

In this tutorial, we'll discuss how to provision a multi-node DSE cluster while using [DSE OpsCenter](#) and [DSE Studio](#)



DSE Cluster

You'll need to install [Docker Compose](#) and download .yaml files from the following link : https://github.com/datastax/docker-images/tree/master/example_compose_yaml

To configure a 3-node cluster with OpsCenter and Studio, apply the following command lines :

```
docker-compose -f docker-compose.yml -f docker-compose.opscenter.yml  
\ -f docker-compose.studio.yml up -d --scale node=0
```

```
docker-compose -f docker-compose.yml up -d --scale node=1
```

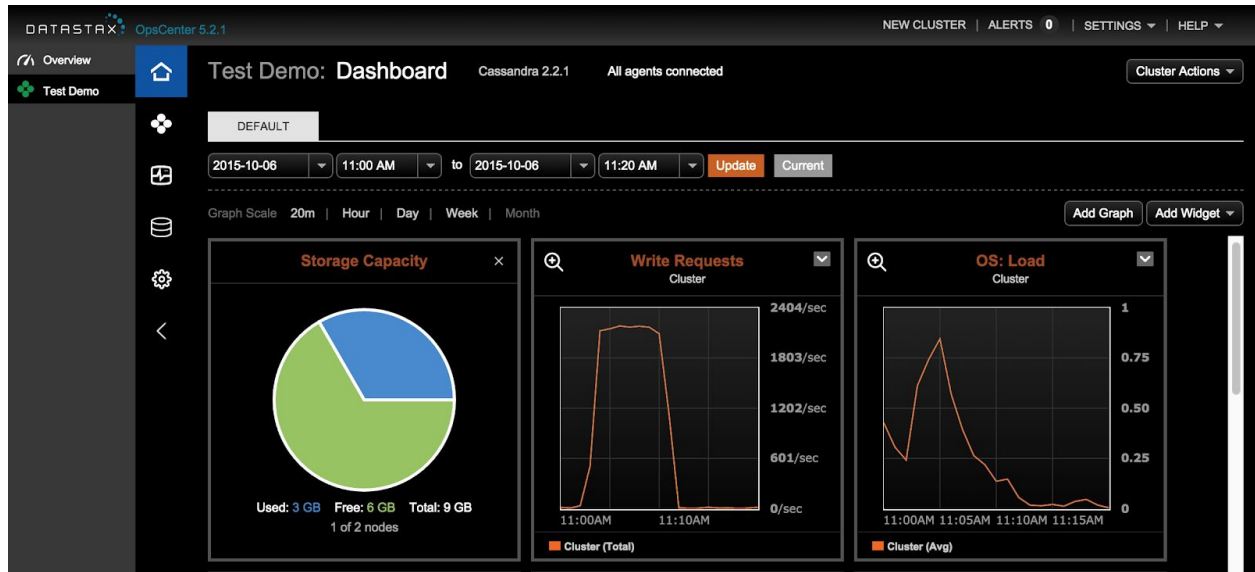
```
docker-compose -f docker-compose.yml up -d --scale node=2
```

Wait for each node to finish bootstrapping before running `docker-compose` for the next node.

