MaxCompute

Tools and Downloads

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Tools and Downloads

Overview

The latest ODPS service provides a new version of the client, compared with the old version, the new client has the following improvements:

- You do not need to enter a command shell to execute a specified command. For example, you can enter the client and run SQL comamnds and security commands directly in new version. You do not need to enter SQL/Security shell at first and run corresponding commands.
- The commands of new version is more closed to Hive commands. Most of comnands are compatible with Hive.

Besides, you must note:

- This document is a part of User Manual for the client in ODPS. It describes how to use basic functions of ODPS by using the command lines of the client.
- Do not perform the analysis operation based on the output format of the client. The output format of the client is not ensured for forward compatibility. Clients in different versions are different in their command formats and behaviors.
- ODPS client is a java program and can run only in the JRE environment. Therefore, it is required to download and install JRE 1.6 version.
- If you need to learn about the use method of the client, refer to Quick Start.

Download and Installation

To downloa ODPS client, please click on Here.

Depress the downloaded file and you can find the following four folders:

bin/ conf/ lib/ plugins/

There is a file named odps_conf.ini in 'conf'. Edit this file and fill in related information:

```
project_name=
access_id=<accessid>
access_key=<accesskey>
```

end_point=http://xxxx

Note:

- Replace the access_id and access_key with the access_id and access_key applied from www.aliyun.com.
- If you often use a project, you can add the name of this project behind of "project_name=" , which can avoid executing "use project_name;" command when entering the client.
- end_point. The access URL differs for different regions. For details, refer to Access domains and data centers.

After the configuration file has been modified, run 'odpscmd' in bin directory. (If the OS is Linux, run './bin/odpscmd'; if the OS is Windows, run './bin/odpscmd.bat'.)Now you can run ODPS commands:

odps@ test_project> whoami; Name: ALIYUN\$test_user@aliyun.com End_Point: http://service.ap-southeast-1.maxcompute.aliyun.com Project: test_project

Get Help

View the information about help. Commnd Format:

odps@ >./bin/odpscmd -h;

Or you can type "h" or "help" in an interactive mode. (Case insensitive)

Starting Parameters

When starting the client, you can specify a series of parameters:

Usage: odpscmd [OPTION]... where options include: --help (-h)for help --project=<prj_name> use project --endpoint=<http://host:port> set endpoint -u <user_name> -p <password> user name and password -k <n> will skip begining queries and start from specified position -r <n> set retry times -f <"file_path;"> execute command in file -e <"command;[command;]..."> execute command, include sql command -C will display job counters

Example: (take '-f' as an example)

- Prepare the local script file 'script.txt'. Suppose that the file is located in the disk D and the content is shown as follows:

DROP TABLE IF EXISTS test_table_mj; CREATE TABLE test_table_mj (id string, name string); DROP TABLE test_table_mj;

- Running Command:

odpscmd\bin>odpscmd -f d:/script.txt;

- Display the execution result:

ID = 20150528122432906gux77io3

Log view:

http://webconsole.odps.aliyun-inc.com:8080/logview/?h=http://service-corp.odps.aliyun-

inc.com/api&p=odps_public_dev&i=2015052

8122432906gux77io3&token=RnlrSzJoL242YW43dFFIc1dmb1ZWZzFxQ1RFPSxPRFBTX09CTzoxMDcwMDI1NjI3ODA 1NjI5LDE0MzM0MjA2NzMseyJTdGF0ZW1l

bnQiOlt7IkFjdGlvbiI6WyJvZHBzOlJIYWQiXSwiRWZmZWN0IjoiQWxsb3ciLCJSZXNvdXJjZSI6WyJhY3M6b2RwczoqOnB yb2plY3RzL29kcHNfcHVibGljX2Rld

i9pbnN0YW5jZXMvMjAxNTA1MjgxMjI0MzI5MDZndXg3N2lvMyJdfV0sIlZlcnNpb24iOiIxIn0=

OK

ID = 20150528122439318gcmkk6u1

Log view:

http://webconsole.odps.aliyun-inc.com:8080/logview/?h=http://service-corp.odps.aliyun-

inc.com/api&p=odps_public_dev&i=2015052

8122439318gcmkk6u1&token=dSt0RXdlV0M5YjZET2I1MnJuUFkzWDN1aWpzPSxPRFBTX09CTzoxMDcwMDI1NjI3O DA1NjI5LDE0MzM0MjA2ODAseyJTdGF0ZW1I

