MONGODB SERVER REBUILDING STEPS

Need to get all servers disk size details for /database partition and check in which replica server the disk utilisation is high and give it first priority

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Start with server which disk is utilised more space (high use % /database)

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Note : At a time only one node in entire cluster should be in rebuilding state (i.e. Startup2)

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Connect to the node to check the replication lag.

Command : mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m3.netcore.in --port 27017 --eval "rs.printSecondaryReplicationInfo()"

```
[mongodev@nc-mgus5-m3 ~]$ mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m3.netcore.in --port 27017 --eval "rs.printSec
ondaryReplicationInfo()"
MongoDB shell version v4.2.18
connecting to: mongodb://nc-mgus5-m3.netcore.in:27017/test?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("a48a468c-9816-4c04-bf8d-967dc8ab0d9f") }
MongoDB server version: 4.2.18
source: nc-mgus5-m1.netcore.in:27017
        syncedTo: Tue Jul 04 2023 18:27:30 GMT+0530 (IST)
        0 secs (0 hrs) behind the primary
source: nc-mgus5-m2.netcore.in:27017
        syncedTo: Tue Jul 04 2023 18:27:30 GMT+0530 (IST)
        0 secs (0 hrs) behind the primary
[mongodev@nc-mgus5-m3 ~]$
```

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As shown in above figure if lag more than 10 secs

⬇

Don’t start rebuilding

As shown in above figure if lag less than 10 secs

⬇

Start rebuilding

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Connect to the server which needs to rebuild. From the command df -h check the size of /database directory and note database size.

```
[mongodev@nc-mgus5-m2 ~]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/nvme0n1p1  100G  5.9G   95G   6% /
devtmpfs         62G     0   62G   0% /dev
tmpfs            62G     0   62G   0% /dev/shm
tmpfs            62G  121M   62G   1% /run
tmpfs            62G     0   62G   0% /sys/fs/cgroup
/dev/nvme2n1p1   92G  1.6G   86G   2% /var/log/mongodb
/dev/nvme1n1p1  1.6T  1.1T  502G  69% /database
tmpfs            13G     0   13G   0% /run/user/1004
[mongodev@nc-mgus5-m2 ~]$
```

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Check the state of the server (Primary/Secondary). If the state of the server is primary we have to change the state of the server to secondary and rebuilding the server must have **priority 1.**

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Command to check priority mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "var members = rs.conf().members; members.forEach(function(member) { print('_id:', member._id, 'host:', member.host, 'priority:', member.priority); })"

Sample output

[mongodev@nc-mgus5-m2 ~]$ mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "var members = rs.conf().members; members.forEach(function(member) { print('_id:', member._id, 'host:', member.host, 'priority:', member.priority); })"
MongoDB shell version v4.2.18
connecting to: mongodb://nc-mgus5-m2.netcore.in:27017/test?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("2b2b0126-8861-4c63-a024-604d7834b89b") }
MongoDB server version: 4.2.18
_id: 3 host: nc-mgus5-m1.netcore.in:27017 priority: 1
_id: 4 host: nc-mgus5-m2.netcore.in:27017 priority: 4
_id: 5 host: nc-mgus5-m3.netcore.in:27017 priority: 5

