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How To Set Red hat / CentOS Linux Remote Backup / Snapshot Server

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Q. I've HP RAID 6 server running RHEL 5.x. I'd like to act this box as a backup server for my other Red Hat DNS and Web server. The server must keep backup in hourly, daily and monthly format. How do I configure my Red Hat / CentOS Linux server as remote backup or snapshot server? [1]

A. rsnapshot is easy, reliable and disaster recovery backup solution. It is a remote backup program that uses rsync to take backup snapshots of filesystems. It uses hard links to save space on disk and offers following features:

- **Filesystem snapshot** - for local or remote systems.
- **Database backup** - MySQL backup
- **Secure** - Traffic between remote backup server is always encrypted using openssh
- **Full backup** - plus incrementals
- **Easy to restore** - Files can restored by the users who own them, without the root user getting involved.
- **Automated backup** - Runs in background via cron.
- **Bandwidth friendly** - rsync used to save bandwidth

Sample setup

- snapshot.example.com - HP box with RAID 6 configured with Red Hat / CentOS Linux act as backup server for other clients.
- DNS ns1.example.com - Red Hat server act as primary name server.
- DNS ns2.example.com - Red Hat server act as secondary name server.
- www.example.com - Red Hat running Apache web server.
- mysql.example.com - Red Hat mysql server.

Install rsnapshot

Login to snapshot.example.com. Download rsnapshot rpm file, enter:

> ⚠ **WARNING!** These examples only works on Red hat / CentOS / Suse / RHEL / Fedora Linux. See Debian / Ubuntu Linux backup server instructions here [2].

```
# cd /tmp
# wget http://www.rsnapshot.org/downloads/rsnapshot-1.3.0-1.noarch.rpm
# wget http://www.rsnapshot.org/downloads/rsnapshot-1.3.0-1.noarch.rpm.md5
```

Verify rpm file for integrity, enter

```
# md5sum -c rsnapshot-1.3.0-1.noarch.rpm.md5
```

Sample output:

```
rsnapshot-1.3.0-1.noarch.rpm: OK
```

Install rsnapshot, enter:

```
# rpm -ivh rsnapshot-1.3.0-1.noarch.rpm
```

Sample output:

```
Preparing...                ########################################### [100%]
   1:rsnapshot              ########################################### [100%]
```

Configure rsnapshot

You need to perform following steps

Step # 1: Configure password less login

To perform remote backup you need to <u>setup password less login</u> [3] using openssh. Create ssh rsa key and upload they to all servers using scp (note you are overwriting ~/ssh/authorized_keys2 files). You need to type following commands on snapshot.example.com server:

```
# ssh-keygen -t rsa
# scp .ssh/id_rsa.pub root@ns1.example.com:.ssh/authorized_keys2
# scp .ssh/id_rsa.pub root@ns2.example.com:.ssh/authorized_keys2
# scp .ssh/id_rsa.pub root@www.example.com:.ssh/authorized_keys2
# scp .ssh/id_rsa.pub root@mysql.example.com:.ssh/authorized_keys2
```

Step # 2: Configure rsnapshot

The default configuration file is located at /etc/rsnapshot.conf. Open configuration file using a text editor, enter:

```
# vi /etc/rsnapshot.conf
```

Configuration rules

You must follow two configuration rules:

- rsnapshot config file requires tabs between elements.
- All directories require a trailing slash. For example, /home/ is correct way to specify directory, but /home is wrong.

First, specify root directory to store all snapshots such as /snapshots/ or /dynvol/snapshot/ as per your RAID setup, enter:

```
snapshot_root /raiddisk/snapshots/
```

You must separate snapshot_root and /raiddisk/snapshots/ by a [tab] key i.e. type snapshot_root hit [tab] key once and type /raiddisk/snapshots/.

Define snapshot intervals

You need to specify backup intervals i.e. specify hourly, daily, weekly and monthly intervals:

```
interval hourly 6
interval daily 7
interval weekly 4
interval monthly 3
```

The line "interval hourly 6" means 6 hourly backups a day. Feel free to adapt configuration as per your backup requirements and snapshot frequency .

