Deployment Considerations

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Hardware Minimums

Hardware requirements/recommendations are the intersection of what's needed versus what's available.

RAM: At least ~4GB (highly dependent on data set)

Disk: Fastest "local" storage available
-SSD is better
-RAID 0 or 10, not 5

CPU (minimums): 8 cores
+ 1-per bucket
+ 1-per design document
+ 1-per XDCR stream

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As your workload grows…

- Effects on scale/sizing:
  - More reads:
  - Individual documents will not be impacted (static working set)
  - Views may require faster disks, more disk IO caching
  - More writes will increase disk IO needs
- Indications:
  - Cache miss ratio rising
  - Growing disk write queue / XDCR queue
  - Compaction not keeping up
- What to do:
  - Revise sizing calculations and add more nodes if needed
- Most applications don't need to scale the number of nodes based upon normal workload variation.

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As your dataset grows…

- Effects on scale/sizing:
  - Your RAM needs will grow:
    - Metadata needs increase with item count
    - Is your working set increasing?
  - Your disk space will likely grow (duh?)
- Indications:
  - Dropping resident ratio
  - Rising ejections/cache miss ratio
- What to do:
  - Revise sizing calculations, add more nodes
  - Remove un-needed data

- This is the most common need for scaling and will most likely result in needing more nodes

Upgrade

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Online upgrades

- **Online upgrade with swap rebalance**
  - For swap rebalance, first add a node to the cluster and then perform a swap rebalance to shift data from an old node to the new one.
  - preferred upgrade method when there is not enough cluster capacity to handle data once an old node is removed
- **Standard online upgrade**
  - take down one or two nodes from a cluster and rebalance so that remaining nodes handle incoming requests.
  - use this upgrade option only if you have enough remaining cluster capacity to handle the nodes you want to remove and upgrade.

Swap Rebalance Example

- Install the latest version of Couchbase Server on the extra node that is not yet a part of the cluster. For instructions see Performing the Single Node Upgrade.
- Create a backup of your cluster data using the cbbackup tool.
- Open the Couchbase Web Console on an existing cluster node.
- Select **Servers > Active Servers** to view and manage the cluster nodes:

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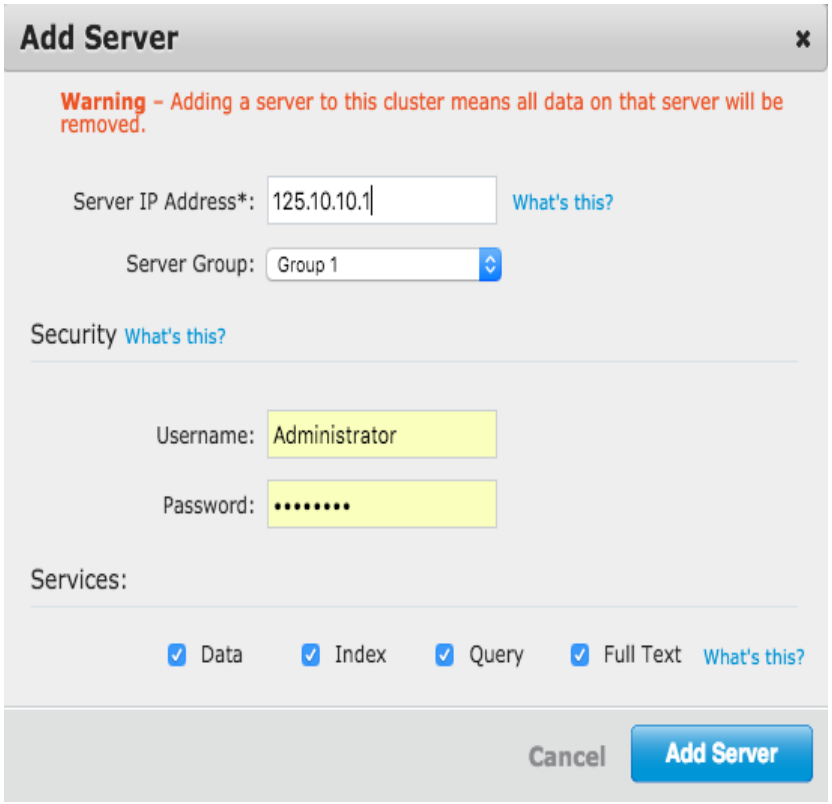
Swap Rebalance Example...

