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Title - Multi node Cassandra cluster

Aim - To setup a multi node Cassandra cluster

Introduction & Theory -

A cluster in Cassandra is one of the shells in the whole Cassandra database. Many Cassandra Clusters combine together to form the database in Cassandra. A Cluster is basically the outermost shell or storage unit in a database. The Cassandra Cluster contains many different layers of storage units.

The following are different layers in a Cassandra Cluster:

a. Node Cluster

Node is the second layer in a cluster. This layer basically comprises of systems or computers or storage units. Each cluster may contain many nodes or systems. These systems or nodes are connected together.

They collectively share data through the replication in Cassandra and independently as well. The replication factor in the nodes allows the user to have a redundancy for the data stored.

b. Keyspace

The keyspace is the next layer of the storage. In a node, there are many keyspaces. These keyspaces are basically the outermost storage unit in a system. They contain the main data. The data distributed according to their properties or areas.

c. Column Families

The next layer is the column families. The keyspace is further divided into column families. These column families have different areas or headings under which the data is distributed. In a keyspace, these column families are categorized into different headings or titles.

These titles further contain different layers of storage units. These column families can also be characterized by tables. The column families differ from the tables through their APIs.

d. Rows

The next layer in the database is of the Rows as according to column families. The Rows are basically the classification under which the column family is divided. These classifications, in turn, create specific distribution criteria for the entries.

e. Column

This is the innermost layer in a database. The column basically is divided into different titles or headings. These headings contain the main data regarding the specific entry.

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Procedure -

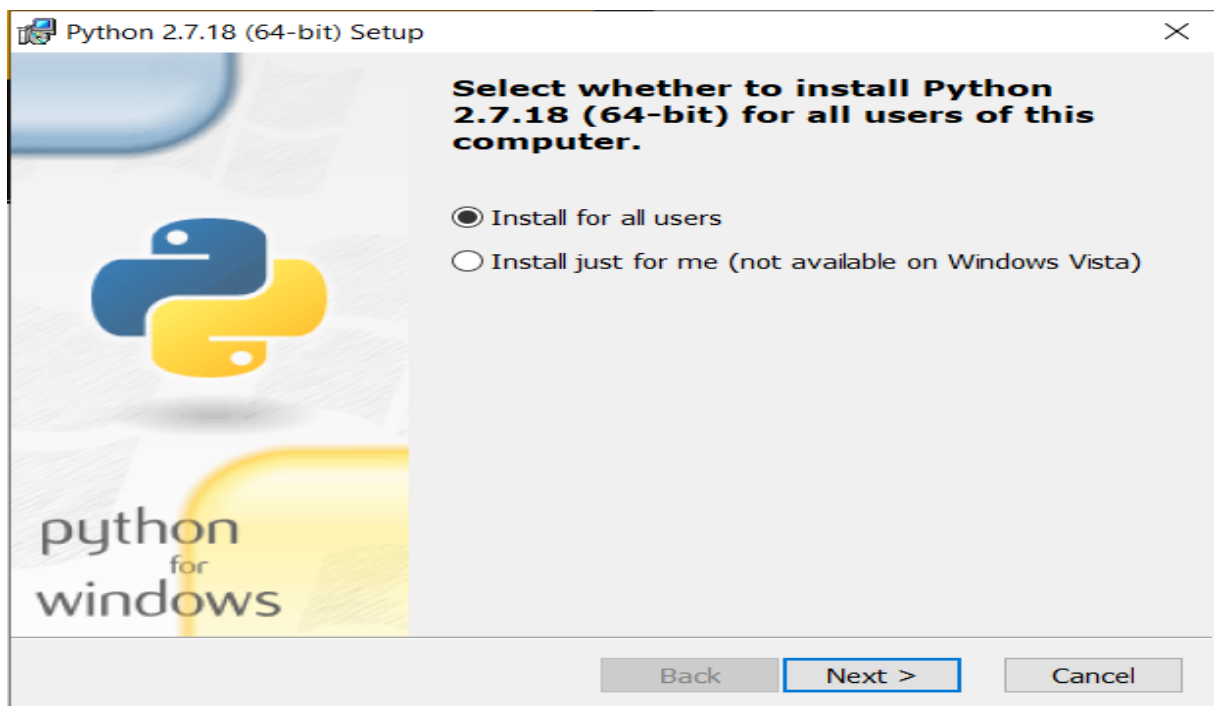
Setup a multi-node Cassandra Cluster (Take 3 machines in lab or on a single machine). Give your PRN as cluster name. Follow the steps given in below link

<https://extendit.us/articles/steps-configure-multiple-nodes-cassandra-single-windows-machine>

1. Setup a multi-node Cassandra Cluster (Take 3 machines in lab or on single machine). Give your PRN as cluster name. Follow the steps given in below link
<https://extendit.us/articles/steps-configure-multiple-nodes-cassandra-single-windows-machine>

Ans :

