
toc: true title: 《从0到1学习Flink》—— Flink 项目如何运行? date: 2019-01-05
tags:

- Flink
 - 大数据
 - 流式计算
-



前言

之前写了不少 Flink 文章了，也有不少 demo，但是文章写的时候都是在本地直接运行 Main 类的 main 方法，其实 Flink 是支持在 UI 上上传 Flink Job 的 jar 包，然后运行得。最开始在第一篇 [《从0到1学习Flink》—— Mac 上搭建 Flink 1.6.0 环境并构建运行简单程序入门](#) 中其实提到过了 Flink 自带的 UI 界面，今天我们就来看看如何将我们的项目打包在这里发布运行。

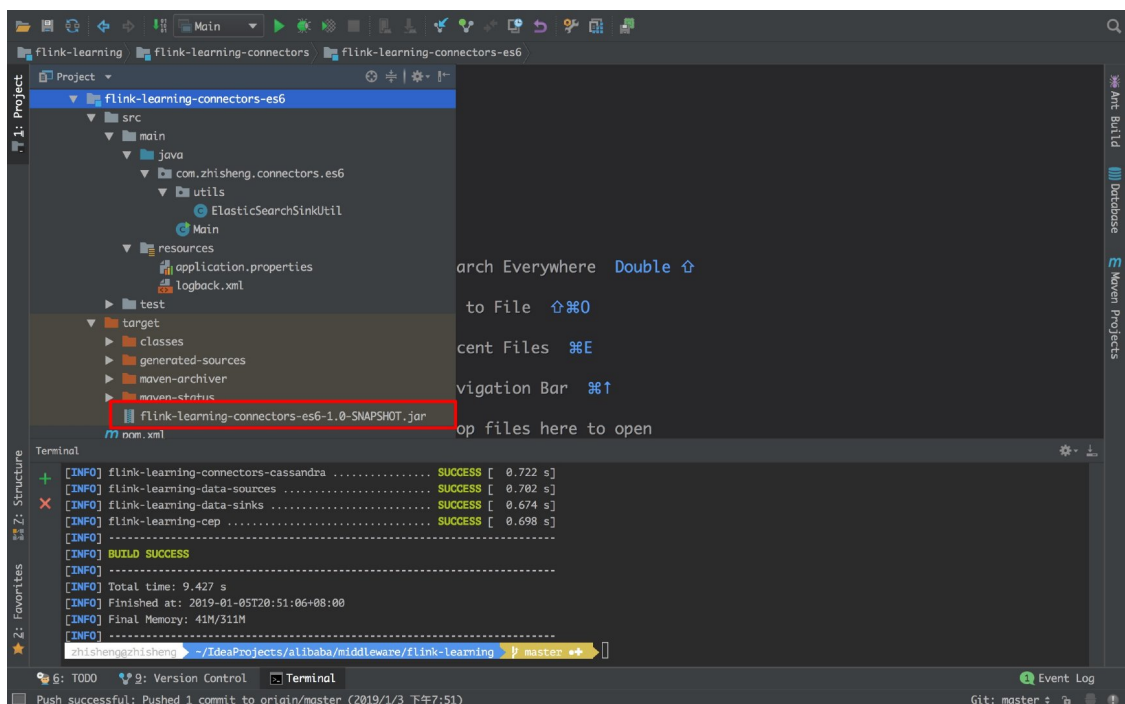
准备

编译打包

项目代码就拿我之前的文章 《从0到1学习Flink》—— Flink 写入数据到 ElasticSearch 吧，代码地址是在 GitHub 仓库地址：
<https://github.com/zhisheng17/flink-learning/tree/master/flink-learning-connectors/flink-learning-connectors-es6>，如果感兴趣的可以直接拿来打包试试水。