bnQiOlt7IkFjdGlvbiI6WyJvZHBzOlJIYWQiXSwiRWZmZWN0IjoiQWxsb3ciLCJSZXNvdXJjZSI6WyJhY3M6b2RwczoqOnB yb2pIY3RzL29kcHNfcHVibGljX2RId

i9pbnN0YW5jZXMvMjAxNTA1MjgxMjI0MzkzMThnY21razZ1MSJdfV0sIlZlcnNpb24iOiIxIn0= OK

ID = 20150528122440389g98cmlmf

Log view:

http://webconsole.odps.aliyun-inc.com:8080/logview/?h=http://service-corp.odps.aliyun-

inc.com/api&p=odps_public_dev&i=2015052

8122440389g98cmlmf&token=NWlwL0EvQThxUXhzcTRERDc5NFg0b2IxZ3QwPSxPRFBTX09CTzoxMDcwMDI1NjI3OD41NjI5LDE0MzM0MjA2ODAseyJTdGF0ZW1l

bnQiOlt7IkFjdGlvbiI6WyJvZHBzOlJlYWQiXSwiRWZmZWN0IjoiQWxsb3ciLCJSZXNvdXJjZSI6WyJhY3M6b2RwczoqOnB yb2plY3RzL29kcHNfcHVibGljX2Rld

i9pbnN0YW5jZXMvMjAxNTA1MjgxMjI0NDAzODlnOThjbWxtZiJdfV0sIlZlcnNpb24iOiIxIn0=

ОК

Interactive Mode

Directly running the client will enter the interactive mode.

[admin: ~]\$odpscmd Aliyun ODPS Command Line Tool Version 1.0 @Copyright 2012 Alibaba Cloud Computing Co., Ltd. All rights reserved. odps@ odps> INSERT OVERWRITE TABLE DUAL SELECT * FROM DUAL;

Input the command at the cursor position (take a semicolon as a statement end mark) and press Enter to run.

Continuous Running

- When you use '-e' or '-f' option to run command, you can specify the parameter '-k' if there are multiple statements and you want to start running from a middle statement, which indicates ignoring the previous statements and running from the specified position. If the specified parameter <= 0, start running from the first statement.
- Each statement seperated by a semicolon is considered as a valid statement. The statements which runs successfully or fail to run will be printed at running time.
- For example, there are three SQL statements in the file '/tmp/dual.sql' :

drop table dual; create table dual (dummy string); insert overwrite table dual select count(*) from dual;

To ignore the first two statements:

odpscmd -k 3 -f dual.sql

Get Current Login User

Command Format:

whoami;

Use Example:

odps@ hiveut>whoami;

Name: odpstest@aliyun.com ID: 1090142773636588 End_Point: http://10.249.215.1/odps_debug1 Project: lijunsecuritytest

Use: get the aliyun account and end point configuration of current log user.

Quit

Command:

odps@ > quit; or q;

Eclipse Plugins

To facilitate the development work with Java SDK of MapReduce and UDF, ODPS provides Eclipse Development Plug-in. This plug-in can simulate the running process of MapReduce and UDF to provide local debugging methods for users and provide the function for generating a simple template.

Notes:

- To download this plug-in, click on Here.
- Unlike the local running mode provided by MapReduce, Eclipse plug-in cannot synchronize data with ODPS. The data used by users need to be manually copied to the warehouse directory of Eclipse plugin.

After downloading the Eclipse plug-in, decompress the software package to find the following jar:

odps-eclipse-plugin-bundle-0.15.0.jar

Place the plug-in into the subdirectory 'plugins' in Eclipse installation directory. Start the Eclipse plug-in, and click <Open Perspective> at the upper-right corner.



After clicking the button, the following dialog box is displayed:

CVS Repository Exploring
🕸 Debug
Git Git
Java (default)
Java Browsing
Java Type Hierarchy
NODES
Plug-in Development
Besource
E- learn Synchronizing
Cancel OK

Select [ODPS] and click on <OK>. the ODPS icon will appear at the upper-right corner, indicating that the plug-in takes effect.



There are two methods to create MaxCompute project.

Method 1

Slect [File > New > Project > MaxCompute > MaxCompute Project] to create the project (in the example, use 'ODPS' as the peoject name):



After creating MaxCompute project, the following dialog box will be popped up. Input Project name, and select the path of MaxCompute console. (The console should be uploaded at first.) At last, click <Finish>.



