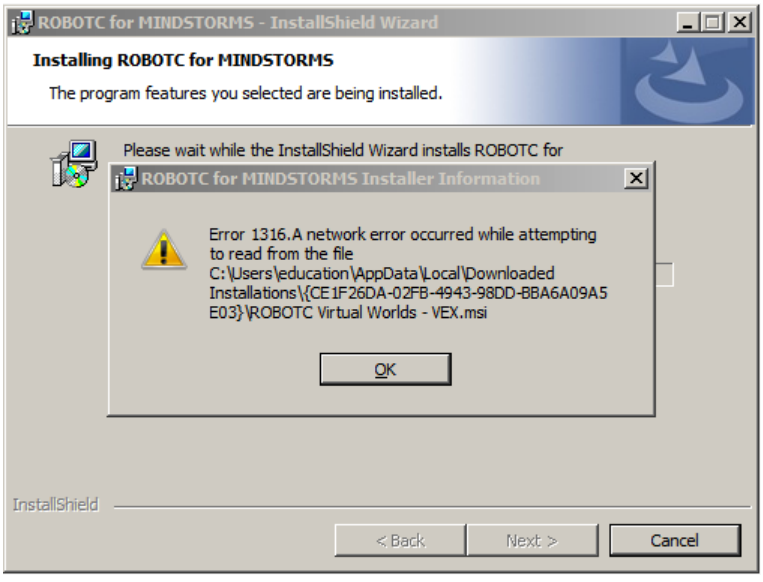
Quickstart Guide - ROBOTC 3 Robot Virtual World Programming

ROBOTC 3 has numerous improvements designed to make programming easier for new programmers including the Robot Virtual World (RVW) Simulation Tool. This document is designed to help you to learn how to use the RVW Simulation Tools. The document has lots pictures and step-by-step instructions. If there is something in the document that is unclear please forward your comments and questions to support@robotc.net so that we can answer your question and improve the guide.

The guide is divided into the following sections:

Error 1316



Once you have downloaded and installed any version of ROBOTC 3.x, you have everything you need (NXT and Cortex drivers excluded). No Additional downloads of ROBOTC software are required; in fact, don't try to download and install additional versions of ROBOTC or you will be greeted with the error message at the left.

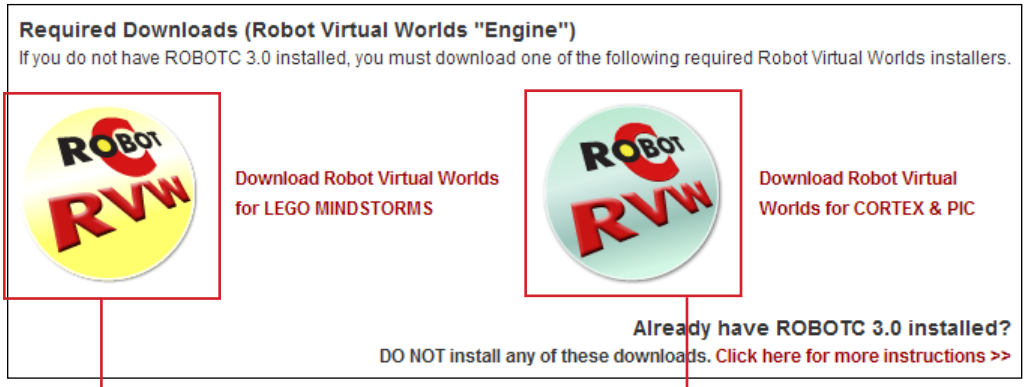
If you want to add additional platform types or ROBOTC follow the directions found in the Managing Licenses section of this document

Download, Install, and Open ROBOTC 3.0

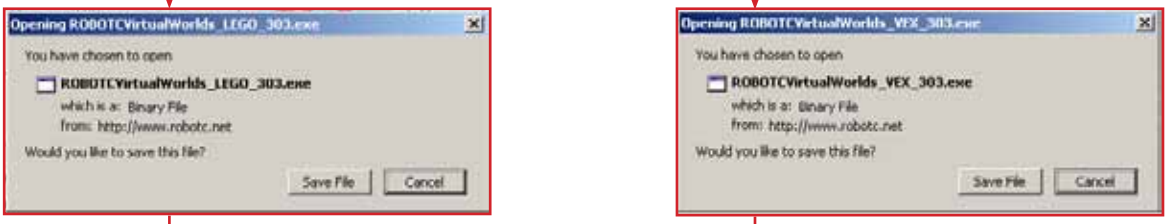
Step One - Download and Install Software

To use the Robot Virtual World software you must download ROBOTC 3.0. You can download a 60 day trial fully functional trial version at: www.robotc.net/rvw.

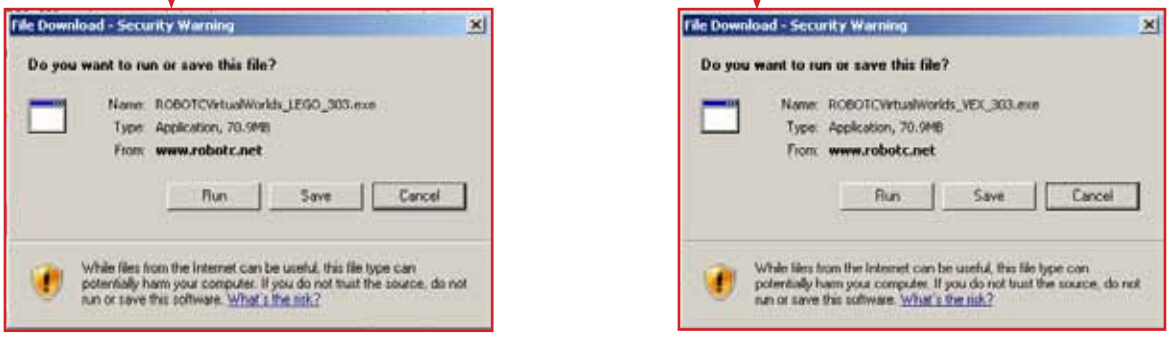
Pictured below are screenshots that are found at the www.robotc.net/rvw website. Select the version that you would like to download; LEGO or VEX. Follow the directions that you typically follow to download and install software. The shots below show examples of they types of screens that you will find when using Mozilla Firefox or Explorer. For best results, allow the installer to install the program in the directory that ROBOTC wants to install the software into.