我们在整个项目（flink-learning）pom.xml 所在文件夹执行以下命令打包：

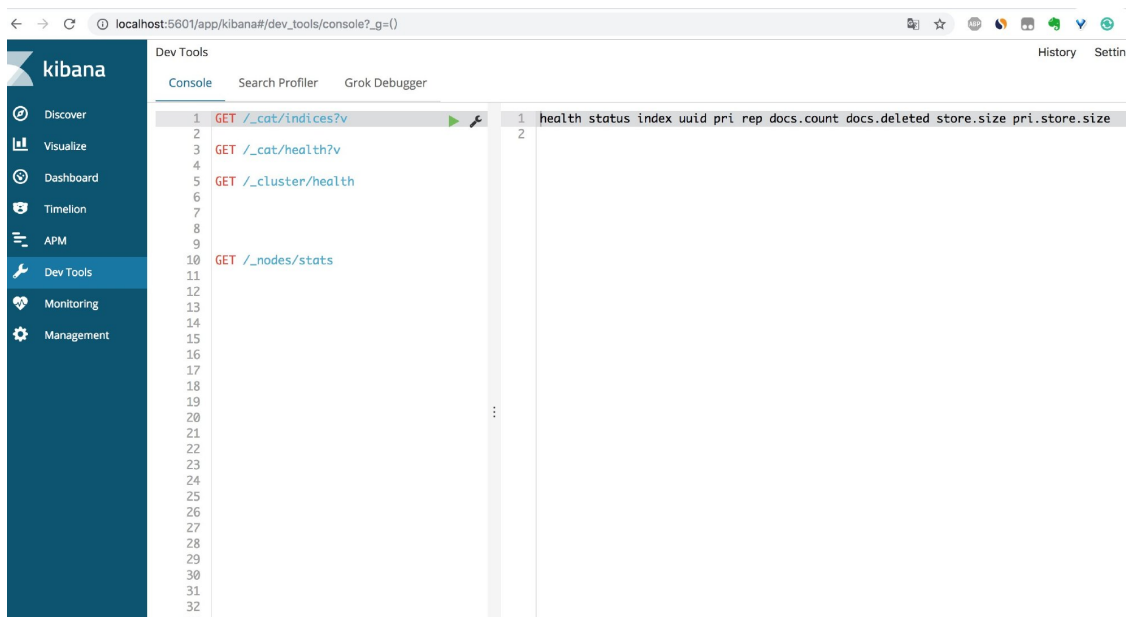
```
mvn clean install
```



然后你会发现在 flink-learning-connectors-es6 的 target 目录下有 flink-learning-connectors-es6-1.0-SNAPSHOT.jar。