Note:

- For the introduction of MaxCompute console, please refer to Console.

creating project is finished, the following directory structure will be viewed in the left 'Package Explorer' :

🔁 • 🗄 🗅 📾 • 🖸 • 💁 🐨 🖉 • 🖄	Ŧ
🗏 Package Explorer 🛛 🕞 🔄 🔽 🗖 🗗	3
▼ ⁰⁰⁸⁵ odps	
净 src	
JRE System Library [Java SE 7 [1.7.0_71]]	
Referenced Libraries	
▼	
Com.aliyun.odps.examples.mr	
Resource.java	
WordCount.java	
com.aliyun.odps.examples.udf	
UDAFExample.java	
UDAFResource.java	
UDFExample.java	
UDFResource.java	
UDTFExample.java	
▶ 🛃 UDTFResource.java	
com.aliyun.odps.examples.udf.test	
temp	
V > warehouse	
example_project	
wc_in1	
Beadme	

Method 2

Click <New> at the left-upper corner:



After the dialog box is popped up, select 'ODPS Project' and click on <Next>:



The subsequent operations are similar with Method 1.

The installation of MaxCompute Eclipse plug-in is completed. User can use this plug-in to write MapReduce or UDF programs.

Note:

- For the function introduction of MapReduce in the plug-in, refer to MapReduce Development Plug-in Introduction.
- For the UDF program example, please refer to UDF Development Plug-in Introduction.

Run WordCount Example Quickly

1) Select WordCount example in OPDS project:



2) Right-click on 'WordCount.java' and click <Run As-> ODPS MapReduce>, as follows:



3) After the dialog box is popped up, select 'example_project' and click on <Finish>:

	ODPS MapReduce Run (Configuration
ODPS Mapreduce	Run Configuration	
Class com.aliyun.odps	examples.mr.WordCount	
Run Mode	mote	
Select ODPS Pro	ject	
example_project		Add Edit Remove
Resources		
Program Argume	nts	
?		Cancel Finish

4) After running is successful, the following result will be displayed:

🖳 Console 🕱	- 🗶 🔆 🕞 🚮 🖓 🥙 🛃 💷 - 📬 - 🗖 -
<terminated>WordCount [ODPS Mapreduce] /Library/Java/Java/JavaVirtualMachines/jdk1.7.0_71.jdk/Contents/Home/bin/java (2015年1月27日 下午3:4</terminated>	42:38)
信息: Reload warehouse table:wc_out	
Summery:	
Inputs:	
example_project.wc_in1,example_project.wc_in2/p1=2/p2=1	
Outputs:	
example_project.wc_out	
M1_example_project_LOT_0_0_0_job0	
Worker Count: 2	
Input Records:	
Output r (min: 3, max: 4, avg: 3)	
R2_1: 17 (min: 8, max: 9, avg: 8)	
R2_1_example_project_LOT_0_0_0_job0	
Worker Count: 1	
Input Records:	
Output is (min: 5, max: 5, avg: 5)	
R2_1FS_9: 5 (min: 5, max: 5, avg: 5)	
counters: 10	
map-reduce framework: 7	
combine_input_groups=5	
compine_output_recoras=5 man_input_bytes=87	
map_input_records=7	
map_output_records=17	
reduce_output_[example_project.wc_out]_bytes=37_	
reduce_output_[example_project.wc_out]_records=5	
user det ined counters: 5	
global_counts=22	
map_outputs=17	
reduce_outputs=5	
InstanceId: mr_20150127074239_358_27772	

Run Uer-defined MapReduce Program

1) Right-click on 'src' directory. Select <New -> Mapper>:



2) After selecting 'Mapper' and the following dialog box is displayed. Input the name of Mapper class and click on <Finish>:

	New Mapper		
Mapper Create a new f	Mapper implementation.		
Source folder:	odps/src		Browse
Package:	odps		Browse
Name:	UserMapper		
Superclass:	com.aliyun.odps.mapred.MapperBase		Browse
Interfaces:			Add
			Remove
(?)		Cancel	Finish

3) Now you can find a file 'UserMapper.java' is generated in the directory 'src' in 'Package Explorer' . The content of this file is a template of Mapper class:

```
package odps;
import java.io.IOException;
import com.aliyun.odps.data.Record;
import com.aliyun.odps.mapred.MapperBase;
public class UserMapper extends MapperBase {
@Override
public void setup(TaskContext context) throws IOException {
}
@Override
public void map(long recordNum, Record record, TaskContext context)
throws IOException {
}
@Override
public void cleanup(TaskContext context) throws IOException {
}
}
```

