# CloudStack: Working with Templates

Administrators and end users can add templates. The typical sequence of events is:

1. Launch a VM instance that has the operating system you want. Make any other desired configuration changes to the VM.

2. Stop the VM.

3. Convert the volume into a template.

For XenServer, install PV drivers / Xen tools on each template that you create. This will enable live migration and clean guest shutdown.
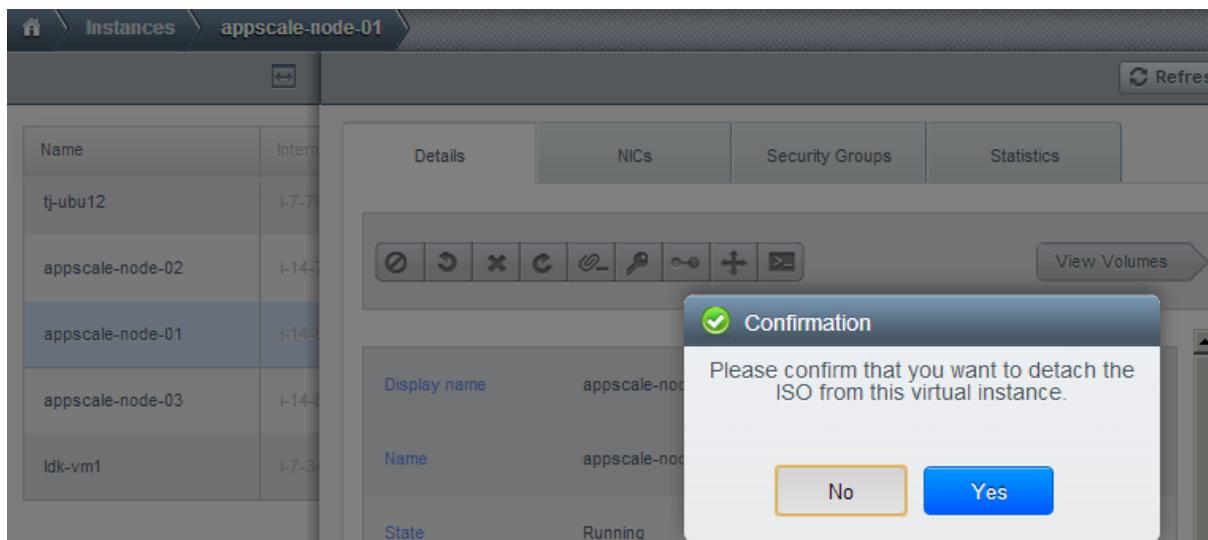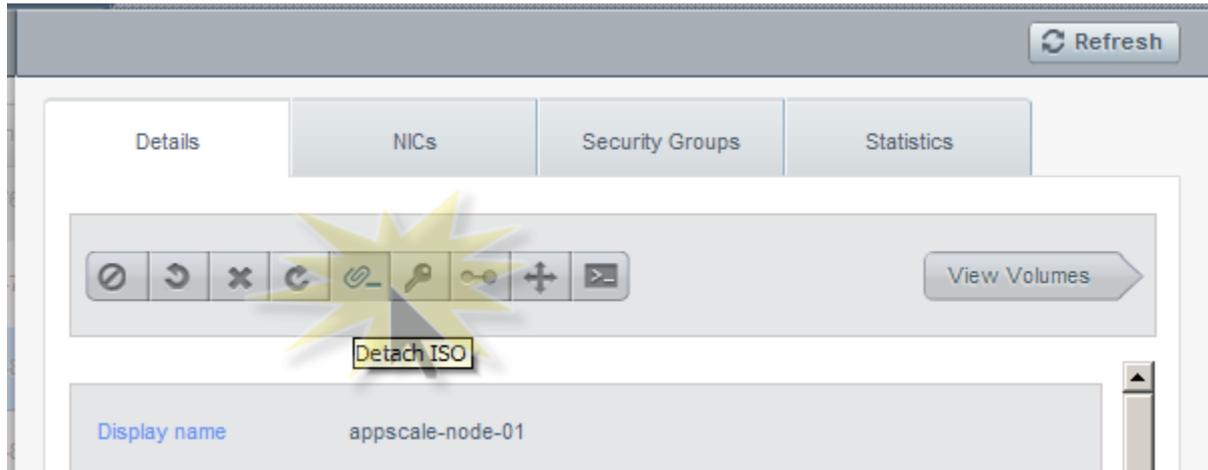
