OpenNebula 3.6.0

Windows Server 2008 R2 VM creation was never these much easy before

[Includes Sunstone setup]

INDEX

By

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Friends, I have experimented with few of the well known software tools prevailing in the industry to create an IAAS (Infrastructure As A Service) platform. I am amazed with the **speed!!** and **simplicity!!** of OpenNebula 3.6.0, especially with VMWARE VM creation and KVM based WINDOWS VM creation. This tutorial is an outcome of the enjoyment I have experienced.

In this tutorial, I am providing an easy and faster way of creating a Windows Server 2008 R2 VM and with Contextualization. This time "no Dot-net frameworks, no Powershells", Just a VB script and a Windows batch file would be enough to send your IP address and new hostname from OpenNebula to Windows VM.

Hope you may enjoy this.....

A) Hardware requirements:

OneVMHost:[Server/Front-end and node]

AMD-V or VT-x enabled server hardware [Hostname : OneVMHost]with at least 40+ GB HDD free space, at least 4 GB RAM.

Preparing OneVMHost:

Install Ubuntu Server 12.04 64 bit software[not covered in detail here] **in OneVMHost with following parameters:**

1. Start installation of Ubuntu 12.04 64 bit server from a CDROM or bootable USB drive.
2. Make use of following table for installation specific values.
3. Once you set the host name and select eth0 as Primary n/w, while DHCP process runs, press cancel button, which will enable you to enter IP address ,netmask, gateway manually.
4. Set the user name (e.g:localadmin) and password
5. In case of no Proxy server, just press enter.
6. While asked select "no automatic updates" to save time
7. Choose only Open SHH Server from the "Software Selection" page.
8. Have GRUB installed.
9. Go to #Post-Installation-OneHost steps given below

Table One-T1:

Partition	You need at least one dedicated partition [e.g ID: 83 System: linux]with 40+GB of free space. Better go for automated partitioning. In case of specific partition choices, go for manual one.

Hostname	OneVMHost
Public N/W [Set this up during installation]	[You may refer to the Sample network setup given below]
Primary n/w **eth0** -IP netmask	192.168.1.174[*or a different one as per your setup*] 255.255.255.0
Gateway	192.168.1.1
Domain	westell.com
Username	localadmin [*or have your chosen one*]
Additional software selection	OpenSSH server alone

Setup a bridge in OneVMHost

1. Install bridge-utils using below command

```
sudo apt-get install bridge-utils
```

2. Edit "/etc/network/interfaces" file to add a "bridge". Replace the contents as given in **Table VM-T2 and restart networking**

Sample network setup for VMHost

Table VM-T2:

```
# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
iface eth0 inet manual
auto br0
iface br0 inet static
    address 192.168.1.174
      netmask 255.255.255.0
      network 192.168.1.0
      broadcast 192.168.1.255
      gateway 192.168.1.1
      # dns-* options are implemented by the resolvconf package, if installed
     dns-search example.com
  bridge_ports eth0
  bridge_fd 9
  bridge_hello 2
  bridge_maxage 12
  bridge_stp off
```

```
sudo /etc/init.d/networking restart
```

Test the bridge

```
oneadmin@onevmhost:~/var/3$ brctl show
bridge name     bridge id               STP enabled     interfaces
br0             8000.001e671a4e9b       no              eth0
virbr0          8000.000000000000       yes             vnet0
```

```
oneadmin@onevmhost:~/var/3$
```

B) CONFIGURING OneVMHost

Note: [either work directly on the server console or connect to OneHost using SSH if you have a third machine with putty or any other SSH client]

1. Create a folder "/var/lib"[if doesn't exist] and create a group named "oneadmin"

```
sudo mkdir -p /var/lib/
sudo groupadd -g 10000 oneadmin
```

2. Create a user "oneadmin" , add user to group "oneadmin" and have /var/lib/one as home folder.

```
sudo useradd -u 10000 -m oneadmin -d /var/lib/one -s /bin/bash -g oneadmin
```

3. Setup password for "oneadmin" and make oneadmin owner of "/var/lib/one"

```
sudo passwd oneadmin
sudo chown -R oneadmin:oneadmin /var/lib/one
```

4. Test by logging as user "oneadmin" and exit

```
su -l oneadmin
exit
```

5. Install Network file Server [NFS]

```
sudo apt-get install nfs-kernel-server
```

6. edit /etc/exports and add the following line to make folder /var/lib/one/

```
/var/lib/one
192.168.1.0/24(rw,sync,no_subtree_check,no_root_squash,anonuid=10000,anongid=10000)
```

7. . Restart NFS server

```
sudo /etc/init.d/nfs-kernel-server start
```

8. create a SSH key for oneadmin and disable host key checking else make all hostkeys known on the OpenNebula node.

```
su -l oneadmin
ssh-keygen
{Note - all defaults, and no passphrase.}
```

```
cat ~/.ssh/id_rsa.pub > ~/.ssh/authorized_keys
```

```
nano ~/.ssh/config
[add below two lines to SSH config file]
Host *
StrictHostKeyChecking no
```

```
exit
```

9. Exit from editor and try ssh OneVMHost, it should connect with no password

C) Install the KVM Hypervisor in OneVMHost

Install libvirt and Qemu.

```
sudo apt-get install qemu-kvm libvirt-bin ubuntu-vm-builder bridge-utils ruby
```

1. Libvirt needs to be configured to enable users of group "oneadmin" to manage the Vms and to allow VNC connections. Edit "/etc/libvirt/libvirtd.conf" and make the following two changes

```
unix_sock_group = "oneadmin"
(Search for string “unix_sock”, if commented, uncomment this line and change the existing value to “oneadmin”).
```

2. Edit /etc/libvirt/qemu.conf and uncomment vnc_listen line and restart libvirt

```
vnc_listen = "0.0.0.0"
```

```
sudo service libvirt-bin restart
```

3. Configure libvirt to allow access from the members of group "oneadmin”

```
sudo chown :oneadmin /var/run/libvirt/libvirt-sock
```

D) INSTALL and CONFIGURE OpenNebula in OneVMHost.