4) In the template, the configured package name defaults to 'odps'. You can modify it according to your actual requirement. Write the template contents as follows:

```
package odps;
import java.io.IOException;
import com.aliyun.odps.counter.Counter;
import com.aliyun.odps.data.Record;
import com.aliyun.odps.mapred.MapperBase;
public class UserMapper extends MapperBase {
Record word;
Record one:
Counter gCnt;
@Override
public void setup(TaskContext context) throws IOException {
word = context.createMapOutputKeyRecord();
one = context.createMapOutputValueRecord();
one.set(new Object[] { 1L });
gCnt = context.getCounter("MyCounters", "global_counts");
}
@Override
public void map(long recordNum, Record record, TaskContext context)
throws IOException {
for (int i = 0; i < record.getColumnCount(); i++) {
String[] words = record.get(i).toString().split("\\s+");
for (String w : words) {
word.set(new Object[] { w });
Counter cnt = context.getCounter("MyCounters", "map_outputs");
cnt.increment(1);
gCnt.increment(1);
context.write(word, one);
}
}
}
@Override
public void cleanup(TaskContext context) throws IOException {
}
}
```

5) In the same method, right-click on 'src' directory and select <New -> Reduce>:

	New Reducer	
Reducer Create a new F	Reducer implementation.	
Source folder:	odps/src	Browse
Name:	UserReduce	
Superclass:	com.aliyun.odps.mapred.ReducerBase	Browse
		Add
		Hellove
?	Cancel	Finish

Input the name of Reduce class. (In this example, use 'UserReduce' as the class name):

6) In 'Package Explorer', a file name 'UseReduce.java' is generated in the directory 'src'. This file content is a template of Reduce class. Edit the template:

```
package odps;
import java.io.IOException;
import java.util.Iterator;
import com.aliyun.odps.counter.Counter;
import com.aliyun.odps.data.Record;
import com.aliyun.odps.mapred.ReducerBase;
public class UserReduce extends ReducerBase {
private Record result;
Counter gCnt;
@Override
public void setup(TaskContext context) throws IOException {
result = context.createOutputRecord();
gCnt = context.getCounter("MyCounters", "global_counts");
}
@Override
public void reduce(Record key, Iterator<Record> values, TaskContext context)
```

```
throws IOException {
long count = 0;
while (values.hasNext()) {
Record val = values.next();
count += (Long) val.get(0);
}
result.set(0, key.get(0));
result.set(1, count);
Counter cnt = context.getCounter("MyCounters", "reduce_outputs");
cnt.increment(1);
gCnt.increment(1);
context.write(result);
}
@Override
public void cleanup(TaskContext context) throws IOException {
}
}
```

7) Create 'main' function: right-click on 'src' and select <New -> MapReduce Driver>. Fill in Driver Name (in this example, use 'UserDriver' as the name), Mapper and Recduce (in this example use 'UserMapper' and 'UserReduce' as corresponding name) and click on <Finish>. The file 'MyDriver.java file' is also displayed in 'src' directory:

	New MapReduce Driver		
MapReduce Dr	iver		
Create a new M	apReduce driver.		
Source folder:	odps/src		Browse
Package:	odps		Browse
Name:	UserDriver		
Superclass:	java.lang.Object		Browse
Interfaces:			Add
		(Remove
Mapper:	UserMapper		Browse
Reducer:	UserReduce		Browse
?		Cancel	Finish

8) Edit the contents of driver:

package odps;

import com.aliyun.odps.OdpsException; import com.aliyun.odps.data.TableInfo; import com.aliyun.odps.examples.mr.WordCount.SumCombiner; import com.aliyun.odps.examples.mr.WordCount.SumReducer; import com.aliyun.odps.examples.mr.WordCount.TokenizerMapper; import com.aliyun.odps.mapred.JobClient; import com.aliyun.odps.mapred.RunningJob; import com.aliyun.odps.mapred.conf.JobConf; import com.aliyun.odps.mapred.utils.InputUtils; import com.aliyun.odps.mapred.utils.OutputUtils; import com.aliyun.odps.mapred.utils.SchemaUtils;