Installation of python 2.7.18 on node1



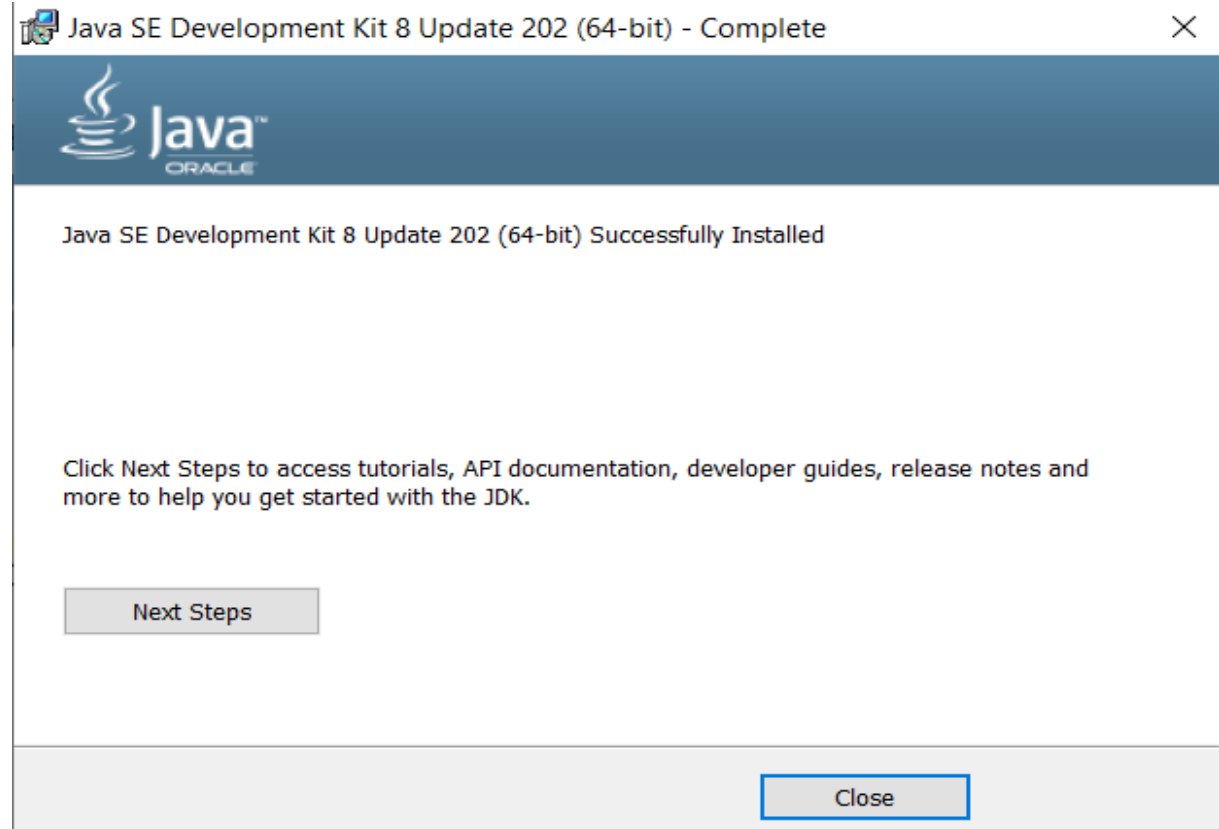
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Installation of JDK 8 on node1



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Set environment variable for python, JDK on node1

Same procedure is repeated for node2 and node3

Hostname: DBE2743 [node1]

Changed – seeds, listen_address, rpc_address in cassandra.yaml file on node1.

```
seed_provider:
  # Addresses of hosts that are deemed contact points.
  # Cassandra nodes use this list of hosts to find each other and learn
  # the topology of the ring. You must change this if you are running
  # multiple nodes!
  - class_name: org.apache.cassandra.locator.SimpleSeedProvider
    parameters:
      # seeds is actually a comma-delimited list of addresses.
      # Ex: "<ip1>,<ip2>,<ip3>"
      - seeds: "10.4.2.109, 10.4.2.108, 10.4.2.111"
```

```
listen_address: 10.4.2.109
```

```
# For security reasons, you should not expose this port to the internet. Firewall it if needed.
rpc_address: 10.4.2.109
```

Changed hostname to IP address in cqlshrc.sample file on node1.