1. Login to OneHost and download OpenNebula Release 3.6.0

```
su -l oneadmin
Download Latest release of OpenNebula [opennebula-3.6.0.tar] from http://downloads.opennebula.org/
```

2. Un-tar the build

```
tar xzf opennebula-3.6.0.tar.gz
cd opennebula-3.6.0/
```

3. Before installing OpenNebula, install all pre-requisite packages

```
sudo apt-get install libsqlite3-dev libxmlrpc-c3-dev g++ ruby libopenssl-ruby libssl-dev ruby-dev
sudo apt-get install libxml2-dev libmysqlclient-dev libmysql++-dev libsqlite3-ruby libexpat1-dev
sudo apt-get install rake rubygems libxml-parser-ruby1.8 libxslt1-dev genisoimage scons
sudo apt-get install rails thin
sudo gem install json sinatra thin
sudo gem install nokogiri rake xmlparser
```

sudo apt-get install mysql-server [set the password when asked. I normally give “mygreatsecret” as the pwd]
configure MYSql: <refer below screen shot in case of any doubt)
mysql -uroot -pmygreatsecret
CREATE USER 'oneadmin'@'localhost' IDENTIFIED BY 'oneadmin';
CREATE DATABASE opennebula;
GRANT ALL PRIVILEGES ON opennebula.* TO 'oneadmin' IDENTIFIED BY 'oneadmin';
quit;

```
oneadmin@OneHost:~/opennebula-3.1.90$ mysql -uroot -pmygreatsecret
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 39
Server version: 5.1.58-1ubuntu1 (Ubuntu)

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and you are welcome to modify and redistribute it under the GPL v2 license

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE USER 'oneadmin'@'localhost' IDENTIFIED BY 'oneadmin';
Query OK, 0 rows affected (0.00 sec)

mysql> CREATE DATABASE opennebula;
Query OK, 1 row affected (0.00 sec)

mysql> GRANT ALL PRIVILEGES ON opennebula.* TO 'oneadmin' IDENTIFIED BY 'oneadmin';
Query OK, 0 rows affected (0.00 sec)

mysql> quit;
Bye
oneadmin@OneHost:~/opennebula-3.1.90$
```

4. Before installing OpenNebula, configure mysql support.

cd ~/opennebula-3.1.4 [change your folder to opennebula source]
scons sqlite=no mysql=yes

5. Install openebula in /var/lib/one accessible by group oneadmin and as user "oneadmin"

./install.sh -u oneadmin -g oneadmin -d /var/lib/one

6. Create a profile file[~/.bash_profile] to set ENVIRONMENT VARIABLES required to start and use services rendered by "one"

nano ~/.bash_profile
export ONE_LOCATION=/var/lib/one
export ONE_AUTH=$ONE_LOCATION/.one/one_auth
export ONE_XMLRPC=http://localhost:2633/RPC2
export PATH=$ONE_LOCATION/bin:/usr/local/bin:/var/lib/gems/1.8/bin/:/var/lib/gems/1.8/:$PATH

7. execute the profile file and set the environment variables

source ~/.bash_profile

[Note: Anytime you open a new SSH window for OneHost, change user to “oneadmin” and source ~/.bash_profile before issuing any “one” command]

8. Create and store OpenNebula user and password in a file. Substitute <TYPE THE PASSWORD HERE> with value

```
mkdir ~/.one
echo "oneadmin:<TYPE THE PASSWORD HERE>" > ~/.one/one_auth
```

9. Make required changes in OpenNebula configuration file ~/etc/oned.conf

```
nano ~/etc/oned.conf

a. comment following line # Line 58 or near by [c hange if your password  for oneadmin is some different]
#DB = [ backend = "sqlite" ]

b. Set SQL as MYSQL-uncomment #lines 61 through 66 or near by
  DB = [ backend = "mysql",
  server  = "localhost",
  port    = 0,
  user    = "oneadmin",
  passwd  = "oneadmin",
  db_name = "opennebula" ]
```

10. Start Nebula

```
one start                { Note: it should start with no error messages}
```

11. Now You can test OpenNebula services

```
onevm list   - this command should execute with no errors. (The list will be empty for now)
```

```
oneadmin@onevmhost:~/ttylinux$ onevm list
   ID USER     GROUP    NAME        STAT CPU     MEM        HOSTNAME        TIME
```

E) ADMINSTRING OpenNebula

1. ADD A HOST

Checkpoints:

- check /etc/hosts file of OneHost and VMHost for Hostname entries.
- Try ssh VMHost from $ prompt and you should be able to login with no password.]

```
format   : onehost create <hostname> --im <im_mad> --vm <vmm_mad> kvm --net
dummy

where im_mad  specifies "Information drivers" -used to monitor the host

   vmm_mad specifies "Virtualization Drivers" -used to manage VMs

   Note: Refer oned.conf file to check all "mad" definitions.
```

```
onehost create onevmhost --im im_kvm --vm vmm_kvm --net dummy
```

Note: [from version 3.0 onwards a 4th parameter vnm_mad is mandatory]

2. To list host(s)

onehost list
oneadmin@onevmhost:~/opennebula-3.6.0.1$ onehost list ID NAME CLUSTER RVM TCPU FCPU ACPU TMEM FMEM AMEM STAT 1 onevmhost - 0 800 795 800 7.5G 7.2G 7.5G on

once you register a Host check the STAT flag. It should display "on".

You may need to debug log files if Value "Err" is display for STAT.

Note :Common cause of "Err" flag will be either password less connection to OneVMHost is lost or VMHost is not available to OneHost.

Hint: Just type onehost and press enter to get all available parameters.

Command "onehost top" will display the output of "onehost list" continuously.

In case of any errors just check ~/var/oned.log

- To obtain detailed information about the registered host use the "show" function of "onehost" command

onehost show <host ID> /<host_Name> e.g onehost show 1 or onehost show onevmhost
oneadmin@onevmhost:~/ttylinux$ onehost show 1 HOST 1 INFORMATION ID : 1 NAME : onevmhost CLUSTER : - STATE : MONITORED IM_MAD : im_kvm VM_MAD : vmm_kvm VN_MAD : dummy LAST MONITORING TIME : 1337537428 HOST SHARES MAX MEM : 7884552 USED MEM (REAL) : 391552 USED MEM (ALLOCATED) : 65536 MAX CPU : 800 USED CPU (REAL) : 0 USED CPU (ALLOCATED) : 10 MAX DISK : 0 USED DISK (REAL) : 0 USED DISK (ALLOCATED) : 0 RUNNING VMS : 1 MONITORING INFORMATION ARCH="x86_64" CPUSPEED="1600" FREECPU="799.2" FREEMEMORY="7493000"

```
HOSTNAME="onevmhost"
HYPERVISOR="kvm"
MODELNAME="Intel(R) Xeon(R) CPU E31230 @ 3.20GHz"
NETRX="0"
NETTX="0"
TOTALCPU="800"
TOTALMEMORY="7884552"
USEDCPU="0.799999999999955"
USEDMEMORY="391552"
```

F) Configure for Sunstone web interface

Ensure that you have the following installed
sudo apt-get install rails thin
sudo gem install json sinatra thin

