Setting up Minix with Virtualbox

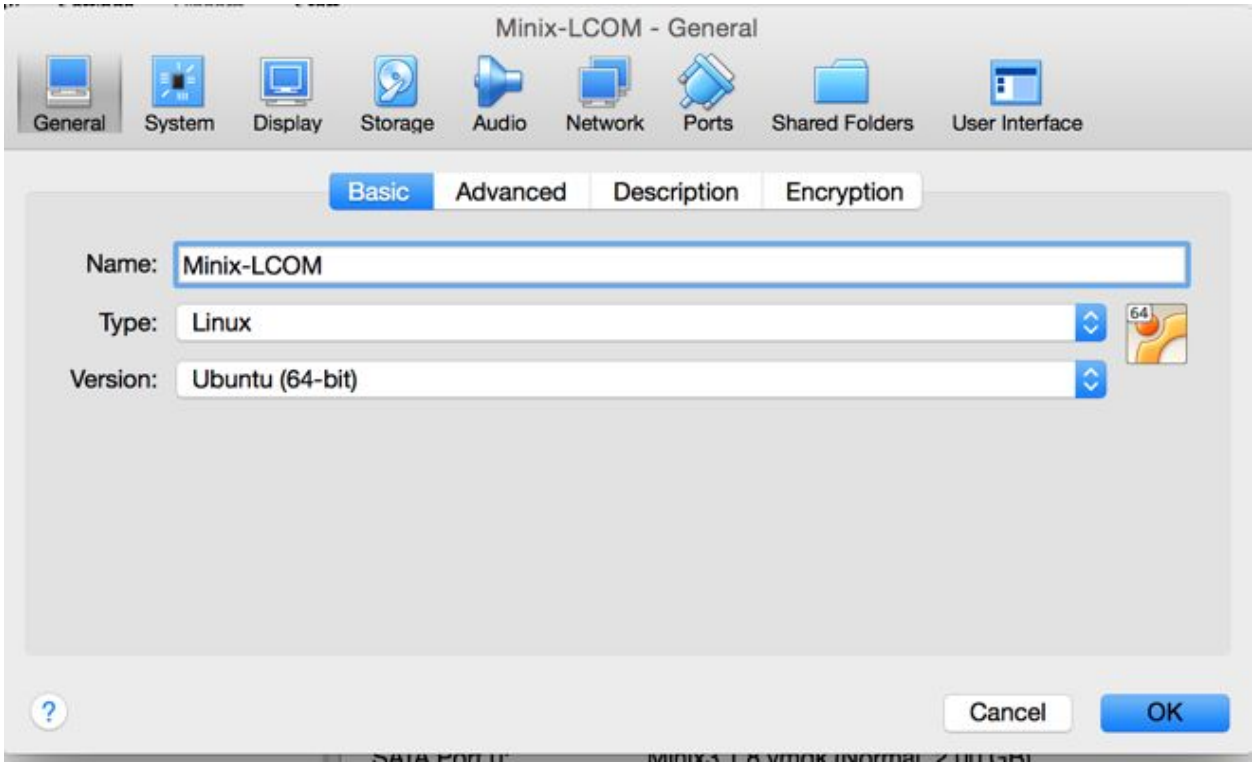
Download and install the latest version of VirtualBox from here: https://www.virtualbox.org/wiki/Downloads.
Download the Minix Virtual Machine here: https://feupload.fe.up.pt/get/JRrTAVgkcxF2hY4.

Unzip the provided Minix Virtual Machine. This will provide you with the files “Minix3.1.8.vdi” and “Minix-LCOM.vbox”.

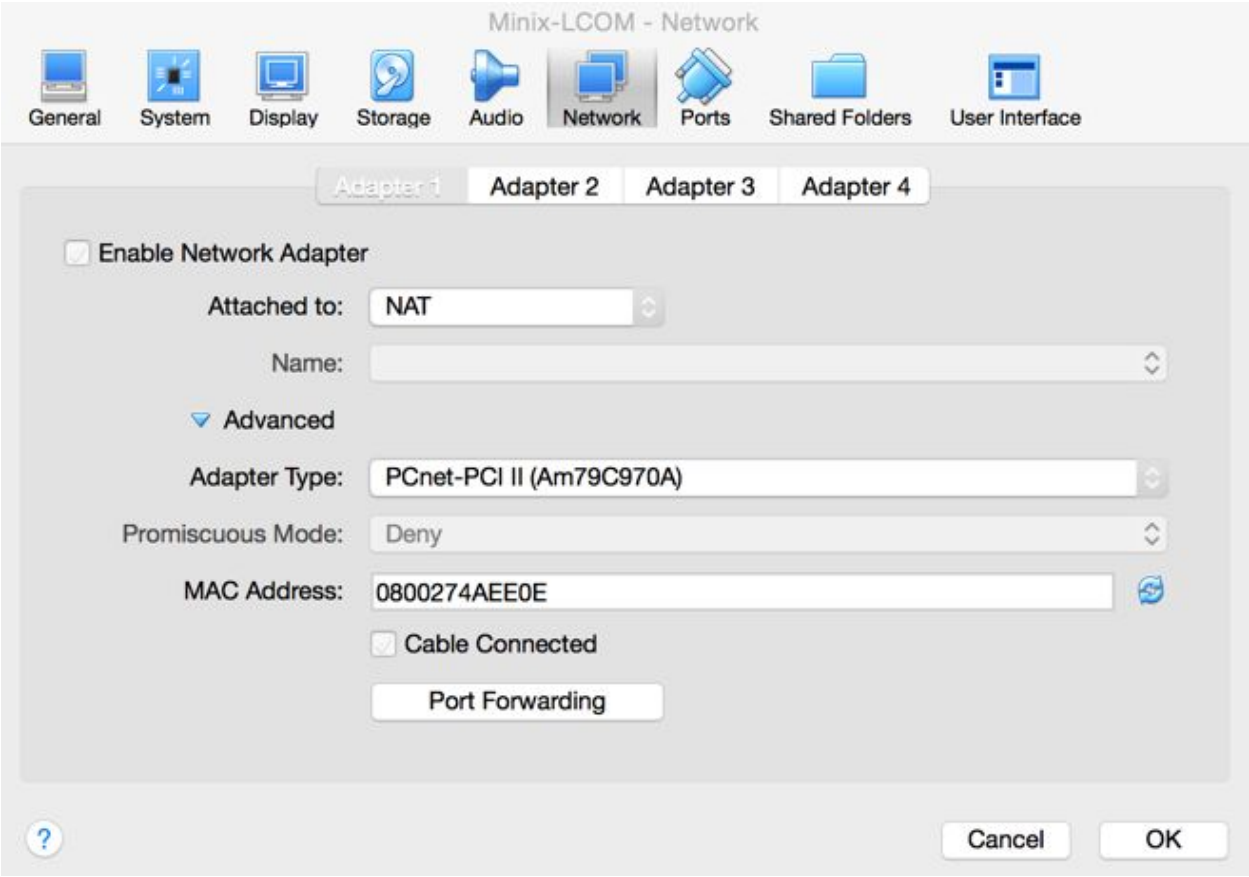
Open Virtual Box and go to the menu "Machine > Add” and choose the file “Minix-LCOM.vbox” The machine should be configured and ready to be executed. Choose it from the main screen and start it.

