PAREDICMA (Python Automatic REDIs Cluster MAker & MAnager)

Target of Program(Paredicma) : Redis cluster monitoring,management and maintenance, as possible as easy and comfortable.

OS Version **:** Redhat/Centos 6,7 or Ubuntu/Debian

Redis Version **:** Redis 5.0.0 or above

Prerequirements **:**

sshd (with passwordless ssh-keygen auth. between servers for OS user),

python (2.6 or above),

numactl(if you want to use dedicate cpu-core)

1- Download and extract :

Download -> paredicma.tar.gz (from github/paredicma/V1)

extract -> *tar -xvf paredicma.tar.gz*

-> cd paredicma

2- Installation :

You do not need to install it, just configure and run it.

3- Configuration :

a-) Configure pareNodeList.py file, change ip, port, cpu core and max_memory per node, according to your cluster.

vi pareNodeList.py

######################pareNodeList.py ########################

#!/usr/bin/python

#-*- coding: utf-8 -*-

##################NODES#################################

###pareNodes=[['node01_ip'],['node01_port'],['node01_cores:semicoma-separate'],['max-memory'],[isActive]]

```
pareNodes = []
pareNodes.append([['10.0.0.1'],['7771'],['28,29'],['3gb'],True])
pareNodes.append([['10.0.0.1'],['7772'],['30,31'],['3gb'],True])
pareNodes.append([['10.0.0.1'],['7773'],['20,21'],['3gb'],True])
pareNodes.append([['10.0.0.1'],['7774'],['22,23'],['3gb'],True])
pareNodes.append([['10.0.0.2'],['7771'],['16,17'],['3gb'],True])
pareNodes.append([['10.0.0.2'],['7772'],['18,19'],['3gb'],True])
pareNodes.append([['10.0.0.2'],['7773'],['24,25'],['3gb'],True])
pareNodes.append([['10.0.0.2'],['7774'],['26,27'],['3gb'],True])
######################pareNodeList.py ########################
```

b-) Configure pareConfig.py file, according to your cluster

vi pareConfig.py

```
######################pareConfig.py ########################
from pareNodeList import *
##################PARAMETERS###################################
projectName='testProject'
redisDataDir = '/home/hiccup/'+projectName+'/'
redisConfigDir = '/home/hiccup/'+projectName+'/'
redisLogDir = '/home/hiccup/'+projectName+'/'
redisVersion = '5.0.2'
redisTarFile = 'redis-5.0.2.tar.gz'
redisBinaryDir = '/home/hiccup/reBin/redis-'+redisVersion+'/'
doCompile = True
doStartNodes = True
unixSocketDir = '/tmp/'
pidFileDir = '/var/run/'
```

```
writePareLogFile = True

pareLogFile = 'paredicma.log'

pareTmpDir = 'temparedicma/'

pareServerIp = '10.0.0.2'  # The server which you run "paredicma-cli.py"

pareOSUser = 'hiccup' ##'hiccup'

rdb = 'on'   ## on/off

rdbValue = 'save 3600 1000\nsave 1800 10000\nsave 600 100000'

aof = 'on'   ## on/off

aofValue = 'appendfsync everysec'

redisCluster = 'on'   ## on/off

clusterNodeTimeout = 'cluster-node-timeout 5000'

clusterParameters = 'cluster-replica-validity-factor 0\ncluster-migration-barrier 1'

maxMemory = 'on'   ## on/off

dedicateCore = True   ## on/off

redisPwdAuthentication =  True   ## on/off

redisPwd = 'my1Laydy7darbanville5*'

redisParameters = '''

daemonize yes

slowlog-log-slower-than 1000

latency-monitor-threshold 100

slowlog-max-len 10

rename-command FLUSHALL "Ahsa5sMdbuva7_avsvs*1**"

rename-command FLUSHDB "Ahsa5sMdbuva7_avsvs*1"

'''

######################pareConfig.py ########################
```

4 - run program

python paredicma-cli.py

Paredicma Main Menu:

```
PAREDICMA CLI (Python Automatic REDIs Cluster MAker)
-----------------------------------------------
NAP - Redis Cluster Monitor - ( paredicmon )
NAP - Redis Cluster Manager - ( paredicman )
NAP - Redis Cluster Upgrade&Migration&Maintenance - ( paredicmum )
4 - Redis Cluster Maker - ( paredicma  )
5 - Exit

-----------------------------------------------
What would you like to do?
```

or If you have already made a cluster

```
PAREDICMA CLI (Python Automatic REDIs Cluster MAker)
-----------------------------------------------
1 - Redis Cluster Monitor - ( paredicmon )
2 - Redis Cluster Manager - ( paredicman )
3 - Redis Cluster Upgrade & Migration & Maintenance - ( paredicmum )
NAP - Redis Cluster Maker - Already Done - ( paredicma  )
5 - Exit

-----------------------------------------------
What would you like to do?
```

Making Paradicma Redis Cluster

python paredicma-cli.py

```
PAREDICMA CLI (Python Automatic REDIs Cluster MAker)
-----------------------------------------------
NAP - Redis Cluster Monitor - ( paredicmon )
NAP - Redis Cluster Manager - ( paredicman )
NAP - Redis Cluster Upgrade&Migration&Maintenance - ( paredicmum )
4 - Redis Cluster Maker - ( paredicma  )
5 - Exit

-----------------------------------------------
What would you like to do?
```

Choose 4 (Redis Cluster Maker - (paredicma)):

```
        PAREDICMA CLI (Python Automatic REDIs Cluster MAker)
        -----------------------------------------------
        NAP - Redis Cluster Monitor - ( paredicmon )
        NAP - Redis Cluster Manager - ( paredicman )
        NAP - Redis Cluster Upgrade&Migration&Maintenance - ( paredicmum )
        4 - Redis Cluster Maker - ( paredicma  )
        5 - Exit

        -----------------------------------------------
        What would you like to do? 4
 Are you sure to make Redis Cluster (yes/no) ?
```

Set cluster replication factor

```
        PAREDICMA CLI (Python Automatic REDIs Cluster MAker)
        -----------------------------------------------
        NAP - Redis Cluster Monitor - ( paredicmon )
        NAP - Redis Cluster Manager - ( paredicman )
        NAP - Redis Cluster Upgrade&Migration&Maintenance - ( paredicmum )
        4 - Redis Cluster Maker - ( paredicma  )
        5 - Exit

        -----------------------------------------------
        What would you like to do? 4
 Are you sure to make Redis Cluster (yes/no) ? yes
How many replica( slave ) do you want for each master ('0','1','2' ext.) ? 1
```

Accept redis cluster configuration (yes)

```
M: bf7a01315613bb00f3129dcabcf4f3d72d2b13f7 [redacted]161.216:7501
   slots:[2048-4095] (2048 slots) master
M: 9117955e1e022a4f679ddb0c94bb9d08da4c9f48 [redacted].161.216:7502
   slots:[6144-8191] (2048 slots) master
M: 2970b6e048347b513074646d10f9e82b650f7cb2 [redacted].161.216:7503
   slots:[10240-12287] (2048 slots) master
M: f1e3086d220101276a864d9d0f9a77e9c4ff57cb [redacted].161.216:7504
   slots:[14336-16383] (2048 slots) master
S: f2b4f44f4fad752720ce21a98f2af51223b9964d [redacted].161.216:7505
   replicates 71746645679f036426423b3098ba83ef627ec406
S: 464c6448d7cc16e25e8b3373d96efe446a75d4c8 [redacted]161.216:7506
   replicates bf98478a1249f8b6f412fc75db01666d5373c3b2
S: 54fd1a28bceb8283926cf850b2adff0b925b8b3a [redacted].161.216:7507
   replicates 2e2a5baae467703790b7bdb03e77a14f27f33bf9
S: ef1a0bd0dd62099583c8b27baa2afb22099875ee [redacted].161.216:7508
   replicates 3755e4dd038453a17ea661f67f9e7baed08999fc
Can I set the above configuration? (type 'yes' to accept):
```

Check the result.

```
[OK] All nodes agree about slots configuration.
>>> Check for open slots...
>>> Check slots coverage...
[OK] All 16384 slots covered.
WELL DONE ;)
```

Paradicma Redis Cluster Monitoring

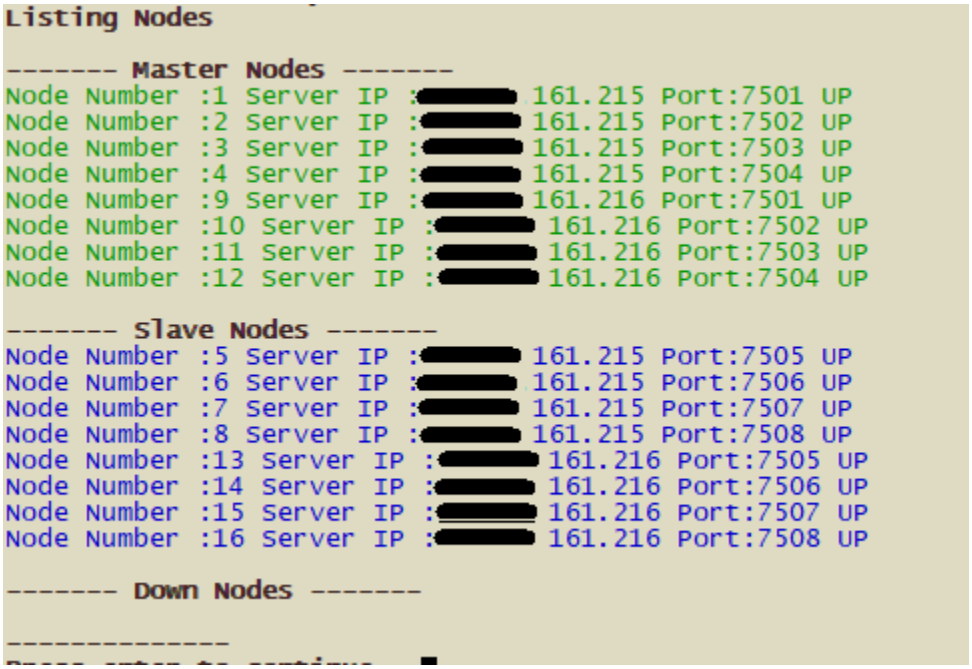
Choose Redis Cluster Monitor Menu :

```
PAREDICMON - REDIS CLUSTER MONITOR
--------------------------------------------------
  1 - Ping  Node(s)
  2 - List Nodes
  3 - node(s) Info
  4 - Server Info
  5 - Slots Info
  6 - Cluster State
  7 - Show Memory Usage
  8 - Not Designated
  9 - Main Menu
 10 - Exit

--------------------------------------------------
What would you like to do? :
```