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[connection]

```
;; The host to connect to  
hostname = 10.4.2.109
```

```
;; The port to connect to (9042 is the native protocol default)  
port = 9042
```

```
;; Always connect using SSL - false by default  
; ssl = true
```

```
;; A timeout in seconds for opening new connections  
; timeout = 10
```

```
;; A timeout in seconds for executing queries  
; request_timeout = 10
```

Changed DEFAULT_HOST to IP address in cqlsh.py file on node1.

```
DEFAULT_HOST = '10.4.2.109'  
DEFAULT_PORT = 9042  
DEFAULT_SSL = False  
DEFAULT_CONNECT_TIMEOUT_SECONDS = 5  
DEFAULT_REQUEST_TIMEOUT_SECONDS = 10
```

Hostname: DBE2744 [node2]

Changed – seeds, listen_address, rpc_address in cassandra.yaml file on node2.

```
# any class that implements the SeedProvider interface and has a  
# constructor that takes a Map<String, String> of parameters will do.  
seed_provider:  
  # Addresses of hosts that are deemed contact points.  
  # Cassandra nodes use this list of hosts to find each other and learn  
  # the topology of the ring. You must change this if you are running  
  # multiple nodes!  
  - class_name: org.apache.cassandra.locator.SimpleSeedProvider  
    parameters:  
      # seeds is actually a comma-delimited list of addresses.  
      # Ex: "<ip1>,<ip2>,<ip3>"  
      - seeds: "10.4.2.108,10.4.2.109,10.4.2.111"
```

```
listen_address: 10.4.2.108
```

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```
# Whether to start the thrift rpc server.
start_rpc: false

# The address or interface to bind the Thrift RPC service and native transport
# server to.
#
# Set rpc_address OR rpc_interface, not both.
#
# Leaving rpc_address blank has the same effect as on listen_address
# (i.e. it will be based on the configured hostname of the node).
#
# Note that unlike listen_address, you can specify 0.0.0.0, but you must also
# set broadcast_rpc_address to a value other than 0.0.0.0.
#
# For security reasons, you should not expose this port to the internet. Firewall it if needed.
rpc_address: 10.4.2.108

# Set rpc_address OR rpc_interface, not both. Interfaces must correspond
# to a single address, IP aliasing is not supported.
# rpc_interface: eth1

# If you choose to specify the interface by name and the interface has an ipv4 and an ipv6 address
# you can specify which should be chosen using rpc_interface_prefer_ipv6. If false the first ipv4
# address will be used. If true the first ipv6 address will be used. Defaults to false preferring
# ipv4. If there is only one address it will be selected regardless of ipv4/ipv6.
# rpc_interface_prefer_ipv6: false

# port for Thrift to listen for clients on
```

Changed hostname to IP address in cqlshrc.sample file on node2.

```
2
2 [connection]
2
2 ;; The host to connect to
2 hostname = 10.4.2.108
2
2 ;; The port to connect to (9042 is the native protocol default)
2 port = 9042
2
2 ;; Always connect using SSL - false by default
2 ; ssl = true
2
2 ;; A timeout in seconds for opening new connections
2 ; timeout = 10
2
2 ;; A timeout in seconds for executing queries
2 ; request_timeout = 10
```

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Changed DEFAULT_HOST to IP address in cqlsh.py file on node2.



```
cqlsh.py - C:\apache-cassandra-3.11.12\bin\cqlsh.py (2.7.18)
File Edit Format Run Options Window Help

from cqlshlib import cqlshhandling, cqlhandling, pylexotron, sslhandling, cqlshha
from cqlshlib.copyutil import ExportTask, ImportTask
from cqlshlib.displaying import (ANSI_RESET, BLUE, COLUMN_NAME_COLORS, CYAN,
                                RED, WHITE, FormattedValue, colorme)
from cqlshlib.formatting import (DEFAULT_DATE_FORMAT, DEFAULT_NANOTIME_FORMAT,
                                DEFAULT_TIMESTAMP_FORMAT, CqlType, DateTimeForm
                                format_by_type, formatter_for)
from cqlshlib.tracing import print_trace, print_trace_session
from cqlshlib.util import get_file_encoding_bomsize, trim_if_present

DEFAULT_HOST = '10.4.2.108'
DEFAULT_PORT = 9042
DEFAULT_SSL = False
DEFAULT_CONNECT_TIMEOUT_SECONDS = 5
DEFAULT_REQUEST_TIMEOUT_SECONDS = 10

DEFAULT_FLOAT_PRECISION = 5
DEFAULT_DOUBLE_PRECISION = 5
DEFAULT_MAX_TRACE_WAIT = 10

if readline is not None and readline.__doc__ is not None and 'libedit' in readli
    DEFAULT_COMPLETEKEY = '\t'
else:
    DEFAULT_COMPLETEKEY = 'tab'

cqldocs = None
cqlruleset = None

epilog = """Connects to %(DEFAULT_HOST)s:%(DEFAULT_PORT)d by default. These
defaults can be changed by setting $CQLSH_HOST and/or $CQLSH_PORT. When a
host (and optional port number) are given on the command line, they take
precedence over any defaults.""" % globals()

parser = optparse.OptionParser(description=description, epilog=epilog,
                              usage="Usage: %prog [options] [host [port]]",
                              version='cqlsh ' + version)
parser.add_option("-C", "--color", action='store_true', dest='color',
                  help='Always use color output')
parser.add_option("--no-color", action='store_false', dest='color',
                  help='Never use color output')

Ln: 180 Col: 19
```

Hostname: DBE2745 [node3]

Changed – seeds, listen_address, rpc_address in cassandra.yaml file on node3.

