



# hadoop相关及操作演示

2016年3月19

钱洋

- ◆ linux系统简介
- ◆ xshell及xftp
- ◆ linux的常用命令
- ◆ hadoop集群的搭建
- ◆ hadoop一些常用命令
- ◆ hdfs监控UI及MapReduce监控UI
- ◆ eclipse搭载hadoop（运行调试环境搭建）
- ◆ MapReduce案例wordcount及特征词匹配
- ◆ hive操作
- ◆ Sqoop的使用

Linux是一款免费的操作系统。

<http://www.centoscn.com/CentosSoft/iso/>

**CentOS**  
中文站

Linux+Python  
史上最牛课程

京峰教育助您年薪 20W

CentOS 7.0.1406  
最新版下载

首页 | CentOS入门 | CentOS下载 | CentOS教程 | CentOS服务器 | shell编程 | 安全防护 | 故障解决 | 运维管理 | 中文论坛

推荐: 京峰linux教育 鸟哥linux私房菜 开源镜像大全 Linux命令查询 Q群: 282491757 微信公众号: centoscn

**Cent OS 7.1** 中文版 CentOS 是最受公司、企业、IDC 喜爱的 Linux 发行版  
最流行稳定成熟的免费企业级 Linux 操作系统发行版 本广告位可出租   CentOS全系列下载 | Linux相关定制版本 | PDF文档资料下载 | linux运维工具 [首页](#)

当前位置: &gt; CentOS下载 &gt; CentOS全系列下载 &gt;

**CentOS 7.2.1511 下载**  
更新日期: 2015-12-18 热度: 20732℃  
Centos7.2主要改进: sudo 可以验证命令校验和 提供 AKerberos HTTPS 代理来进行身份管理 NSS 不再接受 DH key 参数 < 768 和 RSA/DSA 认证密钥大小 < 1024 bits NSS 默认启用 TLS1.1/1.2 各种包现在支持 TLS1.1/1.2 和 EC ciphers...

**CentOS 7 32位版下载**  
更新日期: 2015-10-15 热度: 32504℃  
CentOS Linux 7 的 32 位版本, x86 (i386) 架构发布, 此版本是 AltArch Special Interest Group 发布的第一个 32 位 x86 版本, 基于 CentOS 7 (1503) x86\_64 架构的源代码, 包括所有当前 CentOS 7 树的更新。...

**CentOS 6.7 下载**  
更新日期: 2015-08-13 热度: 48531℃  
CentOS 6.7 发布, CentOS 是一个企业级的 Linux 发行版本, 它源于 Red Hat 免费公开的源代码。CentOS 完全遵守 Red Hat 的再发布政策, 并且以功能上的兼容性为目标。CentOS 对组件的修改主要是去除