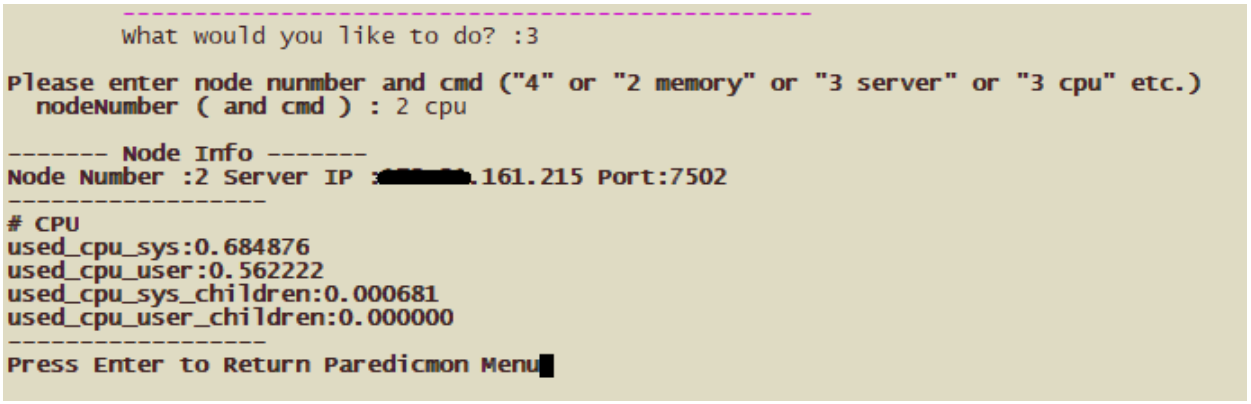
1- **Ping Node(s) :** This option ping all nodes.

```
Pinging Nodes...
OK -> Node Number :1 Server IP :[redacted].161.215 Port:7501
OK -> Node Number :2 Server IP :[redacted].161.215 Port:7502
OK -> Node Number :3 Server IP :[redacted].161.215 Port:7503
OK -> Node Number :4 Server IP :[redacted].161.215 Port:7504
OK -> Node Number :5 Server IP :[redacted].161.215 Port:7505
OK -> Node Number :6 Server IP :[redacted].161.215 Port:7506
OK -> Node Number :7 Server IP :[redacted].161.215 Port:7507
OK -> Node Number :8 Server IP :[redacted].161.215 Port:7508
OK -> Node Number :9 Server IP :[redacted].161.216 Port:7501
OK -> Node Number :10 Server IP :[redacted].161.216 Port:7502
OK -> Node Number :11 Server IP :[redacted].161.216 Port:7503
OK -> Node Number :12 Server IP :[redacted].161.216 Port:7504
OK -> Node Number :13 Server IP :[redacted].161.216 Port:7505
OK -> Node Number :14 Server IP :[redacted].161.216 Port:7506
OK -> Node Number :15 Server IP :[redacted] 161.216 Port:7507
OK -> Node Number :16 Server IP :[redacted].161.216 Port:7508

--------------
OK Nodes = 16
Not OK Nodes = 0
--------------
Press Enter to Return Paredicmon Menu
```

2- **List Node(s) :** This option shows current nodes status.



3- **Node(s) Info (Choose node id and category):** You can see redis node details with using this command.



4- Server Info : It shows details information about specific server.

```
        ------------------------------------------------
        What would you like to do? :4

 Enter server IP             :[redacted]161.216

------- Server Informations ([redacted].161.216) ------


------- CPU Cores -------------------------------

available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23
node 0 size: 32733 MB
node 0 free: 18928 MB
node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
node 1 size: 32767 MB
node 1 free: 24250 MB
node distances:
node   0   1
  0:  10  20
  1:  20  10

------- Memory Usage-----------------------------

              total        used        free      shared  buff/cache   available
Mem:             62           8          42           0          12          53
Swap:            15           0          15

------- Disk Usage--------------------------------

Filesystem                Size  Used Avail Use% Mounted on
/dev/mapper/vgroot-lvroot  50G  7.6G   43G  16% /
devtmpfs                   32G     0   32G   0% /dev
tmpfs                      32G     0   32G   0% /dev/shm
tmpfs                      32G  1.3M   32G   1% /run
tmpfs                      32G     0   32G   0% /sys/fs/cgroup
/dev/sda1                 492M  175M  317M  36% /boot
/dev/mapper/vgdata-lvdata 1.1T  3.2G  1.1T   1% /data
tmpfs                     6.3G     0  6.3G   0% /run/user/1047293
tmpfs                     6.3G     0  6.3G   0% /run/user/1105081
tmpfs                     6.3G     0  6.3G   0% /run/user/104216
tmpfs                     6.3G     0  6.3G   0% /run/user/1036185

------- Redis  Nodes ----------------------------


------- Master Nodes -------
Node Number :2 Server IP :[redacted].161.216 Port:7501 UP
Node Number :4 Server IP :[redacted].161.216 Port:7502 UP
Node Number :6 Server IP :[redacted].161.216 Port:7503 UP
Node Number :8 Server IP :[redacted].161.216 Port:7504 UP

------- Slave Nodes -------
Node Number :10 Server IP :[redacted].161.216 Port:7505 UP
Node Number :12 Server IP :[redacted].161.216 Port:7506 UP
Node Number :14 Server IP :[redacted].161.216 Port:7507 UP
Node Number :16 Server IP :[redacted].161.216 Port:7508 UP

------- Unknown Nodes -------
```

5- Slots Info: This option shows current slot distribution.

```
7) 1) (integer) 4096
   2) (integer) 6143
   3) 1) "[redacted].161.215"
      2) (integer) 7502
      3) "bf98478a1249f8b6f412fc75db01666d5373c3b2"
   4) 1) "[redacted].161.216"
      2) (integer) 7506
      3) "464c6448d7cc16e25e8b3373d96efe446a75d4c8"
8) 1) (integer) 0
   2) (integer) 2047
   3) 1) "[redacted].161.215"
      2) (integer) 7501
      3) "71746645679f036426423b3098ba83ef627ec406"
   4) 1) "[redacted].161.216"
      2) (integer) 7505
      3) "f2b4f44f4fad752720ce21a98f2af51223b9964d"
f1e3086d220101276a864d9d0f9a77e9c4ff57cb [redacted].161.216:7504@17504 master - 0 1545
 14336-16383
3755e4dd038453a17ea661f67f9e7baed08999fc [redacted].161.215:7504@17504 master - 0 1545
12288-14335
2e2a5baae467703790b7bdb03e77a14f27f33bf9 [redacted].161.215:7503@17503 master - 0 1545
8192-10239
2970b6e048347b513074646d10f9e82b650f7cb2 [redacted].161.216:7503@17503 master - 0 1545
 10240-12287
9117955e1e022a4f679ddb0c94bb9d08da4c9f48 [redacted].161.216:7502@17502 master - 0 1545
 6144-8191
bf7a01315613bb00f3129dcabcf4f3d72d2b13f7 [redacted]161.216:7501@17501 master - 0 1545
2048-4095
bf98478a1249f8b6f412fc75db01666d5373c3b2 [redacted].161.215:7502@17502 master - 0 1545
4096-6143
71746645679f036426423b3098ba83ef627ec406 [redacted].161.215:7501@17501 myself,master -
nected 0-2047

Cluster Slots Check
----------------------------------------
[redacted].161.215:7501 (71746645...) -> 0 keys | 2048 slots | 1 slaves.
[redacted].161.216:7504 (f1e3086d...) -> 0 keys | 2048 slots | 1 slaves.
[redacted].161.215:7504 (3755e4dd...) -> 0 keys | 2048 slots | 1 slaves.
[redacted].161.215:7503 (2e2a5baa...) -> 0 keys | 2048 slots | 1 slaves.
[redacted].161.216:7503 (2970b6e0...) -> 0 keys | 2048 slots | 1 slaves.
[redacted].161.216:7502 (9117955e...) -> 0 keys | 2048 slots | 1 slaves.
[redacted].161.216:7501 (bf7a0131...) -> 0 keys | 2048 slots | 1 slaves.
[redacted].161.215:7502 (bf98478a...) -> 0 keys | 2048 slots | 1 slaves.
[OK] 0 keys in 8 masters.
0.00 keys per slot on average.
```

