Robotics – FRC 2010 Build Season

Reset Guide

Overview:

The idea behind this document is to have a single location to go to for setting up the equipment for Robotics build season. Primarily, it is around the controlling of the robot, programming in particular. It started with the 2009 season and is likely to grow. Therefore, instead of sending the reader to a certain section of the control manuals, the sections of interest have been transferred here. The locations of the original information are provided as necessary.

The examples in this guide are for Team 1111. Other teams may use this guide but should always substitute their team number for 1111. Numbers used should always be four digits long. Always add the correct number of '0's in front of your team should it be single, double or a triple digit team number.

Manuals for 2010 Season:

- Main: http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=452
- Controls: http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=10934

Manuals for 2009 Season:

- Main: http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=15523
- Controls: http://www.usfirst.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=10934

Table of Contents:

Section 1: Laptop IP Address – Reset Guide

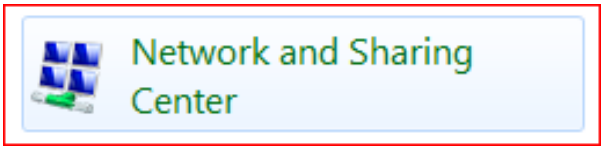
To access the network components such as the wireless access point (WAP), the cRIO, the wireless bridge (gaming adapter on the robot), etc. – you first have to setup networking on the laptop.

To access the networking properties of your computer, you have to understand that you computer's ability to network is either via physical connections, such as the network cable being attached – or via non-phyiscal connections such as wireless. There are other types like Firewire, USB and other ports but only the physical connection will be described here.

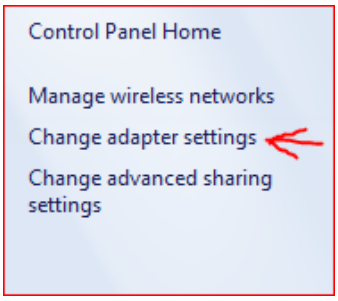
NOTE: Certainly, there are other operating systems than these three Microsoft operating systems. Team 1111 focused on the use of these operating systems and have not created instructions for other operating systems such as Apple MAC or the various flavors of Linux.

On Windows 7: To change the network connection properties:

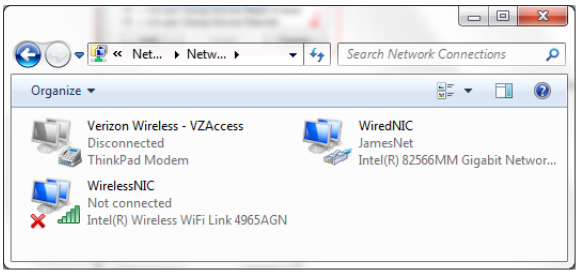
1. Start
2. Control Panel
3. View By (upper right hand side) – large or small icons
4. Network and Sharing Center



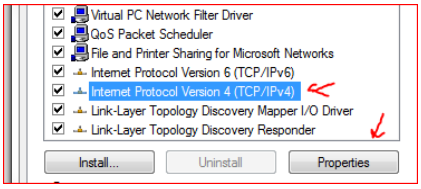
5. Change adapter settings (left hand side)



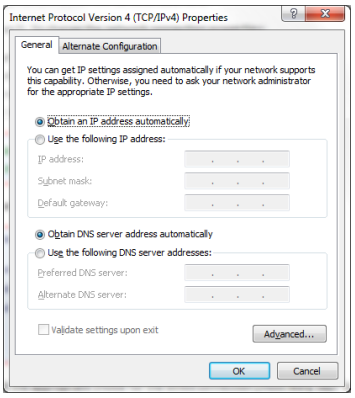
6. Pick the appropriate choice for the wired connection (most likely says 'Local Area Connection) – Rt.Click | Properties



7. Select “Internet Protocol Version 4” and select Properties

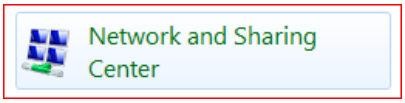


8. From this point, change the IP address information per whatever directions you are trying to utilize the laptop to access a piece of equipment.

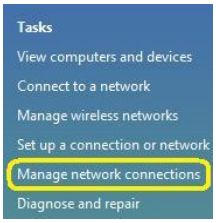


On Vista: To change the network connection properties:

1. Start
2. Control Panel
3. Classic View (left hand side)
4. Network and Sharing Center

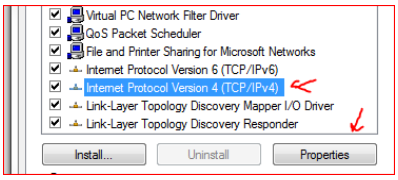


5. Manage network connections (left hand side)



6. Pick the appropriate choice for the wired connection (most likely says “Local Area Connection”) – Rt.Click | Properties

7. Select “Internet Protocol Version 4” and select Properties



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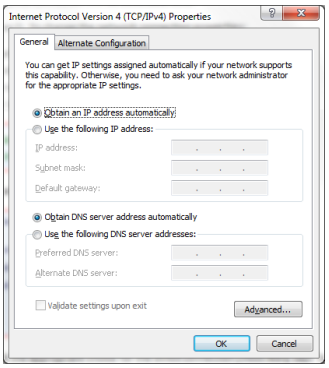
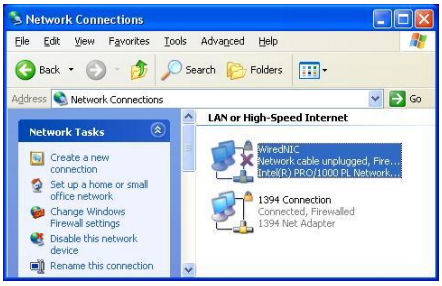


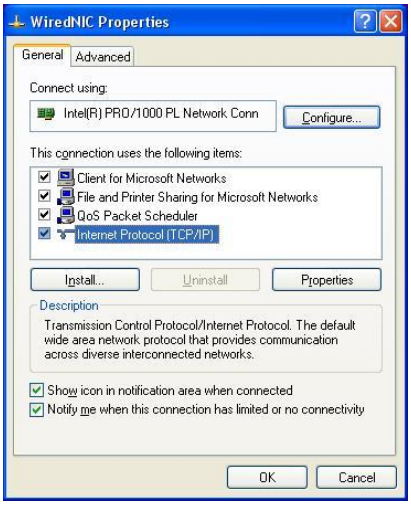
On Windows XP: To change the network connection properties:

1. Start
2. Control Panel
3. Classic View (left hand side) – click on “Switch to Classic View”. If it says to “Switch to Category View”, then you are already in Classic View
4. Network Connections

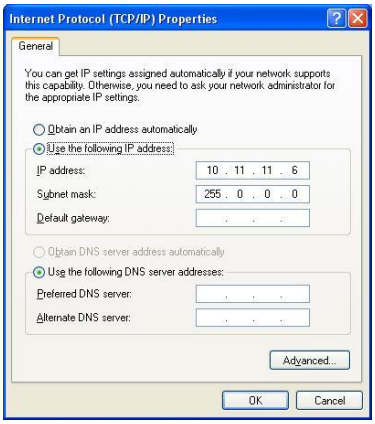
5. Pick the appropriate choice for the wired connection (most likely says ‘Local Area Network’) – Rt.Click | Properties



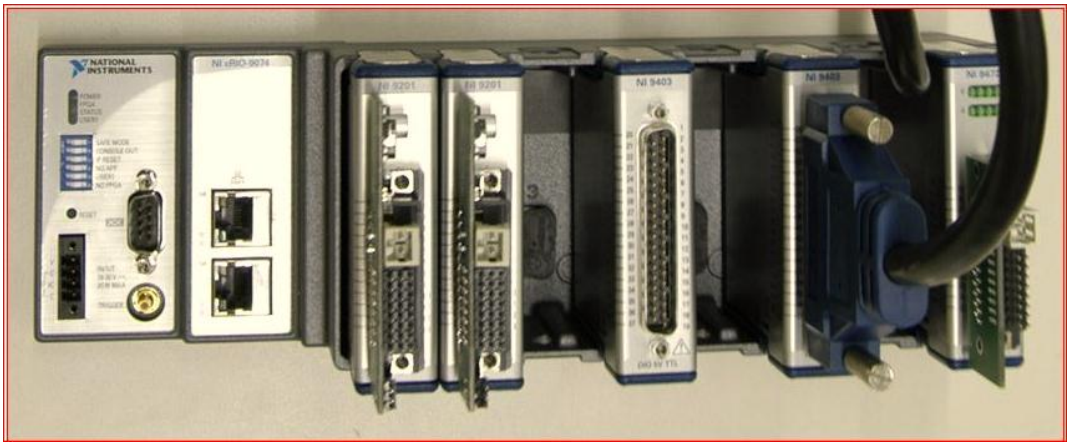
6. Select “Internet Protocol” and select Properties



7. From this point, change the IP address information per whatever directions you are trying to utilize the laptop to access a piece of equipment.



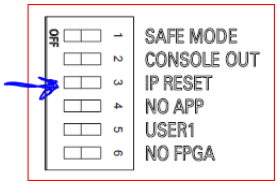
Section 2: cRIO – Reset Guide



NOTE: The main cRIO manual, CompactRIO Operating Instruction and Specification guide, is located here: http://decibel.ni.com/content/docs/DOC-2632

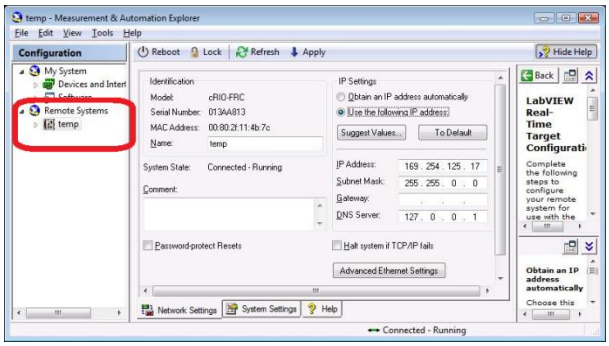
Using the CompactRIO Operating Instruction and Specification guide, go to Page 15 and use the "Resetting the Network Configuration of the cRIO-FRC" instructions. The text is reprinted here.

1. Provide power to the cRIO unit
2. Move the IP RESET DIP switch to the ON position. In the ON position, the rocker switch is pushed in on the right hand side.
3. Push the RESET button to cycle power to the chassis. The STATUS LED flashes once, indicating that the IP address is unconfigured.
4. Move the IP RESET switch to the OFF position. In the OFF position, the rocker switch is pushed in on the left hand side.



