



2008 Field Management System – Team Test Guide

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2008 Field Management System – Team Test Guide

This inspection manual includes a complete set of instructions on how to test your code using the FTC Field Management System to ensure it will work in competition.

This guide is made possible with the kind assistance of James Rahaim, Kate Pilotte, Michael Coleman, Joe Perrotto, Team 0839 - Rosie's L'il Sis, Team 1902 - Exploding Bacon, Team 0285 – The Elements, and Team 0120 – Angelbots.

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Team Field Management System Guide – Setup Instructions

Equipment Lists:

Hardware List – to test your software you will need:

(1) Computer that meets the following specifications:

	<u>Minimum</u>	<u>Recommended</u>
Processor	Pentium III/Celeron 866	Pentium 4/M or
RAM	MHz	equivalent
Screen Resolution	256 MB	512MB
Operating System	1024 x 768 pixels	1024 x 768 pixels
Disk Space	Windows XP/2000	Windows XP, Vista
DVD/CD-ROM Drive	1.2 GB	> 1.2 GB
USB Ports*	1	1
	3	4

- 1 USB Bluetooth Adapter **
- 2 Logitech Dual Action USB Game Controllers

Software List:

A copy of NI FIRST Tech Challenge Software 2009

A copy of the most current FTC version of the Field Management Software

Set Up the Software Station – Windows XP Users

1. Set up your computer
 - 1.1. Connect Power
 - 1.2. Connect Monitor (if a desktop is used)
 - 1.3. Connect Mouse
2. Install a copy of NI FIRST Tech Challenge Software 2009 (received with the FTC Competition Kit)
 - 2.1. Be sure to check the NI site and load the most recent revision
 - 2.2. Only the LabVIEW program needs to be installed
3. Install the FMS file to the desktop
4. Open the FMS
5. Attach 1st Logitech Dual Action USB Game Controller to USB port
 - 5.1. Confirm that the computer sees the Game Controller

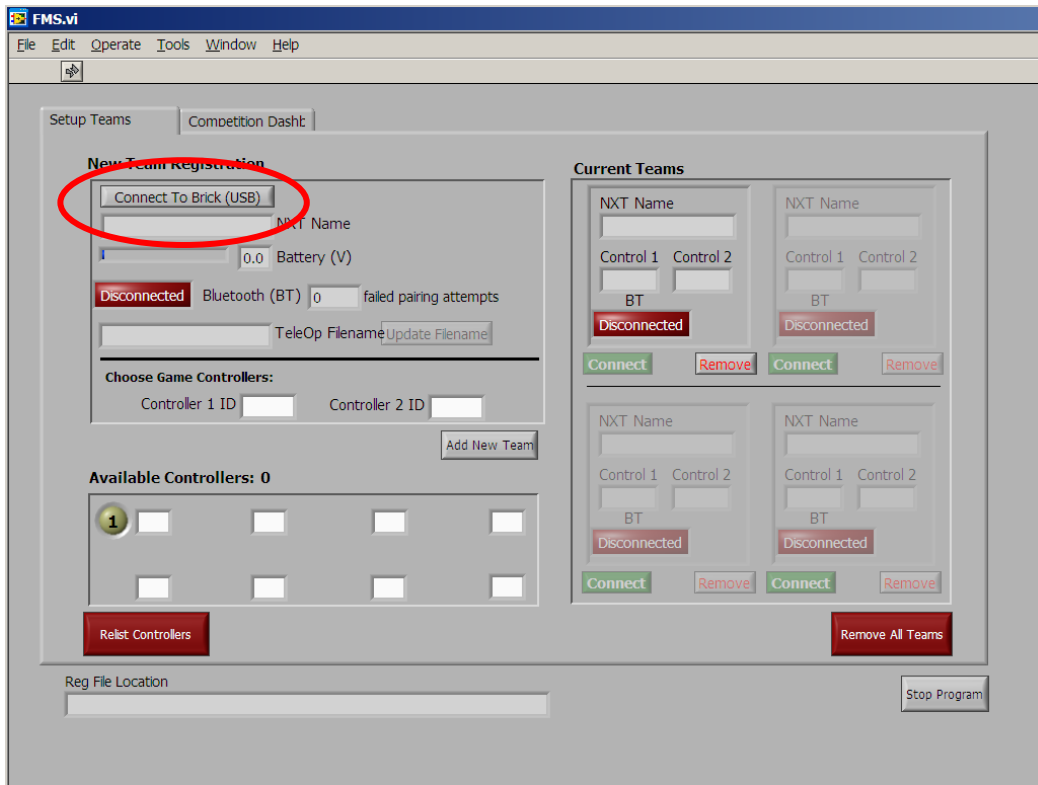
- 5.2. If necessary, select the 'Relist Controllers' button to refresh the list of available controllers
6. Attach 2nd Logitech Dual Action USB Game Controller to USB port if using two controllers on your robot
 - 6.1. Confirm that the computer sees the Game Controller
 - 6.2. If necessary, select the 'Relist Controllers' button to refresh the list of available controllers
7. Attach approved Bluetooth Adapter to Computer
 - 7.1. Install Bluetooth Adapter drivers, if necessary (use the drivers included in Windows XP)
 - 7.2. Confirm that the computer sees the Bluetooth Adapter

