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Parallax Service for RDS 4 Installation Guide

This document will take you through all necessary steps to successfully run the Parallax Service, allowing an Eddie Robot Platform (#28992) with blue quadrature encoders, to be used with Microsoft Robotics Developer Studio 4 (RDS 4).

If you are upgrading RDS for compatibility with the new, blue quadrature encoders, please skip to the Upgrading to Quadrature Encoders section at the end of this document.

System Requirements

In order to use RDS 4, you must have a laptop running Windows 7 that meets the following requirements:

- Microsoft DirectX 9.0c compatible graphics card
- Dual-core processor (2 gigahertz (GHz) or faster recommended)
- 10 gigabyte (GB) of available disk space
- 2 GB of memory (4 GB recommended)
- At least two separate USB 2.0 channels (three or more recommended)

RDS 4 has been tested by Microsoft on Windows 8 Consumer Preview with Visual Studio 11, but this configuration is not yet supported officially.

Upgrading from RDS 4 Beta

If you already have RDS 4 Beta 2 installed on your system, you will need to uninstall all beta programs from your computer before installing RDS 4. These programs are outlined below, and need to be removed in the order specified:

- Kinect for Windows Beta 2
- Microsoft Server Speech Platform Runtime
- Microsoft Server Speech Recognition Language – Kinect
- Microsoft Speech Platform SDK
- Microsoft Robotics Developer Studio 4 Beta 2
- Microsoft CCR and DSS Runtime 4 Beta 2

Installing RDS 4

After you have uninstalled all beta software, or if you are installing RDS for the first time, follow the steps on http://www.microsoft.com/robotics/#GetStartedStep2 to install Robotics Developer Studio 4 on your laptop. Be sure to install each software package in the order specified on this page.

Installing Eddie Services

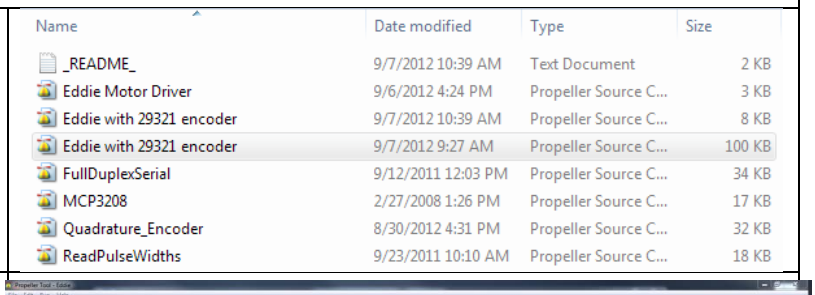
1. Visit www.parallax.com/eddie and download the Parallax Service for RDS 4 and unzip the file.
2. Move the contents (bin and samples folders) to the RDS 4 installation folder, located in C:\Users\Your-User-Name\Microsoft Robotics Dev Studio 4.
3. When prompted if you would like to merge existing folders, click Yes.

4. Follow the remaining instructions in the ReadMe page located at the following path: <Your-RDS-Installation>\samples\Platforms\ParallaxKitReadMe.html
    a. Note: Detailed First Time Setup instructions can be found in the sections below.