A screen shot from Mozilla Firefox



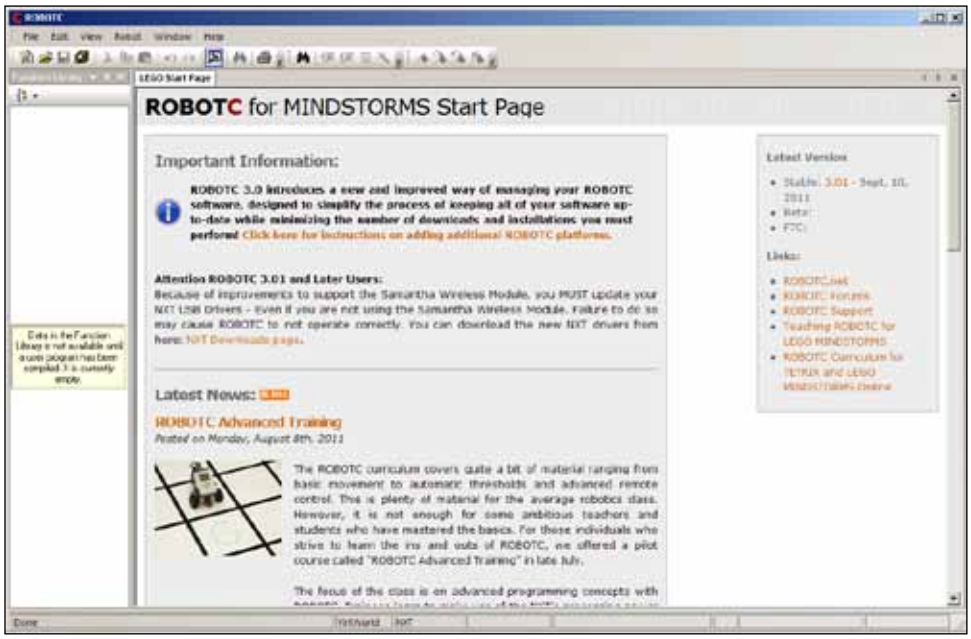
A screen shot from Explorer

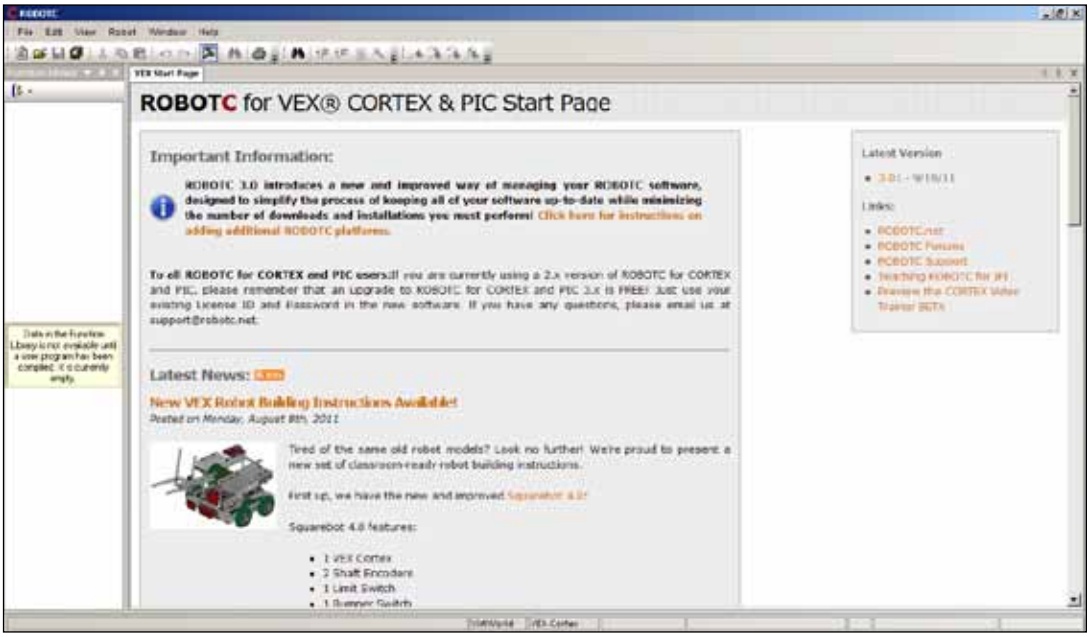


Step Two - Open ROBOTC 3.0

Open ROBOTC 3 and find the start page. If your computer is connected to the Internet the live start page will provide you with the latest updates for ROBOTC as well as links to forums, training materials and support. The live start page is modified regularly by ROBOTC developers. You can also find help at the ROBOTC forums - www.robotc.net/forums.

Pictured below are the opening screens for ROBOTC for Mindstorms and ROBOTC for VEX CORTEX and PIC Start Pages.

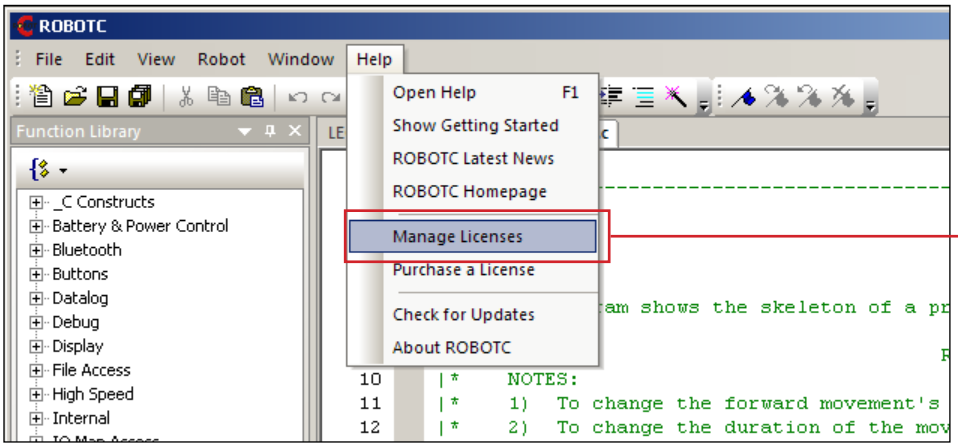




Managing Licenses in ROBOTC 3.0

Step One - Open Manage Licenses

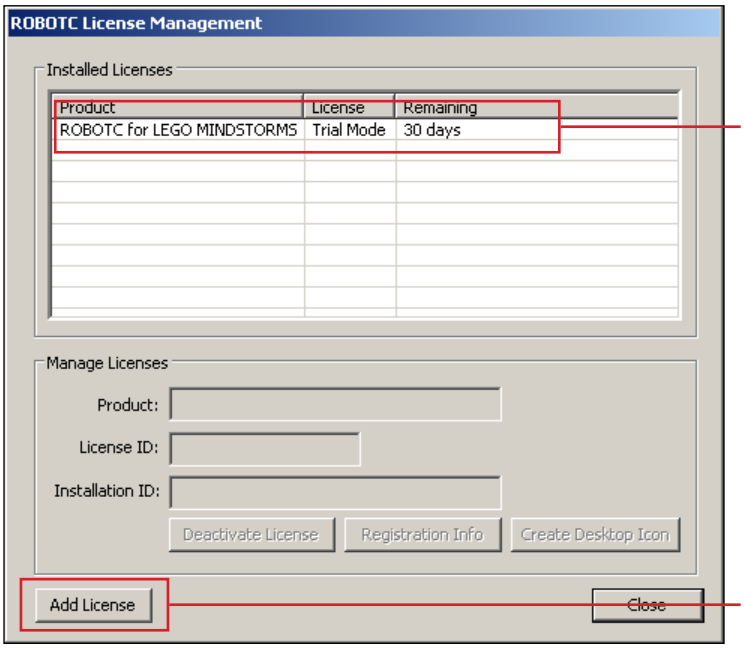
When you've installed ROBOTC 3.0 you have also installed the engine to run the Robot Virtual Worlds software. In order to access the RVW software you need to use ROBOTC's License Management system. To access the License Management System select Help/Manage Licenses. See below.