6- **Cluster State :** This option shows that If redis Cluster OK or fail from each nodes.

```
Cluster State node ->14 node IP :[redacted]161.216 node Port : 7506
cluster_state:ok
Cluster State node ->15 node IP :[redacted]161.216 node Port : 7507
cluster_state:ok
Cluster State node ->16 node IP [redacted]161.216 node Port : 7508
cluster_state:ok
```

7- **Show Memory Usage :** This option shows current memory usage on redis Cluster

```
Memory Usage
------------------------------
nodeID          NodeIP                  NodePort        Used Mem(GB)    Max Mem(GB)     Usage (%)
1               [redacted].161.215-( M )  7501          0.002           0.176           1.14%
2               [redacted].161.215-( M )  7502          0.002           0.176           1.14%
3               [redacted].161.215-( M )  7503          0.002           0.176           1.14%
4               [redacted].161.215-( M )  7504          0.002           0.176           1.14%
9               [redacted].161.216-( M )  7501          0.017           0.176           9.66%
10              [redacted].161.216-( M )  7502          0.17            0.176           96.59%
11              [redacted].161.216-( M )  7503          0.146           0.176           82.95%
12              [redacted].161.216-( M )  7504          0.002           0.176           1.14%
--------------------------------------------------------------------------------------------------------
5               [redacted].161.215-( S )  7505          0.017           0.176           9.66%
6               [redacted].161.215-( S )  7506          0.17            0.176           96.59%
7               [redacted].161.215-( S )  7507          0.146           0.176           82.95%
8               [redacted].161.215-( S )  7508          0.002           0.176           1.14%
13              [redacted].161.216-( S )  7505          0.002           0.176           1.14%
14              [redacted].161.216-( S )  7506          0.002           0.176           1.14%
15              [redacted].161.216-( S )  7507          0.002           0.176           1.14%
16              [redacted].161.216-( S )  7508          0.002           0.176           1.14%

--------------------------------------------------------------------------------------------------------
TOTAL                                                   :0.69GB 2.813GB                 24.53%
```

Paradicma Redis Cluster Manager

Choose Redis Cluster Manager Menu :

```
PAREDICMAN - REDIS CLUSTER MANAGER
--------------------------------------------------
  1 - Start/Stop/Restart Redis Node
  2 - Switch Master/Slave Nodes
  3 - Change Redis Configuration Parameter
  4 - Save Redis Configuration to redis.conf
  5 - Rolling Restart
  6 - Command for all nodes
  7 - Not Designated
  8 - Not Designated
  9 - Main Menu
 10 - Exit

--------------------------------------------------
What would you like to do? :
```

1- **Start/Stop/Restart Redis Node :** Chose a specific node then chose command (start/stop/restart)

```
Please Enter Node Number : 3
Your choise :3

Please Choose Operation ( Start/Stop/Restart) : restart
Node :3 is restarting...

This node is Master node( nodeIP:[redacted]161.215 nodePort:7503), Do you want to stop this node (yes/no): yes
Master/slave switch proccess is starting... This might take some times
Switch master/slave command successed.
New Slave  IP:PORT [redacted].161.215:7503
New Master IP:PORT [redacted].161.216:7507
:: [redacted]161.215 :: OK -> redis node  3 started.
:: [redacted].161.215 :: checking... -> redis node : 3
:: [redacted].161.215 :: OK  -> redis node : 3
Listing Nodes
```

2- **Switch Master/Slave Nodes :** This option switches specific master node with slave node

```
Please Enter Master Node Number : 10
Your choise :10

Are Youu Sure ( yes/no) : yes
Node :10 is switching...
Master/slave switch proccess is starting... This might take some times
Switch master/slave command successed.
New Slave  IP:PORT [redacted].161.216:7502
New Master IP:PORT [redacted].161.215:7506
Listing Nodes
```

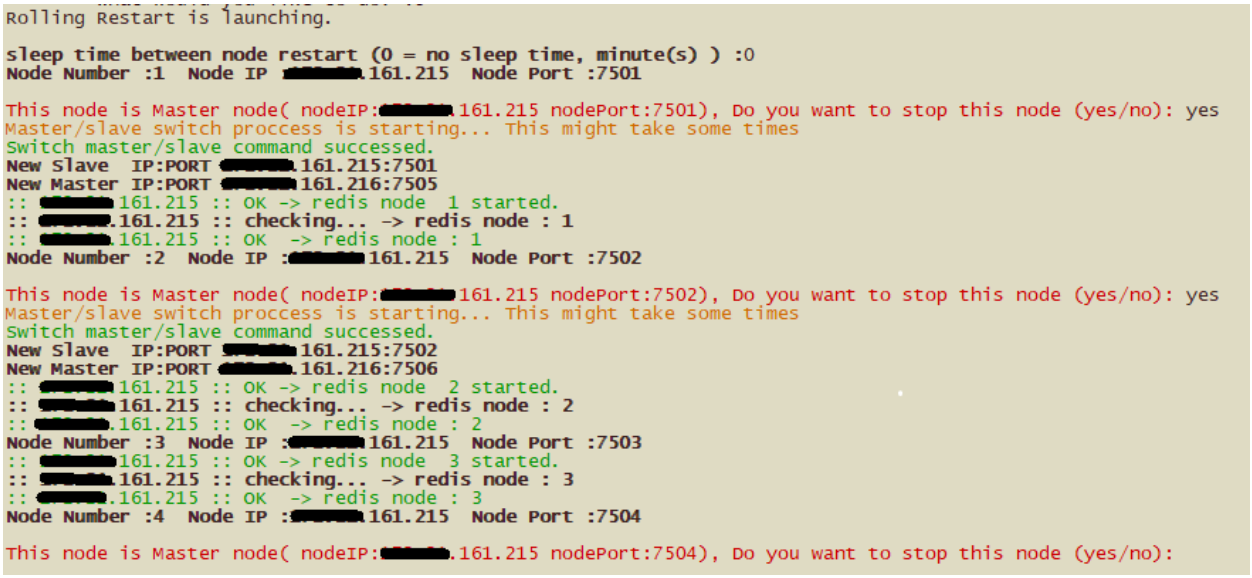
3- **Change Redis Configuration Parameter:** With this option, you can change redis configuration for both all node or a specific node.

```
Please Enter Node Number or Enter "all": all

Please Enter Configuration  parameter (for example: "slowlog-max-len 10" ,"maxmemory 3gb" ext.)
        : maxmemory 2gb

Are you sure to set this parameter -> maxmemory 2gb  (yes/no):yes
Redis config file  will rewrite on Node Number :1  Node IP :[redacted].161.215  Node Port :7501
OK
Redis config file  will rewrite on Node Number :2  Node IP :[redacted].161.215  Node Port :7502
OK
Redis config file  will rewrite on Node Number :3  Node IP :[redacted].161.215  Node Port :7503
OK
Redis config file  will rewrite on Node Number :4  Node IP :[redacted].161.215  Node Port :7504
OK
Redis config file  will rewrite on Node Number :5  Node IP :[redacted].161.215  Node Port :7505
OK
Redis config file  will rewrite on Node Number :6  Node IP :[redacted].161.215  Node Port :7506
OK
Redis config file  will rewrite on Node Number :7  Node IP :[redacted].161.215  Node Port :7507
OK
```

