

CS300 Couchbase NoSQL Server Administration

Lab 3 Exercise Manual



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Lab #3: Grow Cluster to 6 Nodes

Objective: This 1-hour lab will walk you through the process of growing the Couchbase cluster to 6 nodes and rebalancing the cluster to distribute the vBuckets/partitions evenly across all 6 nodes. We will also create two server groups and place 2 nodes in each server group. Finally, you'll learn how to increase the number of replicas for a bucket to adjust its replication factor.

Please send any comments or corrections in this lab or future labs to cls@couchbase.com

Overview: The following high-level steps are involved in this lab:

- Grow cluster to 6 nodes in one data center (Amazon region)
- Grow the cluster using CMD line, REST API and using the web GUI
- Explore the Cluster Map
- Rebalance a cluster
- Adjust the number of replicas
- Use the Web UI to see performance metrics
- Run 'cbstats' command to see active and replica vBuckets

Connect to the 2nd, 3rd, 4th, 5th, & 6th VMs using PuTTY:

Refer to the `Cluster-IPs` spreadsheet that the instructor gave you to get your public IPs for the 2nd, 3rd, 4th, 5th & 6th VMs to be used in the Cluster. In this section, you will establish a connection to your VMs using PuTTY.

Remember that the second IP in your list is being used as an application server and that you will start with the next available IP in the list (IP address number 3).

The 1st and 2nd VMs are in their own simulated failure domain, and we will assign them to a separate server group. Similarly, the 3rd and 4th VMs will be assigned to their own server group. Note that if this were a physical environment in a physical data center, then all the servers on a rack would fall within the same failure domain and therefore would be in the same server group.

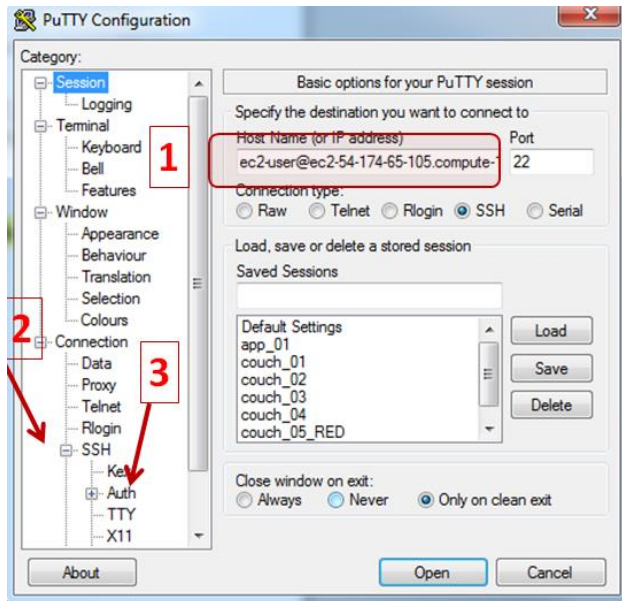
Now, launch PuTTY and connect to the 2nd Couchbase Cluster VM(node 3 on your list).

After starting PuTTY, enter the public hostname address of your 2nd Cluster VM into PuTTY. The connection type will be SSH and the port will be 22.

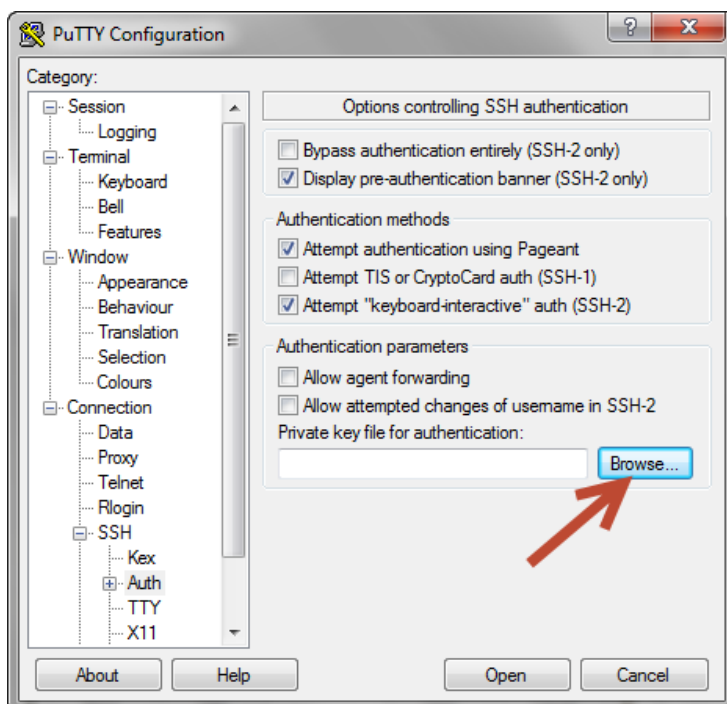


Lab-3: Add 3 more nodes, page 3

Type **“ec2-user@public hostname”** with the public hostname that the instructor gave you for the 2nd Cluster VM into PuTTY and then **click on the + next to SSH** to expand its options and finally **select Auth**:



Click **Browse** to select the Private key file for authentication:

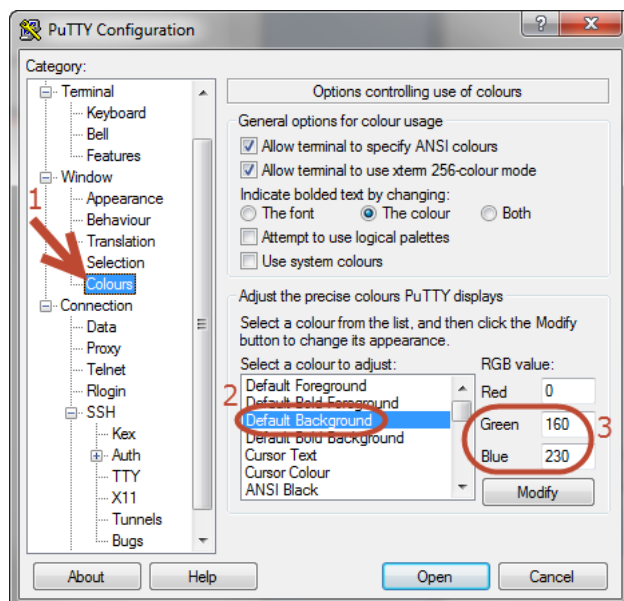




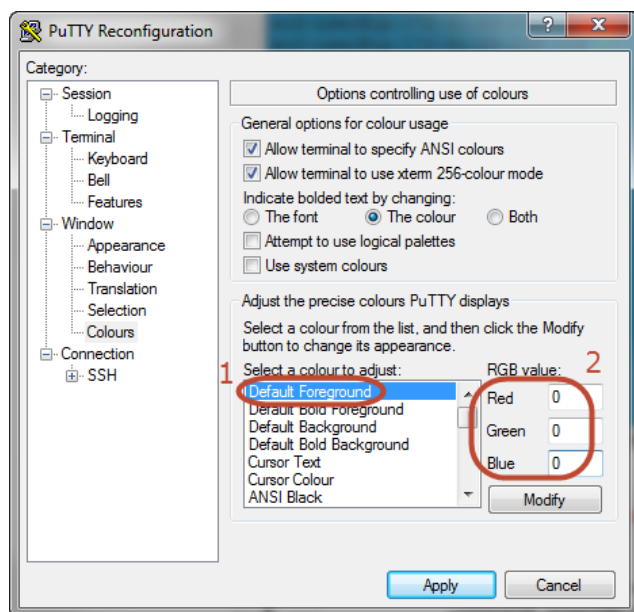
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Choose the **“Amazon-Private-Key.ppk”** file that the instructor provided you with.

In the left pane, **click on Colors**, then **choose Default Background** under “Select a colour to adjust” and alter the **Green RGB value to 160 and the Blue RGB value to 230**.



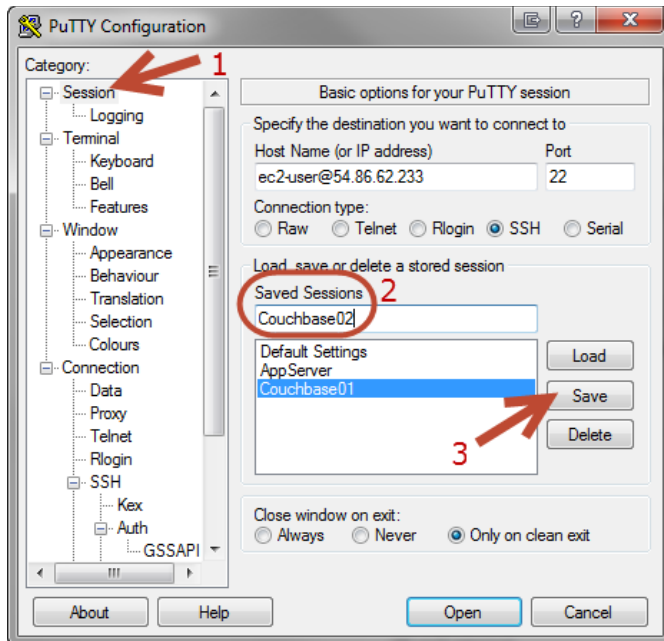
In the same window **choose Default Foreground** under “Select a colour to adjust” and alter the **Red, Green and Blue values to 0** to make the text color black.



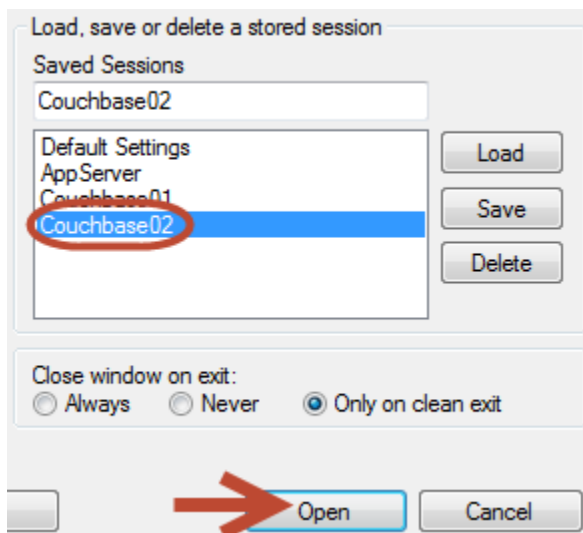


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Next, **click on Session** and type to **save the session as “CouchbaseXX”**, where XX is the # of your node from the hostname. Then **click on Save**. For example, here the session is being saved as “Couchbase02”:



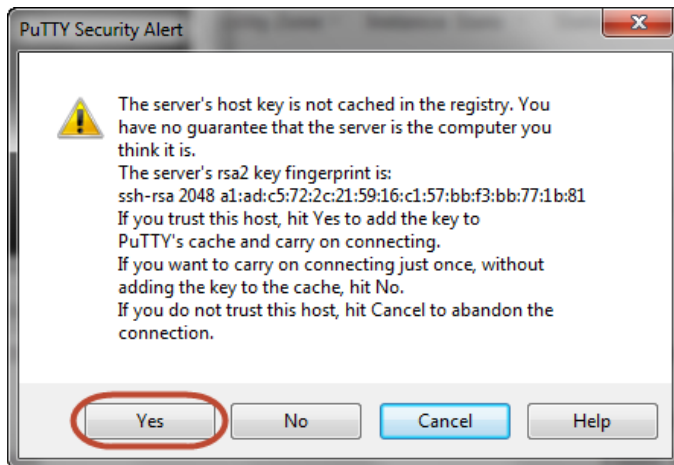
Now highlight the new server, for example here it is **Couchbase02** and click **Open** to connect to this VM:



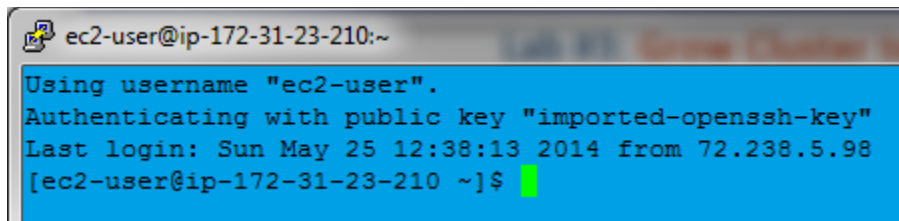
You will have to click **“Yes”** to a message about the server’s rsa2 key before a successful connection.