```
seed_provider:
  # Addresses of hosts that are deemed contact points.
  # Cassandra nodes use this list of hosts to find each other and learn
  # the topology of the ring. You must change this if you are running
  # multiple nodes!
  - class_name: org.apache.cassandra.locator.SimpleSeedProvider
    parameters:
      # seeds is actually a comma-delimited list of addresses.
      # Ex: "<ip1>,<ip2>,<ip3>"
      - seeds: "10.4.2.111, 10.4.2.109, 10.4.2.108"
```

```
# Setting listen_address to 0.0.0.0 is always wrong.
#
listen_address: 10.4.2.111
```

```
# For security reasons, you should not expose this port to the internet. Firewall it if needed.
rpc_address: 10.4.2.111
```

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Changed hostname to IP address in cqlshrc.sample file on node3.

```
[connection]

;; The host to connect to
hostname = 10.4.2.111|

;; The port to connect to (9042 is the native protocol default)
port = 9042

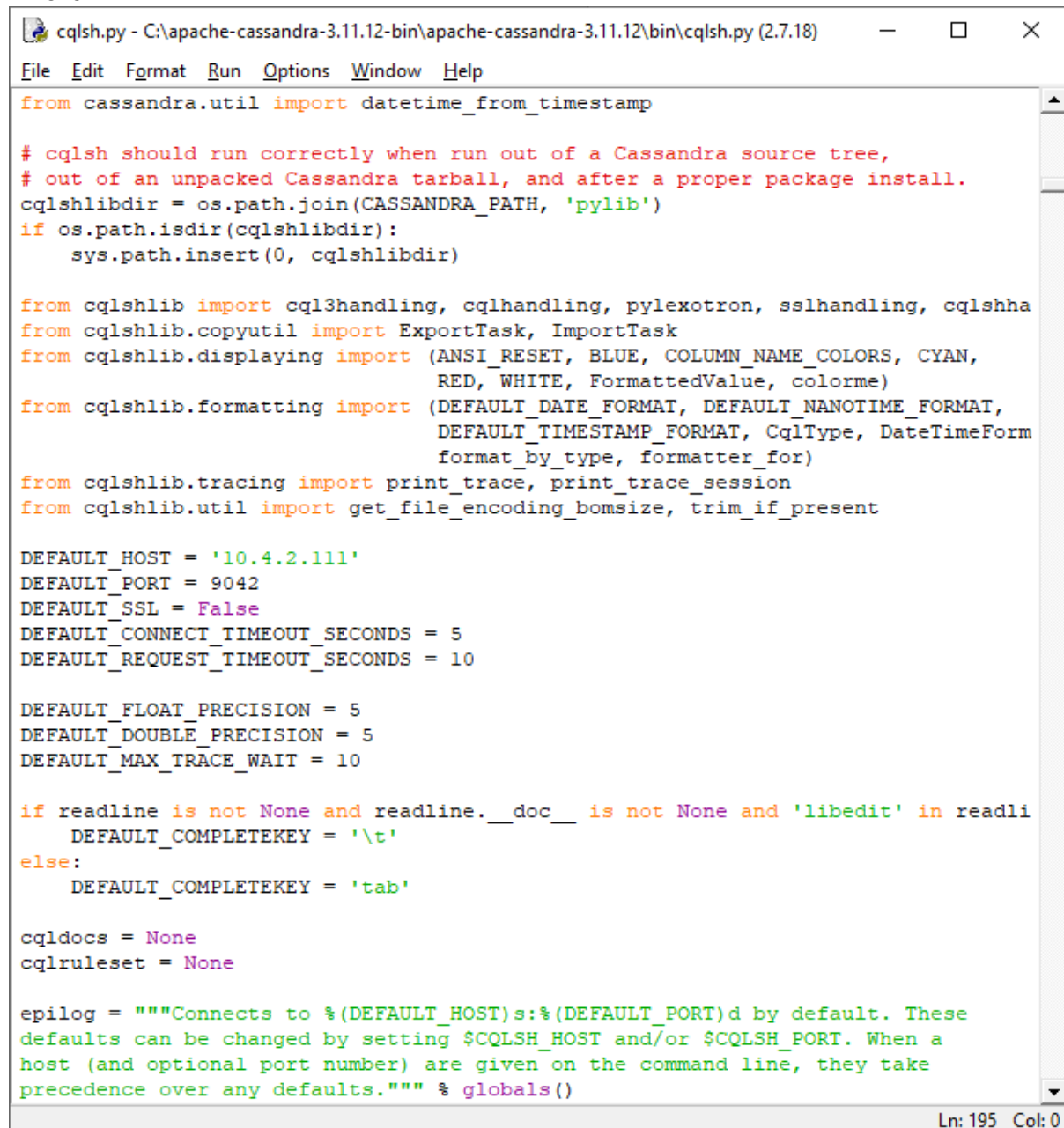
;; Always connect using SSL - false by default
; ssl = true