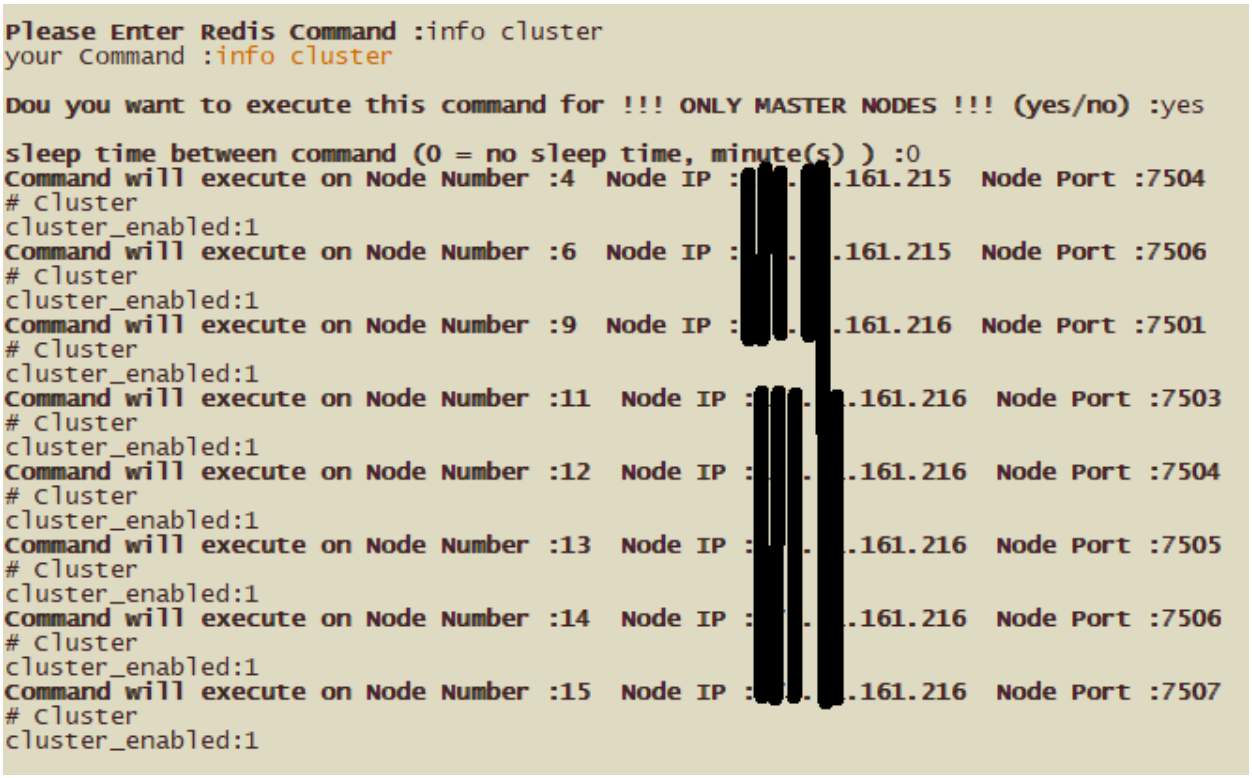
4- **Save Redis Configuration to redis.conf:** With this option, you can write redis configuration changes to redis.conf file both all node or a specific node.

```
Save Redis Configuration to redis.conf
Listing Nodes

------- Master Nodes -------
Node Number :1 Server IP :[redacted].161.215 Port:7501 UP
Node Number :2 Server IP :[redacted].161.215 Port:7502 UP
Node Number :4 Server IP :[redacted].161.215 Port:7504 UP
Node Number :6 Server IP :[redacted].161.215 Port:7506 UP
Node Number :9 Server IP :[redacted].161.216 Port:7501 UP
Node Number :11 Server IP :[redacted].161.216 Port:7503 UP
Node Number :12 Server IP :[redacted].161.216 Port:7504 UP
Node Number :15 Server IP :[redacted].161.216 Port:7507 UP

------- Slave Nodes -------
Node Number :3 Server IP :[redacted].161.215 Port:7503 UP
Node Number :5 Server IP :[redacted].161.215 Port:7505 UP
Node Number :7 Server IP :[redacted].161.215 Port:7507 UP
Node Number :8 Server IP :[redacted].161.215 Port:7508 UP
Node Number :10 Server IP :[redacted].161.216 Port:7502 UP
Node Number :13 Server IP :[redacted].161.216 Port:7505 UP
Node Number :14 Server IP :[redacted].161.216 Port:7506 UP
Node Number :16 Server IP :[redacted].161.216 Port:7508 UP

------- Down Nodes -------

--------------
Press enter to continue...

Please Enter Node Number or "all": 9
Redis config file  will rewrite on Node Number :9  Node IP :[redacted].161.216  Node Port :7501
OK
```

5- **Rolling Restart :** This option restart all cluster nodes sequentially.



6- **Command for all nodes :** Using with this option, you can run a command for all cluster nodes or all cluster master nodes.



Paradicma Redis Cluster Migration&Upgrade&Maintenance

Choose Redis Cluster MUM Menu :

```
        PAREDICMUM - REDIS CLUSTER MIGRATION&UPGRADE&MAINTENANCE
        ------------------------------------------------
          1 - Add/Delete Redis Node
          2 - Move Slot(s)
          3 - Redis Cluster Nodes Version Upgrade
          4 - Redis Cluster Nodes Version Control
          5 - Maintain Server
          6 - Migrate Data From Remote Redis
          7 - Cluster Slot(load) Balancer
          8 - Not Designated
          9 - Main Menu
         10 - Exit

        ------------------------------------------------
What would you like to do?
```

1- **Add/Delete Redis Node :** Using with this option, You can add new master/slave node to your redis cluster. There are 3 different choise in this option.

   a) **Add Master Node :** Choose 1 (add); Enter IP address; Enter Port ; give max memory; attain specific cpu core(s); choose yes (for master)

```
Add/Delete Redis Node

Please enter operation type "1" ->add or "2" -> del:1

Please enter node IP [redacted]161.216

Please enter node port :7509

Please enter node memory size ("1gb","500mb","4gb" ext.) :400mb

Please enter dedicate cpu core id(s)  ("1" or "3" or "4,5" or  "8,9,10,11" ext.) :4
Directory has been already existed = /home/[redacted]admin/newTest/
Directory has been already existed = /home/[redacted]admin/newTest/
Directory has been already existed = /home/[redacted]admin/newTest/
Directory has been already existed = /home/[redacted]admin/reBin/redis-5.0.2/
Directory has been already existed = /tmp/
Directory has been already existed = /var/run/
Directory was created = /home/[redacted]admin/newTest/node17
 ::[redacted]161.216::temparedicma/redisN17_P7509.conf file was created.
 :[redacted].161.216:: redisN17_P7509.conf file was copied.
numactl --physcpubind=4 /home/[redacted]admin/reBin/redis-5.0.2/src/redis-server /home/[redacted]admin/newTest/node17/redisN17_P7
.conf
:: [redacted]161.216 :: OK -> redis node  17 started.
::[redacted]161.216 :: checking... -> redis node : 17
:: [redacted].161.216 :: OK  -> redis node : 17

Do you want to set this node as MASTER (yes/no):yes
Adding new master node to redis cluster : /home/[redacted]admin/reBin/redis-5.0.2/src/redis-cli --cluster add-node [redacted].
.216:7509 [redacted]161.215:7504
>>> Adding node [redacted].161.216:7509 to cluster [redacted]161.215:7504
>>> Performing Cluster Check (using node [redacted]161.215:7504)
```

b) Add Slave Node: Choose 1 (add); Enter IP address; Enter Port ; give max memory; attain specific cpu core(s); choose no (for slave) ; choose no (Non-specific Slave of Master)

```
Add/Delete Redis Node

Please enter operation type "1" ->add or "2" -> del:1

Please enter node IP :[redacted].161.216

Please enter node port :7510

Please enter node memory size ("1gb","500mb","4gb" ext.) :100mb

Please enter dedicate cpu core id(s)  ("1" or "3" or "4,5" or  "8,9,10,11" ext.) :2
Directory has been already existed = /home/[redacted]admin/newTest/
Directory has been already existed = /home/[redacted]admin/newTest/
Directory has been already existed = /home/[redacted]admin/newTest/
Directory has been already existed = /home/[redacted]admin/reBin/redis-5.0.2/
Directory has been already existed = /tmp/
Directory has been already existed = /var/run/
Directory was created = /home/[redacted]admin/newTest/node19
 :[redacted]161.216::temparedicma/redisN19_P7510.conf file was created.
 :[redacted]161.216:: redisN19_P7510.conf file was copied.
numactl --physcpubind=2 /home/[redacted]admin/reBin/redis-5.0.2/src/redis-server /home/[redacted]admin/newTest/node19/redisN19_P75
.conf
:: [redacted]161.216 :: OK -> redis node  19 started.
:: [redacted].161.216 :: checking... -> redis node : 19
:: [redacted]161.216 :: OK  -> redis node : 19

Do you want to set this node as MASTER (yes/no):no

Do you want to set this node SLAVE for Specific master node (yes/no):no
Adding new slave node to redis cluster : /home/[redacted]admin/reBin/redis-5.0.2/src/redis-cli --cluster add-node [redacted]16
216:7510 [redacted]161.215:7504 --cluster-slave
>>> Adding node [redacted]161.216:7510 to cluster [redacted]161.215:7504
>>> Performing Cluster Check (using node [redacted]161.215:7504)
```