Lab-3: Add 3 more nodes, page 6



You should now be successfully logged in to the 2nd (Light Blue) VM:



Become root and change the hostname of your VM to Couchbase02.

```
# sudo -i  
# hostnamectl set-hostname Couchbase02
```

Log out of the putty session and log back in to have the putty terminal retitled for your session.

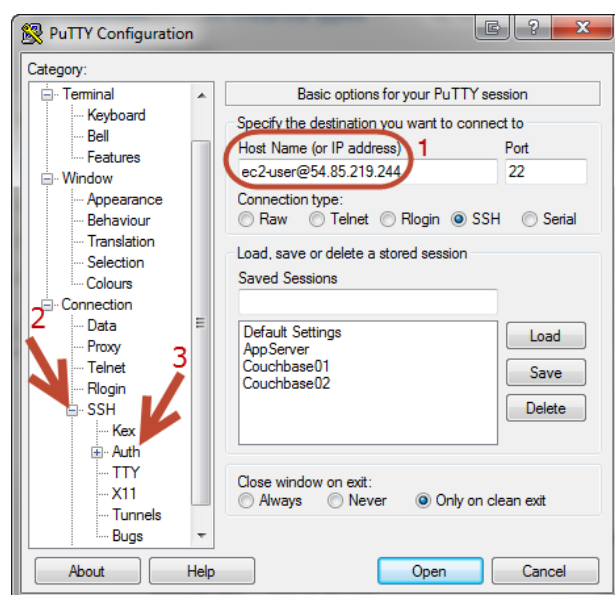
Repeat the same steps as above to connect to the 3rd VM, whose terminal color we will set to green.

Now, launch PuTTY and connect to the 3rd Couchbase VM.

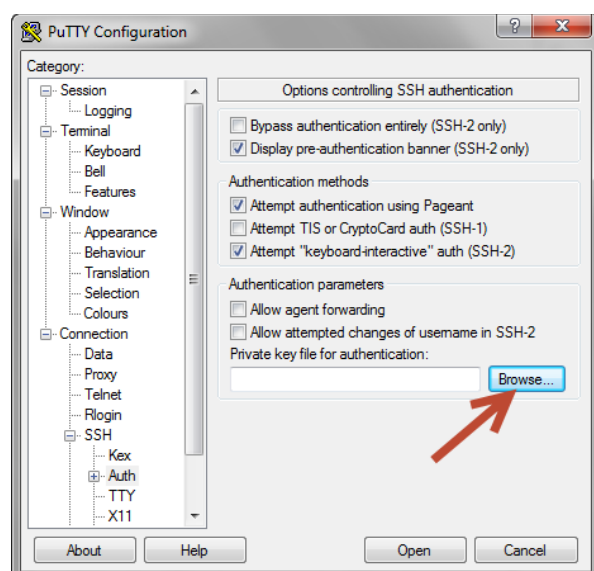
Type **“ec2-user@public hostname”** with the public hostname that the instructor gave you for the 3rd VM into PuTTY and then **click on the + next to SSH** to expand its options and finally **select Auth:**



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Click **Browse** to select the Private key file for authentication:

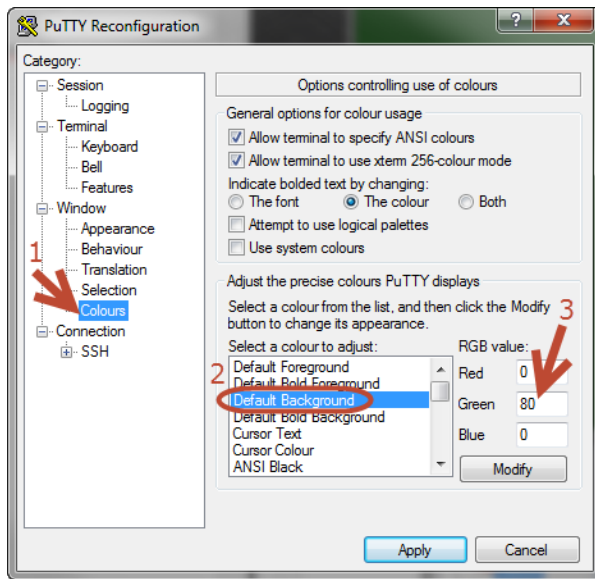


Choose the **“Amazon-Private-Key.ppk”** file that the instructor provided you with.

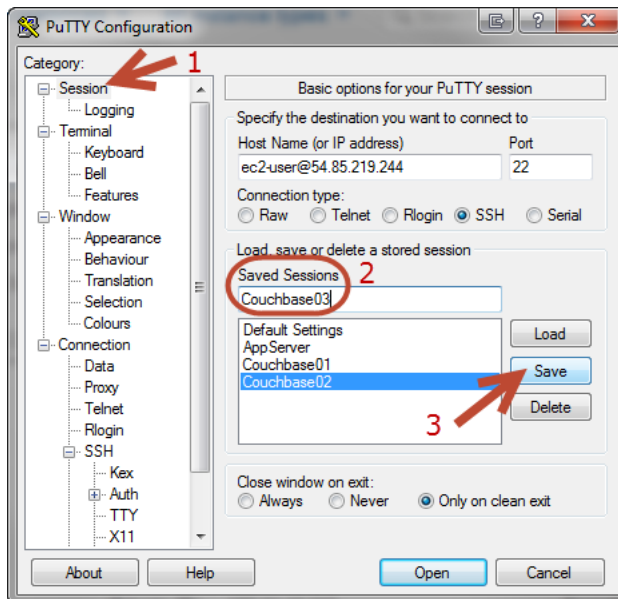
In the left pane, **click on Colors**, then **choose Default Background** under “Select a colour to adjust” and alter the **Green RGB value to 80**.



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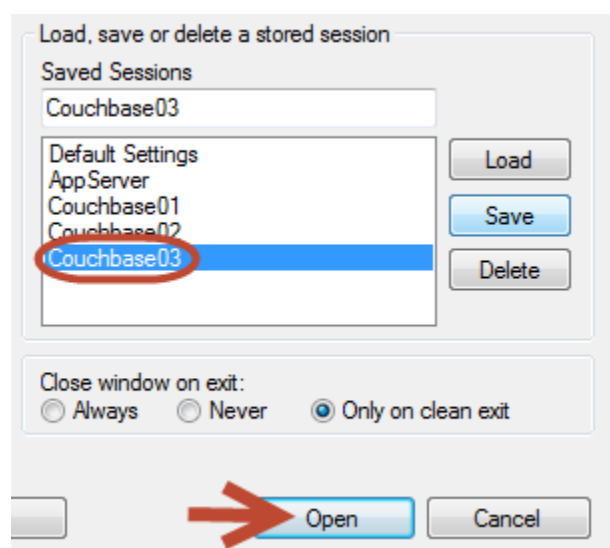
Next, **click on Session** and type to **save the session as “CouchbaseXX”**, where XX is the # of your node from the hostname. Then **click on Save**. For example, here the session is being saved as “Couchbase03”:



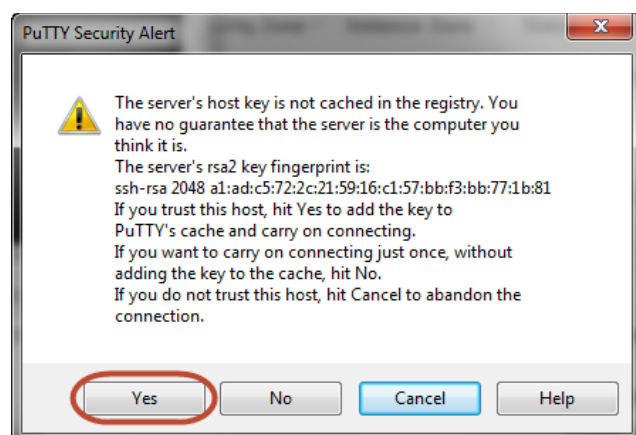
Now highlight the new server, for example here it is **Couchbase03** and click **Open** to connect to this VM:



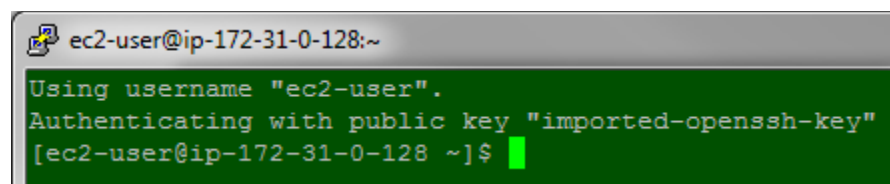
Lab-3: Add 3 more nodes, page 9



You will have to click **“Yes”** to a message about the server’s rsa2 key before a successful connection.



You should now be successfully logged in to the 3rd (Green) VM:



Become root and change the hostname of your VM to Couchbase03.

sudo -i

hostnamectl set-hostname Couchbase03

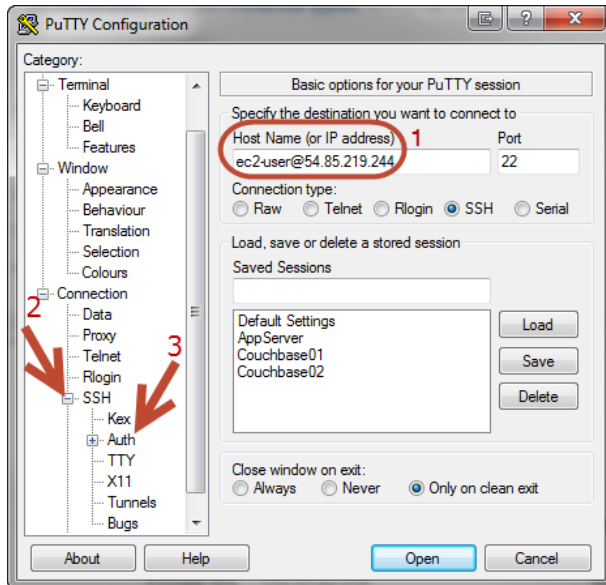


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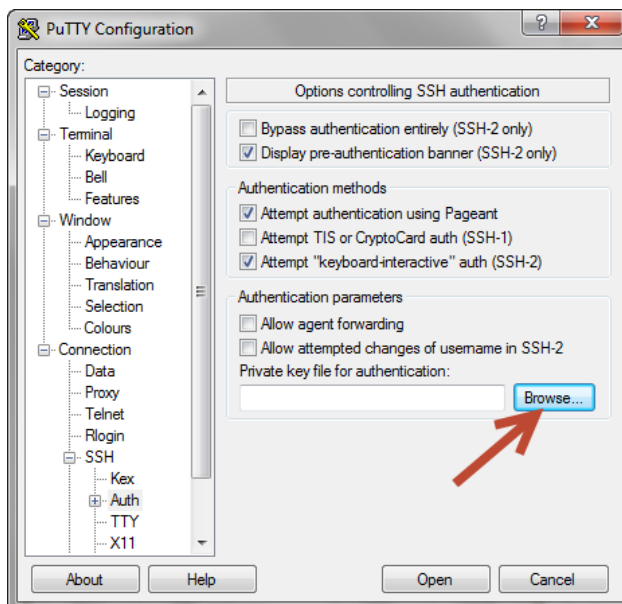
Repeat the same steps as above to connect to the 4th VM, whose terminal color we will set to yellow.