;; A timeout in seconds for opening new connections
; timeout = 10

;; A timeout in seconds for executing queries
; request_timeout = 10
```

Changed DEFAULT_HOST to IP address in cqlsh.py file on node3.

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```
cqlsh.py - C:\apache-cassandra-3.11.12-bin\apache-cassandra-3.11.12\bin\cqlsh.py (2.7.18)
File Edit Format Run Options Window Help
from cassandra.util import datetime_from_timestamp

# cqlsh should run correctly when run out of a Cassandra source tree,
# out of an unpacked Cassandra tarball, and after a proper package install.
cqlshlibdir = os.path.join(CASSANDRA_PATH, 'pylib')
if os.path.isdir(cqlshlibdir):
    sys.path.insert(0, cqlshlibdir)

from cqlshlib import cql3handling, cqlhandling, pylexotron, sslhandling, cqlshha
from cqlshlib.copyutil import ExportTask, ImportTask
from cqlshlib.displaying import (ANSI_RESET, BLUE, COLUMN_NAME_COLORS, CYAN,
                                RED, WHITE, FormattedValue, colorme)
from cqlshlib.formatting import (DEFAULT_DATE_FORMAT, DEFAULT_NANOTIME_FORMAT,
                                DEFAULT_TIMESTAMP_FORMAT, CqlType, DateTimeForm
                                format_by_type, formatter_for)
from cqlshlib.tracing import print_trace, print_trace_session
from cqlshlib.util import get_file_encoding_bomsize, trim_if_present

DEFAULT_HOST = '10.4.2.111'
DEFAULT_PORT = 9042
DEFAULT_SSL = False
DEFAULT_CONNECT_TIMEOUT_SECONDS = 5
DEFAULT_REQUEST_TIMEOUT_SECONDS = 10

DEFAULT_FLOAT_PRECISION = 5
DEFAULT_DOUBLE_PRECISION = 5
DEFAULT_MAX_TRACE_WAIT = 10

if readline is not None and readline.__doc__ is not None and 'libedit' in readli
    DEFAULT_COMPLETEKEY = '\t'
else:
    DEFAULT_COMPLETEKEY = 'tab'

cqldocs = None
cqlruleset = None

epilog = """Connects to %(DEFAULT_HOST)s:%(DEFAULT_PORT)d by default. These
defaults can be changed by setting $CQLSH_HOST and/or $CQLSH_PORT. When a
host (and optional port number) are given on the command line, they take
precedence over any defaults.""" % globals()

Ln: 195 Col: 0
```

Started cassandra server on node1

Started cassandra server on node2

[illegible]

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Started cassandra server on node3

```
Command Prompt - CASSANDRA
INFO [main] 2022-04-08 13:32:14,733 StorageService.java:2484 - Node /10.4.2.111 state jump to NORMAL
INFO [main] 2022-04-08 13:32:14,736 Gossiper.java:1869 - Waiting for gossip to settle...
WARN [GossipTasks:1] 2022-04-08 13:32:14,931 FailureDetector.java:278 - Not marking nodes down due to local pause of 5760959600 > 5000000000
INFO [HANDSHAKE-/10.4.2.109] 2022-04-08 13:32:15,211 OutboundTcpConnection.java:561 - Handshaking version with /10.4.2.109
INFO [main] 2022-04-08 13:32:22,737 Gossiper.java:1900 - No gossip backlog; proceeding
INFO [main] 2022-04-08 13:32:22,877 NativeTransportService.java:73 - Netty using Java NIO event loop
INFO [main] 2022-04-08 13:32:22,926 Server.java:158 - Using Netty Version: [netty-buffer=netty-buffer-4.0.44.Final.452812a, netty-codec=netty-codec-4.0.44.Final.452812a, netty-codec-haproxy=netty-codec-haproxy-4.0.44.Final.452812a, netty-codec-http=netty-codec-http-4.0.44.Final.452812a, netty-codec-socks=netty-codec-socks-4.0.44.Final.452812a, netty-common=netty-common-4.0.44.Final.452812a, netty-handler=netty-handler-4.0.44.Final.452812a, netty-tcnative=netty-tcnative-1.1.33.Fork26.142ecbb, netty-transport=netty-transport-4.0.44.Final.452812a, netty-transport-native-epoll=netty-transport-native-epoll-4.0.44.Final.452812a, netty-transport-rxtx=netty-transport-rxtx-4.0.44.Final.452812a, netty-transport-sctp=netty-transport-sctp-4.0.44.Final.452812a, netty-transport-udt=netty-transport-udt-4.0.44.Final.452812a]
INFO [main] 2022-04-08 13:32:22,926 Server.java:159 - Starting listening for CQL clients on /10.4.2.111:9042 (unencrypted)...
INFO [main] 2022-04-08 13:32:23,033 CassandraDaemon.java:564 - Not starting RPC server as requested. Use JMX (StorageService->startRPCServer()) or nodetool (enablethrift) to start it
INFO [main] 2022-04-08 13:32:23,033 CassandraDaemon.java:650 - Startup complete
INFO [MigrationStage:1] 2022-04-08 13:34:48,291 MigrationCoordinator.java:529 - Sending schema pull request to /10.4.2.109 at 1649405088291 with timeout 10000
WARN [GossipTasks:1] 2022-04-08 13:41:30,867 FailureDetector.java:278 - Not marking nodes down due to local pause of 14385313000 > 5000000000
```

```
Connection error: ( Unable to connect to any servers ; { 127.0.0.1 : error(10061, 'Tried connecting to [( 127.0.0.1 ; 9042)
C:\apache-cassandra-3.11.12\bin>nodetool status
Datacenter: datacenter1
=====
Status=Up/Down
--/ State=Normal/Leaving/Joining/Moving
-- Address Load Tokens Owns (effective) Host ID Rack
UN 10.4.2.108 257.39 KiB 256 67.0% ca333d24-1e7e-47aa-81c6-df68630b7e9d rack1
UN 10.4.2.109 525.93 KiB 256 66.9% 5916a0ad-6690-463e-963b-12efb136bb04 rack1
UN 10.4.2.111 411.29 KiB 256 66.1% 0ba92a62-7bec-4d8d-9e15-532cc53841b0 rack1

C:\apache-cassandra-3.11.12\bin>
```

