



Vidyavardhini's College of Engineering & Technology

Department of Computer Engineering

Academic Year : 2023-24

Experiment No.3

To install and configure Cassandra to execute NOSQL commands

Date of Performance: 31/7/2023

Date of Submission: 7/8/2023



AIM: To install and configure MongoDB/ Cassandra/ HBase/ Hypertable and to execute NoSQL commands.

THEORY:

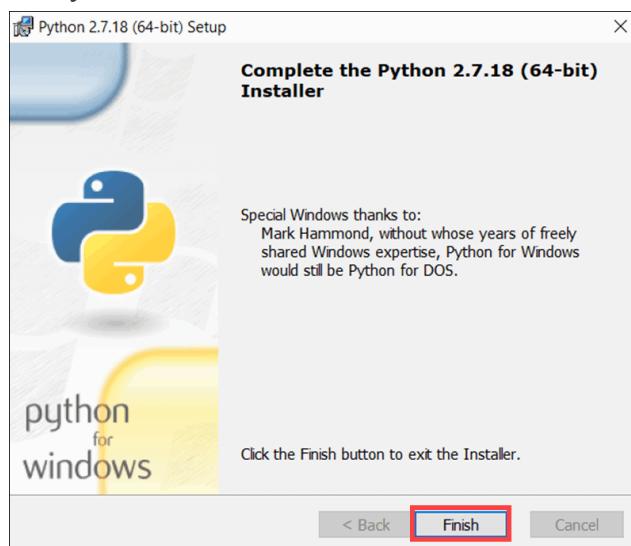
1. Visit the official Oracle download page and download the Oracle JDK 8 software package.



2. Configure Environment Variables for Java 8. It is vital to configure the environment variables in Windows and define the correct path to the Java 8 installation folder.

-Enter JAVA_HOME for the new variable name. Select the Variable value field and then the Browse Directory option to navigate up to the jdk folder.

3. Install and Configure Python 2.7 on Windows.





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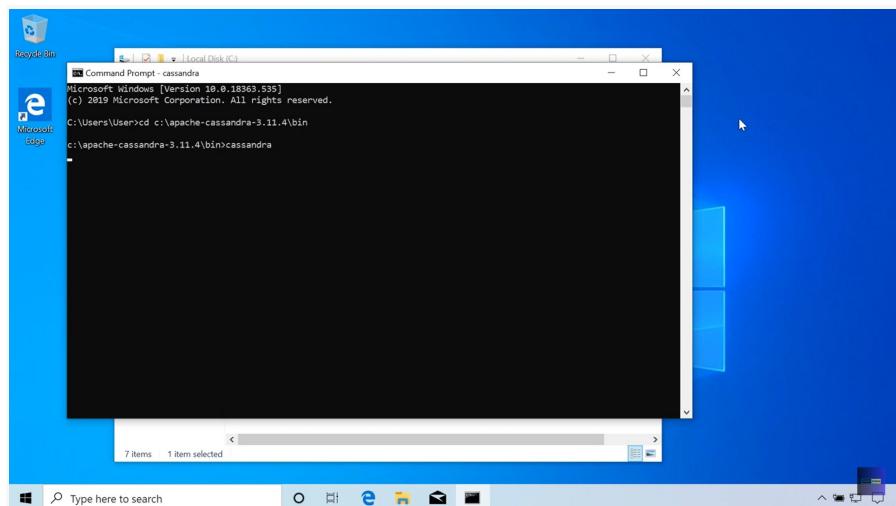
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4. Configure Environment Variables for Python 2.7. Add the Python 2.7 path to the Path system variable.
5. Download and Set Up Apache Cassandra, Visit the official [Apache Cassandra Download page](https://cassandra.apache.org/download/) and select the version you would prefer to download.

The screenshot shows the Apache Cassandra download page. It features a green header with the Apache Cassandra logo and navigation links for Home, Download, Documentation, Community, and Blog. Below the header, there's a section titled "Downloading Cassandra". It highlights the "Latest version" (3.11.5) with a release date of 2019-10-29. It also lists "Older supported releases" up to version 2.1.21 and provides instructions for "Installation from Debian packages". The Windows taskbar at the bottom indicates the browser is Microsoft Edge.

6. Unzip the compressed tar.gz folder using a compression tool like winzip/7zip.
7. Set up the environment variables for Cassandra to enable the database to interact with other applications and operate on Windows.
8. Type CASSANDRA_HOME for Variable name, then for the Variable value column select the location of the unzipped Apache Cassandra folder.
9. Start Cassandra from Windows CMD.
Navigate to the Cassandra bin folder. Start the Windows Command Prompt directly from within the bin folder by typing *cmd* in the address bar and pressing Enter.