Configurations

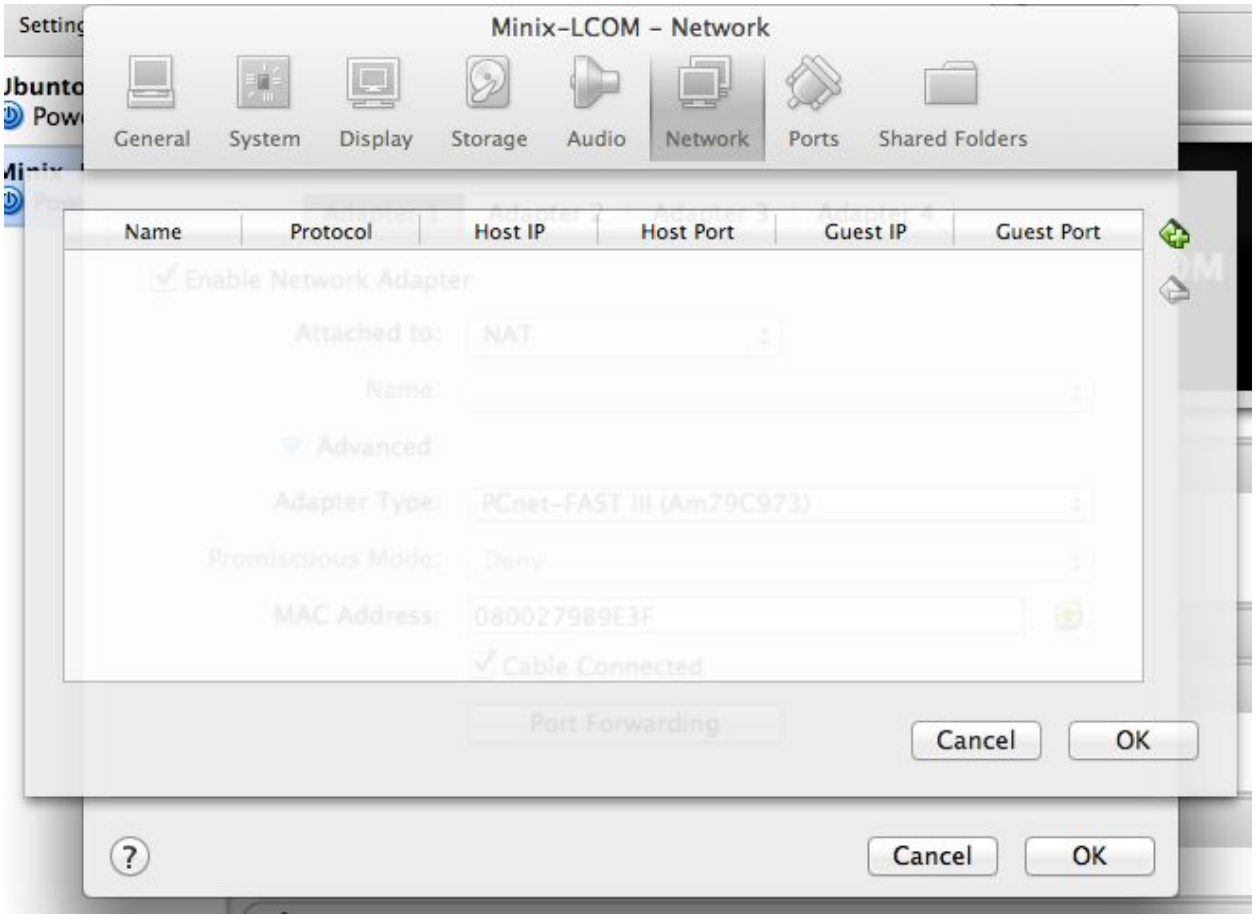
Minix requires specific configurations to the virtual machine defaults to work properly. The provided virtual machine should have been provided with the correct settings. Still, we recommend that you verify those settings are correct after adding the machine by following the guide below. Right-click on the Minix-LCOM Virtual Machine and select Settings. A dialog like the one below should appear.



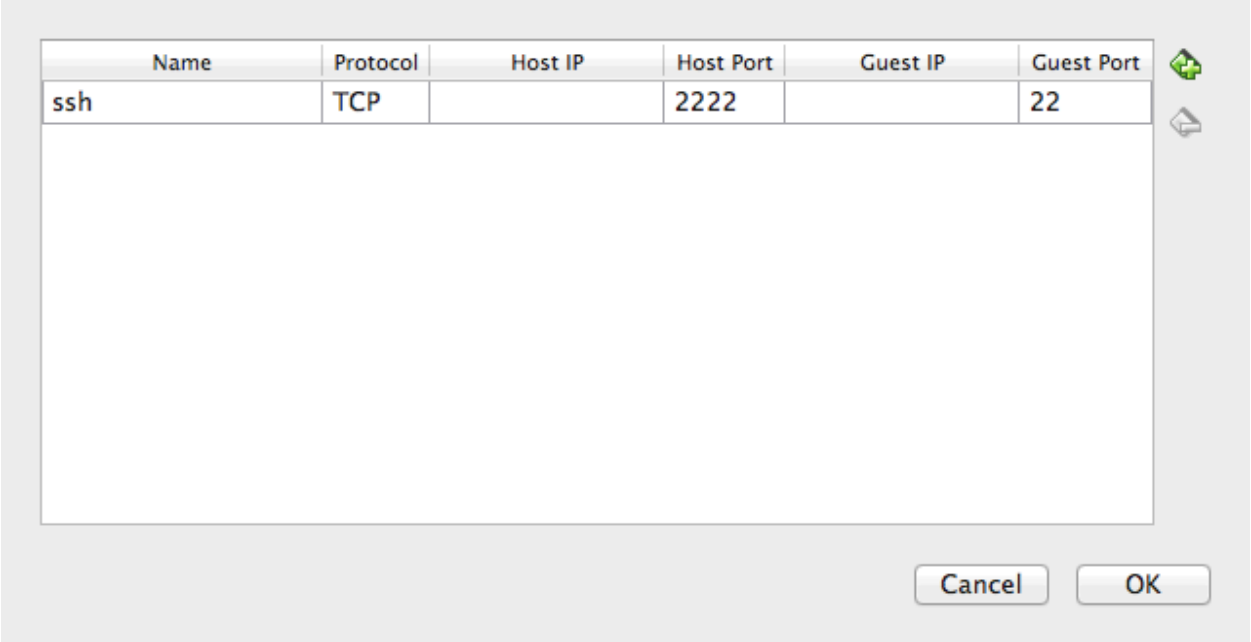
Go to Network and make sure the tab named “Adapter1” is selected and, within its preferences, the “Enable Network Adapter” checkbox is selected. In the “Attached to:” combo box, select the NAT option. Click on the Advanced toggle and change the adapter type.The dialog should now be like:



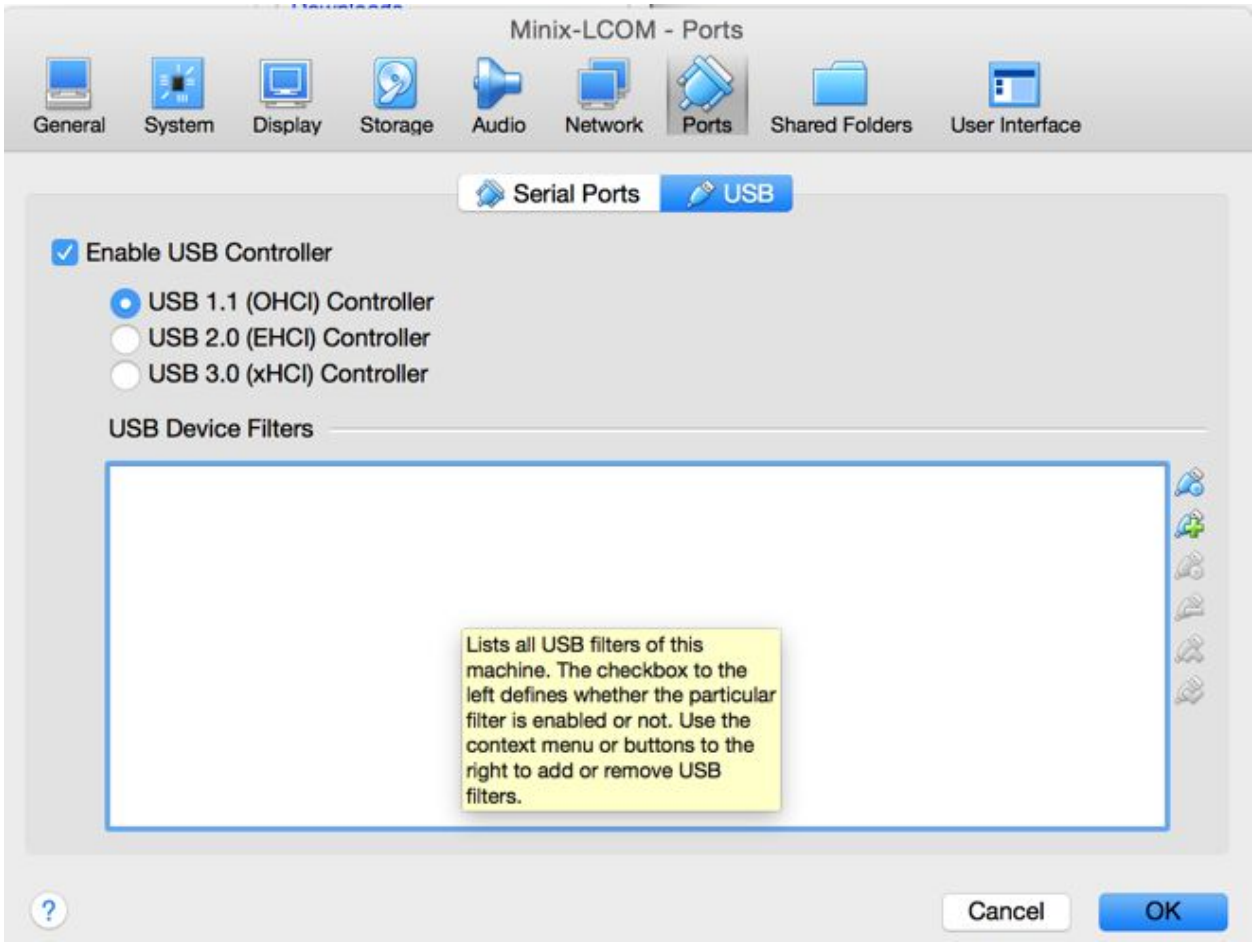
Click on “Advanced” and then press the “Port Forwarding” button. A new dialog should appear.