c) Add Slave Node to Specific Master: Choose 1 (add); Enter IP address; Enter Port ; give max memory; attain specific cpu core(s); choose no (for slave) ; choose yes (for specific Slave of Master); enter Master Id (which you want to replicate)

```
Add/Delete Redis Node

Please enter operation type "1" ->add or "2" -> del:1

Please enter node IP :[redacted].161.215

Please enter node port :7509

Please enter node memory size ("1gb","500mb","4gb" ext.) :400mb

Please enter dedicate cpu core id(s)  ("1" or "3" or "4,5" or  "8,9,10,11" ext.) :3
Working on remote server...
 :[redacted].161.215:: Directory has been already existed  = /home/[redacted]admin/newTest/
 :[redacted].161.215:: Directory has been already existed  = /home/[redacted]admin/newTest/
 :[redacted].161.215:: Directory has been already existed  = /home/[redacted]admin/newTest/
 :[redacted].161.215:: Directory has been already existed  = /home/[redacted]admin/reBin/redis-5.0.2/
 :[redacted].161.215:: Directory has been already existed  = /tmp/
 :[redacted].161.215:: Directory has been already existed  = /var/run/
 :[redacted].161.215:: Directory was created = /home/[redacted]admin/newTest/node18
 :[redacted].161.215::temparedicma/redisN18_P7509.conf file was created.
 :[redacted].161.215:: redisN18_P7509.conf file was copied.
:: [redacted].161.215 :: OK -> redis node  18 started.
:: [redacted].161.215 :: checking... -> redis node : 18
:: [redacted].161.215 :: OK  -> redis node : 18

Do you want to set this node as MASTER (yes/no):no

Do you want to set this node SLAVE for Specific master node (yes/no):yes
Master Node IDs :
bf7a01315613bb00f3129dcabcf4f3d72d2b13f7 [redacted].161.216:7501@17501 master - 0 1545983999700 9 connected 2048-4095
daf2013c16f3e081d93a9f1c74417b1886975e59 [redacted].161.215:7506@17506 master - 0 1545984000000 18 connected 6144-8191
ec1475048a4b47b81b45896eb94d016261af7f04 [redacted].161.216:7509@17509 master - 0 1545984000000 0 connected
f2b4f44f4fad752720ce21a98f2af51223b9964d [redacted].161.216:7505@17505 master - 0 1545984000000 19 connected 0-2047
54fd1a28bceb8283926cf850b2adff0b925b8b3a [redacted].161.216:7507@17507 master - 0 1545984000000 17 connected 8192-10239
3755e4dd038453a17ea661f67f9e7baed08999fc [redacted].161.215:7504@17504 master - 0 1545984001101 4 connected 12288-14335
464c6448d7cc16e25e8b3373d96efe446a75d4c8 [redacted].161.216:7506@17506 master - 0 1545984001601 20 connected 4096-6143
2970b6e048347b513074646d10f9e82b650f7cb2 [redacted].161.216:7503@17503 master - 0 1545984001601 11 connected 10240-12287
f1e3086d220101276a864d9d0f9a77e9c4ff57cb [redacted].161.216:7504@17504 master - 0 1545984001000 12 connected 14336-16383

Please enter master node id :ec1475048a4b47b81b45896eb94d016261af7f04
Adding new slave node to redis cluster : /home/[redacted]admin/reBin/redis-5.0.2/src/redis-cli --cluster add-node [redacted].161.
215:7509 [redacted]161.215:7504 --cluster-slave --cluster-master-id ec1475048a4b47b81b45896eb94d016261af7f04
>>> Adding node [redacted]161.215:7509 to cluster [redacted]161.215:7504
>>> Performing Cluster Check (using node [redacted]161.215:7504)
```

```
>>> Configure node as replica of [redacted]161.216:7509.
[OK] New node added correctly.
Slave Node was added to Cluster
pareNodes.append([['[redacted].161.215'],['7509'],['3'],['400mb'],True])
Listing Nodes

------- Master Nodes -------
Node Number :4 Server IP :[redacted].161.215 Port:7504 UP
Node Number :6 Server IP :[redacted].161.215 Port:7506 UP
Node Number :9 Server IP :[redacted].161.216 Port:7501 UP
Node Number :11 Server IP :[redacted].161.216 Port:7503 UP
Node Number :12 Server IP :[redacted].161.216 Port:7504 UP
Node Number :13 Server IP :[redacted].161.216 Port:7505 UP
Node Number :14 Server IP :[redacted].161.216 Port:7506 UP
Node Number :15 Server IP :[redacted].161.216 Port:7507 UP
Node Number :17 Server IP :[redacted].161.216 Port:7509 UP

------- Slave Nodes -------
Node Number :1 Server IP :[redacted].161.215 Port:7501 UP
Node Number :2 Server IP :[redacted].161.215 Port:7502 UP
Node Number :3 Server IP :[redacted].161.215 Port:7503 UP
Node Number :5 Server IP :[redacted].161.215 Port:7505 UP
Node Number :7 Server IP :[redacted].161.215 Port:7507 UP
Node Number :8 Server IP :[redacted].161.215 Port:7508 UP
Node Number :10 Server IP :[redacted].161.216 Port:7502 UP
Node Number :16 Server IP :[redacted].161.216 Port:7508 UP
Node Number :18 Server IP :[redacted].161.215 Port:7509 UP

------- Down Nodes -------
```

d- Delete Redis Node : Enter Node Number and press enter.

```
Add/Delete Redis Node

Please enter operation type "1" ->add or "2" -> del:2
Listing Nodes

------- Master Nodes -------
Node Number :4 Server IP :[redacted].161.215 Port:7504 UP
Node Number :6 Server IP :[redacted].161.215 Port:7506 UP
Node Number :9 Server IP :[redacted].161.216 Port:7501 UP
Node Number :11 Server IP :[redacted].161.216 Port:7503 UP
Node Number :12 Server IP :[redacted].161.216 Port:7504 UP
Node Number :13 Server IP :[redacted].161.216 Port:7505 UP
Node Number :14 Server IP :[redacted].161.216 Port:7506 UP
Node Number :15 Server IP :[redacted].161.216 Port:7507 UP
Node Number :17 Server IP :[redacted].161.216 Port:7509 UP

------- Slave Nodes -------
Node Number :1 Server IP :[redacted].161.215 Port:7501 UP
Node Number :2 Server IP :[redacted].161.215 Port:7502 UP
Node Number :3 Server IP :[redacted].161.215 Port:7503 UP
Node Number :5 Server IP :[redacted].161.215 Port:7505 UP
Node Number :7 Server IP :[redacted].161.215 Port:7507 UP
Node Number :8 Server IP :[redacted].161.215 Port:7508 UP
Node Number :10 Server IP :[redacted].161.216 Port:7502 UP
Node Number :16 Server IP :[redacted].161.216 Port:7508 UP
Node Number :18 Server IP :[redacted].161.215 Port:7509 UP
Node Number :19 Server IP :[redacted].161.216 Port:7510 UP

------- Down Nodes -------

--------------
Press enter to continue...

Please enter node number which you want to delete :19
deleting cluster node from redis cluster : /home/[redacted]admin/reBin/redis-5.0.2/src/redis-cli --cluster del-node [redacted]1
1.215:7504 19469810441dc7f0f4b50014156ce9686c3a3df4
19469810441dc7f0f4b50014156ce9686c3a3df4 [redacted]161.216:7510@17510 myself,slave 3755e4dd038453a17ea661f67f9e7baed089
fc 0 1545984311000 21 connected
```

2- **Move Slot(s) :** Using with this option, you can move some slot from one node to another node. Enter FROM node Id; Enter TO node id; Enter slot number

```
 What would you like to do? 2
Move Slot(s)

------- Cluster Slots -------

1) 1) (integer) 2048
   2) (integer) 4095
   3) 1) "[redacted]161.216"
      2) (integer) 7501
      3) "bf7a01315613bb00f3129dcabcf4f3d72d2b13f7"
   4) 1) "[redacted]161.215"
      2) (integer) 7505
      3) "123e8710c3670ebbf53fbecd770227011c2209de"
2) 1) (integer) 6144
   2) (integer) 8191
   3) 1) "[redacted]161.215"
      2) (integer) 7506
      3) "daf2013c16f3e081d93a9f1c74417b1886975e59"
   4) 1) "[redacted]161.216"
      2) (integer) 7502
      3) "9117955e1e022a4f679ddb0c94bb9d08da4c9f48"
3) 1) (integer) 0
   2) (integer) 2047
```

```
bf7a01315613bb00f3129dcabcf4f3d72d2b13f7 [redacted].161.216:7501@17501 master - 0 1545984463000 9 connected 2048-4095
daf2013c16f3e081d93a9f1c74417b1886975e59 [redacted].161.215:7506@17506 master - 0 1545984463107 18 connected 6144-8191
ec1475048a4b47b81b45896eb94d016261af7f04 [redacted].161.216:7509@17509 master - 0 1545984463000 0 connected
f2b4f44f4fad752720ce21a98f2af51223b9964d [redacted].161.216:7505@17505 master - 0 1545984463000 19 connected 0-2047
54fd1a28bceb8283926cf850b2adff0b925b8b3a [redacted].161.216:7507@17507 master - 0 1545984463000 17 connected 8192-10239
3755e4dd038453a17ea661f67f9e7baed08999fc [redacted].161.215:7504@17504 master - 0 1545984463107 4 connected 12288-14335
464c6448d7cc16e25e8b3373d96efe446a75d4c8 [redacted].161.216:7506@17506 master - 0 1545984463000 20 connected 4096-6143
2970b6e048347b513074646d10f9e82b650f7cb2 [redacted].161.216:7503@17503 master - 0 1545984463509 11 connected 10240-12287
f1e3086d220101276a864d9d0f9a77e9c4ff57cb [redacted].161.216:7504@17504 master - 0 1545984463509 12 connected 14336-16383

Cluster Slots Check
-------------------------------------------
[redacted].161.216:7501 (bf7a0131...) -> 1103951 keys | 2048 slots | 1 slaves.
[redacted].161.215:7506 (daf2013c...) -> 1102637 keys | 2048 slots | 1 slaves.
[redacted].161.216:7509 (ec147504...) -> 0 keys | 0 slots | 1 slaves.
[redacted].161.216:7505 (f2b4f44f...) -> 1101323 keys | 2048 slots | 1 slaves.
[redacted].161.216:7507 (54fd1a28...) -> 1103857 keys | 2048 slots | 1 slaves.
[redacted].161.215:7504 (3755e4dd...) -> 1101820 keys | 2048 slots | 1 slaves.
[redacted].161.216:7506 (464c6448...) -> 1103259 keys | 2048 slots | 1 slaves.
[redacted].161.216:7503 (2970b6e0...) -> 1102637 keys | 2048 slots | 1 slaves.
[redacted].161.216:7504 (f1e3086d...) -> 1104168 keys | 2048 slots | 1 slaves.
[OK] 8823652 keys in 9 masters.
538.55 keys per slot on average.


----------------------
Press Enter to Return Paredicmon Menu

Please enter FROM node ID :f1e3086d220101276a864d9d0f9a77e9c4ff57cb

Please enter TO node ID :ec1475048a4b47b81b45896eb94d016261af7f04

Please enter NUMBER of SLOTs :20
>>> Performing Cluster Check (using node [redacted].161.215:7501)
S: 71746645679f036426423b3098ba83ef627ec406 [redacted].161.215:7501
   slots: (0 slots) slave
   replicates f2b4f44f4fad752720ce21a98f2af51223b9964d
M: bf7a01315613bb00f3129dcabcf4f3d72d2b13f7 [redacted].161.216:7501
```