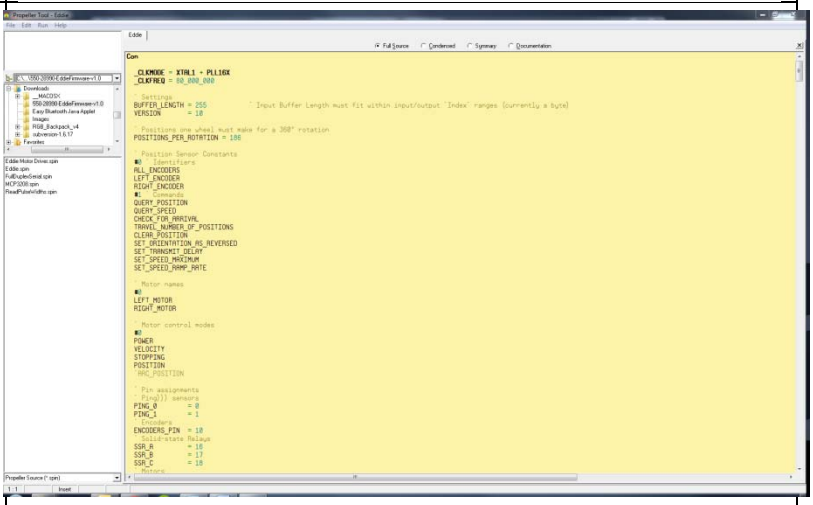
First Time Setup

Step 1
Loading the firmware onto the Eddie Control Board requires the Propeller Tool programming software. Download it from www.parallax.com/propeller and install it on your laptop. (Do not connect the Eddie Control Board to your computer before this is done.)

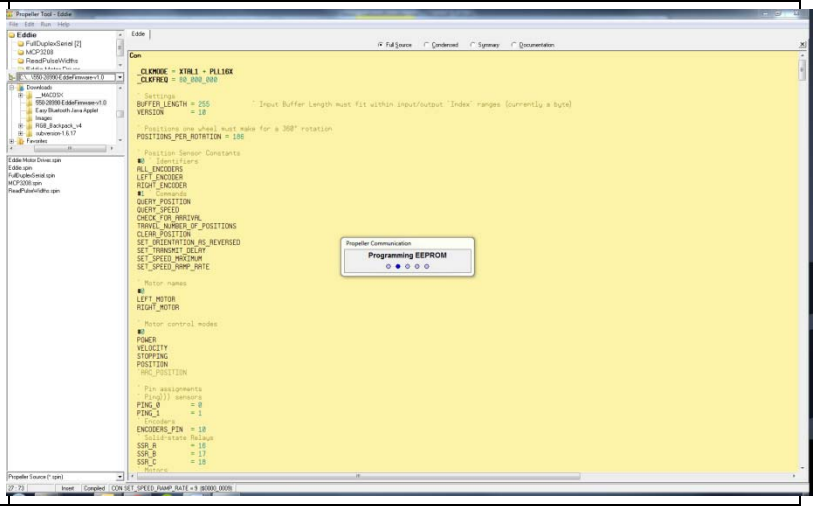
Step 2
Open Eddie with 29321 encoder.spin from Samples\Platforms\ ReferencePlatform2011\ EddieFirmware-yyyy.mm.dd.



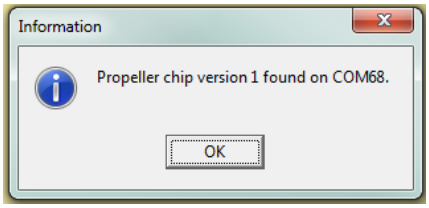
Step 3
This will launch the Propeller Tool. Connect Eddie to your computer using the included USB A to Mini B cable and turn on the Eddie power.



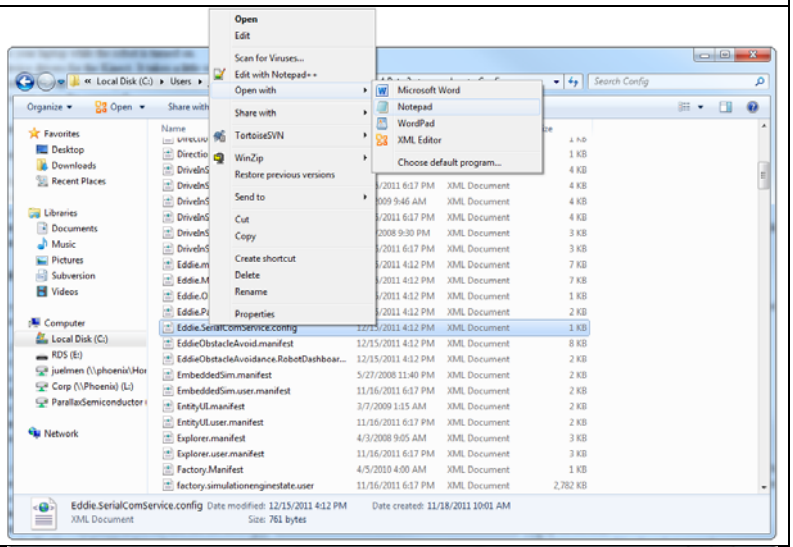
Step 4
Press F11 on your keyboard or select Run -> Compile Current -> Load EEPROM to load the firmware to the Eddie Control Board.