public class UserDriver {

public static void main(String[] args) throws OdpsException {
 JobConf job = new JobConf();
 job.setMapperClass(TokenizerMapper.class);
 job.setCombinerClass(SumCombiner.class);
 job.setReducerClass(SumReducer.class);

job.setMapOutputKeySchema(SchemaUtils.fromString("word:string")); job.setMapOutputValueSchema(SchemaUtils.fromString("count:bigint")); InputUtils.addTable(TableInfo.builder().tableName("wc_in1").cols(new String[] { "col2", "col3" }).build(), job); InputUtils.addTable(TableInfo.builder().tableName("wc_in2").partSpec("p1=2/p2=1").build(), job); OutputUtils.addTable(TableInfo.builder().tableName("wc_out").build(), job); RunningJob rj = JobClient.runJob(job); rj.waitForCompletion(); }

}

9) Run MapReduce program. Right-click on 'UserDriver.java' and select <Run As -> ODPS MapReduce> to pop up the following dialog box:

	ODPS MapReduce Run Configu	uration	
ODPS Mapreduce Run	Configuration		
Class			
odps.UserDriver			
Run Mode			
• Local O Remote	3		
Select ODPS Project			
example_project			Add
			Add
			Edit
			Remove
Resources			
Program Arguments			
?	C	Cancel	Finish

10) Select 'example_project' as the ODPS Project and click on <Finish> to run MapReduce

program on the local:



11) If the information is output as mentioned above, it indicates that local operation runs successfully. The output result is saved in the directory 'warehouse'. Refresh ODPS project:



'wc_out' is the output directory and 'R_000000' is result file. Through local debugging, the result is confrmed to be correct and you can package MapReduce program through Eclipse export function. After it is packaged, upload the jar package to ODPS. About how to execute MapReduce in distributed environment, please refer to Quick Start.

12) After the local debugging passed, user can package the codes into jar package through Eclipse Export function, provided for subsequent distributed environment. In this example, we nominate the package 'mr-examples.jar'. Select the directory 'src' and click on <Export>:

▼ (100 ps		A2,4	
 # src JRE System Library [Java SE 7 [Referenced Libraries # examples # com.aliyun.odps.examples.mn # Resource.java WordCount.java WordCount.java 	New Go Into	AR 4	•
	Open in New Wind Open Type Hierarch Show In	ow hy ∼∵≋W	F4
 ♥ ♥ WordCount ▶ ♥ SumCombiner ▶ ♥ SumReducer ▶ ♥ TokenizerMapper ♥ main(String[]) : void ▶ ₱ com.alivun.odps.examples.ud 	 Copy Copy Qualified I Paste Delete 	Name	жс жv ⊠>
 com.aliyun.odps.examples.ud temp warehouse example_project resources_ table_resource1 	Build Path Source Refactor	∵#S ∵#T	* * *
 ▶	 Export Refresh Assign Working Se 	ts	F5
 ▶	Debug As Run As Team Compare With Restore from Local 🕸 Import from Rep	History	* * * *
	Properties		жı

13) Select 'Jar File' as an export mode:

Export	
Select Export resources into a JAR file on the local file system.	Z
Select an export destination:	
type filter text	
 Install JAR file Javadoc Runnable JAR file Plug-in Development Run/Debug Team 	
(?) < Back Next > Finish	Cancel

14) You just need to export the package in 'src'. Specify the name of Jar File to be 'mr-examples.jar':

JAR Export	
JAR File Specification (1) The export destination will be relative to your workspa	ace.
Select the resources to export: ▲ ● ● ODPS ▲ ● ● src ● ● ● com.aliyun.odps.mapred.o ● ● ● examples ● ● mr_local_jobs ● ● ● warehouse	:spath ject
 ✓ Export generated class files and resources 	
 Export all output folders for checked projects Export Java source files and resources Export refactorings for checked projects. <u>Select refactoring</u> 	torings
Select the export destination: JAR file: mr-examples.jar Options:	▼ Browse

15) Click on <Next> to export the jar file successfully.