Due to certain versions of Ruby,anytime if you get a date format error, you can remove it by
sudo sed -i 's/ 00:00:00.000000000Z//' /var/lib/gems/1.8/specifications/*

ln -s /usr/bin/rackup1.8 /usr/bin/rackup

Edit /var/lib/one/etc/sunstone-server.conf and make following changes

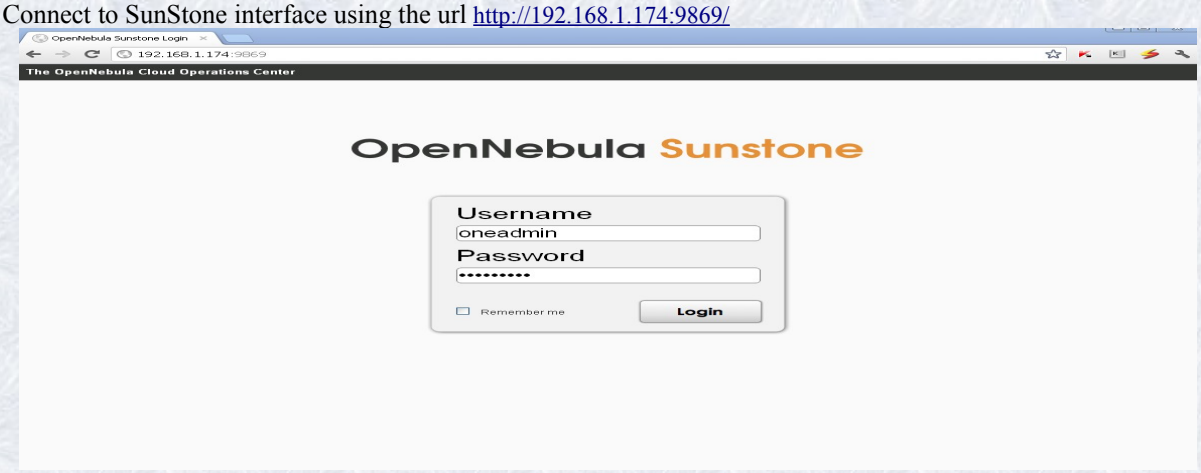
```
# Server Configuration
:host: 192.168.1.174
:port: 9869
```

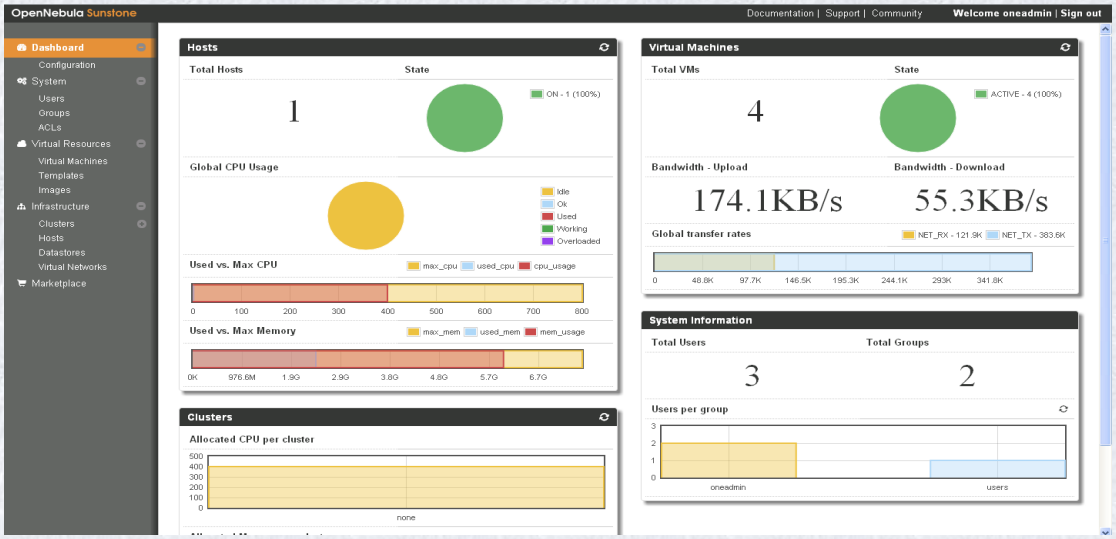
Install novnc

$cd /var/lib/one/share
$./install_novnc.sh -d /var/lib/one
You should get echo "Installation successful"

oneadmin@onehost:~/template$ sunstone-server start
sunstone-server started

Connect to SunStone interface using the url http://192.168.1.174:9869/





G) Creating a Windows Server 2008 R2 VM

Have a Windows Server 2008 R2 install disk as an ISO file and store it in /var/lib/image/iso folder

- to create an ISO from CD/DVD ROM , $dd if=/dev/dvd of=win2008.iso

Create a folder /var/lib/images and make oneadmin as the owner of the folder

```
mkdir /var/lib/image
chown -R oneadmin /var/lib/image
```

Create an empty Image file of 15 G

```
qemu-img create -f raw win2008-1.img 15G
```

Download virtio drivers and store it in /var/lib/one/template/ folder

```
wget http://alt.fedoraproject.org/pub/alt/virtio-win/latest/images/bin/virtio-win-0.1-22.iso
```

Create a Libvirt deployment file [/var/lib/image/win-deployment] and store below content.

nano /var/lib/image/win2008-deployment

```
<domain type='kvm' xmlns:qemu='http://libvirt.org/schemas/domain/qemu/1.0'>
<name>win2008</name>
<memory>1048576</memory>
<os>
<type arch='x86_64'>hvm</type>
<boot dev='cdrom'/>
<boot dev='hd'/>
</os>
<on_reboot>restart</on_reboot>
<on_crash>restart</on_crash>
<devices>
<emulator>/usr/bin/kvm</emulator>
<disk type='file' device='disk'>
<source file='/var/lib/one/images/win2008-1.img'/>
<target dev='vda' bus='virtio'/>
<driver name='qemu' type='raw' cache='default'/>
</disk>
```

```
<disk type='file' device='cdrom'>
<driver name='qemu' type='raw'/>
<target dev='hdc' bus='ide'/>
<readonly/>
<source file='/var/lib/one/iso/win2008.iso'/>
<address type='drive' controller='0' bus='1' unit='0'/>
</disk>
<disk type='file' device='cdrom'>
  <driver name='qemu' type='raw'/>
  <source file='/var/lib/one/template/virtio-win-0.1-22.iso'/>
  <target dev='hdd' bus='ide'/>
  <readonly/>
</disk>
<controller type='ide' index='0'>
<address type='pci' domain='0x0000' bus='0x00' slot='0x01' function='0x1'/>
</controller>
<!--use one network -->
<interface type='network'>
<source network='default'/>
</interface>
<graphics type='vnc' port='5950'/>
</devices>
<features>
<acpi/>
</features>
</domain>
```