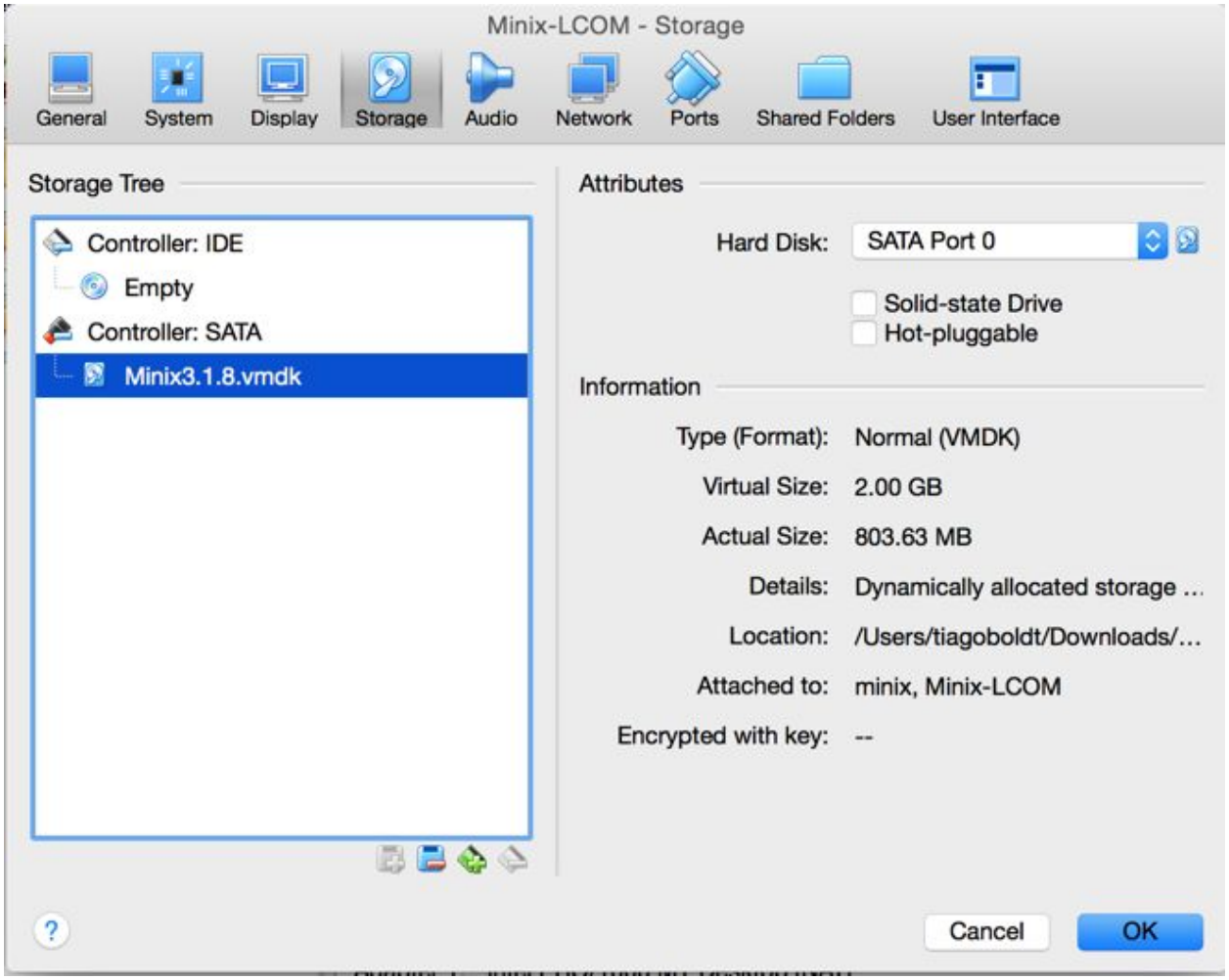
Click on the Plus button on the top right corner. A new line should appear on the table. Configure it as the following image.



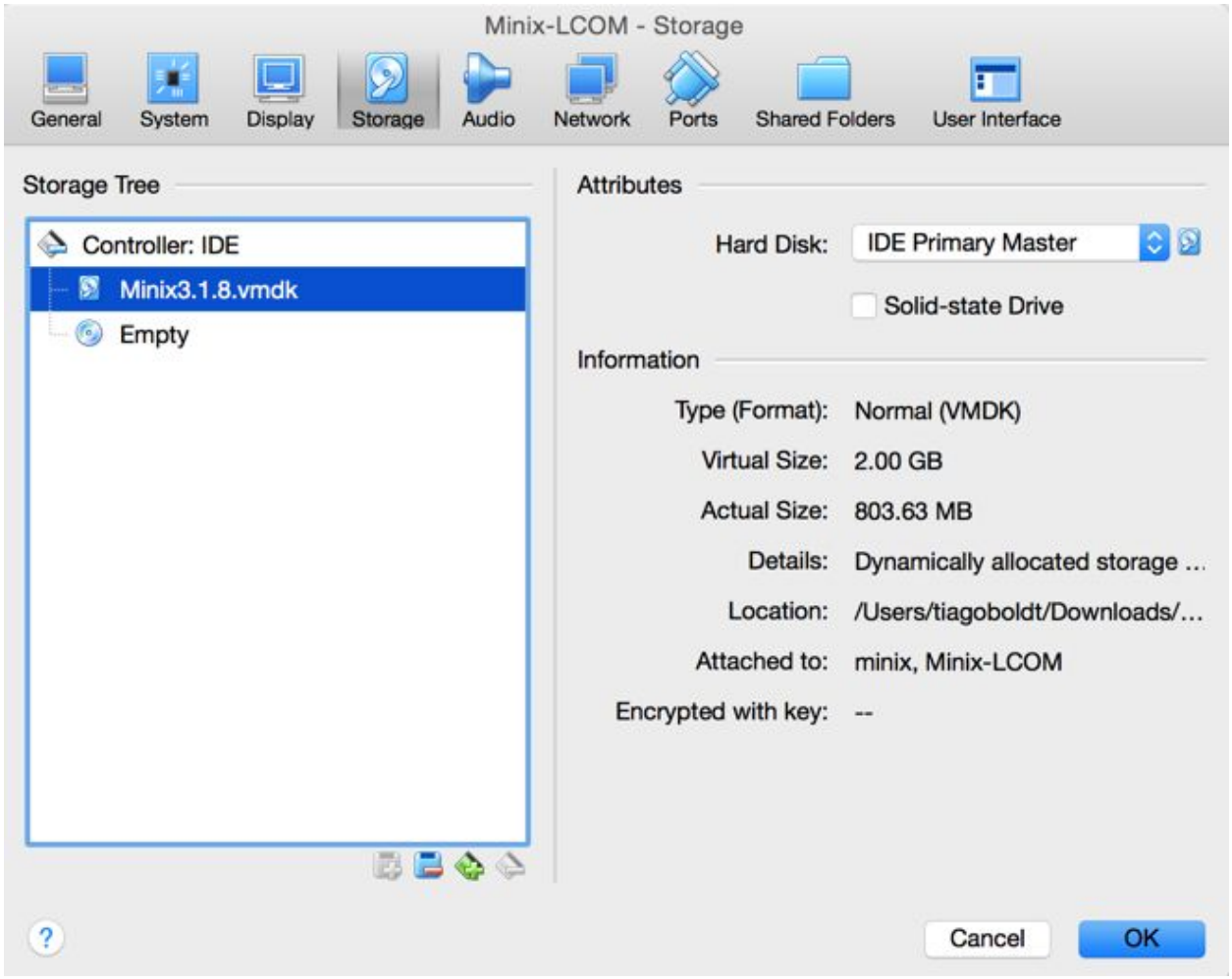
These settings configure Virtual Box to map the 2222 port on the host machine to port 22 (the default ssh port) on the Virtual Machine. This means that any connection to the host machine on port 2222 will be routed to the Minix Virtual Machine ssh port.
Close the "Port Forwarding” dialog. Now, on the settings dialog, press the “Ports” button and select the “USB” tab. The dialog should now be like the following:



Finally, we need to change the disk type, as minix does not recognize SATA. Choose the storage tab. It should like as follows:

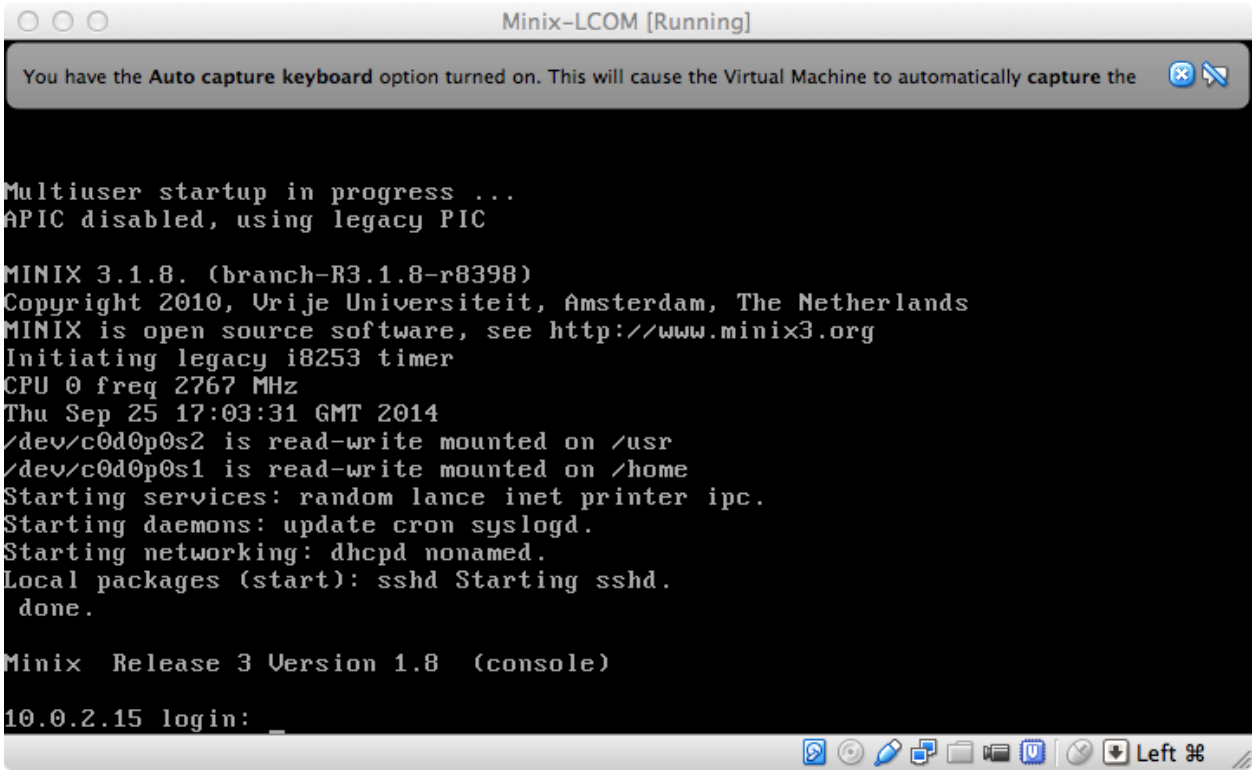


Delete the SATA controller and add a new IDE hard disk from an existing disk. Again, choose the minix image you've downloaded previously. Final configuration should look like:



You can now run the Virtual Machine by selecting the “Minix-LCOM” Virtual Machine and pressing the “Start” button on the main window.

A new window should open where, after a while, a login prompt will be shown like in the following image:



Login using one of the available accounts (see http://web.fe.up.pt/~pfs/aulas/lcom2014/labs/doc/devel1.html). For example, with the username “lcom” and password “lcom”. You can now use the Virtual Machine.

Setting up an SSH connection to this Virtual Machine

Open a Terminal Window in Mac OS and enter the following command:

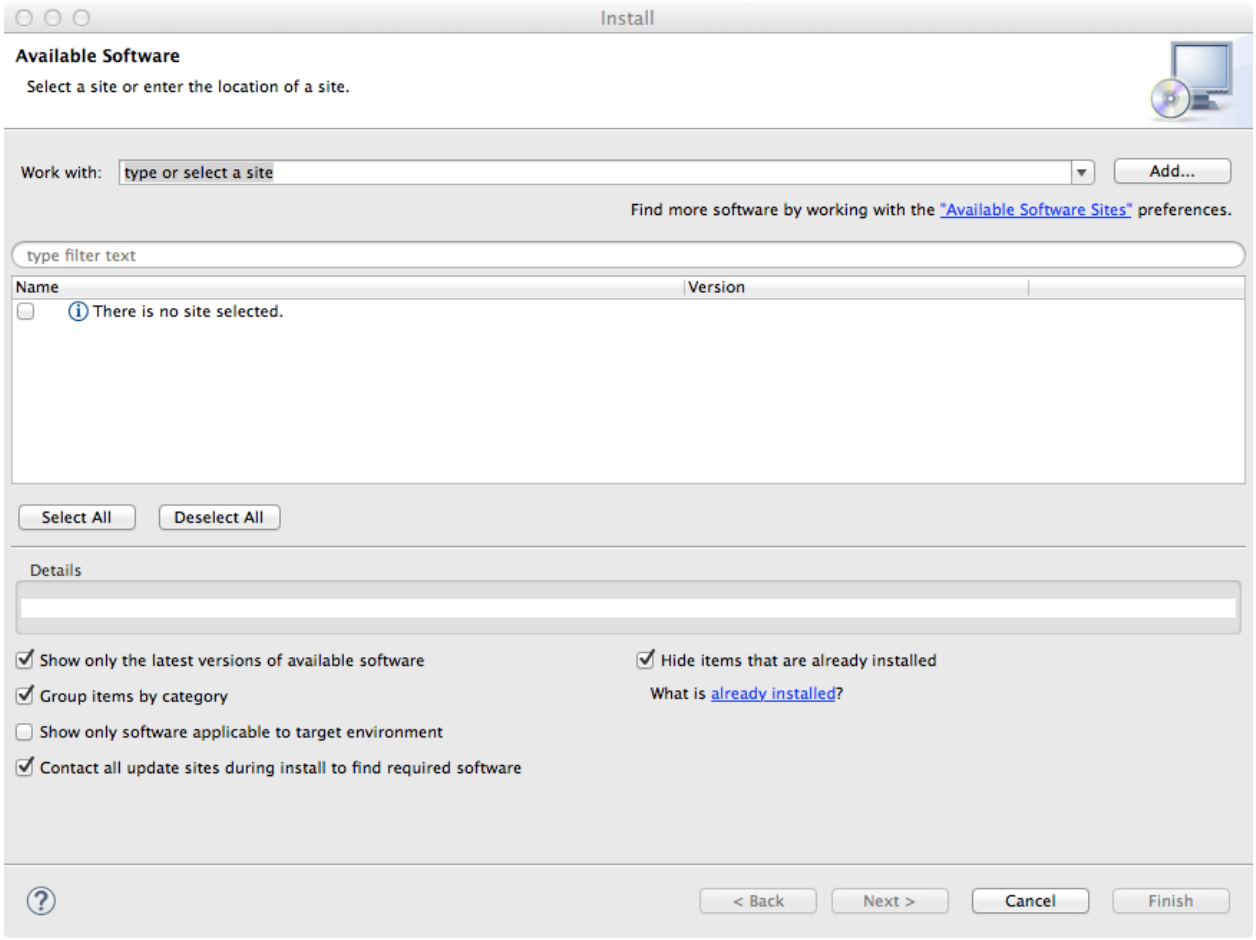
ssh lcom@127.0.0.1 -p 2222

This is similar to the instructions on the Remote Access via SSH notes (http://web.fe.up.pt/~pfs/aulas/lcom2014/labs/doc/devel1.html). However, we are connecting to the local (host) machine (the ip address 127.0.0.1 always refers to the local machine) and we are using the -p option which instructs the ssh command to connect to port 2222 instead of the default 22. Because we set up the Minix Virtual Machine to forward the connections made to port 2222 on the host machine to port 22 on the guest machine, this will allow us to connect to the ssh server running on the Minix Virtual Machine.

If all goes well, you should be prompted for the lcom's password. Enter the password (which should be lcom) and you should successfully connect to the Minix VM.

