MongoDB management software

User Guide

Version 3.6.1.0

1. Introduction

gudab is a software which offers enterprises' MongoDB management in 6 main sectors of Monitor, Alert, Backup & Restore, Activity, Dashboard and User control.

gudab automatically collects and organizes data within MongoDB, users can operate all gudab's functions through web browser.

1-1 6 fucntion modules

The data of the main 6 fucntion modules will be contained in an independent MongoDB(named consoleDB with default localhost : 27027) separates from user's MongoDB.

2. Installation

2.1. MongoDB requirement

(1) MongoDB version : V2.6~3.6

(2) OS version

a. Rehat6、Redhat7

b. CentOS6、CentOS7

c. Ubuntu14、Ubuntu16

d. Windows Server 2008 R2 64-bit and later

(3) Establishing Linux service account, please refer to gudab v3.6.1.0 system integration document.

(4) Establishing MongoDB service account, please refer to gudab v3.6.1.0 system integration document.

(5) Edit hosts file : please refer to gudab v3.6.1.0 system integration document.

2.2. System requirements

(1) Java 1.8

(2) OS version

a. Redhat6、Redhat7

b. CentOS6、CentOS7

c. Ubuntu14、Ubuntu16

d. Windows Server 2008 R2 64-bit and later

(3) Hardware requirements

a. CPU：minimum: 4core, recommend: 8core and above.

b. RAM：minimum: 16GB, recommend: 32GB and above.

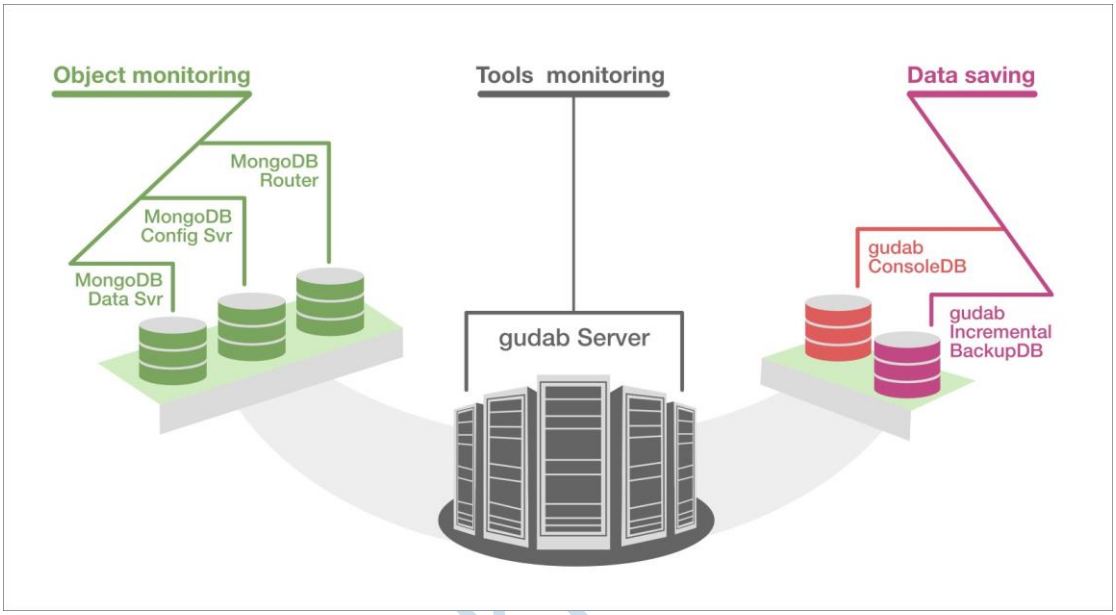
c. Storage：Installation, Performance metric, Backup.

I. Installation: 300MB

II. Performance metrics：minimum; 10GB, recommend: 20GB for 10 host/month.

III. Backup：minimum: 150% of the data size, recommend: 250% of the data size

Note: Set at least one consoleDB on MongoDB for monitoring only. (No backup).



2-1 Architecture(Schematic)

2.3. gudab Enterprise installation

(1) Download gudab Enterprise from offical website. http://www.gudab.com

(2) Unzip file to any directory but the path cannot contain symbols. e.g. []

(3) Edit Host file : please refer to gudab v3.6.1.0 system integration document.

(4) SSH public key Authentication、edit SSH properties file please refer to gudab v3.6.1.0 system integration document.

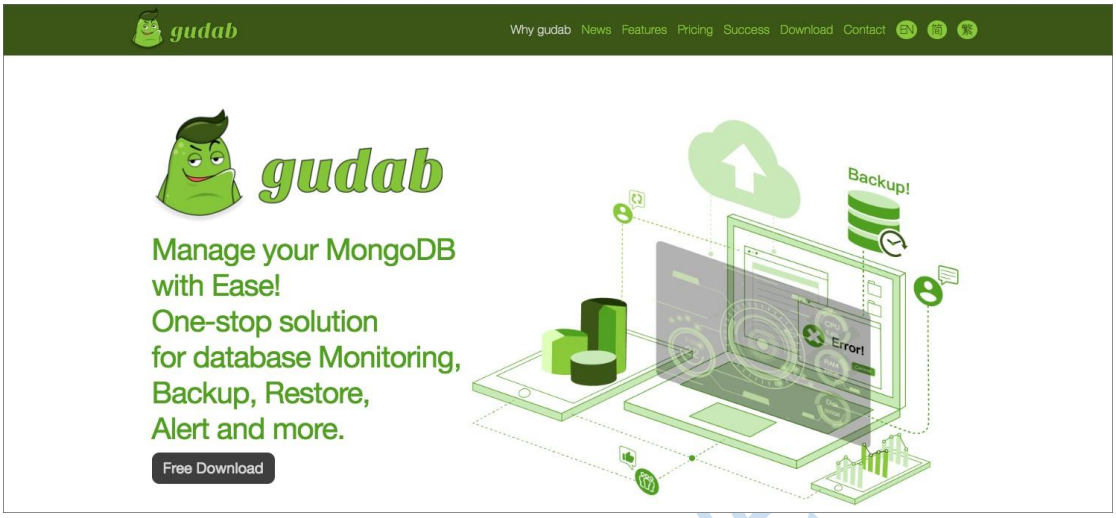
(5) Edit gudab properties file : please refer to gudab v3.6.1.0 system integration document.

(6) Firewall port setting : please refer to gudab v3.6.1.0 system integration document.

(7) Prepare file to designated path : please refer to gudab v3.6.1.0 system integration document.

(8) Change consoleDB password : execute changePwd.sh (linux) or changePwd.bat (windows).

(9) Activate gudab：execute start.sh (linux) or start.bat (windows).



2-2 official download

3. Login

User can link to gudab login page via「http:// <hostport>/view/」.
Enter account, password and then click login to access to gudab.
Once account and password verify successfully,The system will show monitoring list as the default front page.

Please be informed the default username is「root」 and preset password is also「root」. It is strongly suggested that user changes password from profile tab to ensure system security. <See details 6.1 Profile>

Assume today is 20180118

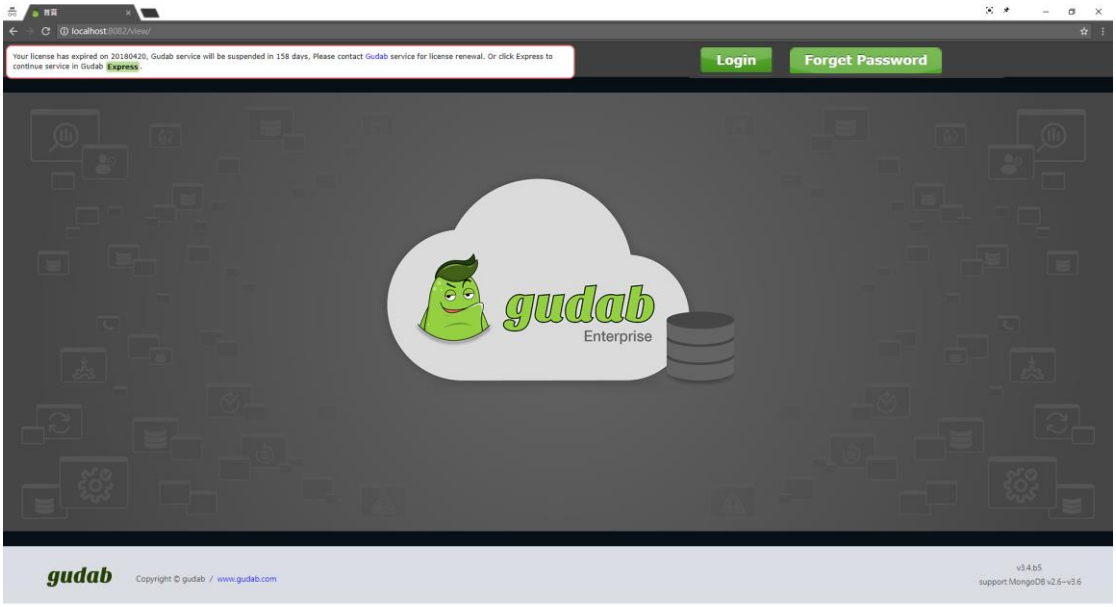
Ex1. The expiry date is 20180130

- A reminder message is displayed within 1 month before expiration
- Initial login, the upper left will remind the trial Enterprise 30 days due date.

3-1 Login(within 1 month before expiration)

Ex2. The expiry date is 20171225

- The alarm message is displayed within 1 month after expiration, and the countdown days are available.
- Please subscribe to Enterprise or downgrade to Express.



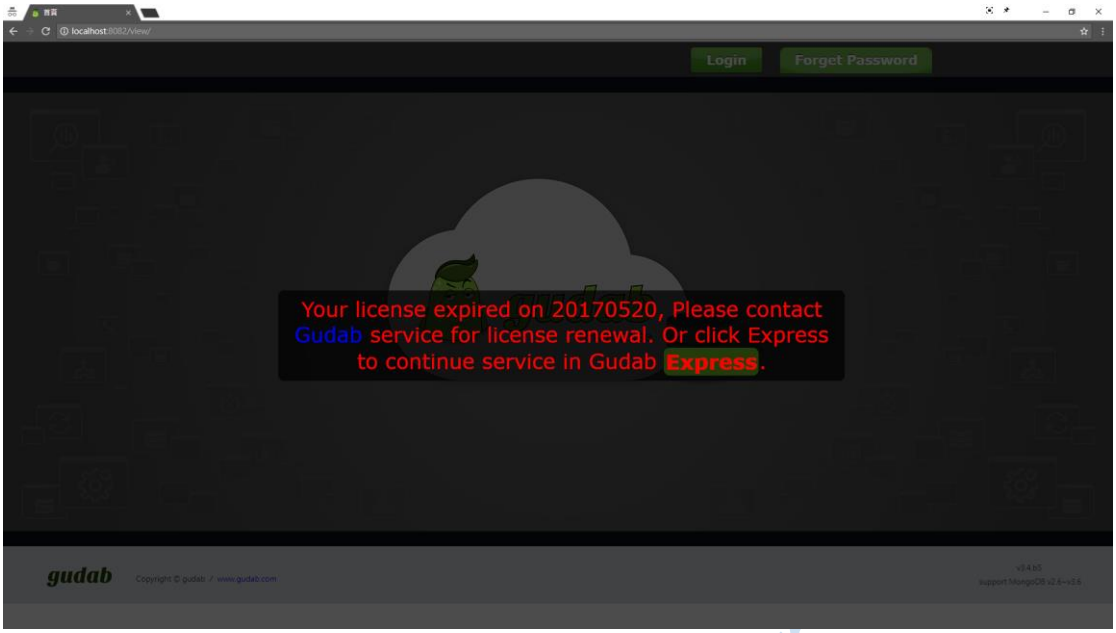
3-2 Login(within 1 month after expiration)

- Click the button on the screen to permanently downgrade to Express.