Instead of using virtio, if you want to go ahead with hda,
Just replace the <disk> virto section with the following line highlighted in red.

```
<disk type='file' device='disk'>
<source file='/var/lib/one/images/win2008.img'/>
<target dev='hda'/>
<driver name='qemu' type='raw' cache='default'/>
</disk>
```

Start virsh by typing “virsh” on the $prompt . You will be taken to Virtual-shell
On the virsh # prompt type the below and press enter

```
virsh # create /var/lib/image/win_deployment
```

Yor will get an output similar to below

virsh # create /var/lib/image/win_deployment
Domain win2008 created from /var/lib/image/win_deployment

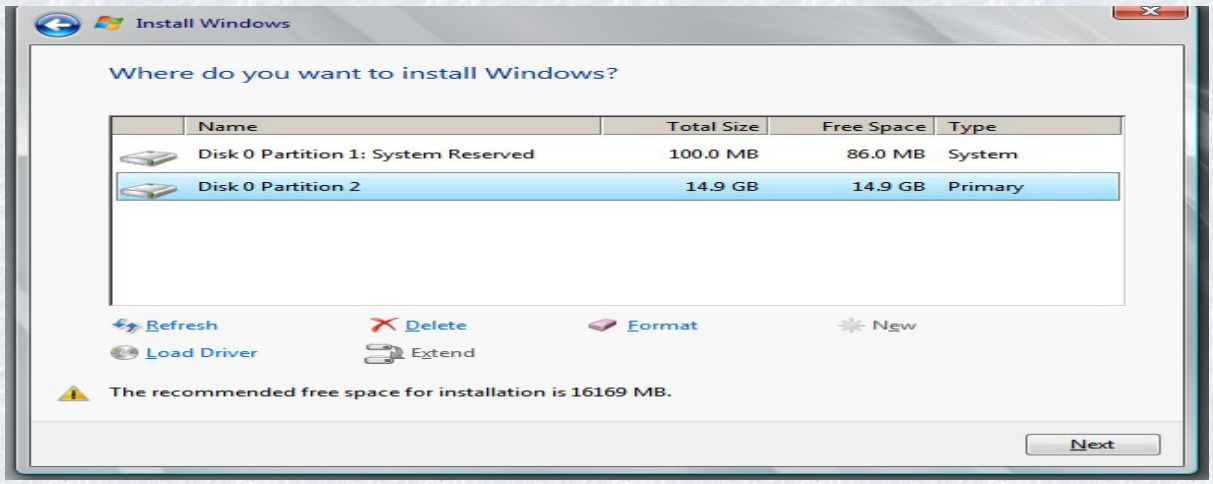
You will be able to monitor the Windows Installation through a VNC console. To get the VNC console PORT # , type below commands [list and then vncdisplay] in Virsh# prompt

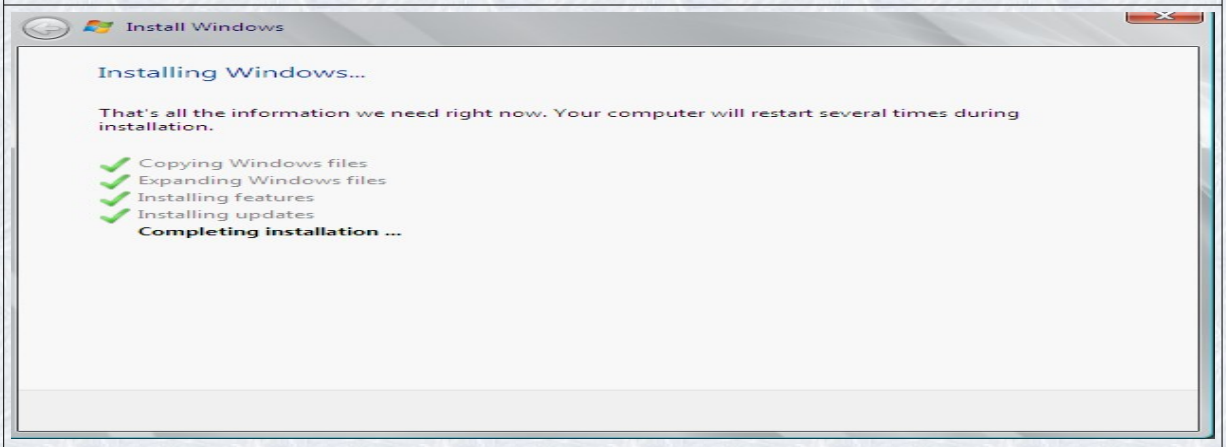
```
virsh # list
 Id Name                 State
----------------------------------
  9 win2008              running

virsh # vncdisplay 9
:50
```

Monitor Windows Server 2008 R2 instillation through VNC viewer, with the IP → 192.168.1.174:50

When asked

- When asked , install the VIRTIO dirvers from CDROM
- Partition the disk by clicking "new" and go for the default partition



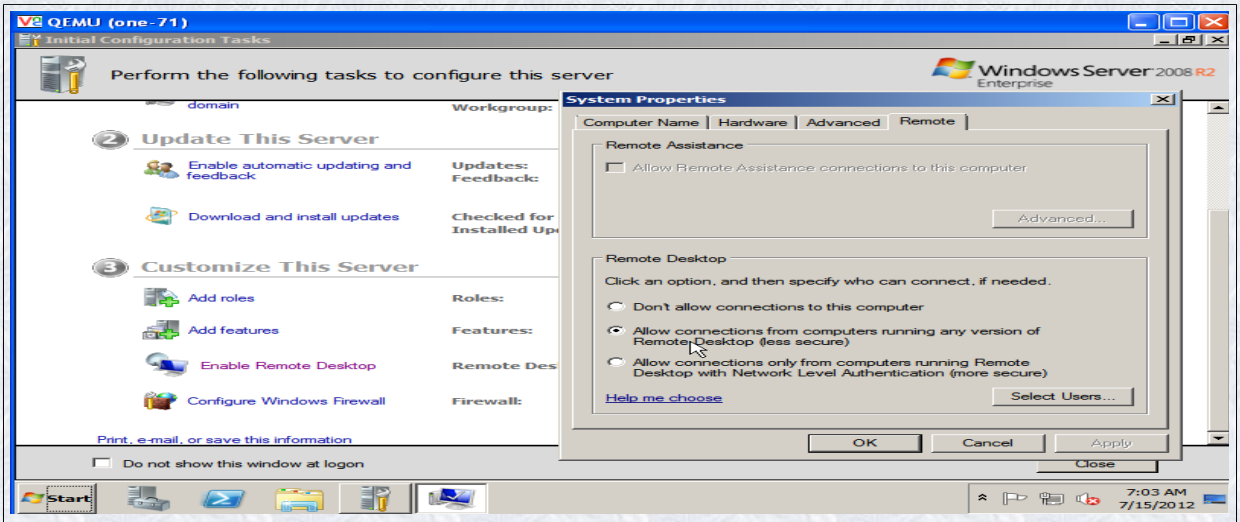


- Provide password for Administrator.

