

March 22, 2011

TEAM UPDATE #19

GENERAL NOTICES

Updated Robot Inspection Checklist

The Robot Inspection Checklist has been updated to Rev D. You can find it here, <http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=452>, under FRC Game Manual, Section 4, The Robot. Changes include the addition of a Rule <R62> reference in the 'custom circuits' section, the addition of cRIO image v29 as allowed, and the specific listing of and preference for Driver Station software version 2.27.11.00.

Information on Software and Firmware Updates

One significant reason why teams have trouble connecting to their robot at events is outdated software or firmware.

In order to connect to your robot, your cRIO must be running v28 or v29 of the cRIO image. See more information below on the new v29 image. v29 is recommended for teams using CAN. Non-CAN users will see no difference in performance if they stay with v28. Both v28 and v29 may be downloaded here: http://firstforge.wpi.edu/sf/go/projects.wpilib/frs.crio_images

In order to connect to your robot, your Driver Station must be running software version 01.05.11.00 or 02.27.11.00. However, as we stated in **Team Update #17**, while Driver Station version 02.27.11.00 is not required, it is highly recommended. It can be downloaded here: <http://joule.ni.com/nidu/cds/view/p/id/2263> If you come to the field without this update and experience connection issues, your FTA is almost certain to request you update to this version.

Please note that you will not have an internet connection at events! Bring your updates with you on USB drives or your laptop!

Section 2 – The Arena

Interest has been expressed by many teams on how the TRIGGERING of the TOWERS is monitored. The following is a more technical explanation.

Each TOWER in LOGOMOTION has a dedicated module that monitors the trigger mechanism for that TOWER and controls the lights at the top. The trigger mechanism activates at ~0.25 inches of plate movement. The control module has a built-in noise buffer of 1ms. Any input signal longer than the noise buffer is immediately time-stamped and reported back to the central field controller. This central field controller then processes the received data every 5ms or less. Once the field controller sees a TOWER as TRIGGERED, it assigns a finish place to that TOWER (1st, 2nd, 3rd, or 4th) depending on the state of the remaining three TOWERS.

Section 3 – The Game

No changes.

Section 4 – The Robot

<R49> ROBOTS must be controlled via the programmable National Instruments cRIO-FRC (National Instruments part number 780406-01), with image version FRC_2011_v28 or FRC_2011_v29. Other controllers shall not be used.

cRIO image version FRC_2011_v29 is preferred for teams using CAN

Information on the V29 cRIO Image Update

Some teams have reported intermittent timeout issues when using Jaguars connected via the CAN bus. A bug has been identified in the communications library that runs on the cRIO that could potentially cause Jaguar CAN timeouts at startup. While this update has been tested with a number of FRC robots in competition there is no guarantee that it will fix all CAN issues.

This update is not mandatory and only fixes an issue related to CAN Jaguar startup. If you do not use CAN, there is no reason for you to install this update. If you do use CAN, while this update is not mandatory, it can help resolve an issue some teams are experiencing.

Installing the update

Installation of the update involves replacing the V28 cRIO image file in your development environment with the V29 image supplied here:

http://firstforge.wpi.edu/sf/go/projects.wpilib/frs.crio_images.crio_image_frc_2011_v29.

You need to add the V29 image file to the following location:

C++	c:\windriver\WPILib\cRIO_images\FRC_2011_v29.zip
Java	<user-directory>/sunspotfrsdk/cRIO_Images/FRC_2011_v29.zip
LabVIEW	c:\Program Files\National Instruments\LabVIEW 8.6\project\cRIO Tool\FRC Images\FRC_2011_v29.zip

In addition, for Java users, you must back-up and then replace the file: <user-directory>/sunspotfrsdk/ant/upgrade.xml with the version supplied in this release. This will allow Java to work with the V29 image. If for any reason you decide to revert back to the V28 image, then replace the upgrade.xml file with the original file which you should have backed up.

After installing the update you must update the cRIO to the V29 image using the Imaging Tool.

Additional CAN Jaguar suggestions

CAN Timeout errors will occur when a request to the speed controller is not acknowledged by the Jaguar within a prescribed time. Often these errors are not related to the issue described here and can be traced back to wiring or bus termination on the CAN network when a message doesn't get to the Jaguar or the reply doesn't make it back to the cRIO. If you are seeing these errors, check your wiring!

All teams using CAN connected Jaguars should be sure that there are no CAN Connection Timeout errors appearing on the driver station display on start-up before starting a match. You should advise the field personnel if you are seeing these errors before the match starts. Restarting the cRIO using the "Reboot robot" button on the driver station usually clears up these errors. If you are continuing to see Connection Timeout errors after installing this update, please report your experience on the CAN area on the FIRST forums here: <http://forums.usfirst.org/forumdisplay.php?f=1339>.

Section 5 – The Tournament

No changes.