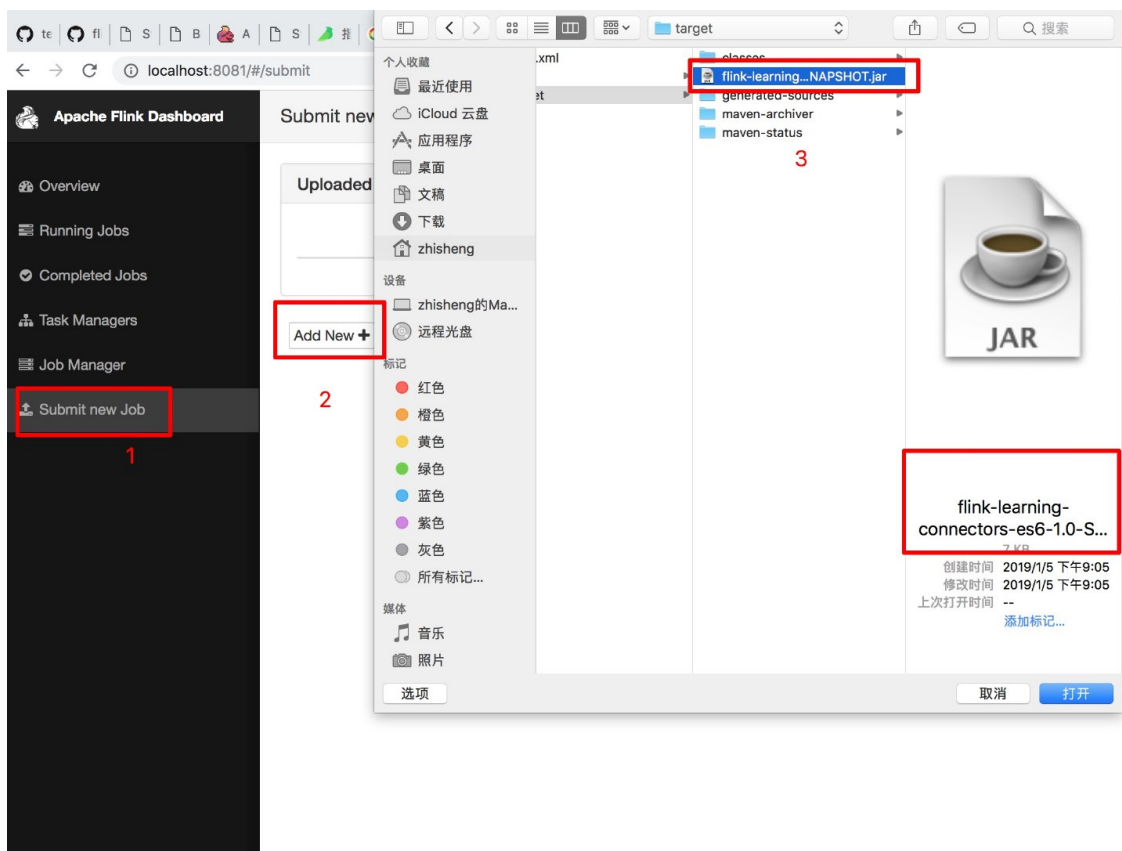
启动 ES

注意你的 Kafka 数据源和 ES 都已经启动好了，清空了下 ES 目录下的 data 数据，为了就是查看是不是真的有数据存入进来了。

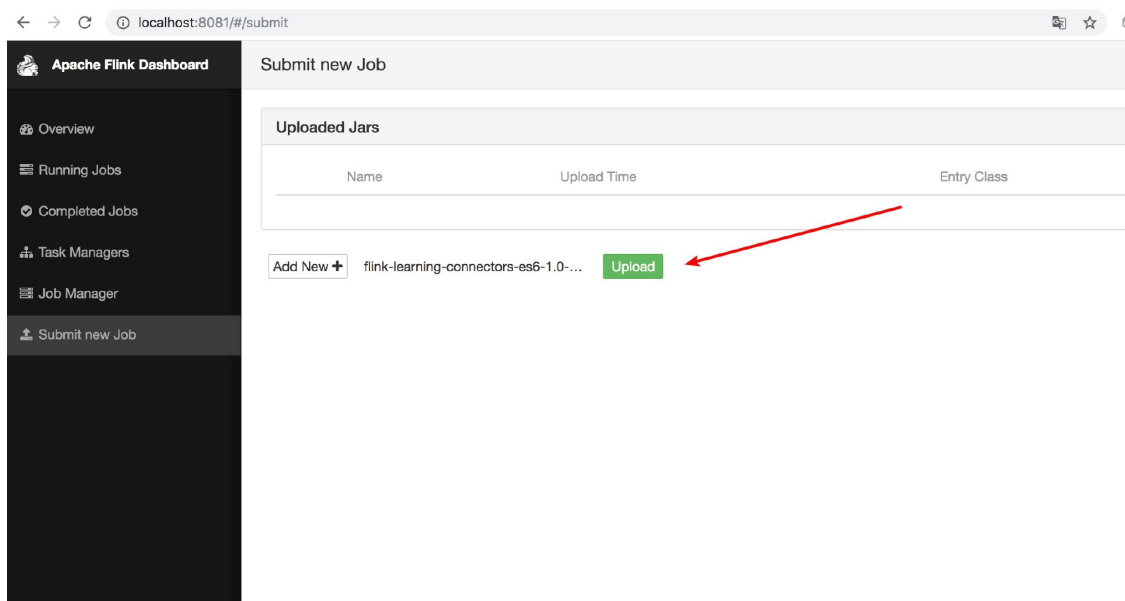


提交 jar 包

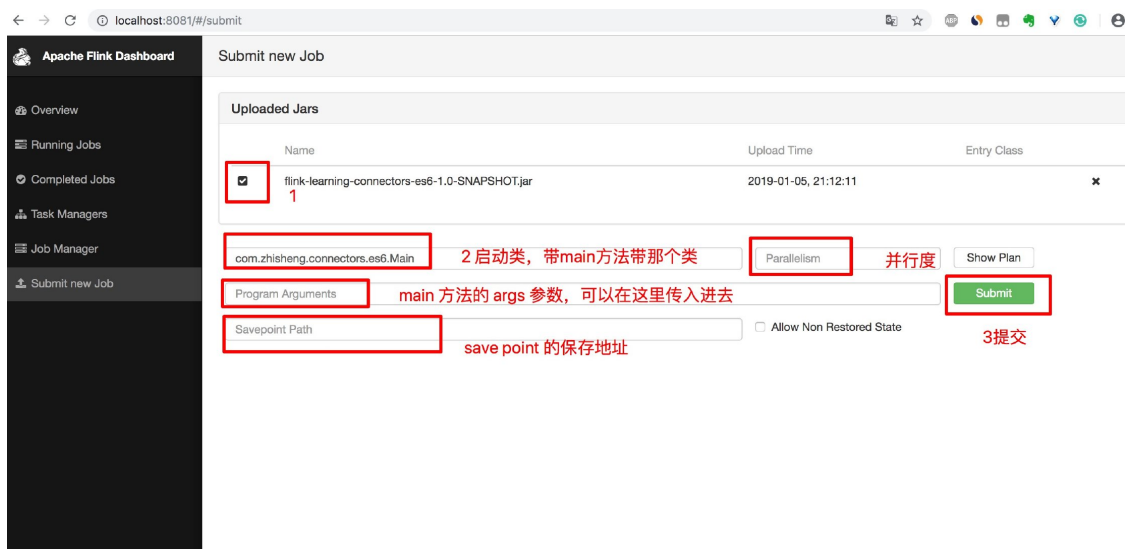
将此文件提交到 Flinkserver 上，如下图：



点击下图红框中的"Upload"按钮：



如下图，选中刚刚上传的文件，填写类名，再点击"Submit"按钮即可启动 Job：



查看运行结果

如下图，在 Overview 页面可见正在运行的任务：

localhost:8081/#/jobs/53461ec3a00f711613f954bc211b7d3

link learning connectors es6
53461ec3a00f711613f954bc211b7d3

2019-01-05, 22:16:06 1m 17s 0 0 1 0 0 0 0 0

Cancel

Overview Timeline Exceptions Configuration

Source: Custom Source -> Sink: Unnamed
Parallelism: 5

Subtasks Task Metrics Watermarks Accumulators Checkpoints Back Pressure

☐ Aggregate task statistics by TaskManager

Start Time	End Time	Duration	Name	Bytes received	Records received	Bytes sent	Records sent	Parallelism	Tasks	Status
Source: Custom Source -> Sink: Unnamed				0	0	0	0	5	5	CREATED
Start Time	End Time	Duration	Bytes received	Records received	Bytes sent	Records sent	Attempt	Host	Status	
			0	0	0	0	3	(unassigned)		SCHEDULED
			0	0	0	0	3	(unassigned)		SCHEDULED
			0	0	0	0	3	(unassigned)		SCHEDULED

你可以看到 Task Manager 中关于任务的 metric 数据、日志信息以及 Stdout 信息。

localhost:8081/#/taskmanager/375c3e3805fd08cda8d187584a638f5/log

Task Manager Last Heartbeat: 2019-01-05, 22:19:58 akka.tcp://flink@zhisheng:52320/user/taskmanager_0

Metrics Logs Stdout

2019-01-05 20:47:59,148 INFO org.apache.flink.runtime.taskexecutor.TaskManagerServices - Limiting managed memory to 0.7 of the current free heap space (640 MB), memory will be allocated lazily.