Select Help and a drop down menu appears. Select Manage Licenses.

Step Two - Select Manage Licenses

Pictured below is the ROBOTC License Management interface that pops up when you select "Manage Licenses". In this example, we downloaded a 30 day trial-license of ROBOTC for LEGO MINDSTORMS and the management system shows that we are in Trial Mode.

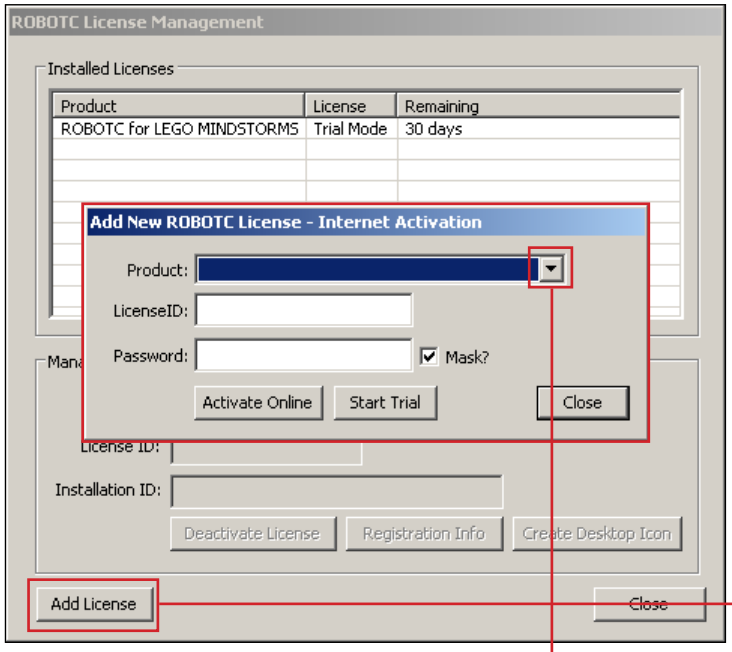


In this example we downloaded a trial version of ROBOTC for MINDSTORMS. The management system shows that the license is in trial mode and that the license has 30 days left on the trial

Select Add License to add another ROBOTC product to your computer.

Step Three - Add Another License

This system will allow you to quickly add different features that are already built into your version of ROBOTC. Adding more products creates additional ROBOTC "Platform Types".

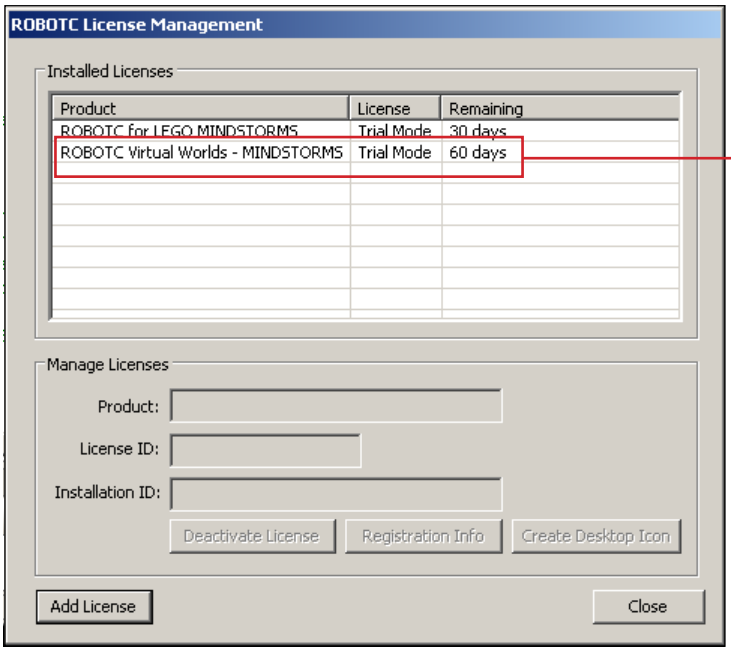


Begin by selecting "Add License". When you select Add License the highlighted box above appears.

Step Four - Select the New License Type

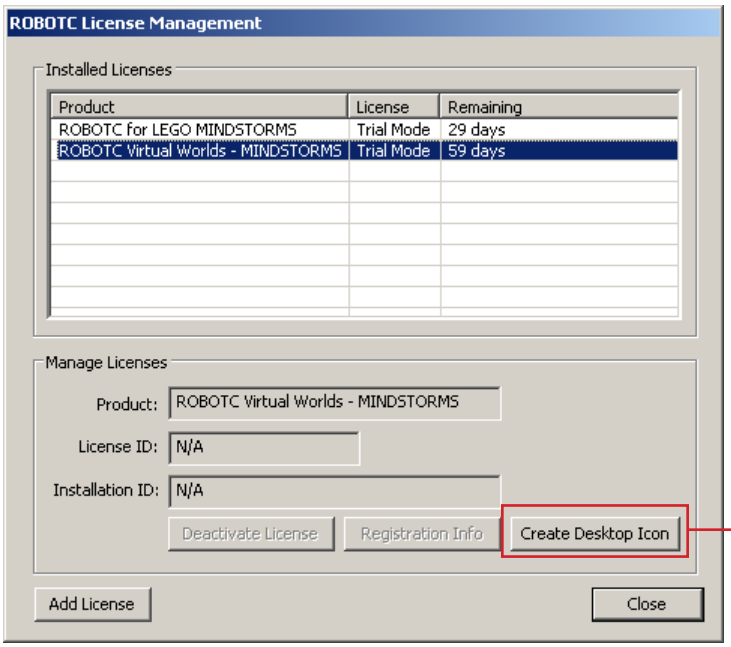
Select the drop down arrow and scroll down to the type of license that you want to activate. In this example we have selected ROBOTC Virtual Worlds for MINDSTORMS.

Select "Start Trial" to begin using the software.



ROBOTC automatically installs the new license and you are ready to run your software.

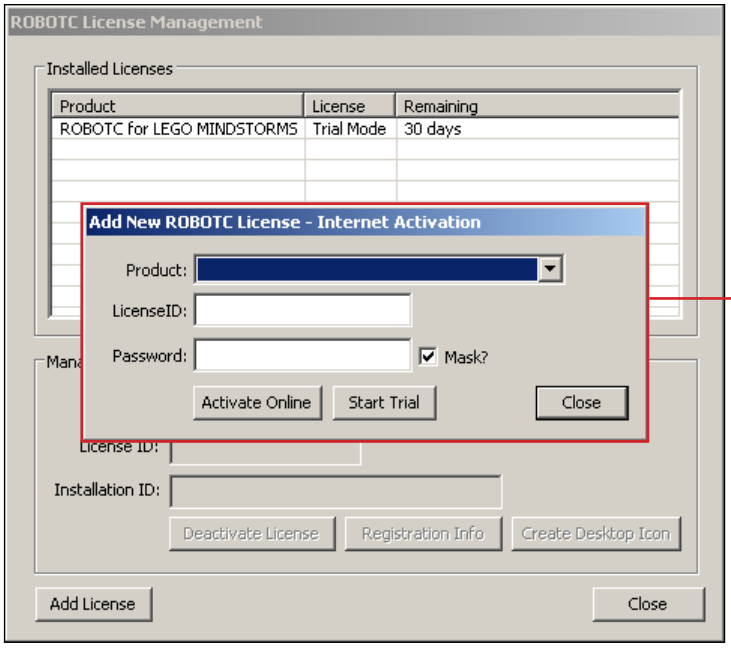
Step Five - Creating a Desktop Icon



If you select "Create Desktop Icon" ROBOTC will automatically place a new Icon on your desktop.