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For example : If we need to rebuild the nc-mgus5-m2.netcore.in server, change the priority to 1.
Command to change priority (this command should execute on primary server only)
mongo -u root -p 'emptyplant50' --authenticationDatabase admin nc-mgus5-m3.netcore.in --port 27017 --eval "cfg = rs.conf(); cfg.members[0].priority = 5; cfg.members[1].priority = 1; cfg.members[2].priority = 4; rs.reconfig(cfg);"
Output:

```
[mongodev@nc-mgus5-m3 ~]$ mongo -u root -p 'emptyplant50' --authenticationDatabase admin nc-mgus5-m3.netcore.in --port 27017 --eval "cfg = rs.
conf(); cfg.members[0].priority = 5; cfg.members[1].priority = 1; cfg.members[2].priority = 4; rs.reconfig(cfg);"
MongoDB shell version v4.2.18
connecting to: mongodb://nc-mgus5-m3.netcore.in:27017/test?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("33a249af-925a-48e8-a161-cb6734bfc800") }
MongoDB server version: 4.2.18
{
        "ok" : 1,
        "$gleStats" : {
                "lastOpTime" : {
                        "ts" : Timestamp(1688534717, 346),
                        "t" : NumberLong(29)
                },
                "electionId" : ObjectId("7fffffff000000000000001d")
        },
        "lastCommittedOpTime" : Timestamp(1688534717, 197),
        "$configServerState" : {
                "opTime" : {
                        "ts" : Timestamp(1688534717, 2),
                        "t" : NumberLong(138)
                }
        },
        "$clusterTime" : {
                "clusterTime" : Timestamp(1688534717, 346),
                "signature" : {
                        "hash" : BinData(0,"/e9O1ZPbiJvecRUBhR0wf++9e4E="),
                        "keyId" : NumberLong("7230102780210315358")
                }
        },
        "operationTime" : Timestamp(1688534717, 346)
}
[mongodev@nc-mgus5-m3 ~]$
```

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After priority change if the state of the server is primary it will change to secondary and if the state of server is secondary it will remain as secondary.

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To verify the priority changes command - - mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "rs.conf()"

Output :

```
[mongodev@nc-mgus5-m2 ~]$ mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "var members
 = rs.conf().members; members.forEach(function(member) { print('_id:', member._id, 'host:', member.host, 'priority:', member.priority); })"
MongoDB shell version v4.2.18
connecting to: mongodb://nc-mgus5-m2.netcore.in:27017/test?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("2b2b0126-8861-4c63-a024-604d7834b89b") }
MongoDB server version: 4.2.18
_id: 3 host: nc-mgus5-m1.netcore.in:27017 priority: 5
_id: 4 host: nc-mgus5-m2.netcore.in:27017 priority: 1
_id: 5 host: nc-mgus5-m3.netcore.in:27017 priority: 4
[mongodev@nc-mgus5-m2 ~]$
```

⬇

After changing the priority of servers. Connect to primary server and change the oplog size

Command - - mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m3.netcore.in --port 27017 --eval "db.adminCommand({replSetResizeOplog: 1, size: 400000})"

Output :

```
[mongodev@nc-mgus5-m3 ~]$ mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m3.netcore.in --port 27017 --eval "db.adminCom
mand({replSetResizeOplog: 1, size: 400000})"
MongoDB shell version v4.2.18
connecting to: mongodb://nc-mgus5-m3.netcore.in:27017/test?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("263b1940-6a71-4998-a3b2-8784f81d9521") }
MongoDB server version: 4.2.18
{
        "ok" : 1,
        "$gleStats" : {
                "lastOpTime" : Timestamp(0, 0),
                "electionId" : ObjectId("7fffffff000000000000001d")
        },
        "lastCommittedOpTime" : Timestamp(1688539643, 2871),
        "$configServerState" : {
                "opTime" : {
                        "ts" : Timestamp(1688539636, 2),
                        "t" : NumberLong(138)
                }
        },
        "$clusterTime" : {
                "clusterTime" : Timestamp(1688539643, 2871),
                "signature" : {
                        "hash" : BinData(0,"JwbHlTt3fk2qUsfAb7YNDxP6mFg="),
                        "keyId" : NumberLong("7230102780210315358")
                }
        },
        "operationTime" : Timestamp(1688539643, 2871)
}
[mongodev@nc-mgus5-m3 ~]$
```

⬇

Now Stop the server which we are rebuilding

Command - sudo systemctl stop mongod.service

⬇

Goto path database directory

Command - cd /database/

```
[mongodev@nc-mgus5-m2 ~]$ cd /database/
[mongodev@nc-mgus5-m2 database]$ ll
total 68
drwxr-xr-x 881 mongod mongod 28672 Jul  5 10:48 mongodata
drwxr-xr-x   2 mongod mongod 20480 Jul  4 23:58 rotated-log
drwxr-xr-x   2 mongod mongod   208 Jun 29  2022 system
[mongodev@nc-mgus5-m2 database]$ sudo du -sh mongodata/
1.1T    mongodata/
```