栏目分类

- CentOS全系列下载
- Linux相关定制版本
- PDF文档资料下载
- linux运维工具

推荐软件

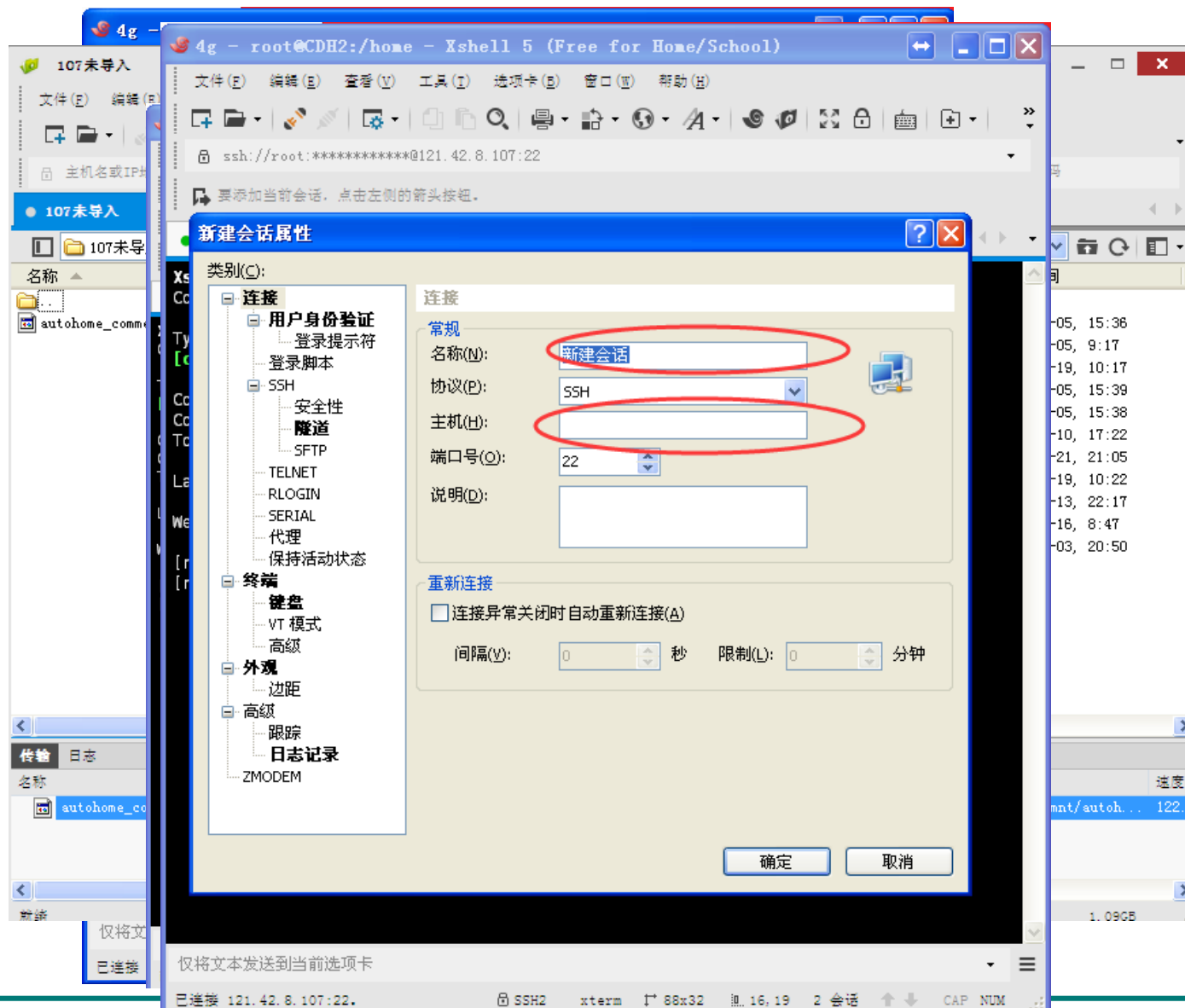
- CentOS 7.2.1511 下载  
好评:0 人气:20732
- CentOS 7.1下载  
好评:0 人气:176689
- CentOS7 20141129 滚动构建版  
好评:0 人气:26403
- CentOS 6.6 下载  
好评:0 人气:133473
- CentOS 5.11 下载  
好评:0 人气:25629

linux的好处:

- 1) 开源、免费。linux内核源代码是开放的，任何人可以自由利用，下载、复制、散发都是合法的，不会有人说你用的是盗版。
- 2) 稳定、安全。linux系统以其超强稳定性著称，一台linux服务器，持续运行3年以上不用重新启动，它的运行效率一点不会减慢。而且，病毒也不多。

linux的安装比较简单

# xshell及xftp



# linux的常用命令



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# hadoop集群的安装



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主要部分

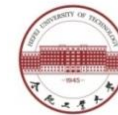
1.jdk的安装，所有机子

2.配制ssh的无密码登陆

3.hadoop软件安装（安装一个其他的scp命令，拷贝到其他机器上）

具体细节请看文档

# hadoop一些常用命令



```
/root/carword.txt  
[root@master home]# cd /root/  
[root@master ~]# hadoop fs -ls /input/  
Found 7 items  
-rw-r--r--   3 root supergroup      4452 2016-01-05 18:12 /input/attw  
-rw-r--r--   3 root supergroup    38818 2016-03-11 09:32 /input/carword.txt  
drwxr-xr-x   - root supergroup         0 2015-12-26 22:44 /input/comments  
-rw-r--r--   3 root supergroup      63 2016-01-05 22:27 /input/kmeansdata  
drwxr-xr-x   - root supergroup         0 2015-12-26 13:31 /input/posts  
-rw-r--r--   3 root supergroup    13258 2016-03-02 13:47 /input/test  
drwxr-xr-x   - root supergroup         0 2016-03-17 12:42 /input/zhangxu  
[root@master ~]#
```