Mount the ISO:
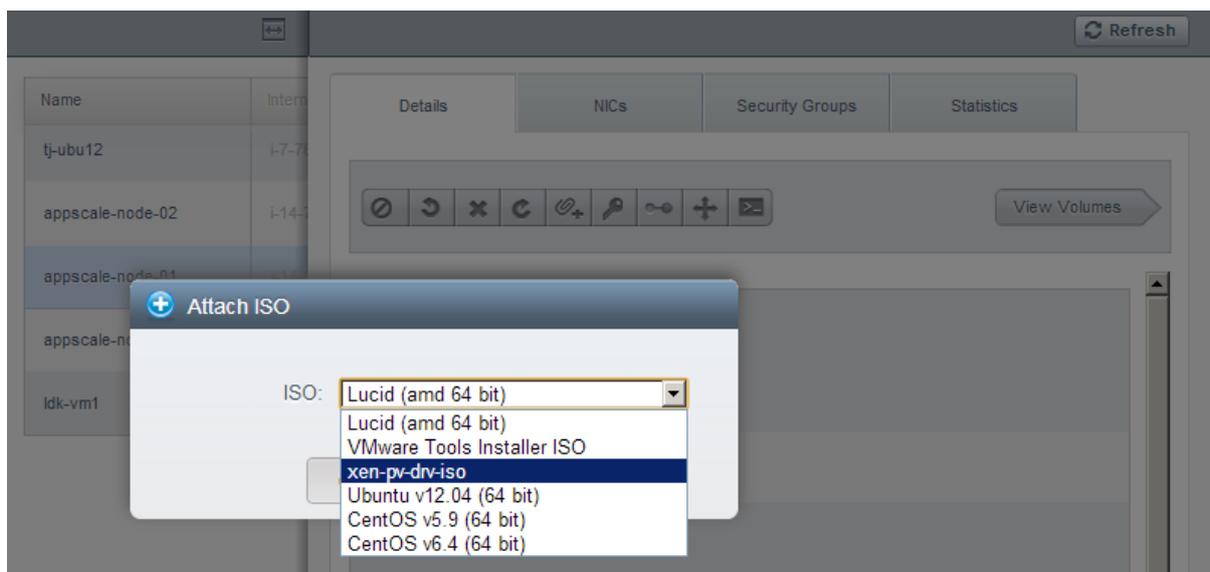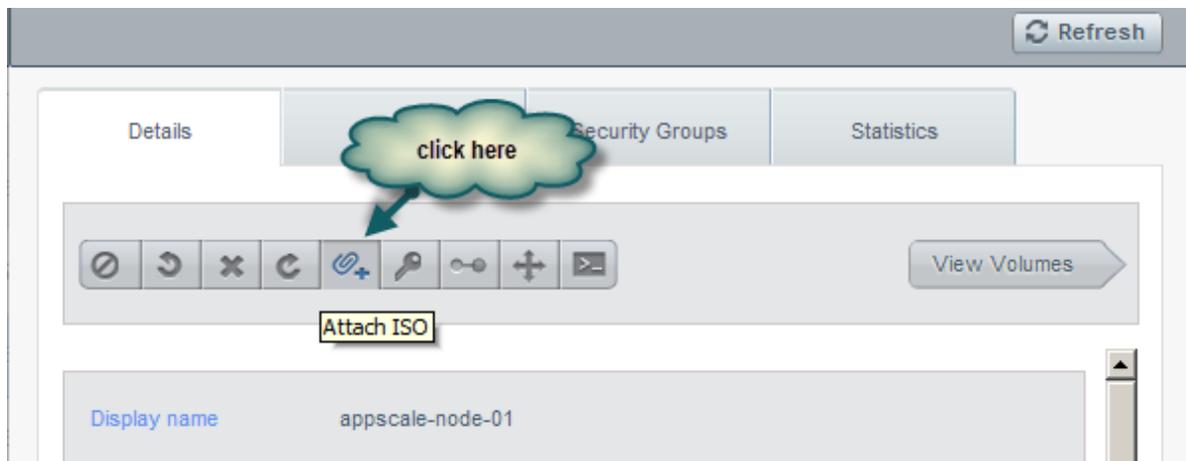
Commands to mount and install the required packages on the VM.

e.g.

```
% ssh guest@<ip-address>

guest@vm-name:~$ sudo bash

root@ vm-name:~# mount /dev/cdrom  /mnt/

root@ vm-name:# /mnt/Linux/install.sh

root@ vm-name:# umount /mnt

root@ vm-name:# reboot
```

Detach the ISO:

Private and Public Templates

When a user creates a template, it can be designated private or public.

