CST8216 Processor Architecture – Lab Week One – Approximately Two Hours to complete and you MUST have an Internet Connection to Perform the Lab

This lab has been created so that you can configure your laptop (mandatory) and/or home computer (optionally) with the software that we will be using in the course. You must complete this lab before Week Two of the course; otherwise, you will not be prepared to do the in-lab course work in Week Two that uses Multisim 13.

I do not recommend printing this document – it is best read in Adobe Acrobat Reader using magnification as required.

Software Installation Instructions

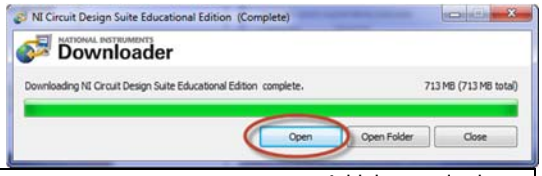
The software packages that we will use in this course are:

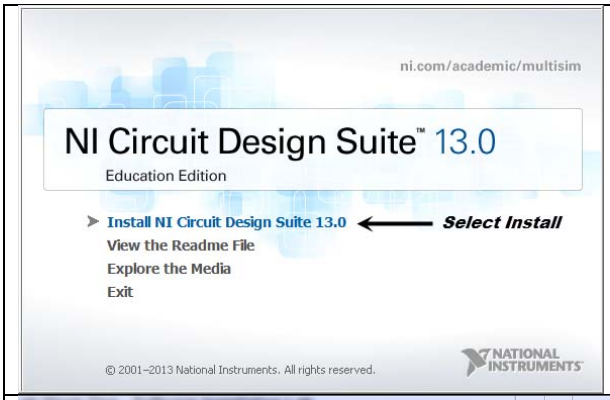
- National Instruments Multisim 13 Education Edition
- 68HCS12 Simulator and ASMIDE software

- A Windows 7, 8 or 10 Operating System MUST be used for the 68HCS12 Simulator and ASMIDE software.

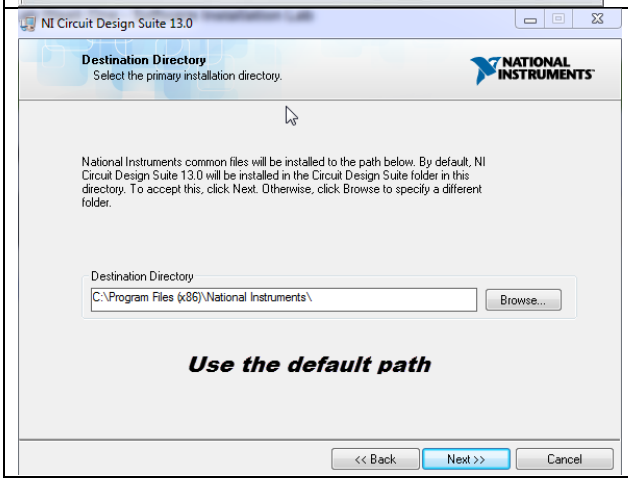
National Instruments Multisim 13 Download and Installation – LAPTOP and optionally HOME (You must have an internet connection to download and install this software)

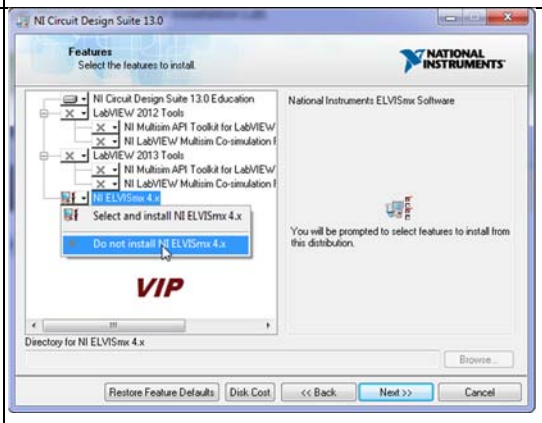
1. To download the latest version of Multisim, you must download and run the download manager for the product. The link for that software can be found in the same folder you found this document. Once you click on the link, save the file and then run it to download ***NI_Circuit_Design_Suite_13_0_Education.exe*** to your system. Once the download is complete, click on Open and extract the software to ***its default directories***, noting any pop-up dialogue boxes as you proceed.
2. Now, install the software as per the following example screen captures.