命令: **hadoop fs -ls /input**

查看目录文件



# hadoop一些常用命令



```
Last login: Wed Mar 16 13:50:27 2016 from 114.213.234.145
[root@master ~]# cd /home
[root@master home]# ls
autohome_competition_wangjinkun  hadoop  lost+found  zhangxu
[root@master home]# hive

Logging initialized using configuration in jar:file:/usr/local/hive/apache-hive-1.2.1-bin/lib/hive-common
hive> exit;
[root@master home]# hadoop fs -mkdir /input/input/
[root@master home]# hadoop fs -rmr /input/input/
Deleted hdfs://master:9000/input/input
[root@master home]#
```

命令: **hadoop fs -mkdir /input/input/**  
**hadoop fs -rmr /input/input/**

创建和删除目录及文件

# hadoop一些常用命令



```
[root@master ~]# cd /root
[root@master ~]# ls
anaconda-ks.cfg          autohome_qirui.java      Desktop    dufei
autohome_competition_wangjinkun.java  carword.txt             Documents  Music
autohome_posturl2015.java  comments_user_demo_stat.java  Downloads  Pictures
[root@master ~]# hadoop fs -put /root/carword.txt /input/
[root@master ~]#
```

```
[root@master ~]#
[root@master ~]# hadoop fs -copyFromLocal /root/carword.txt /output/
[root@master ~]# hadoop fs -ls /output/
Found 4 items
drwxr-xr-x  - root supergroup          0 2016-01-19 15:39 /output/autoname
-rw-r--r--  3 root supergroup    38695 2016-03-17 19:15 /output/carword.txt
drwxr-xr-x  - root supergroup          0 2016-03-15 09:32 /output/comm_car2
drwxr-xr-x  - root supergroup          0 2016-03-17 13:20 /output/zhangxu
[root@master ~]#
```

命令: **hadoop fs -put /root/carword.txt /output/**  
**hadoop fs -copyFromLocal /root/carword.txt /output/**

本地文件系统中复制单个或多个源路径到目标文件系统

# hadoop一些常用命令



```
[root@master ~]#  
[root@master ~]#  
[root@master ~]# rm carword.txt  
rm: remove regular file `carword.txt'? y  
[root@master ~]# ls  
anaconda-ks.cfg      autohome_qirui.java      Desktop      Downloads    Music      post-install    pos  
autohome_posturl2015.java  comments_user_demo_stat.java  Documents    dufei        Pictures    post-install.log  pos  
[root@master ~]# hadoop fs -get /input/carword.txt /root/  
[root@master ~]# ls  
anaconda-ks.cfg      carword.txt      Documents    Music      post-install.log  
autohome_posturl2015.java  comments_user_demo_stat.java  Downloads    Pictures    posts_user_behaviour_stat.ja  
autohome_qirui.java      Desktop          dufei        post-install  posts_user_demo_stat.java  
[root@master ~]# █
```

```
[root@master ~]# cd /root  
[root@master ~]# ls  
anaconda-ks.cfg      carword.txt      Documents    Music      post  
autohome_posturl2015.java  comments_user_demo_stat.java  Downloads    Pictures    post  
autohome_qirui.java      Desktop          dufei        post-install  post  
[root@master ~]# rm carword.txt  
rm: remove regular file `carword.txt'? y  
[root@master ~]# ls  
anaconda-ks.cfg      autohome_qirui.java      Desktop      Downloads    Music  
autohome_posturl2015.java  comments_user_demo_stat.java  Documents    dufei        Picture  
[root@master ~]# hadoop fs -copyToLocal /input/carword.txt /root/  
[root@master ~]# ls  
anaconda-ks.cfg      carword.txt      Documents    Music      post  
autohome_posturl2015.java  comments_user_demo_stat.java  Downloads    Pictures    post  
autohome_qirui.java      Desktop          dufei        post-install  post  
[root@master ~]# █
```

命令: `hadoop fs -get`

`hadoop fs -getmerge` (合并文件, 多到1)

`hadoop fs -copyToLocal`

下载文件到本地

# hadoop一些常用命令



查看文件内容:

命令: **hadoop fs -cat /input/carword.txt**

杀死正在运行的Job (<http://master:50030/>)

命令: **hadoop job -kill job名**



NameNode 'master:9000'

Started: Wed Mar 02 13:45:42 CST 2016  
Version: 1.2.1, r1503152  
Compiled: Mon Jul 22 15:23:09 PDT 2013 by mattf  
Upgrades: There are no upgrades in progress.