5. Plug network cable into the cRIO port 1 - Plug other end into the laptop. The network cable should be a cross-over cable if the laptop cannot properly switch to accommodate the cRIO. The cRIO port does not auto-configure – but the laptop port most likely does.
6. Computer needs IP address but can be anything but not DHCP
    a. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop
    b. 192.168.1.74 IP / 255.0.0.0 Submask
    c. Doesn't matter what IP address laptop is as long as a static IP address is set
7. From laptop that has had Disk1 and Disk2 installed on it. Use MAX (Measurement & Automation Explorer). Start | All Programs | National Instruments | Measurement & Automation
8. Start the MAX tool:

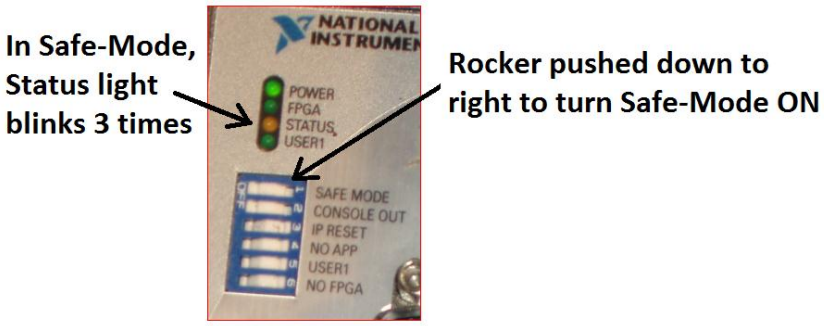
a. If no sub-choices appear on the left hand side under **Remote Systems**, select it. It could be that the process to populate it needs your help – such as unblocking the tool on the firewall. After this, you may need to press F5 or View | Refresh to get an entry to show.
b. Select the setting on the left hand side under **Remote Systems**



c. Set the IP address information. On right hand side, select "Use the following IP address:"
d. Set the four values below:
    - IP Address: 10.11.11.2
    - Subnet Mask: 255.0.0.0
    - Gateway: 10.11.11.1
    - DNS Server: 10.11.11.1
e. Click the Apply button at the top.
f. Select Yes to reboot the cRIO
    - The symbol on the left hand side under Remote Systems will show a broken symbol
    - To see if the settings were applied, select View | Refresh and then double click the entry below Remote Systems. If sub items appear, then the changes to the IP address were successful.
g. Once that occurs, the cRIO imaging tool can be used.

9. Set laptop to 10.11.11.6 / 255.0.0.0 / 10.11.11.4. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop
10. Proceed to the next section – Section 3: cRIO – Firmware Image Update Guide to setup the cRIO by reformatting it and placing the proper image on it.

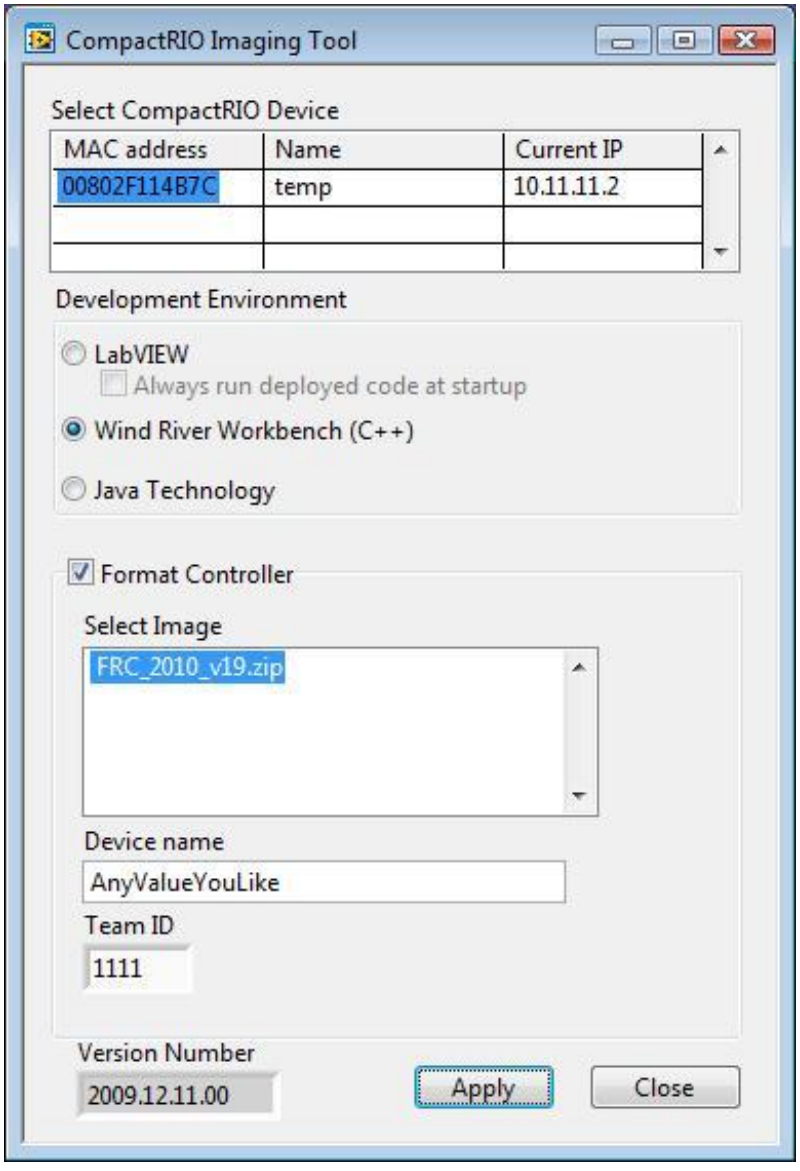
Section 3: cRIO – Firmware Image Update Guide



NOTE: In order to correctly connect to the cRIO to reimage it, the computer must communicate with it. Either directly connect the cRIO to a laptop, directly connect the cRIO to the WAP (router). Do not use the wireless connection to reimage/format the cRIO.

1. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
   - IP Address: 10.11.11.6
   - Subnet Mask: 255.0.0.0
   - Gateway: 10.11.11.4
   - DNS Server: leave blank
2. Ping the cRIO by typing at a command prompt: ping 10.11.11.2
   a. Reply from 10.11.11.2: bytes=32 ← Indicates cRIO was found on the network
   b. Reply from 10.11.11.2: Destination host unreachable ← Indicates problems
3. Reimage the cRIO - Run the "FRC cRIO Imaging Tool"
   a. Start | All Programs | National Instruments | LabVIEW 8.6 | FRC cRIO Imaging Tool
   b. If this is the first time, you will be asked for the firewall on the laptop to unblock the traffic from the program to the cRIO unit – select to UNBLOCK
   c. If a dialog window appears with the message "No CompactRIO devices were found. Verify the network connection" there was a problem connecting to the cRIO. Check power to the cRIO and ensure the Ethernet cables are connected.
   d. The cRIO Imaging tool will be launched and a window will be displayed titled "CompactRIO Imaging Tool." The top of the window will show information on any cRIO devices which were found on the network. Select the MAC address of the cRIO you would like to re-image. (Note: The cRIO MAC address is printed on a label on the back of the CRIO next to the bar code.)
   e. At this point, the cRIO needs to be updated with the image
      i. Images Files:
         a. 2010 Season: FRC_2010_v19.zip (so far)
         b. 2009 Season: FRC_2009_v11.zip
         c. The firmware files are located here: C:\Program Files\National Instruments\LabVIEW 8.6\project\CRIO Tool\FRC Images
      ii. The tool should find it if placed into that location.

f. Select the development environment you would like to use by clicking the radio button next to either “LabVIEW”, “Wind River Workbench (C/C++)” or Java Technology.
g. Select the checkbox next to “Format Controller” to install a new image onto the cRIO.
h. Select the image to be used from those in the list
i. In the text box under “Device name” enter the desired name for your cRIO device. (e.g. for team 1234, use “FRC-cRIO-1234”)
j. In the text box under “Team ID” enter your team number. The IP address and subnet mask for the cRIO will be derived from the team number.



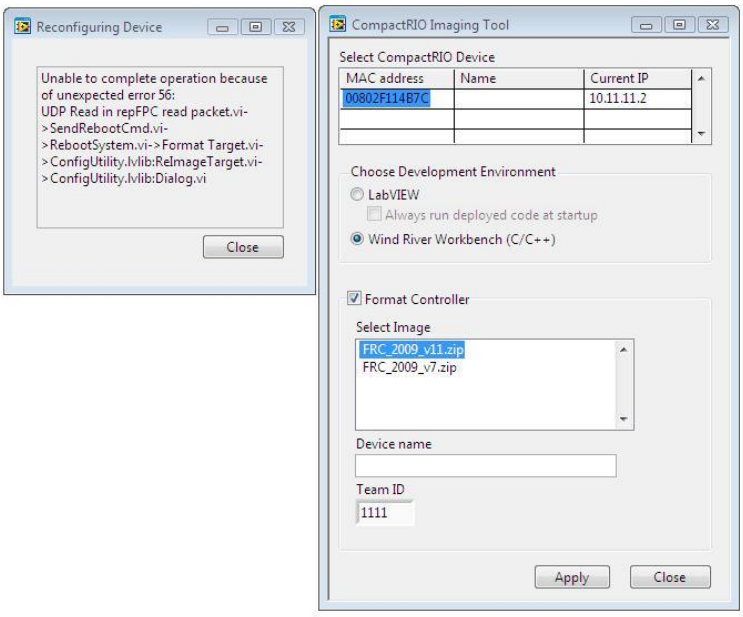
k. When ready to proceed, select the “Apply” button to commence imaging of the cRIO.
    a. Downloading a complete image to the cRIO requires about 5 minutes, during which time the laptop and cRIO must not be interrupted by resetting the power or interfering with the network connection

b. A "Reconfiguring Device" window should appear showing current status of the imaging procedure. The text window will sequence through the following messages:
    i. Extracting CompactRIO Image…
    ii. Connecting to CompactRIO device…
    iii. Formatting CompactRIO device…
    iv. Assigning IP address…
    v. Updating CompactRIO Image…
    vi. Updating configuration files…
c. The imaging process should complete within approximately 5 minutes. When the imaging process is complete, the message "The CompactRIO image was successfully updated. The IP address of the CompactRIO device is 10.xx.yy.2." (where xxyy come from your team number) → 10.11.11.2 for Team 1111.
d. Select "Close" to close the "Reconfiguring Device" window. Selecting "Close" actually closes both displays.

l. Power cycle (do not hit the reset button) the cRIO to have the new FPGA (Field Programmable Gate Array) image loaded automatically.

The Dreaded "error 56": ERRORS that have been encountered

NOTE: We've run into this "Error 56" problem a number of times. Possibly, it had to do with virus scanning software. A clean install of a laptop may take care of this.