3-3 Login(Express)

Ex3. The expiry date is 20171212

- Locked the screen after expired for more than one month
- Please subscribe to Enterprise or downgrade to Express.

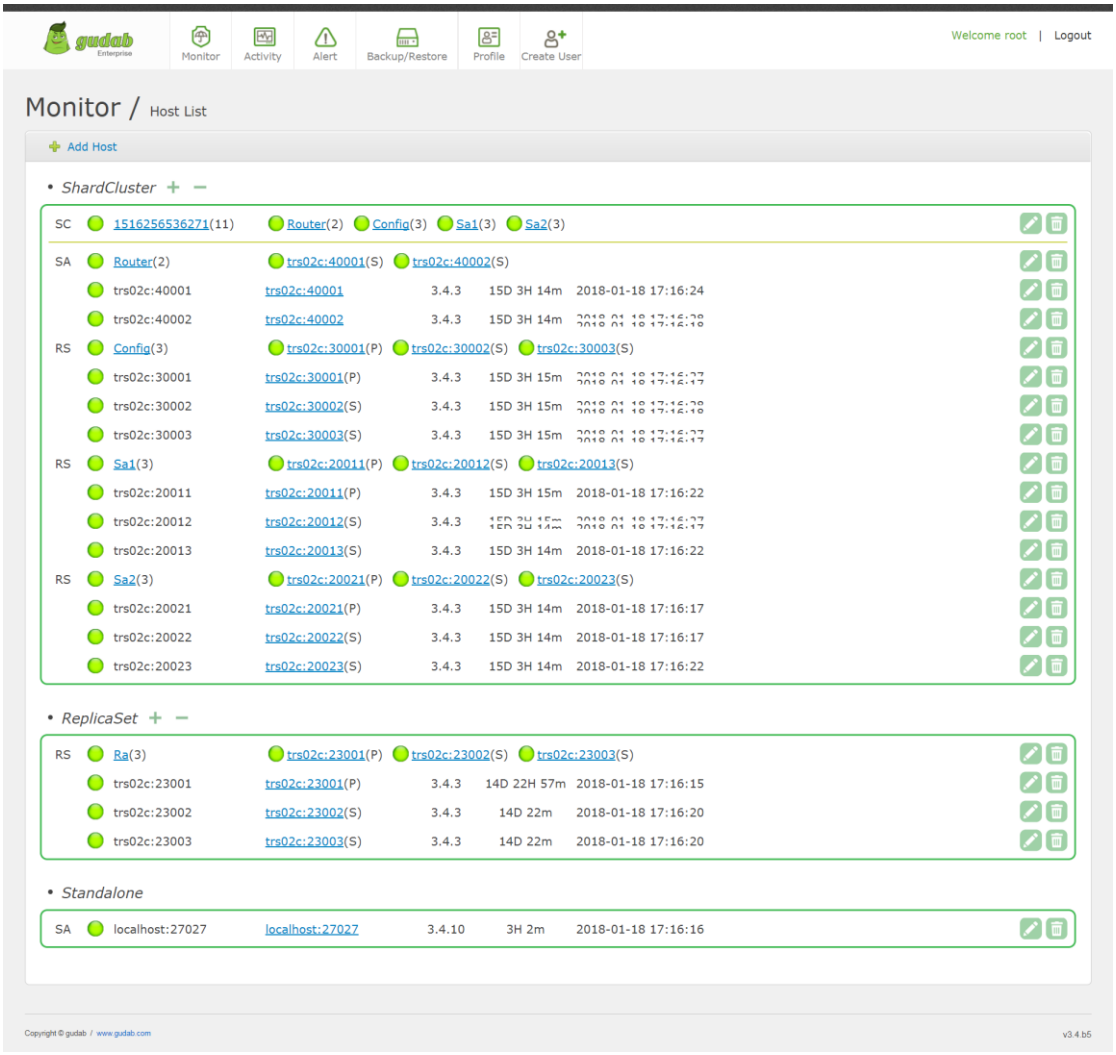


3-4 Login(Expired)

4. Monitoring

4.1. Monitoring page

Monitoring page shows the list of MongoDB servers currently being monitored and their status.

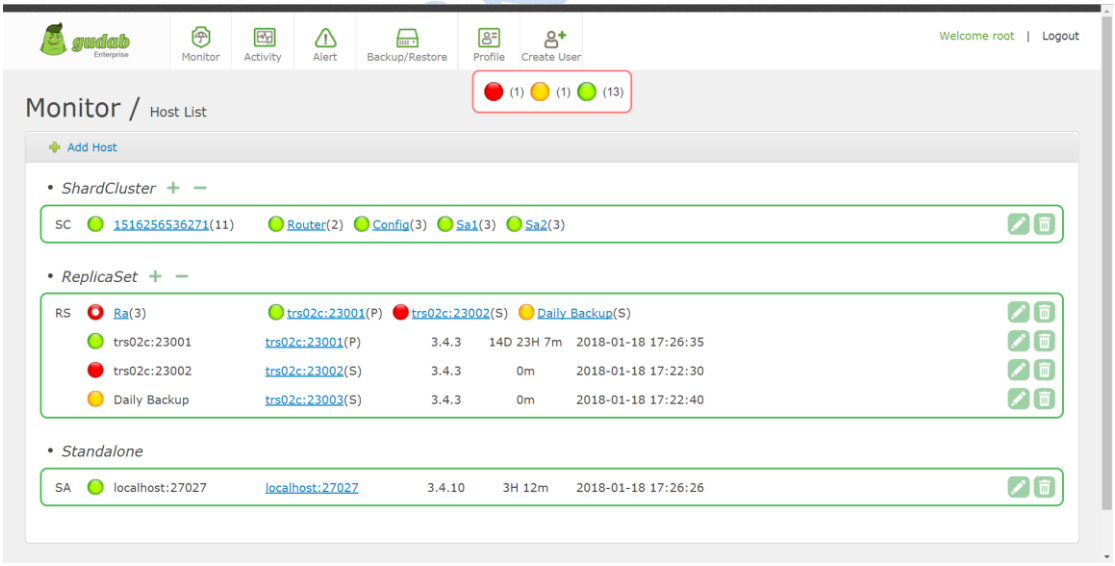


4-1 Monitoring list

Table 1 Monitoring information

Column	Description
Server Type	Types of MongoDB server include the following SA (StandAlone) RS (Replica Set)

	SC (Sharded Cluster)
Status Signal	Signal shows the current status of MongoDB server. Green signal indicates server is operating normally. Red signal means servers malfunction or there are abnormalities.
Alias	Users define server name. The default is "host:port"
RS Roles	RS roles include the following P (PRIMARY) S (SECONDARY) A (ARBITER)
Version	Version of the MongoDB server.e.g. 3.4.10
Start Time	The running time of the monitored MongoDB server. e.g. 4D 23H 0m
Last Ping	The last connected time of the monitored MongoDB server. e.g. 2018-01-19 08:26:40
	Set Exception time
	Remove MongoDB from monitoring list.



4-2 Monitoring Signal

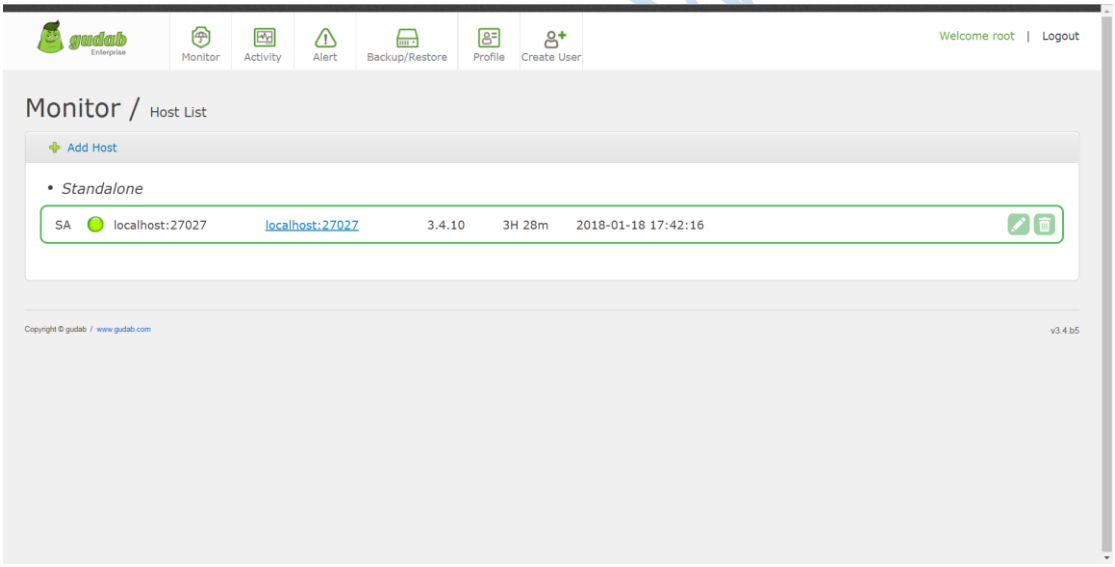
Table 2 Status Signal

Signal	Description

	All affiliate MongoDB are being monitored normally.
	Part of the affiliate MongoDB are under monitoring exception time while the rest of the databases are being monitored normally.
	All affiliate MongoDB are under monitoring exception time.
	All affiliate MongoDB fail to be monitored
	Part of the affiliate MongoDB fail to be monitored

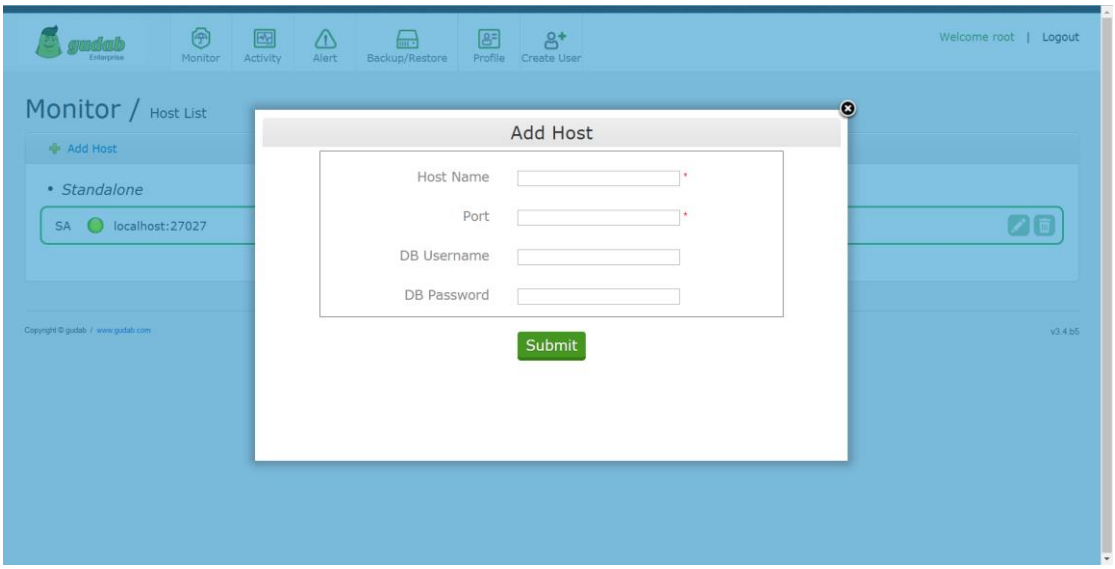
4.2. Add host

The first login, the default will only monitor gudab built consoleDB.