Created keyspace excelsior on node1:

```
Select Command Prompt - cqlsh
Microsoft Windows [Version 10.0.19042.1586]
(c) Microsoft Corporation. All rights reserved.

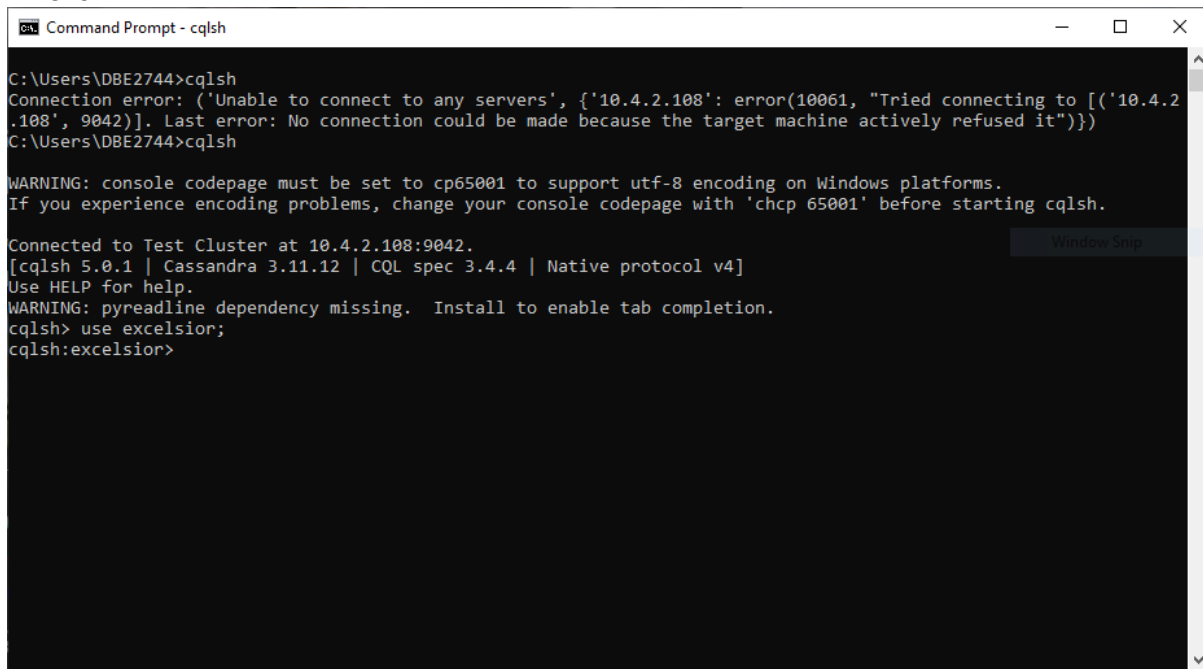
C:\Users\DBE2743>cqlsh

WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting cqlsh.

Connected to Test Cluster at 10.4.2.109:9042.
[cqlsh 5.0.1 | Cassandra 3.11.12 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing. Install to enable tab completion.
cqlsh> CREATE KEYSPACE excelsior
... WITH replication = {'class': 'SimpleStrategy', 'replication_factor' : 3};
cqlsh> show keyspace;
Improper show command.
cqlsh> show keyspaces;
Improper show command.
cqlsh> use excelsior;
cqlsh:excelsior>
```