Private templates are only available to the user who created them. By default, an uploaded template is private.

When a user marks a template as "public," the template becomes available to all users in all accounts in the user's domain, as well as users in any other domains that have access to the Zone where the template is stored. This depends on whether the Zone, in turn, was defined as private or public. A private Zone is assigned to a single domain, and a public Zone is accessible to any domain. If a public template is created in a private Zone, it is available only to users in the domain assigned to that Zone. If a public template is created in a public Zone, it is available to all users in all domains.
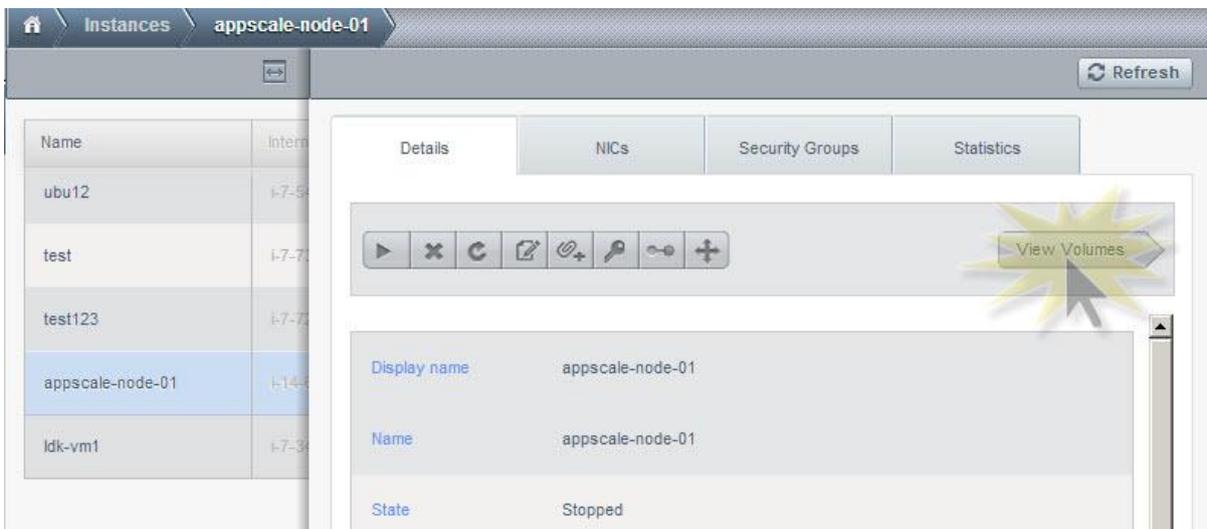
Creating a Template from an Existing Virtual Machine

Once you have at least one VM set up in the way you want, you can use it as the prototype for other VMs.