2019-01-05 20:47:59,160 INFO org.apache.flink.runtime.io.disk.iomanager.IOManager - I/O manager uses directory /var/folders/mb/3vpkx13l2jmnt2kmt0fr0000gn/T/flink-io-57db8eba-fd45-4324-93be-46e47a477179 for spill files.

2019-01-05 20:47:59,227 INFO org.apache.flink.runtime.taskexecutor.TaskManagerConfiguration - Messages have a max timeout of 10000 ms

2019-01-05 20:47:59,239 INFO org.apache.flink.runtime.rpc.akka.AkkaRpcService - Starting RPC endpoint for org.apache.flink.runtime.taskexecutor.TaskExecutor at akka://flink/user/taskmanager_0

2019-01-05 20:47:59,253 INFO org.apache.flink.runtime.taskexecutor.JobLeaderService - Start job leader service.

2019-01-05 20:47:59,254 INFO org.apache.flink.runtime.taskexecutor.TaskExecutor - Connecting to ResourceManager akka.tcp://flink@localhost:6123/user/ResourceManager(00000000000000000000000000000000)

2019-01-05 20:47:59,256 INFO org.apache.flink.runtime.filecache.FileCache - User file cache uses directory /var/folders/mb/vpbvkkx13l2jmnt2kmt0fr0000gn/T/flink-dist-cache-c1e8744d-5c39-4b26-814a-6d977f99a3a2

2019-01-05 20:47:59,480 INFO org.apache.flink.runtime.taskexecutor.TaskExecutor - Resolved ResourceManager address, beginning registration

2019-01-05 20:47:59,480 INFO org.apache.flink.runtime.taskexecutor.TaskExecutor - Registration at ResourceManager attempt 1 (timeout=100ms)

2019-01-05 20:47:59,547 INFO org.apache.flink.runtime.taskexecutor.TaskExecutor - Successful registration at resource manager akka.tcp://flink@localhost:6123/user/ResourceManager under registration id 72237c1d55cfed5f2c8a1c0268a38d83.

2019-01-05 22:05:46,656 INFO org.apache.flink.runtime.taskexecutor.TaskExecutor - Receive slot request AllocationID{154a76510076fd1b693ec37e4bb54} for job 53461ec3a00f711613f954bc211b7d3 from resource manager with leader id 00000000000000000000000000000000.

2019-01-05 22:05:46,665 INFO org.apache.flink.runtime.taskexecutor.TaskExecutor - Allocated slot for AllocationID{154a76510076e711b693ec37e4bb54}.

2019-01-05 22:05:46,665 INFO org.apache.flink.runtime.taskexecutor.JobLeaderService - Add job 53461ec3a00f711613f954bc211b7d3 for job leader monitoring.

2019-01-05 22:05:46,668 INFO org.apache.flink.runtime.taskexecutor.JobLeaderService - Try to register at job manager akka.tcp://flink@localhost:6123/user/jobmanager_0 with leader id 00000000-0000-0000-0000-000000000000.

2019-01-05 22:05:46,691 INFO org.apache.flink.runtime.taskexecutor.JobLeaderService - Resolved JobManager address, beginning registration

2019-01-05 22:05:46,691 INFO org.apache.flink.runtime.taskexecutor.JobLeaderService - Registration at JobManager attempt 1 (timeout=10ms)

2019-01-05 22:05:46,715 INFO org.apache.flink.runtime.taskexecutor.JobLeaderService - Successful registration at job manager akka.tcp://flink@localhost:6123/user/jobmanager_0 for job 53461ec3a00f711613f954bc211b7d3.

2019-01-05 22:05:46,717 INFO org.apache.flink.runtime.taskexecutor.TaskExecutor - Establish JobManager connection for job 53461ec3a00f711613f954bc211b7d3.