Now, launch PuTTY and connect to the 4th Couchbase VM.

Type **“ec2-user@public hostname”** with the public hostname that the instructor gave you for the 4th VM into PuTTY and then **click on the + next to SSH** to expand its options and finally **select Auth:**



Click **Browse** to select the Private key file for authentication:

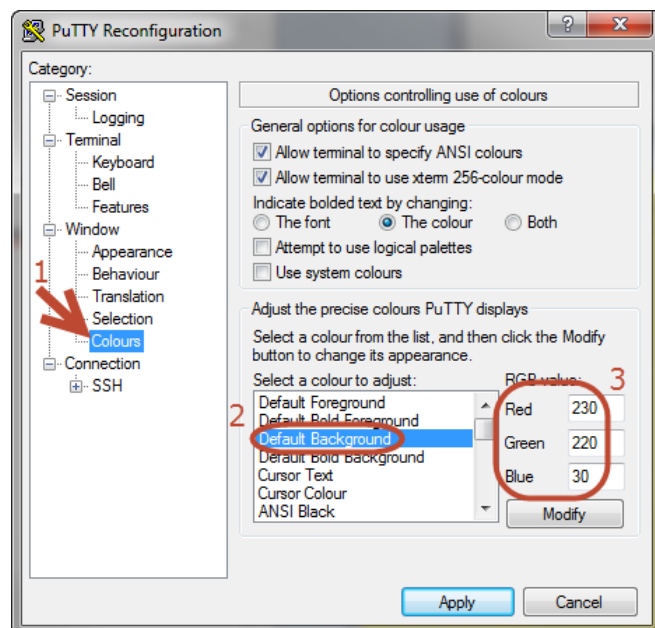




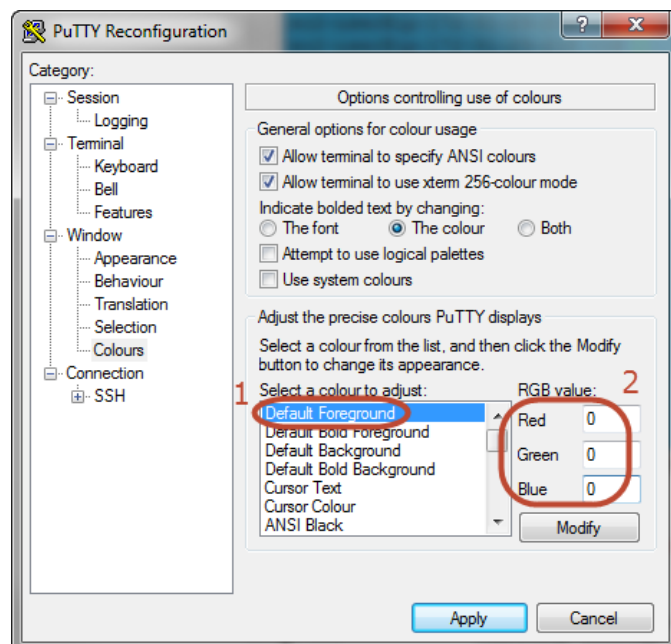
Lab-3: Add 3 more nodes, page 11

Choose the **“Amazon-Private-Key.ppk”** file that the instructor provided you with.

In the left pane, **click on Colors**, then **choose Default Background** under “Select a colour to adjust” and alter the **Red, Green and Blue RGP values to 230, 220 and 30 respectively**.



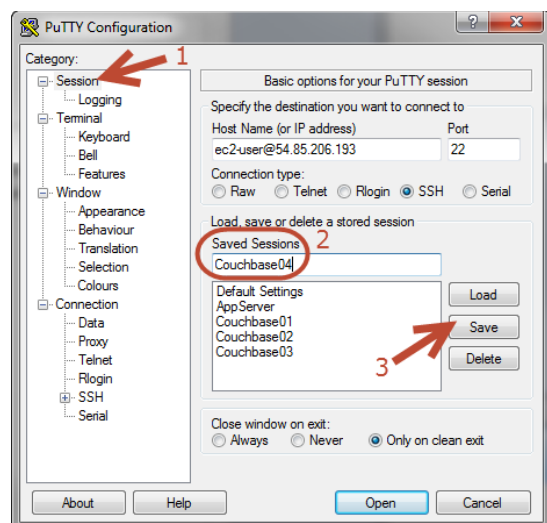
In the same window **choose Default Foreground** under “Select a color to adjust” and alter the **Red, Green and Blue values to 0** to make the text color black.



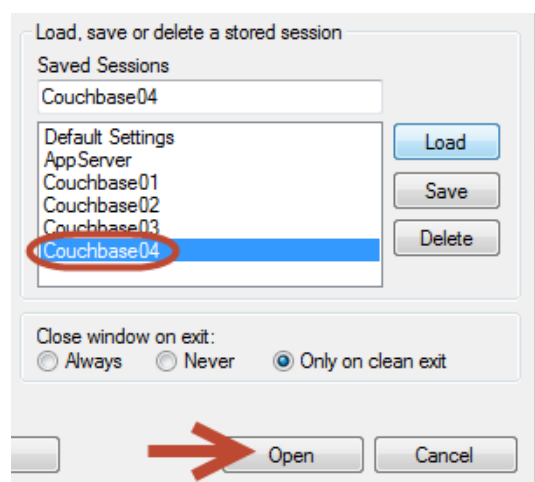


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Next, **click on Session** and type to **save the session as “CouchbaseXX”**, where XX is the # of your node from the hostname. Then **click on Save**. For example, here the session is being saved as “Couchbase04”:



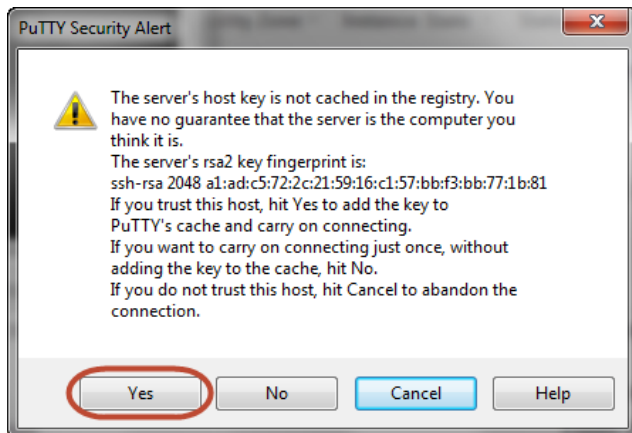
Now highlight the new server, for example here it is **Couchbase04** and click **Open** to connect to this VM:



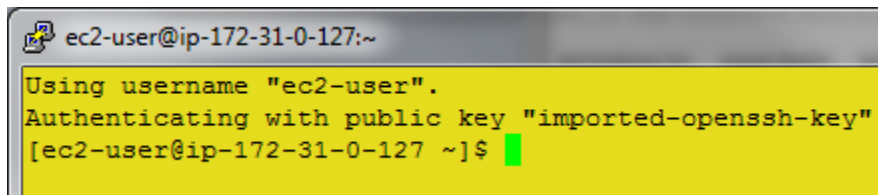
You will have to click **“Yes”** to a message about the server’s rsa2 key before a successful connection.



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You should now be successfully logged in to the 4th (Yellow) VM:



Become root and change the hostname of your VM to Couchbase04.

```
# sudo -i
# hostnamectl set-hostname Couchbase04
```

Repeat this set of procedures for nodes 5 and 6 using the following colors

Node 5- Pink/ Couchbase VM #5

Node 6- Watermelon / Couchbase VM #6

At this point, you should have 7 open PuTTY/Terminal sessions:

- | | |
|----------------------------|-------|
| - Dark Blue / Couchbase01 | VM #1 |
| - Light Blue / Couchbase02 | VM #2 |
| - Green / Couchbase03 | VM #3 |
| - Yellow / Couchbase04 | VM #4 |
| - Pink/ Couchbase05 | VM #5 |
| - Watermelon / Couchbase06 | VM #6 |



- Black / AppServer

Configure the 5 new nodes and install Couchbase Server on them:

In this section, we will do the following on the 5 new nodes (light blue, green and yellow PuTTY windows):

Install Couchbase Server

The steps below should be repeated five times. Once on the 2nd node and once on the 3rd node and once on the 4th node and fifth nodes and sixth nodes. First run through it on the 2nd node, then come back around and implement this on the 3rd and 4th node 5th and 6th.

So, let's get going. Switch to the 2nd node (light blue window) and implement the following steps. Be careful not to typo or hit the wrong key!

(Loop starts here)

Turn off swapping for the running system, but first switch to root user:

```
[ec2-user@Couchbase02 ~]$ sudo -s
[root@ Couchbase02 ec2-user]# echo 0 > /proc/sys/vm/swappiness
```

Then permanently make this change in the sysctl.conf file, so the change persists after a reboot and exit root:

```
[root@ Couchbase02 ec2-user]# echo '' >> /etc/sysctl.conf
[root@ Couchbase02 ec2-user]# echo '#Set swappiness to 0 to avoid
swapping' >> /etc/sysctl.conf
[root@ Couchbase02 ec2-user]# echo 'vm.swappiness = 0' >>
/etc/sysctl.conf
```

Disable Transparent Huge Pages

In a production Couchbase cluster, it is very important to disable Transparent Huge pages on each node.

Disable THP on a running system

```
echo never > /sys/kernel/mm/transparent_hugepage/enabled
echo never > /sys/kernel/mm/transparent_hugepage/defrag
```

```
# yum install wget
# yum install bzip2
# yum install python3
# exit
```

**Download Couchbase 6.5.1 EE:**

```
[ec2-user@Couchbase0X ~]$ wget
http://packages.couchbase.com/releases/6.5.1/couchbase-server-
enterprise-6.5.1-centos8.x86_64.rpm
```

```
--2016-05-10 14:32:24-- http://packages.couchbase.com/releases/6.5.1/couchbase-server-
enterprise-6.5.1-centos7.x86_64.rpm
Resolving packages.couchbase.com (packages.couchbase.com)... 54.231.97.227
Connecting to packages.couchbase.com (packages.couchbase.com)|54.231.97.227|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 100473860 (96M) [application/x-rpm]
Saving to: 'couchbase-server-enterprise-6.5.1-centos7.x86_64.rpm'

100%[=====>] 100,473,860 56.4MB/s in 1.7s

2016-05-10 14:32:26 (56.4 MB/s) - 'couchbase-server-enterprise-6.5.1-centos7.x86_64.rpm' saved
[100473860/100473860]
```

Install Couchbase (note, this command might take 1-2 minutes to complete):

```
[ec2-user@Couchbase0X ~]$ sudo rpm --install couchbase-server-
enterprise-6.5.1-centos8.x86_64.rpm
```

```
Minimum RAM required : 4 GB
System RAM configured : 3.70 GB
```

```
Minimum number of processors required : 4 cores
Number of processors on the system : 2 cores
```

```
Created symlink from /etc/systemd/system/multi-user.target.wants/couchbase-server.service to
/usr/lib/systemd/system/couchbase-server.service.
```

```
You have successfully installed Couchbase Server.
Please browse to http://couchbase02:8091/ to configure your server.
Please refer to http://couchbase.com for additional resources.
```

```
Please note that you have to update your firewall configuration to
allow connections to the following ports:
4369, 8091 to 8094, 9100 to 9105, 9998, 9999, 11207, 11209 to 11211,
11214, 11215, 18091 to 18093, and from 21100 to 21299.
```

```
By using this software you agree to the End User License Agreement.
See /opt/couchbase/LICENSE.txt.
```