[Browse the filesystem](#)  
[Namenode Logs](#)

## Cluster Summary

1312 files and directories, 3273 blocks = 4585 total. Heap Size is 42.5 MB / 889 MB (4%)

Configured Capacity	:	1.19 TB
DFS Used	:	478.58 GB
Non DFS Used	:	64.96 GB
DFS Remaining	:	671.37 GB
DFS Used%	:	39.39 %
DFS Remaining%	:	55.26 %
<a href="#">Live Nodes</a>	:	3
<a href="#">Dead Nodes</a>	:	0
<a href="#">Decommissioning Nodes</a>	:	0
Number of Under-Replicated Blocks	:	194

## NameNode Storage:

Storage Directory	Type	State
/home/hadoop/hdfs/name	IMAGE_AND_EDITS	Active

This is [Apache Hadoop](#) release 1.2.1

地址: **http://master:50070/**

通常遇到的问题: 装好  
hadoop之后, windows上打  
开hdfs监控UI浏览文件 (  
**browse the filesystem**) 出错

修改windows下的hosts文件  
(  
**C:\WINDOWS\system32\driv  
ers\etc**)

# MapReduce监控UI



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Hadoop NameNode master X master Hadoop Map/Reduce X

master:50030/jobtracker.jsp

应用 在线办公 娱乐 我的服务 搜索引擎 科学研究 刘敬植 教学相关 M 首页-第十届(2015) 加入明道-刘业政-liv AACSB International r语言 其他书签

Quick Links

## master Hadoop Map/Reduce Administration

State: RUNNING  
Started: Wed Mar 02 13:45:49 CST 2016  
Version: 1.2.1, r1503152  
Compiled: Mon Jul 22 15:23:09 PDT 2013 by mattf  
Identifier: 201603021345  
SafeMode: OFF

### Cluster Summary (Heap Size is 43.5 MB/889 MB)

Running Map Tasks	Running Reduce Tasks	Total Submissions	Nodes	Occupied Map Slots	Occupied Reduce Slots	Reserved Map Slots	Reserved Reduce Slots	Map Task Capacity	Reduce Task Capacity	Avg. Tasks/Node	Blacklisted Nodes	Graylisted Nodes	Excluded Nodes
0	0	69	<a href="#">3</a>	0	0	0	0	6	6	4.00	<a href="#">0</a>	<a href="#">0</a>	<a href="#">0</a>

### Scheduling Information

Queue Name	State	Scheduling Information
<a href="#">default</a>	running	N/A

Filter (Jobid, Priority, User, Name)   
Example: 'user:smith 3200' will filter by 'smith' only in the user field and '3200' in all fields

### Running Jobs

[none](#)

### Completed Jobs

Jobid	Started	Priority	User	Name	Map %	Map	Maps	Reduce %	Reduce	Reduces	Job Scheduling	Diagnostic
-------	---------	----------	------	------	-------	-----	------	----------	--------	---------	----------------	------------

地址: <http://master:50030/>

# MapReduce监控UI



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Hadoop NameNode master

master Hadoop Map/Reduce

master:50030/jobtracker.jsp

应用 在线办公 娱乐 我的服务 搜索引擎 科学研究 刘敬植 教学相关 M 首页-第十届(2015) 加入明道-刘业政-liu AACSB International r语言 其他书签

Quick Links

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6	1	70	<a href="#">3</a>	6	1	0	0	6	6	4.00	<a href="#">0</a>	<a href="#">0</a>	<a href="#">0</a>

### Scheduling Information

Queue Name	State	Scheduling Information
<a href="#">default</a>	running	N/A

Filter (Jobid, Priority, User, Name)   
Example: 'user:smith 3200' will filter by 'smith' only in the user field and '3200' in all fields

### Running Jobs

Jobid	Started	Priority	User	Name	Map % Complete	Map Total	Maps Completed	Reduce % Complete	Reduce Total	Reduces Completed	Job Scheduling Information	Diagnostic Info
<a href="#">job_201603021345_0074</a>	Thu Mar 17 20:46:34 CST 2016	NORMAL	root	TZWord	54.70% <div></div>	50	24	15.99% <div></div>	1	0	NA	NA

地址: <http://master:50030/>

# eclipse搭载hadoop



Map/Reduce - AnalyseHadoop/src/com/qian/TZWord2.java - Eclipse

File Edit Source Refactor Navigate Search Project Run Window Help

Project Explorer

- DFS Locations
  - Hadoop
    - hbase (7)
    - home (1)
    - hwp (0)
    - input (7)
    - output (4)
      - autoname (3)
      - carword.txt (37)
      - comm\_car2 (3)
      - \_logs (1)
      - \_SUCCESS (0)
      - part-r-00000
      - zhangxu (1)
    - tmp (1)
    - user (2)
    - usr (1)
- AnalyseHadoop
  - attention\_qianyang
  - AttentionMatch
  - AutoForumCommentsCrawler
  - AutoForumUsersCrawler
  - AutoHomeUsersCarCrawler
  - brandmanage3
  - brandmanage5
  - CommentAttentionMatch
  - DataAnalyse
  - DoubanMovie
  - QQ
  - SentimentMatch
  - Servers
  - WebCollector
  - WebCollectorExample
  - WebOfScience2
  - WordofMouth