1. Make any desired configuration changes on the running VM, then click Stop.
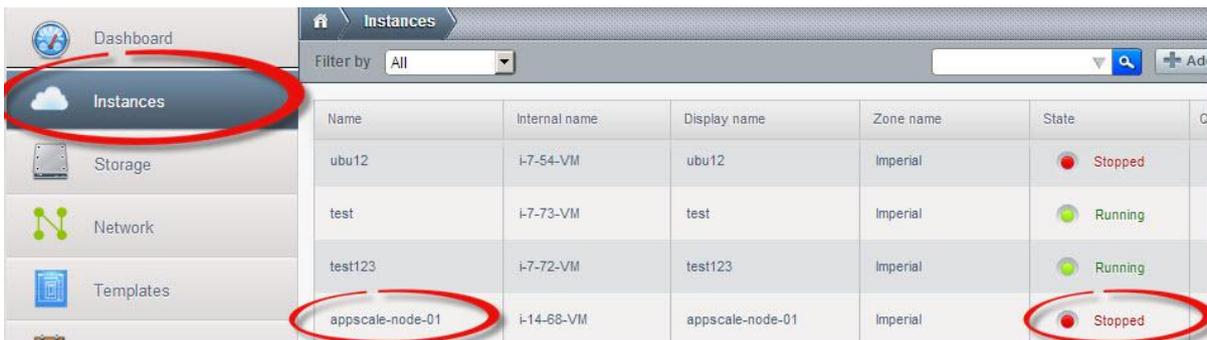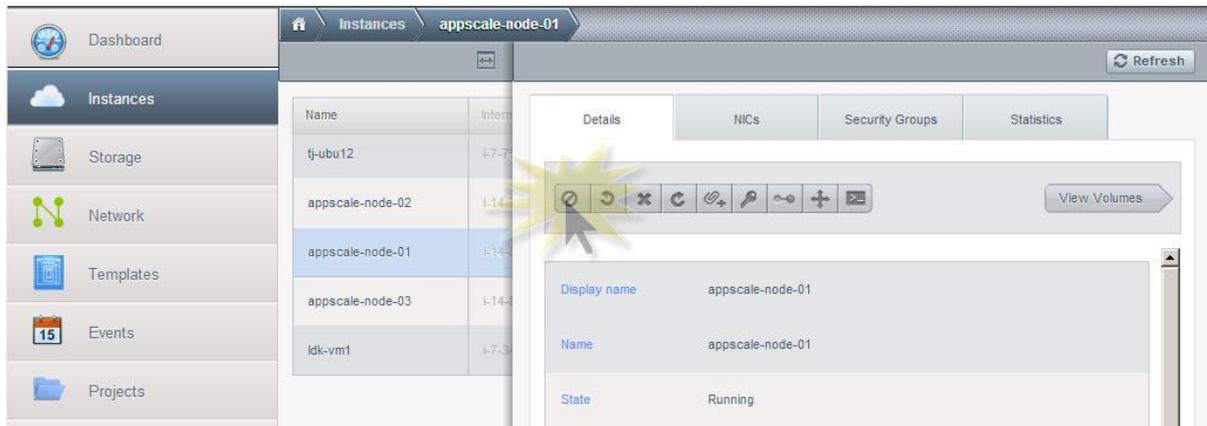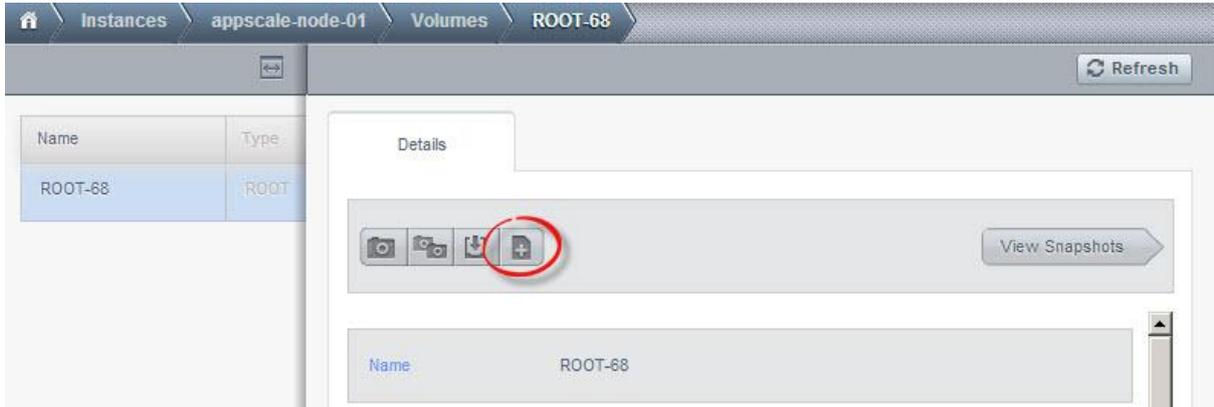