After the install finishes, wait 30 seconds, then check the status of the Couchbase Server:

```
[root@ Couchbase0X ec2-user# systemctl status couchbase-server
Obtaining system status
```

If you just finished working on the 2nd (light blue) node, then please scroll up a few pages and repeat these steps on the 3rd (green) or 4th (yellow) node from the part that says : (Loop starts here) And 5th and 6th node



Add the 2nd node into the Couchbase Cluster using the Web UI:

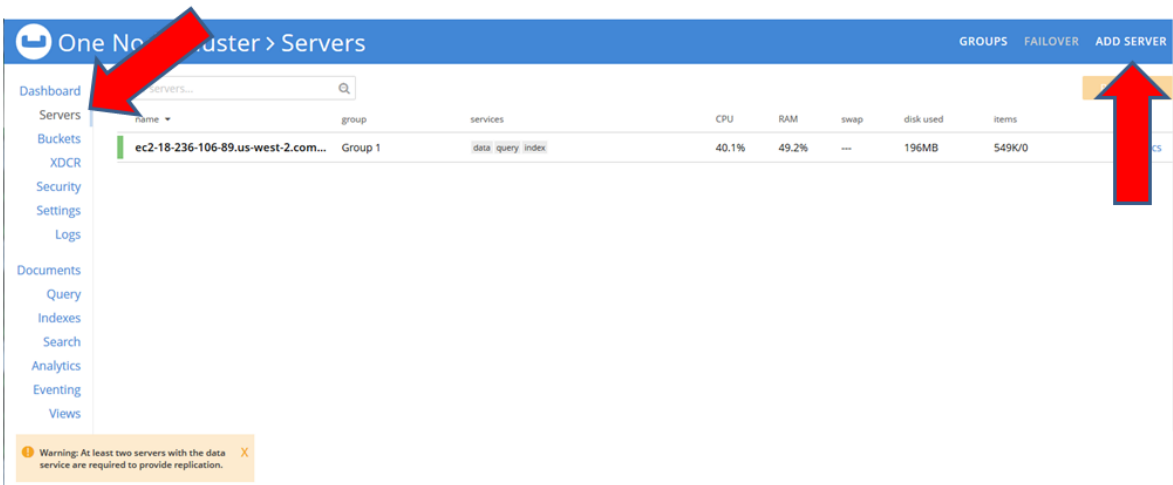
The Rack Awareness feature in the Enterprise Edition of Couchbase allows logical groupings of servers on a cluster where each server group physically belongs to a rack or Amazon availability zone. When configured properly, this feature allows administrators to specify that active and corresponding replica partitions be created on servers that are part of a separate rack or zone. In the event that a whole rack goes down, since the replica partitions are on separate racks, data will remain available.

It is recommended to keep the number of servers the same between the server groups. If an imbalance occurs where there is an unequal number of servers in one server group, the rebalance operation performs a “best effort” of evenly distributing the replica vBuckets across the cluster.

In this section, we will use the Web UI to add a 2nd node to the cluster under Group 1. In the section after this one, we will add the 3rd and 4th nodes to the cluster under Group 2 using the couchbase-cli tool.

Connect to the Couchbase Server Web UI running on node #1, click on **Server Nodes** at the left hand side and then click **Add Server**:

http://<public hostname of 1st VM>:8091





In the Server IP Address field, **type in the public hostname of Node #2 from the Cluster-IPs spreadsheet.**

NOTE: make sure there are no leading spaces if you have cut and pasted.

Also enter **“Administrator”** for the username and **“couchbase”** for the password:

Finally check the box for Data service(and deselect the Index, Search & Query service for nodes 2,3,4)

Click Add Server :

Add Server Node X

Warning: Adding a server to this cluster means any previous Couchbase Server data on that server will be removed.

This cluster is using self-signed certificates. No peer verification between nodes will be done.

Hostname/IP Address

ec2-34-220-16-142.us-west-2.compute.amazonaws.com

Username a user with admin access to this server

Administrator

Password

.....

Services ⓘ

- ☒ Data
- ☐ Index
- ☐ Query
- ☐ Search
- ☐ Analytics
- ☐ Eventing
- ☐ Customize disk storage paths (this node)

Cancel Add Server

Note: Warning about all previous data on this node will be lost when it joins the cluster.



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If you see a new server now listed on the server tab with **“ADD pending rebalance”** in red then you have successfully added the server into the cluster.

The screenshot shows the Couchbase Web UI for a 'One Node Cluster > Servers'. The left sidebar contains navigation links: Dashboard, Servers, Buckets, XDCR, Security, Settings, Logs, Documents, Query, Indexes, Search, Analytics, Eventing, and Views. The main area displays a table of servers. The first server is 'ec2-18-236-106-89.us-west-2.com...' in Group 1, with services 'data, query, index'. The second server is 'ec2-34-220-16-142.us-west-2.com...' in Group 1, with service 'data'. It is marked as a 'New node | Not taking traffic | ADD pending rebalance'. A 'Rebalance' button is visible in the top right, and a 'Cancel Add' button is at the bottom right of the server list. A warning message at the bottom states: 'Warning: At least two servers with the data service are required to provide replication.'

name	group	services	CPU	RAM	swap	disk used	items
ec2-18-236-106-89.us-west-2.com...	Group 1	data, query, index	16.4%	49.4%	---	196MB	549K/0
ec2-34-220-16-142.us-west-2.com...	Group 1	data	0.5%	13.5%	---	---	0/0

Add the 3rd and 4th nodes into the Couchbase Cluster using the Couchbase-cli tool and the webUI :

In this section, we will use the Couchbase-cli to add one additional nodes to the cluster. So, we will add the 3rd node to a new Server Group #2. And we will add the 4th node using the WebUI.

While you are still logged into the Couchbase Web UI, first create a new Server Group by clicking on “Groups”:



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One Node Cluster > Servers

Warning: At least two servers with the data service are required to provide replication.

Dashboard Servers Buckets XDCR Security Settings Logs Documents Query Search Analytics Eventing Indexes

name	group	services	CPU	RAM	swap	disk used	items	
ec2-13-56-178-208.us-west-1.c...	Group 1	data index query search	10.7%	55.5%	---	221MB	549 K/0	Statistics
ec2-18-144-40-189.us-west-1.c...	Group 1	data	1%	19.5%	---	---	0/0	Statistics

New node | Not taking traffic | ADD pending rebalance

Cancel Add

Rebalance

On the next page, click on **“Add Group”**:

One Node Cluster > Servers > Server Groups

Dashboard Servers Buckets Indexes Search Query XDCR Security Settings Logs

Group 1 edit name

ec2-13-56-207-54.us-west-1.compute.amazonaws.com	Data
ec2-54-183-85-83.us-west-1.compute.amazonaws.com	Data Full Text Index Query

Apply Changes Add Group

On the popup, enter **“Group 2”** and click **“Add Group ”** button:

Add New Group X

Group Name

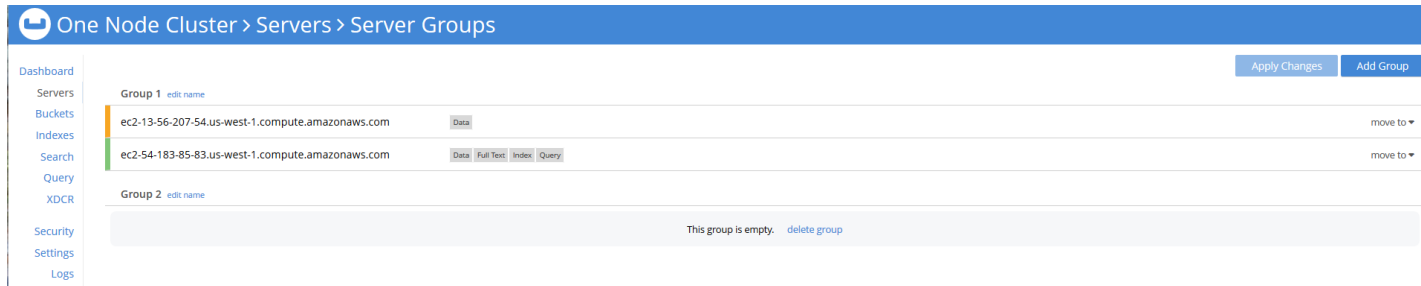
Group 2

Cancel Add Group

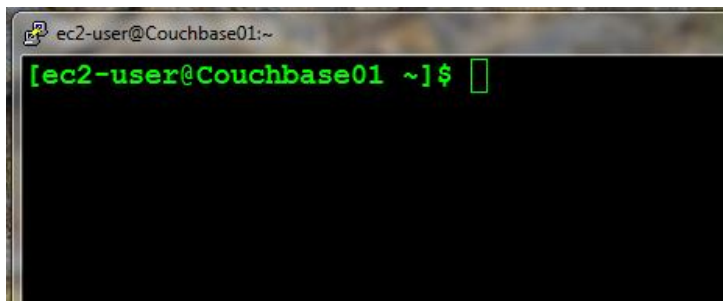


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You should now see an empty Group 2:



Go to the 1st node's PuTTY shell (dark blue window):



```
[ec2-user@Couchbase01 ~]# cd ~
```

Next, we need to construct the couchbase-cli command to add the 3rd node. The command you need to run will look identical to the command below, except you will have to modify the **green** and **blue** highlighted sections.

THIS IS AN EXAMPLE

```
# /opt/couchbase/bin/couchbase-cli server-add --server-add=ec2-54-173-46-5.compute-1.amazonaws.com --server-add-username=Administrator --server-add-password=couchbase --group-name="Group 2" --services="data" --cluster=ec2-54-174-65-105.compute-1.amazonaws.com:8091 --username=Administrator --password=couchbase
```

The **green** part will be the public hostname of the 3rd server you want to add.

The **blue** part will be the public hostname of the 1st server.

The **purple** part will be the services you intend to offer on this node.



Note that in the above command we are adding the 3rd node to Server Group 2.

Run the command that you constructed above (note the public hostnames in your command will be different!):

```
[ec2-user@Couchbase01 ~]$ couchbase-cli server-add --server-add=$NODE3  
--server-add-username=Administrator --server-add-password=couchbase --  
group-name="Group 2" --services="data" --cluster=$NODE1:8091
```

```
SUCCESS: Server added
```

Upon a successful run of the command, you will see the success message above.

Note:

When using the REST API, the join command looks like this *(do not type this command anywhere, it's just for reference)*:

```
curl -u admin:password -d clusterMemberHostIp=192.168.0.1 \  
-d clusterMemberPort=8091 \  
-d user=admin -d password=password \  
http://localhost:8091/node/controller/doJoinCluster
```

You'd have to replace the admin, password, and 192.168.0.1 values in the above example with your actual values.