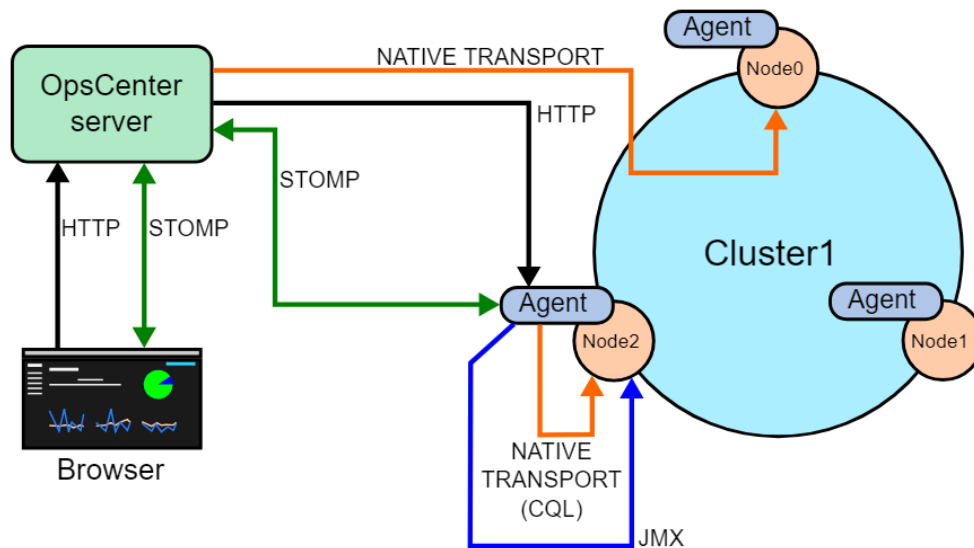
DSE OpsCenter

DataStax Enterprise OpsCenter is a visual management and monitoring solution for DSE clusters. It simplifies administration tasks as :

- Adding and expanding clusters
- Configuring nodes
- Viewing performance metrics
- Rectifying issues
- Monitoring cluster health on the dashboard



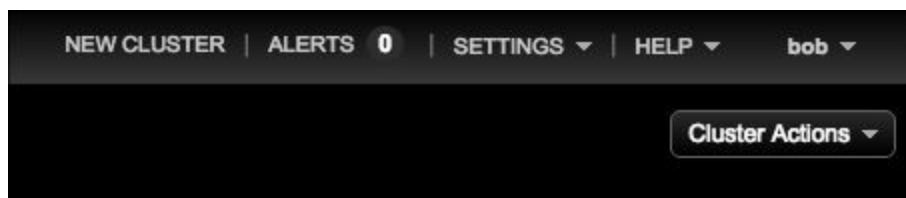
OpsCenter architecture is based on agents installed on each node.



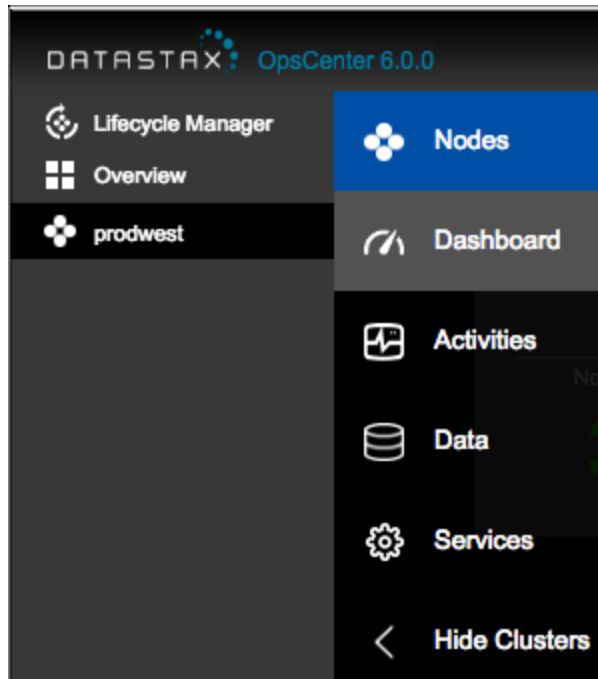
Source : <https://docs.datastax.com/en/opscenter/6.7/opsc/opscArchOvr.html>

It's highly recommended to install OpsCenter out of DSE Cluster.

The main menu and Cluster Actions menu are available at the top OpsCenter User Interface :