2019-01-05 22:05:46,721 INFO org.apache.flink.runtime.taskexecutor.TaskExecutor - Offer reserved slots to the leader of job 53461ec3a00f711613f954bc211b7d3.

2019-01-05 22:05:46,722 INFO org.apache.flink.runtime.taskexecutor.slot.TaskSlotTable - Activate slot AllocationID{154a76510076e7fd11b3ec37e4bb54}.

查看 Kibana，此时 ES 中已经有数据了：

localhost:5601/app/kibana#/dev_tools/console?_g=()

Dev Tools

Console Search Profiler Grok Debugger

1 GET /_cat/indices?v

2 GET /_cat/health?v

3 GET /_cluster/health

4 GET /_nodes/stats

1 health status index

2 .size pri.store.size

3 green open zhisheng_mem 1.4mb

4 green open zhisheng_docker_container_health 240.9kb

5 green open zhisheng_diskio 1.3mb

6 green open zhisheng_docker_container_mem 53.1mb

7 green open zhisheng_swap 518.9kb

8 green open zhisheng_status_page 1.5mb

9 green open zhisheng_metastore_host 1.1mb

10 green open zhisheng_docker 853.4kb

11 green open zhisheng_docker_container_cpu 120.3mb

12 green open zhisheng_ntpq 5mb

13 green open zhisheng_cpu 5.3mb

14 green open zhisheng_disk 8mb

15 green open zhisheng_docker_container_net 21.9mb

16 green open zhisheng_docker_container_blkio 19.9mb

17 green open zhisheng_metastore_container 48.8mb

18 green open zhisheng_docker_container_status 12.6mb

19 green open zhisheng_jvm_memory 454.5kb

20 zhisheng_nprocstat

uuid pri rep docs.count docs.deleted store

kVmdqwgT0eYvzacvy3HsQ 5 1 1843 0

oqffmIzGQBa_gTysF0SMFg 5 1 36 0

w9aarS7RQC284MPkoCkFag 5 1 3975 0

gyE1TmevTdmurczoyZhhg 5 1 40346 0

Nf4PxG0dRw-Zy773rvGEUw 5 1 3406 0

syTQveqZS1CxoU-4vQRS9Q 5 1 3806 0

6UDvN1i1SDmd6j03TVhybA 5 1 1626 0

sKeEu_hERRY8_n4Xmb-Iw 5 1 3622 0

YXr2heHOToSvLtBjYZ_Zdg 5 1 360528 0

jY3Q6FGxRCukvPiJqj1LnA 5 1 26491 0

bBoTtydoS4qeR3JBfD3Pg 5 1 16007 0

HVuIMysT--pYjdCIerbVQ 5 1 27424 0

RAKYtEiaQ3aA8A1Ylhagkg 5 1 34640 0

KUy1iNQRQtGw_OR_1N1bbQ 5 1 37534 0

ymOLk1Z0QoKZQ8sjNPMoog 5 1 40498 0

tTWBQEXdR0i8_oePwRTIA 5 1 35624 0

-IwCmP-FTMCBT4CaFPFTyg 5 1 183 0

adHh-51TCMfGv8DLVYAB8D 5 1 47021 0

我们可以在 flink ui 界面上的 overview cancel 这个 job，那么可以看到 job 的日志：

localhost:8081/#/jobmanager/log

Apache Flink Dashboard

Job Manager

Configuration Logs Stdout

0040b0e2e28a750007977] and profile ResourceProfile(cpuCores=-1.0, heapMemoryInMB=-1, directMemoryInMB=0, nativeMemoryInMB=0, networkMemoryInMB=0) from resource manager.

2019-01-05 22:26:26,835 INFO org.apache.flink.runtime.resource.manager.StandaloneResourceManager - Request slot with profile ResourceProfile {cpuCores=-1.0, heapMemoryInMB=-1, directMemoryInMB=0, nativeMemoryInMB=0, networkMemoryInMB=0} for job 53461ec3a00f7111613f954bc211b7d3 with allocation id AllocationID{6cf9e2034033ec66b8fe70cc5d82d982}.