Congratulations! You are now ready to begin programming with your new Robot Virtual World using software!

Step Six - Activating Your License



If you have purchased ROBOTC and have the License ID and the Password, then you would enter it here to activate you software.

To get to this screen you select - Help/Manage Licenses/Add License

Note - You can skip this step and use the RVW that are already installed with ROBOTC 3 *or* you can download one of the level packs below

Download Robot Virtual World Level Packs

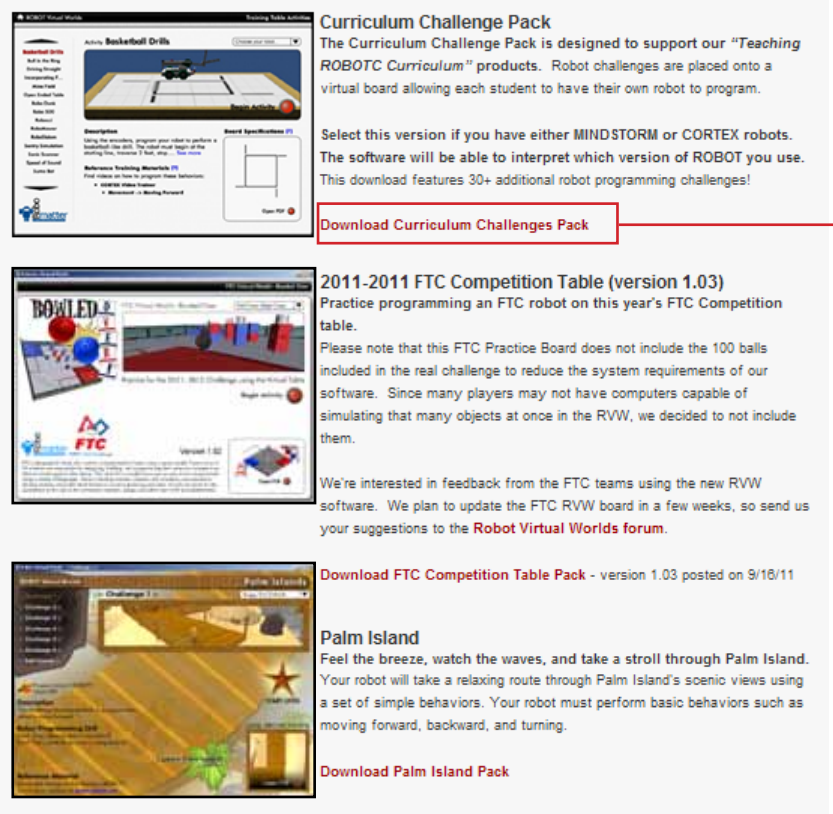
New "Level Packs" for Robot Virtual Worlds will be released on a regular basis. We are committed to developing new Virtual World "programming sandboxes" designed to give students new programming challenges. The process for downloading and using a new virtual world is shown below.

Step One - Go to the ROBOTC RVW Website

Go to www.robotc.net/rvw and select Download Robot Virtual Worlds.

Step Two - Select and Download the New Robot Virtual World

Pictured below are two example Robot Virtual Worlds, there are many other worlds available.

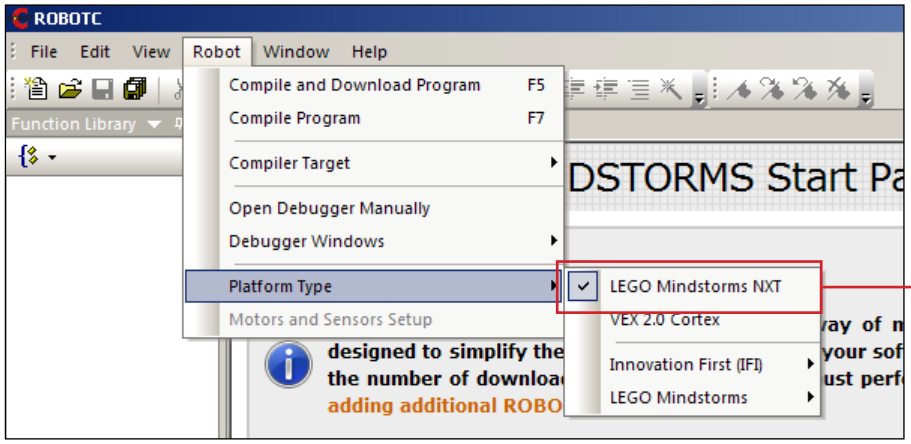


Select Download and follow the installation instructions. The new world will be installed into the same folder that ROBOTC was installed into. This enables ROBOTC to find the new RVW the next time that you open your software.

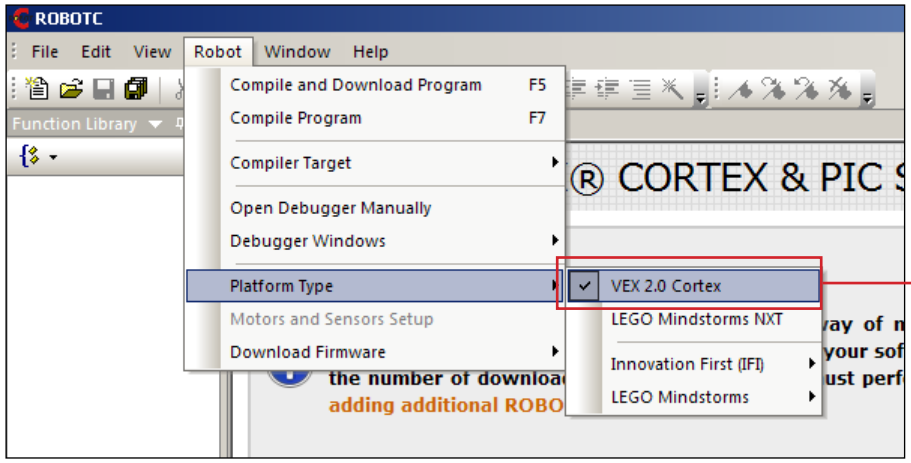
Configuring the Robot Virtual World Software

Step One - Select Your Robot Platform Type

ROBOTC works on multiple platform types and needs to know what platform type that it will target.