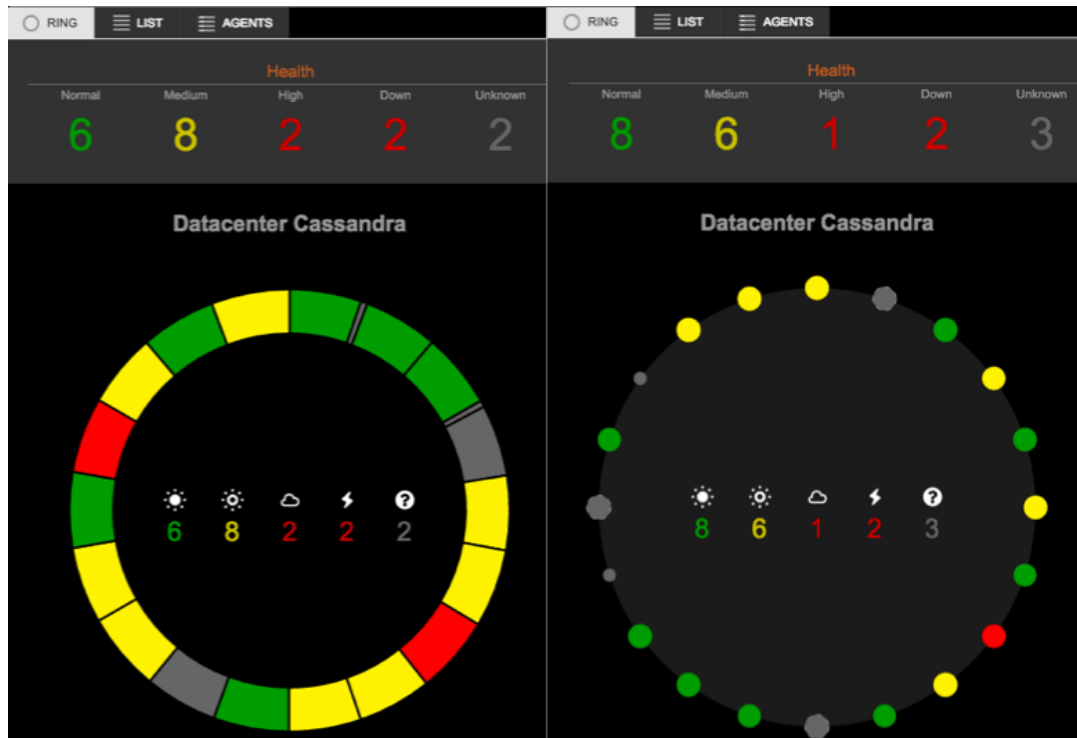


The left navigation pane holds links to Lifecycle Manager, OpsCenter Overview and monitored clusters. The cluster navigation menu provides access to the functional areas such as Nodes, Activities, Data, and Services.



Cluster Ring View

The Ring View displays a cluster as a ring of nodes from which you can determine at a glance node health, data distribution, and datacenter balance within a single visualization.

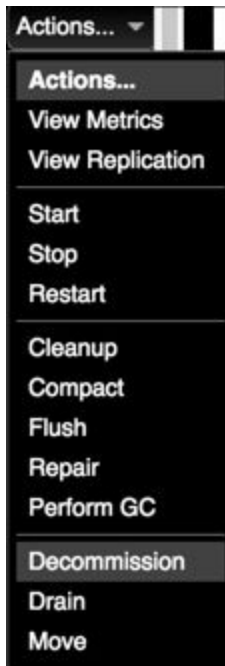


Cluster List View

List View is an alternative to the graphical Ring View. List View provides different information on the cluster state and health. All data is updated in real time.