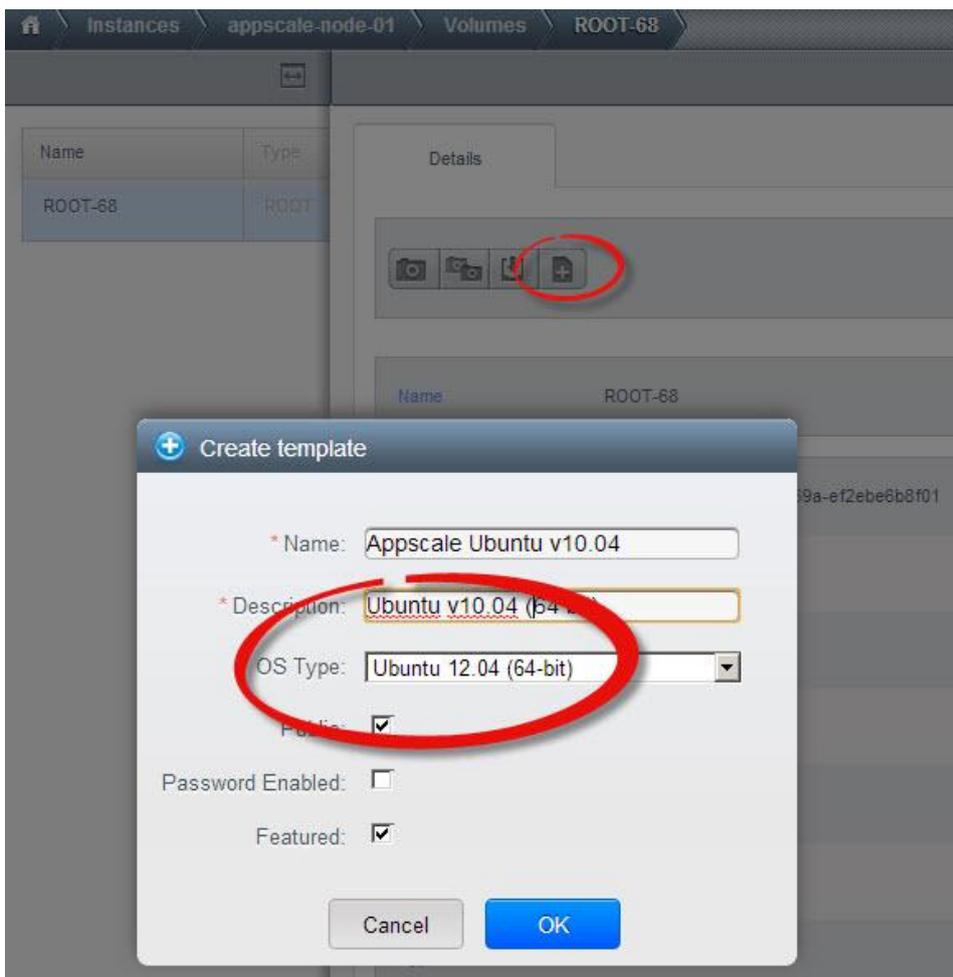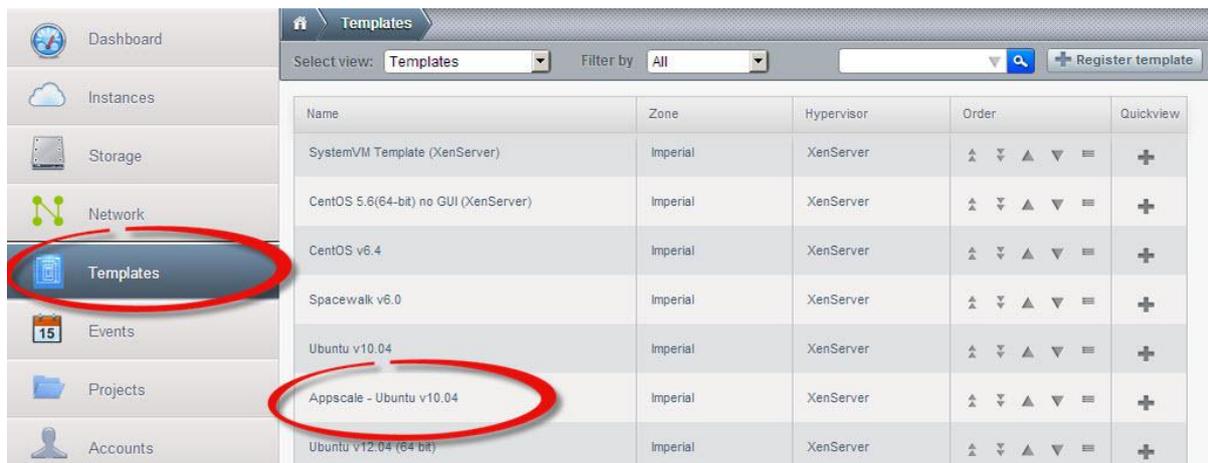Click on View Volumes to access the root-disk

On selecting the details for the root disk, the template creation option is displayed.