4-3 Preset monitoring

Add MongoDB server to the monitoring list by「Add Host」.



4-4 Add host-1

Please enter the following host information：

(1) Host name : Name of the MongoDB server (Required field).

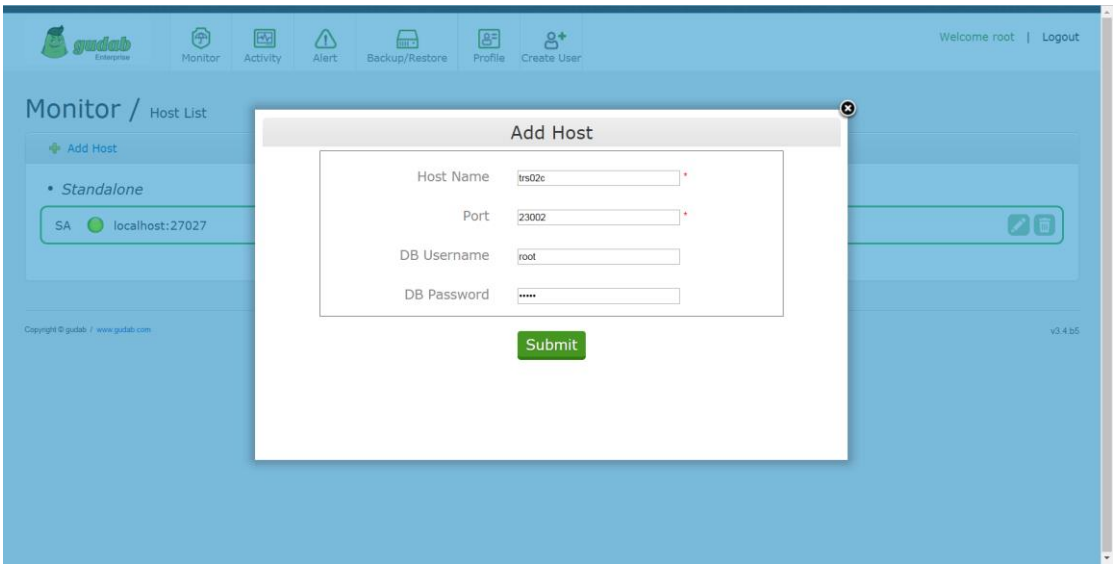
(2) Port :Port number set by the MongoDB server (Required field).

(3) DB username : Enter username if account authorization is required.

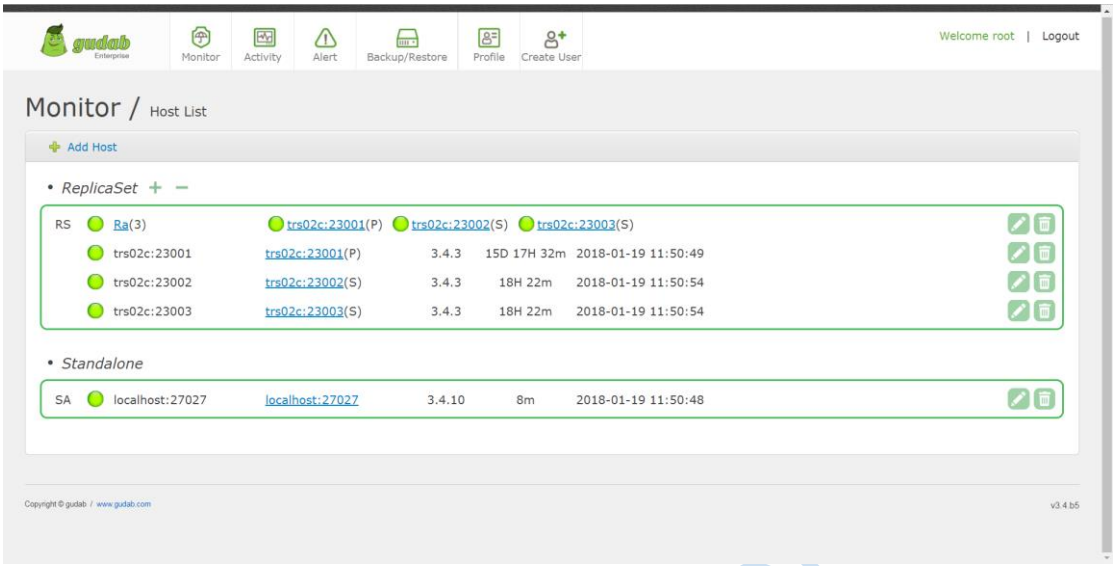
(4) DB password : Enter password if account authorization is required.

✧ Auto Discovery

When the added host is a clustered database (Replica Set, Sharded Cluster), gudab will automatically detect and show all affiliate databases within the cluster for monitoring.



4-5 Add host-2



4-6 Add host-3

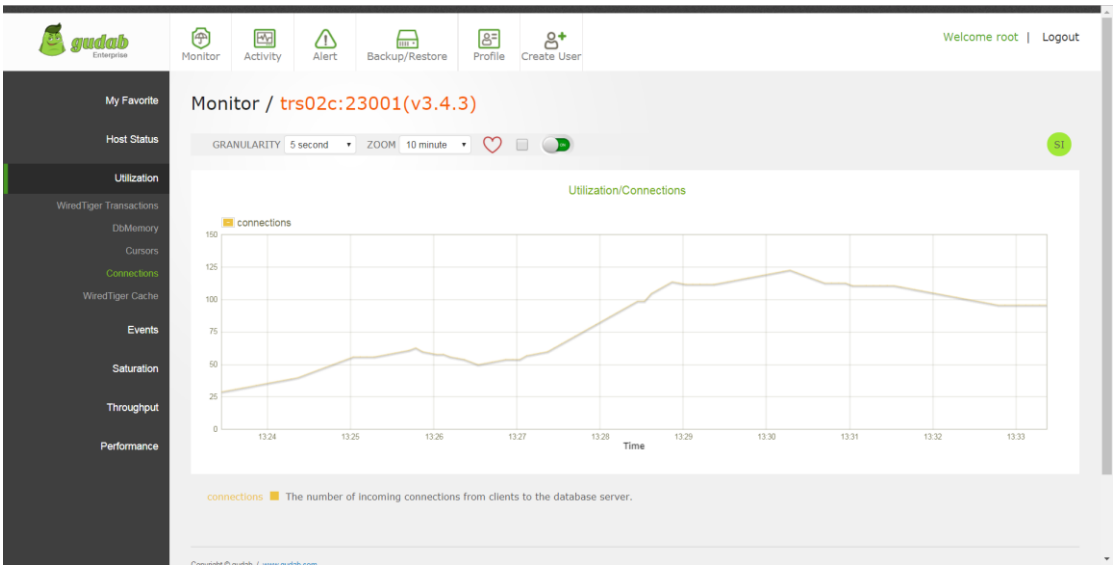
4.3. Auto-restart

(In the pipeline)When the monitored MongoDB fails to connect or process, auto-restart can be activated optionally. For instant, when MongoDB process fails unexpectedly, gudab can automatically access to the server via SSH, implement the prepared linux script, and restart MongoDB.

4.4. Monitor Metrics

To view monitor metrics, click on host name of the chosen server.

As shown in the picture 4-5, monitor metric groups are at the left side menu including、「Favourite」,「Host Status」,「Utilization」,「Events」,「Saturation」,「Throuhgput」,and「Performance」.
Click on the metric group, metric items will appear underneath.
Click on the metric items, the monitoring chart will display on right side of the page.



4-7 Monitor Metrics-1

Take Network metric as an example, MongoDB's memory traffic is presented in line chart. X-axis specifies recording period and Y-axis shows the amount of traffic receiving/sending from database.

In addition, time scale can be set to adjust data recording frequency. As shown in picture 4-8 below, the time scale is 5 seconds, thurs at 13:27:17, one network traffic data is recorded and the next sampling point is at 13:27:22.
Each time scale associates with a default time interval array display for simpler view setting.

Display time interval can also be modified to meet user's monitoring requirements. If the interval is selected for 3 hours, then the chart will display data records in the last 3 hours.

- 5sec(10min,30min,1hr)
- 1min(100min,3hr,6hr)
- 5min(3hr,6hr,12hr)
- 1hr(1day,1week,2week)

4-8 Monitor Metric-2

4-9 Monitor Metric-3

Check the box beside the heart to display data sampling points.

Note: This function is only selectable between 50 to 300 Data sampling points. For 300 points and more, chart will only display by line chart. For 50 points and less, chart will only display by points.

Click on Auto to stop chart refreshing

Click on SI to display system of units

4-10 SI system of unit

Table 3 Metric List

Host Status		
CPU	cpuUS	CPU usage rate
	cpuID	CPU idle rate
	cpuWA	CPU wait for IO rate.
	cpuPidUS	MongoDB CPU usage rate
Memory	memTotal	Total memory of server
	memFree	Available memory
	memUsed	Memory used
	mongoVirt	Total MongoDB virtual memory used (Swap+Res)
	mongoRes	MongoDB resident memory used.
	mongoShr	MongoDB shared memory
	mongoUsed	Percentage of MongoDB virtual memory used.
Swap	swapTotal	Total Swap Memory of server
	swapFree	Available Swap Memory
	swapUsed	Swap Memory used
Storage	size	Size of MongoDB dbPath
	used	MongoDB storage used
	alive	Available MongoDB dbPath size?

	percent	Percentage of MongoDB storage used
Utilization		
Connections	connections	Number of user connection
Cursors	open	The number of cursors that MongoDB is maintaining for clients.
	timedOut	The total number of cursors that have timed out since the server process started.
DbMemory	mapped	The amount of mapped memory, in megabytes (MB), by the database.
	mappedWithJournal	The amount of mapped memory, in megabytes (MB), including the memory used for journaling.
	resident	The value of mem.resident is roughly equivalent to the amount of RAM, in megabytes (MB), currently used by the database process.
	virtual	It displays the quantity, in megabytes (MB), of virtual memory used by the mongod process.
Journaled Size (V2.6)	size	The amount of data in megabytes (MB) written to journal during the last journal group commit interval.
WiredTiger Cache (V3.4)	current	Size in byte of the data currently in cache.
	maximum	Maximum cache size.
	dirty	Size in bytes of the dirty data in the cache.
WiredTiger Transactions (V3.4)	readAvailable	Number of available read tickets remaining.
	readOut	Number of read tickets in use.
	writeAvailable	Number of available write tickets remaining.

	writeOut	Number of write tickets in use.
Events		
Asserts	msg	The number of message assertions raised since the MongoDB process started.
	regular	The number of regular assertions raised since the MongoDB process started.
	user	The number of 'user asserts' that have occurred since the last time the MongoDB process started.
	warn	The number of warnings raised since the MongoDB process started.
Page Faults	pageFaults	The total number of page faults.
Saturation		
Current Queue	readers	The number of operations that are currently queued and waiting for the read lock.
	total	The total number of operations queued waiting for the lock.
	writers	The number of operations that are currently queued and waiting for the write lock.
Journaled Lock (V2.6)	lock	The count of the commits that occurred while a write lock was held.
Throughput		
Active Clients	readers	The number of the active client connections performing read operations.
	writers	The number of active client connections performing write operations.
Network	in	The number of bytes that reflects

		the amount of network traffic received by this database.
	out	The number of bytes that reflects the amount of network traffic sent from this database.
Opcounters	command	The total number of commands issued to the database since the mongod instance last started.
	delete	The total number of delete operations since the mongod instance last started.
	getmore	The total number of "getmore" operations since the mongod instance last started.
	insert	The total number of insert operations received since the mongod instance last started.
	query	The total number of queries received since the mongod instance last started.
	update	The total number of update operations received since the mongod instance last started.
Performance		
Replication Oplog	timeDiff	Difference between the primary's oplog window and the replication lag of the secondary.
	replicationLag	Delay between a write operation on the primary and its copy to a secondary.
	replicationHeadroom	Oplog Window.
Background Flush (V2.6)	lastFlush	The amount of time, in milliseconds, that the last flush operation took to complete.