Accessing keyspace excelsior from node2

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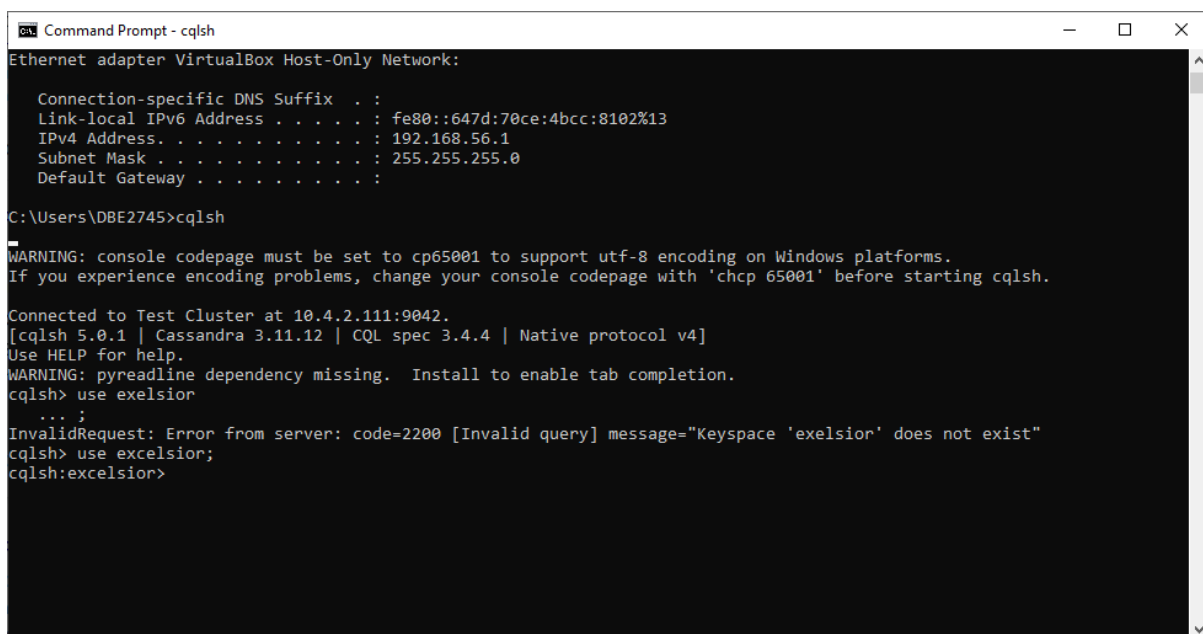
```
Command Prompt - cqlsh

C:\Users\DBE2744>cqlsh
Connection error: ('Unable to connect to any servers', {'10.4.2.108': error(10061, "Tried connecting to [('10.4.2.108', 9042)]. Last error: No connection could be made because the target machine actively refused it")})
C:\Users\DBE2744>cqlsh

WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting cqlsh.

Connected to Test Cluster at 10.4.2.108:9042.
[cqlsh 5.0.1 | Cassandra 3.11.12 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing. Install to enable tab completion.
cqlsh> use excelsior;
cqlsh:excelsior>
```

Accessing keyspace excelsior from node3



```
Command Prompt - cqlsh

Ethernet adapter VirtualBox Host-Only Network:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::647d:70ce:4bcc:8102%13
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

C:\Users\DBE2745>cqlsh

WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting cqlsh.

Connected to Test Cluster at 10.4.2.111:9042.
[cqlsh 5.0.1 | Cassandra 3.11.12 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing. Install to enable tab completion.
cqlsh> use excelsior
... ;
InvalidRequest: Error from server: code=2200 [Invalid query] message="Keyspace 'excelsior' does not exist"
cqlsh> use excelsior;
cqlsh:excelsior>
```

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Created table from node1 and inserted records from node2:

```
Command Prompt - cqlsh
C:\Users\DBE2744>cqlsh
Connection error: ('Unable to connect to any servers', ('10.4.2.108': error(10061, 'Tried connecting to [('10.4.2.108', 9042)]. Last error: No connection could be made because the target machine actively refused it'))
C:\Users\DBE2744>cqlsh

WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting cqlsh.

Connected to Test Cluster at 10.4.2.108:9042.
[cqlsh 5.0.1 | Cassandra 3.11.12 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing. Install to enable tab completion.
cqlsh> use excelsior;
cqlsh> create table student(name text);
InvalidRequest: Error from server: code=2200 [Invalid query] message="No PRIMARY KEY specified (exactly one required)"
cqlsh> create table student(name text, prn int primary key);
cqlsh> desc student;

CREATE TABLE excelsior.student (
  prn int PRIMARY KEY,
  name text
) WITH bloom_filter_fp_chance = 0.01
AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
AND comment = ''
AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
AND crc_check_chance = 1.0
AND dclocal_read_repair_chance = 0.1
AND default_time_to_live = 0
AND gc_grace_seconds = 864000
AND max_index_interval = 2048
AND memtable_flush_period_in_ms = 0
AND min_index_interval = 128
AND read_repair_chance = 0.0
AND speculative_retry = '99PERCENTILE';

cqlsh> select * from student;

prn | name
-----
25 | Shreyash

(1 rows)
cqlsh> select * from student;

prn | name
-----
11 | Navjyot
25 | Shreyash

(2 rows)
cqlsh> select * from student;

prn | name
-----
5 | Ashish
42 | Aditya
11 | Navjyot
71 | Abhishek
25 | Shreyash

(5 rows)
cqlsh>
```