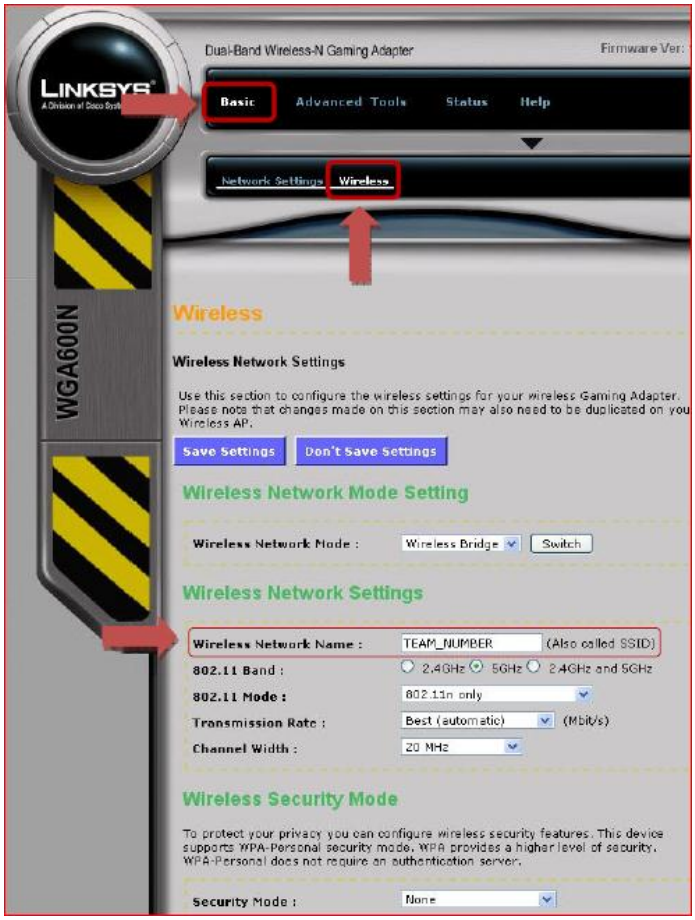
NOTE: One tool that maybe needed is the MAX (Measurement & Automation Explorer) tool. Should error 56 occur, it's best to reset the IP address of the robot and start over. See **Section 2: cRIO – Reset Guide** to reset the IP address.

Section 4: Game Adapter (GA) – WGA600N (Original) – Reset Guide

This is the "black box" Linksys unit that is placed on the robot and powered via the PDB (Power Distribution Board). Always start with factory settings before going to the actual settings for the robot.

1. Reset to factory settings – Push the red RESET button for 5 seconds or longer
2. Plug network cable into the game adapter (GA)
3. Plug other end of network cable into laptop
4. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 192.168.1.2 (Anything in range of 2 – 240 is fine)
    - Subnet Mask: 255.255.255.0
    - Gateway: leave blank
    - DNS Server: leave blank
5. Start browser and brose to: http://192.168.1.250
    - Account: admin
    - Password: admin
6. Continue to the next page…

7. Select "Basic" from the menu across the top of the webpage. Select "Wireless" to open the configuration page for the wireless settings. The configuration page is shown below. Change the following items:
    a. Change the "Wireless Network Name" to your FRC Team Number, no quotation marks.
    b. Configure all other settings to match those shown above.
    c. Click “Save Settings”
    d. When asked to reboot now or later, choose “Reboot Now”



8. Continue to the next page…

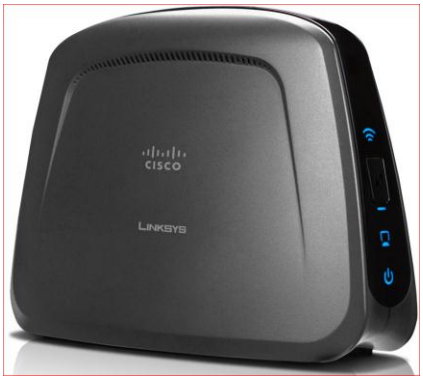
9. Login again: admin/admin
10. Select "Basic" from the menu across the top of the webpage
11. Select "Network Settings" to open the configuration page for the wireless settings. The configuration page is shown below. Configure the LAN Settings to match those shown above.
    a. In the IP Address and Default Gateway lines, replace “XX.YY” with your FRC Team Number.
    b. Click the “Save Settings”
    c. When asked to reboot now or later, choose “Reboot Now”. The login page will not reload at this point due to the IP address mismatch of the PC and bridge.

12. Continue to the next page…

13. Once finished with last step, the IP address of the Gaming Adapter should be 10.11.11.1
14. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 10.11.11.6
    - Subnet Mask: 255.0.0.0
    - Gateway: leave blank
    - DNS Server: leave blank
15. Access Gaming Adapter via http://10.11.11.1 and login
16. Change password → Tools | Administrator | sackett
17. Save
18. Reboot Gaming Adapter
19. Lastly, to ensure password was changed, access Gaming Adapter via http://10.11.11.1 and login with new password. You are successful if you are able to logon with new password

Section 5: Game Adapter (GA) – WET610N – Reset Guide

This is the "black box" Linksys unit that is placed on the robot and powered via the PDB (Power Distribution Board). Always start with factory settings before going to the actual settings for the robot.



Note: The "black box" Linksys unit that is placed on the robot (Linksys model WGA600N) has been discontinued. The Linksys WET610N is the suggested replacement by Linksys. FIRST has not advocated this unit but likely will do so in the next year or one similar to it. The nice thing about this unit is that it's dual band, just like the WGA600N.

Note: Linksys refers to this unit as a Wireless-N Ethernet Bridge. However, to make documentation match that of the original WGA600N, the term "gaming adapter" is used.

Always start with factory settings before going to the actual settings for the robot.

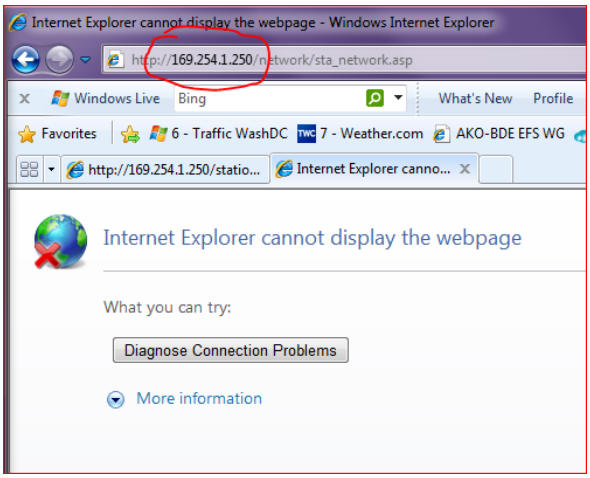
1. Reset to factory settings – Push the red RESET button for 5 seconds or longer
2. Plug network cable into the game adapter (GA)
3. Plug other end of network cable into laptop

4. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 169.254.1.74
    - Subnet Mask: 255.255.0.0
    - Gateway: leave blank
    - DNS Server: leave blank
5. Start browser and brose to: http://169.254.1.250
    - Account: admin
    - Password: admin
6. Select "Wireless" tab and then the sub-tab: "Basic Wireless Settings:
    a. Change the configuration view to Manual

    b. Set the SSID to 1111
    c. Click "Save Settings"
    d. A "processing bar" will occur. Be patient as the settings are processed.

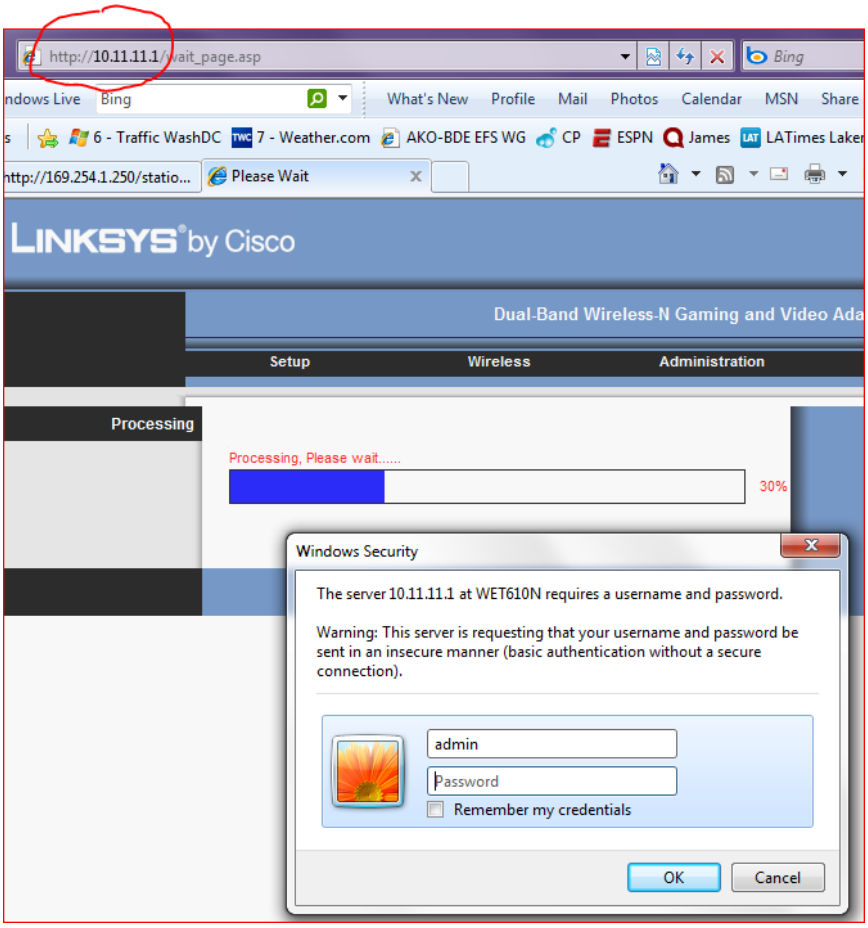
7. Continue to the next page…

8. Select “Setup” tab:
    e. Change the Bridge IP to Static IP.
    f. Bridge IP Addr: 10.11.11.1
    g. Subnet Mask: 255.0.0.0
    h. Gateway: 10.11.11.4
    i. Click “Save Settings”
    j. A “processing bar” will occur. Be patient as the settings are processed.
1. Because the IP address of the Gaming Adapter was changed, the web page will automatically be re-tried. It will fail as the laptop IP address and the Gaming Adapter’s IP address are on different network ranges.