For further information see

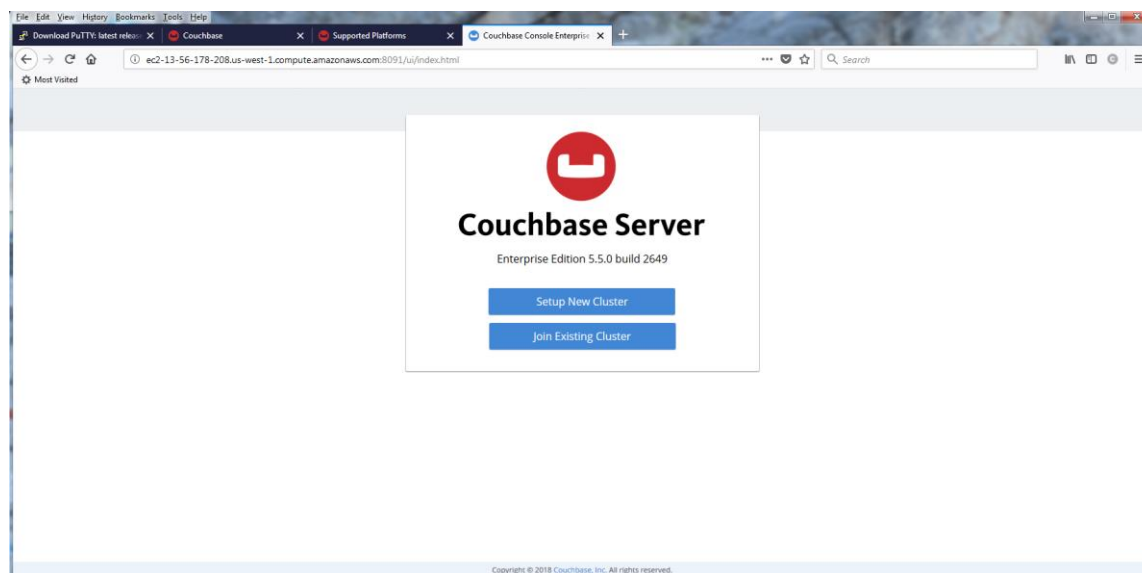
<http://docs.couchbase.com/admin/admin/REST/rest-cluster-joinnode.html>

Next point your browser at **node 4** to obtain a setup splash screen

<http://ec2-52-53-173-24.us-west-1.compute.amazonaws.com:8091>



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**Choose****Join Existing Cluster**

Fill in the information required making sure to use the Amazon ec2 address for both cluster and joining node name.

Select data service(deselect other services)

Edit index path to `/opt/couchbase/var/lib/couchbase/indexes`



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Couchbase > Join Cluster

This node is using self-signed certificates. No peer verification between nodes will be done.

Cluster Host Name/IP Address

Cluster Admin Username

Cluster Admin Password

▼ Configure Services & Settings For This Node

☒ Data

☐ Index

☐ Query

☐ Search

☐ Analytics

☐ Eventing

This Node: Host Name/IP Address

Data Disk Path Path cannot be changed after setup

Free: 17 GB

Indexes Disk Path Path cannot be changed after setup

Free: 17 GB

Eventing Disk Path Path cannot be changed after setup

Free: 17 GB

Analytics Disk Paths Paths cannot be changed after setup

Free: 17 GB

[< Back](#) [Join With Custom Configuration](#)

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Click

Join With Custom Configuration



Rebalance the cluster:

In the Couchbase Web UI, you should now see 3 nodes to be added Pending Rebalance:

name	group	services	CPU	RAM	swap	disk used	items
ec2-13-56-178-208.us-west-1.comp...	Group 1	data index query search	9.74%	57.4%	---	221MB	549 K/0
ec2-18-144-40-189.us-west-1.comp...	Group 1	data	1%	19.7%	---	---	0/0
New node Not taking traffic ADD pending rebalance							
ec2-18-144-41-250.us-west-1.comp...	Group 2	data	1%	20.1%	---	---	0/0
New node Not taking traffic ADD pending rebalance							
ec2-18-144-52-30.us-west-1.comp...	Group 1	data	1%	20.5%	---	---	0/0
New node Not taking traffic ADD pending rebalance							

On your clusters there should be 3 nodes pending rebalance.

If you click on **servers link**, you should see the 3 new nodes that you added with status of Pending Add. And that the services being offered by each node are Data service.

Adding new nodes to Couchbase is actually a two-phase process. First you add the new nodes, then you rebalance the information across all the nodes. So far, we have only completed the first phase.

Simply adding 3 new nodes like we have done in this lab, merely configures the new nodes into the cluster. No actual changes are made to the cluster or data when configuring new nodes.

Next we will rebalance the cluster. During rebalance:

- vbuckets are moved from node to node to match the newly calculated vbucket map. So, the vBucket map is updated during the rebalance operation; the updated map is then sent to all the cluster participants, including the other nodes, any connected “smart” clients
- Rebalancing moves both the data stored in RAM, and the data stored on disk for each bucket, and for each node, within the cluster.
- The cluster remains up, and continues to service and handle client requests.
- The current vBucket map, used to identify which nodes in the cluster are responsible for handling client requests, is updated incrementally as each vBucket is moved. The updated vBucket map is communicated to Couchbase client libraries and enabled smart clients (such as Moxi), and allows clients to use the updated structure as the rebalance completes.



There are four primary reasons that you perform a rebalance operation:

1. Adding nodes to expand the size of the cluster.
2. Removing nodes to reduce the size of the cluster.
3. Reacting to a failover situation, where you need to bring the cluster back to a healthy state.
4. You need to temporarily remove one or more nodes to perform a software, operating system or hardware upgrade.

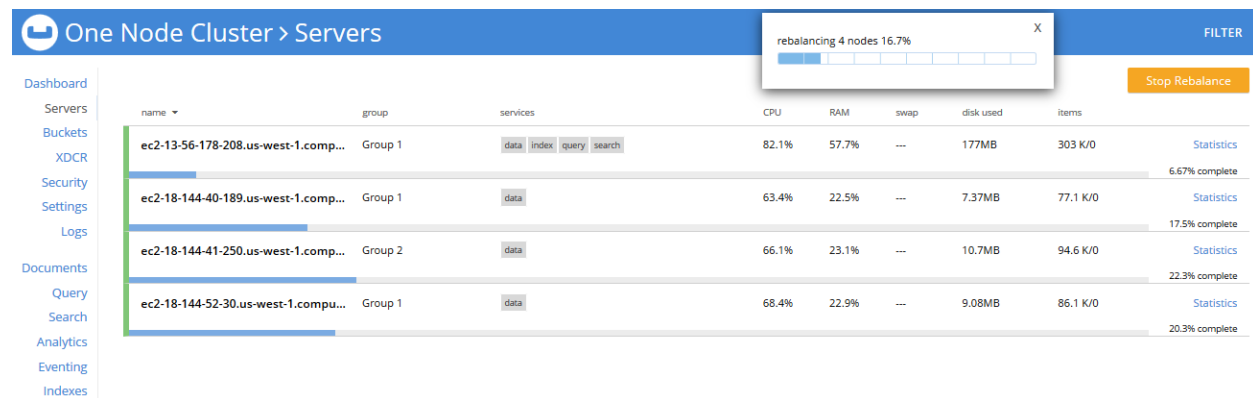
Before starting the rebalance operation, run the `cbstats` command against the beer-sample bucket and `grep` for the `active_num` and `replica_num` variables to verify that the 1st node is responsible for all 1024 vBuckets for the bucket. Note, run this command on the 1st node of the cluster (dark blue Couchbase01) with the public hostname of the first node:

```
[ec2-user@couchbase01 ~]$ cbstats $NODE1:11210 all -u
Administrator -p couchbase -b beer-sample | grep active_num
vb_active_num:                                1024
vb_active_num_non_resident:                    0
```

```
[ec2-user@couchbase01 ~]$ cbstats $NODE1:11210 all -u
Administrator -p couchbase -b beer-sample | grep replica_num
vb_replica_num:                                0
vb_replica_num_non_resident:                    0
```

Click the Rebalance button

Rebalance



You can monitor the rebalancing progress in the Web UI:



Lab-3: Add 3 more nodes, page 26

During this process, you may notice some servers (especially the 1st VM in your lab with all the data on it) at an elevated CPU usage.

Try clicking on the ip address area of the 1st of the nodes to see detailed statistics about it:

One Node Cluster > Servers

filter servers...

name	group	services
ec2-18-236-106-89.us-west-2.com...	Group 1	data query index
ec2-34-220-16-142.us-west-2.com...	Group 1	data

ec2-34-220-16-142.us-west-2.com... Group 1

Addresses: ec2-34-220-16-142.us-west-2.compute.amazonaws.com (int)

Address Family: IPv4

Encryption: On

OS: x86_64-unknown-linux-gnu

Uptime: 4 hours, 50 minutes, 44 seconds

Version: Enterprise Edition 6.5.0 build 4960

RAM Quotas: data 1.56 GB | index 512 MB | search 256 MB | analytics 1166 MB | eventing 256 MB

Data Storage Path: /opt/couchbase/var/lib/couchbase/data

Index Storage Path: /opt/couchbase/var/lib/couchbase/data

Eventing Storage Path: /opt/couchbase/var/lib/couchbase/data

Analytics Storage Path: /opt/couchbase/var/lib/couchbase/data

Rebalance Progress

Data being transferred out

Total number of keys to be transferred: 0

Estimated number of keys transferred: 0

Number of active vBuckets and replica vBuckets to transfer: Active-0, Replica-0

Data being transferred in

Total number of keys to be transferred: 127499

Estimated number of keys transferred: 10915

Number of active vBuckets and replica vBuckets to transfer: Active-234, Replica-0

Rebalance

start 22 Jan 18:52:43 status in progress elapsed 01:07

Data

default vbuckets moved: 72 of 768 9%

node	Incoming docs	outgoing docs
ns_1@ec2-34-220-16-14...	10915 of 127499	0 of 0
ns_1@ec2-34-221-220-1...	10920 of 127500	0 of 0
ns_1@ec2-35-165-112-6...	13894 of 127501	0 of 0
ns_1@ec2-18-236-106-8...	0 of 0	35729 of 382500

Views Compaction

Query

Index

Stop

Notice that there are two main sections here, Data being transferred out and Data being transferred in. In the sample screenshot above, it is the sample buckets that are being transferred out from the 1st node to the other nodes. There is no data being transferred into the 1st node. After the gamesim-sample bucket is finished rebalancing, the nodes will work on rebalancing the beer-sample bucket and then the default bucket and then the travel-sample bucket.

The entire rebalancing process should take about 4-6 minutes.

While the rebalance is going on, you can also get rebalance statistics using the cbstats tool.

Warning: The following commands have to be run when the beer-sample bucket is being rebalanced only! Please verify this from the above web UI!

Wait about 3 – 4 minutes for the beer-sample database to start getting rebalanced. You can verify that the rebalance operation is working on the beer-sample bucket by watching the “Data being transferred out” section under the details of the 1st node:



Lab-3: Add 3 more nodes, page 27

Rebalance Progress

Data being transferred out

Total number of keys to be transferred: 764989

Estimated number of keys transferred: 8766

Number of active vBuckets and replica vBuckets to transfer: Active-755, Replica-0

Data being transferred in

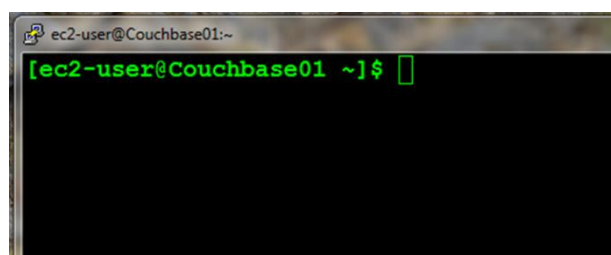
Total number of keys to be transferred: 0

Estimated number of keys transferred: 0

Number of active vBuckets and replica vBuckets to transfer: Active-0, Replica-247

Quickly run through the steps on the next 5 - 6 pages WHILE the beer-sample bucket is being rebalanced (which takes about 2 minutes)! After the beer-sample bucket is finished rebalancing, the output of the following commands will not be the same.