Congratulations. You are now ready to do software inspections with this computer.

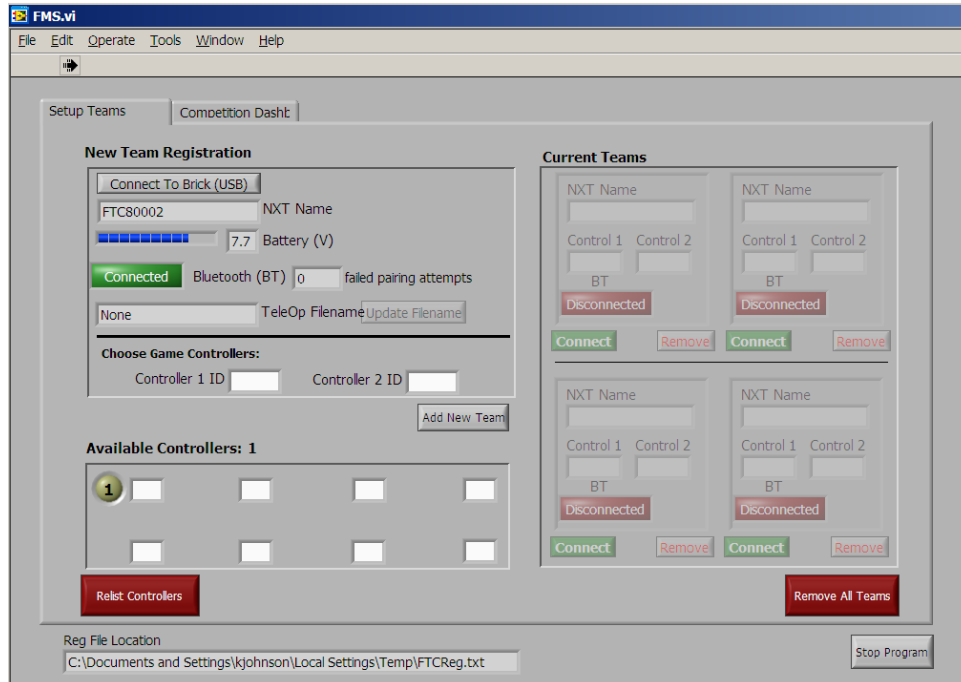
FMS Test, working with your programs

The first step is choosing your program. Using the program chooser in the NXT Software files, chose "dual" program and the TeleOp program you wish to run. The steps below follow the software inspection guide and field management guide used at events. It is the process you will be asked to follow at events and should be used to test your software on the FMS now.

1. Team should arrive at Software Inspection with the battery removed from their NXT Brick. If battery has not been removed, instruct team to power off their NXT module and remove their battery now
2. When battery has been out of the NXT module for at least 15 seconds, instruct team representative to connect the USB cable to the USB port on their NXT module
3. Instruct team representative to install battery into their NXT module
4. Ask team representative to place their robot on the platform provided so that the drive wheels can spin freely (teams can run the robot on the floor as well for team FMS testing)
5. Ask team representative to turn ON power to their NXT module