If you want to simulate new Project creation in the local, you can create a subdirectory (has same level with example_project) in the directory 'warehourse'. The directory hierarchy structure is shown as follows:

```
<warehouse>
l____example_project(Project Dirctory)
_____<__tables__>
||__table_name1(non-partition table)
|||____ data(File)
|||____ <__schema__> (File)
||__table_name2(Partition Table)
| |____ partition_name=partition_value(partition directory)
|||____ data(file)
||____ <__schema_> (file)
  __ <__resources__>
__table_resource_name (table resource)
||___<__ref__>
|____ file_resource_name ( file resource )
```

'schema ' Example:

Non-partiton table: project=project_name table=table_name columns=col1:BIGINT,col2:DOUBLE,col3:BOOLEAN,col4:DATETIME,col5:STRING

Partition table: project=project_name table=table_name columns=col1:BIGINT,col2:DOUBLE,col3:BOOLEAN,col4:DATETIME,col5:STRING partitions=col1:BIGINT,col2:DOUBLE,col3:BOOLEAN,col4:DATETIME,col5:STRING

Note:

At present, the following five data formats are supported: bigint,double,boolean,datetime,string, which correspond to the data types in java: -long,double,boolean,java.util.Date,java.lang.String.

'data' Example:

1,1.1,true,2015-06-04 11:22:42 896,hello world

N,N,N,N,N,N

Note: The time format is accurate to the millisecond level and all types are represented NULL by '\N'.

Notes:

- If mapReduce program runs in the local, the default is to search corresponding tables or resources from the directory 'warehouse'. If the tables or resources are not existent, corresponding data will be downloaded from the server and saved in 'warehouse'. Then run MapReduce in the local.
- After running MapReduce is finished, please refresh the directoty 'warehouse' to view generated result.

Local Debug UDF Program

This section describes how to develop UDF with the Eclipse plug-in and how to run UDF on local. The preparation and implement process is similar to UDF. You can refer to the example of UDF.ODPS Eclipse plug-in provides two methods to run UDF: Menu Bar and quickly running by rigit-clicking it.

Run UDF through Menu Bar

Select Run > Run Configurations... from the menu bar and the following dialog box pops

up:

Run Configurations	Bag-67	×
Create, manage, and run conf 	ïgurations	
Image: Second	Name: Resource Main ODPS Config M= Arguments M JRE	E Common Browse
Filter matched 19 of 19 items	Apply	Revert
?	Run	Close

You can create a new Run Configuration. Select the UDF class and type to be executed, select ODPS Project and fill in the information of input table. For example:

🛞 🗊 Run Configurations				
Create, manage, and run cor	nfigurations			
[] 🗎 🗶 🖻 ⊉▼	Name: udf			
type filter text		FIUDAF 🔜 JRE 😽 Classpath 🕅	Environment 🔲 <u>C</u> ommo	n
Apache Tomcat	Project:			
Eclipse Application	odps_exar	nple		Browse
Eclipse Data Tools	UDF UDTF U	JDAF class:		
Generic Server	com.aliyur	odps.examples.udf.UDFExample	2	<u>S</u> earch
HTTP Preview J2EE Preview	Class Type UDF C			
🖾 Java Applet	Select ODP	5 project		
Java Application	example	project	Add	
Ju JUnit			(r-dia	
Ju JUnit Plug-in Test			Edit	
m2 Maven Build			Remove	
wordcount	Input Table			
ODPS UDF UDTF UDAF	Table:	wc_in2		
🚾 udf	Partitions:	p2=1,p1=2	ie: p1=1,p2=1 (def	ault all partitions)
OSGi Framework	Columns:	colc,cola,colb	ie: c1,c2,c3 (defau	lt all columns)
X XSL				
Filter matched 20 of 167 items			Apply	Revert
?			Close	Run

In the configuration mentioned above, "Table" indicates the input table of UDF. "Partitions" indicates the partitions from which the data is read, seperated by commas. "Columns" indicates the columns, which will be considered as the parameters of UDF to be introduced. The columns are seperated by commas.

Click Run to execute the program and the running result is displayed in the console:

Running Quickly by Right-clicking it

Select a udf.java file (such as : UDFExample.java) and rigit click the mouse. Then select **Run As > Run UDF|UDAF|UDTF**:

Package Explorer 🛛	\$ ▼ □ □	J UDFExan	nple.ja	va 🖾
▼ ∰ odps		packa	ge cor	n.aliyun.odps.examples.udf;
🗁 src				
JRE System Library [Java SE 7 [1.]	7.0_71]]	impor	t com	.allyun.odps.udf.UDF;
Referenced Libraries		publi	c cla	ss UDFExample extends UDF {
▼ ∰ examples				
Com.aliyun.odps.examples.mr		☐ /**		
com.aliyun.odps.examples.ud	New			t: example_project
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	Open With		N	3. corr,corr
	Open Type Hier	aroby		
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UDTFResource.iava	Show In	Σ ₩₩		"ss2s:" + a + "," + b;
com.aliyun.odps.examples.ud	Copy		жc	
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▶ 🗁 warehouse		eu marrie	0014	t: example_project
	Paste		жv	wc_in1
	💢 Delete		\mathbf{X}	s: col1,col2,col4,col3
	Build Path			1
	Source	7-990		ring evaluate(String a, String b,
	Befactor	1-90T		"ssss2s:" + a + "," + b + "," + c
	Relactor	7. 49.1		
	🚵 Import			
				t: example_project
				wc_in2
	References		•	ions: p2=1,p1=2
	Declarations		•	S: <u>core,corb,cord</u>
-				ring evaluate(String a, String b,
	🦑 Refresh		F5	"sss2s:" + a + "," + b + "," + c;
	Assign Working	Sets		
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	nestore from LC	Juai History	•	_project.wc_in1,example_project.wo
com alivun odos examples udf UDEExample	Properties		жı	

The configuration information is shown as follows:

	ODPS UDF UDTF UDAF Run	Configuration
ODPS UDF U	JDTF UDAF Run Configuration	
Class		
com.aliyun.	odps.examples.udf.UDFExample	
Select ODP	S Project	
example_p	roject	Add Edit Remove
Table:	wc in2	1
Partitions:	p2=1,p1=2	ie: p1=1,p2=1 (default all partitions)
Columns:	colc,colb,cola	ie: c1,c2,c3 (default all columns)
(?)		Cancel

In the configuration mentioned above, "Table" indicates the input table of UDF. "Partitions" indicates the partitions from which the data is read, seperated by commas. "Columns" indicates the columns, which will be considered as the parameters of UDF to be introduced. The columns are seperated by commas.

Click on **Finish** to run UDF and get the output result.

Running Customized UDF Program

Right click the mouse on a project and select **New >UDF** (or select the menu bar **File > New > UDF**).

Fill in the UDF class name and click "Finish". Generate a Java file in corresponding 'src' directory with the same name as this UDF class. Edit this java file:

package odps;

import com.aliyun.odps.udf.UDF;

```
public class UserUDF extends UDF {
    /**
 * project: example_project
 * table: wc_in1
 * columns: col1,col2
 *
 */
public String evaluate(String a, String b) {
 return "ss2s:" + a + "," + b;
}
}
```

Right click this java file (such as UserUDF.java) and select "Run As" ->" ODPS UDF|UDTF|UDAF" :

増 Package Explorer 😫	□ 🕏	~	UDFExample.jav	va [] UserUDF.java ⊠
▼∰ odps ▼ ∰ src ▼ ∰ odps			package odp import com.	os; .aliyun	.odps.udf.UDF;
UserUDF.java JRE System Library [Japan]	ava SE 7 [1.7.0 71]]	New		►	DF extends UDF {
 ► ■ Referenced Libraries ▼ ⊕ examples ► ⊕ com.aliyun.odps.ex ▼ ⊕ com.aliyun.odps.ex ► □ UDAFExample.ja 	amples.mr amples.udf ava	Open Open Wit Open Typ Show In	th be Hierarchy て第W	F3 ► F4	example_project _in1 col1,col2
 DDAFResource.j UDFExample.jav UDFResource.j. UDFResource.ja UDTFExample.ja UDTFExample.ja UDTFResource.j. 	ava a va iva ava	Copy Copy Paste	Qualified Name	жс жv ⊗	g evaluate(String a, String b) { 2s:" + a + "," + b;
 temp warehouse 	amples.udf.test	Build Pat Source Refactor	h て第S て第T	* * *	
		🔤 Impor 🛃 Expor	t t		
		Referenc Declarati	es ons	*	3 UDF UDTF UDAF] /Library/Java/JavaVirtua
		🦑 Refres Assign W	sh /orking Sets	F5	
		Debug As	S	►	
		Run As			1 ODPS UDF UDTF UDAF
		Team Compare Replace Restore f	With With rom Local History		Run Configurations
		Propertie	s	жı	-

Configure the following dialog box:

	ODPS UDF UDTF UDA	F Run Configuration
ODPS UDF	UDTF UDAF Run Configuration	
Class		
odps.User	UDF	
Select OD	PS Project	
example_	project	Add
		Remove
Table:	we int	
Partitions:		ie: p1=1,p2=1 (default all partitions)
Columns:	col1,col2	ie: c1,c2,c3 (default all columns)
?		Cancel Finish

Click **finish** to get the result:

ss2s:A1,A2 ss2s:A1,A2 ss2s:A1,A2 ss2s:A1,A2

Only the operation instance of UDF is described in this section, and the way of UDTF operating is quite similar with the UDF, therefore, no special descriptions about this situation.

