

Virtual Machines

As an SECS student, enrollment in certain CSE/EGR courses allow you to request creation of your own Virtual Machine in the SECS VMware datacenter assuming the Virtual Machine is specifically required by a course. To you, the user, a Virtual Machine is just like having your own server, you have full administrative rights to configure and install and run software on your VM. This also means that we provide limited support to the VM's.

A Virtual Machine is a computer that runs as an isolated computing environment within a host machine. SECS has several servers that host multiple VM's each. Like a real machine, a Virtual Machine runs its own operating system, as well as its own installed applications. Currently, students can have a virtual machine with either Scientific Linux server or Windows Server 2012r2 as its operating system.

Restrictions

The primary purpose to the VM Infrastructure system is for classroom-related, single-semester purposes. By default Virtual Machines will be deleted at the end of each semester. If you need a VM for a student organization or long-term project that is outside the scope of a single-semester course, let us know. Like all Information Technology resources in Oakland University, use of Virtual Machines must adhere to Oakland University's Policies and Guidelines. (Pay particular attention to policy #890: Use of University Information Technology Resources.). In addition to these guidelines you may NOT

- Change the IP or Mac Address of a Network Interface Card on the 141.210.25 network
- Change the cto or Admin users account's password on your machine
- Remove the cto user from the admin group, or the admin group for the sudoers file (linux only)

Requesting a Virtual Machine

To request a Virtual Machine please email help@secs.oakland.edu. Please include in your choice of a Windows or Linux machine. In order for us to successfully create your VM, you must use your username@oakland.edu email address. Any other (gmail, yahoo, etc.) cannot be used.

Connecting to Your Virtual Machine

Once your virtual machine has been created, there are several ways to access your machine. For all these methods if you are connecting from off campus or over the wifi network, you will first need to connect to our VPN.

Methods for accessing your Virtual Machine

There are multiple ways to connect to your Virtual machine once it is created. For most tasks if you have the IP address we recommend you use Remote desktop for windows, or ssh for Linux.

- Vsphere web Client - Allows you to connect to, reboot and manage your Virtual Machine. Requires browser plugin to interact with the virtual Machine.
- Remote Desktop - Use a remote desktop client to connect to your Windows Virtual Machine.
- SSH - this provides you a command line interface for connect to a Linux Virtual Machine.

Detailed explanation of connection methods

Vmware vSphere web Client

Using the Vmware vSphere web client provides the equivalent of physical access to your machine. It is required for some tasks such as mounting CD/DVD drives and performing hard resets of your machine. With the web browser plug-in it provides a graphical console to both windows and linux vm's. The web client's url is <https://vcenter6.secs.oakland.edu/vsphere-client>.

From the Home menu choose "VMs and Templates" and expand the view on the navigation bar. You should now see all the VM's you have authority on. Click on your VMs name then right click and choose "Open Console". You now have full console access to your VM.

Here are a few tips for interacting with the console:

- Use ctrl+alt+insert instead of ctrl+alt+delete
- You may need to click inside of your the vm console and/or press a key on your keyboard before it will respond to your input.
- Press ctrl+alt to release the cursor from the console.

Remote Desktop into a Windows VM

Remote Desktop is built into Windows Server, Xp, Vista, and 7. You can open the client on a windows machine by choosing Remote Desktop Connection from the accessories directory in the start menu (a quicker method is from the run dialog, type “mstsc -v” followed by the IP Address of your VM). Just type in the IP address of your server to connect. Use your SECS username and password as your login credentials. If you are logging in from outside the domain, you may need to fully qualify your username. To do this just type SECS\yourUsername for your username at the login prompt.

Microsoft provides a rdp client for macs as well at the following link <http://www.microsoft.com/download/en/details.aspx?id=24596>

Linux users can access their Windows VM with rdesktop. See the man page for more info.

SSH into a Linux VM

SSH allows you command line access to your VM running Scientific Linux. The biggest advantage to using this method is speed (especially over the internet), and reduced overhead on both the client and your vm server. SSH comes configured on your Scientific Linux server during our initial setup. SSH requires a client program to access your server from your computer. For windows we recommend PuTTY. Mac and Scientific Linux come preinstalled with ssh clients. Just type

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ssh yourusername@yourServersIPAddress
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SSH also allows for a graphical user interface to be forwarded to client machines as well. This is an advanced topic covered on the ssh tutorial. NX or VNC into a Linux VM Both NX and VNC are client server applications that must be configured on your linux VM server and the client computer you are accessing it with. We (The CTO) use NoMachine and nx client for remote graphical access to our servers. But both serve the same purpose. You can setup either, both, or none on your server depending on your preferences.

VM Limited Support Policy

The basic purpose of our VM infrastructure is to allow student to have hands-on experience customizing and using a server. All that is required to meet that goal is to set up a server, allow the student to access that server, and then grant the student administrative privileges on that server. We also provide Documentation to assist in these requirements.

Beyond providing these services we feel it is counterproductive to our stated goal, to offer any additional assistance. While it is frustrating when a student

is unable to accomplish a task on a server, that difficulty or pain is part of the learning process. In addition it would be unfair to provide help to some students and not others. If you are experiencing problems that you feel are beyond your control as an administrator your vm, please ask your professor for help first, and he can act as a proxy on your behalf in seeking our help if needed. If your problem is an administrative task on your vm, do some research to resolve the problem. As an administrator of many servers and many products, I spend much more time researching and troubleshooting than I do actually “fixing” things.

That being said there are a few thing that we can help you with directly. I will list them below. Please contact us from your university email for these support request.

- *Reset your VM password

- *Allow your account admin rights to your VM

- *Reconfigure your server for remote desktop (Windows) or ssh (Linux) access. You may actually be able to fix this type of problem on your own by using the VMware vSphere client to change the remote desktop or ssh settings on your server, but we can help too.

- *Requests for clarification or updates to our documentation