Complete the Windows Server 2008 R2 installation

Enable remote desktop access

Disable Windows Firewall -click the icon “Windows Security alerts” in the taskbar and switch firewall to OFF state in the resulting window.



Create two new folders in C drive , admin and autorun [within admin]
mkdir admin
cd admin
mkdir autorun
cd autorun

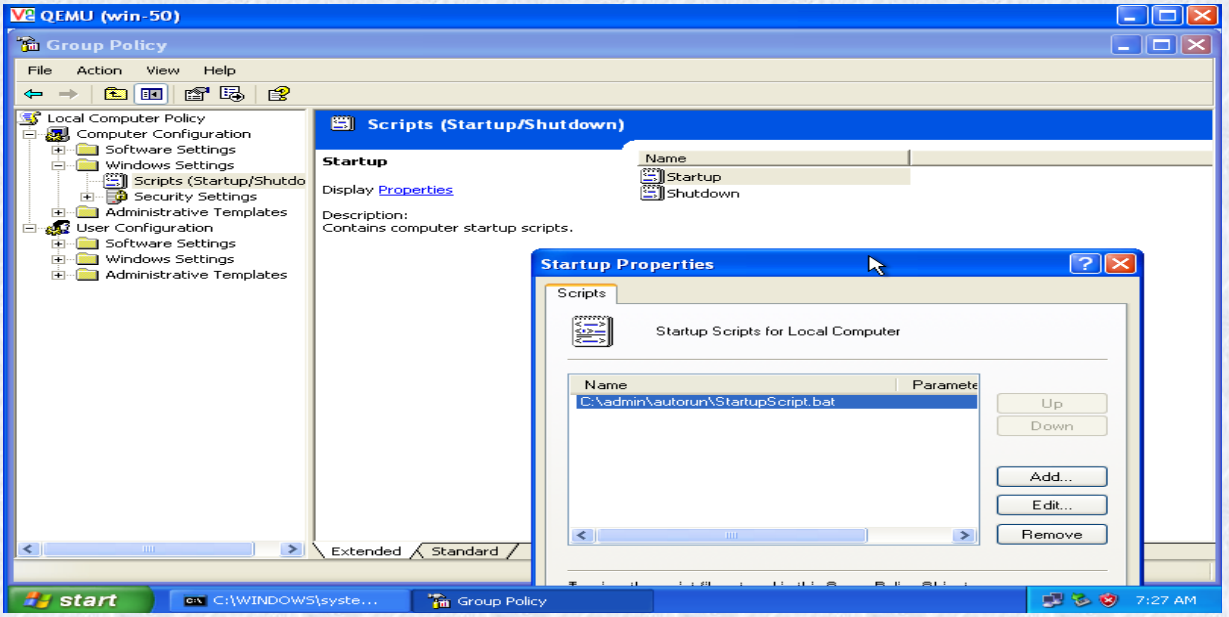
Create a StartupScript.bat in c:\admin\autorun folder, and store following content in it.

StartupScript.bat

:: Below file will be available only when WINDOWS instance starts as a guest OS in side VM. You just specify it for now.
call d:\setcontextvals.bat

Currently you donot have d:\setcontextvals.bat file. But do not bother, we will soon create it with in OpenNebula front end and pass it on to the Windows instance.

Schedule StartupScript.bat to run on System startup:
2. Start –> Run –> "gpedit.msc"
3. Expand Computer Configuration\Windows Settings\Scripts
4. Double Click Startup
5. Click Add…
6. Enter c:\admin\autorun\ StartupScript.bat for the Script Name
7. Leave Script Parameters blank
8. Click the OK button
Refer below screen shot.



Shutdown Windows.

Now, convert the image file from "raw" to "qcow" so that one will have noissues in understanding it. Should be run from VMHost.

```
qemu-img convert -O qcow2 win2008-1.img win2008-2.qcow2
```

On successful completion, you will have a new file "win2008-2.qcow2" created. The size will be much smaller and will be around 8G compared to the img file which was 15G

Make a copy of this file and preserve it somewhere.

Move the win2008-2.qcow2 file to /var/lib/one/var/datastores/ folder

```
mv /var/lib/image/ win-2008 Server R2-2.qcow2 /var/lib/one/var/datastores/ win2008-2.qcow2
```

Let's now move to OpenNebula.

List the available datastores:

```
oneadmin@onevmhost:~$ onedatastore list
  ID NAME            CLUSTER  IMAGES TYPE  TM
   0 system              -       0    -     shared
   1 default             -       0    fs    shared
```

Create a folder "template" with in /var/lib/one to store all template files

```
mkdir /var/lib/one/template
```

Create a image definition template file /var/lib/one/template/Win2008.img and store below content in it. Save and Exit

```
NAME = "Win2008-NoPersistence"
SOURCE = /var/lib/one/var/datastores/win2008-2.qcow2
TYPE = OS
PUBLIC = YES
```

Create an image with default datastore

```
oneimage create win2008.img  -d default
```

List the image to check the status of it. On successful creation It should show "Rdy" status.

```
oneadmin@onevmhost:~$ oneimage list
  ID USER    GROUP   NAME       DATASTORE    SIZE TYPE PER STAT  RVMS
```

```
    15 oneadmin oneadmin Win2008-NoPers default          0M  OS     No  rdy      0
oneadmin@onevmhost:~$ oneimage show 6
ID            : 15
NAME          : Win2K8R2-3-NoPersistence
USER          : oneadmin
GROUP         : oneadmin
DATASTORE     : production
TYPE          : OS
REGISTER TIME  : 07/15 13:15:34
PERSISTENT    : No
SOURCE        : /var/lib/one/var/datastores/win2008-2.qcow2
SIZE          : 0M
STATE         : rdy
RUNNING_VMS   : 0

PERMISSIONS
OWNER         : um-
GROUP         : ---
OTHER         : ---

IMAGE TEMPLATE
DEV_PREFIX="hd"
PUBLIC="YES"
oneadmin@onehost:~/template$
```