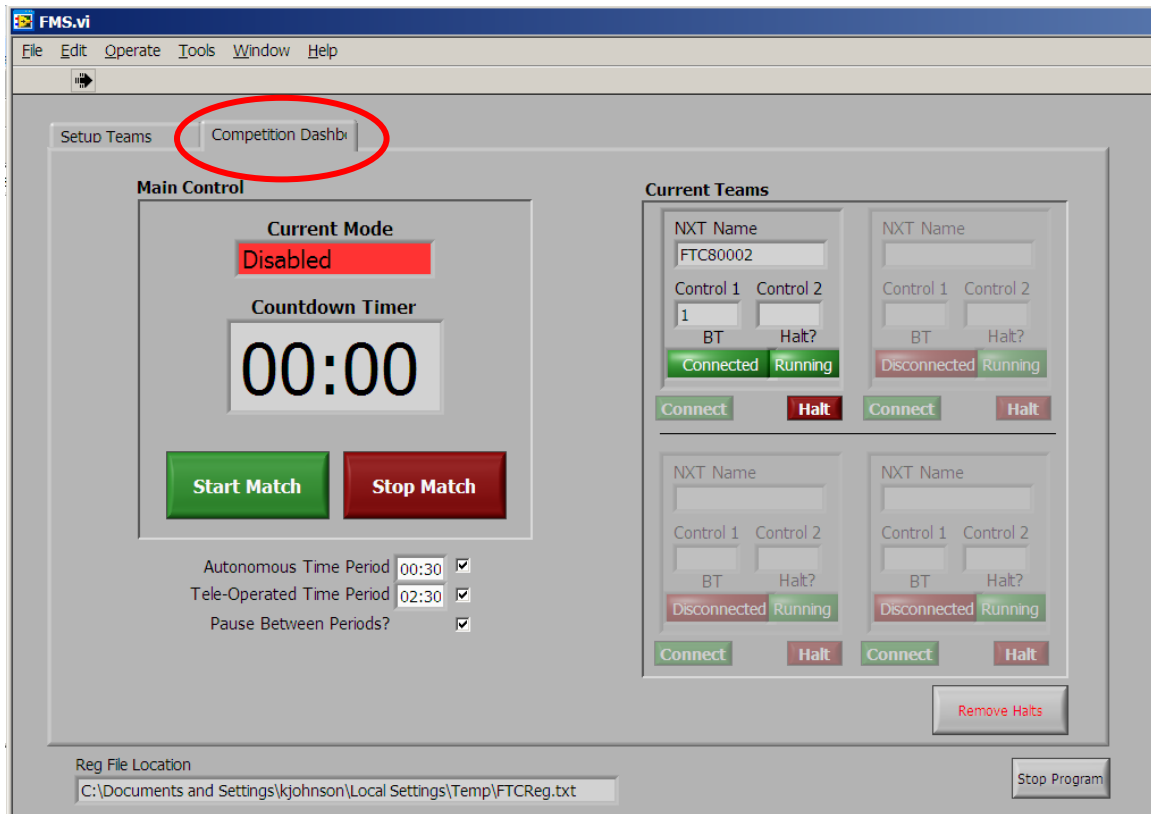
6. Instruct team to watch the screen on the NXT module
 - 6.1. If Passkey screen appears on NXT LCD, team rep should press Orange button on NXT
7. On FMS Screen, select "Connect to Brick (USB)" button (see above)
 - 7.1. Team ID should appear in text box (team ID should be the team number, with leading zeros if necessary to make the number a 4 digit ID number)
 - 7.2. Text in RED indicator (see screenshot below) should change from Disconnected to Connecting to Connected
 - 7.3. If Passkey screen appears on NXT LCD, team rep should press Orange button on NXT



8. On Connection:
 - 8.1. Text in RED indicator should change from Disconnected to Connecting to Connected
 - 8.2. The Battery Voltage Meter and Value will display the NXT Modules Battery Voltage
 - 8.2.1. If the voltage of the NXT is below 7.0 volts remind team to charge their battery or it may not work properly in match play
 - 8.3. The Name of the selected TeleOp program (if applicable) will display
9. If NXT does not connect, repeat steps 1 thru 6 up to an additional 3 times.
10. Enter 1 in the Controller 1 ID box
 - 10.1. Ask team if their robot operates with 2 controllers (you will need 2 controllers and a second available controller button will show up in the screen shot above)
 - 10.2. If yes, enter 2 in the Controller 2 ID box
 - 10.3. Select Add New Team
11. Click on "Relist Controllers"
12. Ask team to disconnect USB cable from NXT module
13. Ask team to power on HiTechnic Controllers

