Sys Admins (RHEL 6.5) *BETA*

RHEL 6 install instructions

Red Hat Enterprise Linux 6.5

RHEL install

The packaging of HUBzero for RedHat Enterprise Linux 6.5 is currently in **BETA** status, please report any issues you find.

RHEL 6.5 64-bit should be downloaded and installed. To obtain a copy, login to the RHN and follow the install directions. Do not worry at this point of tyring to install a basic LAMP environment or other server packages, those will be taken care of in later steps of the HUBzero install. Generally, default selections are satisfactory unless otherwise noted. Select a "Basic Server" setup when prompted during the installation.

Note: Hubzero has packaging support for amd64 (64 bit) Intel architectures, support for i386 (32 bit) is limited and is not currently recommended at this time.

When the installation is complete, your system will reboot. Be sure to remove the install disk or reset your server's boot media before rebooting.

The precise server configuration (such as disk partitioning, networking, etc) is dependent on how the hub is to be used and what hardware is being used, all the possible configuration options are not specifically outlined here. This installation guide outlines a very basic configuration but may not be suitable for larger sites. For larger sites, it is generally expected that the hub will be managed by an experienced Linux administrator who can help setup your site to meet your specific requirements.

Disable SELinux

Hubzero does not currently support SELinux. Since the default install of RHEL turns it on, we have to turn it off.

```
edit /etc/selinux/config and change the line that reads

SELINUX=enforcing
to
SELINUX=disabled
```

Reboot the system for this change to take effect

Set hostname

Optional. This step is only required if you didn't specify the fully qualified domain name during setup.

HUBzero expects the `hostname` command to return the fully qualified hostname for the system.

```
# hostname example.com
```

In order to make the change permanent, edit the /etc/sysconfig/network file's HOSTNAME entry similar to the following:

```
HOSTNAME=example.com
```

Hosts file check

Now edit /etc/hosts by making sure that a line exists that looks like

```
127.0.0.1    example.com     example
```

Any other lines with "127.0.0.1" should be removed.

Any lines for 64 bit IP address "::1" may be left

Delete local Users

HUBzero reserves all user ids from 1000 up for hub accounts. As part of the app middleware every account must map to a corresponding system account. Therefore when starting up a hub it is required to remove all accounts that have user ids 1000 or greater. New RHEL installations typically do not new setup a non root account during setup, but if you have any accounts added to the system, those accounts can be removed as follows:

```
# deluser username
# rm -fr /home/username
```

If you require additional system accounts, they can be numbered between 500-999 without interfering with hub operations.

Configure Networking

*Optional.*This step is required only if you didn't configure networking during installation.

For help with RHEL networking setup, refer to the Red Hat guide on Network Interfaces

A typical scenario to setup networking is covered below. This general setup assumes you have a static IP address and basic network configuration available from a system administrator.

/etc/sysconfig/network-scripts/ifcfg-X

On most systems, X will be eth0, but if you have multiple network interfaces you'll notice additional entries. A typical ifcfg-eth0 file for a static IP address looks something like this:

```
DEVICE=eth0
BOOTPROTO=static
HWADDR=xx:xx:xx:xx:xx:xx
IPADDR=192.168.1.128
NETMASK=255.255.255.0
GATEWAY=192.168.1.1
ONBOOT=yes
```

Even though we used a private address range (192.168.0.0) which is usually used for dynamic IP setups, it is still a valid static IP setup. If you need an internet accessible hub, you'll ask your network administrator for the necessary IP addresses.

DNS

The file used to setup DNS for your hub, or any linux machine for that matter is:
/etc/resolv.conf

MySQL

MySQL installation

```
# yum install -y hubzero-mysql
```

This will install MySQL with a blank root password. Do not worry about setting the password, we will do that in a later step.

Mail

Install Exim

```
# yum install -y exim
```

To assist in testing the mail configuration

```
# yum install -y mailx
```

Configure Exim

So far it looks like the default config works. And exim comes with no command line utility for configuration like dpkg-reconfigure exim4-config like debian, so if we have to modify settings, it'll get messy

Test Exim

Use a real email address below so you can see if you get the email

```
# Mail -v someone@gmail.com
```

If you wish, you may uninstall the command line mail utility after this test.

```
yum remove mailx
```

CMS

Installation

```
# yum install -y hubzero-cms-1.3.0
```

Configuration

```
# hzcms install example
```

OpenLDAP

Install hubzero-openldap

```
# yum install -y hubzero-openldap
```

Configure OpenLDAP database

```
# hzldap init
# hzcms configure ldap --enable
# hzldap syncusers
```

Test

```
# getent passwd
```

You should see an entry for user 'admin' toward the end of the list if everything is working correctly.