3- Redis Cluster Nodes Version Upgrade

Copy new redis tar file to paredicma directory

cd paredicma
cp /tmp/redis-5.0.3.tar.gz .
Run paredicma again
python paredicma-cli.py
Choose menu 3 (paredicmum)
Chose 3 for version upgrade; Enter Redis tar file name ; Check the results

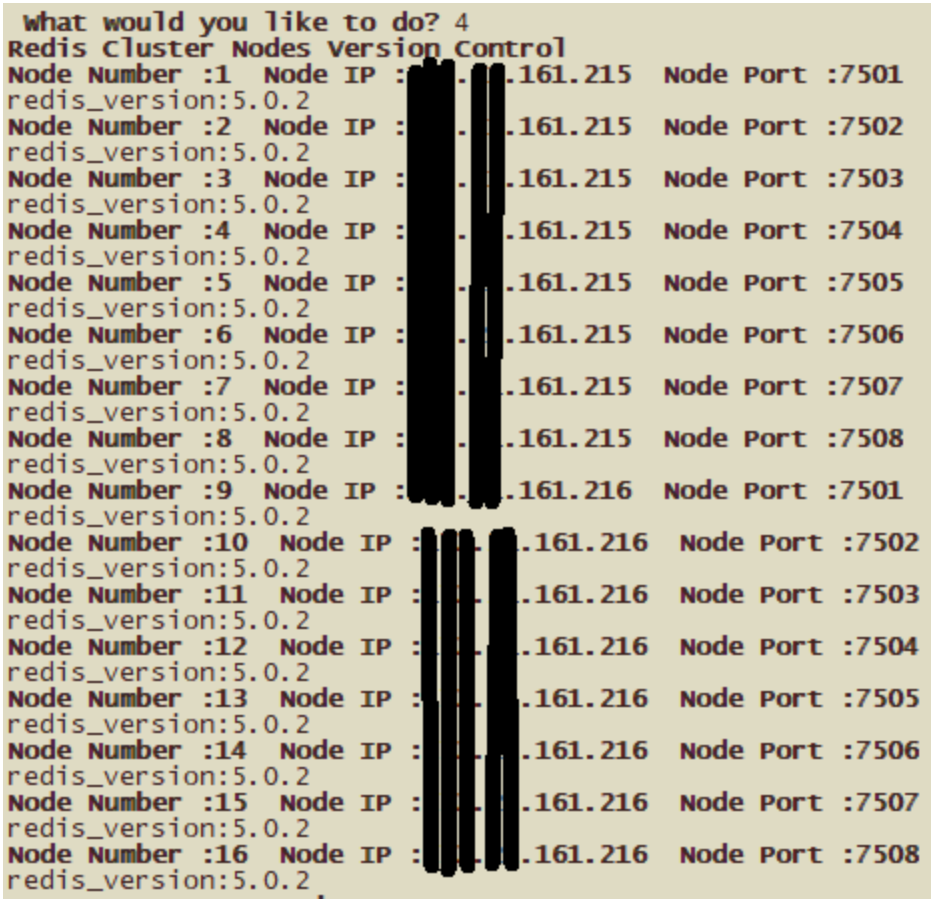
```
Redis Cluster Nodes Version Upgrade

Please Enter new Redis tar file name :redis-5.0.2.tar.gz
 ::redis-5.0.2.tar.gz was extracted.
please wait, the proccess continue...
 :: OK ->  redis was compiled.
please wait, the proccess continue...
```

```
:: [redacted]161.215 :: OK -> redis binary was copied.

Redis binary copy procces completed. Do you want to restart redis cluster nodes(yes/no)yes
Node Number :1  Node IP :[redacted]161.215  Node Port :7501
:: [redacted].161.215 :: OK -> redis node  1 started.
:: [redacted]161.215 :: checking... -> redis node : 1
:: [redacted].161.215 :: OK  -> redis node : 1
Slave redis node started  with new version :5.0.3
redis_version:5.0.3
node Id :1 nodeIP: [redacted].161.215 nodePort:7501
Node Number :2  Node IP :[redacted].161.215  Node Port :7502
:: [redacted].161.215 :: OK -> redis node  2 started.
:: [redacted]161.215 :: checking... -> redis node : 2
:: [redacted].161.215 :: OK  -> redis node : 2
Slave redis node started  with new version :5.0.3
redis_version:5.0.3
node Id :2 nodeIP: [redacted].161.215 nodePort:7502
Node Number :3  Node IP :[redacted]161.215  Node Port :7503
:: [redacted]161.215 :: OK -> redis node  3 started.
:: [redacted]161.215 :: checking... -> redis node : 3
```

…
…

```
:: [redacted]161.216 :: checking... -> redis node : 17
:: [redacted]161.216 :: OK  -> redis node : 17
Master redis node started  with new version :5.0.3
redis_version:5.0.3
node Id :17 nodeIP: [redacted]161.216 nodePort:7509
Node Number :18  Node IP :[redacted].161.215  Node Port :7509
This node has already upgrated..
 :: Redis version was changed and pareConfig File was updated !!!
Node Number :1  Node IP :[redacted].161.215  Node Port :7501
redis_version:5.0.3
Node Number :2  Node IP :[redacted].161.215  Node Port :7502
redis_version:5.0.3
Node Number :3  Node IP :[redacted].161.215  Node Port :7503
redis_version:5.0.3
Node Number :4  Node IP :[redacted].161.215  Node Port :7504
redis_version:5.0.3
Node Number :5  Node IP :[redacted].161.215  Node Port :7505
redis_version:5.0.3
Node Number :6  Node IP :[redacted].161.215  Node Port :7506
redis_version:5.0.3
Node Number :7  Node IP :[redacted].161.215  Node Port :7507
redis_version:5.0.3
Node Number :8  Node IP :[redacted].161.215  Node Port :7508
redis_version:5.0.3
Node Number :9  Node IP :[redacted].161.216  Node Port :7501
redis_version:5.0.3
Node Number :10  Node IP :[redacted].161.216  Node Port :7502
redis_version:5.0.3
Node Number :11  Node IP :[redacted].161.216  Node Port :7503
redis_version:5.0.3
Node Number :12  Node IP :[redacted].161.216  Node Port :7504
redis_version:5.0.3
Node Number :13  Node IP :[redacted].161.216  Node Port :7505
redis_version:5.0.3
Node Number :14  Node IP :[redacted].161.216  Node Port :7506
redis_version:5.0.3
Node Number :15  Node IP :[redacted].161.216  Node Port :7507
redis_version:5.0.3
Node Number :16  Node IP :[redacted].161.216  Node Port :7508
redis_version:5.0.3
Node Number :17  Node IP :[redacted].161.216  Node Port :7509
redis_version:5.0.3
Node Number :18  Node IP :[redacted].161.215  Node Port :7509
redis_version:5.0.3
```

4- **Redis Cluster Nodes Version Control :** This option shows old cluster nodes' version



5- **Maintain Server:** This option shutdown all redis nodes for specific server which you want to maintain.
Enter server IP address; press enter

```
Maintain Server
------------------

Listing Nodes

------- Master Nodes -------
Node Number :1 Server IP :[redacted].161.215 Port:7501 UP
Node Number :2 Server IP :[redacted].161.215 Port:7502 UP
Node Number :3 Server IP :[redacted].161.215 Port:7503 UP
Node Number :5 Server IP :[redacted].161.215 Port:7505 UP
Node Number :7 Server IP :[redacted].161.215 Port:7507 UP
Node Number :8 Server IP :[redacted].161.215 Port:7508 UP
Node Number :10 Server IP :[redacted].161.216 Port:7502 UP
Node Number :16 Server IP :[redacted].161.216 Port:7508 UP
Node Number :18 Server IP :[redacted].161.215 Port:7509 UP

------- Slave Nodes -------
Node Number :4 Server IP :[redacted].161.215 Port:7504 UP
Node Number :6 Server IP :[redacted].161.215 Port:7506 UP
Node Number :9 Server IP :[redacted].161.216 Port:7501 UP
Node Number :11 Server IP :[redacted].161.216 Port:7503 UP
Node Number :12 Server IP :[redacted].161.216 Port:7504 UP
Node Number :13 Server IP :[redacted].161.216 Port:7505 UP
Node Number :14 Server IP :[redacted].161.216 Port:7506 UP
Node Number :15 Server IP :[redacted].161.216 Port:7507 UP
Node Number :17 Server IP :[redacted].161.216 Port:7509 UP

------- Down Nodes -------

--------------
Press enter to continue...
!!! BE CAREFULL !!! Depend of your configuration, this procces might cause cluster status  FAIL !!!

Please Enter Server IP : [redacted]161.216
Your choise :[redacted]161.216

This node is Master node( nodeIP:[redacted]161.216 nodePort:7502), Do you want to stop this node (yes/no): yes
Master/slave switch proccess is starting... This might take some times
Switch master/slave command successed.
New Slave  IP:PORT [redacted]161.216:7502
New Master IP:PORT [redacted]161.215:7506
```

```
Listing Nodes

------- Master Nodes -------
Node Number :1 Server IP :[redacted].161.215 Port:7501 UP
Node Number :2 Server IP :[redacted].161.215 Port:7502 UP
Node Number :3 Server IP :[redacted].161.215 Port:7503 UP
Node Number :4 Server IP :[redacted].161.215 Port:7504 UP
Node Number :5 Server IP :[redacted].161.215 Port:7505 UP
Node Number :6 Server IP :[redacted].161.215 Port:7506 UP
Node Number :7 Server IP :[redacted].161.215 Port:7507 UP
Node Number :8 Server IP :[redacted].161.215 Port:7508 UP
Node Number :18 Server IP :[redacted].161.215 Port:7509 UP

------- Slave Nodes -------

------- Down Nodes -------
Node Number :9 Server IP :[redacted].161.216 Port:7501 DOWN
Node Number :10 Server IP :[redacted].161.216 Port:7502 DOWN
Node Number :11 Server IP :[redacted].161.216 Port:7503 DOWN
Node Number :12 Server IP :[redacted].161.216 Port:7504 DOWN
Node Number :13 Server IP :[redacted].161.216 Port:7505 DOWN
Node Number :14 Server IP :[redacted].161.216 Port:7506 DOWN
Node Number :15 Server IP :[redacted].161.216 Port:7507 DOWN
Node Number :16 Server IP :[redacted].161.216 Port:7508 DOWN
Node Number :17 Server IP :[redacted].161.216 Port:7509 DOWN

--------------
```