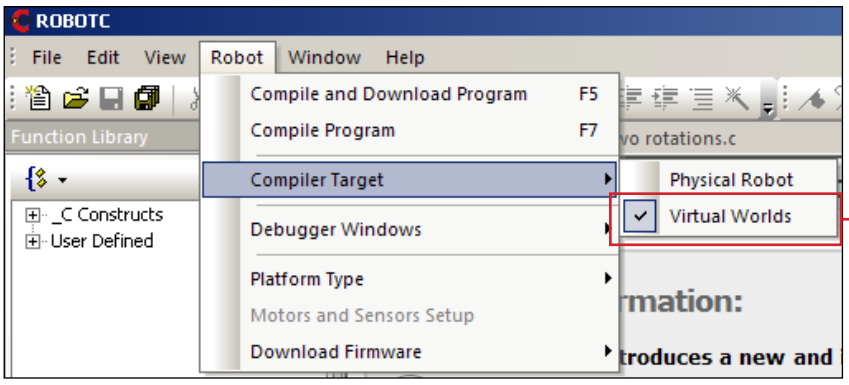
The checkmark at the left shows that the LEGO MINDSTORMS NXT platform has been selected.



The checkmark at the left shows that the VEX 2.0 Cortex platform has been selected.

Step Two - Select Your Compiler Target

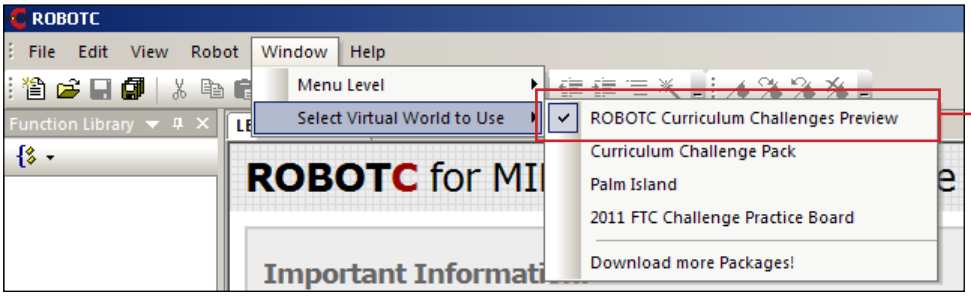
ROBOTC targets both real robots and virtual robots, you need to tell it which type of robot that you want to program.



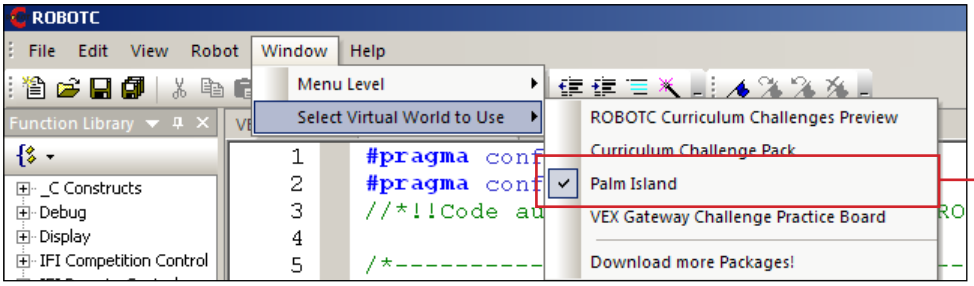
Select Robot/Compiler Target and then select Virtual Worlds.

Step Three - Select the Robot Virtual World

Every version of ROBOTC 3 comes with the "ROBOTC Curriculum Challenge Preview" already loaded with the software. There are currently over 40 RVW programming challenges. When you download and install a new RVW "Level Pack" ROBOTC will automatically add the new RVW into the "Select Virtual World" menu.



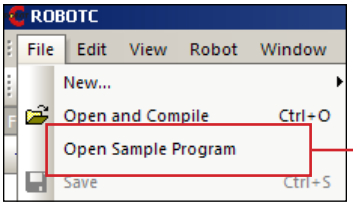
The checkmark at the left shows that the ROBOTC Curriculum Challenge Preview has been selected.



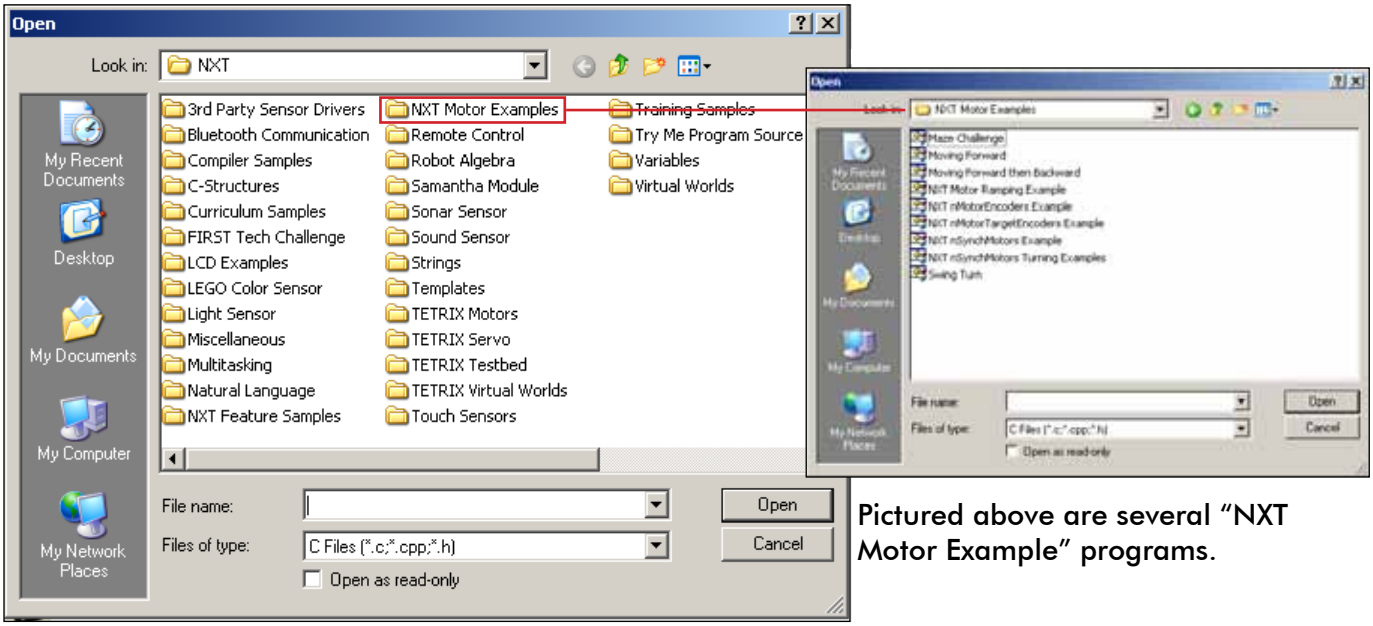
The checkmark at the left shows that Palm Island has been selected.