Test the Software

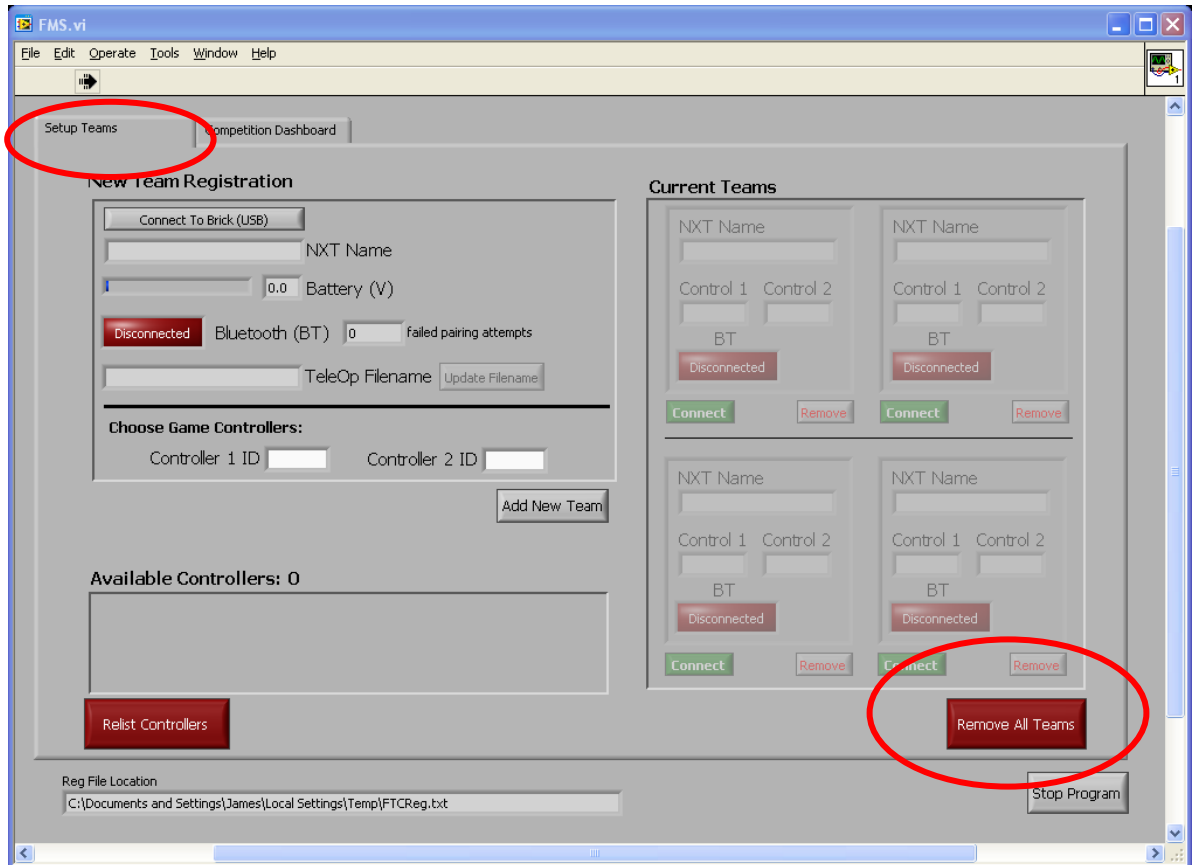
1. On the FMS screen, select the Competition Dashboard tab to display the competition page