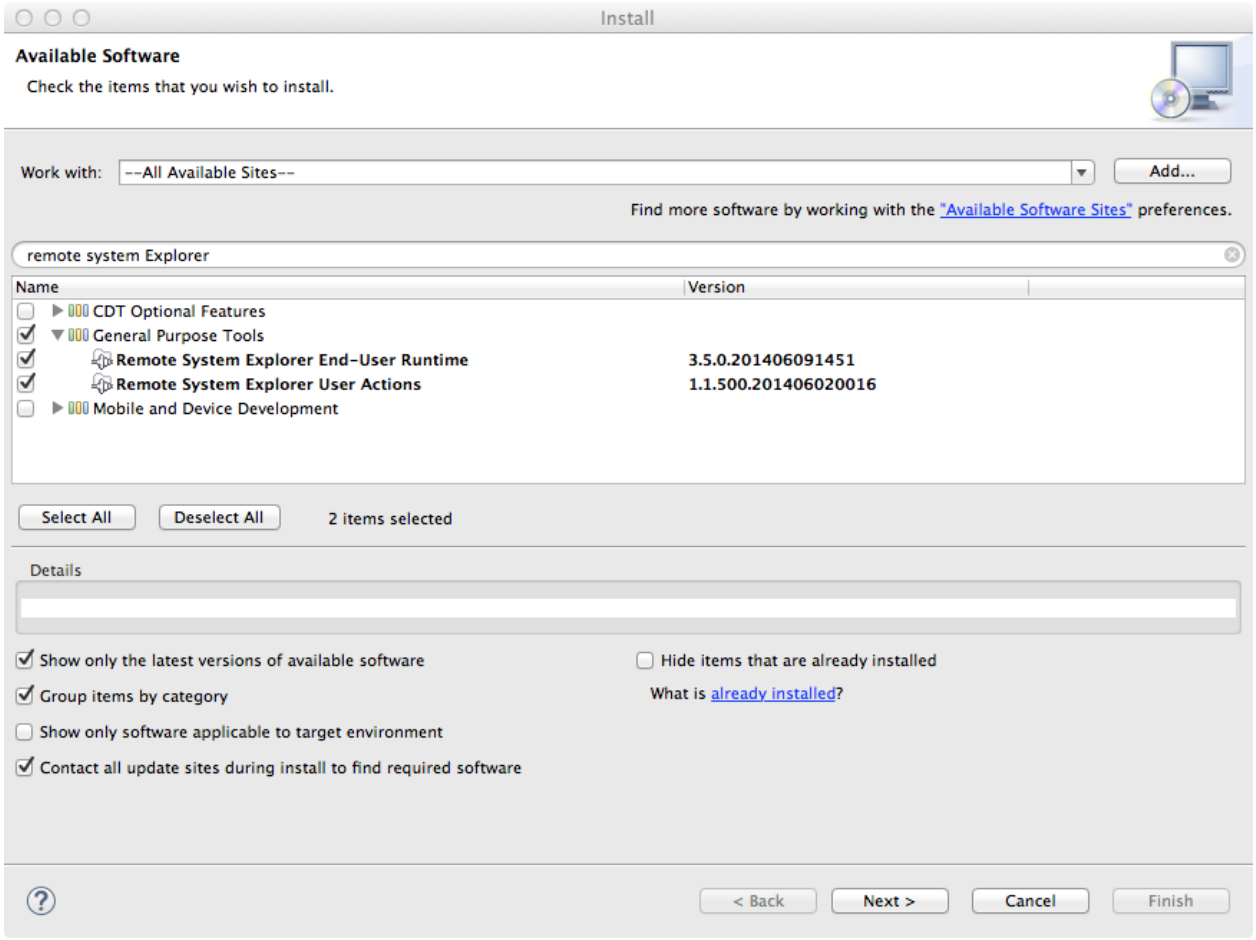
Setting up C/C++ Development Tools and Eclipse Remote System Explorer

Run Eclipse and go to the menu "Help > Install New Software. The following dialog should appear:

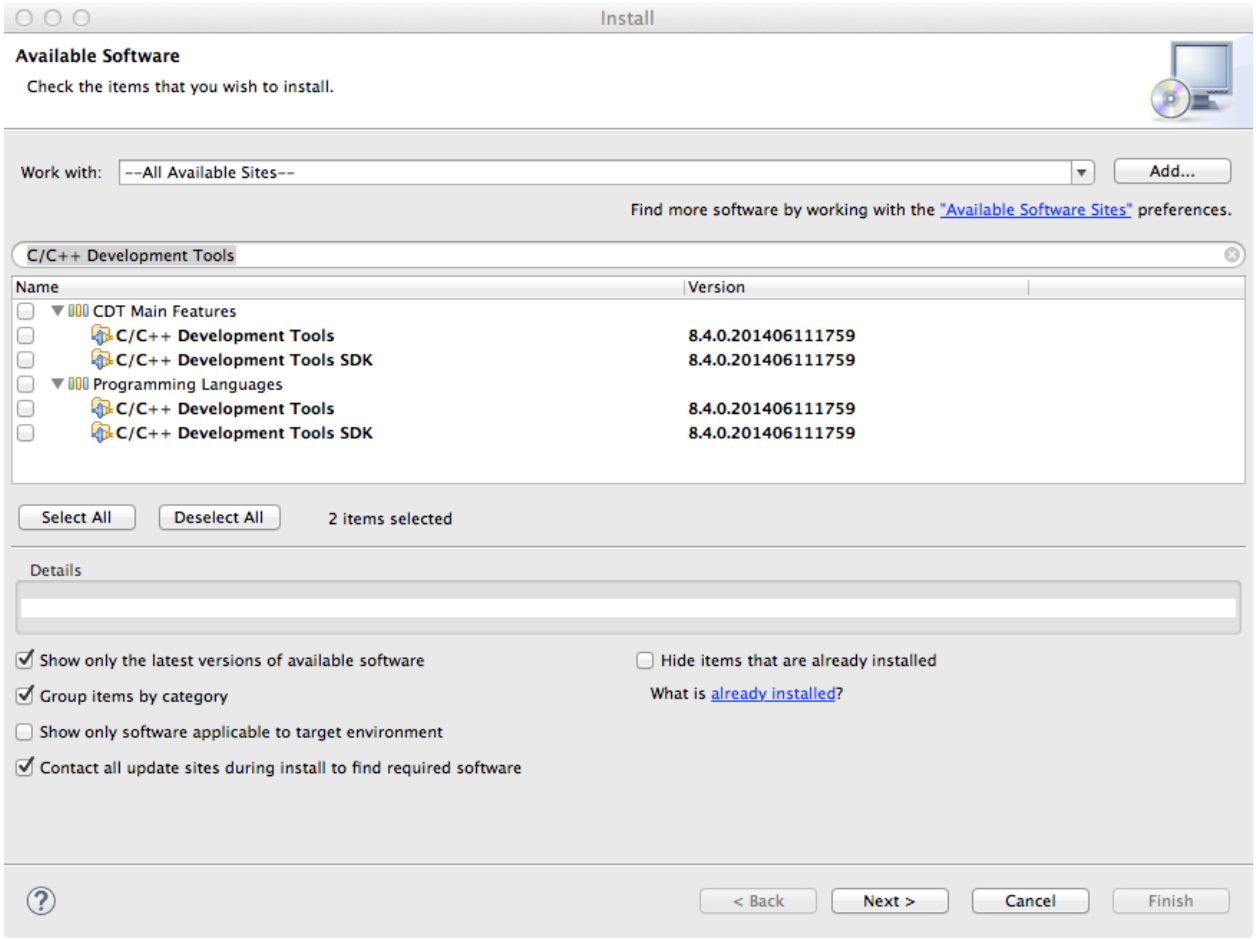


If not present, add the following repository: "http://download.eclipse.org/releases/mars" with the "Add" button on the upper left corner.