Step Four - Open a Sample Program

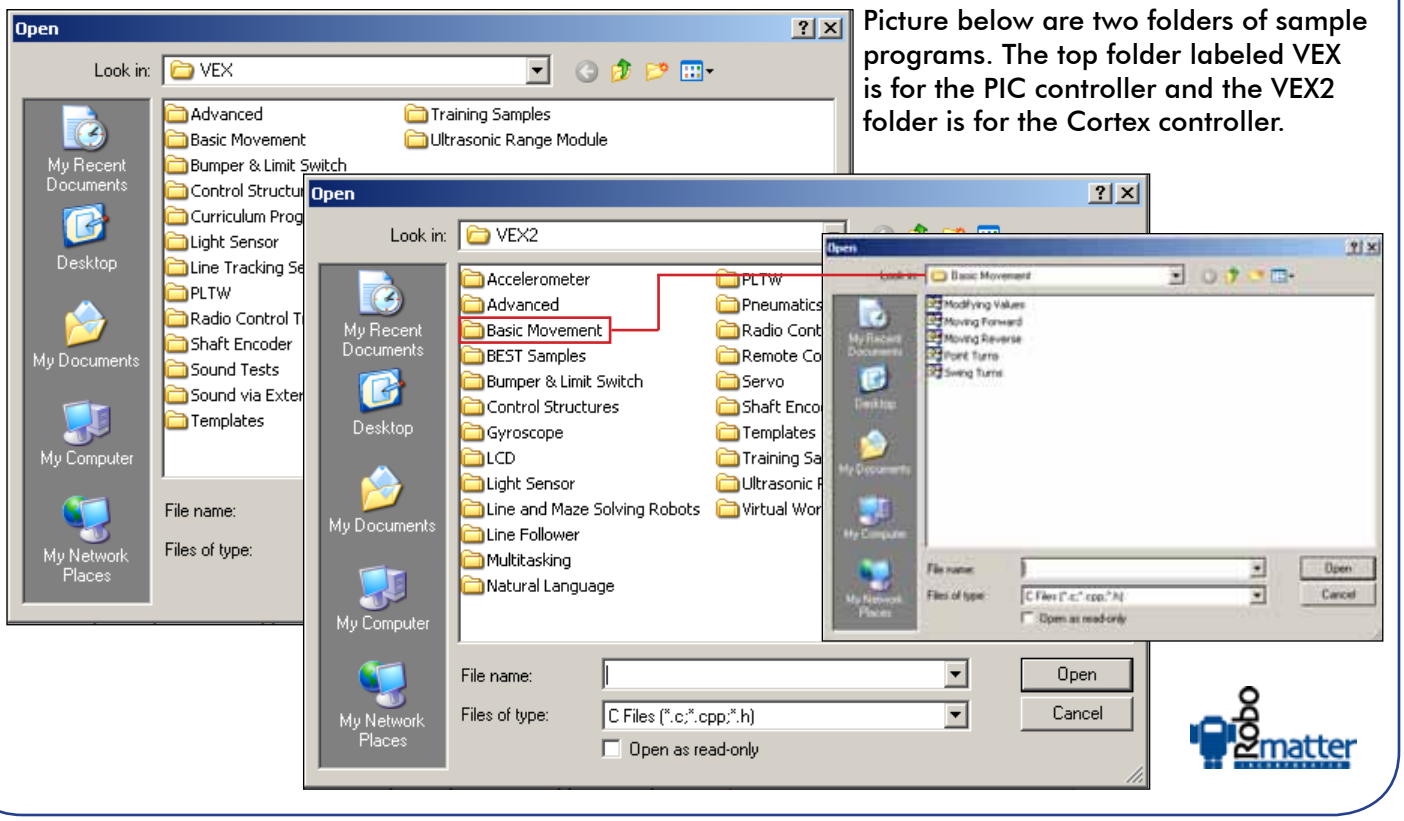
ROBOTC 3.0 contains over 100 fully commented sample programs enabling you to begin programming the RVW immediately.



Select Open Sample Program and a menu with folders will open like what is shown below. Each folder contains fully commented sample programs. The first set of sample programs are for the LEGO platform, the second set is for VEX.



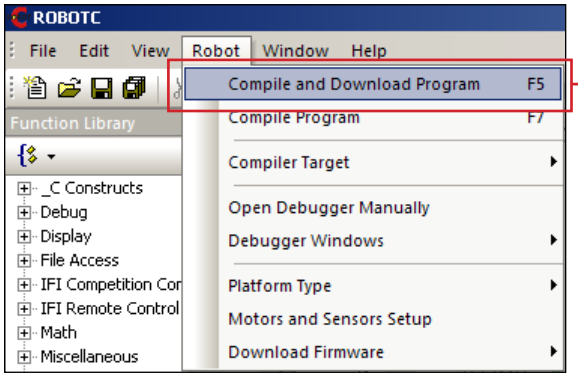
Pictured above are several "NXT Motor Example" programs.



Picture below are two folders of sample programs. The top folder labeled VEX is for the PIC controller and the VEX2 folder is for the Cortex controller.

Step Five - Download the program to the Virtual Robot

Select Robot/Compile and Download Program or press F5 to upload the software to the robot.



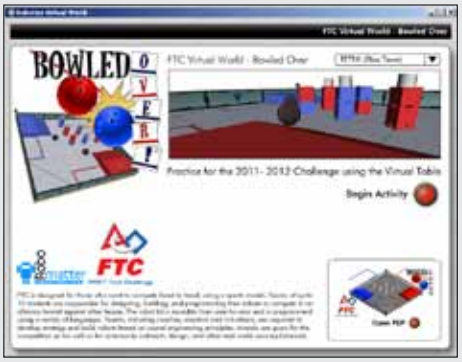
Pictured below are examples of screens that may pop up once you have compiled and downloaded your program.

The screen that pops up will depend on the Robot Virtual World that you've selected to run your robot in.

ROBOTC Curriculum Challenges Pack - 30 programming challenges that align with the challenges in the ROBOTC curriculum.

ROBOTC Curriculum Challenges Preview - contains two sample RVWs.

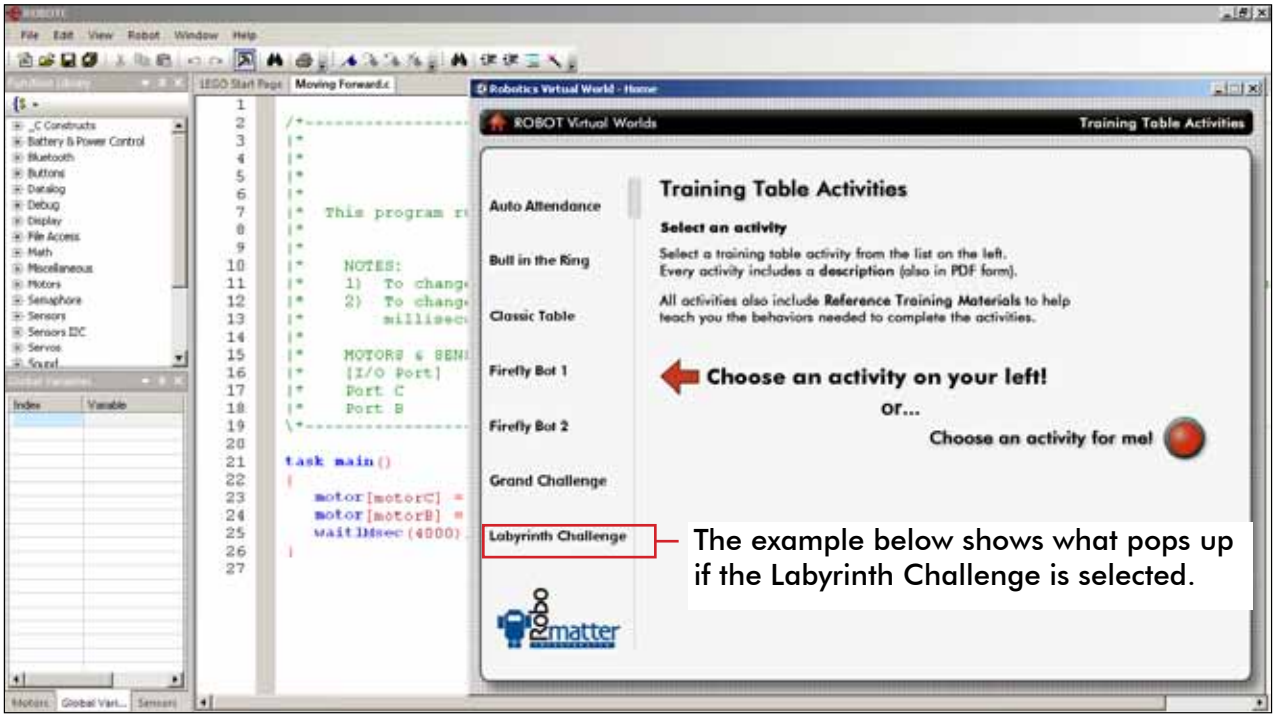
Palm Island - the first of six island challenges that will be released this year.
Other challenges that we've modeled and will release include an Ice World, Desert World, Cave World, Underwater World, Future World, and Planet H99.