In the case of Ubuntu v10.04 select the OS type as Ubuntu v12.04, due to known bugs.

Creating a Template from a Snapshot

There are other ways to add templates to CloudStack. For example, you can take a snapshot of the VM's volume and create a template from the snapshot, or import a VHD from another system into CloudStack.

If you do not want to stop the VM in order to use the Create Template menu item you can create a template directly from any snapshot through the CloudStack UI.

From View Volumes -> Click the Root-disk for details. The Take Snapshot icon would be visible as highlighted below:
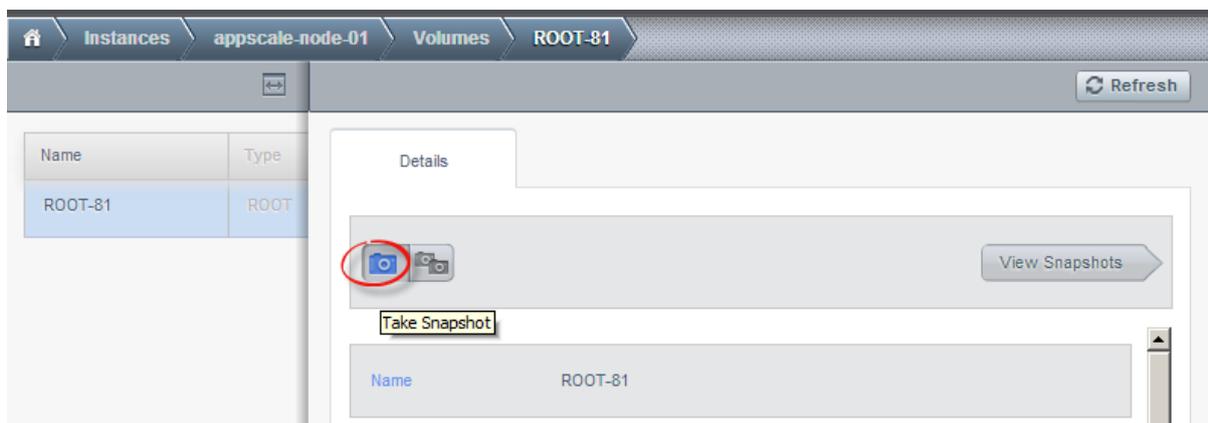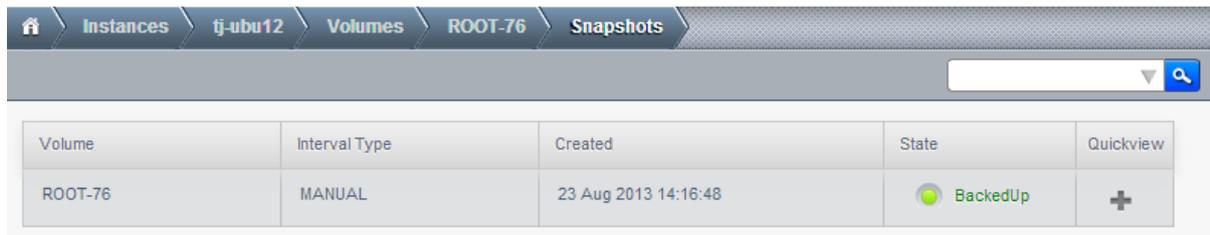
It takes a while for the snapshot to change status from "Backing up" to "Backed up" (depends on the size of the volume).

As soon as snapshot "Backed up" (task completes). The details would display the "Create Template" icon.