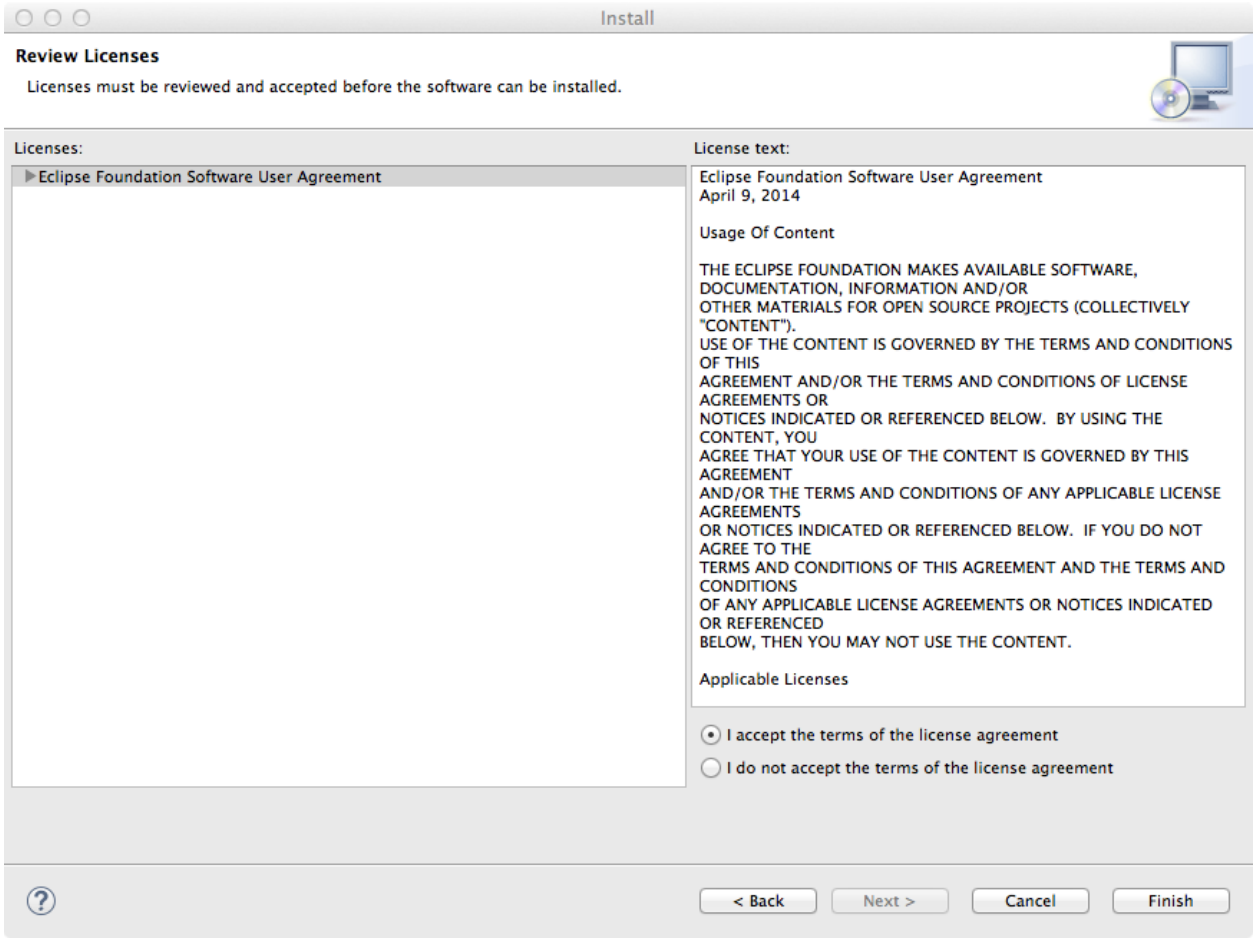
On the "Work with:" combo box select "-- All Available Sites —" select the repository above.



Like in the image, select the “Remote System Explorer End-User Runtime” and “Remote System Explorer Actions”. Next, write "C/C++ Development Tools” in the “type filter text” text field and the list of software should update to show something similar to the image:

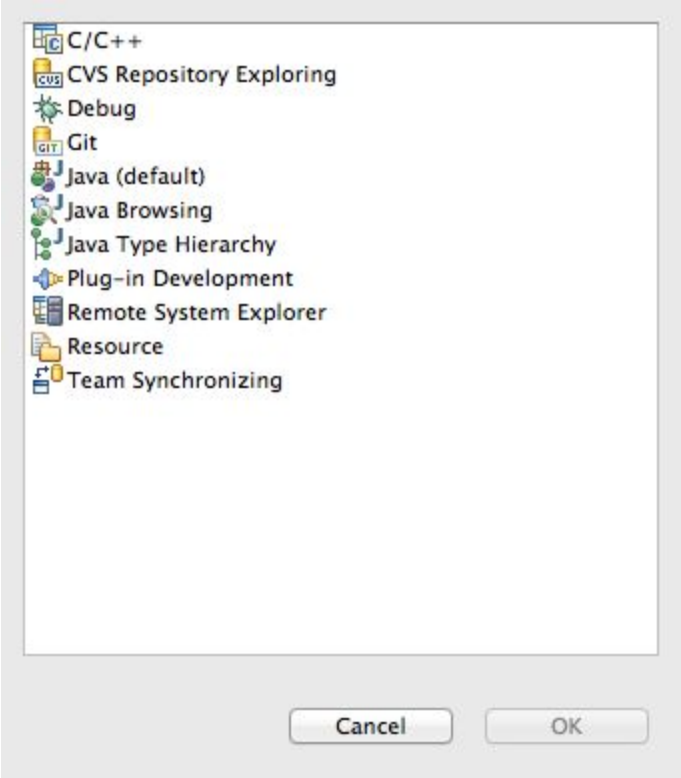


Select the “C/C++ Development Tools”. Press the “Next” button on this dialog and again when the dialog changes. You should now see something similar to the following image:

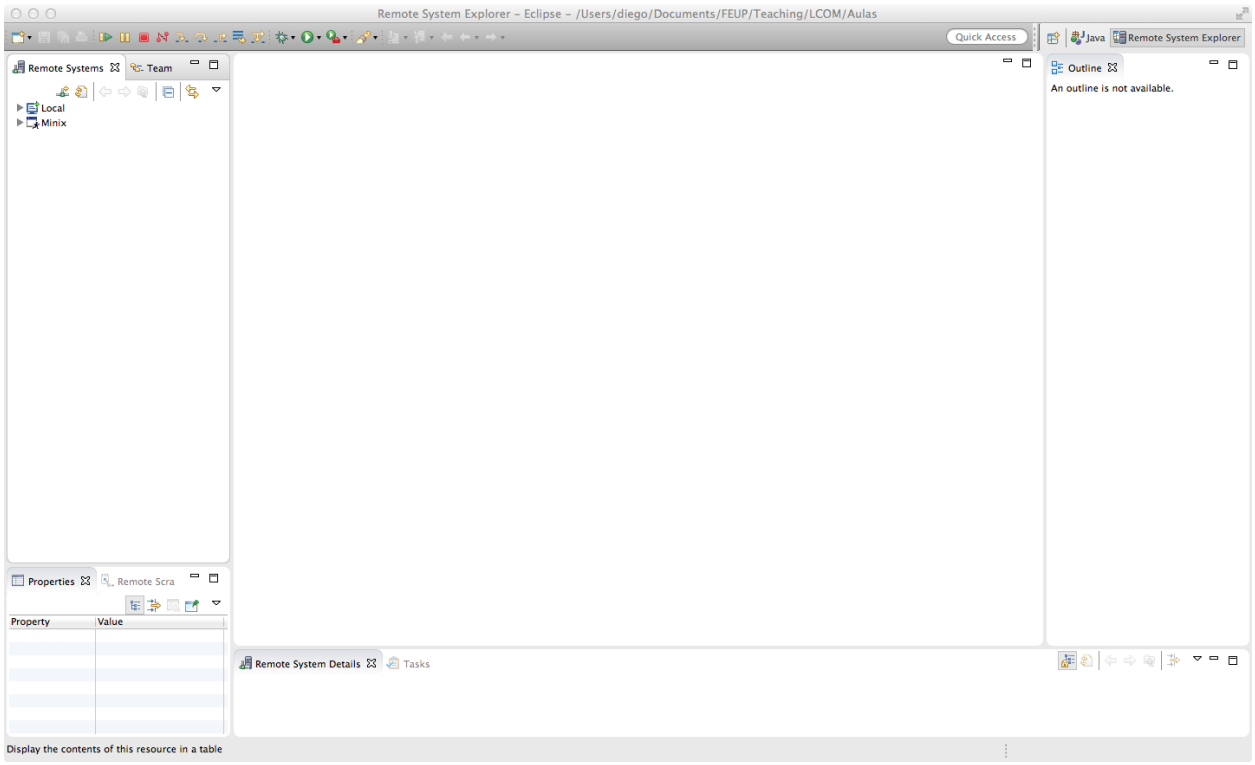


Select the “I accept the terms of the license agreement” and press “Finish”. A new dialog should appear indicating that the Remote System Explorer is installing. When it finishes, a new dialog will request to restart Eclipse. Press “Yes”.

