13.3.2 Configuring Networking on a Virtual Machine

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Configure Networking on a Virtual Machine 0:00-0:36

In this demonstration, we will define virtual machine networking. The virtual machine itself has virtualized networking. However, the base machine or the host machine may also need a few tweaks.

The first thing we need to do is go ahead and open up a terminal window. Then, we have to make sure that we are logged in as the root user. So we'll 'sudo su -', and put in the password for our user, and we are now logged in as the root user.

Add Linux Bridge 0:37-1:15

What we need to do is we need to add a networking component called a bridge. If we change directories to the /etc/sysconfig/network-scripts directory, and then do a listing, you will see the regular ethernet adapter. In this case, it's 'ens33'. Now that's not really normal. Most of the time it's eth0 or eth1. But in the system, that's how it's installed. Now I created this 'ifcfg-br0', and we'll get to that in just a moment.

First, let's go ahead and look at that 'ens33' file.

Configure the NIC 1:15-2:20

We'll 'vi ifcfg-ens33', and you can see this is everything that we use for our ethernet adapter. The type is etherne. The proxy method is none. We don't have a browser. The boot protocol is DHCP. For this bridge application, we need to disable that. I'll go ahead and do that. Press the 'i' key for insert, and then just for clarification, I'll use 3 pound signs (#) to comment that out. The rest the stuff we leave as is, but we go to the end, what we need to do is we need to define the bridge. So, 'BRIDGE="br0"'. That's it. That's all we need to do for this particular file. We'll go ahead and save that.

If you don't already have the 'br0' file, then you need to create it.

Configure the Bridge 2:16-3:14

You would do 'vi ivcfg-br0'. Since I've aleady created it, we'll just go into the edit mode. You can see the device I've named is 'br0'. The boot protocol is DHCP. For testing, I've created two ONBOOT commands, 'ONBOOT="no"' and 'ONBOOT="yes"'. What that means is when the system boots, either the device will be turned on, 'ONBOOT="yes"', or 'ONBOOT="no"' means it is not. Let's go ahead and change that. I'll go ahead and delete that. When we do do, an ONBOOT, it will load. I'll comment out the 'ONBOOT="no"', meaning it won't load. Then we define a type. This is a bridge. And that's all we need to do.

Verify Configuration 3:14-4:37

When we can look at 'ifconfig', you'll see that the ens33 is our ethernet adapter. Here is its IP address, netmask, and so forth. Notice, here, the br0 has nothing. It just has the ethernet Mac address. If I go ahead and ping something on the Internet, like www.microsoft.com, you'll see that indeed, that does work. So that's good. That's what we want to see. Networking is working. Let's go ahead and restart networking, 'systemctl restart network'. When it comes back it should be set.

Let's do an 'ifconfig' again. This time, what we should see, is you see that the ens 33 does not have an IP address. However, the bridge does. This is the bridge that we created. Here's the IP address, the netmask, and the broadcast address. Notice too, that the Mac address has changed, which is the same, if you notice, as the ethernet adapter. We'll go ahead and do that same ping and again you see that it works.

Configure the VM 4:38-5:45

That's the change to the bridge that we need to make for the host machine. So now will go over to applications, and go to system tools, and here's the virtual machine manager. We'll go ahead and run that. It asks us for our administrator name. I'll go ahead and type that in, and here is our machine. If we click on the machine itself (right-click, and go to open), it tells us that it's not running. But you see this lightbulb over

here. This is the definitions for our virtual components. If we go down here to NIC, you'll see that currently the NIC is set to the 'e1000' model. The network source is virtual network default of NAT. Notice now, we have the bridge device. We can click on the bridge device and then we can click on 'virtio' or hypervisor default, whichever one we wish, and we'll be using that new bridge device that we just created.

Summary 5:46-5:54

In this demonstration, we showed you how to create a bridge network device in the host machine, and how to change and use that bridge device within our virtual machine.