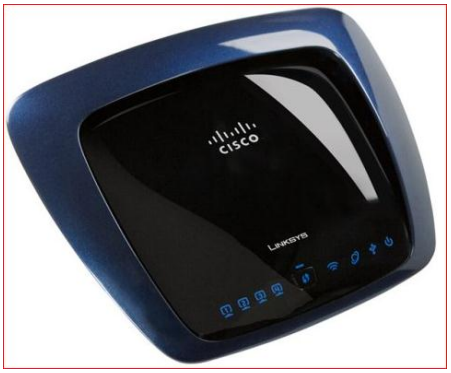


9. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 10.11.11.6
    - Subnet Mask: 255.0.0.0
    - Gateway: 10.11.11.4 (or leave blank)
    - DNS Server: leave blank
10. Access Gaming Adapter via http://10.11.11.1 and login
11. Change password → Administrator | sackett
12. Save Settings
13. The Gaming Adapter will save the settings and then cause the page to be reloaded

14. Log in as: Admin / sackett
    a. If a successful logon occurs, the password was correct modified



Section 6: Wireless Router (WAP) – WRT610N (Original) – Reset Guide

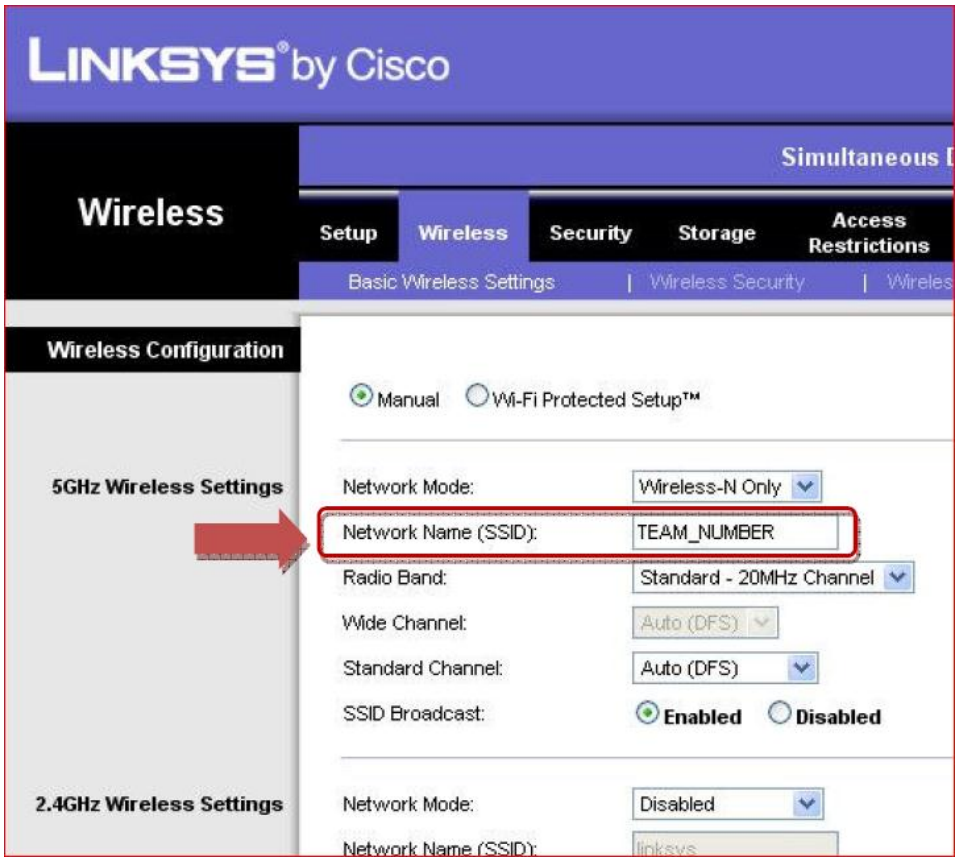


This is the flat blue/black Linksys unit (that came with the 2009 KOP) that is placed with the driver station. Always start with factory settings before going to the actual settings for the robot.

Note: The default settings presented here do not enable wireless security. If you share your work area, you may want to enable wireless security on both the router and the bridge.

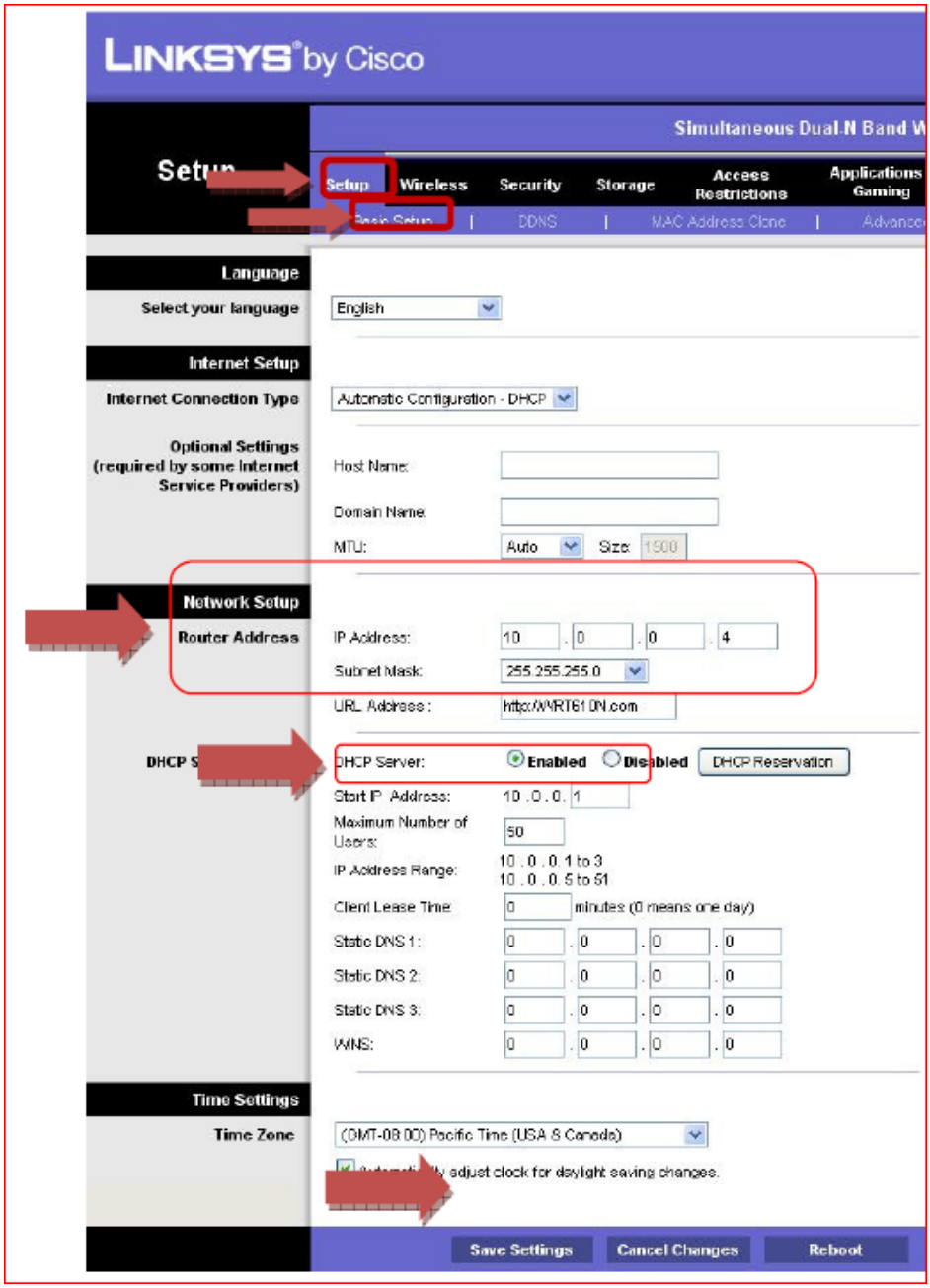
1. Reset to factory settings – Push the red RESET button for 5 seconds or longer
2. Plug network cable into the WAP (any of the blue ports 1-4)
3. Plug other end of network cable into laptop
4. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 192.168.1.2 (Anything in range of 2 – 240 is fine)
    - Subnet Mask: 255.255.255.0
    - Gateway: leave blank
    - DNS Server: leave blank
5. Start browser and brose to: http://192.168.1.1
    - Account: leave this blank
    - Password: admin
6. Continue to the next page…
7. Select the “Wireless” tab. Select the “Manual” option. The display changes…

8. Change the settings on the new page to match those shown below
    a. Enter your FRC Team Number in the SSID field, i.e. if you team number is 9999, enter 9999 in the field.
    b. Click “Save Settings”
    c. The “Settings are Successful” screen should now be displayed. Click “Continue”.
    d. If the web page does not reload, change the IP in the status bar to 192.168.1.1



9. Continue to the next page…

10. Select the “Setup” Tab.
11. Under “Basic Setup”, Make the following changes to in the “Network Setup” area of the page:
    a. IP Address: 10.XX.YY.4, where “XX.YY” is the FRC team number.
    b. Subnet Mask: 255.255.255.0
    c. Change the DHCP “Start IP Address” field to 10
    d. Click “Save Settings”
    e. The “Settings are Successful” screen should now be displayed. Click “Continue”. The web page will not reload due to the IP mismatch between the PC and the router.



12. Once finished with last step, the IP address of the WAP should be 10.11.11.4
13. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 10.11.11.6
    - Subnet Mask: 255.0.0.0
    - Gateway: leave blank
    - DNS Server: leave blank
14. Access WAP via http://10.11.11.4 and login
15. Change password → Administration | Router Password | sackett
16. Save
17. Reboot WAP
18. To ensure password was changed, access WAP via http://10.11.11.4 and login with new password. You are successful if you are able to logon with new password
19. Lastly, ensure the bridge is powered on, but not connected to the router. Open a web browser and navigate to 10.11.11.1 to confirm that the bridge's IP address has been set correctly. If you can access the bridge's web page, the network connections between the laptop → WAP and the laptop → Bridge (Gaming Adapter) are both good.

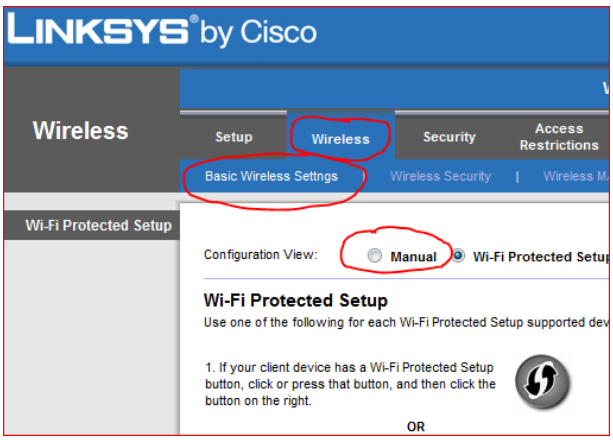
Section 7: Wireless Router (WAP) – WRT160N v3 (2010) – Reset Guide

NOTE: In the 2009 FRC build season, in the KOP, the Linksys wireless router, WRT610N, was supplied. It is capable of dual bands (both 2.4GHz and 5GHz). In 2010, rookie teams were given the WRT160N as a replacement. The assumption is that Linksys no longer produces the WRT610N. Therefore, the Gaming Adapters used with this WAP unit will need to be altered to use the 2.4GHz band.