Go to the 1st node's(Couchbase01) PuTTY shell (dark blue window):



```
[ec2-user@Couchbase01 ~]$ cd ~
```

The next command will return a list of DCP backfill processes and whether they are still running (true) or done (false).

The DCP protocol is an internal part of the Couchbase Server system and is used in a number of different areas to exchange data throughout the system. DCP provides a stream of data of the changes that are occurring within the system.

DCP is used during replication, to copy data between vBuckets used for replicas. It is also used during the rebalance procedure to move data between vBuckets and redistribute the information across the system.

Run the following command using the public hostname of the 1st node:

```
[ec2-user@Couchbase01 ~]$ cbstats $NODE1:11210 dcp -u Administrator
-p couchbase -b beer-sample | grep backfill
ep_dcp_max_running_backfills:
102
ep_dcp_num_running_backfills:
0
ep_dcp_queue_backfillremaining:
0
```



Lab-3: Add 3 more nodes, page 28

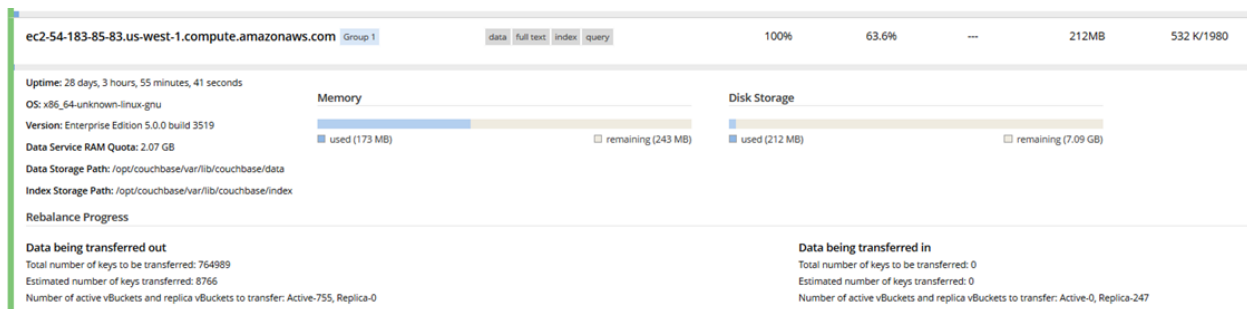
```

eq_dcpq:mapreduce_view: beer-sample _design/beer (prod/main):backfill_buffer_bytes_read:
0
eq_dcpq:mapreduce_view: beer-sample _design/beer (prod/main):backfill_buffer_full:
false
eq_dcpq:mapreduce_view: beer-sample _design/beer (prod/main):backfill_buffer_max_bytes:
20971832
eq_dcpq:mapreduce_view: beer-sample _design/beer (prod/main):backfill_num_active:
0
eq_dcpq:mapreduce_view: beer-sample _design/beer (prod/main):backfill_num_pending:
0
eq_dcpq:mapreduce_view: beer-sample _design/beer (prod/main):backfill_num_snoozing:
0
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-173-46-
5.compute-1.amazonaws.com:beer-sample backfill_buffer_bytes_read: 0
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-173-46-
5.compute-1.amazonaws.com:beer-sample backfill_buffer_full: false
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-173-46-
5.compute-1.amazonaws.com:beer-sample backfill_buffer_max_bytes: 20971832
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-173-46-
5.compute-1.amazonaws.com:beer-sample backfill_num_active: 0
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-173-46-
5.compute-1.amazonaws.com:beer-sample backfill_num_pending: 0
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-173-46-
5.compute-1.amazonaws.com:beer-sample backfill_num_snoozing: 0
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-174-67-
95.compute-1.amazonaws.com:beer-sample:backfill_buffer_bytes_read: 0
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-174-67-
95.compute-1.amazonaws.com:beer-sample:backfill_buffer_full: false
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-174-67-
95.compute-1.amazonaws.com:beer-sample:backfill_buffer_max_bytes: 20971832
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-174-67-
95.compute-1.amazonaws.com:beer-sample:backfill_num_active: 0
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-174-67-
95.compute-1.amazonaws.com:beer-sample:backfill_num_pending: 0
eq_dcpq:replication:ns_1@ec2-54-174-65-105.compute-1.amazonaws.com->ns_1@ec2-54-174-67-
95.compute-1.amazonaws.com:beer-sample:backfill_num_snoozing: 0

```

In the above command output, notice the backfill for dcp queues

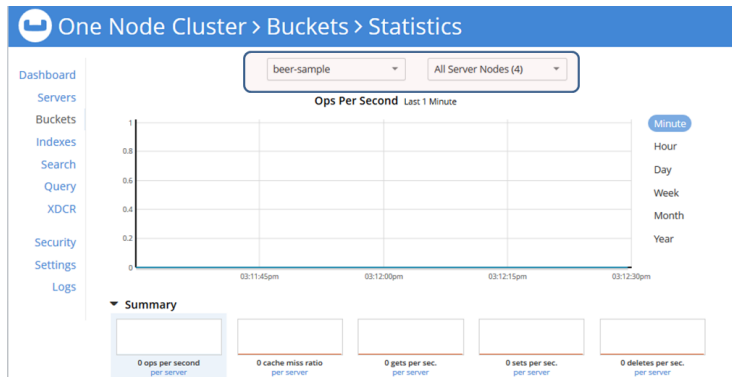
While the rebalance is occurring on the **beer-bucket** (overall rebalance of all the buckets should be at about 50% completed across all the nodes by now), **click on the 1st VM's Server Name under "Server Nodes" to see detailed statistics about the 1st node while the rebalance is going on:**



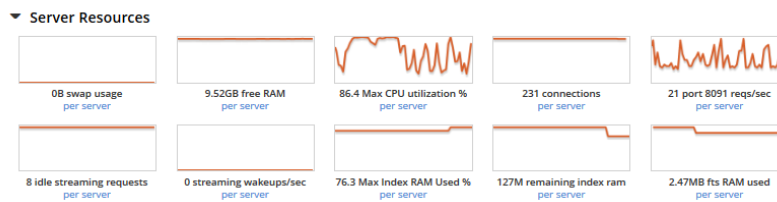


Lab-3: Add 3 more nodes, page 29

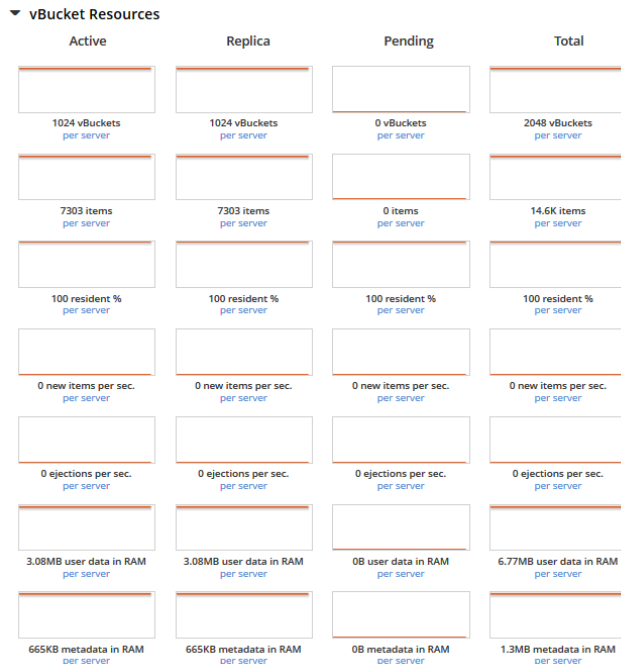
On the Data Buckets link(right side), **switch to the beer-sample bucket** and click on “statistics” on the righthand link
change the second dropdown to All Server Nodes:



You should see lots of activity under the Server Resources graphs:



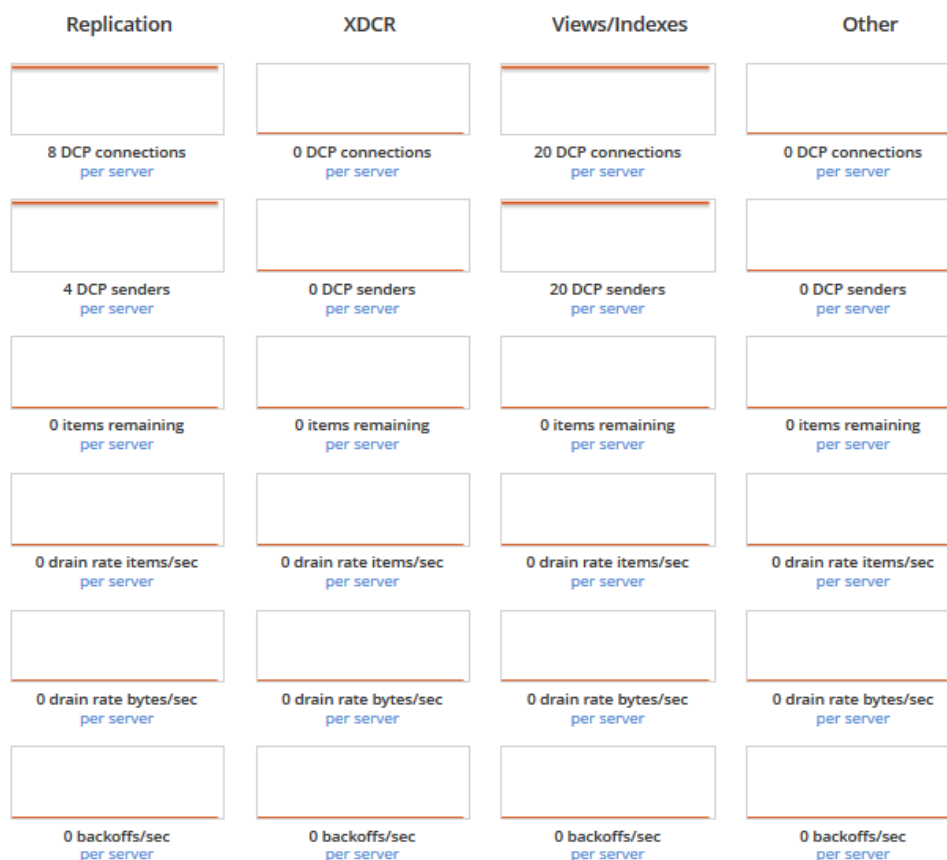
Scroll down and expand vBucket resources:





Scroll down to also look at the DCP queues(6.5.1):

▼ DCP Queues



Note, in the above screenshot, notice that there are 8 DCP connections under replications column , 4 on DCP senders on each server. You can also see the drain rate. You can hover the mouse over any of the tiny graphs to understand more about what the graph is portraying:

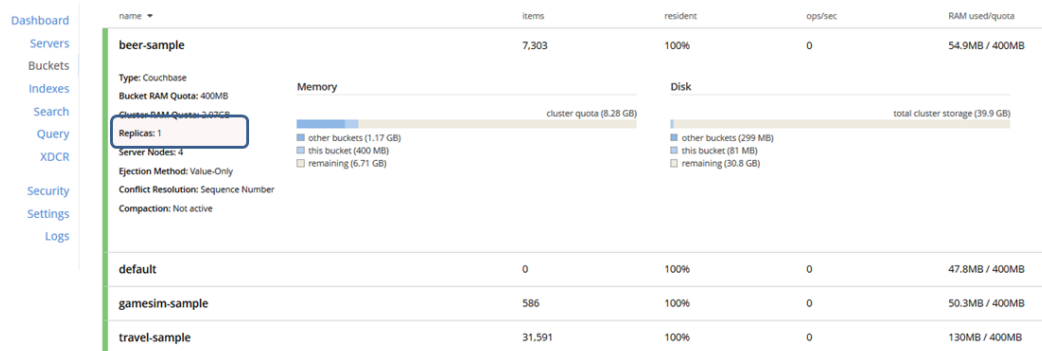
In Couchbase 6.X.X (3.0 and above) the intracluster communication is now being handled by DCP and you can observe DCP related statistics.