Record insertion from node2:

```
Command Prompt - cqlsh
Microsoft Windows [Version 10.0.19042.1586]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DBE2743>cqlsh

WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting cqlsh.

Connected to Test Cluster at 10.4.2.109:9042.
[cqlsh 5.0.1 | Cassandra 3.11.12 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing. Install to enable tab completion.
cqlsh> CREATE KEYSPACE excelsior
... WITH replication = {'class': 'SimpleStrategy', 'replication_factor' : 3};
cqlsh> show keyspaces;
Improper show command.
cqlsh> show keyspaces;
Improper show command.
cqlsh> use excelsior;
cqlsh:excelsior> show tables;
Improper show command.
cqlsh:excelsior> desc student;

CREATE TABLE excelsior.student (
  prn int PRIMARY KEY,
  name text
) WITH bloom_filter_fp_chance = 0.01
AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
AND comment = ''
AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
AND crc_check_chance = 1.0
AND dclocal_read_repair_chance = 0.1
AND default_time_to_live = 0
AND gc_grace_seconds = 864000
AND max_index_interval = 2048
AND memtable_flush_period_in_ms = 0
AND min_index_interval = 128
AND read_repair_chance = 0.0
AND speculative_retry = '99PERCENTILE';

cqlsh:excelsior> insert into student values('Shreyash', 25);
SyntaxException: line 1:20 no viable alternative at input 'values' (insert into [student] values...)
cqlsh:excelsior> insert into student(name, prn) values('Shreyash', 25);
cqlsh:excelsior> insert into student(name, prn) values('Navjyot', 11);
cqlsh:excelsior> insert into student(name, prn) values('Ashish', 5);
cqlsh:excelsior> insert into student(name, prn) values('Aditya', 42);
cqlsh:excelsior> insert into student(name, prn) values('Abhishek', 71);
cqlsh:excelsior>
```


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Checking table and inserted records from node3

```
Command Prompt - cqlsh
Connected to Test Cluster at 10.4.2.111:9042.
[cqlsh 5.0.1 | Cassandra 3.11.12 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing. Install to enable tab completion.
cqlsh> desc student;

'student' not found in keyspaces
cqlsh> use excelsior;
cqlsh:excelsior> desc student;

CREATE TABLE excelsior.student (
  prn int PRIMARY KEY,
  name text
) WITH bloom_filter_fp_chance = 0.01
   AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
   AND comment = ''
   AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
   AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
   AND crc_check_chance = 1.0
   AND dclocal_read_repair_chance = 0.1
   AND default_time_to_live = 0
   AND gc_grace_seconds = 864000
   AND max_index_interval = 2048
   AND memtable_flush_period_in_ms = 0
   AND min_index_interval = 128
   AND read_repair_chance = 0.0
   AND speculative_retry = '99PERCENTILE';

cqlsh:excelsior>
```

```
Command Prompt - cqlsh
cqlsh> use excelsior;
cqlsh:excelsior> desc student;

CREATE TABLE excelsior.student (
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   AND speculative_retry = '99PERCENTILE';

cqlsh:excelsior> select * from student;

prn | name
-----+-----
 25 | Shreyash

(1 rows)
cqlsh:excelsior>
```

Name:Tushar Patil
PRN:2020BTECS00075
ADS10

```
Command Prompt - cqlsh
File "C:\Python27\lib\threading.py", line 349, in wait
    waiter.acquire()
KeyboardInterrupt
Terminate batch job (Y/N)? y
C:\Users\DOB2245>cqlsh

WARNING: console codepage must be set to cp65001 to support utf-8 encoding on Windows platforms.
If you experience encoding problems, change your console codepage with 'chcp 65001' before starting cqlsh.

Connected to Test Cluster at 10.4.2.111:9042.
[cqlsh 5.0.1 | Cassandra 3.11.12 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
WARNING: pyreadline dependency missing. Install to enable tab completion.
cqlsh> desc student;

'student' not found in keyspaces
cqlsh> use excelsior;
cqlsh:excelsior> desc student;

CREATE TABLE excelsior.student (
  prn int PRIMARY KEY,
  name text
) WITH bloom_filter_fp_chance = 0.01
   AND caching = {'keys': 'All', 'rows_per_partition': 'NONE'}
   AND comment = ''
   AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
   AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
   AND crc_check_chance = 1.0
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   AND default_time_to_live = 0
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   AND max_index_interval = 2048
   AND memtable_flush_period_in_ms = 0
   AND min_index_interval = 128
   AND read_repair_chance = 0.0
   AND speculative_retry = '99PERCENTILE';

cqlsh:excelsior> select * from student;

prn | name
-----
25 | Shreyash
(1 rows)

cqlsh:excelsior> select * from student;

prn | name
-----
5 | Ashish
42 | Aditya
11 | Navjot
71 | Abhishek
25 | Shreyash
(5 rows)

cqlsh:excelsior>
```