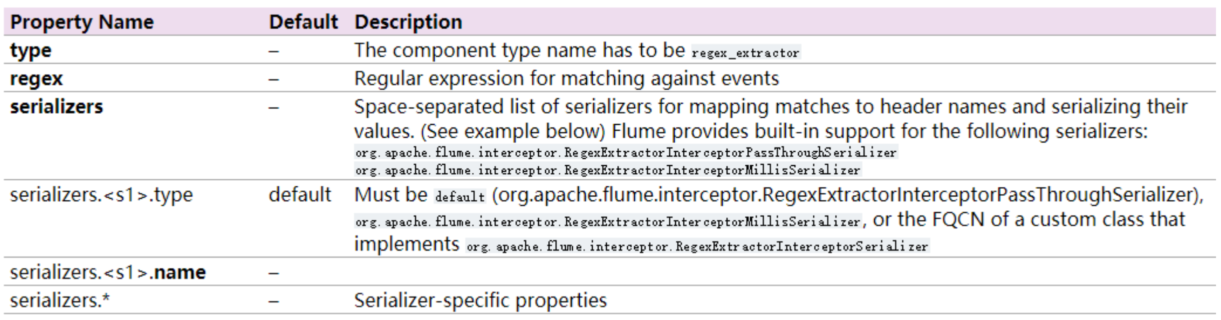
> This interceptor filters events selectively by interpreting the event body as text and matching the text against a configured regular expression. The supplied regular expression can be used to include events or exclude events.

Property Name	Default	Description
type	–	The component type name has to be `regex_filter`
regex	" .*"	Regular expression for matching against events
excludeEvents	false	If true, regex determines events to exclude, otherwise regex determines events to include.

```
a1.sources = r1
a1.channels = c1
a1.sinks = s1

a1.sources.r1.type = avro
a1.sources.r1.bind = master
a1.sources.r1.port = 8888

a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

a1.sinks.s1.type = logger

a1.sources.r1.channels = c1
a1.sinks.s1.channel = c1

a1.sources.r1.interceptors = i1
a1.sources.r1.interceptors.i1.type = regex_filter
a1.sources.r1.interceptors.i1.searchPattern = .*
[\\w|\\d]+\\@[\\w|\\d]+.*
a1.sources.r1.interceptors.i1.excludeEvents=false
```

Regex Extractor Interceptor

> This interceptor extracts regex match groups using a specified regular expression and appends the match groups as headers on the event. It also supports pluggable serializers for formatting the match groups before adding them as event headers.

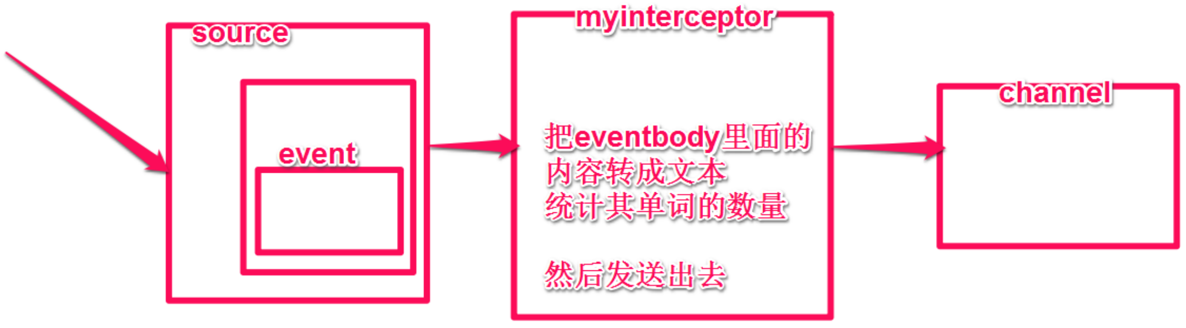


Property Name	Default	Description
type	–	The component type name has to be `regex_extractor`
regex	–	Regular expression for matching against events
serializers	–	Space-separated list of serializers for mapping matches to header names and serializing their values. (See example below) Flume provides built-in support for the following serializers: `org.apache.flume.interceptor.RegexExtractorInterceptorPassThroughSerializer` `org.apache.flume.interceptor.RegexExtractorInterceptorMillisSerializer`
serializers.<s1>.type	default	Must be `default` (org.apache.flume.interceptor.RegexExtractorInterceptorPassThroughSerializer), `org.apache.flume.interceptor.RegexExtractorInterceptorMillisSerializer`, or the FQCN of a custom class that implements `org.apache.flume.interceptor.RegexExtractorInterceptorSerializer`
serializers.<s1>.**name**	–	
serializers.*	–	Serializer-specific properties

```
a1.sources = r1
a1.channels = c1
a1.sinks = s1

a1.sources.r1.type = spooldir
a1.sources.r1.spoolDir = /opt/Software/Flume/apache-flume-1.8.0-bin/tmp/spooldir
a1.sources.r1.fileHeader = true

a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

a1.sinks.s1.type = logger

a1.sources.r1.channels = c1
a1.sinks.s1.channel = c1

a1.sources.r1.interceptors = i1
a1.sources.r1.interceptors.i1.type = regex_extractor
a1.sources.r1.interceptors.i1.regex = ([\\w|\\d]+@[\\w|\\d|\\.]).*
a1.sources.r1.interceptors.i1.serializers = e1
a1.sources.r1.interceptors.i1.serializers.e1.name = one
```