After creating a ODPS project, user can write Graph program and complete the local debugging accoring the following steps. In this example, we select "PageRank.java" provided by the plug-in to complete the debugging. Select "PageRank.java" in "examples" :

Java -	test/examples/com/aliyun/odps/examples/graph/PageRank.java - Eclipse - /Users/alibaba/Documents/eclipse/workspace
💼 • 🗉 🛍 📉 🎋 • 🔕 • 🎕 🐨 🖉 🖋 • 🖗	
Package Explorer 23 Package Explorer 23 Package Explorer 23 Package Explorer 23 Package Explorer 24 Package Explorer 24	<pre>[] PageBankjava isi</pre>

Right click the mouse and select "Debug As" -> "ODPS MapReduce|Graph" :



The dialog box appears and configure it as follows:

ODPS MapReduce Graph Run Configuration
ODPS Mapreduce Graph Run Configuration
Class
com.aliyun.odps.examples.graph.PageRank
Run Mode
• Local O Remote
Select ODPS Project
meta_etat Add
Edit
Resources
Program Arguments
pagerank_in pagerank_out
Cancel Finish

View the running result:

🖹 Problems @ Javadoc 🔯 Declaration 📮 Console 😫	= 🗙 🔆 📴 🖬 🖉 🖉 🚽 📬 – 🗖 –
<terminated> PageRank [ODPS Mapreduce]Graph] /Library/Java/JavaVirtualMachines/jdk1.7.0_71.jdk/Contents/Ho</terminated>	me/bin/java (2015年4月14日 下午5:55:53)
信急: Finished to write table scheme : example_project.pagerank_out>/Users/alibaba/Doc 図月 14, 2015 5:55:55 下午 com.aliyun.odps.graph.local.master.Master init 倍4: worker num :1	uments/eclipse/workspace/test/temp/graph_20150414095554_448_810
4	
vertex edgs size: 2 2	
1	
vertex edgs size: 2	
2	
3 Ventex edge size: 2	
3	
1 2	
vertex edgs size: 2	
user defined counters: 4 com.aliyun.odps.graph.local.COUNTER	
TASK_INPUT_BYTE=24	
TASK_INPOT_RECORD=4 TASK_OUTPUT_BYTE=84	
TASK_OUTPUT_RECORD=4	
信息: Reload warehouse table:pagerank_out	
graph task finish Job Finished in 1.042 seconds	
Sources and the accordance	

You can view the computing result on the local:

Package Explorer 33 ■ ■ ■ ■ Image: System Library [Java SE 7 [1.7.0_71]] >	Image: Annual Control of Console IS 1.0 2.2 3.1 4.3 5.2 Problems @ Javadoc @ Declaration @ Console IS stemminated: PageRank (DDPS Mapreduce)Graph /Library/Java/JavaVirtualMachines/dkt file: Finished to write table scheme : example_project.pageronk_out IMP 14, 2015 5:55 55 FF com.aliyun.odps.graph.local.master.Master i file: worker num :1 2 4 vertex edgs size: 2 1	1.7.0_71jdk/Content >/Users/alibaba, nit	s/Home/bin/ja /Documents/
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schema	3		
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	graph task finish		
	Job Finished in 1.042 seconds		

Afther the debugging passed, you can package the program and upload it to ODPS as a Jar resource. Then submit Graph job.

Note:

- For the package process, refer to MapReduce Eclipse Plug-in Introduction.
- For the structure introduction of local result, refer to MapReduce Eclipse Plug-in Introduction.
- For the detaied introcution of uploading Jar resource, refer to 'Add Resource' in Basic Introduction.
- For submitting the Graph job, refer to Graph Function.
- SDK Downloads : maven user can search "odps-sdk" from Maven library get MaxCompute Java SDK ;
- MaxCompute console : click here ;
- Eclipse plugin : click here ;
- Intelij plugin : click here .