2019-01-05 22:26:26,835 INFO org.apache.flink.runtime.jobmaster.slotpool.SlotPool - Requesting new slot [SlotRequestID{c13a122b5768867a78e664362ba924b9}] and profile ResourceProfile(cpuCores=-1.0, heapMemoryInMB=-1, directMemoryInMB=0, nativeMemoryInMB=0, networkMemoryInMB=0) from resource manager.

2019-01-05 22:26:26,836 INFO org.apache.flink.runtime.resource.manager.StandaloneResourceManager - Request slot with profile ResourceProfile {cpuCores=-1.0, heapMemoryInMB=-1, directMemoryInMB=0, nativeMemoryInMB=0, networkMemoryInMB=0} for job 53461ec3a00f7111613f954bc211b7d3 with allocation id AllocationID{5a2e2908007c000c003a7e0d030907}.

2019-01-05 22:29:02,672 INFO org.apache.flink.runtime.executiongraph.ExecutionGraph - Job flink learning connectors es6 (53461ec3a00f7111613f954bc211b7d3) switched from state RUNNING to CANCELLING.

2019-01-05 22:29:02,673 INFO org.apache.flink.runtime.executiongraph.ExecutionGraph - Source: Custom Source -> Sink: Unnamed (1/5) (2c)

0f70998d0d476505ec30976a6d7497] switched from SCHEDULED to CANCELED.

2019-01-05 22:29:02,673 INFO org.apache.flink.runtime.executiongraph.ExecutionGraph - Source: Custom Source -> Sink: Unnamed (2/5) (57)

0897b2d2c9f307f0276cfa017d16f] switched from SCHEDULED to CANCELED.

2019-01-05 22:29:02,673 INFO org.apache.flink.runtime.executiongraph.ExecutionGraph - Source: Custom Source -> Sink: Unnamed (3/5) (6a)

5ff36bc53ac6091378a398477afa4] switched from SCHEDULED to CANCELED.

2019-01-05 22:29:02,674 INFO org.apache.flink.runtime.executiongraph.ExecutionGraph - Source: Custom Source -> Sink: Unnamed (4/5) (e9)

b7f0c5d7e5c6f8b36fd5756abc20fe] switched from SCHEDULED to CANCELED.

2019-01-05 22:29:02,674 INFO org.apache.flink.runtime.jobmaster.slotpool.SlotPool - Failing pending slot request [SlotRequestID{c7d592b67532f0df8cfa540d014f67f}] has been released.

2019-01-05 22:29:02,675 INFO org.apache.flink.runtime.executiongraph.ExecutionGraph - Source: Custom Source -> Sink: Unnamed (5/5) (0e)

63825d1808b4f04758e93d8c0c925] switched from SCHEDULED to CANCELED.

2019-01-05 22:29:02,675 INFO org.apache.flink.runtime.jobmaster.slotpool.SlotPool - Failing pending slot request [SlotRequestID{987c2d4f58875004d6ede286af5b00f9}] has been released.

2019-01-05 22:29:02,677 INFO org.apache.flink.runtime.executiongraph.ExecutionGraph - Job flink learning connectors es6 (53461ec3a00f7111613f954bc211b7d3) switched from state CANCELLING to CANCELED.

2019-01-05 22:29:02,678 INFO org.apache.flink.runtime.checkpoint.CheckpointCoordinator - Stopping checkpoint coordinator for job 53461ec3a00f7111613f954bc211b7d3.

2019-01-05 22:29:02,680 INFO org.apache.flink.runtime.checkpoint.StandaloneCompletedCheckpointStore - Shutting down

2019-01-05 22:29:02,685 INFO org.apache.flink.runtime.dispatcher.StandaloneDispatcher - Job 53461ec3a00f7111613f954bc211b7d3 reached globally terminal state CANCELED.