The Create Template popup needs to be updated with the essential details.
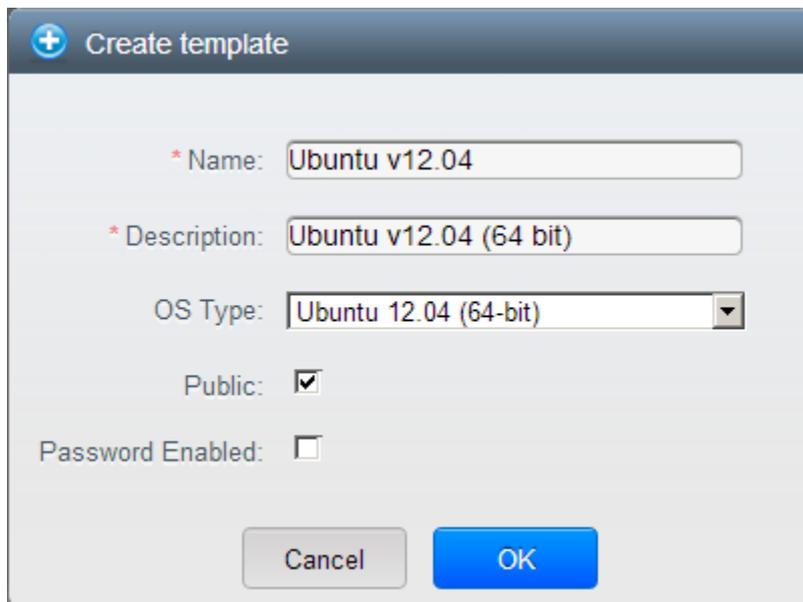
Further changes to the visibility of the OS template can be done by editing the template via the "Templates" tab.
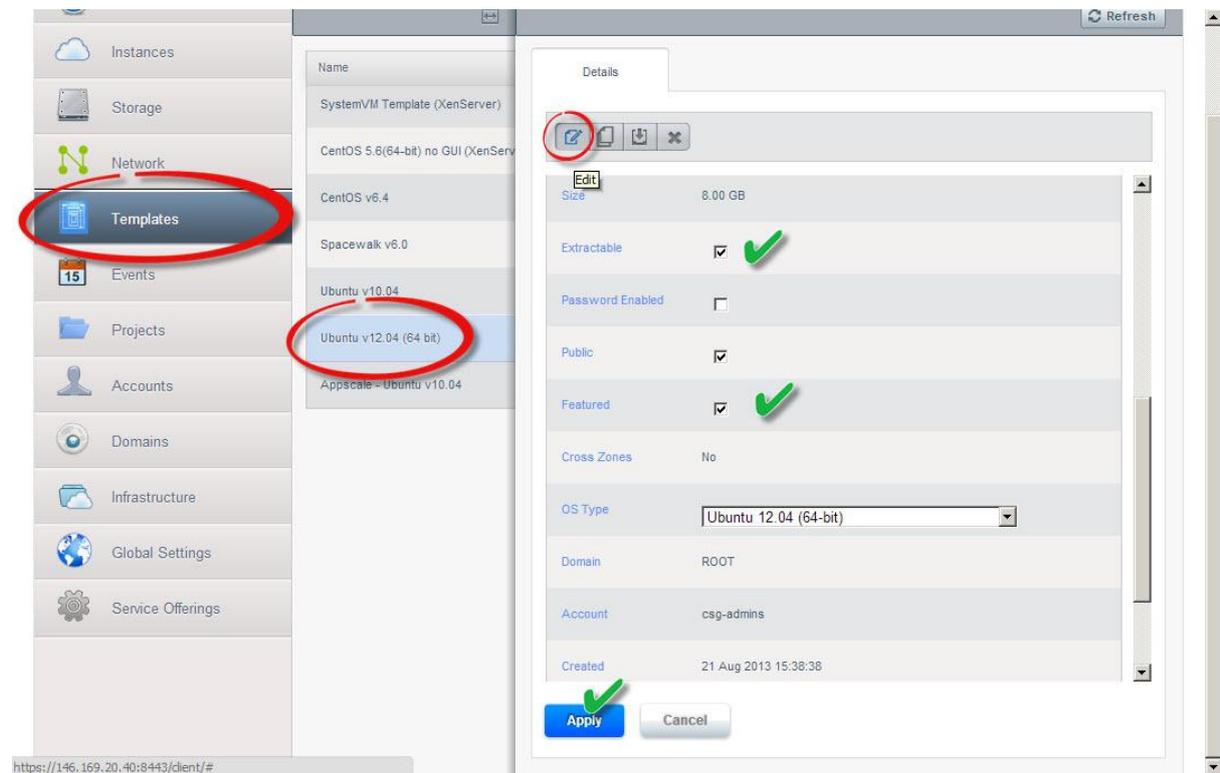
References:

http://cloudstack.apache.org/docs/en-US/Apache_CloudStack/4.1.1/html/Admin_Guide/working-with-templates.html