Journaled Time (V2.6)	time	The amount of time, in milliseconds, spent writing to data files after journaling.
Index (V2.6)	accesses	Accesses reports the number of times that operations have accessed indexes.
	hits	The hits value reflects the number of times that an index has been accessed and mongod is able to return the index from memory.
	misses	The misses value represents the number of times that an operation attempted to access an index that was not in memory.

4.5. My Favourite

User can add monitor metrics from different metrics group to my favourite. As shown in picture 4-11, Click on the heart until it turns solid red to add to my favourite.

4-11 My Favourite-1

Alternatively, metrics can also be added from my favourite setting page. Simply check or uncheck boxes beside monitor metrics to add or remove from my favourite.

gudab Enterprise | Monitor | Activity | Alert | Backup/Restore | Profile | Create User | Welcome root | Logout

My Favorite
Settings
Host Status
Utilization
Events
Saturation
Throughput
Performance

Monitor / trs02c:23001(v3.4.3)

Please check boxes beside metrics to add to my favorite [Confirm] [Clear all]

Host Status

☐	Swap	swapTotal	(Byte)	No Descriptions.
		swapFree	(Byte)	No Descriptions.
		swapUsed	(Byte)	No Descriptions.
☑	Storage	size	(Byte)	No Descriptions.
		used	(Byte)	No Descriptions.
		alive	(Byte)	No Descriptions.
		percent	(%)	No Descriptions.
☐	Memory	memTotal	(Byte)	No Descriptions.
		memFree	(Byte)	No Descriptions.
		memUsed	(Byte)	No Descriptions.
		mongoVirt	(Byte)	No Descriptions.
		mongoRes	(Byte)	No Descriptions.
		mongoShr	(Byte)	No Descriptions.
		mongoUsed	(%)	No Descriptions.
☐	CPU	cpuUS	(%)	No Descriptions.
		cpuID	(%)	No Descriptions.
		cpuWA	(%)	No Descriptions.
		cpuPidUS	(%)	No Descriptions.

Utilization

☐	WiredTiger Transactions	writeAvailable	--	Number of available write tickets remaining.
		readAvailable	--	Number of available read tickets remaining.
		readOut	--	Number of read tickets in use.
		writeOut	--	Number of write tickets in use.
☐	DbMemory	virtual	(Byte)	It displays the quantity, in megabytes (MB), of virtual memory used by the mongod process.
		mapped	(Byte)	The amount of mapped memory, in megabytes (MB), by the database.
		mappedWithJournal	(Byte)	The amount of mapped memory, in megabytes (MB), including the memory used for journaling.
		resident	(Byte)	The value of mem.resident is roughly equivalent to the amount of RAM, in megabytes (MB), currently used by the database process.
☐	Cursors	timedOut	--	The total number of cursors that have timed out since the server process started.
		open	--	The number of cursors that MongoDB is maintaining for clients.
☑	Connections	connections	--	The number of incoming connections from clients to the database server.
☐	WiredTiger Cache	dirty	(Byte)	Size in bytes of the dirty data in the cache.
		current	(Byte)	Size in byte of the data currently in cache.
		maximum	(Byte)	Maximum cache size.

Events

☐	Asserts	msg	--	The number of message assertions raised since the MongoDB process started.
		warn	--	The number of warnings raised since the MongoDB process started.
		user	--	The number of 'user asserts' that have occurred since the last time the MongoDB process started.
		regular	--	The number of regular assertions raised since the MongoDB process started.
☑	Page Faults	pageFaults	--	The total number of page faults.

Saturation

☐	Current Queue	total	--	The total number of operations queued waiting for the lock.
		readers	--	The number of operations that are currently queued and waiting for the read lock.
		writers	--	The number of operations that are currently queued and waiting for the write lock.

Throughput

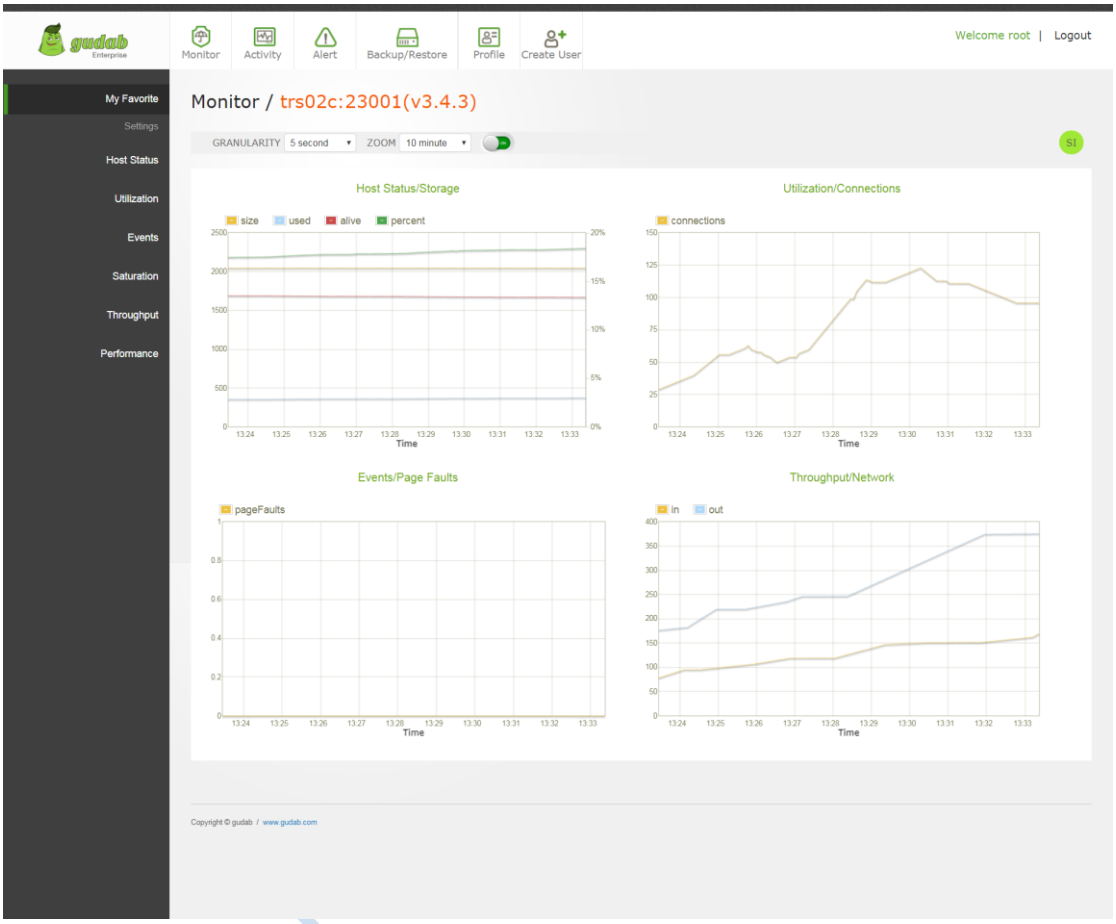
☑	Network	in	(Byte)	The number of bytes that reflects the amount of network traffic received by this database.
		out	(Byte)	The number of bytes that reflects the amount of network traffic sent from this database.
☐	Opcounters	query	--	The total number of queries received since the mongod instance last started.
		insert	--	The total number of insert operations received since the mongod instance last started.
		update	--	The total number of update operations received since the mongod instance last started.
		getmore	--	The total number of 'getmore' operations since the mongod instance last started.
		delete	--	The total number of delete operations since the mongod instance last started.
		command	--	The total number of commands issued to the database since the mongod instance last started.
☐	Active Clients	readers	--	The number of the active client connections performing read operations.
		writers	--	The number of active client connections performing write operations.

Performance

☐	Replication Oplog	timeDiff	(s)	Difference between the primary's oplog window and the replication lag of the secondary.
		replicationLag	(s)	Delay between a write operation on the primary and its copy to a secondary.
		replicationHeadroom	(s)	Oplog Window.

4-12 My Favourite-2

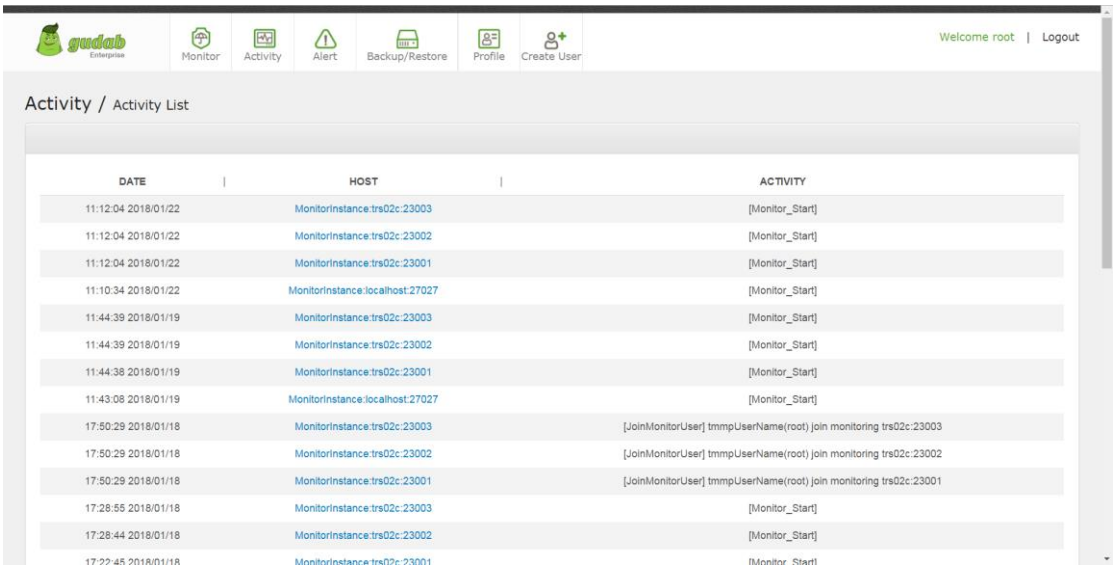
Click on my favourite after setting completes to display the saved my favourite metric combination.



4-13 My Favourite-3

5. Activity log

Activity log displays activities of the monitored MongoDB in reverse chronological order.



5-1 Activity List

Table 4 Activity

Column	Description
Date	Time of activity occurance.
Host	Host of the activity
Activity	Specification of the activity

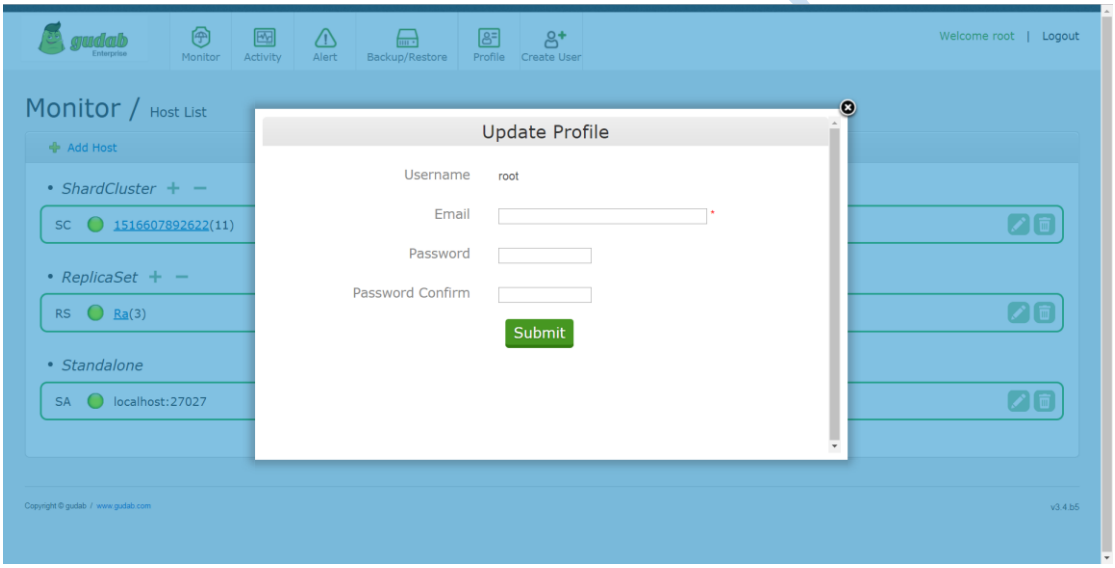
6. User control

6.1. Profile

Click profile tab to view or update profile information including username, email, and password.

