SGCI Hosting:
Setup & HubZero Example

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1. Requesting SGCIHosting Services

Our hosting service provides a limited amount of space on the Rodeo system at the Texas Advanced Computing Center (TACC). It is available free of charge to US-based gateway projects for up to 6 months of time.

Rodeo is a powerful cloud resource that allows for the full customization of computational environments and lets users create virtual machines, host data, and provide services of benefit to the science gateway community.

Each project approved for hosting time via SGCI will be given a quota of 3 VMs with each VM consisting of 2 VCPUs, 20 GB of Disk, and 4 GB of RAM in addition to a single public, floating IP with your own private project network. Additional configurations are available upon request. A basic security group allowing traffic on the standard web ports (80 and 443) will be provided with additional configurations available upon request. Additional storage is available (either in the form of volumes or larger instances) upon request.

The Rodeo environment is meant as a test/sandbox environment and does not have any backup capabilities. Please ensure you have backed up any code and services you deploy on the system. Also, the system may be unavailable at times due to maintenance periods. Interested? Apply using the form on the SGCI Web Site.

2. Setting Up Account & VMs on Rodeo

2.1 Creating a SGCI Account

In order to access Rodeo, you will need to create an account at: https://sgci.agaveapi.co/create_account

IMPORTANT: Please remember your account credentials from this step and please keep your credentials secure. No administrator will ever ask you for your credentials.

2.2 Setup of OpenStack Domain

Navigate to https://rodeo.tacc.utexas.edu enter your username and password that you used in Creating a SGCI Account. Enter "SGCI" for the Domain field.
2.2.1 Navigating the Dashboard

Upon successful login, you will be presented with your project’s dashboard. This view provides a high-level overview of your allocation on Rodeo.
Creating the Instance
In order to create the instance you will need to navigate to the *Instance* under the *Compute* menu.

From the Instances page, click the *Launch Instance* button. You will be presented with the Launch Instance wizard which will require filling out few form fields. When launching an instance select “m1.small” from *Flavor*, “Boot from image” from *Instance Boot Source*, and “Centos 7” from *Image Name*.
After populating the Details tab, click the **Access & Security** tab.
If you already have an SSH key pair, you can import them by clicking the plus (+) button next to the drop-down menu for **Key Pair**. You can also receive instructions on how to generate a key pair if you do not have one already.

The wizard will walk you through how to generate a key pair if you need one. This allows you to access your instance. Password login to the admin account is disabled for security purposes.
Once you have configured your Key Pair, you will add your instance to the “default” security group by checking the box under Security Groups.

Once the Access & Security information has been collected move to the next tab labeled Networking to confirm the networking settings.
There should be only one Available Network. Your instance should be associated with the SGCI: Sample Hosting Project Network.

Once the network has been associated you can click the blue “Launch” button. Your instance will be created and available shortly for access.

2.2.3 Configuring the Firewall (Security Group)

The default security group allows internal traffic. You may need to create rules to allow SSH, HTTP, and HTTPS to your Hub. You can accomplish by going to the Access & Security menu under Compute.
You will see the default security group listed. Click **Manage Rules** to review the security group’s policies.

The default security group should look similar to this allowing SSH and HTTPS access.

If you do not see the appropriate entries you can create the by clicking **Add Rule**.
Once the security group has been configured you can begin building your Sample Portal.
3. Installing a sample HubZero Portal

The Science Gateway Institute Software Catalog has prepared a Docker containers for the purpose of evaluating the platforms available to build your gateway upon.

3.1 HUBzero Content Management System

The HUBzero Platform allows users to host analytical tools, publish data, share resources, collaborate, and build communities in a single web-based ecosystem.

This sample portal contains the features that facilitate publishing data, sharing resources, collaboration, and community building. The tool hosting functionality is currently not supported in the sample portal, however is available for evaluation on [https://hubzero.org](https://hubzero.org).

User documentation is available at [https://hubzero.org/documentation](https://hubzero.org/documentation).