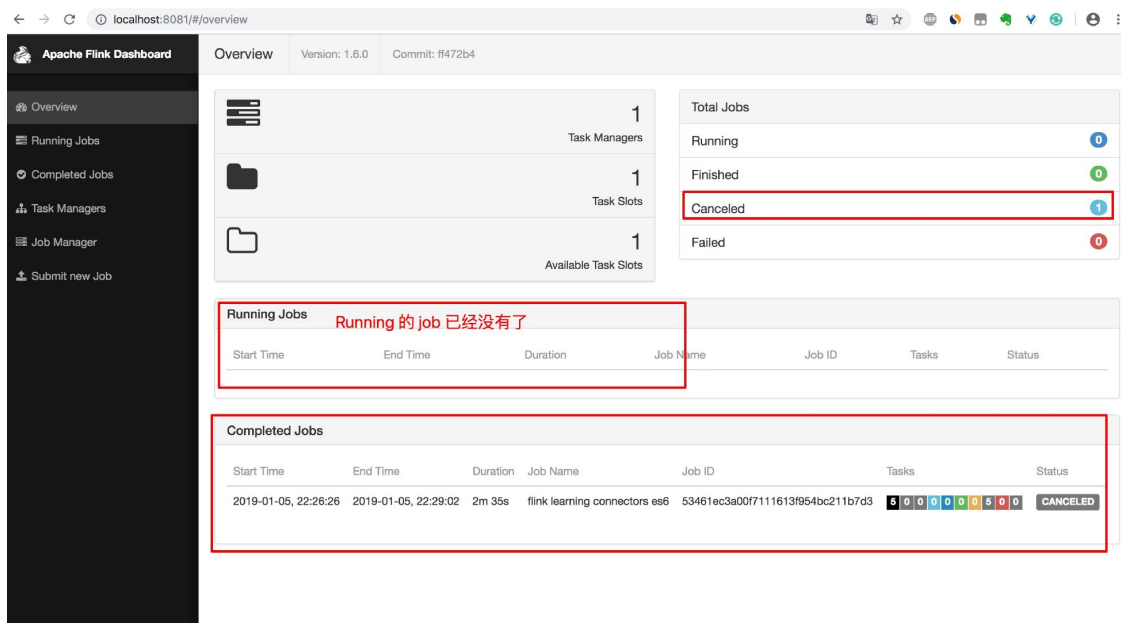
2019-01-05 22:29:02,791 INFO org.apache.flink.runtime.jobmaster.JobMaster - Stopping the JobMaster for job flink learning connectors es6 (53461ec3a00f7111613f954bc211b7d3).

2019-01-05 22:29:02,809 INFO org.apache.flink.runtime.jobmaster.JobMaster - Close ResourceManager connection 15e89e8322637831e517bf9cc2d1df: JobManager is shutting down.

2019-01-05 22:29:02,809 INFO org.apache.flink.runtime.jobmaster.slotpool.SlotPool - Suspending SlotPool.

2019-01-05 22:29:02,810 INFO org.apache.flink.runtime.jobmaster.slotpool.SlotPool - Stopping SlotPool.

2019-01-05 22:29:02,810 INFO org.apache.flink.runtime.jobmaster.JobManagerRunner - JobManagerRunner already shutdown.



总结

本篇文章写了下如何将我们的 job 编译打包并提交到 Flink 自带 Server UI 上面去运行，也算是对前面文章的一个补充，当然了，Flink job 不仅支持这种模式的运行，它还可以运行在 K8s, Mesos, 等上面，等以后我接触到再写写。

本文原创地址是: <http://www.54tianzhisheng.cn/2019/01/05/Flink-run/> , 未经允许禁止转载。

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微信公众号: zhisheng

另外我自己整理了些 Flink 的学习资料，目前已经全部放到微信公众号了。你可以加我的微信: zhisheng_tian, 然后回复关键字: Flink 即可无条件获取到。



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