In case of any errors during image creation, cross check the following,

1. Syntax errors in image creation template
2. Ownership of the qcow2 file should be with "oneadmin"

List the datastore again, you will see the value for "image" changes to "1" for default DS

```
oneadmin@onevmhost:~$ onedatastore list
  ID NAME            CLUSTER  IMAGES TYPE   TM
   0 system                      -      0    -    shared
   1 default                     -      1    fs   shared
```

Create a Vnet definition template /var/lib/one/template/winxp.net and store following content in it.Save exit

```
NAME = "private-win-d"
TYPE = RANGED
BRIDGE = br0
NETWORK_SIZE = C
IP_START = 192.168.1.2
IP_END = 192.168.1.25
VLAN = NO
NETWORK_MASK = 255.255.255.0
# Custom Attributes to be used in Context
GATEWAY = 192.168.1.1
DNS = 192.168.1.1
```

Create a Vnet,
onevnet create /var/lib/one/template/winxp.net

```
oneadmin@onevmhost:/home/localadmin$ onevnet list
  ID USER     GROUP    NAME            CLUSTER    TYPE BRIDGE  LEASES
   6 oneadmin oneadmin private-win-d   -                R          br0        0
```

Create a VM template file /var/lib/one/template/win2008.one and store following content in it. Check for the IMAGE ID and VnetID.
Note: If you are using "hda" instead of virtio, replace **TARGET=vda to TARGET=hda .**

```
HOSTNAME = onehost
#CONTEXT definition section
CONTEXT=[FILES="/var/lib/one/.ssh/id_rsa.pub /var/lib/one/images/setcontextvals.bat /var/lib/one/images/sethostname.vbs",
HOSTNAME=Win2008-$VMID,
IP_PUBLIC="$NIC[IP, NETWORK=\"private-win-d\"]",
PASSWORD=Redhat123456,
ROOT_PUBKEY=id_rsa.pub,
USERNAME=Administrator]
```

```
#CAPACITY Definition
NAME=Windows2K8R2-NoPers
CPU=1
MEMORY=2048
# OS image, mapped to hda.
DISK=[ DRIVER=qcow2, READONLY=no, IMAGE_ID = 15, TARGET=vda, TYPE=disk ]
FEATURES=[ ACPI=yes ]
# I/O Devices Section
GRAPHICS=[ TYPE=vnc ]
#NETWORK Section:
NIC=[network = "private-win-d" ]
#OS and BOOT Options Section
OS=[ ARCH=x86_64, BOOT=hd ]
#RAW Section
RAW=[ TYPE=kvm ]
```

Store/preserve the VM template in OpenNebula using onetemplate command
onetemplate create ~/template/winxp.one

Test the creation using List and show commands

```
oneadmin@onevmhost:~$ onetemplate list
  ID USER     GROUP    NAME                    REGTIME
   7 oneadmin oneadmin WindowsXP-NoPer      05/28 09:50:44
oneadmin@onevmhost:~$ onetemplate show 6
TEMPLATE 6 INFORMATION
ID          : 6
NAME        : Windows2008-NoPers
USER        : oneadmin
GROUP       : oneadmin
REGISTER TIME  : 05/28 09:50:44

PERMISSIONS
OWNER       : um-
GROUP       : ---
OTHER       : ---

TEMPLATE CONTENTS
CONTEXT=[
  FILES="/var/lib/one/.ssh/id_rsa.pub /var/lib/one/images/setcontextvals.bat /var/lib/one/images/sethostname.vbs",
  HOSTNAME="Win2008-$VMID",
  IP_PUBLIC="$NIC[IP, NETWORK=\"private-win-d\"]",
  PASSWORD="redhat123456",
  ROOT_PUBKEY="id_rsa.pub",
  USERNAME="Administrator" ]
CPU="1"
DISK=[
  DRIVER="qcow2",
  IMAGE_ID="6",
  READONLY="no",
  TARGET="vda",
  TYPE="disk" ]
FEATURES=[
  ACPI="yes" ]
GRAPHICS=[
  TYPE="vnc" ]
HOSTNAME="onevmhost"
MEMORY="1024"
NAME="Windows2008-NoPers"
NIC=[
  NETWORK="private-win-d" ]
OS=[
  ARCH="x86_64",
  BOOT="hd" ]
RAW=[
  TYPE="kvm" ]
TEMPLATE_ID="6"
```

Create the files specified in the CONTEXT section

- Create a folder /var/lib/one/images
  mkdir /var/lib/one/images
- Create a file /var/lib/one/images/setcontextvals.bat and store below content in it . This batch script will extract the IP address and HOSTNAME from the context.sh file. Context.sh file will be automatically created by OpenNebula based on the CONTEXT section in the VM Template file, VM Creation process, stores the context.sh file in a Virtual CDROM (for Windows instance , assume the CDROM is "D" drive) with the VM instance.

```
@echo off
setlocal ENABLEDELAYEDEXPANSION
for /F "skip=3 eol= tokens=*" %%S in (d:\context.sh) do (set line2=%%S&goto:forend2)
:forend2
REM echo line2=%line2%
set IPADD=%line2:~11,13%
REM echo %IPADD%
for /F "skip=2 eol= tokens=*" %%S in (d:\context.sh) do (set line1=%%S&goto:forend3)
:forend3
REM echo line1=%line1%
rem set hostname=!line1:~10,8!
rem echo hostname is !hostname!

setlocal
set str=%line1:HOSTNAME=%%
set str=%str:, =%
rem set hostname=%str:~1,-1%
REM echo %hostname%
call :dequote  %str%
REM echo ret=%ret%
endlocal
goto :eof

:dequote
setlocal
rem The tilde in the next line is the really important bit.
set thestring=%~1
endlocal&set ret=%thestring%
call d:\sethostname.vbs %ret%
netsh int ip set address "Local Area Connection" static %IPADD% 255.255.255.0 192.168.1.1 1
netsh int ip set dns "Local Area Connection" static 192.168.1.1 primary

goto :eof
```

- Create a file /var/lib/one/images/sethostname.vbs. Save and exit.
- This VB Script will change the hostname to the value passed by the CONTEXT section. [e.g. Win2008-72]

```
nHOSTNAME = Wscript.Arguments(0)
sNewName = nHOSTNAME
Set oShell = CreateObject ("WSCript.shell")
sCCS = "HKLM\SYSTEM\CurrentControlSet\"
sTcpipParamsRegPath = sCCS & "Services\Tcpip\Parameters\"
nHOSTNAME = Wscript.Arguments(0)
sNewName = nHOSTNAME
Set oShell = CreateObject ("WSCript.shell")
sCCS = "HKLM\SYSTEM\CurrentControlSet\"
sTcpipParamsRegPath = sCCS & "Services\Tcpip\Parameters\"
sCompNameRegPath = sCCS & "Control\ComputerName\"
With oShell
.RegDelete sTcpipParamsRegPath & "Hostname"
.RegDelete sTcpipParamsRegPath & "NV Hostname"
.RegWrite sCompNameRegPath & "ComputerName\ComputerName", sNewName
.RegWrite sCompNameRegPath & "ActiveComputerName\ComputerName", sNewName
.RegWrite sTcpipParamsRegPath & "Hostname", sNewName
.RegWrite sTcpipParamsRegPath & "NV Hostname", sNewName
End With ' oShell
rem Dim objShell
rem Set objShell = WScript.CreateObject("WScript.Shell")
rem objShell.Run "C:\WINDOWS\system32\shutdown.exe -r -t 0"
```