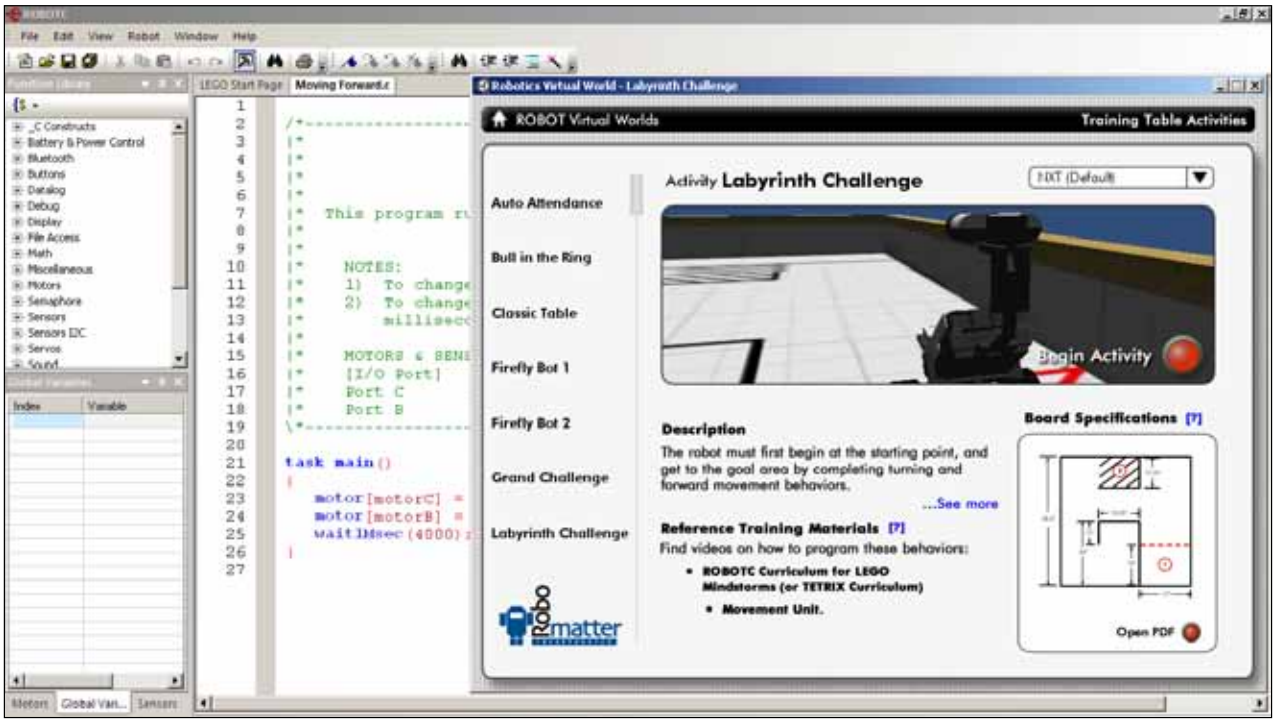
Above - Bowled Over FTC Robotics Challenge
Below - VEX Gateway Challenge

Step Six - Select the RVW Challenge

Pictured directly below are a set of screen shots from the Curriculum Challenge Pack. We have selected the Labyrinth Challenge. If ROBOTC is configured correctly, when you download your code the RVW automatically pops to the front of ROBOTC and you are ready to use the RVW simulator.

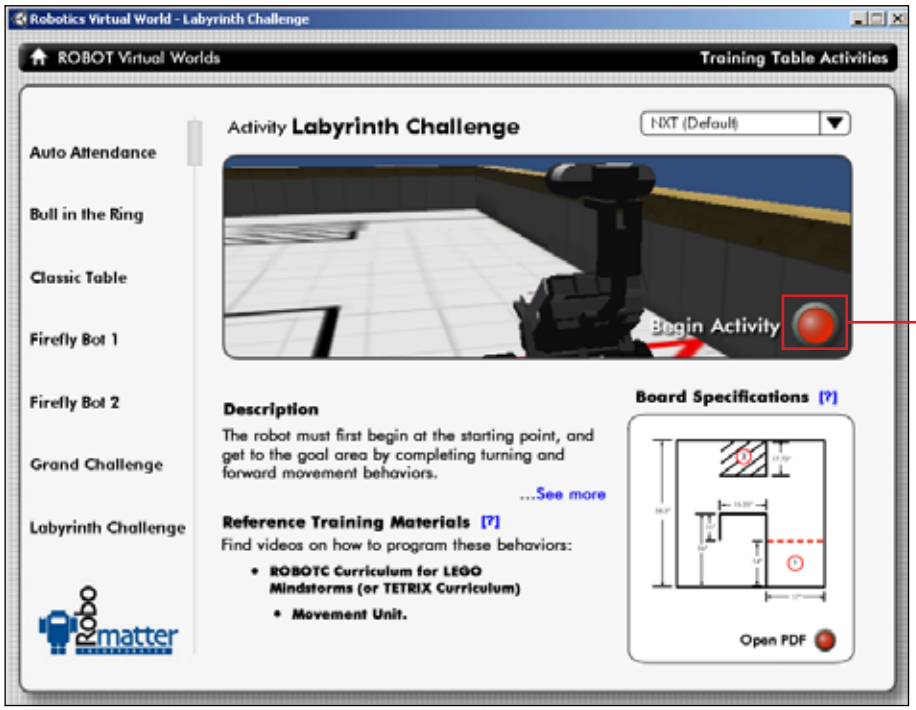


Once the challenge is selected a new screen will pop up that contains: a description of the challenge, where to find reference materials, and a link to a PDF that describes the challenge.