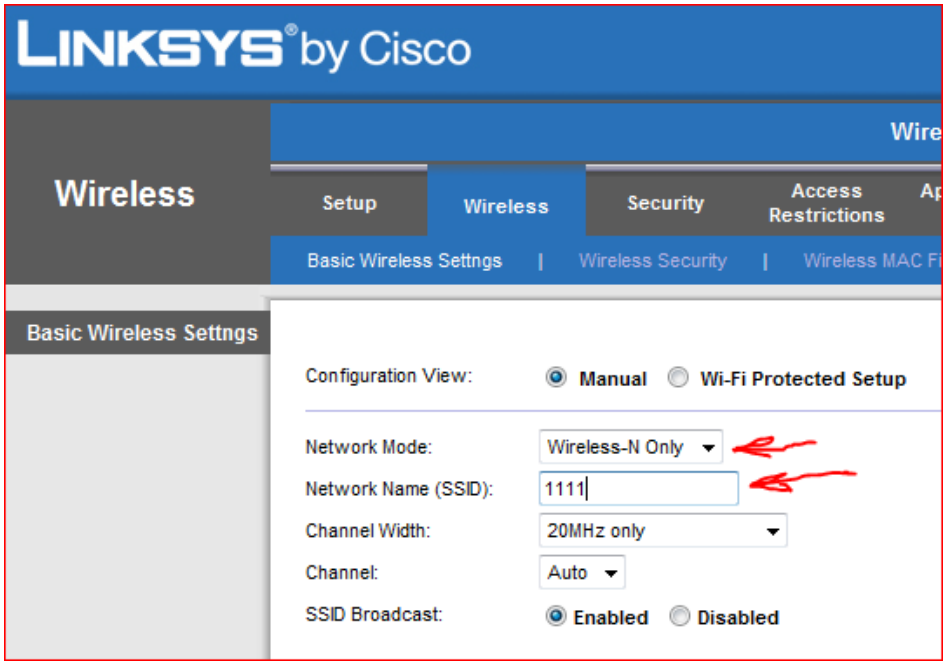
1. Plug network cable into the WAP (any of the blue ports 1-4)
2. Plug other end of network cable into laptop
3. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 192.168.1.2 (Anything in range of 2 – 240 is fine)
    - Subnet Mask: 255.255.255.0
    - Gateway: leave blank
    - DNS Server: leave blank
4. Start browser and brose to: http://192.168.1.1
    - Account: admin
    - Password: admin

5. Continue to the next page…

6. Go to this section of the setup and make these changes on the WRT120N: Wireless | Basic Wireless Settings | Manual

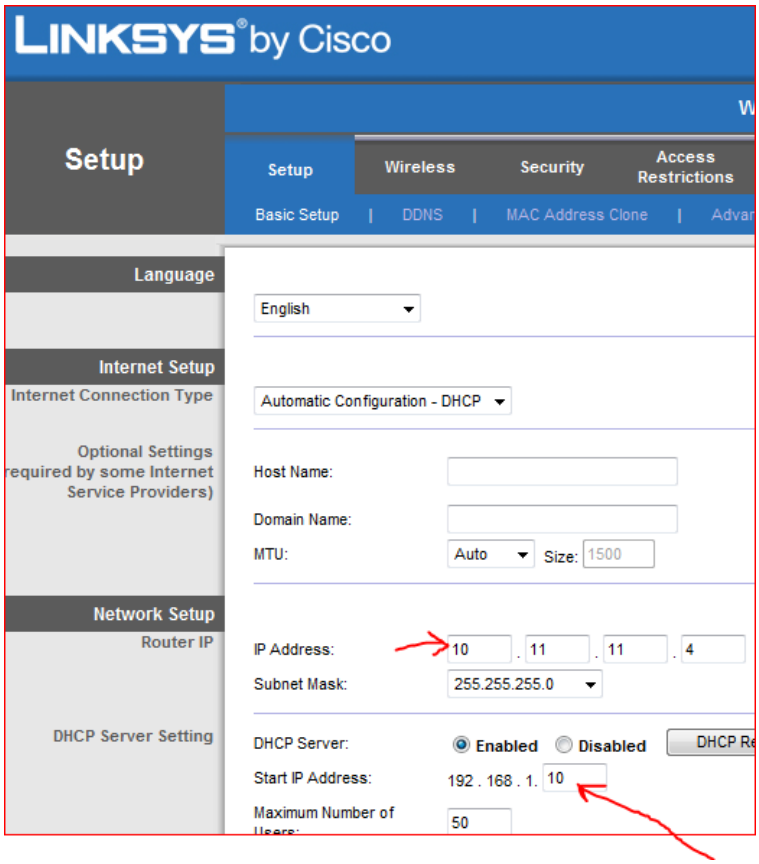


7. Make the following two changes:
    a. Network Mode: Wireless-N Only
    b. SSID: 1111
    c. Select Save Settings

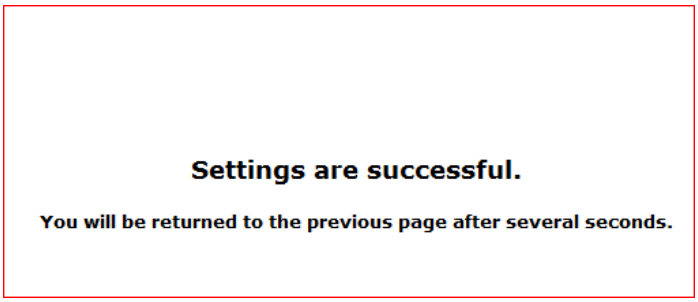


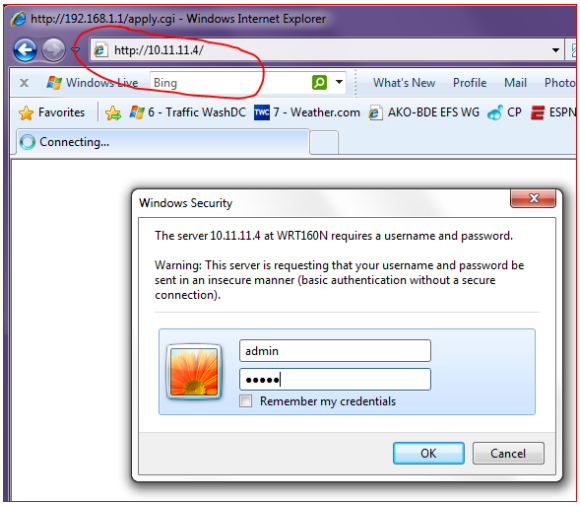
8. If successful, select Continue
9. Continue to the next page…

10. Make the following changes on the WRT160N and click Save Settings:
    a. Change to the Setup tab
    b. Change to the sub-tab: Basic Setup
    c. Set the IP Address to 10.11.11.4
    d. Set the DHCP IP address scope to start at 10
    e. Click Save Settings



11. If the changes are successful, the browser will show the following image. However, because the IP address of the WAP was changed, the WAP and Laptop network settings are not compatible





12. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 10.11.11.6
    - Subnet Mask: 255.0.0.0
    - Gateway: 10.11.11.4
    - DNS Server: leave blank
13. Logon to the WAP with the IP address of: HTTP://10.11.11.4
    a. Logon and Password are both: admin
    b. Select Administration tab
    c. Change password to: sackett
    d. Select Save Settings
    e. Close the browser
14. Attempt to logon with the new password: HTTP://10.11.11.4
    a. Logon: admin
    b. Password: sackett

Section 8: Wireless Router (WAP) – WRT120N (Dressel's) – Reset Guide

NOTE: This was to be used by the team but has been kept back so that the team could have the newer Linksys unit given to rookie teams this year. The directions are kept here for completeness.

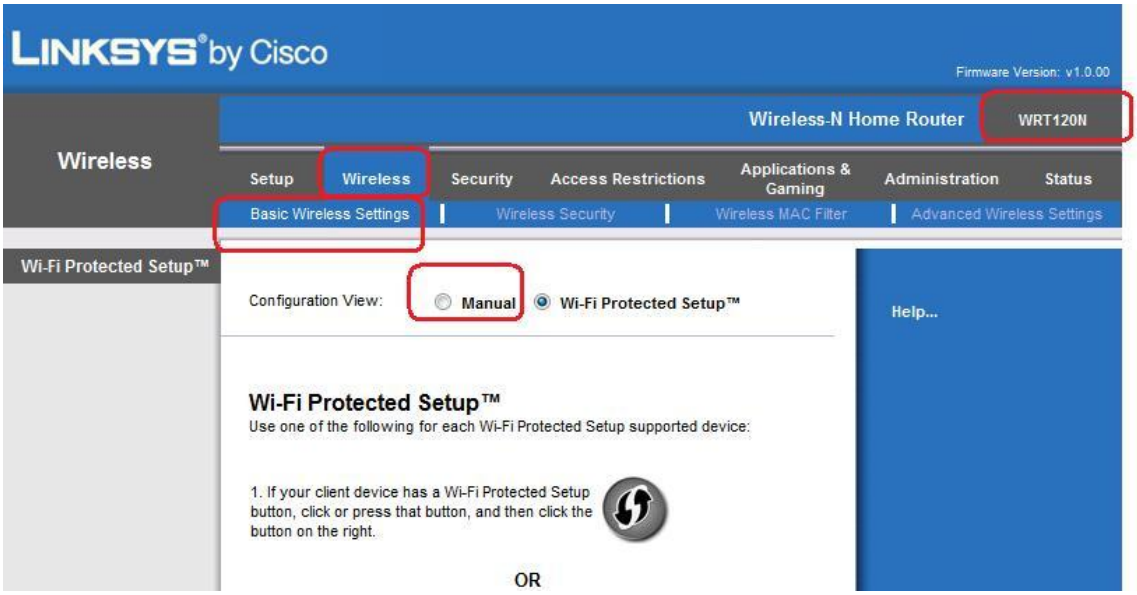
NOTE: This is the flat black Linksys unit that is placed with the driver station. Always start with factory settings before going to the actual settings for the robot.

NOTE: The WRT120N WAP is smaller in size than the WAP (WRT610N) that came with the Robotics KOP (kit of parts). The normal setup of the Game Adapter (WGA600N) and the normal WAP (WRT610N) occurs using only the 5GHz speed. The WRT120N only does 2.46GHz. Therefore, these directions take this into account but also require a change on the Game Adapter (WGA600N).