WebDAV

Install WebDAV

```
# yum install -y hubzero-webdav
```

Configure WebDAV

```
# hzcms configure webdav --enable
```

Test

```
# ls -l /webdav/home/admin
total 0
```

Browse to your site's https /webdav address (e.g. https://myhub/webdav). You should get prompted for a username and password. Use the admin account. You should see a directory listing including the file "mytest".

Now test using a WebDAV client.

```
# yum install -y cadaver
# cadaver https://localhost/webdav
```

You will be prompted to accept self signed certificate (if it is still installed) and then to enter your username and password. Use the 'admin' account again to test. When you get the "dav:/webdav/>" prompt just enter "ls" and it should show the test file.

Finally clean up test case

```
# yum remove cadaver
```

Troubleshooting

If the test doesn't work, check if the fuse kernel module is loaded

```
#  lsmod | grep fuse
fuse                   54176  0
```

If there is no output then try starting the kernel module manually

```
# modprobe fuse
```

Then try the test again

Subversion

Install

```
# yum install -y hubzero-subversion
```

Configure

```
# hzcms configure subversion --enable
```

Trac

Install

```
# yum install -y hubzero-trac
```

Configure

```
# hzcms configure  trac --enable
```

Forge

Install

```
# yum install -y hubzero-forge
```

Configure

```
# hzcms configure forge --enable
```

OpenVZ

Install

HUBzero makes extensive use of OpenVZ containers so it is recommended to use the OpenVZ enabled kernel on all HUBzero servers.

```
# yum install -y hubzero-openvz
```

Configure

```
##########################################
skip for now, just reboot the server after installing
##########################################
# hzcms configure openvz --enable
```

You should reboot the server after the openvz kernel is installed.

```
# reboot
```

Test

```
# vzlist
Container(s) not found
```

The vzlist command might list the containers currently running if you check this on a running hub. As long as the command does not return an error, your setup was successful.

Firewall

Install

```
# yum install -y hubzero-firewall
```

HUBzero requires the use of iptables to route network connections between application sessions and the external network. The scripts controlling this can also be used to manage basic firewall operations for the site. If you use manage iptables with other tools you will have to make sure the rules in these scripts are maintained. /etc/firewall_on and /etc/firewall_off turn the HUBzero firewall on and off respectively. Scripts in /etc/rc.X/ to /etc/mw/firewall_on causes the script to run at startup (these links were created for you). The firewall is enabled in all boot modes 0-6. The basic scripts installed here block all access to the host except for those ports required by HUBzero (http,https,http-alt,ldap,ssh.smtp,mysql,submit,etc).

Maxwell Service

Install

```
# yum install -y hubzero-mw-service
```

Configure

```
# mkvztemplate amd64 squeeze shira
```

```
# hzcms configure mw-service --enable
```

Test

```
# maxwell_service startvnc 1 800x600 24
```

Enter an 8 character password when prompted (e.g., "testtest")

This should result in a newly create OpenVZ session with an instance of a VNC server running inside of it. The output of the above command should look something like:

```
Reading passphrase:
testtest
==================== begin /etc/vz/conf/hub-
session-5.0-amd64.umount ========================

Removing /var/lib/vz/root/1 :root etc var tmp dev/shm dev
==================== end /etc/vz/conf/hub-
session-5.0-amd64.umount ========================
stunnel already running
Starting VE ...
==================== begin /etc/vz/conf/1.mount ====================
=====
Removing and repopulating: root etc var tmp dev
Mounting: /var/lib/vz/template/debian-5.0-amd64-maxwell home apps
```

```
==================== end /etc/vz/conf/1.mount ========================
=====
VE is mounted
Setting CPU units: 1000
Configure meminfo: 2000000
VE start in progress...
TIME: 0 seconds.
Waiting for container to finish booting.
/usr/lib/mw/startxvnc: Becoming nobody.
/usr/lib/mw/startxvnc: Waiting for 8-byte vncpasswd and EOF.
1+0 records in
1+0 records out
8 bytes (8 B) copied, 3.5333e-05 s, 226 kB/s
Got the vncpasswd
Adding auth for 10.51.0.1:0 and 10.51.0.1/unix:0
xauth:  creating new authority file Xauthority-10.51.0.1:0
Adding IP address(es): 10.51.0.1
if-up.d/mountnfs[venet0]: waiting for interface venet0:0 before doing
NFS mounts (warning).
WARNING: Settings were not saved and will be resetted to original valu
es on next start (use --save flag)



# vzlist
      VEID      NPROC STATUS  IP_ADDR         HOSTNAME

         1          6 running 10.51.0.1       -



# openssl s_client -connect localhost:4001
```