2. Change the time periods to:
 - 2.1. Autonomous Time Period = 00:20
 - 2.2. Tele-Operated Time Period = 00:20
3. Make sure there is a check mark in the box marked "Pause between Periods"
4. Verify BT (Bluetooth) and Halt? indicators are green (see above)
5. Instruct team to select and run their first autonomous program on their NXT brick
6. Verify that Logitech Game Controllers do not cause robot movement
7. Select the "Start Match" button
 - 7.1. Button will change to a faded green
 - 7.2. Counter will count Autonomous Period down to "0"
8. Verify that Logitech Game Controllers do not cause robot movement
9. At the end of the Autonomous test, the FMS will pause and the text in the "Start Match" button will change to "Continue Match" and the color of the button will change from faded green to green
10. Verify that Logitech Game Controllers do not cause robot movement
11. Select "Continue Match"
 - 11.1. Button will change to "faded" green
 - 11.2. Counter will count TeleOp Period down to "0"
12. Verify that Logitech Game Controllers DO cause robot movement
13. At the end of the Tele-Op test, the FMS will pause, and the text in the "Continue Match" button will change to "Start Match". The color of the button will change from faded green to green
14. You can run practice matches using this process as well. Adjust time accordingly.

Sever Bluetooth Connection

1. Select the Setup Teams tab to return to the setup page



2. Select the Remove All Teams button to sever Bluetooth connection with robot
3. Instruct team to turn OFF the NXT module
4. Instruct team to turn OFF power to the HiTechnic Controller

Troubleshooting Bluetooth Connectivity

Simple Steps to Troubleshoot your Bluetooth Connectivity Issue – Windows XP Users

1. Is the Bluetooth adapter connected to the computer?
 - 1.1. Connect the Bluetooth adapter to the computer. If this is the first ever use of this Bluetooth adapter, make sure only the Microsoft driver is being used
2. Is the NXT controller powered ON?
 - 2.1. Turn on the power to the NXT controller
3. Is the battery in the NXT controller fully charged?
 - 3.1. If not, charge or replace the battery(ies)
4. Is Bluetooth turned “on” in the NXT controller?
 - 4.1. Turn on Bluetooth in the NXT controller
5. Was there an error message resulting from the attempts to connect?
 - 5.1. Correct the condition causing the error message
6. Was the Last Bluetooth connection with the NXT controller terminated appropriately?
 - 6.1. Turn the power to the NXT controller ‘Off’
 - 6.2. Remove the battery pack from the NXT controller
 - 6.3. Wait 15 seconds
 - 6.4. Reinstall the battery pack to the NXT controller
 - 6.5. Turn the power to the NXT controller ‘On’
7. Is there Bluetooth connection with the NXT controller already established through another program on your computer (Mindstorms NXT-G application, etc?)
 - 7.1. Disconnect the connection and close the program
8. Is any other computer connected to the NXT controller via Bluetooth?
 - 8.1. Have connection terminated or use the other computer
9. Power-Cycle the NXT controller (turn power ‘Off’, wait 5 seconds, turn power ‘On’ and retry establishing a Bluetooth connection up to four tries if necessary)
10. If none of the steps above have solved the problem
 - 10.1. Reboot the computer
 - 10.2. Retry establishing a Bluetooth connection up to 4 tries, if necessary

If you are now able to establish a Bluetooth connection with the NXT module,
Congratulations!

If you are NOT able to establish a Bluetooth connection with the NXT module, please
proceed with the following additional troubleshooting steps

When Simple Steps do not resolve your Bluetooth Connectivity Issue

These steps involve using the Bluetooth Devices Manager to help establish a connection. **The USB cable must not be connected to the NXT controller through this process**

1. Open the Bluetooth Devices Manager by either (in Windows) double clicking the Bluetooth Icon in the task bar at the bottom right of the screen or by opening the Control Panel and selecting the Bluetooth Devices Icon.