Add the required information, including the serial number **M76X57152**

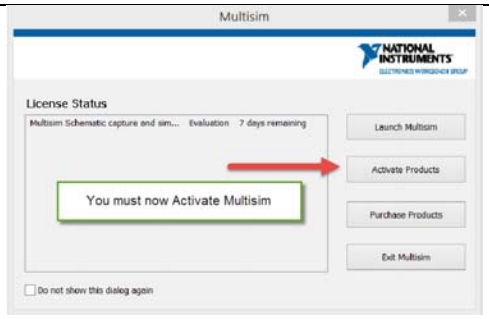


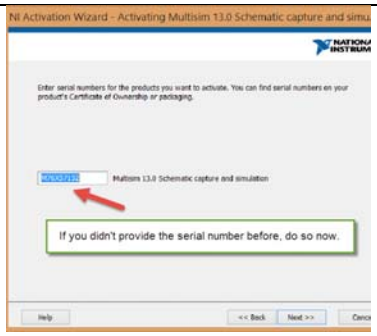


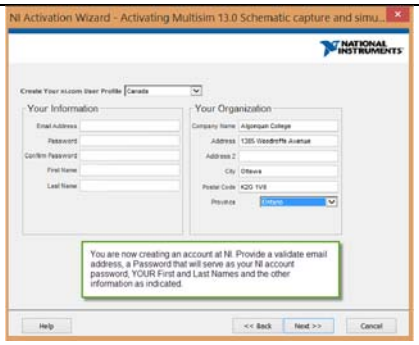
Use the drop-down menu beside NI ELVISmx 4.x to deselect the installation of that option.

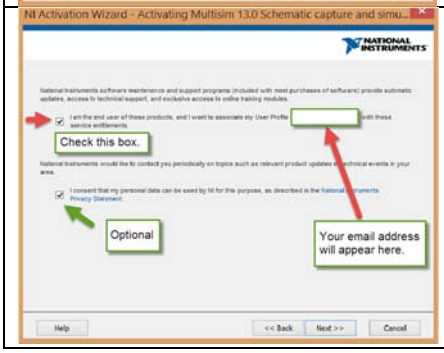

NI Circuit Design Suite 13.0
Features
Select the features to install.
NATIONAL INSTRUMENTS
NI Circuit Design Suite 13.0 Education
LabVIEW 2012 Tools
NI Multisim API Toolkit for LabVIEW
NI LabVIEW Multisim Co-simulation F
LabVIEW 2013 Tools
NI Multisim API Toolkit for LabVIEW
NI LabVIEW Multisim Co-simulation F
NI ELVISmx 4.x
Contains all associated files to install the Circuit Design Suite 13.0
This feature will be installed on the local hard drive.
Correct installation setup
Directory for NI Circuit Design Suite 13.0 Education
C:\Program Files (x86)\National Instruments\Circuit Design Suite 13.0\
Browse...
Restore Feature Defaults
Disk Cost
<< Back
Next >>
Cancel
NI Circuit Design Suite 13.0
Product Notifications
Please read the following information about the configuration you have selected.
NATIONAL INSTRUMENTS
Uncheck
Search for important messages and updates on the National Instruments products you are installing. To perform this search, your IP address will be collected in accordance with the National Instruments Privacy Policy.
Note: You will be given the opportunity to select the updates you want to install.
Privacy Policy
<< Back
Next >>
Cancel
NI Circuit Design Suite 13.0
License Agreement
You must accept the licenses displayed below to proceed.
NATIONAL INSTRUMENTS
NI
Microchip
NATIONAL INSTRUMENTS SOFTWARE LICENSE AGREEMENT
INSTALLATION NOTICE: THIS IS A CONTRACT. BEFORE YOU DOWNLOAD THE SOFTWARE AND/OR COMPLETE THE INSTALLATION PROCESS, CAREFULLY READ THIS AGREEMENT. BY DOWNLOADING THE SOFTWARE AND/OR CLICKING THE APPLICABLE BUTTON TO COMPLETE THE INSTALLATION PROCESS, YOU CONSENT TO THE TERMS OF THIS AGREEMENT AND YOU AGREE TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT WISH TO BECOME A PARTY TO THIS AGREEMENT AND BE BOUND BY ALL OF ITS TERMS AND CONDITIONS, CLICK THE APPROPRIATE BUTTON TO CANCEL THE INSTALLATION PROCESS, DO NOT INSTALL OR USE THE SOFTWARE, AND RETURN THE SOFTWARE WITHIN THIRTY (30) DAYS OF RECEIPT OF THE SOFTWARE (WITH ALL ACCOMPANYING WRITTEN MATERIALS, ALONG WITH THEIR CONTAINERS) TO THE PLACE YOU OBTAINED
The software to which this National Instruments license applies is NI Circuit Design Suite 13.0.
Accept
I accept the above 2 License Agreement(s).
I do not accept all these License Agreements.
<< Back
Next >>
Cancel
NI Circuit Design Suite 13.0
Start Installation
Review the following summary before continuing.
NATIONAL INSTRUMENTS
Adding or Changing
• NI Circuit Design Suite 13.0 Education
Click the Next button to begin installation. Click the Back button to change the installation settings.
Save File...
<< Back
Next >>
Cancel
NI Circuit Design Suite 13.0
Installation Complete
NATIONAL INSTRUMENTS
NI Circuit Design Suite 13.0 has been installed.
Successful installation!
<< Back
Next >>
Finish
NI Circuit Design Suite 13.0
You must restart your computer to complete this operation.
If you need to install hardware now, shut down the computer. If you choose to restart later, restart your computer before running any of this software.
Imperative to Restart
Restart
Shut Down
Restart Later