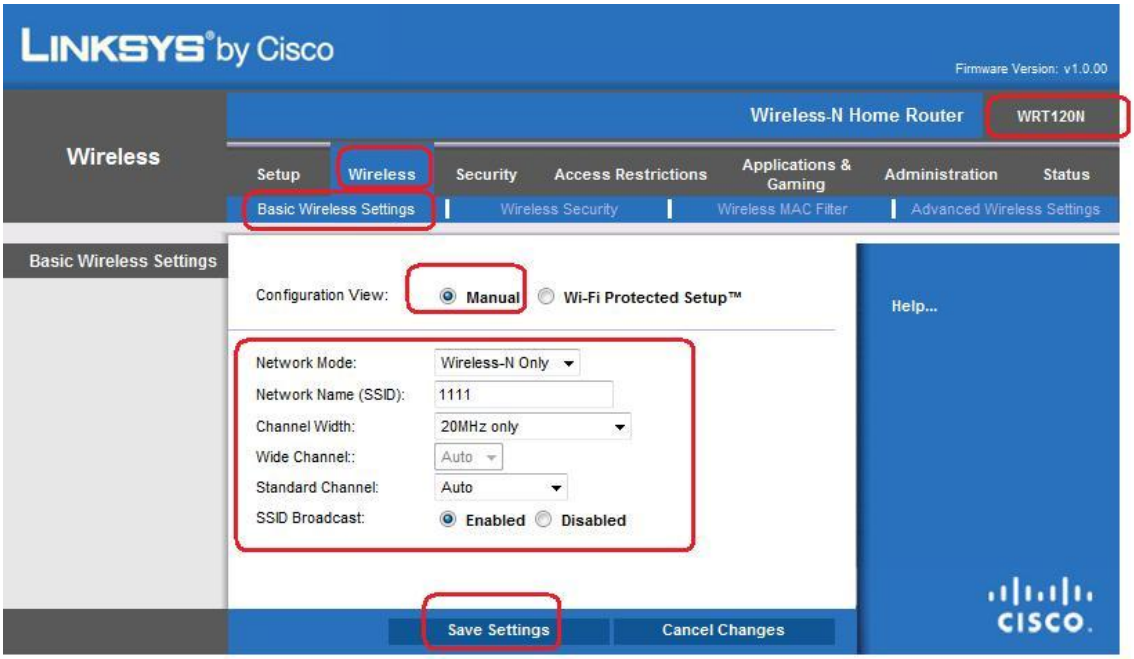
15. Reset to factory settings – Push the red RESET button for 5 seconds or longer
16. Plug network cable into the WAP (any of the blue ports 1-4)
17. Plug other end of network cable into laptop
18. Set laptop network settings. See **Section 1: Laptop IP Address – Reset Guide** on how to set the laptop:
    - IP Address: 192.168.1.2 (Anything in range of 2 – 240 is fine)
    - Subnet Mask: 255.255.255.0
    - Gateway: leave blank
    - DNS Server: leave blank
19. Start browser and brose to: http://192.168.1.1
    - Account: admin
    - Password: admin

20. Continue to the next page…

21. Go to this section of the setup and make these changes on the WRT120N: Wireless | Basic Wireless Settings | Manual

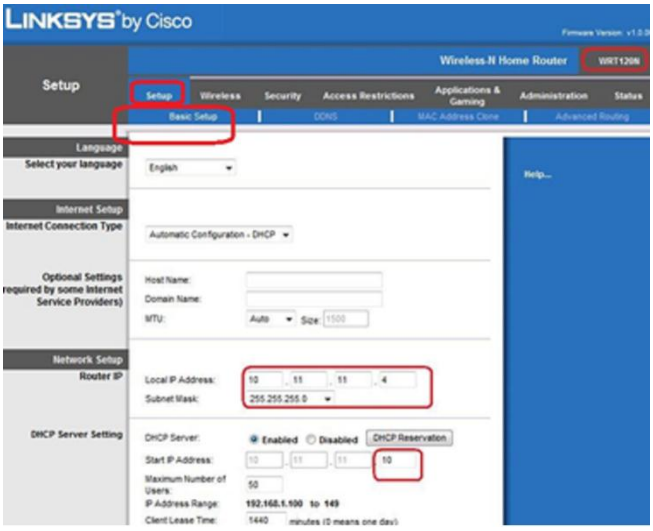


22. Make the following changes on the WRT120N and click Save Settings



23. Continue to the next page…

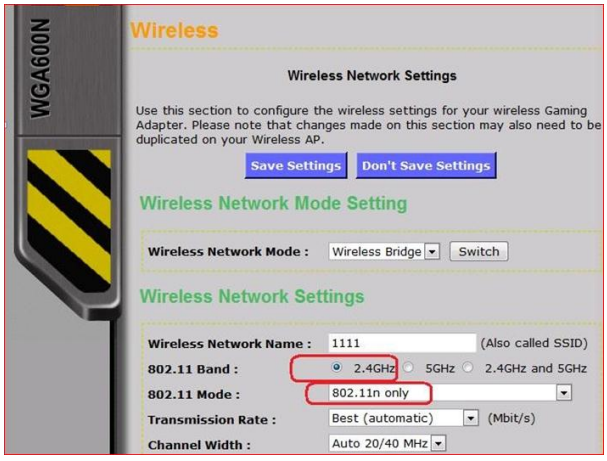
24. Make the following changes on the WRT120N and click Save Settings



NOTE: The 2009 Game Adapter and Wireless Access Point both had the capability to transmit/receive at 5GHz band. The WRT120N (this WAP) can only transmit/receive at the 2.4GHz band. Therefore, the gaming adapter (either WGA600N or the newer WET610N) needs to be set to accept/use the 2.4GHz band.

Directions for setting WGA600N (Gaming Adapter) to use 2.4GHz band:

1. Make the following changes on the Game Adapter (WGA600N):
    a. Logon using the account set in Section 4: Game Adapter (GA) – WGA600N.
    b. Select Basic and then Wireless settings and set the two settings shown
    c. Save Settings and then Reboot



2. Test out the wireless connection by looking to the Driver Station to see if the Battery Status shows up correctly. If it does, then the Game Adapter from the KOP (kit of parts) is working correctly with the new WAP (WRT120N)

Section 9: Driver Stations (Classmate) – 2010 Model – Reset Guide

To restore your machine, please follow the steps below (note, this process takes approximately 20 minutes):

1. With the Classmate powered OFF, insert the USB Key (RESTORATION KEY FROM 2010 KOP) into an available USB port. Do not use a USB hub, plug the Key directly into the Classmate.
2. Power on the Classmate and when you see the 2GoPC screen, repeatedly press F11 until a small window appears entitled "Please Select Boot Device."
3. Using the cursor keys, select the USB Key. It is the second item in the list (the Key will appear twice, select the first instance of the name, which is the second item on the list), beginning with USB:xxxx. Do NOT select "USB: Generic Device," this is not your USB Key.
4. Press Enter and allow the Classmate to boot from the USB Key. Be patient, it can take a minute of more for it to finish. You will now be at x:/windows/system32.
5. Follow the on screen instructions to complete the process. It is recommended that, to do a clean restore, select Option 3, Prepare AND Restore.
6. UPDATES:
    - Apply the LabVIEW Update
    - Apply the DS (Driver Station) Update

BACKGROUND / General Information:

The software used in the 2010 Driver Station solution is contained within the Classmate PC, which has been specially imaged for use in the 2010 FRC season. The off-the-shelf software packages that have been loaded onto the Classmate include, but are not limited to the following:

1. Windows XP Pro
2. National Instruments LabVIEW 8.6
3. Sun Microsystems Java
4. OpenOffice.org
5. Cypress Programmer 3.10

6. AVG Anti-Virus
7. Foxit Reader, Free Version (pdf reader)

In addition to the standard software packages listed above, there are also custom settings and software pre-loaded on the Classmate to meet FRC and team needs. There are two accounts set up on the Classmate. The Driver account and the Developer account.

The Driver account is to be used when the Classmate is to function as a Driver Station (at home, at a competition, etc). When in the Driver account, teams will not be able to access Windows Explorer, the Task Manager or run additional software applications. The result is that the Driver account functions like a kiosk for the user. The applications that are permitted in the Driver account are the Driver Station software and the Dashboard software.

The Developer account is much more like a typical Windows interface. Teams may use this account to develop code, create and modify documents, image the cRIO, download code to the cRIO, and much more.

We recommend that when switching from the Driver account to the Developer account that you actually log off the account instead of simply switching users. To log out of the Driver account, click on the red Exit button in the Setup tab. You will quickly see a dialog box appear that says that the Task Manager has been disabled. This message can be ignored.

While the Classmate has significant functionality, we discourage teams from installing additional software (with the exception of WindRiver Tools which can be done via USB storage device, external disk drive, etc), storing large files on the disk, etc to prevent the Classmate from becoming bogged down and sluggish.

In the event your Classmate has been corrupted, the USB key required to restore you Classmate has been included in your kit. Please note that this USB Key, a 4GB Thumb Drive, is not a general use storage device, but instead has been loaded with the Classmate default image and should be protected and kept pristine in case you need to restore your machine.

Section 10: Driver Stations (Blue Box) – 2009 Model – Reset Guide

NOTE: This device was used only in the 2009 season. There are good directions for setting up the unit with the Control manuals for 2009. They are linked on the front page. Go there and look for Chapter 5. Section 5.1.1 and 5.3.2 have the directions which contain images of a driver station going through the various steps. The directions below are the same steps but without the screen shots.

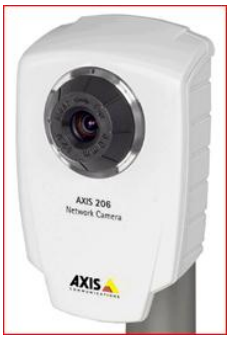
NOTE: Need USB device with the FAT file system on it. A USB device with NTFS file system did not work. On Disk3/UPDATES/DriverStationUpdates – place the dsud_pkg.bin onto the root directory of the USB device.

NOTE: Note that the firmware update procedure can result in corruption of the Driver Station flash drive if the firmware update procedure is interrupted after the completion of step 6 below. Please ensure that the Driver Station will not be interfered with during this procedure.

1. Power on the Driver Station, wait for it to boot to the status screen (Shows "Team, Mode, System, and Battery" status)
2. Acquire the latest firmware for the Driver Station from www.usfirst.org/frccontrolsystem and save it on a USB flash drive, named "DSUD_PKG.BIN" in the top-level directory on the flash drive. (Note that this file does not need to be the only file on the USB flash drive, however the flash drive should not have auto-run programs on it.)
3. Insert the USB flash drive containing the "DSUD_PKG.BIN" file into the USB1 port on the Driver Station
4. Hold down the left (up arrow) and center (down arrow) buttons middle button for approximately 7 seconds until the screen displays "*FIRMWARE UPDATE Release buttons"
5. The screen will display "Hold 'up' button" Within two seconds, press and hold the 'up' button until the display shows "Release buttons". Release the 'up' button
6. The screen will display "Hold 'down' button" Within two seconds, press and hold the 'down' button until the display shows "Release buttons". Release the 'down' button
7. The screen will display "Hold 'select' button". Within two seconds, press and hold the 'SELECT' button until the display shows "…" Release the 'select' button.
8. The firmware upgrade will proceed automatically. Do NOT interrupt this process by cutting power to the Driver Station, inserting/removing any cables from the Driver Station, touching any of the I/O pins, etc. The firmware upgrade takes approximately 3 minutes to complete.
9. The Driver Station will automatically reboot upon completion of the firmware upgrade.
10. Change the team number of the driver station (2009 Control Manual – Section 5.3.2)
    a. Turn on Driver Station, wait for it to boot to the status screen (Shows "Team, Mode, System, and Battery" status).
    b. Hold down the middle button for approximately 4 seconds until the screen changes to display "SET TEAM NUMBER". While in this mode, controls are as follows. (Note that each button must be held for approximately one second before it responds.)
        i. Left button (up arrow): increments the selected (highlighted) digit
        ii. Center button (down arrow): moves the selection cursor to the next digit
        iii. Right button (SEL): sets the team number to the displayed number