- 1.1. The Bluetooth Devices window will open with the Devices tab active
2. In the Bluetooth Devices window; locate and select the name of the Bluetooth device (NXT controller) you are working with. If your controller is not listed, perform steps 4.3.4 through 4.3.8 below and then return to step 2
 - 2.1. Select the properties button. A properties window will open for the device chosen
3. Select the Services tab at the top of the Properties window
 - 3.1. The Properties Window will switch to an empty Services window with an animated flashlight to depict searching for available services for the device chosen
4. When the animated flashlight finishes searching...
 - 4.1. If the Services window has a service (Serial port (SPP) 'Dev B') listed with an unchecked check box to the left of the service
 - 4.1.1. Select the checkbox to display a check mark
 - 4.1.2. Select OK at the bottom of the Services Window
 - 4.1.3. Using your FMS or Controller application, try to establish a Bluetooth connection by the normal process, up to 4 tries if necessary
 - 4.2. If the Services window is empty
 - 4.2.1. Close the Services/Properties window
 - 4.2.2. Turn the power to the NXT controller OFF
 - 4.2.3. Remove the battery pack from the NXT controller
 - 4.2.4. Wait 15 seconds
 - 4.2.5. Reinstall the battery pack to the NXT controller
 - 4.2.6. Turn the power to the NXT controller 'On'
 - 4.2.7. Return to step 2
 - 4.2.7.1. If there are still no services listed after returning to step 2 and reaching this point for a second time, continue to step 4.3 below
 - 4.3. If after 2 attempts following the processes from step 2 through step 4, or if you are unable to connect after step 4.1
 - 4.3.1. In the Bluetooth Devices window, locate and select the name of the Bluetooth Device (NXT controller) you are working with
 - 4.3.2. Select the "remove" button at the bottom of the window and wait for the device name to be removed from the screen
 - 4.3.3. Perform step 4.2.1 through 4.2.6 above
 - 4.3.4. In the Bluetooth Devices window, select the ADD button. The ADD Bluetooth Device Wizard will open in its own window
 - 4.3.5. In the ADD Bluetooth Device Wizard window, select the empty check box to the left of "My device is set up and ready to use"
 - 4.3.5.1. Select the 'Next' button at the bottom of the window. The window contents will change to an empty frame with an animated flashlight to depict searching for available Bluetooth devices
 - 4.3.6. When the animated flashlight finishes its searching, select the name of your NXT controller.
 - 4.3.6.1. Select "next" at the bottom of the window. The window contents will change to Passkey options
 - 4.3.7. Select the selection circle to the left of "use the passkey found in the documentation"
 - 4.3.7.1. Enter 1234 in the text box directly to the right of the selected circle. The window contents will change to connection status display
 - 4.3.8. On the LCD display of the NXT controller, the "Passkey" screen should appear

- 4.3.8.1. Press the orange button on the NXT module to accept the default passkey
 - 4.3.8.1.1. The contents of the Add Bluetooth Device Wizard window will change to read “completing the add Bluetooth device wizard”. Among the other text in this window, the COM ports for the device should be listed
 - 4.3.8.2. Select the ‘Finish’ Button at the bottom of the window. The Add Bluetooth device Wizard window will close
 - 4.3.8.3. The name of the NXT module should now be displayed in the Bluetooth Devices Window.
- 4.3.9. Using your FMS or Controller application, try to establish a Bluetooth connection by the normal process up to four tries if necessary

Troubleshooting Tips – Windows XP Users

Due to some Microsoft Updates, you may lose the ability to connect via the Bluetooth Adapter to the NXT controller.

1. Right (or left) click on your My Computer icon on the desktop, or access My Computer by using the Start menu
 - 1.1. On the menu select Manage
 - 1.2. Expand the Services and Applications Tree
 - 1.3. Select ‘Services’ to display the services
2. Find and select the Bluetooth Support Service. Click on ‘Bluetooth Support Service’ to show the menu
 - 2.1. On the Menu select ‘Properties’ to open the properties window
3. On the General tab, under Service Status, select the Stop button
4. Select the Log On tab to change to the log on options window
 - 4.1. Select the radio (round) button next to Local System account
 - 4.2. Select the check box next to Allow Service to Interact with desktop
 - 4.3. Select the Apply button at the bottom of the window
5. Return to the General tab, under Service Status select the Start button
6. Select the OK button at the bottom of the window
7. Restart computer to make sure the change takes effect

HP QuickLaunch Issues (in XP or VISTA)

In HP Laptops running Quick Launch (with XP or Vista), the FMS may only recognize 7 of the 8 game controllers. To correct this issue:

1. Right Click on MyComputer
2. Click on Manage
3. Click on Device Manager
4. Under Human Interface Devices, uninstall HP QuickLaunch
5. Start the FTC Controller Station program
 - 5.1. With the program running

- 5.1.1. Select the Relist Controllers button
- 5.1.2. Open the controller selection drop down menu (as if to select a controller)
- 5.1.3. Note the unwanted device
- 5.1.4. Close the FTC Controller Station Program
- 5.1.5. Disable or Uninstall unwanted device