Installing the HUBzero Content Management System will require installing Docker on your CentOS7 instance, cloning a git repository, building the Docker image, and running a command to start the instance.

There are a couple of recommendations that the HUBzero developers recommend for smoothing out the evaluation process for their gateway which are available at the end of the setup procedures.

3.2 Installing Docker on CentOS7

1. `ssh rodeo.129.X.X.X -i ~/.ssh/identity`
2. `sudo yum update`
3. `sudo yum install docker git -y`
4. `sudo systemctl start docker`
5. `sudo systemctl enable docker`
6. `sudo usermod -aG docker rodeo`
7. `exit`
8. `Ssh rodeo@129.X.X.X -i ~/.ssh/identity`
9. `Docker run hello-world`
3.3 Installing HUBzero Sample Portal Container

The HUBzero Platform is a collection of services which include a web server, a database server, an email server, a dedicated search service, SFTP and WebDav for file transfer, and many other background services that provide a rich set of functionality. It is difficult to distribute many of these services in the form of a container, therefore we make available a virtual machine image or an Amazon Marketplace Image (AMI) available for download at https://hubzero.org/download.

If you are adventurous enough, you may install the HUBzero Platform from packages following the instructions available at https://hubzero.org/documentation.

For the purpose of evaluating the CMS (web server and database server only) a Docker container has been prepared to introduce some of the functionality to a person interested in building a gateway with the HUBzero Platform.

Some caveats of using this Docker Container are:
- Email sending and receiving is not supported.
- Simulation Tool execution is not supported.

The files to build the docker image are available on Github at https://github.com/hubzero/hzcms-sgi-docker.git. The instructions for using the docker image are available on the README and are adapted for use on the SGCI Instance below.

1. Clone this repository: git clone https://github.com/hzcms-sgi-docker
2. Build the container: 
   ```
   cd hzcms-sgi-docker && docker build -t hubzero-cms ./
   ```
3. Run the container: 
   ```
   docker run -p 443:443 hubzero-cms -d
   ```
4. In your browser, navigate to https://<floating_ip_address>

### 3.4 First-time Configuration of the HUBzero Sample Portal

The HUBzero Platform is a highly-configurable platform used to build gateways. There are a couple of first-time configuration items you will need to change in order to more fully evaluate the system.

### 3.5 The Landing Page

Upon successful launching of the HUBzero Container, visiting https://<floating_ip_address> will display a splash page that discusses some of the high-level features the full platform has to offer.
3.6 Getting the Admin Credentials

The HUBzero CMS default management user is called ‘admin’. The password used for the ‘admin’ account can be found by running `docker exec CONTAINERNAME cat /etc/hubzero.secrets` The password for ‘admin’ is listed under JOOMLA_ADMIN.

3.7 Logging into the Administrator Panel

Navigating to https://<floating_ip_address>/administrator will bring you to a login page where you will enter the admin credentials. Upon successful login you will be taken to the Dashboard.
3.8 Changing the Template

To change the template from the Welcome landing page to the default template, use the Extensions Menu and then navigate to the Template Manager menu item. Click the Star Next to “HUBzero Standard Site Template 2015 (Kimera)” to change the template.

Reloading the front page at https://<floating_ip_address> should show the Kimera template.

More information on templates can be found here: https://help.hubzero.org/documentation/2.1.0/webdevs/templates
3.9 Registering a User Account

A user may register by going to https://<floating_ip_address>/register and filling out the form.

Notice: Email is not supported in the container environment. Normally an email will be sent to the user’s email address asking them to confirm their email address using a registration code. They will confirm their account via the registration code and be granted access to your hub.

Workaround: An admin can go into the backend and approve users manually. From the administrative backend go to the Users menu and click Members. Clicking the Registered column will confirm the user’s email.
3.9.1 The Member Dashboard

The member dashboard is an area where you can get a high-level overview of happenings on the hub. You can enter any area on the Hub from the dashboard. For a full overview of features and capabilities, review the HUBzero documentation at https://hubzero.org/documentation