

# Saturnring User Guide

Beta document – work in progress.

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## Synopsis

This document illustrates the usage of the Saturnring portal as an administrator and as a user.

### Portal Operations: Admin

Navigating to the portal address (usually [http://saturnringipaddress\\_or\\_dnsname/admin](http://saturnringipaddress_or_dnsname/admin)) will display the following page.

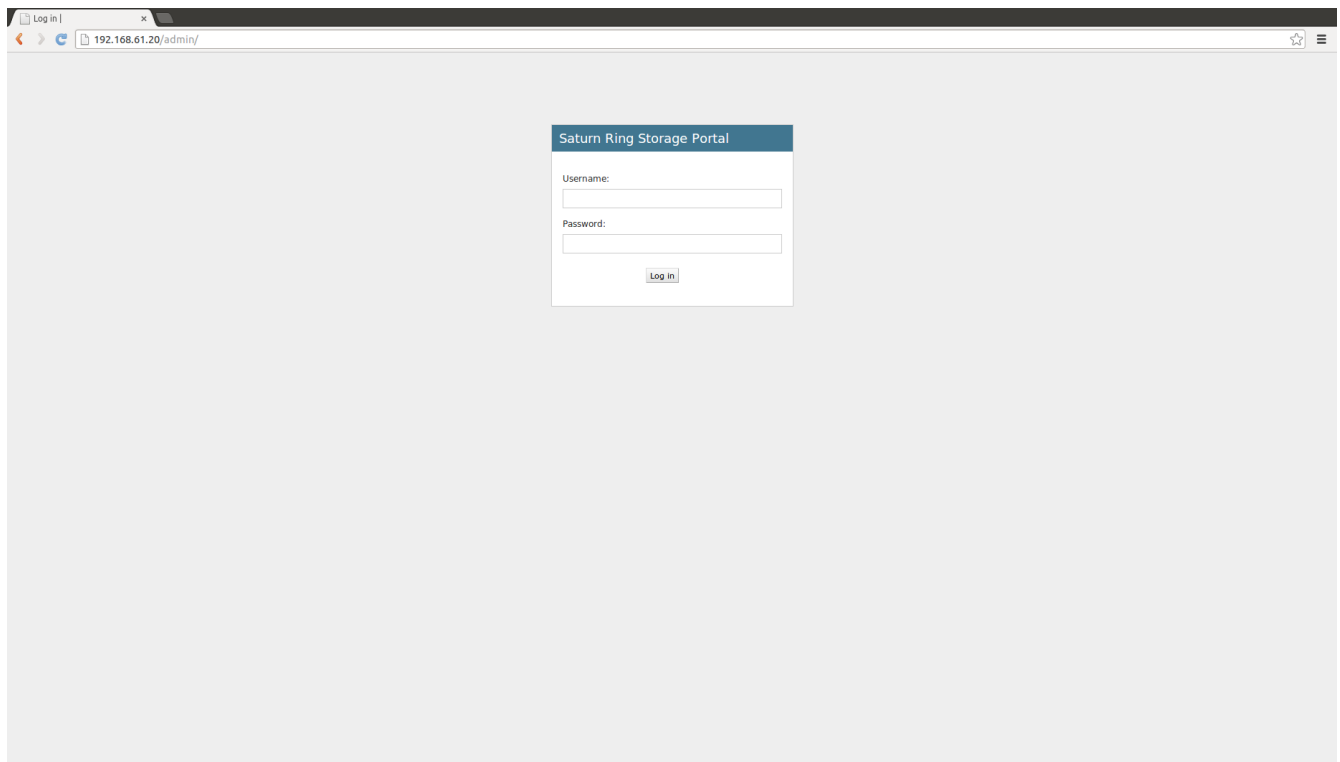


Fig 1: Login Screen

After supplying admin/superuser credentials the screen shown in Fig. 2 should show.