WordCount.java TZWord2.java

```
67  
68  
69 public static void main(String[] args) throws Exception {  
70  
71     Configuration conf = new Configuration();  
72     conf.set("mapred.job.tracker", "114.213.234.237:9001");  
73     conf.set("mapred.jar", "D:/hadoop/mrjob.jar");  
74     Job job = new Job(conf, "TZWord");  
75     String filepath = "hdfs://master:9000/input/carword.txt";  
76     DistributedCache.addCacheFile(new Path(filepath).toUri(), job.getConfiguration());  
77     job.setJarByClass(TZWord2.class);  
78     job.setMapperClass(TZWordMapper.class);  
79     // job.setCombinerClass(TZWordReducer.class);  
80     // job.setReducerClass(TZWordReducer.class);  
81     job.setOutputKeyClass(Text.class);  
82     job.setOutputValueClass(IntWritable.class);  
83     String input = "hdfs://master:9000/user/hive/warehouse/reviews_comments_qianyanguse";  
84     String output = "hdfs://master:9000/output/comm_car1";  
85     FileInputFormat.addInputPath(job, new Path(input));  
86     FileOutputFormat.setOutputPath(job, new Path(output));  
87     System.exit(job.waitForCompletion(true) ? 0 : 1);  
88 }  
89  
90
```

Problems Tasks Javadoc Map/Reduce Locations Console

TZWord2 [Java Application] C:\Program Files\Java\jre7\bin\javaw.exe (2016年3月17日 下午8:57:46)

```
16/03/17 20:59:54 INFO mapred.JobClient: map 13% reduce 0%  
16/03/17 20:59:56 INFO mapred.JobClient: map 13% reduce 3%  
16/03/17 21:00:03 INFO mapred.JobClient: map 14% reduce 3%  
16/03/17 21:00:11 INFO mapred.JobClient: map 15% reduce 3%  
16/03/17 21:00:19 INFO mapred.JobClient: map 16% reduce 3%  
16/03/17 21:00:26 INFO mapred.JobClient: map 17% reduce 3%  
16/03/17 21:00:35 INFO mapred.JobClient: map 18% reduce 3%  
16/03/17 21:00:43 INFO mapred.JobClient: map 19% reduce 3%  
16/03/17 21:00:50 INFO mapred.JobClient: map 20% reduce 3%
```

