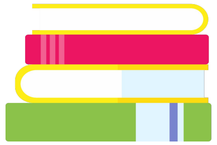
Hadoop Admin Role & Hive Data Warehouse support

Linux O/S 17.10.1
Hadoop HDFS 2.7.3
Kerberos Credentials 5-1.17
Hive 2.1.1, Data Warehouse
Sqoop 1.4.7
Cloudera Manager 5.16.2
Spark 2.1.0
Hbase 1.2.0
Power BI 2.47
Data Visualization



Started:	[illegible]
Version:	[illegible]
Compiled:	[illegible]
Cluster ID:	[illegible]
Block Pool ID:	[illegible]

[illegible]

Configured Capacity	[illegible]

Hadoop HDFS System Config

1. Hadoop 2.7.3
2. Java-8-openjdk-amd64
3. Systemctl - disable IPV6
4. SSh : Authorized_keys
5. Core File Configuration : ~/.bashrc , hadoop-env.sh , Core-site.xml , Mapred-site.xml , hdfs-site.xml , yarn-site.xml

HDFS Web Access port :

1. Clouser ID, Block Pool, Security, Safemode, Heap Memory, Block Pool used, Namenode Journal Manager, Edit Log file, edits_ in progress, fsimage, Namenode storage metadata (fsimage-edit log = checkpoint ->New fsimage), Datanode in operation (node, capacity, used, non dfs and dfs, block, block pool used), Decommissioning (Node, replication, block)
    1. http://localhost:50070/dfshealth.html#tab-overview
    2. ResourceManager Web Application HTTP : 8088
    3. NodeManager Web Application HTTP port : 8042
    4. Cloudera manager :7180
    5. hue> admin/admin : 8888

HADOOP Admin Role:
netstat -tulnp | grep 12574

1. hdfs dfsadmin -report
2. hdfs dfs -ls /tmp/logs
3. ps-def | grep namenode
4. ps-def | grep datanode
5. ps -ef | grep cloudera
6. hdfs dfsadmin -safemode get enter ON
7. hdfs fsck -location -blocks> /tmp/fsck_log.txt
8. cd /run/cloudera-scm-agent/process/ >process directory
9. kill -9 17249 (process id kill)
10. df -kh /dfs/dn   (Rebalance the cluster , datanode % used alert)

HDFS HA NN(High Availability) :

11. Implementation strategy : QJM Quorum based storage and NFS
12. hdfs@ip-182$ ps -ef | grep ZKFController
13. root@ip-182 91-hdfs-NAMENODE$ cat core-site.xml | grep fs.defaultsFS

HighAvility NodeManager:

14. ps -ef | grep nodemanager
15. ps -ef | grep application
16. HighAvilityNodeManager,Applicaiton Master,and Containers
17. yarn rmadmin -failover rm35
18. hdfs dfs -ls /user/hive | grep warehouse
19. hdfs dfs -ls /user/hive/warehouse/retailsdb.db/customers
20. services cloudera-scm-agent status
21. ps -ef | grep HMaster (Hbase)

Kerberos Credentials 5-1.17

1. Krb5-server, krb5-libs krb5-workstation
2. vi /etc/krb5.conf (default_realm = Hadoop.com , kdc=hostname, admin_server = hostname , Domain realm under)
3. kdb5_util create -s
4. service krb5kdc start
5. service kadmin start
6. kadmin.local -q "addprinc admin/admin"
7. vi /var/kerberos/krb5kdc/kadm5.acl
8. service kadmin restart
9. kadmin -p admin/admin@HADOOP.COM
10. kadmin: listprincs
11. kadmin: add_principal abcd
12. create principal as admin
13. CM-Adminstration-secutitry
14. root@ip-236: kadmin -p admin/admin@quickstart.cloudera
15. kadmin : list_principals

SPARK

Part 1. Spark as ETL tool
write to parquet using spark, crate an external talbe

Part 2: SprakSQL to query data from hive
Read Hive table data from spark

```
case class person(name: String, age: Int, sex:
string) val data = Seq(Person("jack",25,"M"),
Person("jill",25,"F"), Person("jess",24,"F"))
val df = data.toDF() df.select("name",
"age","sex").write.mode(SaveMode.Append).for
mat("parquet").save("/tmp/person")

//Add new data
val data = Seq(Person("john",25,"M"))

CREATE EXTERNAL TABLE person (name
string, age int, sex string)
stored as parquet
location '/tmp/person
```

Hbase :

```
root@ip-182$ ps -ef | grep HMaster
port: 60010 - Habase Master Web UI port
port: 60000  - zookeeper connection
centos@ip-113$ ps -ef | grep region
hdfs@ip-113$ hbase shell
```

Sqoop-1.4.7

1. ~/.bashrc
   export SQOOP_HOME=/home/hduser/sqoop/sqoop-1.4.7.bin__hadoop-2.6.0 export PATH=$PATH:$SQOOP_HOME/bin
2. Sqoop-env.sh
   #Set path to where hadoop-*-core.jar is available export HADOOP_COMMON_HOME=/usr/local/hadoop
   #Set the path to where bin/hive is available
   export HIVE_HOME=/home/hduser/hive/apache-hive-2.1.1-bin
3. 4. Mysql-connector-java-5.1.38.jar
4. sqoop import --connect jdbs:mysql://demo-db.c9hhh.us-east-1.rds.amazonaws.com/employee --driver com.mysql.jdbc.Driver --username masterdb -P --table employees