To update profile, enter new data in the field and click submit. To cancel update, click X button on the top right corner and close dialog.

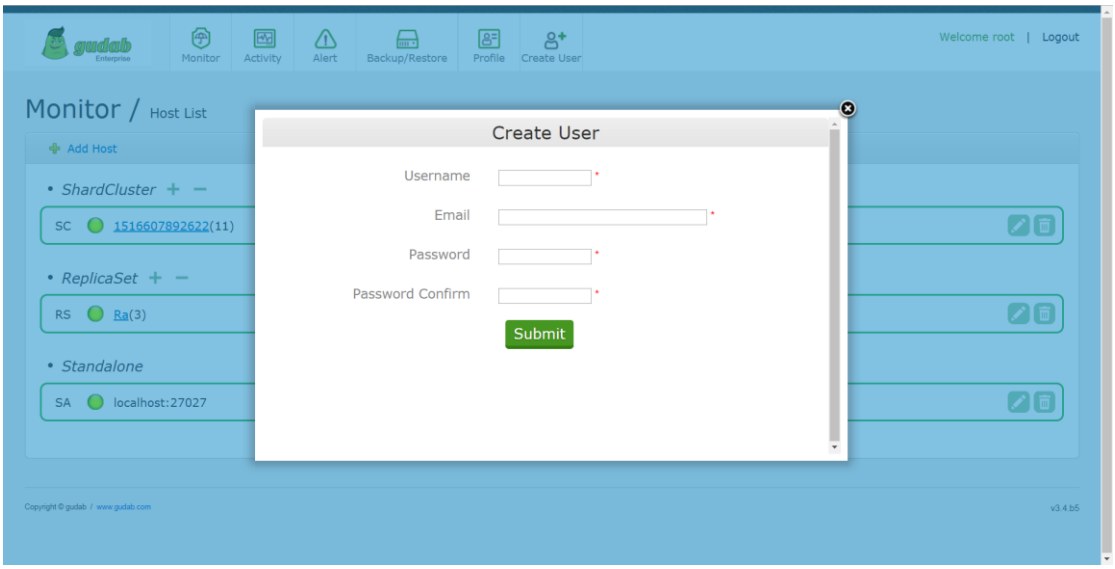
Please be advised to change your password after your first login



6-1 Update Profile

6.2. Create User

To create user, click on create user tab. Enter user information including username, Email,and password and click submit. To withdraw creatinig user, click X button on the top right corner and close dialog.

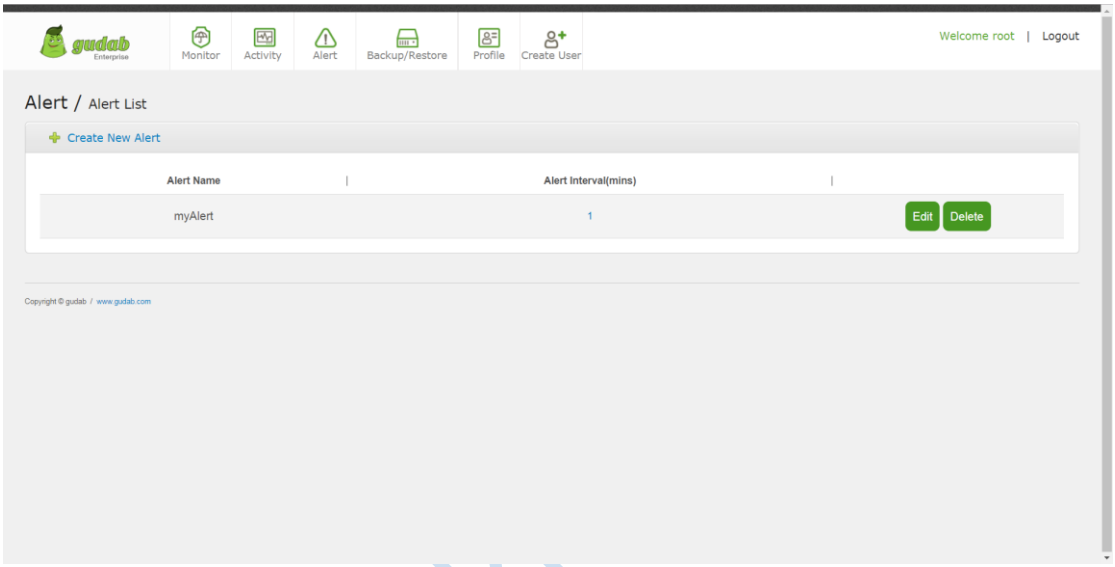


6-2 Create user

7. Alert (Enterprise Edition)

7.1. Alert page

Alert page shows the current alert list.



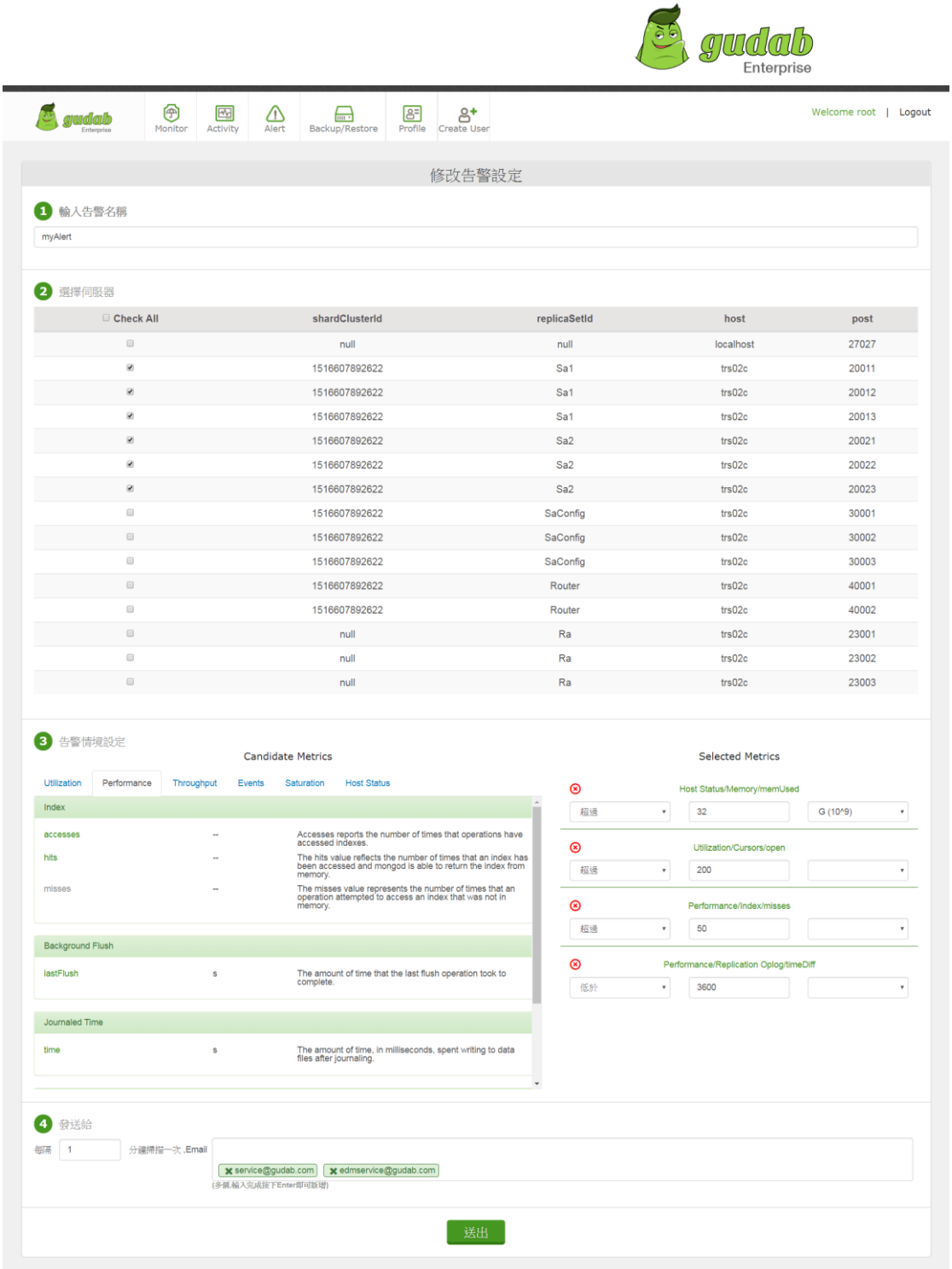
7-1 Alert List

Table 5 Alert

Column	Description
Alert Name	Name of alert defined by user.
Alert Interval	Frequency to send alert by minute.
Operation Button	Edit : modify alert setting Delete : delete alert

7.2. Create New Alert

(1) Click on Create New Alert to access new alert settings.



7-2 Create New Alert

(2) Complete the following fields and click submit to create new alert.

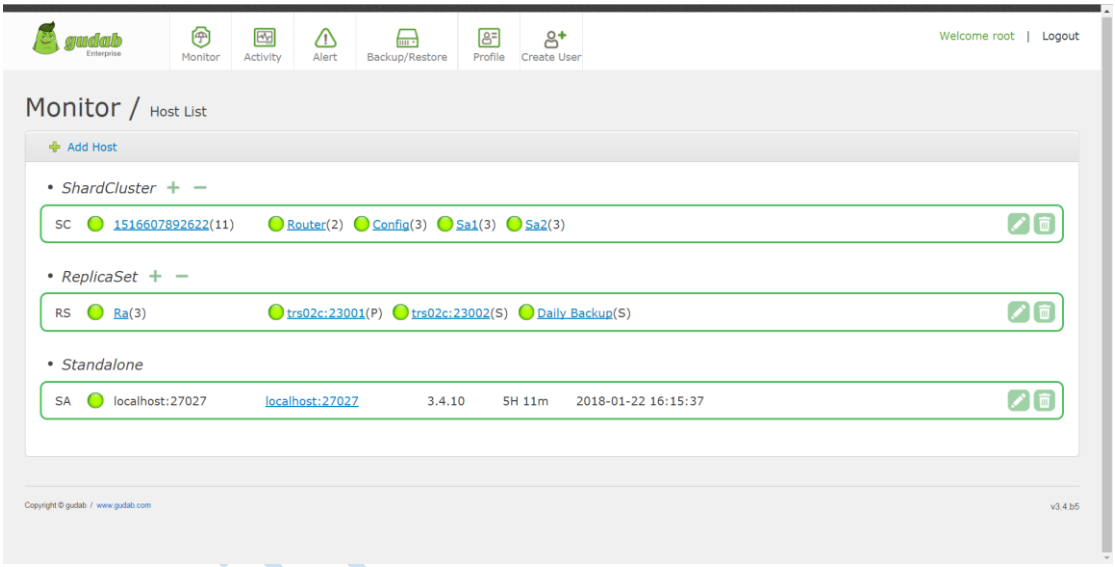
- Setting Alert Name : Enter name of the alert for identification.
- Select hosts: Check the boxes beside host to include in the alert list
- Alert if : check and select the alert thresholds
- Send to : Enter alert scanning frequency,Email and mobile number.