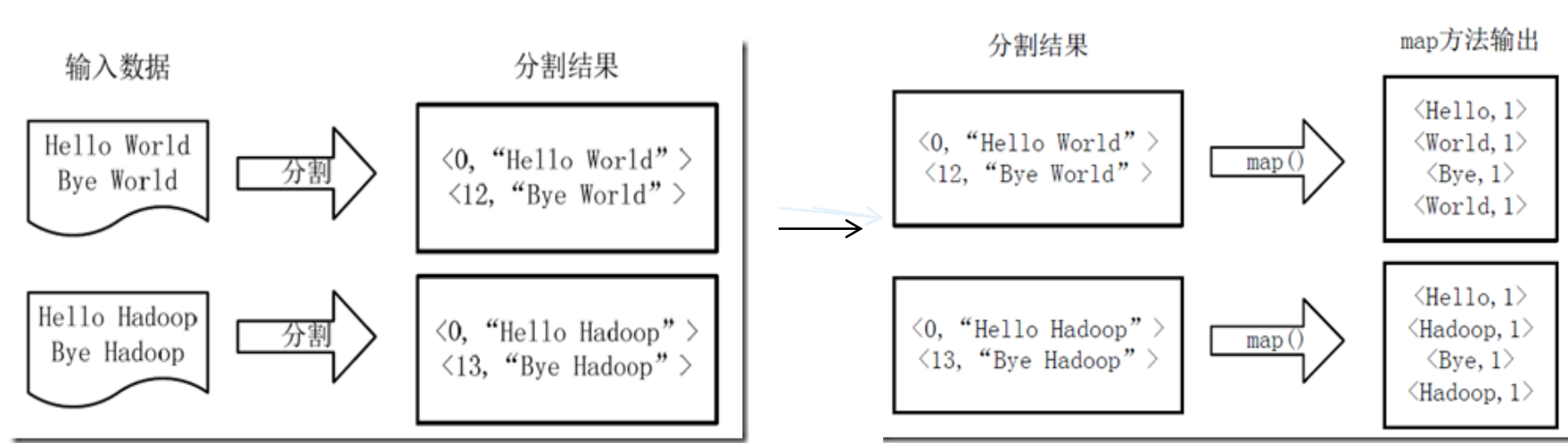


**MapReduce**程序直接运行在**hadoop**集群上，省去打包上传到集群的步骤，**Eclipse**的**Console**会打印相关信息——数据集较小

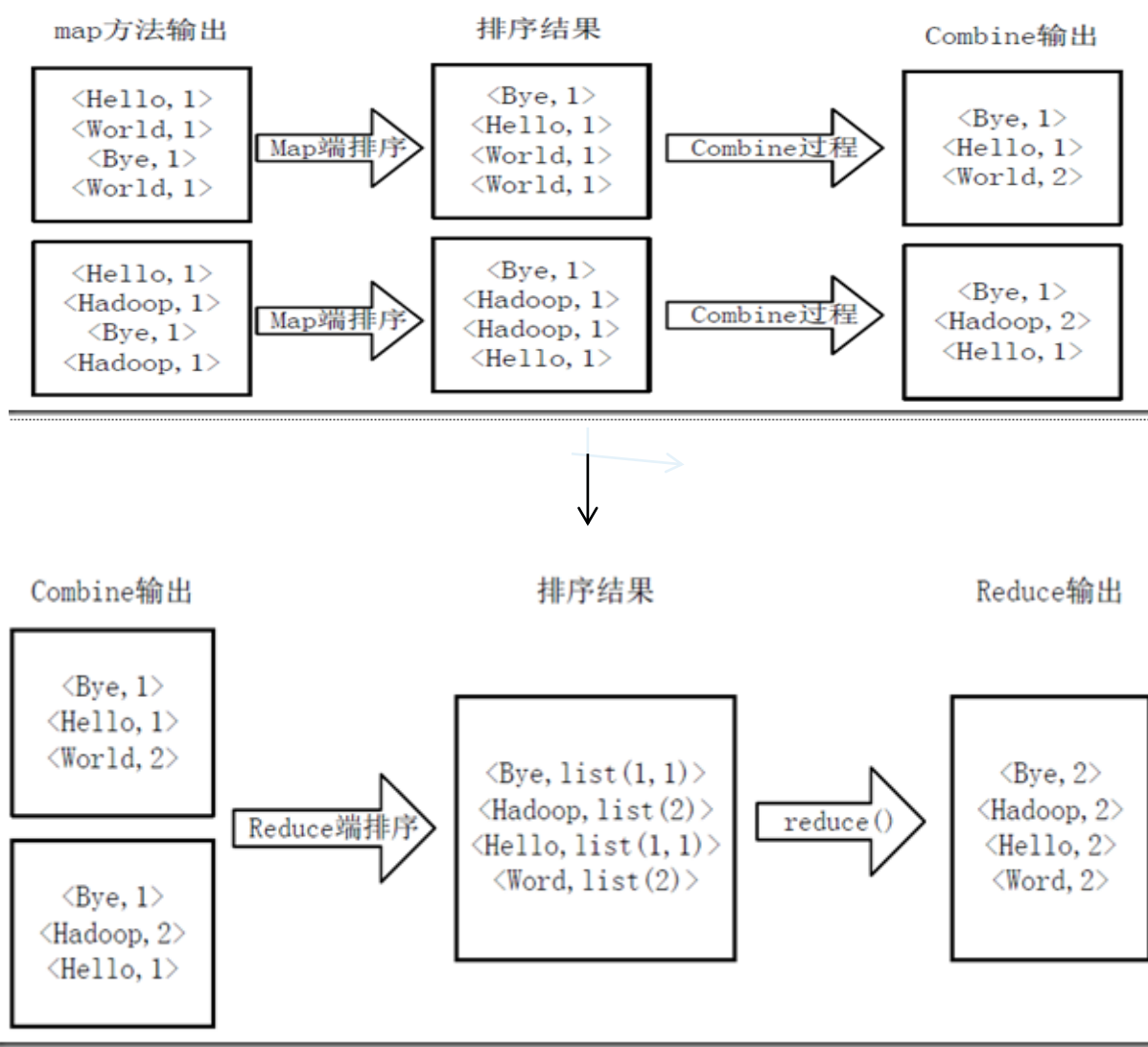
- 1.将**hadoop-eclipse**插件（网上下载）放入**eclipse**安装目录的**plugins**文件夹下
- 2.解压**hadoop-1.2.1-bin.tar.gz**，将**hadoop-core-1.2.1.jar**替换为**hadoop-core-1.2.1-forwinlocal.jar**
- 3.启动**Eclipse**，打开**Map/Reduce**视图。**window-Preferences-Hadoop Map/Reduce**下选择**hadoop-1.2.1-bin.tar.gz**的解压目录
- 4.在视图正下方的**Map/Reduce Locations**页面**New Hadoop Location**，填入**hadoop**集群配置文件**core-site.xml**和**mapred-site.xml**中指定的**Map/Reduce Master**和**DFS Master**的IP地址和端口号。其余选项默认即可
- 5.在左侧的**Project Explorer**中即可看到**DFS Location**中有了我们刚才新增的**hdfs**。可以新建文件夹删除文件看是否已经可用。