Customer Interceptor

> **需求：**□定义Interceptor 把接收到的数据转成□本，把event□□的内容替换成□本的单词个数 定义□个execlude参数，排除某些单词不计算在内



编写java代码

```java
package com.bd14.zjf;

import java.util.Arrays;
import java.util.List;

import org.apache.flume.Context;
import org.apache.flume.Event;
import org.apache.flume.interceptor.Interceptor;

public class WordCountInterceptor implements Interceptor {
    // 参数excludeWords中可以填写多个单词，多个单词之间逗号分隔
    private String exludeWords;
    public String[] exludeWordsArray;
    private int eventCount;

    public WordCountInterceptor(String exludeWords) {
        this.exludeWords = exludeWords;
        if (exludeWords != null && !exludeWords.equals("")) {
            exludeWordsArray = this.exludeWords.split(",");
        }
    }

    @Override
    public void initialize() {

    }

    // 拦截器过程数据处理逻辑
    @Override
    public Event intercept(Event event) {
        eventCount = 0;
        String[] words = new String(event.getBody()).split("\\s");
        if (exludeWordsArray == null || exludeWordsArray.length <
1) {
            eventCount = words.length;
        } else {
            List<String> exludeList = Arrays.asList(exludeWordsArra
y);
            for (String word : words) {
                if (!exludeList.contains(word)) {
                    eventCount++;
                }
            }
        }
        event.setBody(String.valueOf(eventCount).getBytes());
        return event;
    }
    // 使用单个event拦截处理过程逻辑来实现list列表event的处理过程
    @Override
    public List<Event> intercept(List<Event> events) {
        for (Event event : events) {
            intercept(event);
        }
        return events;
    }

    @Override
    public void close() {
        // TODO Auto-generated method stub
    }

    // 定义Interceptor.Builder接  的实现类,并且是Interceptor的内部类
    public static class Builder implements Interceptor.Builder {

        private String excludeWords;

        @Override
        public void configure(Context context) {
            excludeWords = context.getString("excludeWords");
        }

        @Override
        public Interceptor build() {
            return new WordCountInterceptor(excludeWords);
        }

    }

}
```

将工程打包，上传到flume的lib文件夹下 编写脚本

```
a1.sources = r1
a1.sinks = s1
a1.channels = c1

a1.sources.r1.type = netcat
a1.sources.r1.bind = localhost
a1.sources.r1.port = 44444

a1.sinks.s1.type = logger

a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.transactionCapacity = 100

a1.sources.r1.channels = c1
a1.sinks.s1.channel = c1

a1.sources.r1.interceptors = i1
a1.sources.r1.interceptors.i1.type = com.bd14.zjf.WordCountIntercep
tor$Builder
a1.sources.r1.interceptors.i1.excludeWords = abc
```

hive sink

- **启动metastore** `hive --service metastore`
- **查看metastore是否启动** `netstat -alnp | grep 9083`
- **拷贝jar包** 将/opt/software/hive/apache-hive-2.3.0-bin/hcatalog/share/hcatalog目录下的jar包拷贝到flume安装目录下的lib文件夹
- **创建表**

```
create table flume_user(
    user_id int,
    user_name string,
    age int )
clustered by(user_id) into 2 buckets
stored as orc
tblproperties("transactional"='true');
```

- **编写脚本**

```
a1.sources = r1
a1.sinks = s1
a1.channels = c1

a1.sources.r1.type = netcat
a1.sources.r1.bind = localhost
a1.sources.r1.port = 44444

a1.sinks.s1.type = hive
a1.sinks.s1.hive.metastore = thrift://master:9083
a1.sinks.s1.hive.database = bd14
a1.sinks.s1.hive.table = flume_user
a1.sinks.s1.serializer = DELIMITED
a1.sinks.s1.serializer.delimiter = "\t"
a1.sinks.s1.serializer.serdeSeparator = '\t'
a1.sinks.s1.serializer.fieldnames = user_id,user_name,age

a1.channels.c1.type = memory
a1.channels.c1.capacity = 1000
a1.channels.c1.transactionCapacity = 100

a1.sources.r1.channels = c1
a1.sinks.s1.channel = c1
```

- **打开端口** `telnet localhost 44444`
- **输入数据**id tab键 name tab键 age形式的数据
- **检验** `select * from flume_user;`

> 发现没法查询，输入以下代码，再次查找

```
set hive.support.concurrency=true
set hive.txn.manager=org.apache.hadoop.hive.ql.lockmgr.DbTxnManage
r;
```