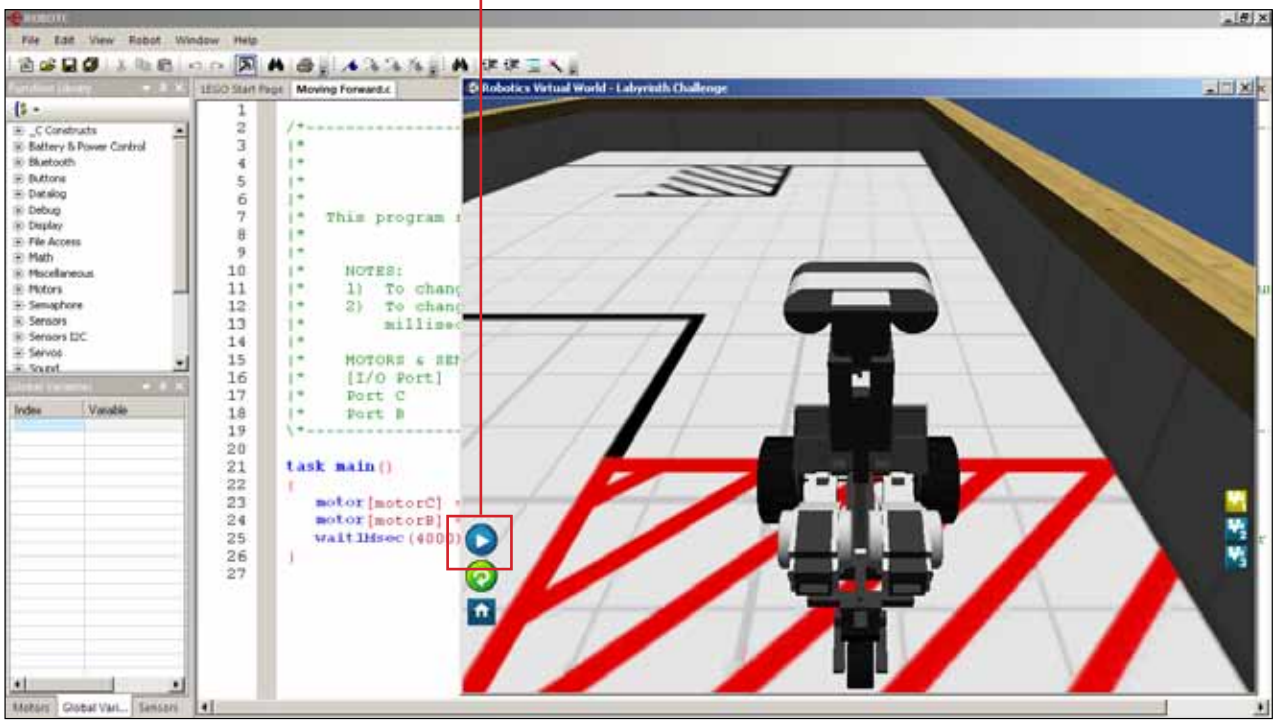
Step Seven - Test Your Code

Pictured below is the RVW simulation screen. To run the code select Begin Activity.



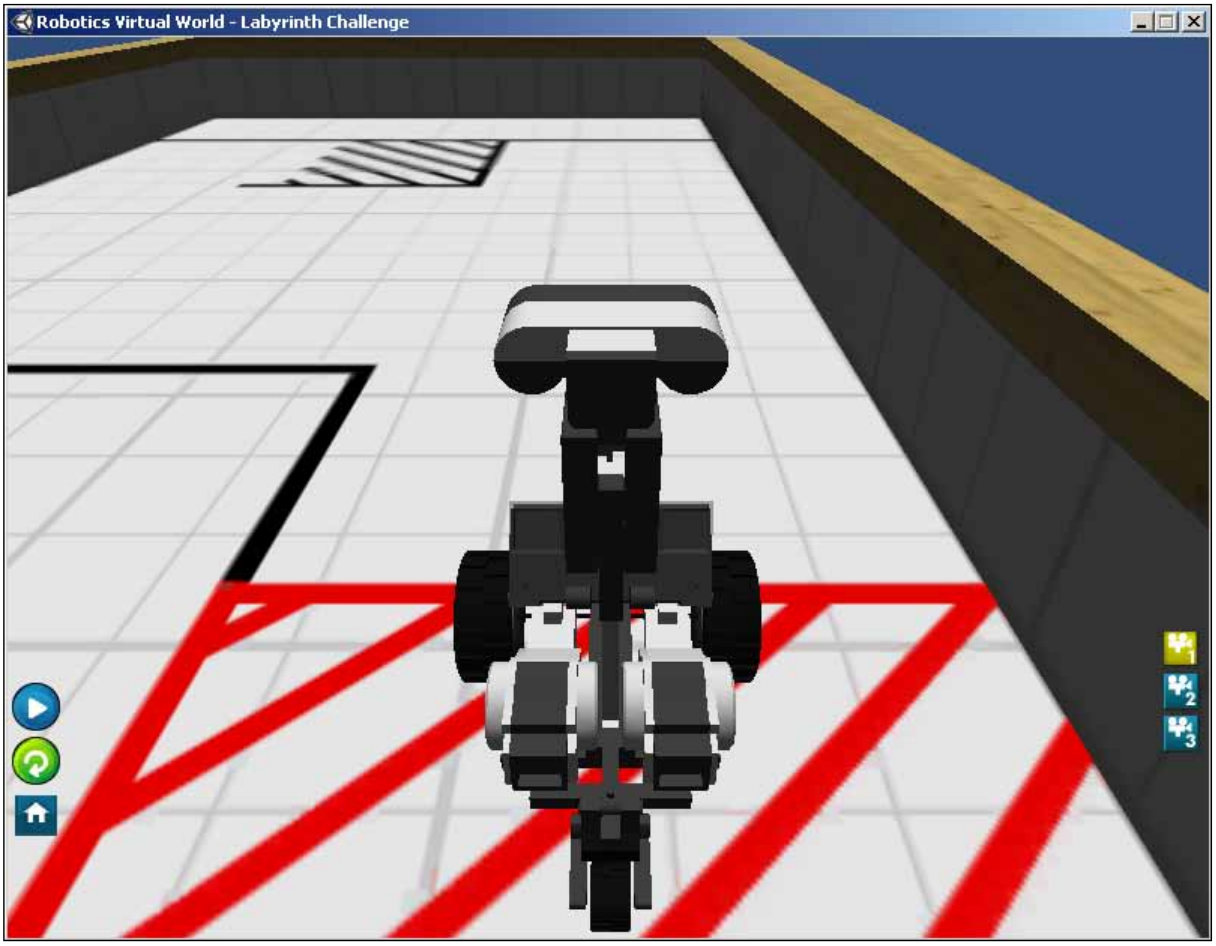
Select Begin Activity

Press the Blue Arrow Button and your robot will begin executing the code.



Note: To edit the code select the programming area of ROBOTC and the virtual simulation screen will disappear. Select "Download and Compile to run the code again.

Using the RVW Simulator Interface



— Press the blue arrow button to execute the code.

— Press the "Green Return" button to restart the robot.

— Select the "Home" button to return to the challenge selection menu.

— Camera 1 Over the robot's shoulder, use mouse to adjust.

— Camera 2, Top down fixed view.

— Camera 3, User defined by scrolling the mouse.