- Click **Add Server**.
- In the Add Server dialog, provide either a hostname or IP address for the new node to be added. Enter your Couchbase Server administrative credentials in the fields Username and Password and select the appropriate service.
- Remove one of your existing old nodes from the cluster.Under **Server Nodes > Servers**, click **Remove** for the node you want to remove to mark it for removal.
- In the Servers panel, click **Rebalance**. The rebalance process moves data from the existing node to your newly added node.



Repeat these steps for all the remaining old nodes in the cluster. You can add and remove multiple nodes from a cluster. However, always add the same number of nodes from the cluster as you remove.

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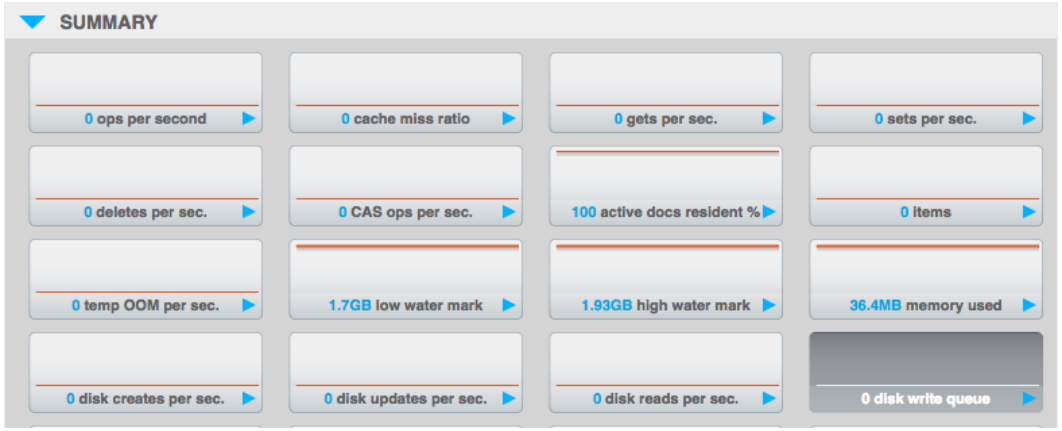
Offline upgrades

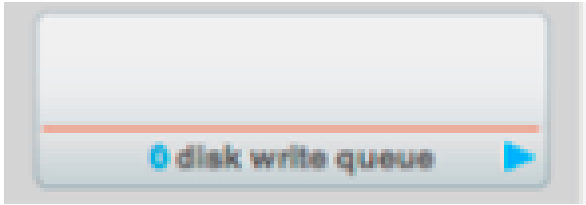
- First, shut down your application so that no more incoming data arrives.
- Second, verify that the disk write queue is 0 and then shut down each node. This way you know that the Couchbase Server has stored all items onto disk during shutdown.



- After shutting down applications and nodes, perform the upgrade on each machine and then bring the cluster and applications back again.

Offline upgrade

- **Settings** > **Auto-Failover**, disable auto-failover for all nodes in the cluster
- Shut down your application so that no more requests are forwarded to Couchbase Cluster.
- Disk write queue reads 0



- Create a backup of your cluster data using cbbackupmgr.
- Shutdown Couchbase Server on each machine in your cluster. Couchbase Server starts automatically after upgrade.
- As the cluster warms up, you can monitor the status of the warmup process (cbstats tool) to determine when you can switch on your application.

Lab : Upgrade