This should report an SSL connection with a self signed certificate and output text should end with:

```
---
RFB 003.008
```

If you see this then you successfully connected to the VNC server running inside the newly created OpenVZ session.

Clean up

```
# maxwell_service stopvnc 1
```

Which should give output similar to:

```
Killing 6 processes in veid 1 with signal 1
Killing 7 processes in veid 1 with signal 2
Killing 5 processes in veid 1 with signal 15
Got signal 9
Stopping VE ...
VE was stopped
====================== begin /etc/vz/conf/1.umount ====================
=====
Unmounting /var/lib/vz/root/1/usr
Unmounting /var/lib/vz/root/1/home
Unmounting /var/lib/vz/root/1/apps
Unmounting /var/lib/vz/root/1/.root

Removing /var/lib/vz/root/1 :root etc var tmp dev/shm dev
Removing /var/lib/vz/private/1: apps bin emul home lib lib32 lib64 mnt
 opt proc sbin sys usr .root
====================== end /etc/vz/conf/1.umount ======================
====
VE is unmounted
```

Maxwell Client

Install

```
# yum install -y hubzero-mw-client
```

Configure

```
# hzcms configure mw-client --enable
```

Test

```
# su apache
$ ssh -i /etc/mw-client/maxwell.key root@localhost ls
The authenticity of host 'localhost (127.0.0.1)' can't be established.
RSA key fingerprint is e5:3c:7d:41:71:0b:0f:2a:0c:0e:bb:15:4d:e7:2f:08
.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'localhost' (RSA) to the list of known host
s.
list of files will vary on directory contents
$ exit
#
```

vncproxy

Install

```
# yum install -y hubzero-vncproxy
```

Configure

```
# hzcms configure vncproxy --enable
```

telequotad

Install

```
# yum install -y hubzero-telequotad
```

Configure

In order for filesystems quotas to work they must be enabled when they are mounted. Determine which filesystem contains your home directories and add "quota" to the mount option of the corresponding entry in the /etc/fstab file. Only the filesystem with /home on it matters to telequotad.

If quotas weren't already in affect, the run something like the following (depending on your filesystem configuration) to start up the quota system. The following example assumes you want to enable quotas at the root level

```
# mount -oremount /
# quotacheck -cugm /
# quotacheck -avugm
```

Test

```
# repquota -a
```

Should show disk usage for all users.

Workspace

Install

```
# yum install -y hubzero-app
# yum install -y hubzero-app-workspace
# hubzero-
app install --publish /usr/share/hubzero/apps/workspace-1.3.hza
```

Test

You should then be able to log in to the site and see the "Workspace" tool in the tool list and launch it in your browser.

Rappture

Install

```
# yum install -y hubzero-rappture
```

Configure

Rappture is used from inside a container and needs several other packages installed to allow use of all its features. This process has been simplified by using the hubzero-rappture-session with only contains the dependencies needed to pull in these other packages.

```
# chroot /var/lib/vz/template/debian-6.0-amd64-maxwell
# apt-get update
# apt-get upgrade
# apt-get install hubzero-rappture-session
# exit
```

A workspace may need to be opened and closed a few times before the changes to the session template appear in a workspace.

Test

A user must setup their runtime environment in order to use the Rappture toolkit. Run the following command before attempting to run any Rappture tests.

```
use rappture
```

Rappture comes with several demostration scripts that can effectively test many parts of the package. These demonstrations must be copied to a user's home directory within a workspace before running.

```
$ mkdir examples
```

```
$ cp -r /apps/share/rappture/examples/* examples/.
$ cd examples
$ ./demo.bash
```

A window should open on the workspace showing that part of the demonstration. Close that window to see the next demonstration. Some demonstrations may need something inputted to work properly (such as the graphing calculator).

Filexfer

Install

<pre>
yum install -y hubzero-filexfer-xlate
</pre>

Configure

```
# hzcms configure filexfer --enable
```