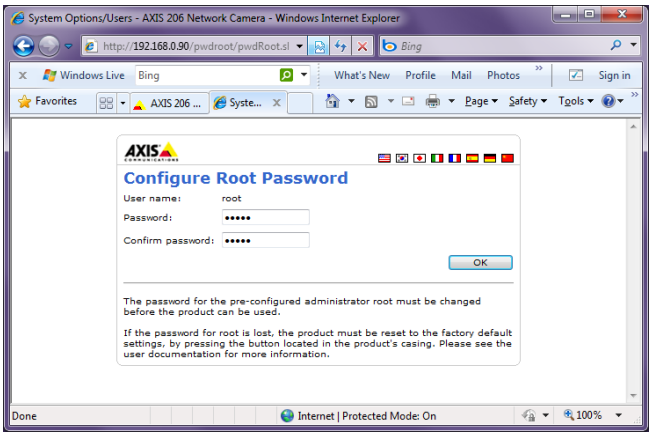
c. After setting the team number, the Driver Station will display “UPDATE COMPLETE CLOSING SYSTEM” and reboot. The new team number should be displayed on the status screen

Section 11: Camera – AXIS 206 – Reset Guide

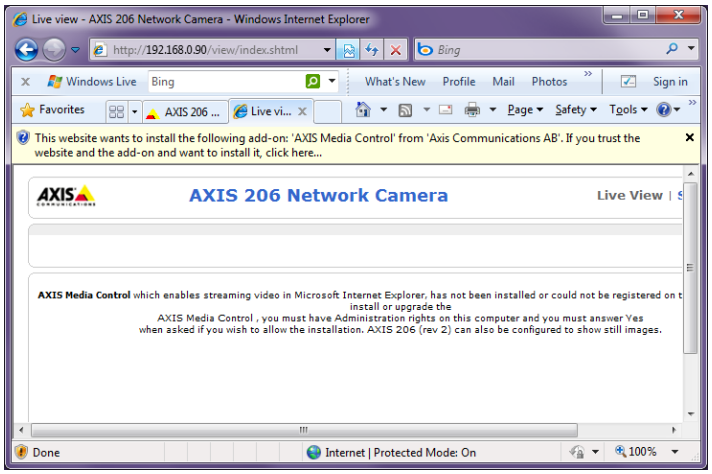


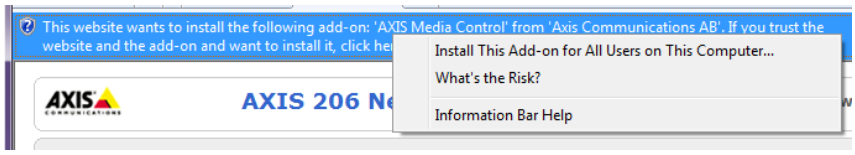
Camera – AXIS 206

1. If needed, go to the AXIS 206 web page for support:
    a. http://www.axis.com/techsup/cam_servers/cam_206/index.htm
2. Give power to the camera
3. Reset the camera to factory settings using the Control Button
    a. Disconnect the power adapter.
    b. Press and hold the Control button while reconnecting the power.
    c. Keep the Control button pressed until the Status Indicator color changes to amber (LED on left when looking at back of camera). This may take up to 15 seconds.
    d. Release the Control button.
    e. When the Status Indicator changes to Green (which may take up to 1 minute), the process is complete and the camera has been reset.
    f. The unit will now have the default IP address 192.168.0.90
4. Set the default password for the ROOT account to “admin”

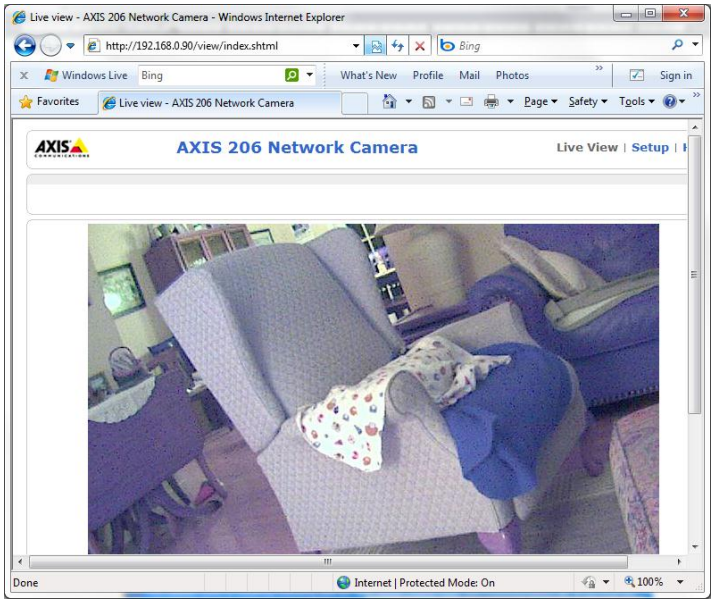


5. Setting the password allows for authentication to the camera. The initial page of the camera is shown but to see the video of the camera, the AXIX Media Control needs to be accessed. Click in the area above and select "Install This Add-on for All Users on This Computer…"
    a. NOTE: If the above step should fail, go to the next step…

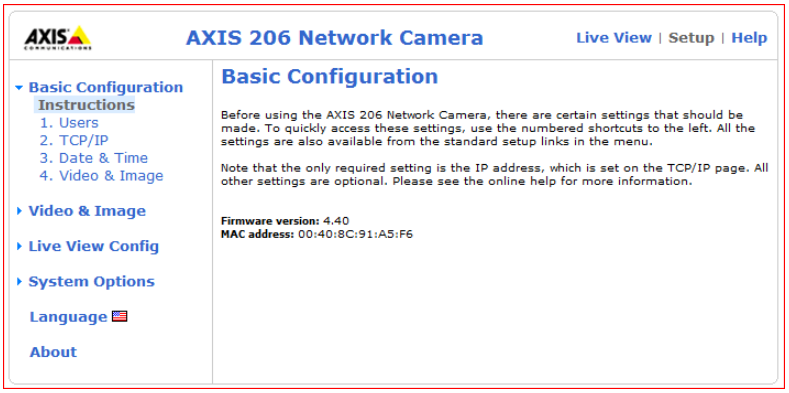


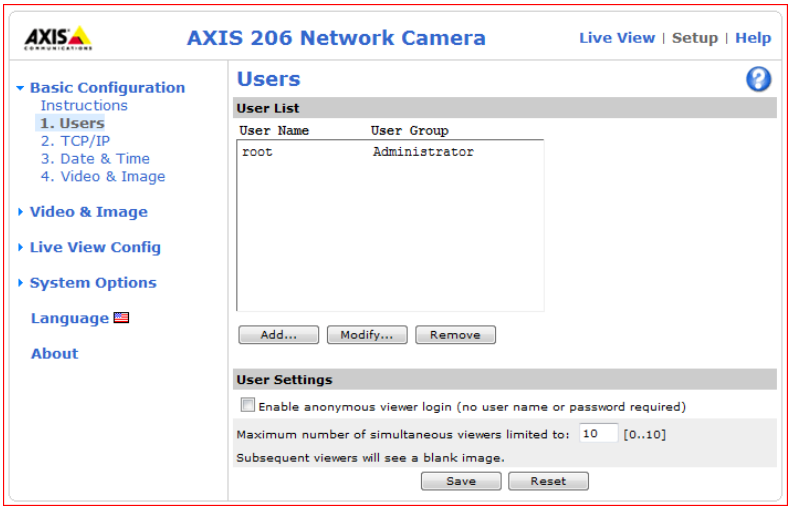


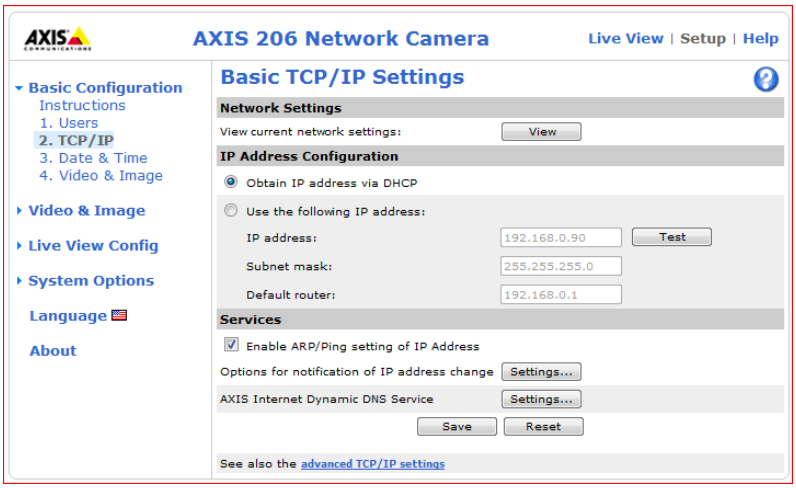
    b. If the above step should fail, perform the following steps:
        i. Copy the files from **C:\Robotics\Disk3\AXIS 206-Camera\CAB Files From CameraAxis206** to a directory. For example: C:\Junk
        ii. Run the following command line where the DLL file is located:
            1. rundll32 AxisMediaControlEmb.dll,InstallMe
        iii. This try again to access the "Live View" – live feed should start to be shown

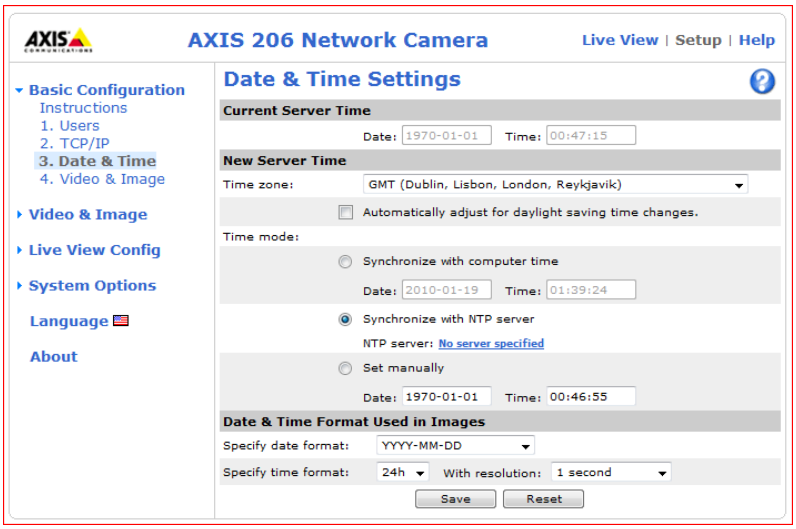


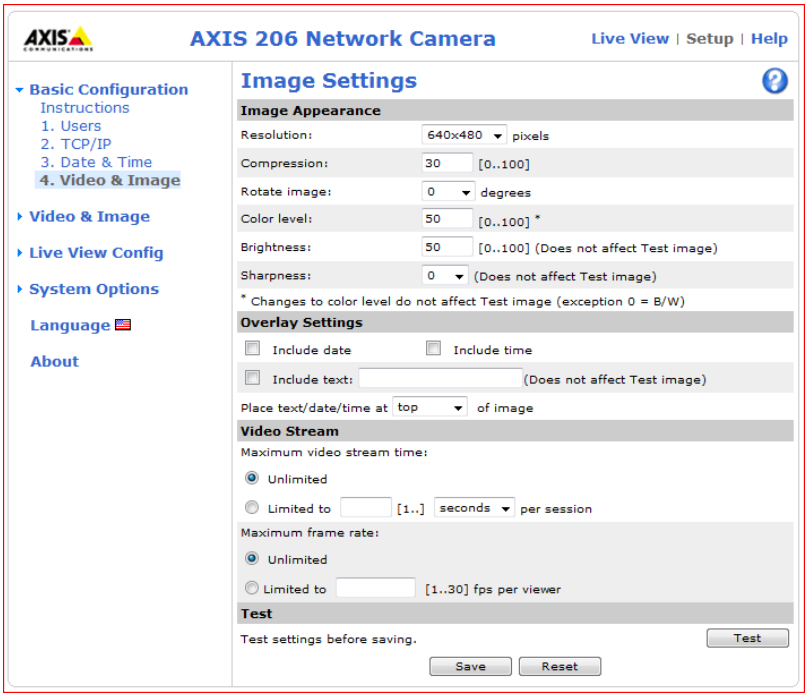
6. Select Setup – Review the following ‘factory default’ settings – Basic Configurations