⬇

Remove all old data in mongodata directory

Command - sudo rm -rf mongodata/*

⬇

Check the mongodata directory size. It should be zero now. This is for check

Command - sudo du -sh mongodata

```
[mongodev@nc-mgus5-m2 database]$ sudo du -sh mongodata/
0       mongodata/
```

⬇

Now start the server

Command - sudo systemctl start mongod.service

⬇

Check status of server

Command - mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "var members = rs.status().members; members.forEach(function(member) { print('_id:', member._id, 'name:', member.name, 'stateStr:', member.stateStr); })"

Output :

[mongodev@nc-mgus5-m2 ~]$ mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "var members = rs.status().members; members.forEach(function(member) { print('_id:', member._id, 'name:', member.name, 'stateStr:', member.stateStr); })"

MongoDB shell version v4.2.18

connecting to:

mongodb://nc-mgus5-m2.netcore.in:27017/test?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("69db22ed-bb19-4ea6-82a1-a876c7b6a268") }
MongoDB server version: 4.2.18
_id: 3 name: nc-mgus5-m1.netcore.in:27017 stateStr: PRIMARY
_id: 4 name: nc-mgus5-m2.netcore.in:27017 stateStr: STARTUP2
_id: 5 name: nc-mgus5-m3.netcore.in:27017 stateStr: SECONDARY
[mongodev@nc-mgus5-m2 ~]$

⬇

Connect to the server and sync should be from secondary server in same shard

Note : Sometimes auto rebuilding starts initial sync from primary node, and ideally we need to switch it to secondary to avoid additional load on primary.

Command - mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "rs.syncFrom("nc-mgus5-m3.netcore.in:27017")"

Output :

```
m:STARTUP2> rs.syncFrom("nc-mgus5-m3.netcore.in:27017")

{
        "syncFromRequested" : "nc-mgus5-m3.netcore.in:27017",
        "prevSyncTarget" : "nc-mgus5-m3.netcore.in:27017",
        "ok" : 1,
        "$gleStats" : {
                "lastOpTime" : Timestamp(0, 0),
                "electionId" : ObjectId("000000000000000000000000")
        },
        "lastCommittedOpTime" : Timestamp(0, 0),
        "$configServerState" : {
                "opTime" : {
                        "ts" : Timestamp(1688534984, 1),
                        "t" : NumberLong(138)
                }
        }
}
```

⬇

Check the server is rebuilding properly. It should not be zero.

Command - sudo du -sh mongodata

Output

```
[mongodev@nc-mgus5-m2 database]$ sudo du -sh mongodata/
301M    mongodata/
```

Check the status of server, once the rebuilding of the server is completed server/node state will change to STARTUP2 to SECONDARY.
Command - mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "var members = rs.status().members; members.forEach(function(member) { print('_id:', member._id, 'name:', member.name, 'stateStr:', member.stateStr); })"

Output

```
[mongodev@nc-mgus5-m2 ~]$ mongo -u root -p emptyplant50 --authenticationDatabase admin nc-mgus5-m2.netcore.in --port 27017 --eval "var members
 = rs.status().members; members.forEach(function(member) { print('_id:', member._id, 'name:', member.name, 'stateStr:', member.stateStr); })"
MongoDB shell version v4.2.18
connecting to: mongodb://nc-mgus5-m2.netcore.in:27017/test?authSource=admin&compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("69db22ed-bb19-4ea6-82a1-a876c7b6a268") }
MongoDB server version: 4.2.18
_id: 3 name: nc-mgus5-m1.netcore.in:27017 stateStr: PRIMARY
_id: 4 name: nc-mgus5-m2.netcore.in:27017 stateStr: SECONDARY
_id: 5 name: nc-mgus5-m3.netcore.in:27017 stateStr: SECONDARY
```

After completing one node, the next other node should start.