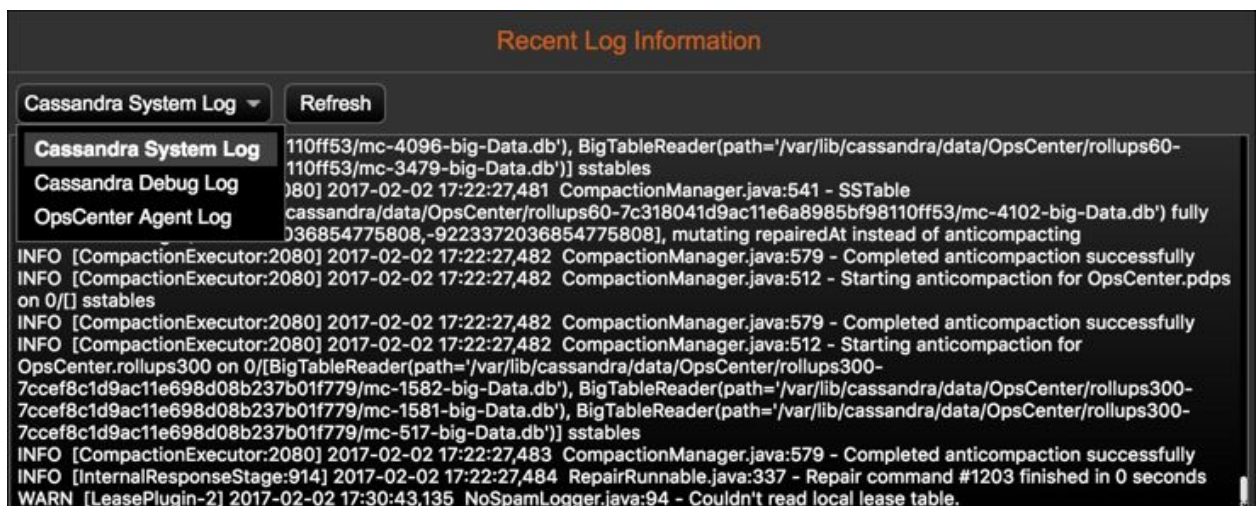
RING LIST AGENTS						
Repair Cleanup Restart Other Actions						
	NAME	DATACENTER	TOKEN	STATUS	LOAD (CPU)	DATA SIZE
<input type="checkbox"/>	★ machine3	Analytics	2305843009213694000	Active	0.34	20.1 GB
<input type="checkbox"/>	☆ 101.202.203.110	Analytics	5764607523034235000	Active	0.33	20.0 GB
<input type="checkbox"/>	machine1	Cassandra	0	Active	0.09	19.6 GB
<input type="checkbox"/>	101.202.203.108	Cassandra	3458764513820541000	Active	0.26	20.0 GB
<input type="checkbox"/>	101.202.203.111	Cassandra	6917529027641082000	Active	0.00	19.2 GB
<input type="checkbox"/>	🔍 machine2	Solr	1152921504606847000	Active	0.15	20.7 GB
<input type="checkbox"/>	🔍 101.202.203.109	Solr	4611686018427388000	Active	0.11	19.9 GB
<input type="checkbox"/>	🔍 101.202.203.112	Solr	8070450532247929000	Active	0.20	20.6 GB

The list view allows also to perform tasks on nodes as : Repair, Clean, Restart and other Actions :



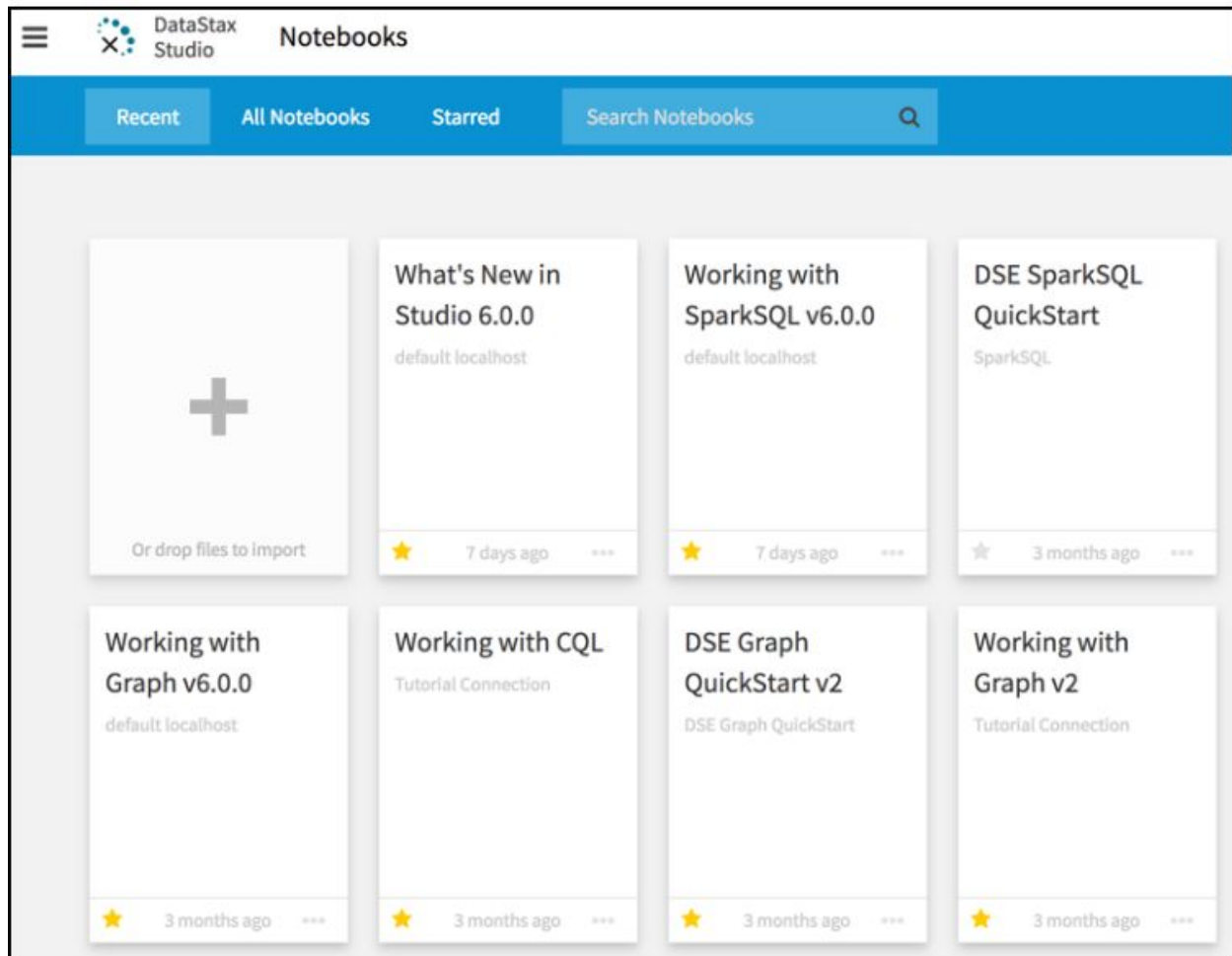
When clicking on the combo box of a node, the Details dialog appears. Scroll down to the **Recent Log Information** pane.