More details about what these graphs and charts mean will be covered in the performance lab later on in the class.



Lab-3: Add 3 more nodes, page 31

Note that by default the beer-sample bucket has 1 replica configured for it, so there will be a duplicate copy of every key/value created. You can verify this in the GUI by **clicking on “Data Buckets” in the top menu and expanding beer-sample:**



While the beer-sample bucket is being rebalanced, from the 1st (dark blue) node, run the following command again with the public hostname of the 1st node to see # of active vBuckets on this node reduce from the original number of 1024 to something lower (depending on how far along the rebalance operation is):

```
[ec2-user@couchbase01 ~]$ cbstats $NODE1:11210 all -u
Administrator -p couchbase -b beer-sample | grep active_num
vb_active_num: 1024
vb_active_num_non_resident: 0
```

```
[ec2-user@couchbase01 ~]$ cbstats $NODE1:11210 all -u
Administrator -p couchbase -b beer-sample | grep replica_num
vb_replica_num: 0
vb_replica_num_non_resident: 0
```

Once the rebalance is complete for the beer-sample bucket, you should see the same command return results showing 256 active vBuckets and 256 replica vBuckets on the 1st node:

```
[ec2-user@ Couchbase01 ~]$ cbstats $NODE1:11210 all -u
Administrator -p couchbase -b beer-sample | grep active_num
vb_active_num: 256
vb_active_num_non_resident: 0
```



Lab-3: Add 3 more nodes, page 32

```
[ec2-user@couchbase01 ~]$ cbstats $NODE1:11210 all -u Administrator
-p couchbase -b beer-sample | grep replica_num
```

```
vb_replica_num:                256
vb_replica_num_non_resident:    0
```

Rebalance for the default bucket might still be going on. After the default bucket is rebalanced, you will see a total of 256 active vBuckets on the 1st node, but zero replica vBuckets (since there are no replicas configured for the default bucket):

```
[ec2-user@ Couchbase01 ~]$ cbstats $NODE1:11210 all -b default -u
Administrator -p couchbase | egrep replica_num
```

```
vb_replica_num:                0
vb_replica_num_non_resident:    0
```

When the entire rebalance operation across 4 nodes and 3 buckets is complete, the Server Nodes screen will refresh as follows:

name ▾	group	services	CPU	RAM	swap	disk used	items	
ec2-18-236-106-89.us-west-2.com...	Group 1	data query index	23.7%	48.2%	---	84.8MB	137K/9920	Statistics
ec2-34-220-16-142.us-west-2.com...	Group 1	data	12.6%	30.4%	---	70.9MB	137K/9834	Statistics
ec2-34-221-220-171.us-west-2.co...	Group 2	data	9.1%	30.5%	---	69.4MB	137K/9900	Statistics
ec2-35-165-112-69.us-west-2.com...	Group 1	data	10.0%	31.6%	---	67.9MB	137K/9826	Statistics

Full details about the cbstats command may be found here:

<http://docs.couchbase.com/admin/admin/CLI/cbstats-intro.html>

For more information on how the Rebalance technology works in Couchbase, refer to the following 2 blog posts:

<http://blog.couchbase.com/rebalancing-couchbase-part-i>

<http://blog.couchbase.com/rebalancing-couchbase-part-ii>

In general, there should be no impact to a running application's availability while the rebalance operation is running.

This command in the lab will count the number of files in the beer-sample bucket's data directory in linux. Run this command from the 1st node (dark blue):

```
[ec2-user@Couchbase01 ~]$ sudo ls -al
/opt/couchbase/var/lib/couchbase/data/beer-sample | wc -l
518
```




Lab-3: Add 3 more nodes, page 33

The command output shows that there are 518 files in this directory. Remember that each Bucket has a total of 1024 vBuckets/partitions. So across a 4-node cluster, each node will hold about 256 vBuckets. So, on the 1st node, for the beer-sample bucket there will be 256 files for the active vBuckets, 256 files for the replica vBucket and a few extra metadata files totaling approximately **518**.

Since the default bucket has zero replicas configured, it will have closer to 256 files on the 1st node:

```
[ec2-user@ Couchbase01 ~]$ sudo ls -al
/opt/couchbase/var/lib/couchbase/data/default | wc -l
270
```

Now go to the setting tab and change the name of the cluster to “4 Node Cluster”

The screenshot shows the Couchbase One Node Cluster Settings page. The 'Cluster Name' field is set to '4 Node Cluster'. The 'Service Memory Quotas' section shows values for Data (2120 MB), Index (512 MB), Search (256 MB), Analytics (1167 MB), and Eventing (256 MB). The 'Index Storage Mode' is set to 'Standard Global Secondary'. A 'Save' button is at the bottom.

Click “save”

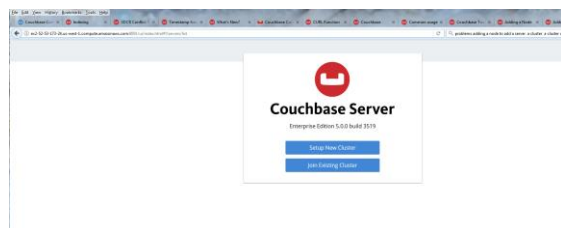
Adding index service node and query service nodes to the cluster

Next point your browser at **node 5** to obtain a setup splash screen

<http://ec2-52-53-173-24.us-west-1.compute.amazonaws.com:8091>



Lab-3: Add 3 more nodes, page 34



Choose

Join Existing Cluster

Fill in the information required making sure to use the Amazon ec2 address for both cluster and joining node name.

Select index, Search, & Query service (deselect data services)

Edit index path to /opt/couchbase/var/lib/couchbase/index

Edit index path to /opt/couchbase/var/lib/couchbase/eventing

Edit index path to /opt/couchbase/var/lib/couchbase/analytics

Couchbase > Join Cluster

This node is using self-signed certificates. No peer verification between nodes will be done.

Cluster Host Name/IP Address
ec2-18-236-106-89.us-west-2.compute.amazonaws.com

Cluster Admin Username
Administrator

Cluster Admin Password

▼ Configure Services & Settings For This Node

☐ Data
☒ Index
☒ Query
☒ Search
☐ Analytics
☐ Eventing

This Node: Host Name/IP Address
ec2-52-26-92-182.us-west-2.compute.amazonaws.com

Data Disk Path Path cannot be changed after setup
/opt/couchbase/var/lib/couchbase/data
Free: 17 GB

Indexes Disk Path Path cannot be changed after setup
/opt/couchbase/var/lib/couchbase/indexes
Free: 17 GB

Eventing Disk Path Path cannot be changed after setup
/opt/couchbase/var/lib/couchbase/eventing
Free: 17 GB

Analytics Disk Paths Paths cannot be changed after setup
/opt/couchbase/var/lib/couchbase/analytics
Free: 17 GB

< Back Join With Custom Configuration



Lab-3: Add 3 more nodes, page 35

Fill in the information you have been provided for your 5th node IP address.
Add the cluster password “couchbase”

REPEATED INSTRUCTION: Select the Index service , Query service and Search(FullText) with a checked box. Deselect data service and other services.

Click [Join With Custom Configuration](#)

Repeat this process for your 6th node and select Index service , Query service and Search(FullText) for the service.

You should now have to pending rebalance operations on the servers page.

Click the “Rebalance” button to add them to the cluster

Rebalance

4 Node Cluster > Servers

Dashboard

Servers

Buckets

Indexes

Search

Query

XDCR

Security

Settings

Logs

FILTER

GROUPS

ADD SERVER

Rebalance

name	group	services	CPU	RAM	swap	disk used	items	
ec2-13-56-207-54.us-west-1.compute.amazonaws.com	Group 1	data	5.58%	37.8%	---	99.8MB	9857/9901	Statistics
ec2-13-57-48-149.us-west-1.compute.amazonaws.com	Group 2	data	4%	30.7%	---	83.7MB	9856/9866	Statistics
ec2-52-53-173-24.us-west-1.compute.amazonaws.com	Group 1	data	9.5%	28.8%	---	93.2MB	9866/9856	Statistics
ec2-54-183-85-83.us-west-1.compute.amazonaws.com	Group 1	data, full text, index, query	15.7%	61.9%	---	75.3MB	9901/9857	Statistics
ec2-54-193-62-173.us-west-1.compute.amazonaws.com	Group 1	full text, index, query	0.99%	14.5%	---	---	0/0	Statistics
New node Not taking traffic ADD pending rebalance								
ec2-54-193-79-108.us-west-1.compute.amazonaws.com	Group 1	full text, index, query	1%	15.1%	---	---	0/0	Statistics
New node Not taking traffic ADD pending rebalance								

Cancel Add

Cancel Add

In this case the nodes are added but since they are nodes that offer index and query service and Search(Full Text) service they are not involved in the vbucket migrations that characterize data service rebalancing.



Lab-3: Add 3 more nodes, page 36

While the nodes are rebalancing.....

Go to the settings tab and rename the cluster “6 Node Cluster”

Dashboard
Servers
Buckets
XDCR
Security
Settings
Logs

Documents
Query
Search
Analytics
Eventing
Indexes

Cluster Name 0 — 256 chars
6 Node Cluster

Service Memory Quotas in megabytes per server node

Data	2120	MB
Index	512	MB
Search	256	MB
Analytics	1167	MB
Query	-----	
Eventing	256	MB

Index Storage Mode

☒ Standard Global Secondary
☐ Memory-Optimized ⓘ

► Advanced Index Settings
► Advanced Query Settings

Save

Click the “save” button



6 Node Cluster > Settings

Cluster Software Updates Node Availability Email Alerts Auto-Config

Dashboard
Servers
Buckets
XDCR
Security
Settings
Logs

Documents
Query
Search
Analytics
Eventing
Indexes

Cluster Name 0 — 256 chars
6 Node Cluster

Service Memory Quotas in megabytes per server node

Data	2120	MB
Index	512	MB
Search	256	MB
Analytics	1167	MB
Query	-----	
Eventing	256	MB

Index Storage Mode

☒ Standard Global Secondary
☐ Memory-Optimized ⓘ

► Advanced Index Settings
► Advanced Query Settings

Save

On the servers page you will see 6 servers in your cluster.

They will all be in “Group1” with the exception of one server that you added manually to Group 2 using the CLI.



Lab-3: Add 3 more nodes, page 37

Click the Groups link

GROUPS

6 Node Cluster > Servers > Server Groups

Dashboard Servers Buckets XDCR Security Settings Logs Documents Query Search Analytics Eventing Indexes

Apply Changes Add Group

Group 1 [edit name](#)

ec2-13-56-178-208.us-west-1.com...	Data Index Query Search	move to ▼
ec2-18-144-40-189.us-west-1.com...	Data	move to ▼
ec2-18-144-52-30.us-west-1.com...	Data	move to ▼
ec2-52-53-200-240.us-west-1.com...	Index Query Search	move to ▼
ec2-52-53-243-185.us-west-1.com...	Index Query Search	move to ▼

Group 2 [edit name](#)

ec2-18-144-41-250.us-west-1.com...	Data	move to ▼
------------------------------------	------	-----------

On the Groups page put one additional server in Group 2 offering the data service. And put one server offering Search,Index,query into Group 2 using the move to pull down at the right hand side of your screen.