(3) Once alert setting completed and submitted, System will show if the alert is created successfully. Click exit to leave the page.

7.3. Exception Time

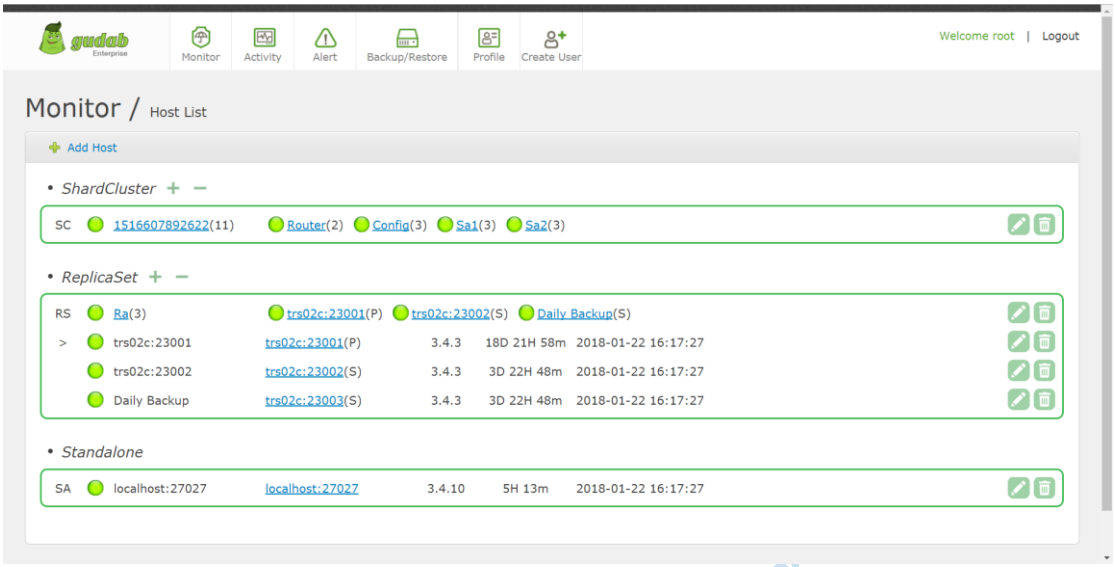
Alerts can be deactivated when MongoDB shutdown is expected. For example, scheduled Full Backup is expected and does not need to be alarmed.

(1) Exception time can be configured to the whole shard cluser or specific server



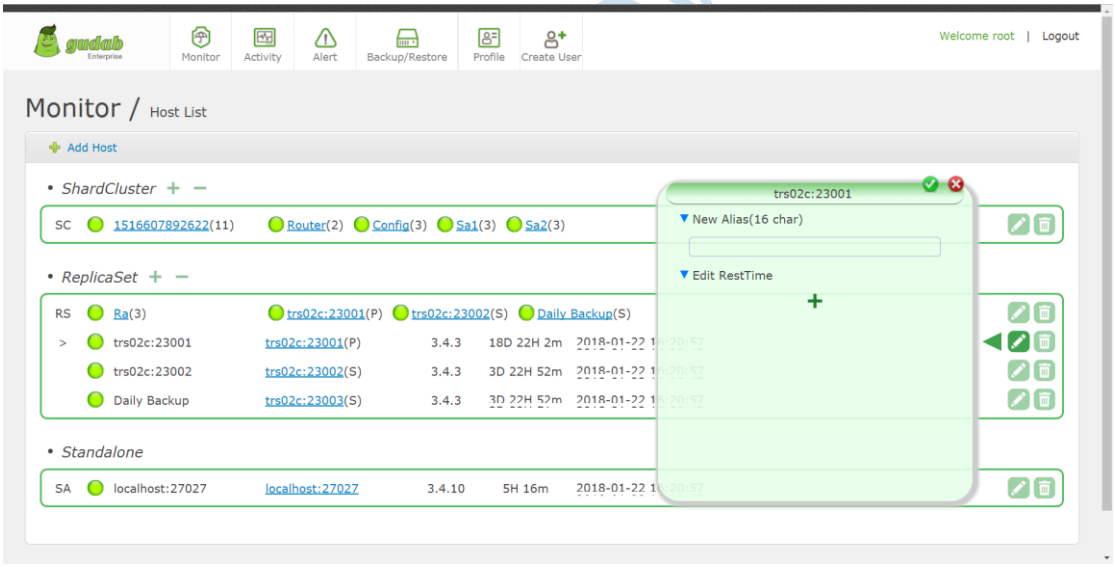
7-3 Exception Time-1

(2) Set exception time to RS server trs02c:23001



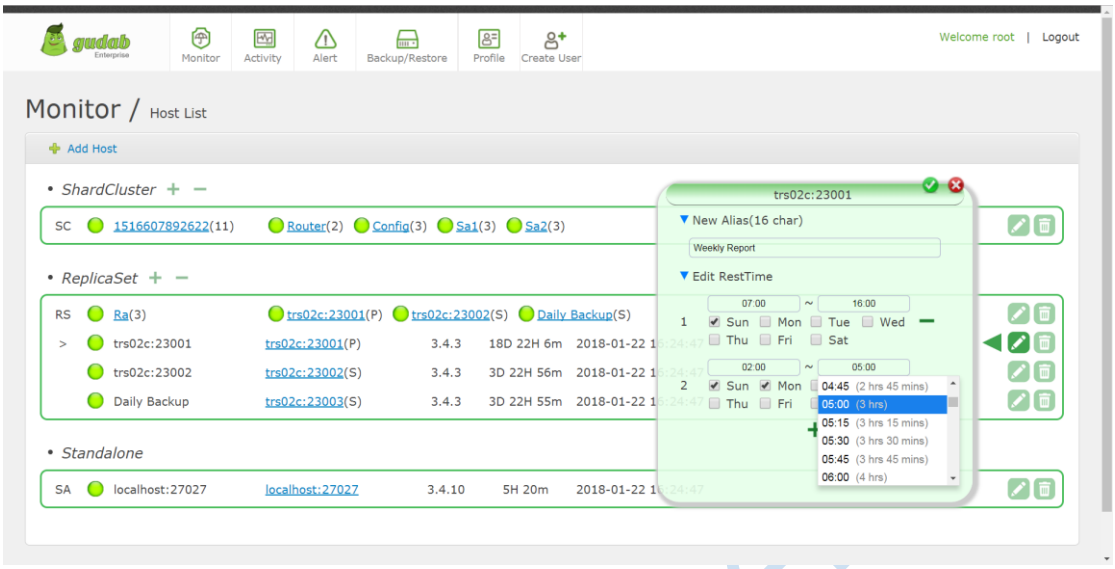
7-4 Exception Time-2

(3) Click on edit to enter exception time setting.



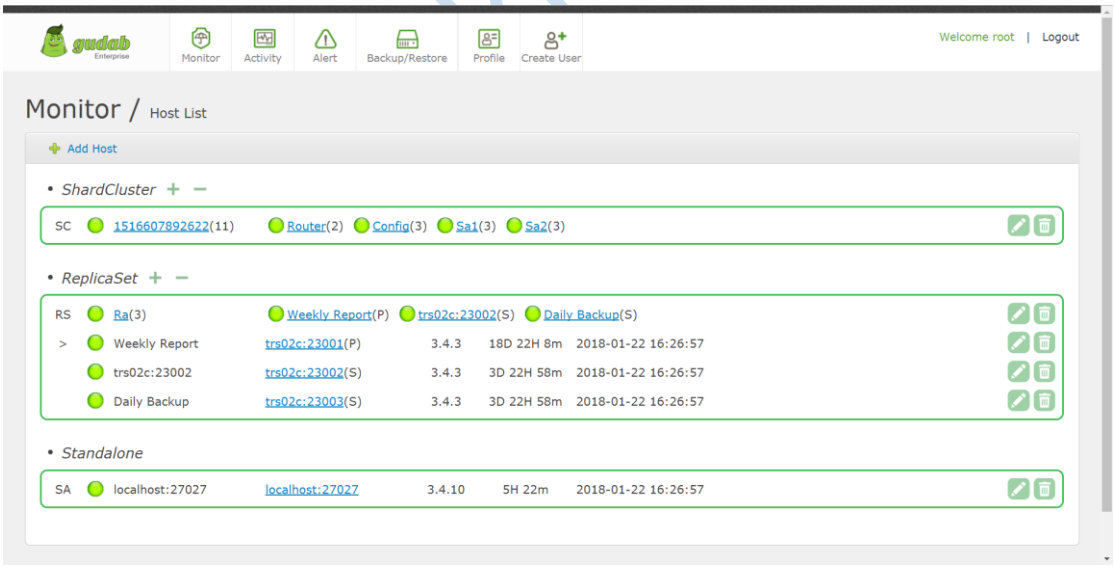
7-3 Exception Time-3

(4) Exception time will display on the monitoring server list. New alias and mutiple schedules can be estabilished.



7-6 Exception Time-4

(5) Once exception time adds sccuccessfully, new alias will display on the monitoring list.



7-4 Exception time setting

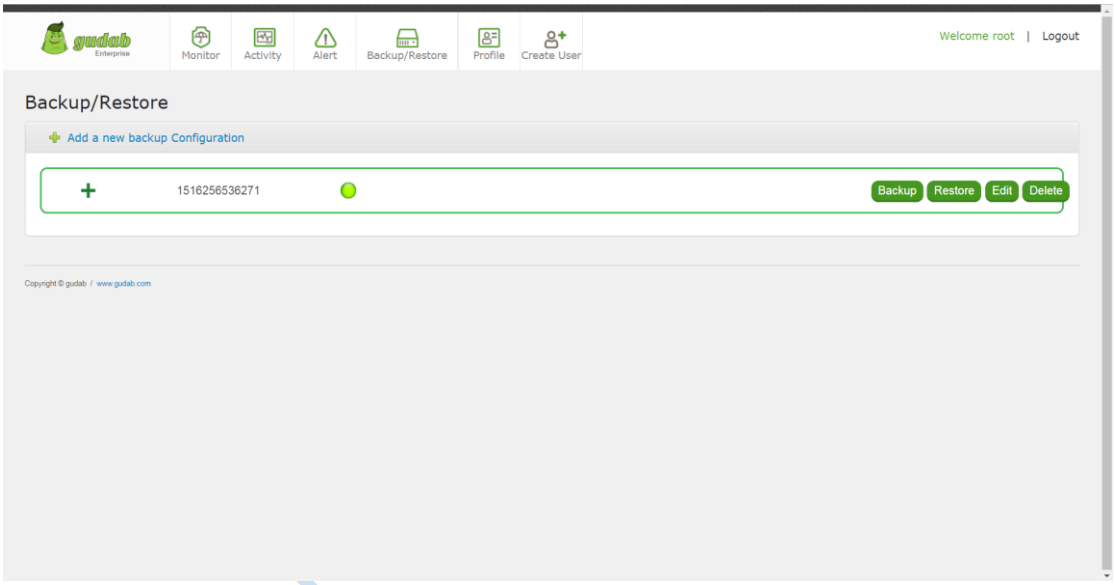
8. Backup and Restore (Enterprise Edition)

8.1. Backup and Restore page

gudab backup from replica set/sharded cluster and doesn't support standalone back up.