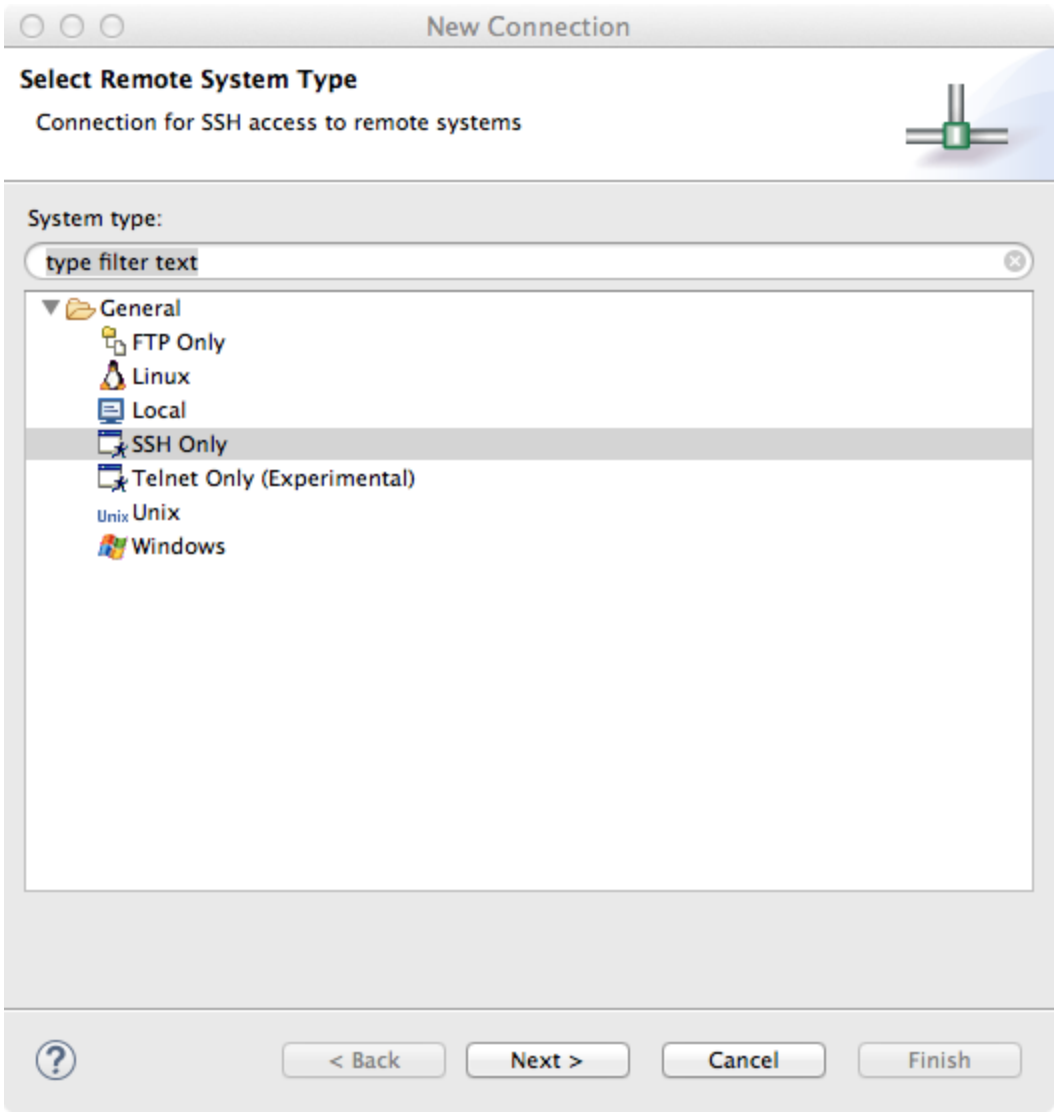
When Eclipse restarts you should be able to open the Remote System Explorer Perspective by going to the menu “Window > Open Perspective > Other…”. A dialog like the following should open:



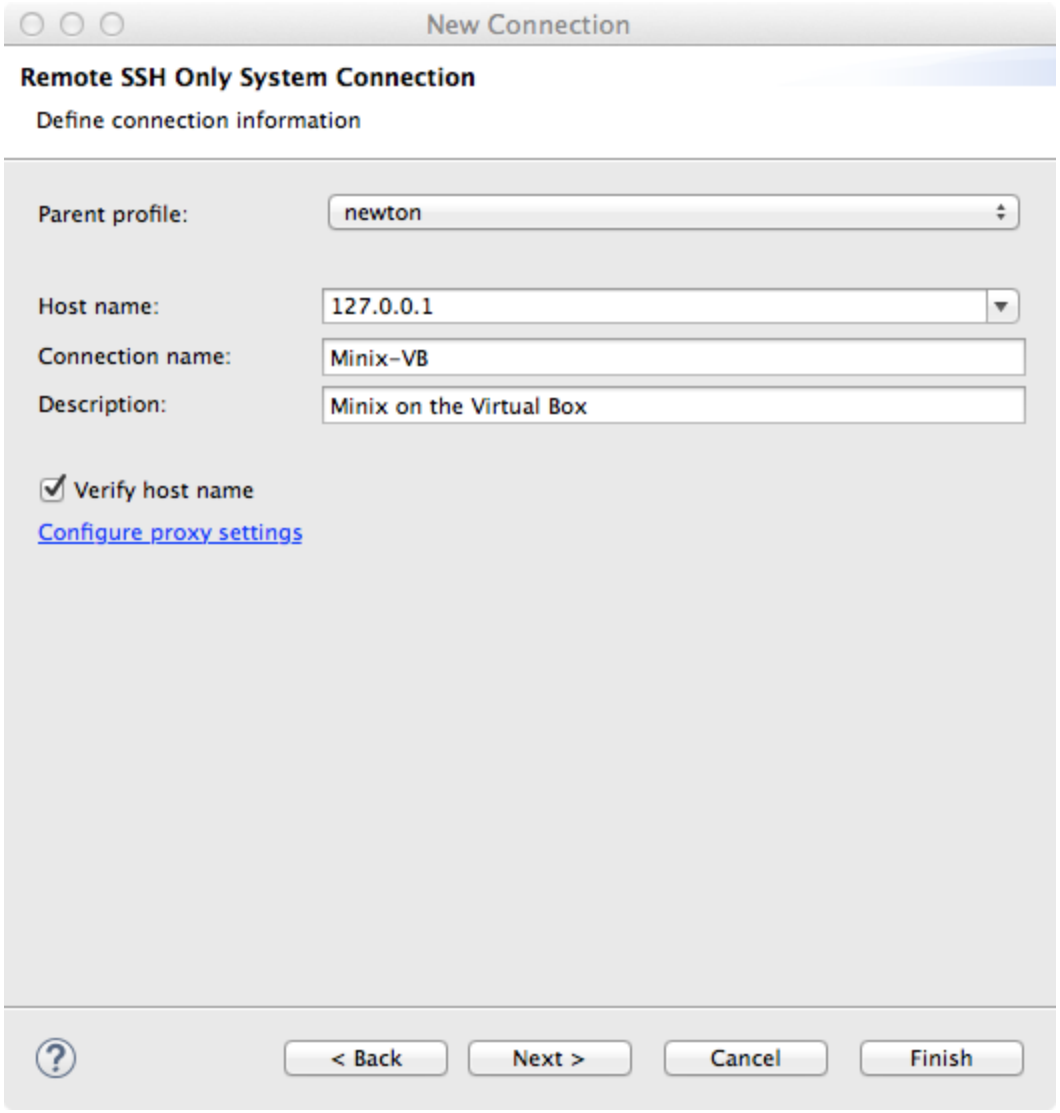
Select "Remote System Explorer” in the list and press OK. The main Eclipse window should now appear similar to the following image:



Make sure that the “Remote Systems” tab is selected on the navigation panel on the right and press the button (should be first to the right, below the tab names) to configure a new connection. A new dialog should open:

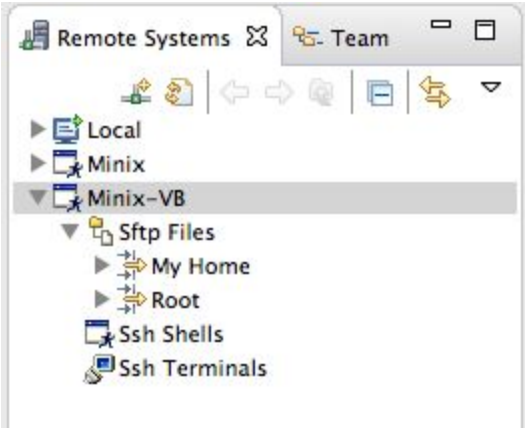


Select the "SSH Only” item and press “Next”. On the dialog that appears, configure the settings as:

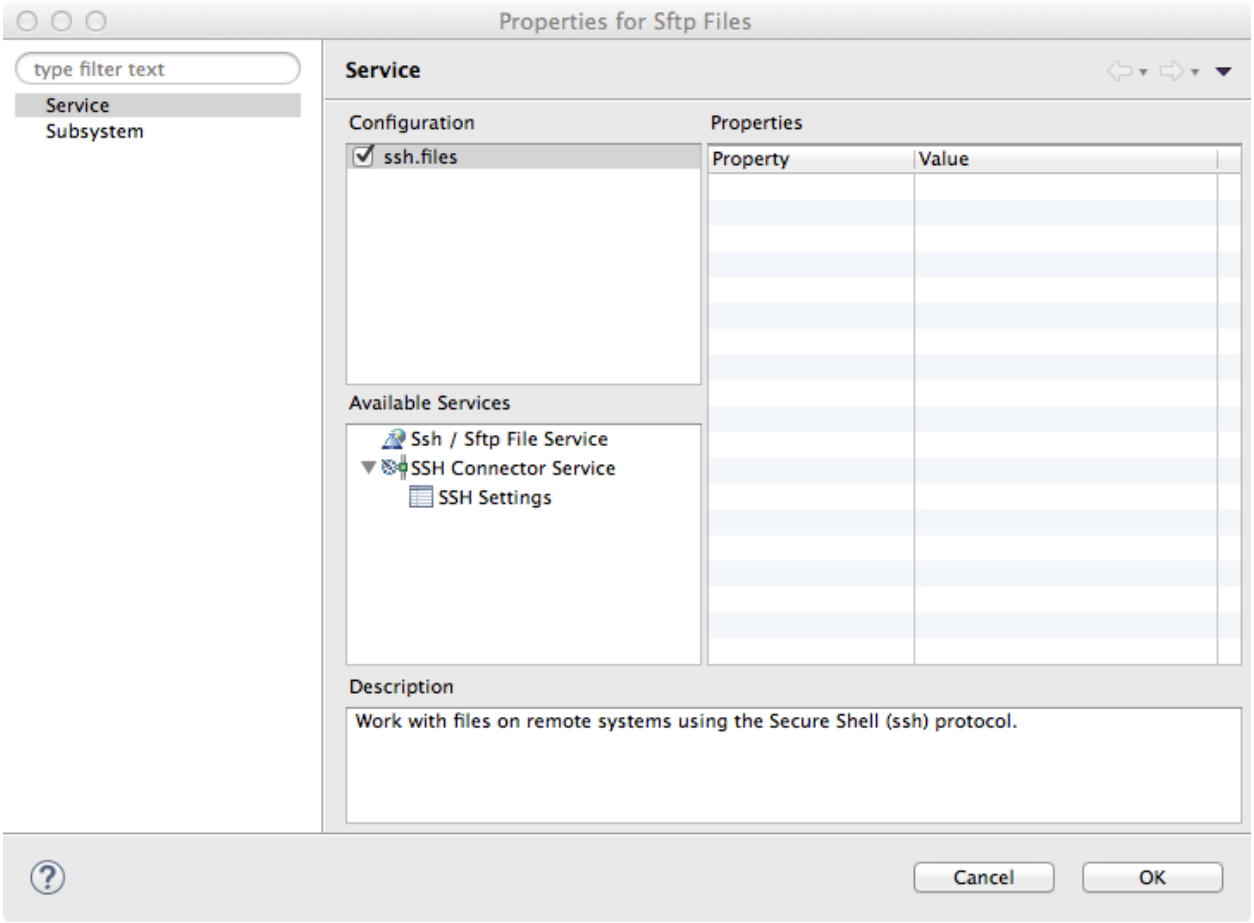


Press “Finish”. The “Remote Systems” tab on Eclipse’s main window should now contain the “Minix-VB” item. However, it’s still not possible to connect to the Virtual Machine because the IP address “127.0.0.1” actually refers to the local (host) machine. Here, we will also take advantage of the Port Forwarding we set up in Virtual Box. All that we need to do now is to change the connection port to 2222.

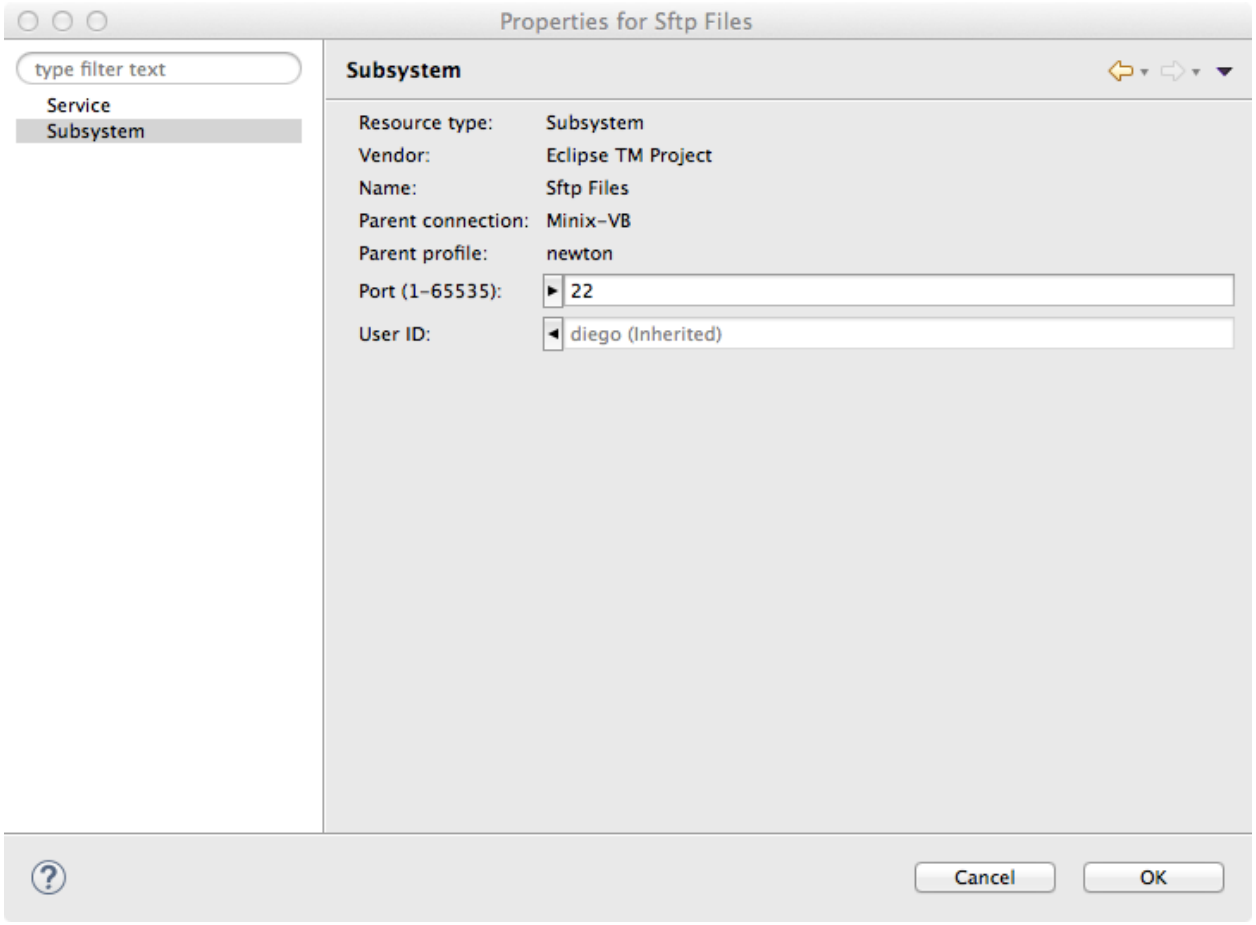
Expand the "Minix-VB” by pressing the triangle to its left. The following should appear:



Right click on the “Sftp Files” and go to “Properties” on the menu that pops up. A dialog similar to the image should appear.

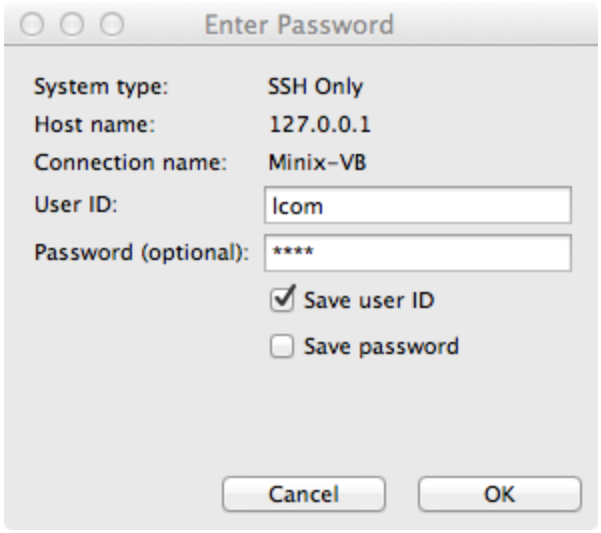


On the left, select the “Subsystem” item. The window should change to something like:



On the “Port (1-65535)” text field enter 2222. Press OK. Now, do the same for “Ssh Shells” and “Ssh Terminals”. Most likely, the port will already be set to 2222, but check it anyway.

Now you can try to connect to the Virtual Machine. Expand “Sftp Files” and “Root”. A dialog requesting the username and password should open.



Enter “lcom” as both the Used ID and password. If you wish, also select “Save user ID” and “Save Password”. Press OK. If everything went well, you should now be able to navigate the Minix file system.

This concludes setting up the development environment to use Virtual Box.

Changelog

2014 - Diego Jesus - Original document
2015 - Tiago Boldt Sousa - Update to new Virtualbox-based image and describe configurations for Virtualbox 5.x.
2016 - Tiago Boldt Sousa - Updated Minix link.