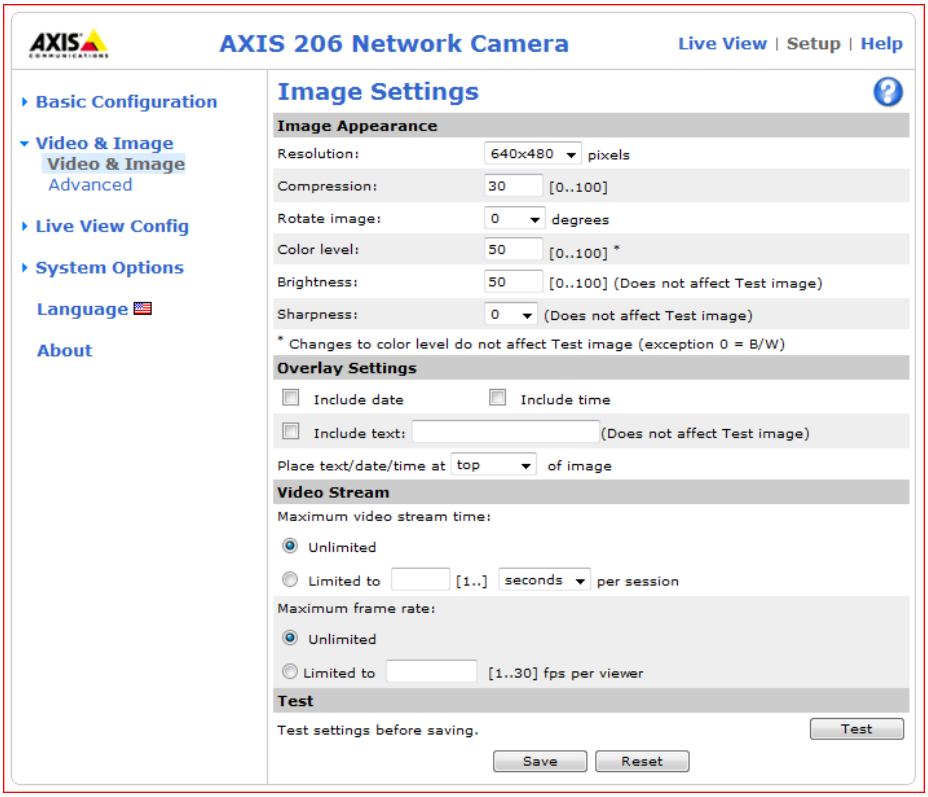


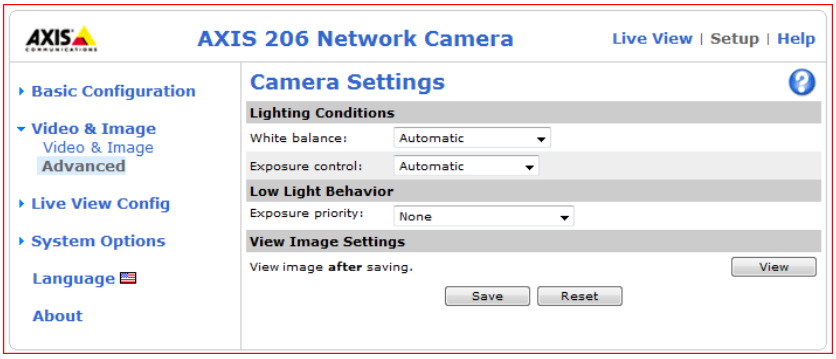




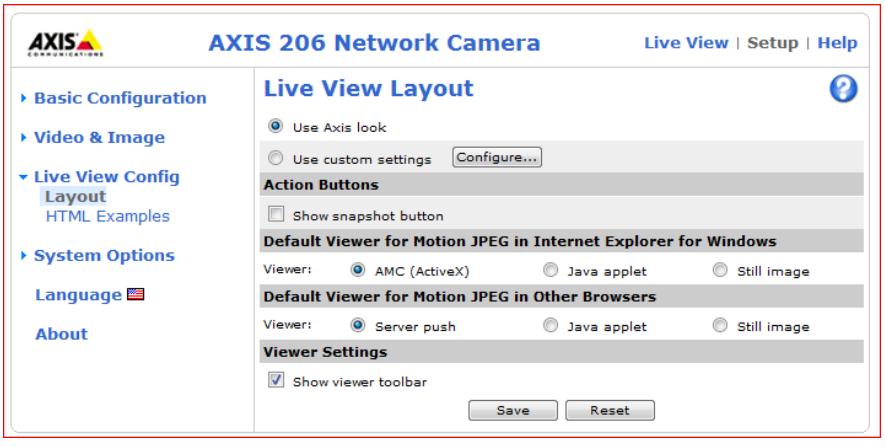


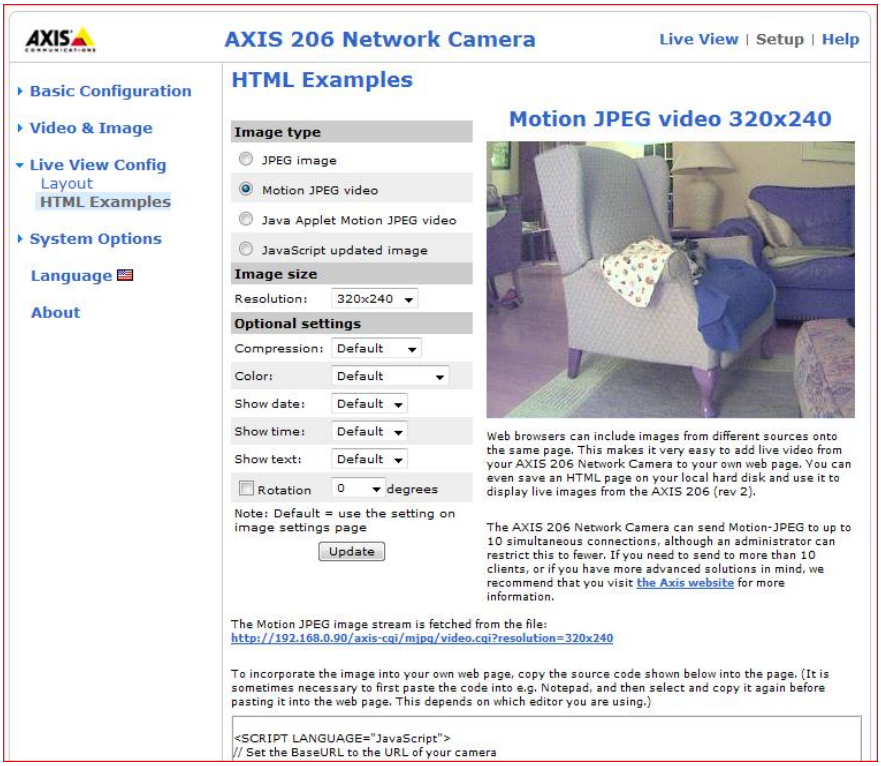
7. Select Setup – Review the following ‘factory default’ settings – Video & Image





8. Select Setup – Review the following ‘factory default’ settings – Live View Config




AXIS 206 Network Camera
Live View | Setup | Help
Basic Configuration
Video & Image
Live View Config
Layout
HTML Examples
System Options
Language
About
HTML Examples
Image type
JPEG image
Motion JPEG video
Java Applet Motion JPEG video
JavaScript updated image
Image size
Resolution: 320x240
Optional settings
Compression: Default
Color: Default
Show date: Default
Show time: Default
Show text: Default
Rotation 0 degrees
Note: Default = use the setting on image settings page
Update
Motion JPEG video 320x240
Web browsers can include images from different sources onto the same page. This makes it very easy to add live video from your AXIS 206 Network Camera to your own web page. You can even save an HTML page on your local hard disk and use it to display live images from the AXIS 206 (rev 2).
The AXIS 206 Network Camera can send Motion-JPEG to up to 10 simultaneous connections, although an administrator can restrict this to fewer. If you need to send to more than 10 clients, or if you have more advanced solutions in mind, we recommend that you visit the Axis website for more information.
The Motion JPEG image stream is fetched from the file:
http://192.168.0.90/axis-cgi/mjpg/video.cgi?resolution=320x240
To incorporate the image into your own web page, copy the source code shown below into the page. (It is sometimes necessary to first paste the code into e.g. Notepad, and then select and copy it again before pasting it into the web page. This depends on which editor you are using.)
<SCRIPT LANGUAGE="JavaScript">
// Set the BaseURL to the URL of your camera

Section 12: Camera – AXIS M1011 – Reset Guide

The AXIS M1011 is a replacement model for the discontinued AXIS 206. No directions for it at this time. Though, there are documents for it here: Disk3\Documents\Docs-Vendors-Various\AXIS M1011-Camera

Camera – AXIS M1011

1. If needed, go to the AXIS 206 web page for support:
    a. http://www.axis.com/techsup/cam_servers/cam_m1011/index.htm
2. Give power to the camera
3. Reset the camera to factory settings using the Control Button
    a. Disconnect the power adapter.
    b. Press and hold the Control button while reconnecting the power.
    c. Keep the Control button pressed until the Status Indicator color changes to amber (LED on left when looking at back of camera). This may take up to 15 seconds.
    d. Release the Control button.
    e. When the Status Indicator changes to Green (which may take up to 1 minute), the process is complete and the camera has been reset.
    f. The unit will now have the default IP address 192.168.0.90
4. Set the default password for the ROOT account to “admin”

Section 13: When / Where to change Team Number

When testing or setting up a duplicate set of equipment, there are a number of locations that need to have the team number changed. This section points out which locations are necessary to change. The example change is from Team 1111 to Team 2028

1. 10.20.28.1 – Game Adapter (WGA600N)
2. 10.20.28.2 – cRIO
3. 10.20.28.4 – Wireless Access Point (WAP)(WRT610N)
4. 10.20.28.5 – Driver Station / Classmate
5. 10.20.28.6 – Laptop