If there is only one data node,please set standalone to primary (in other words; a replica set without secondary DB)

Backup and Restore configuration list is shown in the page.



8-1 Backup and Restore page

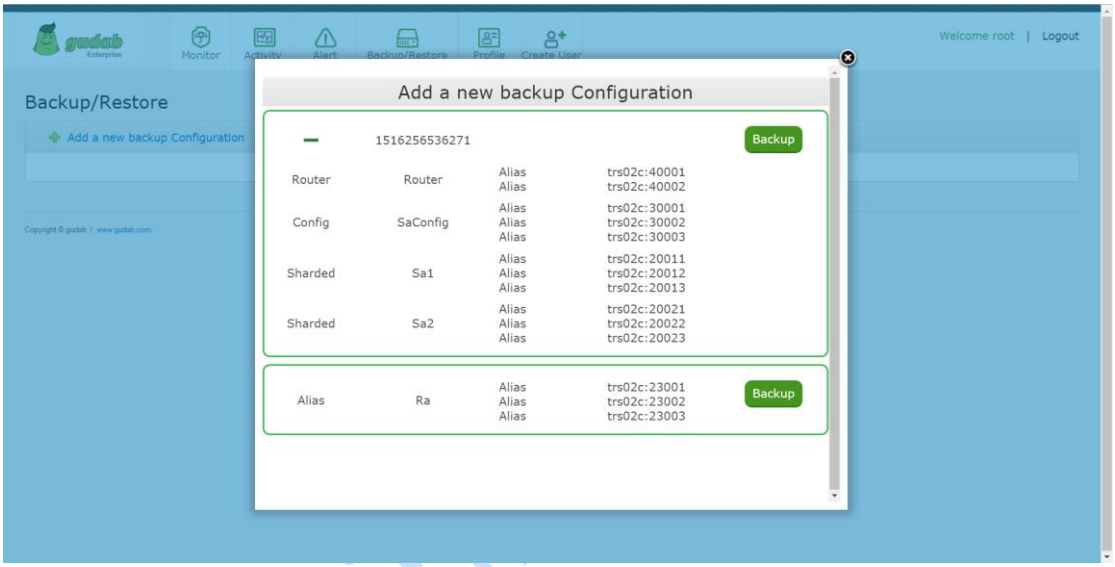
Table 6 Backup/Restore

Column	Description
ID	User defined backup/restore title
Cluster	MongoDB servers include in the backup/restore list
Server Type	MongoDB server types: Shard Cluster Replica Set Config Server
Status	Backup/Restore enable/disable status. Green signal indicates enabling and red signal means disabling.
Lastest Backup Time	Lastest database backup time.

Operation	Backup : activate backup Restore : activate restore Edit : enter backup configuration Delete : remove backup

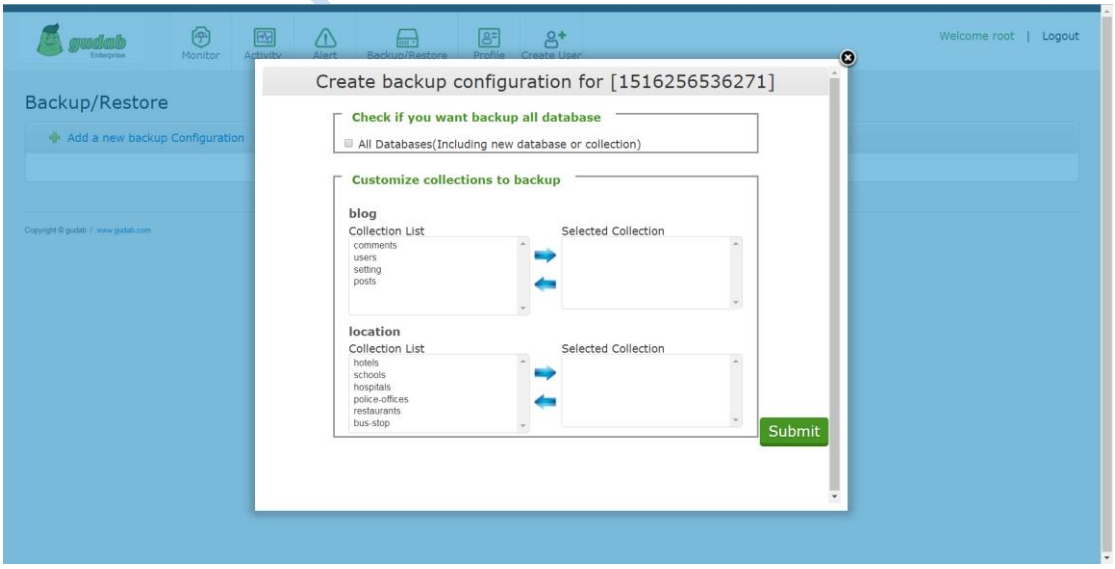
8.2. Add a new backup

(1) Click on add a new backup configuration



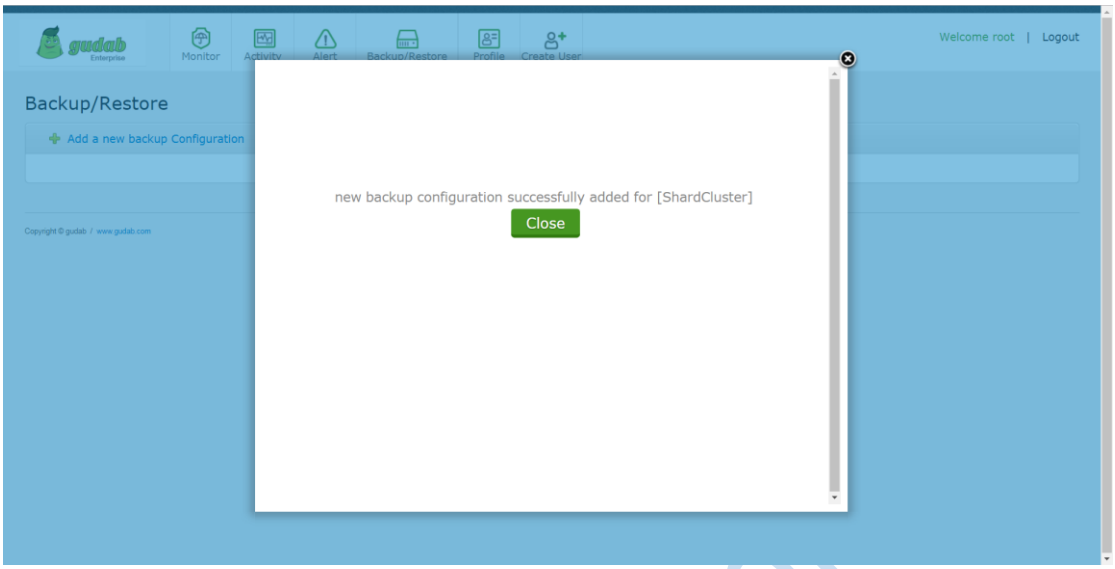
8-2 Add a new backup-1

(2) Select database, collection and click next



8-3 Add a new backup-2

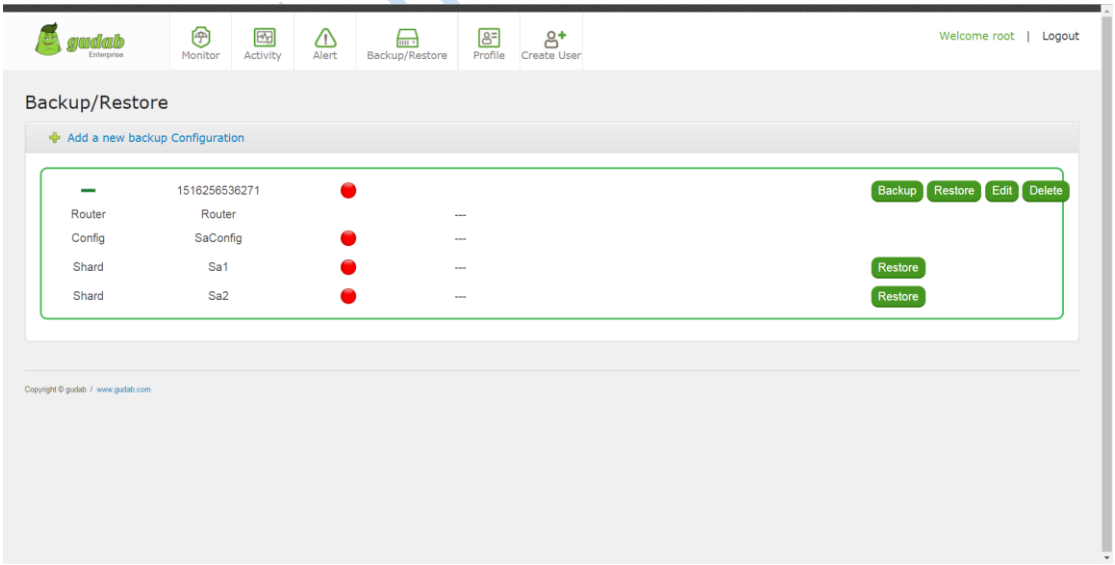
(3) Backup configuration completes, Click close and return to backup/restore page.



8-4 Add a new backup-3

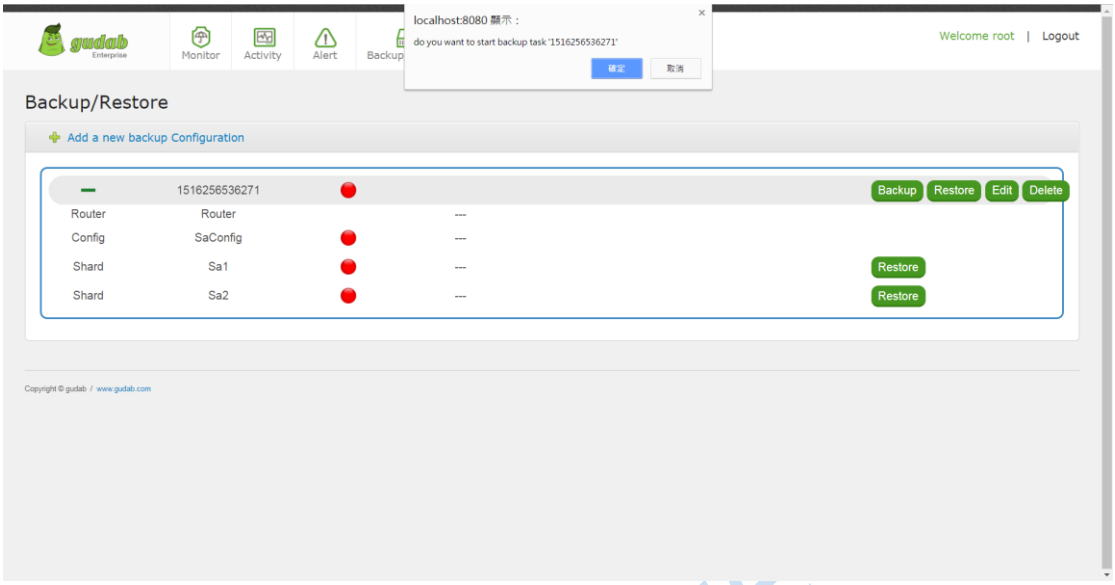
8.3. Backup

(1) Choose ID from the backup list and click backup button to activate backup process.