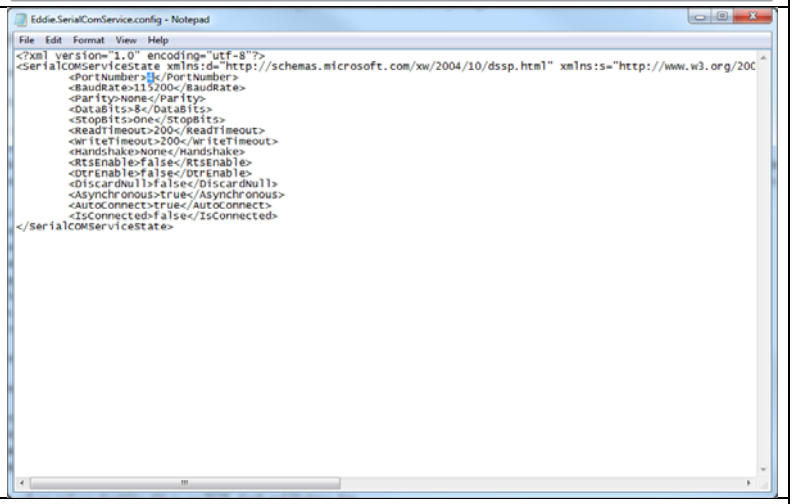
Step 5
Press F7 on your keyboard or select Run -> Identify Hardware and make note of the COM port used.



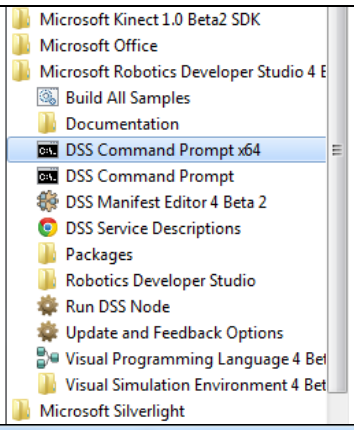
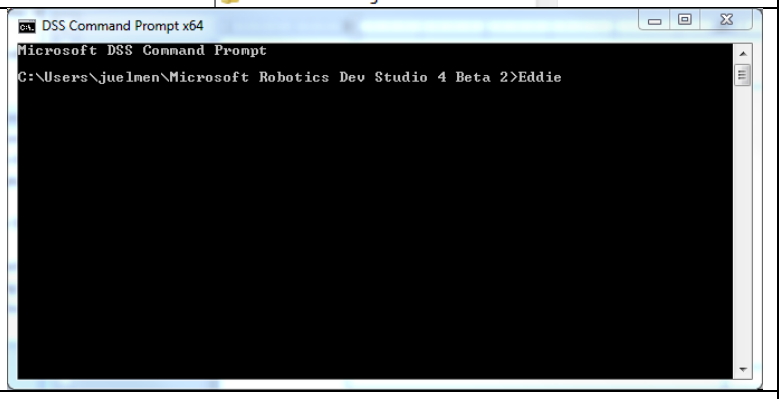
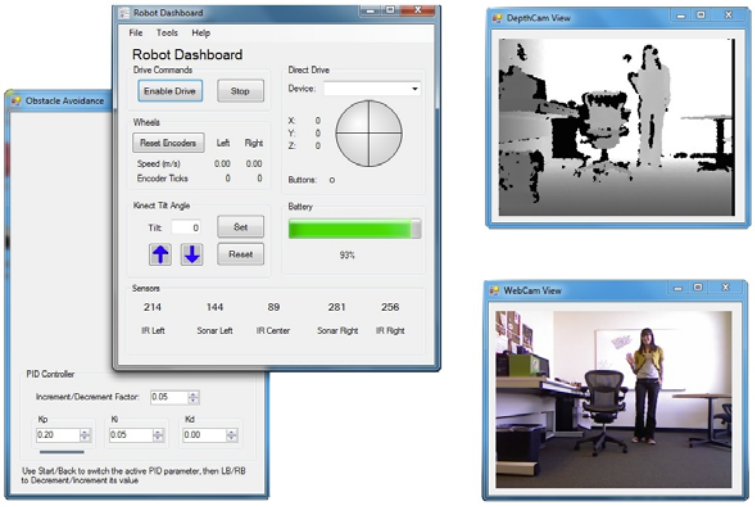
Step 6
Open Samples\Config, right click on Eddie.SerialComService.config.xml and select Open with Notepad.