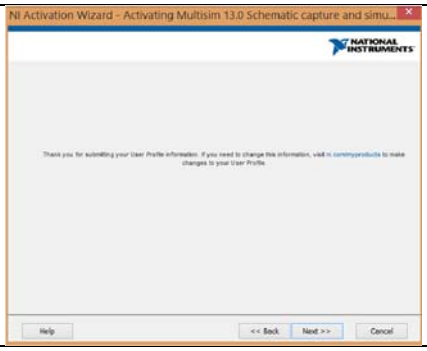
3. When your Windows 8 system reboots, you will then be presented with a number of dialogue boxes and alerts to complete your setup. **(If you do not receive the following notification, then run Multisim 13.0 from the start menu and the follow the prompts to activate the product).**







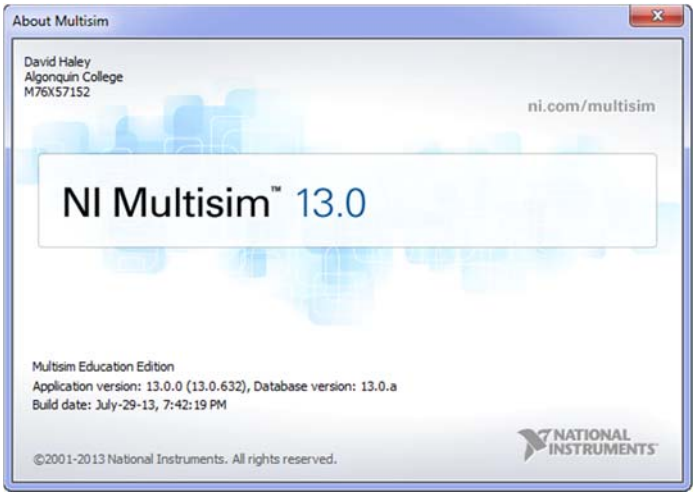




You will then be presented with a "Products Successfully Activated!" dialogue box.

Running Multisim 13

To run this software, find the NI Multisim 13.0 icon in Windows 8.x Apps and click on it (I also found it very handy to pin it to that taskbar). An opening dialogue box similar to the following should appear.



Configuration Changes that must be completed:

In order for Multisim 13 to function correctly for the work we will do in this course, select the Multisim13.0 menu item and make the following ***mandatory*** configuration changes in Multisim 13.0.

