Hortonworks We Do Hadoop

Cheat Sheet

Hive for SQL Users

Contents

If you're already a SQL user then working with Hadoop may be a little easier than you think, thanks to Apache Hive. Apache Hive is data warehouse infrastructure built on top of Apache™ Hadoop® for providing data summarization, ad hoc query, and analysis of large datasets. It provides a mechanism to project structure onto the data in Hadoop and to query that data using a SQL-like language called HiveQL (HQL).

Use this handy cheat sheet (based on this original MySQL cheat sheet) to get going with Hive and Hadoop.

Additional Resources

Learn to become fluent in Apache Hive with the Hive Language Manual:
https://cwiki.apache.org/confluence/display/Hive/LanguageManual

Get in the Hortonworks Sandbox and try out Hadoop with interactive tutorials:
http://hortonworks.com/sandbox

Register today for Apache Hadoop Training and Certification at Hortonworks University:
http://hortonworks.com/training

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Query

Function	MySQL	HiveQL
Retrieving information	`SELECT from_columns FROM table WHERE conditions;`	`SELECT from_columns FROM table WHERE conditions;`
All values	`SELECT * FROM table;`	`SELECT * FROM table;`
Some values	`SELECT * FROM table WHERE rec_name = “value”;`	`SELECT * FROM table WHERE rec_name = "value";`
Multiple criteria	`SELECT * FROM table WHERE rec1=”value1” AND rec2=”value2”;`	`SELECT * FROM TABLE WHERE rec1 = "value1" AND rec2 = "value2";`
Selecting specific columns	`SELECT column_name FROM table;`	`SELECT column_name FROM table;`
Retrieving unique output records	`SELECT DISTINCT column_name FROM table;`	`SELECT DISTINCT column_name FROM table;`
Sorting	`SELECT col1, col2 FROM table ORDER BY col2;`	`SELECT col1, col2 FROM table ORDER BY col2;`
Sorting backward	`SELECT col1, col2 FROM table ORDER BY col2 DESC;`	`SELECT col1, col2 FROM table ORDER BY col2 DESC;`
Counting rows	`SELECT COUNT(*) FROM table;`	`SELECT COUNT(*) FROM table;`
Grouping with counting	`SELECT owner, COUNT(*) FROM table GROUP BY owner;`	`SELECT owner, COUNT(*) FROM table GROUP BY owner;`
Maximum value	`SELECT MAX(col_name) AS label FROM table;`	`SELECT MAX(col_name) AS label FROM table;`
Selecting from multiple tables (Join same table using alias w/”AS”)	`SELECT pet.name, comment FROM pet, event WHERE pet.name = event.name;`	`SELECT pet.name, comment FROM pet JOIN event ON (pet.name = event.name);`

Metadata

Function	MySQL	HiveQL
Selecting a database	`USE database;`	`USE database;`
Listing databases	`SHOW DATABASES;`	`SHOW DATABASES;`
Listing tables in a database	`SHOW TABLES;`	`SHOW TABLES;`
Describing the format of a table	`DESCRIBE table;`	`DESCRIBE (FORMATTED|EXTENDED) table;`
Creating a database	`CREATE DATABASE db_name;`	`CREATE DATABASE db_name;`
Dropping a database	`DROP DATABASE db_name;`	`DROP DATABASE db_name (CASCADE);`

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Current SQL Compatibility

Hive SQL Datatypes	Hive SQL Semantics
INT	SELECT, LOAD INSERT from query
TINYINT/SMALLINT/BIGINT	Expressions in WHERE and HAVING
BOOLEAN	GROUP BY, ORDER BY, SORT BY
FLOAT	Sub-queries in FROM clause
DOUBLE	GROUP BY, ORDER BY
STRING	CLUSTER BY, DISTRIBUTE BY
TIMESTAMP	ROLLUP and CUBE
BINARY	UNION
ARRAY, MAP, STRUCT, UNION	LEFT, RIGHT and FULL INNER/OUTER JOIN
DECIMAL	CROSS JOIN, LEFT SEMI JOIN
CHAR	Windowing functions (OVER, RANK, etc)
CARCHAR	INTERSECT, EXCEPT, UNION, DISTINCT
DATE	Sub-queries in WHERE (IN, NOT IN, EXISTS/ NOT EXISTS)
	Sub-queries in HAVING

Color Key
Hive 0.10
Hive 0.11
FUTURE

Command Line

Function	Hive
Run query	`hive -e 'select a.col from tab1 a'`
Run query silent mode	`hive -S -e 'select a.col from tab1 a'`
Set hive config variables	`hive -e 'select a.col from tab1 a' -hiveconf hive.root.logger=DEBUG,console`
Use initialization script	`hive -i initialize.sql`
Run non-interactive script	`hive -f script.sql`

Hive Shell

Function	Hive
Run script inside shell	`source file_name`
Run ls (dfs) commands	`dfs –ls /user`
Run ls (bash command) from shell	`!ls`
Set configuration variables	`set mapred.reduce.tasks=32`
TAB auto completion	`set hive.<TAB>`
Show all variables starting with hive	`set`
Revert all variables	`reset`
Add jar to distributed cache	`add jar jar_path`
Show all jars in distributed cache	`list jars`
Delete jar from distributed cache	`delete jar jar_name`