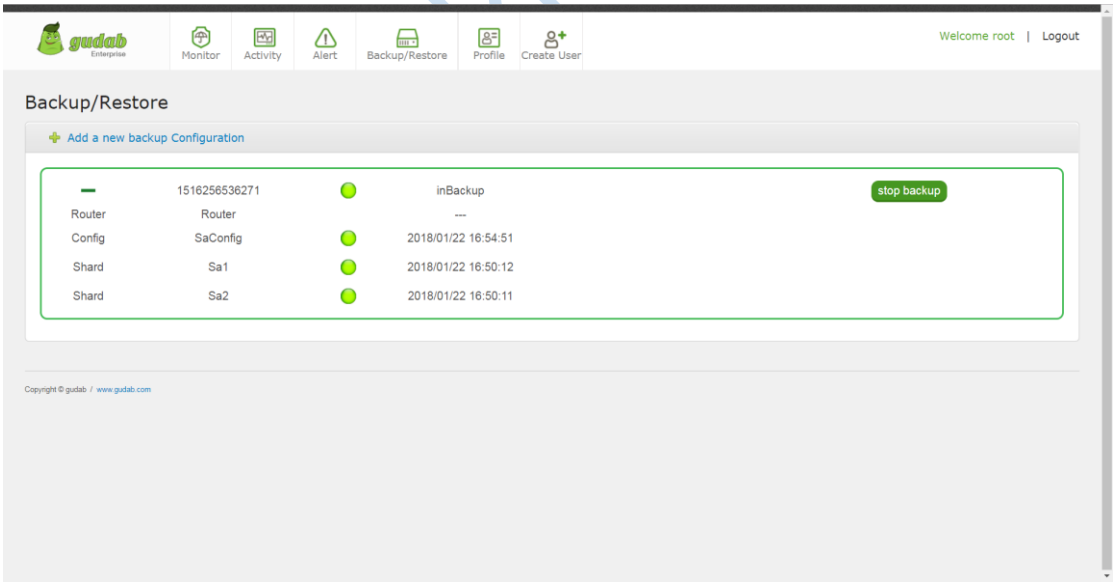
8-5 Backup-1

(2) The system will ask confirmation before backup begins. Click submit to start backup. Click cancel to exit backup.



8-6 Backup-2

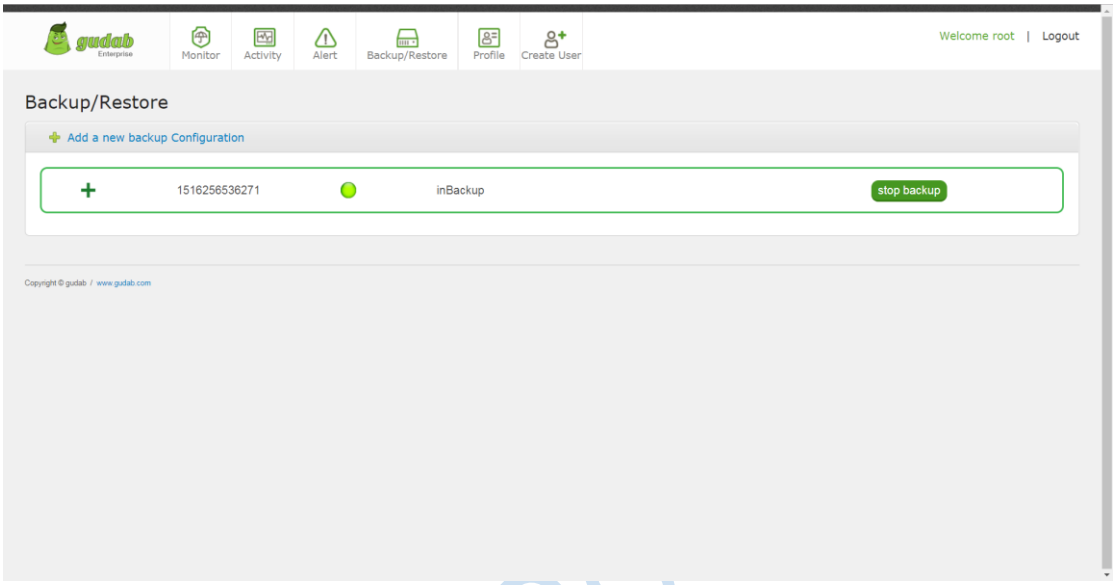
(3) When backup is being processed normally,status will show a green singal. System will show the message once backup starts successfully. Click close to exit dialog.



8-7 Backup-3

8.4. Restore

(1) Before restoring, there shall be no backup in progress.If there is, stop backup process first and then execute restore.



8-8 Restore-1

(2) Copy all data file from desginated directory mannually and replace the data file from the monitoring object.

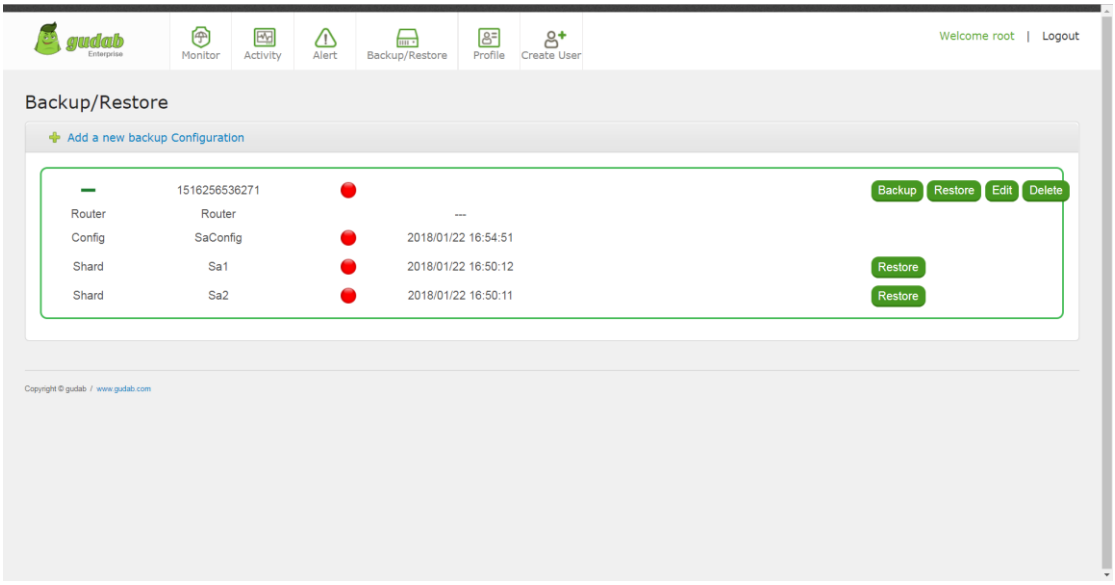
Desginate directory : ./gudab/fullbackup_hidden_mongo/<scId>_<rsId>/data

e.g./gudab/fullbackup_hidden_mongo/1514958344362_Sa1/data/* scID is timestamp of the monitored sharded cluster.

rsID is replca setname.

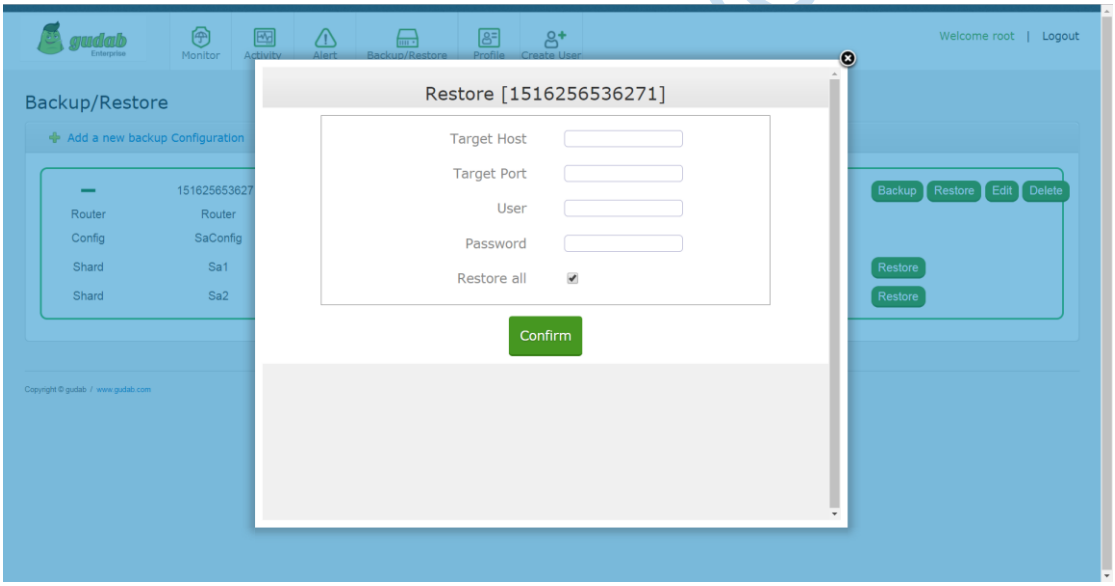
Then Please restart MongoDB and backtrack 3600 seconds ago. If you encounter problems on this setting. Please contact gudab service.

(3) Status signal will then turned red, click restore to start restoration process.



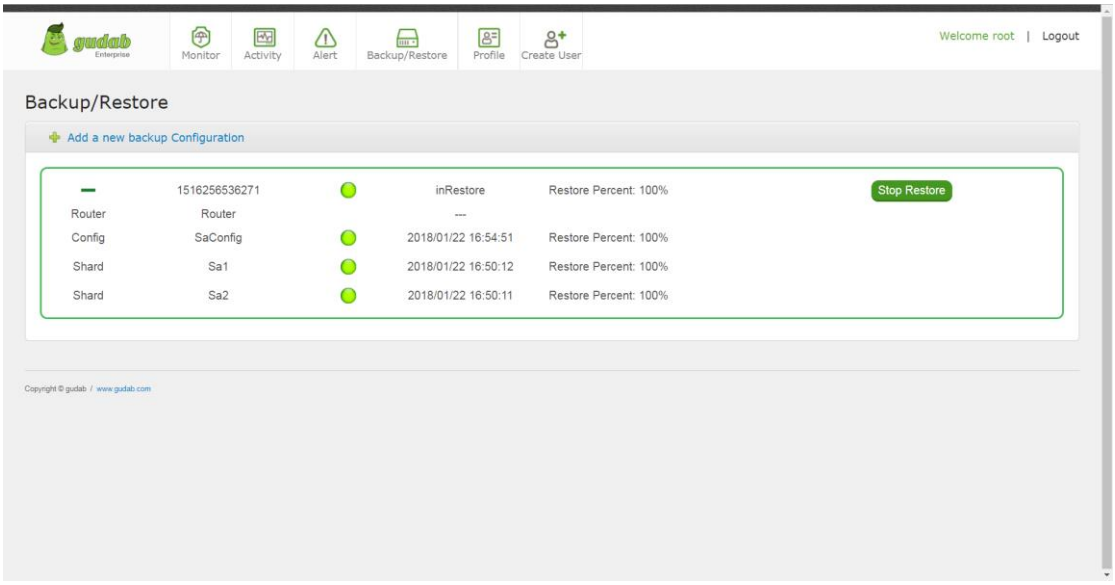
8-9 Restore-2

(4) Complete setting in all backup process.



8-10 Restore-3

(5) Once restore configuration completes, click restore to execute restoration.



8-11 Restore-4

9. Contact information

9.1. Singapore - gudab

Address：Level 40, Ocean Financial Centre 10 Collyer Quay Singapore 049315
Tel：+65-6808-6029
Email：service@gudab.com
Website：https://www.gudab.com

9.2. Taiwan - ThinkPower

Address：3F., No.437, Ruiguang Rd. Neihu Dist., Taipei City 114, Taiwan (R.O.C.)
Tel：+886-2-87511610 # 134
Email：service@thinkpower.com.tw
Website：https://www.thinkpower.info/