注意：为解决部分权限问题，需要将**windows**的用户名**Administrator**或者自定义的用户名修改为**hadoop**集群的用户名称，如**root**，或**hadoop**等。

# MapReduce案例wordcount



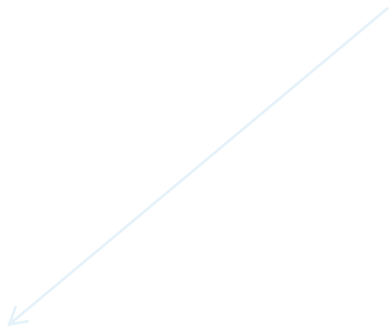
# MapReduce案例wordcount



# MapReduce案例特征词



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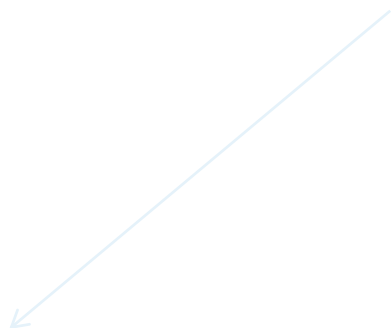


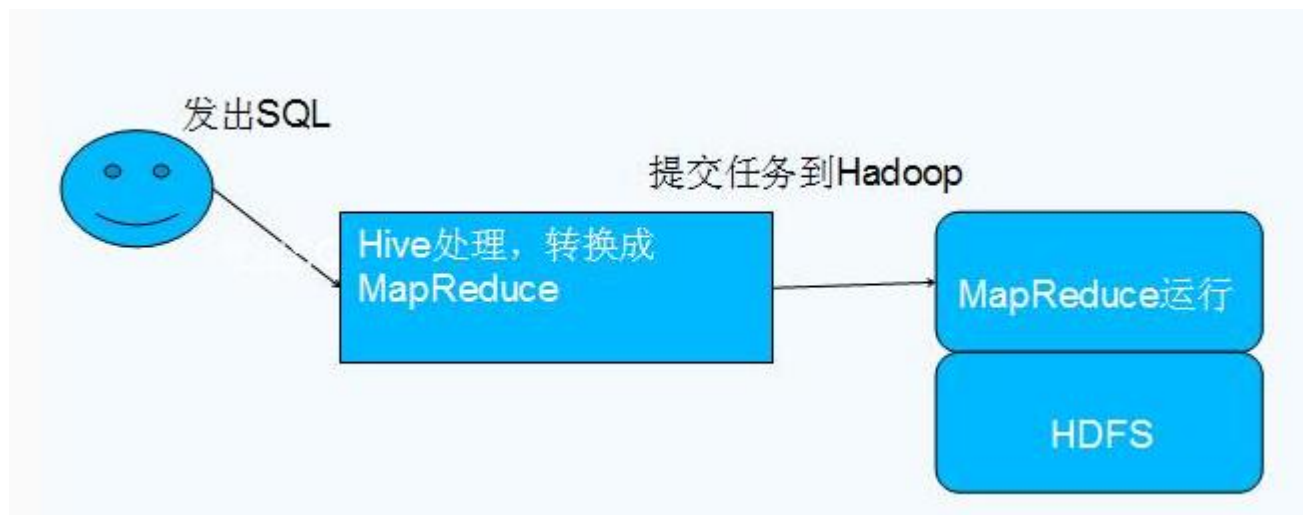
什么是**Hive**:**Hive**是基于**Hadoop**的一个数据仓库工具，可以将结构化的数据文件映射为一张数据库表，并提供类**SQL**查询功能。