Remote backup directories

To backup /var/named/ and /etc/ directory from ns1.example.com and ns2.example.com, enter:

```
backup root@ns1.example.com:/etc/ ns1.example.com/
backup root@ns1.example.com:/var/named/ ns1.example.com/
backup root@ns2.example.com:/etc/ ns2.example.com/
backup root@ns2.example.com:/var/named/ ns2.example.com/
```

To backup /var/www/, /var/log/httpd/ and /etc/ directory from www.example.com, enter

```
backup root@www.example.com:/var/www/ www.example.com/
backup root@www.example.com:/etc/ www.example.com/
backup root@www.example.com:/var/log/httpd/ www.example.com/
```

To backup mysql database files stored at /var/lib/mysql/, enter:

```
backup root@mysql.example.com:/var/lib/mysql/ mysql.example.com/dbdump/
```

Save and close the file. To test your configuration, enter:

```
# rsnapshot configtest
```

Sample output:

```
Syntax OK
```

Schedule cron job

Create /etc/cron.d/rsnapshot cron file. Following values used correspond to the examples in /etc/rsnapshot.conf.

```
0 */4 * * *          /usr/bin/rsnapshot hourly
50 23 * * *          /usr/bin/rsnapshot daily
40 23 * * 6          /usr/bin/rsnapshot weekly
30 23 1 * *          /usr/bin/rsnapshot monthly
```

Save and close the file. Now rsnapshot will work as follows to backup files from remote boxes:

1. **6 hourly** backups a day (once every 4 hours, at 0,4,8,12,16,20)
2. **1 daily backup** every day, at 11:50PM
3. **1 weekly backup** every week, at 11:40PM, on Saturdays (6th day of week)
4. **1 monthly backup** every month, at 11:30PM on the 1st day of the month

How do I see backups?

To see backup change directory to

```
# cd /raiddisk/snapshots/
# ls -l
```

Sample output:

```
drwxr-xr-x 4 root root 4096 2008-07-04 06:04 daily.0
drwxr-xr-x 4 root root 4096 2008-07-03 06:04 daily.1
drwxr-xr-x 4 root root 4096 2008-07-02 06:03 daily.2
drwxr-xr-x 4 root root 4096 2008-07-01 06:02 daily.3
drwxr-xr-x 4 root root 4096 2008-06-30 06:02 daily.4
drwxr-xr-x 4 root root 4096 2008-06-29 06:05 daily.5
drwxr-xr-x 4 root root 4096 2008-06-28 06:04 daily.6
drwxr-xr-x 4 root root 4096 2008-07-05 18:05 hourly.0
drwxr-xr-x 4 root root 4096 2008-07-05 15:06 hourly.1
drwxr-xr-x 4 root root 4096 2008-07-05 12:06 hourly.2
drwxr-xr-x 4 root root 4096 2008-07-05 09:05 hourly.3
drwxr-xr-x 4 root root 4096 2008-07-05 06:04 hourly.4
drwxr-xr-x 4 root root 4096 2008-07-05 03:04 hourly.5
drwxr-xr-x 4 root root 4096 2008-07-05 00:05 hourly.6
drwxr-xr-x 4 root root 4096 2008-07-04 21:05 hourly.7
drwxr-xr-x 4 root root 4096 2008-06-22 06:04 weekly.0
drwxr-xr-x 4 root root 4096 2008-06-15 09:05 weekly.1
drwxr-xr-x 4 root root 4096 2008-06-08 06:04 weekly.2
```

How do I restore backup?

Let us say you would like to restore a backup for www.example.com. Type the command as follows (select day and date from ls -l output):

```
# cd /raiddisk/snapshots/
# ls -l
# cd hourly.0/www.example.com/
# scp -r var/www/ root@www.example.com:/var/www/
```

```
# scp -r etc/httpd/ root@www.example.com:/etc/httpd/
```

How do I exclude files from backup?

To exclude files from backup, open rsnapshot.conf file and add following line:

```
exclude_file /etc/rsnapshot.exclude.www.example.com
```

Create /etc/rsnapshot.exclude.www.example.com as follows:

```
/var/www/tmp/
/var/www/*.cache
```

Further readings:

1. man rsnaspshot, ssh, ssh-keygen

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URLs in this post:

[1] Image: **http://www.cyberciti.biz/faq/faq/category/redhat-and-friends/**
[2] Debian / Ubuntu Linux backup server instructions here: **http://www.cyberciti.biz/faq/linux-rsnapshot-backup-howto/**
[3] setup password less login: **http://www.cyberciti.biz/tips/ssh-public-key-based-authentication-how-to.html**