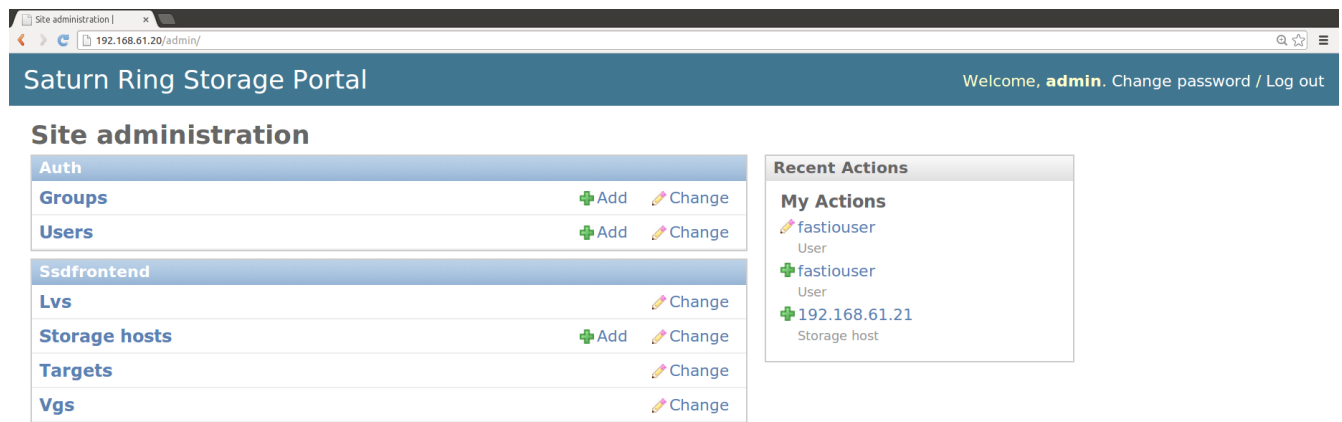


Fig. 2 is the Django admin interface.

There are 2 sub-categories of links. The Auth category is for user management (Groups,users) and the SSDfrontend (Lvs-logical volume information, Storage hosts, Targets and Vgs – volume groups) is the category to manage storage. There is also a recent actions pane.

Add storage host  
 Dnsname: 192.168.61.22  
 Ipaddress: 192.168.61.22  
 Storageip1: 192.168.61.22  
 Storageip2: 192.168.61.22  
☒ Enabled  
 Save and add another Save and continue editing Save

Fig.3: Adding a new iSCSI saturnring server

Home > Ssdfrontend > Storage hosts > Add storage host

1. Log into the saturnring server and copy SSH keys for Saturning to access the iSCSI server

For example:

```
vagrant ssh saturnring
cd ~/saturnring/ssddj/config
ssh-copy-id -i saturnkey vagrant@192.168.61.21
```

2. Log into the saturnring portal as admin superuser and add the new iscsi server.

For this simple example, Dnsname=Ipaddress=Storageip1=Storageip2=192.168.61.22. Failure to save indicates a problem in the configuration steps (11-13). Saturnring will not allow a Storagehost being saved before all the config is right. This is probably a good thing.

The storage Ips can be used to specify iSCSI portals over different VLANs, perhaps in order to do iSCSI multipath setups etc.

3. Make a "initial scan" request to the Saturnring server so that it ingests the storage made available by iscsiserver1 at IP address 192.168.61.21 (Networking is defined in the Vagrantfile):

```
curl -s -X http://192.168.61.20/api/vgscan -d "saturnserver=192.168.61.21"
```

Confirm in Home > Ssdfrontend > Vgs that the new volume group is now available to Saturnring

Change vg | 192.168.61.20/admin/ssdfrontend/vg/JHz6Fu-NSHo-3waL-clkA-04Y4-VVqR-TM1G5O/

Saturn Ring Storage Portal | Welcome, **admin**. Change password / Log out

Home > Ssdfrontend > Vgs > JHz6Fu-NSHo-3waL-clkA-04Y4-VVqR-TM1G5O

### Change vg History

Opf:	0.7
Thinusedmax percent:	70.0
<input checked="" type="checkbox"/> Enabled	
Vghost:	192.168.61.21
ThintotalGB:	8.79
MaxthinaviGB:	8.79
Thinusedpercent:	0.0
CurrentAllocGB:	1.0

✖ Delete Save and continue editing Save

Fig 4: Changing Volume group properties

There are 2 very important properties here

1. **Opf:** This is the over provisioning factor. While using thin provisioning this floating number (0.0-) indicates how much overprovisioning will be allowed before Saturnring stops provisioning more targets on the VG. For example, if there is a 100GB volume group and opf is set to 5.0 then Saturn will allow allocation to targets totalling  $5.0 \times 100\text{GB} = 500\text{GB}$ . Off course the underlying assumption is that the actual storage used is less than 100GB.
2. **Thinusedmaxpercent:** This property is the percentage of actual storage blocks used. As soon as more than this percent of blocks are used, Saturnring will stop provisioning more targets on the VG. In the above example, with thinusedmaxpercent set to 70%, Saturnring will not provision more targets on the VG if more than 70GB is actually used (summed over all targets previously provisioned on the VG).

Thin provisioning can get you into trouble (what if the overprovisioned targets need more than the available actual storage?) . For the safe non-over provisioned storage, set Opf to 1.0, and thinusedmaxpercent to ~95%.