为什么使用**Hive**:**Hive**是基于**Hadoop**的一个数据仓库工具，可以将结构化的数据文件映射为一张数据库表，并提供类**SQL**查询功能。

(1) 好写，好操作。类**sql**语句。

(2) 避免了去写**MapReduce**，减少开发人员的学习成本。

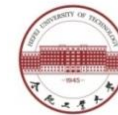




Hive与MapReduce的关系

```
[root@master ~]#  
[root@master ~]#  
[root@master ~]# hive  
  
Logging initialized using configuration in jar:file:/usr/local/hive/a  
hive> show tables;  
OK  
autohome_competition_wangjinkun  
autohome_reviews  
comments_qian  
comments_tmp_qy2  
comments_user_demo_stat  
forum_addresses_s  
forum_comments_2015sum  
forum_comments_s  
forum_comments_s_2014  
forum_comments_s_2015  
forum_comments_s_others  
forum_posts_2015sum  
forum_posts_s  
forum_posts_s_2014  
forum_posts_s_2015  
forum_posts_s_others  
forum_users_s  
forum_users_s_age  
posts_user behaviour stat
```

# Sqoop操作



```
missing argument for option: password
[root@master ~]# sqoop list-databases -connect jdbc:mysql://114.213.234.104:3306/ -username root -password 112233
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./hcatalog does not exist! HCatalog jobs will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./zookeeper does not exist! Accumulo imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation.
Warning: $HADOOP_HOME is deprecated.

16/03/18 21:04:51 INFO sqoop.Sqoop: Running Sqoop version: 1.4.6
16/03/18 21:04:51 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.
16/03/18 21:04:51 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
information_schema
brandetl_db
brandmanage_db
db_carcrawler1
exercise
forum_crawler
forum_crawler_1
forum_crawler_2
forum_crawler_3
forum_crawler_4
forum_crawler_5
lastfm_sun
mam_db
mysql
performance_schema
sakila
```



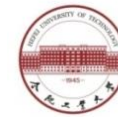
# Sqoop操作



```
missing argument for option: password
[root@master ~]# sqoop list-databases -connect jdbc:mysql://114.213.234.104:3306/ -username root -password 112233
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./hcatalog does not exist! HCatalog jobs will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./zookeeper does not exist! Accumulo imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation.
Warning: $HADOOP_HOME is deprecated.

16/03/18 21:04:51 INFO sqoop.Sqoop: Running Sqoop version: 1.4.6
16/03/18 21:04:51 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.
16/03/18 21:04:51 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
information_schema
brandetl_db
brandmanage_db
db_carcrawler1
exercise
forum_crawler
forum_crawler_1
forum_crawler_2
forum_crawler_3
forum_crawler_4
forum_crawler_5
lastfm_sun
mam_db
mysql
performance_schema
sakila
```

# Sqoop操作



```
zhangxu
[root@master ~]# sqoop list-tables -connect jdbc:mysql://114.213.234.104:3306/brandetl_db -username root -password 112233
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./hcatalog does not exist! HCatalog jobs will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /usr/local/sqoop/sqoop-1.4.6.bin__hadoop-1.0.0/./zookeeper does not exist! Accumulo imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation.
Warning: $HADOOP_HOME is deprecated.

16/03/18 21:08:29 INFO sqoop.Sqoop: Running Sqoop version: 1.4.6
16/03/18 21:08:29 WARN tool.BaseSqoopTool: Setting your password on the command-line is insecure. Consider using -P instead.
16/03/18 21:08:29 INFO manager.MySQLManager: Preparing to use a MySQL streaming resultset.
addresso
attention_qianyang
attentionaveragecount_qianyang
attentionword
authorities
auto_forum_comments_before
auto_forum_commentsso
auto_forum_dazhong3
auto_forum_info_stand
auto_forum_luhu
auto_forum_luhu2
auto_forum_luhu3
auto_forum_postso
auto_forum_users_s
auto_forum_usersso
autohome_comments2015
autohome_comments2015_1
autohome_commentsbefore2015
autohome_postbefore2015
autohome_qirui
brand_user_area_dong
brand_userarea_dong
car_info_benchmark
car_info_benchmark_1
carinfo
carsalesdata
china_province_city_workbench
```