6- **Migrate Date From Remote Redis:** This option migrates whole data from non-clustered redis server to this redis cluster.
Enter target redis IP addres; Enter target redis Port

```
 What would you like to do? 6
!!! This procces will migrate whole data from target non-Clustered redis server !!!

Please Enter target redis IP addres [redacted].161.216

Please Enter target redis port number :8771
Migrating procces is starting...
Fri Dec 28 10:33:35 +03 2018
Fri Dec 28 10:51:23 +03 2018

 Migration completed.
 Press Enter to continue...
```

7- **Cluster Slot (Load) Balancer:** Using with this option, you can distribute redis slots on redis cluster.

There are two choise :
1 – distribute slots to all nodes as possible as equal
2 - distribute slots according to nodes memory size

a) **Node Base Slot Balance:**
Redis cluster slots, before distribution

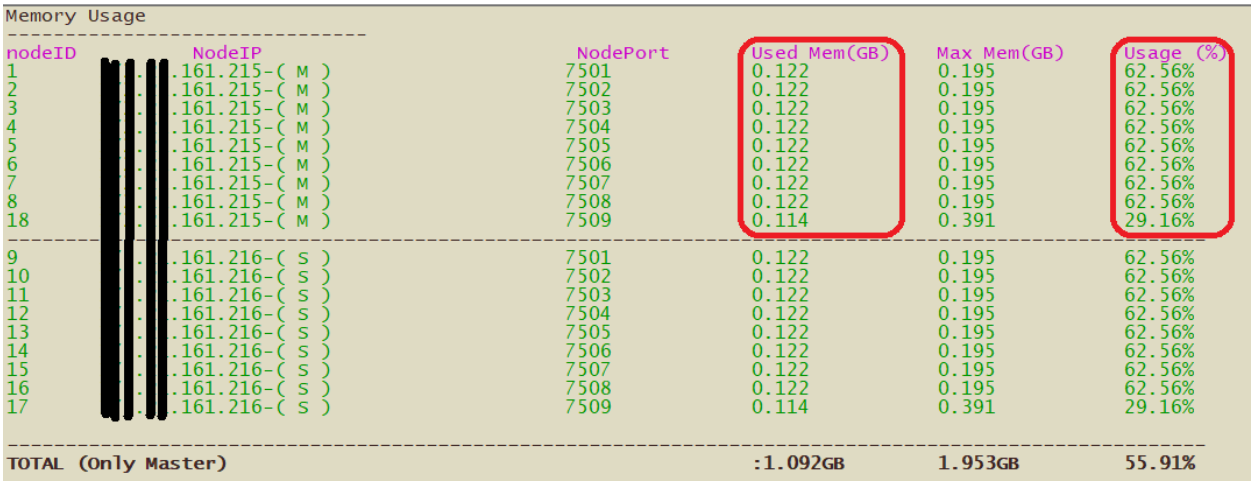
```
Memory Usage
--------------------------------
nodeID          NodeIP                  NodePort        Used Mem(GB)    Max Mem(GB)     Usage (%)
1               [redacted].161.215-( M )  7501          0.135           0.195           69.23%
2               [redacted].161.215-( M )  7502          0.135           0.195           69.23%
3               [redacted].161.215-( M )  7503          0.135           0.195           69.23%
4               [redacted].161.215-( M )  7504          0.135           0.195           69.23%
5               [redacted].161.215-( M )  7505          0.135           0.195           69.23%
6               [redacted].161.215-( M )  7506          0.135           0.195           69.23%
7               [redacted].161.215-( M )  7507          0.135           0.195           69.23%
8               [redacted].161.215-( M )  7508          0.134           0.195           68.72%
18              [redacted].161.215-( M )  7509          0.004           0.391           1.02%
----------------------------------------------------------------------------------------------------
9               [redacted].161.216-( S )  7501          0.135           0.195           69.23%
10              [redacted].161.216-( S )  7502          0.135           0.195           69.23%
11              [redacted].161.216-( S )  7503          0.135           0.195           69.23%
12              [redacted].161.216-( S )  7504          0.134           0.195           68.72%
13              [redacted].161.216-( S )  7505          0.135           0.195           69.23%
14              [redacted].161.216-( S )  7506          0.135           0.195           69.23%
15              [redacted].161.216-( S )  7507          0.135           0.195           69.23%
16              [redacted].161.216-( S )  7508          0.135           0.195           69.23%
17              [redacted].161.216-( S )  7509          0.004           0.391           1.02%

----------------------------------------------------------------------------------------------------
TOTAL (Only Master)                                     :1.084GB        1.953GB         55.5%
```

Choose 1 (node base); Set max slot limit or enter 0 for until all slots balanced.

```
Cluster Slot(load) Balancer
Please select balance Strategy
1 - node base
2 - memory size base
 :1

Please Enter max move slot Number per Node ( between 0 - 4000 )(0 means no limit):0
This node has more (or equal ) slots than  balance slot level :) 71746645679f036426423b3098ba83ef627ec406
This node has more (or equal ) slots than  balance slot level :) bf98478a1249f8b6f412fc75db01666d5373c3b2
This node has more (or equal ) slots than  balance slot level :) 2e2a5baae467703790b7bdb03e77a14f27f33bf9
This node has more (or equal ) slots than  balance slot level :) 3755e4dd038453a17ea661f67f9e7baed08999fc
This node has more (or equal ) slots than  balance slot level :) 123e8710c3670ebbf53fbecd770227011c2209de
This node has more (or equal ) slots than  balance slot level :) daf2013c16f3e081d93a9f1c74417b1886975e59
This node has more (or equal ) slots than  balance slot level :) 00341c454660122baae6746f8505380e0f3056e7
This node has more (or equal ) slots than  balance slot level :) a1365fe589af61ce4ef317a1b09531b2bcb28732
FROM Node ID71746645679f036426423b3098ba83ef627ec406
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :30 OK :)
TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11            Slot Diff :1800
FROM Node IDbf98478a1249f8b6f412fc75db01666d5373c3b2
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :30 OK :)
TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11            Slot Diff :1770
FROM Node ID2e2a5baae467703790b7bdb03e77a14f27f33bf9
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :30 OK :)
TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11            Slot Diff :1740
FROM Node ID3755e4dd038453a17ea661f67f9e7baed08999fc
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :30 OK :)
TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11            Slot Diff :1710
```

```
TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11            Slot Diff :2
FROM Node ID3755e4dd038453a17ea661f67f9e7baed08999fc
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :1 OK :)
TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11            Slot Diff :1

------- Cluster Nodes -------

bf98478a1249f8b6f412fc75db01666d5373c3b2 [redacted].161.215:7502@17502 master - 0 1545991829055 29 connected 4324-6143
71746645679f036426423b3098ba83ef627ec406 [redacted].161.215:7501@17501 myself,master - 0 1545991827000 28 connected 228-20
47
123e8710c3670ebbf53fbecd770227011c2209de [redacted].161.215:7505@17505 master - 0 1545991829055 25 connected 2275-4095
daf2013c16f3e081d93a9f1c74417b1886975e59 [redacted].161.215:7506@17506 master - 0 1545991828000 32 connected 6371-8191
2e2a5baae467703790b7bdb03e77a14f27f33bf9 [redacted].161.215:7503@17503 master - 0 1545991827553 30 connected 8420-10239
fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11 [redacted].161.215:7509@17509 master - 0 1545991827000 34 connected 0-227 2048-22
74 4096-4323 6144-6370 8192-8419 10240-10[redacted]288-12515 14336-14562
00341c454660122baae6746f8505380e0f3056e7 [redacted].161.215:7507@17507 master - 0 1545991828555 26 connected 10467-12287
a1365fe589af61ce4ef317a1b09531b2bcb28732 [redacted].161.215:7508@17508 master - 0 1545991828054 27 connected 14563-16383
3755e4dd038453a17ea661f67f9e7baed08999fc [redacted].161.215:7504@17504 master - 0 1545991828555 33 connected 12516-14335

Cluster Slots Check
-------------------------------------------
[redacted].161.215:7501 (71746645...) -> 978818 keys | 1820 slots | 1 slaves.
[redacted].161.215:7502 (bf98478a...) -> 980656 keys | 1820 slots | 1 slaves.
[redacted].161.215:7505 (123e8710...) -> 981384 keys | 1821 slots | 1 slaves.
[redacted].161.215:7506 (daf2013c...) -> 980312 keys | 1821 slots | 1 slaves.
[redacted].161.215:7503 (2e2a5baa...) -> 981178 keys | 1820 slots | 1 slaves.
[redacted].161.215:7509 (fb8ad9f6...) -> 980544 keys | 1820 slots | 1 slaves.
[redacted].161.215:7507 (00341c45...) -> 980010 keys | 1821 slots | 1 slaves.
[redacted].161.215:7508 (a1365fe5...) -> 981978 keys | 1821 slots | 1 slaves.
[redacted].161.215:7504 (3755e4dd...) -> 978772 keys | 1820 slots | 1 slaves.
[OK] 8823652 keys in 9 masters.
538.55 keys per slot on average.
```