Select target to change | x

192.168.61.20/admin/ssdfrontend/target/

Saturn Ring Storage Portal

Welcome, **admin**. Change password / Log out

Home > Ssdfrontend > Targets

### Select target to change

Q Search

Action: ----- Go 0 of 1 selected

<input type="checkbox"/>	Iqn	Created at	SizeinGB	Aa group	Rkbpm	Wkbpm	Rkb	Wkb	Sessionup
<input type="checkbox"/>	<b>iqn.2014.01.192.168.61.21:fastiorequired:47bb7658</b>	May 26, 2014, 8:49 p.m.	1.0	fastiouserunique-string	0	0	11306	0	✓

**Stats**

Total sizeinGB 1.0

1 target

Fig. 5: Targets (admin view)

By navigating to Home>Ssdfrontend>Targets the admin can get a bird's eye view of all targets across all iSCSI servers provisioned in the iSCSI system. The admin can also delete targets from this view (provided the Sessionup property is false, i.e., there is no active iSCSI session on that target).

Clicking on any of the target IQNs will show the properties of that target.

Select user to change | 192.168.61.20/admin/auth/user/

Saturn Ring Storage Portal

Welcome, **admin**. Change password / Log out

Home > Auth > Users

### Select user to change

Add user +

Username	Email address	First name	Last name	Staff status
<b>admin</b>				✓
<b>fastiouser</b>				✓

2 users

**Filter**

- By staff status**
  - All
  - Yes
  - No
- By superuser status**
  - All
  - Yes
  - No
- By active**
  - All
  - Yes
  - No

Fig. 6: Users (admin view)

The admin can perform user management by navigating to Home>Auth>Users. Users may be added/deleted, passwords can be reset, quotas can be changed etc.

A new user is added using the “Add user” button at the top right of the page. Fig. 7 shows a new user being added. Please do not change the quotas in this screen (leave the defaults), quotas are correctly changed in the next screen (Fig. 8)

192.168.61.20/admin/auth/user/add/

## Saturn Ring Storage Portal

Welcome, **admin**. Change password / Log out

Home > Auth > Users > Add user

### Add user

First, enter a username and password. Then, you'll be able to edit more user options.

<b>Username:</b>	<input type="text" value="newuser"/>
Required. 30 characters or fewer. Letters, digits and @/./+/-/_ only.	
<b>Password:</b>	<input type="password" value="....."/>
<b>Password confirmation:</b>	<input type="password" value="....."/>
Enter the same password as above, for verification.	

**Profile: #1**

<b>Max target sizeGB:</b>	<input type="text" value="100.0"/>
<b>Max alloc sizeGB:</b>	<input type="text" value="400.0"/>

Save and add another Save and continue editing Save

Fig. 7: Adding a new user



Saturn Ring Storage Portal
Home · Auth · Users · fastiouser

### Change user

**Username:**

Required. 30 characters or fewer. Letters, digits and @/./+/-/\_ only.

**Password:**
algorithm: pbkdf2\_sha256 iterations: 12000 salt: vscRt6\*\*\*\*\* hash: KJlpk8\*\*\*\*\*  
Raw passwords are not stored, so there is no way to see this user's password, but you can change the password using [this form](#).

**Personal info**

**First name:**

**Last name:**

**Email address:**

**Permissions**

☒ **Active**  
Designates whether this user should be treated as active. Unselect this instead of deleting accounts.

☒ **Staff status**  
Designates whether the user can log into this admin site.

☐ **Superuser status**  
Designates that this user has all permissions without explicitly assigning them.

**Groups:**

The groups this user belongs to. A user will get all permissions granted to each of his/her group. Hold down "Control", or "Command" on a Mac, to select more than one.

**Available groups**


+

+

**Chosen groups**

+

**User permissions:**

Specific permissions for this user. Hold down "Control", or "Command" on a Mac, to select more than one.