Apply Changes Add Group

move to ▼

Group 2

move to ▼

move to ▼

move to ▼

move to ▼

Observe the pending operations

6 Node Cluster > Servers > Server Groups

Dashboard Servers Buckets Indexes Search Query XDCR Security Settings Logs

Reset Apply Changes Add Group

Group 1 [edit name](#)

ec2-13-56-207-54.us-west-1.compute.amazonaws.com	Data	✓ pending move to Group 2	cancel
ec2-52-53-173-24.us-west-1.compute.amazonaws.com	Data		move to ▼
ec2-54-183-85-83.us-west-1.compute.amazonaws.com	Data Full Text Index Query		move to ▼
ec2-54-193-62-173.us-west-1.compute.amazonaws.com	Full Text Index Query	✓ pending move to Group 2	cancel
ec2-54-193-79-108.us-west-1.compute.amazonaws.com	Full Text Index Query		move to ▼

Group 2 [edit name](#)

ec2-13-57-48-149.us-west-1.compute.amazonaws.com	Data	move to ▼
--	------	-----------



Lab-3: Add 3 more nodes, page 38

Click

Apply Changes

Observe changes to appropriate Group affiliations.

Now move back to the servers page.

Observe the following message at the top of your screen.

“Warning: Rebalance recommended, some data does not have the desired replicas configuration.”

Moving servers into different groups will cause a need to move replica data to comply with new requirements for placement and necessitate a need for a rebalance.

Now move to the indexes page. Observer that all indexes are on Node 1(first node in the cluster.)
Select view by server node form left hand pulldown.....

index name	requests/sec	resident ratio	items	data size	bucket	status
beer_primary	0	100%	7,303	0.2 MB	beer-sample	ready
def_airportname	0	68%	1,968	0.3 MB	travel-sample	ready
def_city	0	0%	7,380	0.9 MB	travel-sample	ready
def_faa	0	100%	1,968	0.3 MB	travel-sample	ready
def_icao	0	100%	2,155	0.3 MB	travel-sample	ready
def_name_type	0	0%	0	0.1 MB	travel-sample	ready
def_primary	0	100%	31,591	0.3 MB	travel-sample	ready
def_route_src_dst_day	0	100%	168,168	3.1 MB	travel-sample	ready
def_schedule_utc	0	100%	24,024	7.2 MB	travel-sample	ready
def_sourceairport	0	100%	24,024	0.6 MB	travel-sample	ready
def_type	0	78%	31,591	2.1 MB	travel-sample	ready
gamesim_primary	0	100%	586	0.1 MB	gamesim-sample	ready



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Remove

On the servers page open the GUI for node 1 and select remove

6 Node Cluster > Servers

name	group	services	CPU	RAM	swap	disk used	items	
ec2-13-56-207-54.us-west-1.compute.amazonaws.com	Group 2	data	3.04%	39.7%	---	94.8MB	9886/9853	Statistics
ec2-13-57-48-149.us-west-1.compute.amazonaws.com	Group 2	data	6.03%	31.7%	---	82.6MB	9874/9867	Statistics
ec2-52-53-173-24.us-west-1.compute.amazonaws.com	Group 1	data	6.46%	31.1%	---	90.3MB	9848/9904	Statistics
ec2-54-183-85-83.us-west-1.compute.amazonaws.com	Group 1	data, fulltext, index, query	54.6%	62.7%	---	76.7MB	9872/9856	Statistics
Uptime: 32 days, 5 hours, 13 minutes, 47 seconds OS: x86_64 unknown-linux-gnu Version: Enterprise Edition 5.0.0 build 3519 Data Service RAM Quota: 2.07 GB Data Storage Path: /opt/couchbase/var/lib/couchbase/data Index Storage Path: /opt/couchbase/var/lib/couchbase/index								
ec2-54-193-62-173.us-west-1.compute.amazonaws.com	Group 2	fulltext, index, query	4.47%	18.7%	---	---	0/0	Statistics
ec2-54-193-79-108.us-west-1.compute.amazonaws.com	Group 1	fulltext, index, query	2.51%	19.8%	---	---	0/0	Statistics

Now click the rebalance button.

Rebalance

After the rebalance notice the remaining indexes have migrated to the new index nodes you added earlier.

6 Node Cluster > Indexes

index name	requests/sec	resident ratio	items	data size	bucket	status
ec2-18-236-106-89.us-west-2.compute.amazonaws.com:8091						
beer_primary	0	100%				
def_airportname	0	68%				
def_city	0	0%				
def_faa	-	-				
def_icao	0	100%				
def_name_type	-	-				
def_primary	0	100%	31,591	0.3 MB	travel-sample	ready
def_route_src_dst_day	0	100%	168,168	3.1 MB	travel-sample	ready
def_schedule_utc	0	100%	24,024	7.2 MB	travel-sample	ready
def_sourceairport	0	100%	24,024	0.6 MB	travel-sample	ready
def_type	0	78%	31,591	2.1 MB	travel-sample	ready
gamesim_primary	-	-	-	-	gamesim-sample	replicating
ec2-52-27-57-168.us-west-2.compute.amazonaws.com:8091						
def_faa	-	-	-	-	travel-sample	replicating
def_name_type	-	-	-	-	travel-sample	replicating

Rebalance

start 22 Jan 19:43:46 status in progress

completed 18:14 ✓

Data

- beer-sample vbuckets moved: 768 of 768 100%
- default vbuckets moved: 256 of 256 100%
- gamesim-sample vbuckets moved: 768 of 768 100%
- travel-sample vbuckets moved: 768 of 768 100%

Search completed 00:00 ✓

Query completed 00:00 ✓

Index elapsed 00:12

Stop

Index Service RAM Quota	1,536.0 MB	Total Scan Rate	0/sec	beer-sample	
RAM Used/Remaining	915,797,020.3 MB	Indexes Progression	63.0%	Indexes Data Size	0.2 MB
Index Service RAM Percent	58.5%			Indexes Disk Size	0.5 MB



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6 Node Cluster > Indexes

view by: server node | filter indexes...

ec2-52-27-57-168.us-west-2.compute.amazonaws.com:8091

index name	requests/sec	resident ratio
beer_primary	-	-
def_airportname	-	-
def_city	-	-
def_faa	-	-
def_icao	-	-
def_name_type	-	-
def_route_src_dst_day	-	-
def_type	-	-
gamesim_primary	-	-

ec2-52-26-92-182.us-west-2.compute.amazonaws.com:8091

index name	requests/sec	resident ratio	items	data size	bucket	status
def_primary	-	-	-	-	travel-sample	ready
def_schedule_utc	-	-	-	-	travel-sample	ready
def_sourceairport	-	-	-	-	travel-sample	ready

Rebalance
start 22 Jan 19:43:46 | complete 22 Jan 20:03:08 | status completed

✓ Rebalance completed successfully. | Download Report

Data | completed 18:14 ✓

- beer-sample | vbuckets moved: 768 of 768 | 100%
- default | vbuckets moved: 256 of 256 | 100%
- gamesim-sample | vbuckets moved: 768 of 768 | 100%
- travel-sample | vbuckets moved: 768 of 768 | 100%

Search | completed 00:00 ✓

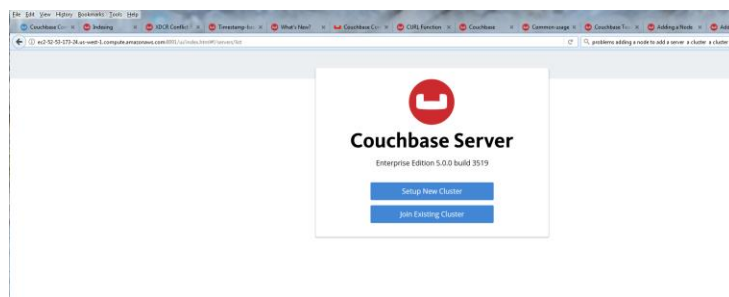
Query | completed 00:00 ✓

Index | completed 01:05 ✓

Now add the node back into the cluster using the join an existing cluster procedure.

Point your browser at **node 1** to obtain a setup splash screen

<http://ec2-52-53-173-24.us-west-1.compute.amazonaws.com:8091>



Choose

Join Existing Cluster

Fill in the information required making sure to use the Amazon ec2 address for both cluster and joining node name.

Select data service(deselect other services)



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Edit index path to /opt/couchbase/var/lib/couchbase/index

Couchbase > Join Cluster

Cluster Host Name/IP Address
ec2-13-56-178-208.us-west-1.compute.amazonaws.com

Cluster Admin Username
Administrator

Cluster Admin Password

▼ Configure Services & Settings For This Node

☒ Data

☐ Index

☐ Search

☐ Query

☐ Eventing

☐ Analytics

This Node: Host Name/IP Address Usually localhost or similar
ec2-18-144-52-30.us-west-1.compute.amazonaws.com

Data Disk Path Path cannot be changed after setup
/opt/couchbase/var/lib/couchbase/data
Free: 7 GB

Indexes Disk Path Path cannot be changed after setup
/opt/couchbase/var/lib/couchbase/index
Free: 7 GB

Analytics Disk Paths Paths cannot be changed after setup
/opt/couchbase/var/lib/couchbase/analytics
Free: 7 GB

< Back Join With Custom Configuration

Remember to use the IP address one of the nodes 2-6 for the cluster address

Click

Join With Custom Configuration

6 Node Cluster > Servers

GROUPS FAILOVER ADD SERVER

filter servers... Rebalance

name	group	services	CPU	RAM	swap	disk used	items	
ec2-18-236-106-89.us-west-2.com...	Group 1	data	0.5%	19.7%	---	---	0/0	Statistics
New node Not taking traffic ADD pending rebalance								
ec2-34-220-16-142.us-west-2.com...	Group 1	data	14.0%	53.6%	---	112MB	183K/13.2K	Statistics
ec2-34-221-220-171.us-west-2.co...	Group 2	data	12.7%	50.9%	---	101MB	183K/13.1K	Statistics
ec2-35-165-112-69.us-west-2.com...	Group 2	data	19.7%	52.3%	---	96.1MB	182K/13K	Statistics
ec2-52-26-92-182.us-west-2.comp...	Group 1	query index search	8.2%	24.2%	---	---	0/0	Statistics
ec2-52-27-57-168.us-west-2.comp...	Group 2	query index search	4.9%	27.4%	---	---	0/0	Statistics

Cancel Add



Lab-3: Add 3 more nodes, page 42

Rebalance the cluster:

The screenshot shows the Couchbase Server Admin Console for a 6 Node Cluster. A modal window titled 'Rebalance' is open, showing the status 'start 22 Jan 20:07:18 status in progress'. The modal lists the following data and services:

Category	Item	Progress
Data	default	vbuckets moved: 256 of 256 100%
	travel-sample	vbuckets moved: 499 of 768 65%
Query	default	---
	travel-sample	---
	Search	---
	Index	---

The background shows a table of servers with columns for name, group, and services. The servers are grouped into Group 1 and Group 2.

Done.

The screenshot shows the Couchbase Server Admin Console for a 6 Node Cluster. A modal window titled 'Rebalance' is open, showing the status 'start 22 Jan 20:07:18 complete 22 Jan 20:17:31 status completed'. The modal lists the following data and services:

Category	Item	Progress
Data	beer-sample	completed 10:11 ✓
	default	vbuckets moved: 256 of 256 100%
Query	gamesim-sample	vbuckets moved: 768 of 768 100%
	travel-sample	vbuckets moved: 768 of 768 100%
Search	default	completed 00:00 ✓
	Index	completed 00:00 ✓

The background shows a table of servers with columns for name, group, and services. The servers are grouped into Group 1 and Group 2.

This completes lab 3.0