The Scientific Computing Cloud (SciCloud) is setup as a Eucalyptus system at kuu cluster at university of Tartu (kuu.mt.ut.ee). This document provides details for using SciCloud resources.

1. To login to the cloud first you must apply for an account at https://kuu.mt.ut.ee:8443/

Since the resources on the cloud are limited, this is a manual process. Contact Satish.srirama@ut.ee in person after creating a request at the linked page.

2. Once you have the access, you can use any of the available customized images.

3. Description of the existing images
   a. emi-1C6E159D - centos-image-bucket/centos.5-3.x86-64.img.manifest.xml
      i. This is a valid centos image. You can also prepare modified images from this original one. However you need admin rights for modifying images.
   b. emi-39AA1608 - ubuntu-image-bucket/ubuntu.9-04.x86-64.img.manifest.xml
      i. This is a valid Ubuntu Linux image. There are some known troubles with this image while creating modified images.
   c. emi-0B2D1557 - debian-image-bucket/debian.5-0.x86-64.img.manifest.xml
      i. This is a valid debian image. This has some trouble with installing euca2ools because of some version issues. So you cannot use it to modify images.

4. Getting started with instances
   a. First download your credentials from the SciCloud
   b. Prepare .euca folder
   c. Extract your credentials to the folder
   d. Set your environment
      
      bash-3.2$ source eucarc
   e. Register your key with the system. This key is required for later access. Execute this command only once. If you repeat it you get an empty file. So save your key in a safe place.
bash-3.2$ euca-add-keypair keyname > keyname.private

f. Running an instance

bash-3.2$ euca-run-instances -k keyname -n 1 -t m1.small emi-1C6E159D

g. To view all the running instances

Bash-3.2$ euca-describe-instances

h. However the setup we made at the kuu cluster makes some restrictions on the images. The IP addresses you see when running euca-describe-instances have to be discovered by Eucalptus first. And this is not a trivial thing to do with our configuration. Some amount of traffic from/to the created instance has to go through the bridge first. DHCP packets usually won't trigger the discovery. As a solution, do a ping-scan of the whole subnet. i.e. ssh to kuu1.mt.ut.ee with your university userid and password and execute the following command after creating the instance on SciCloud and waiting until instance initiates network (probably few minutes) defaults.

bash-3.2$ nmap -sP 172.17.36.0 /24

i. Connecting to the instance

bash-3.2$ ssh -i keyname.private root@172.17.36.214

j. Copying data to the instance with scp

bash-3.2$ scp -i keyname.private -r ../.euca root@172.17.36.214:/mnt

k. Terminating a running instance, where i-xxxxx are running instances. You can see them with euca-describe-instances command

bash-3.2$ euca-terminate-instances i-xxxxx i-xxxxx

l. More help is available at http://open.eucalyptus.com/wiki/EucalyptusGettingStarted_v1.6

5. Managing basic images - Remember you should be a administrator of the Eucalyptus

a. Get the basic images from

b. Follow the instructions for uploading Debian image. I think the commands are self descriptive. Similarly, you can follow the steps for other Linux versions.

tar zxvf euca-debian-5.0-x86_64.tar.gz

euca-bundle-image -i euca-debian-5.0-x86_64-xen-kernel/vmlinux-2.6.27.21-0.1-xen --kernel true
euca-upload-bundle -b debian-kernel-bucket -m/tmp/vmlinuz-2.6.27.21-0.1-xen.manifest.xml

euca-register debian-kernel-bucket/vmlinuz-2.6.27.21-0.1-xen.manifest.xml

(set the printed eki to $EKI)

export EKI=eki-832216D6

euca-bundle-image -i euca-debian-5.0-x86_64/xen-kernel/initrd-2.6.27.21-0.1-xen
--ramdisk true

euca-upload-bundle -b debian-ramdisk-bucket -m/tmp/initrd-2.6.27.21-0.1-xen.manifest.xml

euca-register debian-ramdisk-bucket/initrd-2.6.27.21-0.1-xen.manifest.xml

(set the printed eri to $ERI)

export ERI=eri-7D4516AF

euca-bundle-image -i euca-debian-5.0-x86_64/debian.5-0.x86-64.img --kernel $EKI --ramdisk $ERI

euca-upload-bundle -b debian-image-bucket -m/tmp/debian.5-0.x86-64.img.manifest.xml

euca-register debian-image-bucket/debian.5-0.x86-64.img.manifest.xml

IMAGE emi-0B2D1557


6. Updating an image– Remember you should be a administrator of the Eucalyptus
   a. Start a new instance from the images
   b. Update your instance i.e. install any interesting software. (* Remember that you will lose all your data if the instance gets shutdown)
   c. Copy your .euca folder to the /mnt of the instance
      bash-3.2$ scp -i keyname.private -r ../../../euca root@172.17.36.214:/mnt
   d. Now you have to install the euca2ools on the instance
e. While uploading your current image to the SciCloud, remember that only your root (/) filesystem will be copied by default. So your data in the /mnt is lost. To some extent this is useful as you do not want to share your private keys with everybody who uses the image later.

f. Now to bundle your instance

   bash-3.2$ euca-bundle-vol --cert ${EC2_CERT} --privatekey ${EC2_PRIVATE_KEY} --user 000202048240 --ec2cert ${EUCALYPTUS_CERT} --no-inherit --kernel eki-8E4D16FD --ramdisk eri-886B16D7 -d /mnt/tmp -s 1024

   Do not forget the -d parameter as the image is copied to the folder and generally it is huge (around 1 GB)

   Define -s parameter. Or else the system tries to copy 10 GB of the data to the new image root file system. This is default value. Generally this is heavy in terms of our configuration.

g. Now upload the bundle to the SciCloud

   bash-3.2$ euca-upload-bundle -b bucketName -m image.manifest.xml

h. Register your image with Eucalyptus

   bash-3.2$ euca-register bucketName/image.manifest.xml

i. Now you can create instances from your modified image.

j. To remove an image deregister it and delete the bucket

   euca-deregister emi-B5291033

   euca-delete-bundle -a $EC2_ACCESS_KEY -s $EC2_SECRET_KEY --url $S3_URL -b bucketName --clear

7. Working with customized images will be addressed by the next version.