To resolve the problem with wires not staying connected to components, we must change one of the Autowire features as follows.

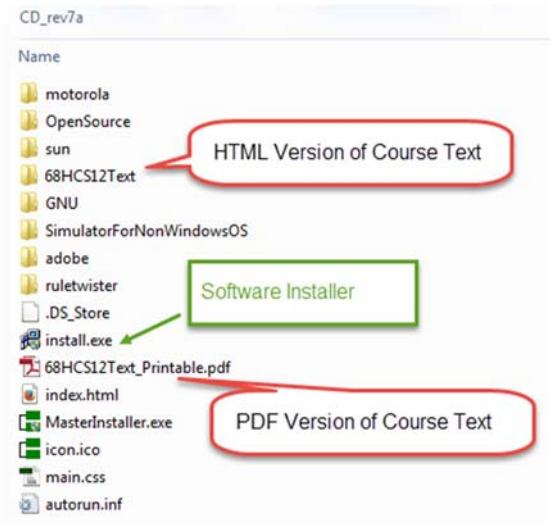
Select Options→ Global Options → General→ "Autowire component of move, if number of connections is fewer than 12" <= change the value to 30 then click on "Apply" and "OK"

You can then close the program.

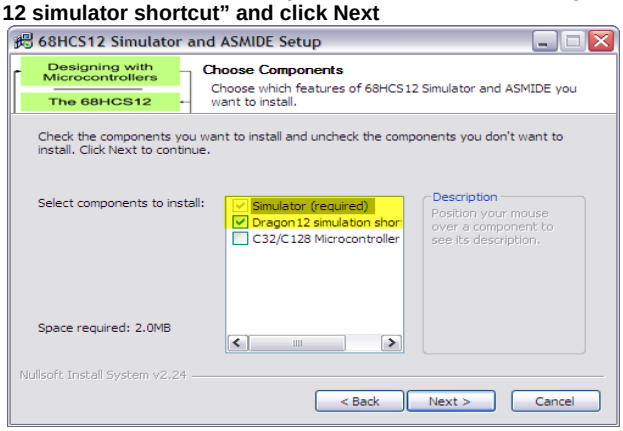
Note that this configuration will be tested during Lab Week Two's exercise – do not lose marks just because you skipped these important steps!

The 68HCS12 Simulator and ASMIDE Installation – LAPTOP and optionally HOME

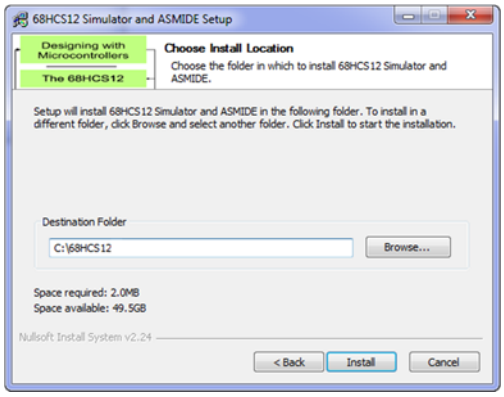
1. Download the latest version of this package via the link it in the same folder you found this document. After you download and unzip CD_rev7a_14SLU.zip, navigate to the CD_rev7a folder (folder name may vary depending which decompression software you use) and *install the software as per the following screenshots:*
   - **a. Click on "install" to proceed with the installation. (Note the course text is also in the compressed package.)**
   - **b. Agree to the License Agreement**



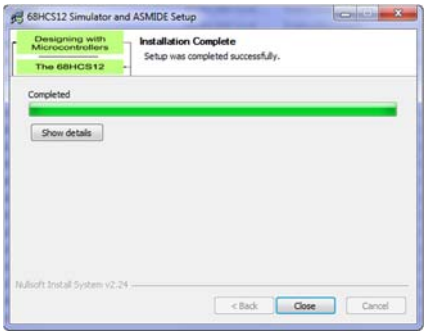
   - **c. Select the first two default options - Simulator and "Dragon 12 simulator shortcut" and click Next**