**Available user permissions**


+

+

**Chosen user permissions**

+

**Important dates**

**Last login:**

Date:  Today
Time:  Now

**Date joined:**

Date:  Today
Time:  Now

**Profile**

Profile: Profile object

**Max target sizeGB:**

**Max alloc sizeGB:**

Staff Status: Enable this checkbox

User permissions  
ssdffrontend|target|Can add target  
ssdffrontend|target|Can change target  
ssdffrontend|target|Can delete target

Quotas

Fig 8: Setting user properties

Change user | 192.168.61.20/admin/auth/user/2/

### Important dates

**Last login:** Date: 2014-05-26 Today | Time: 20:06:28 Now |

**Date joined:** Date: 2014-05-26 Today | Time: 20:06:28 Now |

### Profile

**Profile: Profile object**

**Max target sizeGB:**

**Max alloc sizeGB:**

Delete Save and add another Save and continue editing Save

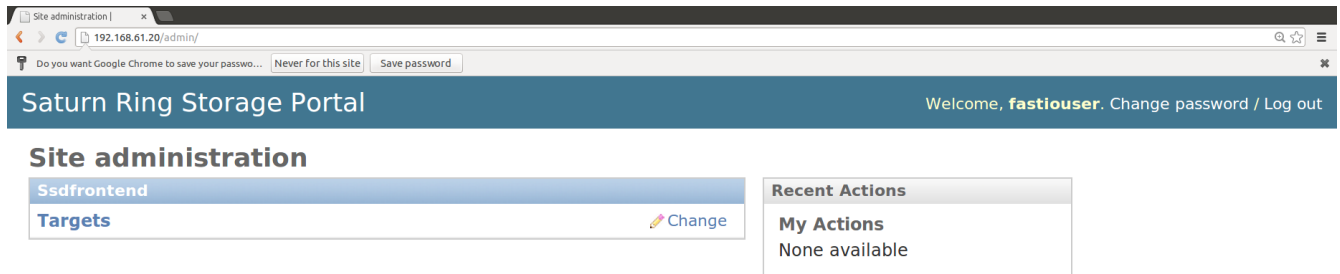
Fig 9: Setting quotas

Fig 9. shows a zoomed-in version of Fig 8. showing how quotas can be managed. There are two parameters here. Max target sizeGB caps the maximum size of any iSCSI target the user can request from Saturnring whereas the Max alloc sizeGB is the total storage a user can allocate, across the Saturnring cluster (sum of all users' targets).

## Portal Operations: User

A user may log into the portal using her credentials. The initial screen just has a single link to Targets provisioned and owned by the user:

Fig 10: User logged-in view



Select target to change | x

192.168.61.20/admin/ssdfrontend/target/

Saturn Ring Storage Portal

Welcome, **fastiouser**. Change password / Log out

Home > Ssdfrontend > Targets

### Select target to change

Q Search

Action: ----- Go 0 of 1 selected

	Iqnt	Created at	SizeinGB	Aa group	Rkbpm	Wkbpm	Rkb	Wkb	Sessionup
<input type="checkbox"/>	<b>iqn.2014.01.192.168.61.21:fastiorequired:47bb7658</b>	May 26, 2014, 8:49 p.m.	1.0	fastiouserunique-string	0	0	11306	0	

**Stats**

Total sizeinGB 1.0

1 target

Fig 11: Deleting a target

The user can delete any of her targets by checking the box against the target and then clicking on Action->Delete iscsi target. Deletion results in the irreversible removal of the LVM logical volume backing the storage, so please be sure before issuing the command.

## ***Saturnring API***

The HTTP API is very sparse by design – keep things as simple as possible. Its only use for the end user is to provision storage. The API can be invoked via any HTTP client, illustrated here via curl

Provisioning example

```
#User defines these variables
#####
SIZEINGB=1.0
SERVICENAME="fastiorequired"
SATURNRINGUSERNAME="fastiouser"
SATURNRINGPASSWORD="fastiopassword"
ANTI_AFFINITY_GROUP=${SATURNRINGUSERNAME}"unique-string"
SATURNRINGURL="http://192.168.61.20/api/provisioner/"
#####
IQNINI=`cat /etc/iscsi/initiatorname.iscsi | grep ^InitiatorName= | cut -d= -f2`
RTNSTR=$(unset http_proxy && curl -s -X GET "${SATURNRINGURL}" --user "${SATURNRINGUSERNAME}":"${SATURNRINGPASSWORD}" --data clientiqn="${IQNINI}"&'sizeinGB="${SIZEINGB}"&'serviceName="${SERVICENAME}"&'aagroup="${ANTI_AFFINITY_GROUP}" )
echo $RTNSTR | python -mjson.tool
```

Corresponding provisioner response...

```
{
  "aagroup__name": "fastiouserunique-string",
  "already_existed": 0,
  "error": 0,
  "iqnini": "iqn.1993-08.org.debian:01:ba70a129ba3",
  "iqntar": "iqn.2014.01.192.168.61.21:fastiorequired:aead642d",
  "sessionup": false,
  "sizeinGB": 1.0,
  "targethost": "192.168.61.21",
  "targethost__storageip1": "192.168.61.21",
  "targethost__storageip2": "192.168.61.21"
}
```

To be continued...