10. Type the following command to start the Cassandra server: **cassandra**





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```
he cassandra.cache.OHCProvider: row_cache_keys_to_save=2147483647; row_cache_save_period=0; row_cache_size_in_mb=0; rpc_ ^  
address=localhost; rpc_interface=null; rpc_interface_prefer_ipv6=false; rpc_keepalive=true; rpc_listen_backlog=50; rpc_max_ ^  
threads=2147483647; rpc_min_threads=16; rpc_port=9160; rpc_recv_buff_size_in_bytes=null; rpc_send_buff_size_in_bytes= ^  
null; rpc_server_type=sync; saved_caches_directory=null; seed_providers=org.apache.cassandra.locator.SimpleSeedProvider{ ^  
seeds=[17.0.0.1]; server_encryption_options=REDACTED}; slow_query_log_timeout_in_ms=500; snapshot_before_compaction=false; ^  
ssl_storage_port=7001; sstable_preemptive_open_interval_in_millis=50; start_native_transport=true; start_rpc=false; storage_port=7000; ^  
stream_throughput_outbound_megabits_per_sec=200; streaming_keep_alive_period_in_secs=300; streaming_socket_timeout_in_ms= ^  
5000; thrift_max_message_length_in_mb=16; thrift_prepare_statements_cache_size_mb=null; tombstone_failure_threshold=100000; tombstone_warn_threshold=1000; trace_type=query_ttl=86400; ^  
trace_type_repair_ttl=604800; transparent_data_encryption_options=org.apache.cassandra.config.TransparentDataEncryptionOptions@1df82230; ^  
trickle_fsync=false; trickle_fsync_interval_in_kb=10240; truncate_request_timeout_in_ms=60000; unlogged_batch_across_partitions_warn_threshold=10; user_defined_function_fail_timeout=1500; user_defined_function_warn_timeout= ^  
500; user_function_timeout_policy=die; windows_timeouts=1; write_request_timeout_in_ms=2000}  
INFO [main] 2020-01-12 16:21:50,007 DatabaseDescriptor.java:373 - DiskAccessMode 'auto' determined to be mmap, indexAccessMode is mmap  
INFO [main] 2020-01-12 16:21:50,022 DatabaseDescriptor.java:431 - Global memtable on-heap threshold is enabled at 509MB  
INFO [main] 2020-01-12 16:21:50,022 DatabaseDescriptor.java:435 - Global memtable off-heap threshold is enabled at 509MB  
WARN [main] 2020-01-12 16:21:50,022 DatabaseDescriptor.java:480 - Small commitlog volume detected at c:\apache-cassandra-3.11\data\commitlog. Setting commitlog_total_space_in_mb to 4958. You can override this in cassandra.yaml.  
WARN [main] 2020-01-12 16:21:50,022 DatabaseDescriptor.java:507 - Small cdc volume detected at c:\apache-cassandra-3.11\data\cdc\raw. Setting cdc_total_space_in_mb to 2479. You can override this in cassandra.yaml.  
WARN [main] 2020-01-12 16:21:50,163 DatabaseDescriptor.java:556 - Only 3.684GB free across all data volumes. Consider adding more capacity to your cluster or removing obsolete snapshots.  
INFO [main] 2020-01-12 16:21:50,194 DatabaseDescriptor.java:123 - Initialized back-pressure with high ratio: 0.9, factor: 5, flow: FAST, window size: 2000.  
INFO [main] 2020-01-12 16:21:50,194 DatabaseDescriptor.java:735 - Back-pressure is disabled with strategy org.apache.cassandra.net.RateBasedBackPressure[high_ratio=0.9, factor=5, flow=FAST].
```

11. While the initial command prompt is still running open a new command line prompt from the same bin folder. Enter the following command to access the Cassandra cqlsh bash shell: **cqlsh**

```
Microsoft Windows [Version 10.0.18363.535]  
(C) 2019 Microsoft Corporation. All rights reserved.  
C:\Users\User>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 127.0.0.1:9042.  
[cqlsh 5.0.1 | Cassandra 3.11.4 | CQL spec 3.4.4 | Native protocol v4]  
Use HELP for help.  
cqlsh>  
1780549520252342, 790862814153555337, 8056556210119306513, 8109787414158521985, 8171060331774593528, 8179789046423593829  
5, 8186165857569951785, 8213329522939620078, 835730258029632211, 836863112500791107, 8374056690559475428, 841318990485  
789335, 8472747480801682133, 8507024876519228363, 8587357879690736284, 872912438184779176, 8898860723253327, 894170328  
7715170824, 907073405463316585, 913910387283561172, 9145592743729516381, 9165860678301882779, 919238075508646349, 962226  
565540132198, 996659736232071977]  
INFO [main] 2020-01-12 16:29:56,983 StorageService.java:1483 - JOINING: Finish joining ring  
INFO [main] 2020-01-12 16:29:57,153 StorageService.java:2327 - Node localhost/127.0.0.1 state jump to NORMAL
```



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CONCLUSION:

In conclusion, this practical has provided a foundational understanding of how to install and configure Cassandra. It's important to remember that Cassandra is a powerful and versatile database system, suitable for a wide range of applications. Large volumes of unstructured data can be an issue for traditional relational databases. This popular NoSQL database solution is going to allow you to capture and store a lot more of increasingly valuable data.