Step 7
Change the number between the <PortNumber></PortNumber> tags to the COM port number identified earlier and save the document.



Step 8
Now that you have completed the setup, plug the Kinect and Wireless Xbox Controller (if you have one) into your laptop. Note: Be sure your Kinect uses a separate USB port from the Xbox Controller (i.e. not connected to the same USB hub). The Xbox Controller and Eddie Control Board can be on the same hub.

Step 9 Open a DSS Command Prompt window from: Start -> All Programs -> Microsoft Robotics Dev Studio 4 -> DSS Command Prompt (or DSS Command Prompt x64 on 64-bit Windows).	
Step 10 Type the following command: Eddie	
Step 11 This launches the Robot Dashboard. Using this tool, you can view both Depth and RGB data from the Kinect, read sensor values and monitor battery voltage. If your Wireless Xbox Controller is connected, you can also drive Eddie by pressing the 'Enable Drive' button (or 'A' on the Xbox controller). Eddie will also automatically avoid any obstacles as you are navigating using the Xbox controller. You can adjust the Obstacle Avoidance parameters and see a visualization of obstacles in the Obstacle Avoidance window. The Kinect tilt angle should be set to zero while driving.	

For more information refer to the Getting Started document in the RDS 4 Documentation folder, which can be found in Start -> All Programs -> Microsoft Robotics Dev Studio 4 -> Documentation.

Upgrading to Quadrature Encoders

If you purchased your Eddie Robot before December 2012 and have upgraded your encoders from the green position controllers to the blue quadrature encoders, follow these instructions to update the Parallax Service for RDS 4.

NOTE: The upgraded encoders will only function with the version 1.0 release of Robotics Developer Studio. If you are still running Robotics Developer Studio 4 Beta or Beta 2, follow the instructions for Upgrading from RDS 4 Beta instead.

- Visit www.parallax.com/eddie and download the Parallax Service for RDS 4 and unzip the file.
- Move the contents (bin and samples folders) to the RDS 4 installation folder, located in C:\Users\Your-User-Name\Microsoft Robotics Dev Studio 4.
- When prompted if you would like to merge existing folders, click Yes.
- Select 'Move and replace' for all affected files.
- Rebuild the samples by selecting Start -> All Programs -> Microsoft Robotics Dev Studio 4 -> Build All Samples
- Follow Steps 2-11 in the First Time Setup section on page 2 to update the Eddie firmware and run RDS 4.

Revision History

1.0: Initial documentation release
1.1: Updated for RDS4 v1.0 release, with instructions for upgrading from beta
1.2: Updated with instructions for updated Quadrature Encoders (#29321)