1. Select the log to view:
 - Cassandra System Log
 - Cassandra Debug Log
 - OpsCenter Agent Log
2. Click **Refresh**.
3. The last 1000 lines of the selected log are fetched and displayed in the **Recent Log Information** pane.



DSE Studio

DataStax Studio is an interactive developer tool for CQL, Spark SQL, and DSE Graph. Developers and analysts can mix code, annotations, query results, and visualizations into notebooks.



In the following we'll focus on CQL.

In the top left, click connections, then enter information for a new connection :

Name : Name of the connection from the notebook to a DSE cluster.

Host/IP : The host names or IP addresses of the DSE cluster to connect to.

Port : IP connection port. Default: 9042.

EDIT CONNECTION

Name *

dse_esilv

Username

Host/IP (comma delimited) *

172.19.0.2

Password

Port *

9042

☐ Use SSL

Save

Cancel

Connected successfully

Test

A notebook consists of a sequence of cells. A cell is a multi-line text input field.

On the right pane, you explore your schema, school the keyspace, explore tables and columns

The screenshot displays the DataStax Studio interface. At the top, the title bar indicates 'DataStax Studio' and 'Working with CQL v6.0.0'. The main workspace is divided into two panes. The left pane, titled 'CQL Keyspace: school', contains a CQL query: `select * from school.teacher`. Below the query, there are several icons for different views: a code editor icon (selected), a table icon, a pie chart icon, a bar chart icon, a line chart icon, and a scatter plot icon. A message states: 'Configure this chart by clicking the ⚙ icon above on the right.' Below this, the 'Trace ID' is shown as '9d733730-1e88-11e9-8573-99983c8cd805' and the 'Coordinator' as '172.19.0.5'. A table shows the execution progress of the query:

Step	Progress
Execute select * from school.teacher	100%
Parsing select * from school.teacher	100%
Preparing statement	100%
Computing ranges to query	100%
Submitting range requests on 3 rang	100%

The right pane, titled 'dse_esilv SCHEMA', shows the 'school' keyspace. It lists the following tables: lesson, lesstonteacher, teacher, and teacherlessons. Below the tables, there are sections for 'User Defined Types', 'User Defined Functions', 'User Defined Aggregates', and 'Materialized Views'.

On the left side, you can perform any of the CQL commands



Note that it's possible to chose, the execution mode, among four options :