Data Warehouse

Hive-2.1.1

1. Configuration :
   ~/.bashrc
   export
   HIVE_HOME=/home/hduser/hive/apache-hive-2.1.1-bin
   export PATH=$PATH:$HIVE_HOME/bin
2. hduser@darrajVB:~$ hdfs dfs -mkdir -p
   /user/hive/warehouse
   hduser@darrajVB:~$ hdfs dfs -chmod 777
   /user/hive/warehouse
   hduser@darrajVB:~$ hdfs dfs -mkdir -p /tmp
   hduser@darrajVB:~$ hdfs dfs -chmod 777 /tmp
   hduser@darrajVB:~$ hdfs dfs -ls /
3. schematool -initSchema -dbType derby
4. Data Warehouse Location:
   - /user/hive/warehouse
5. Metastore_db
6. Configuration Properties in the hive-site.xml
   $HIVE_HOME/bin/hive --service hiveserver2
   HiveServer2 run under two instance
7. hdfs@ip-182$ beeline -u
   jdbc:hive2://ip-182:10000/default
   ihdfs@ip-182$ impala-shell-i ip-206:21000 -d default

Create database:

```
CREATE DATABASE userdb;
show databases;
CREATE DATABASE retailsdb;
use retailsdb
create table customers (customer_id INT,
 customer_fname STRING) row format delimited Fields terminated by ',';
LOAD DATA LOCAL INPATH '/home/hduser/Desktop/DataSet/Customer.csv' INTO TABLE customers;

select * from customers where customer_state='NY';
```

Create external table :

```
create external table session_test_external
(id string, name string, age int)
row format delimited fields terminated by ',' location '/tmp/external_tables';
```

Create external_partitioned :

```
create external_partitioned table session_test_external_partitioned
(id string, name string, age int) partitioned by (date string)
row format delimited fields terminated by
',' location '/tmp/external_tables';
```

Join Table -- Most popular product categories

```
select c.category_name, count(order_item_quantity) as count
from order_items oi
inner join products p on oi.order_item_product_id = p.product_id
inner join categories c on c.category_id = p.product_category_id
group by c.category_name
order by count desc
limit 10;
```

Cloudera Ecosystem CDH 5.13.0

Cloudera Navigation (Cluster)- Host, HDFS, YARN, Zookeeper, Hive, Hue, Impala, Spark 2, Sqoop,
Home - Status, All Health Issues, configuration
Host - All Hosts, Roles, Diski Overview
Diagnostics - Event , Logs, Server Log
Audit - Search , Download CSV
Administration- Setting, Alerts, Users, Security

HDFS summary
Configured Capacity , Status summary (Balancer, Datanode, Namenode, SecondaryNamenode, Host, Health History, Charts HDFS capacity
Instance (Namenode, 2NN, Datanode, Balancer)
Add Role : Gateway, JournalNode, NN, 2ND, DataNode, Failover Controller,

Cluster deploy in AWS cloud (Cloudera Manager) : AWS : EC2
RHEL-7.4_HVM-20180122-x86_64-1-Hourly2-GP2 - ami-cebe94ab
t2.xlarge, Variable 4 CPU16 EBS only, Moderate

Number of instances > 4 , s4: Add storage > 100gb , s6: configure firewall/secutity group , type : all tcp, ptotocl : tcp, sourcr : anywhere
Key pair : create new key (public file format as PEM) : cm_installation > download to local desktop

CM-Master instance1 : Ipv4 public IP : 18.191.157.218 ,   Slv1-DN1   instance2 : IP : 18.220.112.247,   slv2-DN2   instance3 : IP : 3.17.76.120
ec2-3-17-175-52.us-east-2.compute.amazonaws.com, ec2-18-191-157-218.us-east-2.compute.amazonaws.com
Ec2-18-220-112-247.us-east-2.compute.amazonaws.com, ec2-3-17-76-120.us-east-2.compute.amazonaws.com

Putty Gen > load > select pem file > save private key > cm_installtion_ppt on desktop >
Putty Terminal 4 Configuration and open : Session Loggin > AWS instance1 cm IP address 18.188.247.101
SSH > Auth > Browse > cm_installation_ppt.ppk > open > login as : ec2-user

Cloudera Manager installation process : Install Cloudera Manager and db.

AWS : EMR & S3 , EMR hadoop cluster

1. Create EMR cluster
2. cluster name : demo
4. s3 folder : s3://log
5. Launch mode cluster > check box
6. s/w : application core hadoop check box
7. security : EC2 key pair demotest
8. permission default check box
9. create cluster

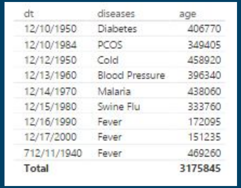
Power BI 2.47 Data Visualization

Hive ODBC Driver 2.6.1

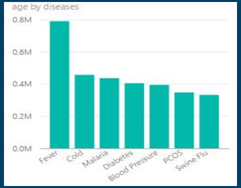
1. Hive ODBC Driver DSN setup under Windows Admin
2. Hive Server Type : Hive Server 2
3. Host : 192.168.1.202 , Port : 10000
4. Database : default

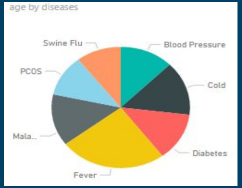
Power BI : Get Data

1. Get Data : Hadoop Files (HDFS) & ODBC
2. ODBC Connection
3. From ODBC : Data source Name (DSN) : Hive
4. ODBC (dsn=hive)
5. Hive Database Load : Health.DB
6. SQL command run for Warehouse



dt	diseases	age
12/10/1950	Diabetes	406770
12/10/1984	PCOS	349405
12/12/1950	Cold	458920
12/13/1960	Blood Pressure	396340
12/14/1970	Malaria	438060
12/15/1980	Swine Flu	333760
12/16/1990	Fever	172095
12/17/2000	Fever	151235
712/11/1940	Fever	469260
Total		**3175845**





Thank you