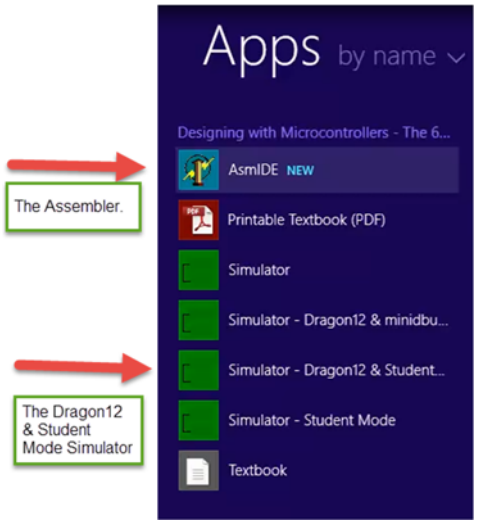
   - d. **Install the package to C:\68HCS12 ** manually change the default "Destination Folder" value to "C:\68HCS12" ** as per the author's recommendations.**



e. Complete the installation, the click on the Close button.



f. We now have the following Windows 8.x Apps created for our use (Note: You can right-click AsmIDE and the Simulator – Dragon12 & Student icons on the Windows 8.x Taskbar.



Testing Your Installation

The following describes a brief testing methodology to confirm that your installation is functional.

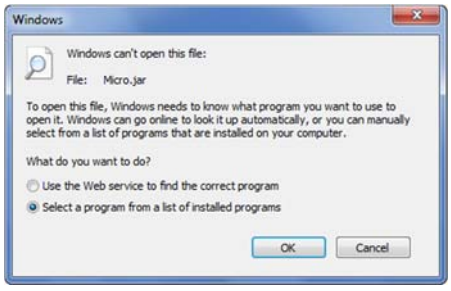
a. Clicking on AsmIDE should result in the assembler starting (answer "NO" to setting the PORT); and

b. Clicking on Simulator - Dragon12 & Student Mode should start the simulator (click "Dismiss")

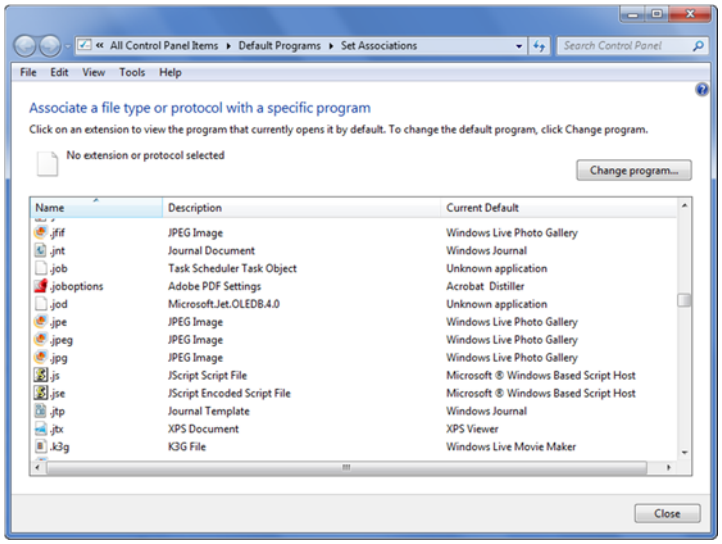
If all went well for those two steps, then your software is likely correctly installed as long as you used the installation folders that were identified in the instructions.

Testing Your Installation – It did not Work!

When I first attempted this installation on my older Windows 7 laptop, I found that it did not have Java installed and I received the following notification when I attempted to start Simulator - Dragon12 & Student Mode



A further investigation of my 64-bit Windows 7 installation confirmed that .jar files lacked a file extension association:



To run .jar files, you must navigate to the Sun (Oracle) website at: www.sun.com, click on Downloads and then select Java for Developers.