Instantiate the VM using onetemplate command

onetemplate instantiate 6 or

onevm create win2008.one

Monitor the progress of VM creation using onevm top command

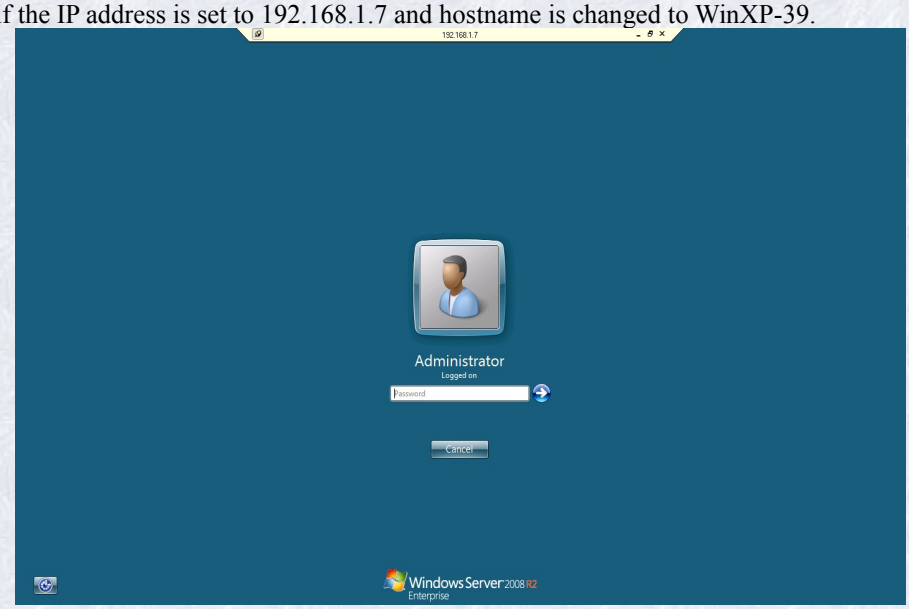
```
onevm top
  ID USER     GROUP    NAME                STAT CPU     MEM       HOSTNAME       TIME
  72 oneadmin oneadmin Windows2K8R2-No runn   23      2G         onehost          0d 01h00
```

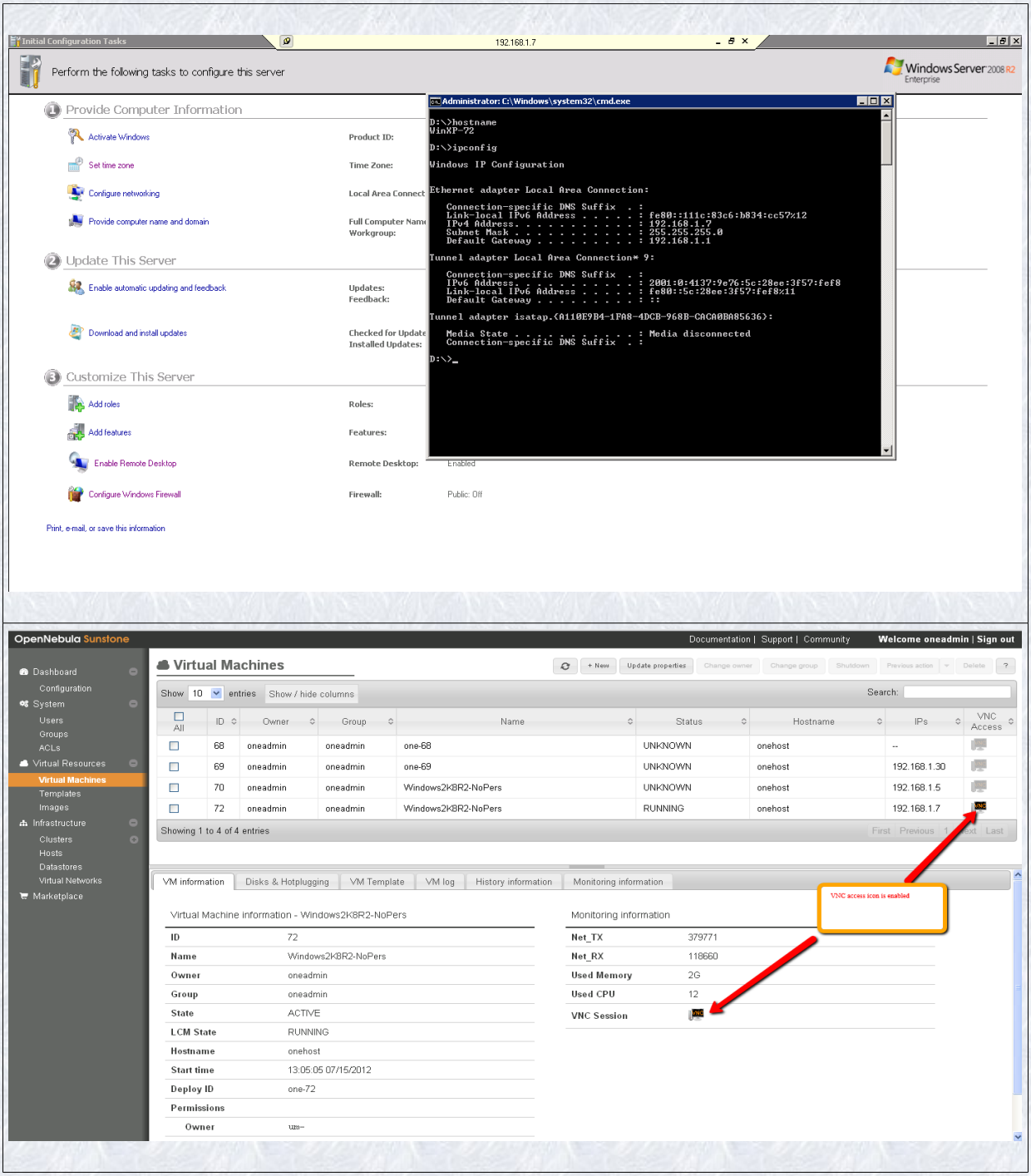
Get the IP address and PORT of the Running VM