Slots are balanced, as possible as equal, for each node

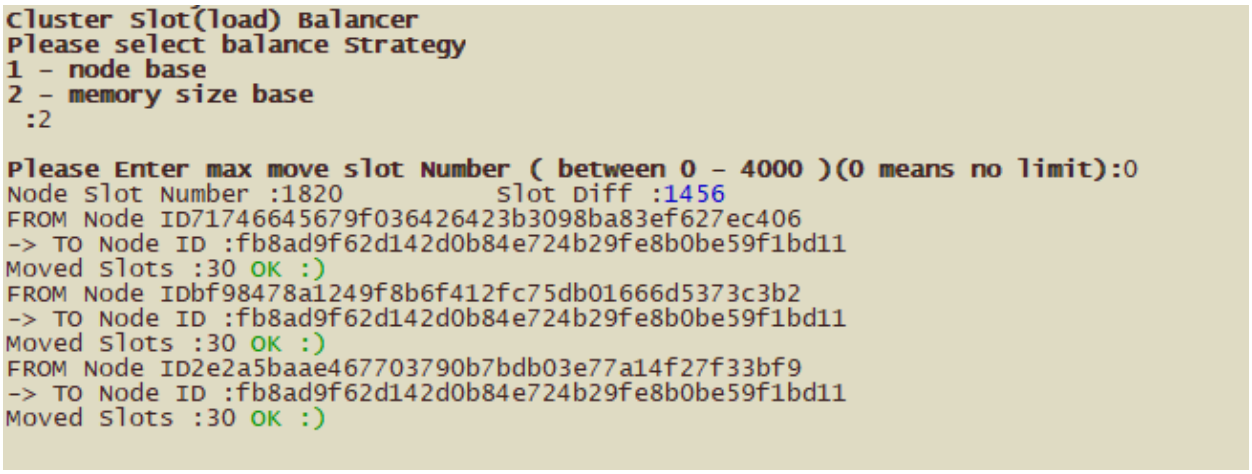


Memory Usage

nodeID	NodeIP	NodePort	Used Mem(GB)	Max Mem(GB)	Usage (%)
1	[redacted].161.215-(M)	7501	0.122	0.195	62.56%
2	[redacted].161.215-(M)	7502	0.122	0.195	62.56%
3	[redacted].161.215-(M)	7503	0.122	0.195	62.56%
4	[redacted].161.215-(M)	7504	0.122	0.195	62.56%
5	[redacted].161.215-(M)	7505	0.122	0.195	62.56%
6	[redacted].161.215-(M)	7506	0.122	0.195	62.56%
7	[redacted].161.215-(M)	7507	0.122	0.195	62.56%
8	[redacted].161.215-(M)	7508	0.122	0.195	62.56%
18	[redacted].161.215-(M)	7509	0.114	0.391	29.16%
9	[redacted].161.216-(S)	7501	0.122	0.195	62.56%
10	[redacted].161.216-(S)	7502	0.122	0.195	62.56%
11	[redacted].161.216-(S)	7503	0.122	0.195	62.56%
12	[redacted].161.216-(S)	7504	0.122	0.195	62.56%
13	[redacted].161.216-(S)	7505	0.122	0.195	62.56%
14	[redacted].161.216-(S)	7506	0.122	0.195	62.56%
15	[redacted].161.216-(S)	7507	0.122	0.195	62.56%
16	[redacted].161.216-(S)	7508	0.122	0.195	62.56%
17	[redacted].161.216-(S)	7509	0.114	0.391	29.16%
TOTAL (Only Master)			:1.092GB	1.953GB	55.91%

b-) Memory Base Slot Balance

Choose 2 (memory base); Set max slot limit or enter 0 for until all slots balanced.



```
Cluster Slot(load) Balancer
Please select balance Strategy
1 - node base
2 - memory size base
 :2

Please Enter max move slot Number ( between 0 - 4000 )(0 means no limit):0
Node Slot Number :1820          Slot Diff :1456
FROM Node ID71746645679f036426423b3098ba83ef627ec406
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :30 OK :)
FROM Node IDbf98478a1249f8b6f412fc75db01666d5373c3b2
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :30 OK :)
FROM Node ID2e2a5baae467703790b7bdb03e77a14f27f33bf9
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :30 OK :)
```

```
FROM Node IDdaf2013c16f3e081d93a9f1c74417b1886975e59
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :1 OK :)
FROM Node ID00341c454660122baae6746f8505380e0f3056e7
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :1 OK :)
FROM Node IDa1365fe589af61ce4ef317a1b09531b2bcb28732
-> TO Node ID :fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11
Moved Slots :1 OK :)

------- Cluster Nodes -------

bf98478a1249f8b6f412fc75db01666d5373c3b2 [redacted].161.215:7502@17502 master - 0 1545992128043 29 connected 4506-6143
71746645679f036426423b3098ba83ef627ec406 [redacted].161.215:7501@17501 myself,master - 0 1545992127000 28 connected 410-2
47
123e8710c3670ebbf53fbecd770227011c2209de [redacted].161.215:7505@17505 master - 0 1545992128043 25 connected 2457-4095
daf2013c16f3e081d93a9f1c74417b1886975e59 [redacted].161.215:7506@17506 master - 0 1545992128544 32 connected 6553-8191
2e2a5baae467703790b7bdb03e77a14f27f33bf9 [redacted].161.215:7503@17503 master - 0 1545992127000 30 connected 8602-10239
fb8ad9f62d142d0b84e724b29fe8b0be59f1bd11 [redacted].161.215:7509@17509 master - 0 1545992128043 34 connected 0-409 2048-2
56 4096-4505 6144-6552 8192-8601 10240-10 [redacted]288-12697 14336-14744
00341c454660122baae6746f8505380e0f3056e7 [redacted].161.215:7507@17507 master - 0 1545992127543 26 connected 10649-12287
a1365fe589af61ce4ef317a1b09531b2bcb28732 [redacted].161.215:7508@17508 master - 0 1545992127000 27 connected 14745-16383
3755e4dd038453a17ea661f67f9e7baed08999fc [redacted].161.215:7504@17504 master - 0 1545992128443 33 connected 12698-14335

Cluster Slots Check
----------------------------------------
[redacted].161.215:7501 (71746645...) -> 880846 keys | 1638 slots | 1 slaves.
[redacted].161.215:7502 (bf98478a...) -> 882531 keys | 1638 slots | 1 slaves.
[redacted].161.215:7505 (123e8710...) -> 882848 keys | 1639 slots | 1 slaves.
[redacted].161.215:7506 (daf2013c...) -> 882192 keys | 1639 slots | 1 slaves.
[redacted].161.215:7503 (2e2a5baa...) -> 883124 keys | 1638 slots | 1 slaves.
[redacted].161.215:7509 (fb8ad9f6...) -> 1764667 keys | 3276 slots | 1 slaves.
[redacted].161.215:7507 (00341c45...) -> 882393 keys | 1639 slots | 1 slaves.
[redacted].161.215:7508 (a1365fe5...) -> 883867 keys | 1639 slots | 1 slaves.
[redacted].161.215:7504 (3755e4dd...) -> 881184 keys | 1638 slots | 1 slaves.
[OK] 8823652 keys in 9 masters.
538.55 keys per slot on average.
```

Slots are balanced according to their memory usage

```
Memory Usage
--------------------------------
nodeID      NodeIP                  NodePort    Used Mem(GB)    Max Mem(GB)    Usage (%)
1           [redacted].161.215-( M )    7501        0.112           0.195          57.44%
2           [redacted].161.215-( M )    7502        0.112           0.195          57.44%
3           [redacted].161.215-( M )    7503        0.112           0.195          57.44%
4           [redacted].161.215-( M )    7504        0.112           0.195          57.44%
5           [redacted].161.215-( M )    7505        0.112           0.195          57.44%
6           [redacted].161.215-( M )    7506        0.112           0.195          57.44%
7           [redacted].161.215-( M )    7507        0.112           0.195          57.44%
8           [redacted].161.215-( M )    7508        0.112           0.195          57.44%
18          [redacted].161.215-( M )    7509        0.205           0.391          52.43%
-------------------------------------------------------------------------------------------
9           [redacted].161.216-( S )    7501        0.112           0.195          57.44%
10          [redacted].161.216-( S )    7502        0.112           0.195          57.44%
11          [redacted].161.216-( S )    7503        0.112           0.195          57.44%
12          [redacted].161.216-( S )    7504        0.112           0.195          57.44%
13          [redacted].161.216-( S )    7505        0.112           0.195          57.44%
14          [redacted].161.216-( S )    7506        0.112           0.195          57.44%
15          [redacted].161.216-( S )    7507        0.112           0.195          57.44%
16          [redacted].161.216-( S )    7508        0.112           0.195          57.44%
17          [redacted].161.216-( S )    7509        0.206           0.391          52.69%

-------------------------------------------------------------------------------------------
TOTAL (Only Master)                                 :1.1GB  1.953GB         56.32%
```