Then, select Java Platform (JDK) 7 and select the download applicable to your operating system (Windows 32-bit and 64-bit OS selections circled to the left)

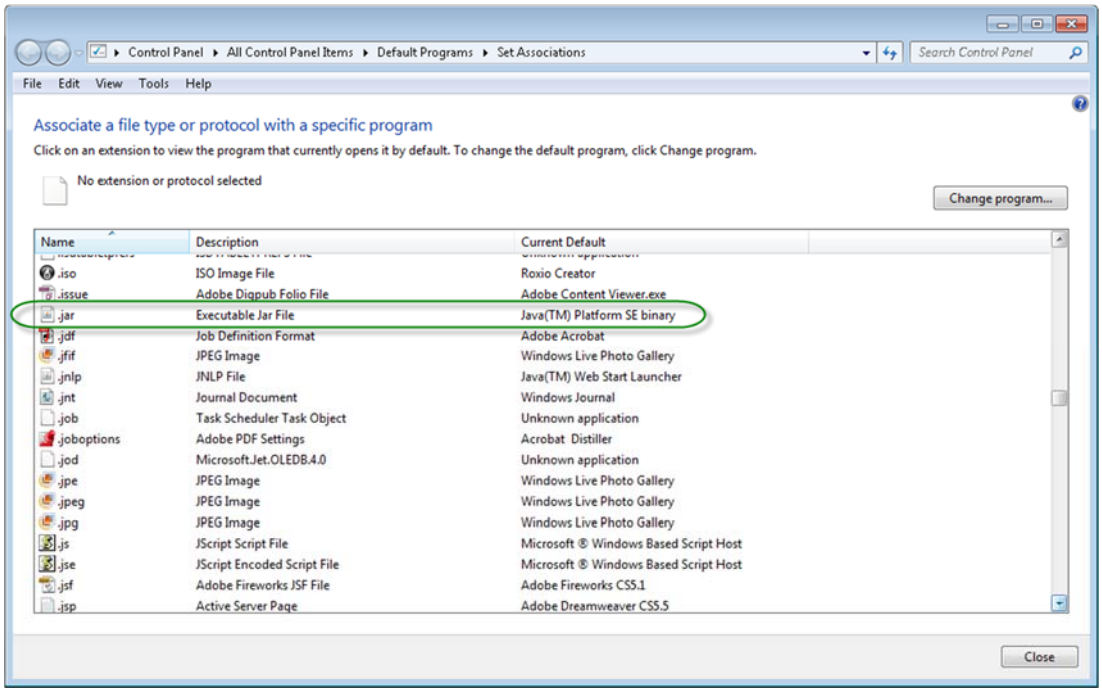
Java SE Development Kit 7

You must accept the Oracle Binary Code License Agreement for Java SE to download this software.

Accept License Agreement Decline License Agreement

Product / File Description	File Size	Download
Linux x86 - RPM Installer	77.28 MB	jdk-7-linux-i586.rpm
Linux x86 - Compressed Binary	92.17 MB	jdk-7-linux-i586.tar.gz
Linux x64 - RPM Installer	77.91 MB	jdk-7-linux-x64.rpm
Linux x64 - Compressed Binary	90.57 MB	jdk-7-linux-x64.tar.gz
Solaris x86 - Compressed Packages	154.74 MB	jdk-7-solaris-i586.tar.Z
Solaris x86 - Compressed Binary	94.75 MB	jdk-7-solaris-i586.tar.gz
Solaris SPARC - Compressed Packages	157.81 MB	jdk-7-solaris-sparc.tar.Z
Solaris SPARC - Compressed Binary	99.48 MB	jdk-7-solaris-sparc.tar.gz
Solaris SPARC 64-bit - Compressed Packages	16.28 MB	jdk-7-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit - Compressed Binary	12.38 MB	jdk-7-solaris-sparcv9.tar.gz
Solaris x64 - Compressed Packages	14.66 MB	jdk-7-solaris-x64.tar.Z
Solaris x64 - Compressed Binary	9.39 MB	jdk-7-solaris-x64.tar.gz
Windows x86	79.48 MB	jdk-7-windows-i586.exe
Windows x64	80.25 MB	jdk-7-windows-x64.exe

Note: The download names will continually be updated on the Sun website, so don't be alarmed if the versions illustrated here do not match.



Once Java has been installed on your system, the file extensions will correctly reflect the following and you will be able to run 

Note: In other installations, I have also found .jar files to be associated with a file compression program, which is incorrect. In such a case, you must modify the 

shortcut properties to read as follows:

C:\68HCS12\Micro.jar -s -d