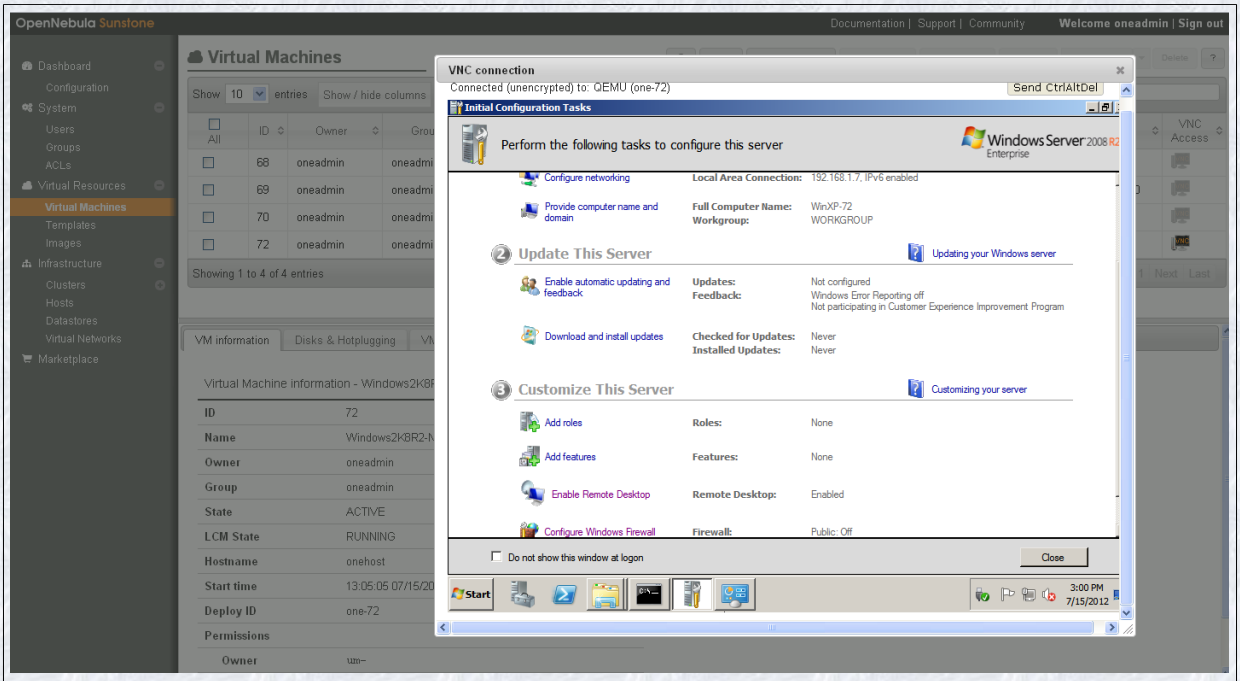
```
oneadmin@onevmhost:~$ onevm show 72 | grep IP
  IP_PUBLIC="192.168.1.7",
  IP="192.168.1.7",
oneadmin@onevmhost:~$ onevm show 72 | grep PORT
  PORT="5972",
```

Test by pinging the IP 192.168.1.7. It will Ping. If it does not Ping, Check through VNC console that whether you have disabled the Windows Firewall. Disable it.

Connect to Windows instance through Remote desktop.
Check to see if the IP address is set to 192.168.1.7 and hostname is changed to WinXP-39.




Initial Configuration Tasks
192.168.1.7
Perform the following tasks to configure this server
Windows Server 2008 R2 Enterprise
Provide Computer Information
Activate Windows
Product ID:
Set time zone
Time Zone:
Configure networking
Local Area Connect
Provide computer name and domain
Full Computer Nam
Workgroup:
Update This Server
Enable automatic updating and feedback
Updates:
Feedback:
Download and install updates
Checked for Update
Installed Updates:
Customize This Server
Add roles
Roles:
Add features
Features:
Enable Remote Desktop
Remote Desktop:
Enabled
Configure Windows Firewall
Firewall:
Public: Off
Print, e-mail, or save this information
Administrator: C:\Windows\system32\cmd.exe
D:\>hostname
WinXP-72
D:\>ipconfig
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::111c:83c6:b834:cc57%12
IPv4 Address. . . . . : 192.168.1.7
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.1.1
Tunnel adapter Local Area Connection* 9:
Connection-specific DNS Suffix . :
IPv6 Address. . . . . : 2001:0:4137:9e76:5c:28ee:3f57:fef8
Link-local IPv6 Address . . . . . : fe80::5c:28ee:3f57:fef8%11
Default Gateway . . . . . : ::
Tunnel adapter isatap.{A110E9B4-1FA8-4DCB-968B-CACA0BA85636}:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
D:\>
OpenNebula Sunstone
Documentation | Support | Community
Welcome oneadmin | Sign out
Dashboard
Configuration
System
Users
Groups
ACLs
Virtual Resources
Virtual Machines
Templates
Images
Infrastructure
Clusters
Hosts
Datastores
Virtual Networks
Marketplace
Virtual Machines
+ New
Update properties
Change owner
Change group
Shutdown
Previous action
Delete
Show 10 entries
Show / hide columns
Search:
All
ID
Owner
Group
Name
Status
Hostname
IPs
VNC Access
68 oneadmin oneadmin one-68 UNKNOWN onehost --
69 oneadmin oneadmin one-69 UNKNOWN onehost 192.168.1.30
70 oneadmin oneadmin Windows2K8R2-NoPers UNKNOWN onehost 192.168.1.5
72 oneadmin oneadmin Windows2K8R2-NoPers RUNNING onehost 192.168.1.7
Showing 1 to 4 of 4 entries
First Previous 1 Next Last
VM information
Disks & Hotplugging
VM Template
VM log
History information
Monitoring information
VNC access icon is enabled
Virtual Machine information - Windows2K8R2-NoPers
ID 72
Name Windows2K8R2-NoPers
Owner oneadmin
Group oneadmin
State ACTIVE
LCM State RUNNING
Hostname onehost
Start time 13:05:05 07/15/2012
Deploy ID one-72
Permissions
Owner um-
Monitoring information
Net_TX 379771
Net_RX 118660
Used Memory 2G
Used CPU 12
VNC Session



That's it. You have successfully created a Windows2008 Server R2 and set the IP address and hostname as passed by OpenNebula CONTEXT section

If you liked this tutorial, post a comment to cloud.b.lab@zoho.com