



Lynx System Developers, Inc.

# **FINISHLYNX MVP PACKAGE QUICK START GUIDE**

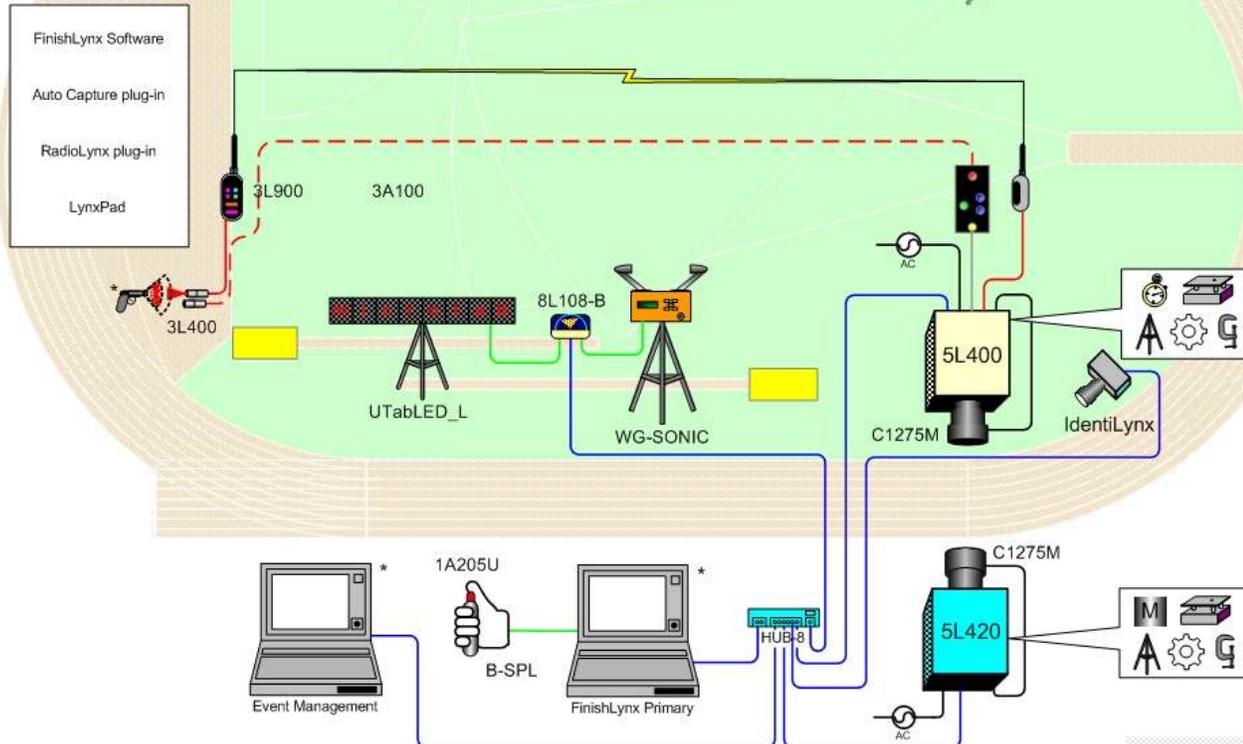
## FinishLynx – “MVP” System

Verify that your FinishLynx “MVP” System contains the components pictured here. If not, or if you need help, call: (978) 556 9780 - USA

Item	Description	ID	Item	Description	ID
 (shown with Remote Control Lens installed and Remote Positioner)	EtherLynx Fusion Color camera with color c-mount lens adapter	5L400 MC-C		Etherlynx 2000+ camera with monochrome c-mount lens adapter	5L420 MM-C
Not pictured	Timing and Color option embedded in camera	5LTE 5LCO		2 x Remote control lens	C1275M
	Connection box cable	451		2 x Power supply and cord	452
	2 x Remote positioner	2L102		Normally closed start sensor with light and mount	3L400K
	4 x 25 ft. Ethernet cables	C10BT		1 x 100 ft. Ethernet cable	C10BT
	3 x tripod	BG3036		500 ft. start sensor cable	3A100
	2 x Geared head	BG3275		Button splitter	B-SPL
	2 x Super head clamp	BG2909		8 port Ethernet hub and power supply	HUB 8
	Capture button and USB/Serial adapter	1A205U		RadioLynx Transmitter and Receiver (includes RadioLynx start sensor (red case))	3L900
	2 x Carrying case	1A207		Connection box	C-Box
	Laminator kit and instructions with 50 foam packs	Laminator		MicroTab scoreboard, carrying case and charger	MG-TAB9
	Sonic Wind Gauge with Tripod and 50m cable	WG-SONIC		Lynx Resource CD; FinishLynx® 32, ACM Plug-in, NCP Plug-in, RadioLynx plug-in, and LynxPad™ software	5LSW, 5LPRW 5LPACM 5LPNCP and 9LSW01
	Wired SerialLynx	8L108		IdentiLynx Full Frame Video Camera kit	IdentiLynx



# MVP



## Items not included

- Computer (laptop recommended) running Microsoft Windows. Your computer needs: two available USB ports, one available Ethernet port, and a CD drive.
- Flathead screwdriver.
- Step ladder and table.
- Plumb bob and string. The plumb bob is available at your local hardware store, and you can use virtually any type of string or twine, as long as it is at least the width of your track.
- Printer (optional).
- *Recommended:* UPS – Uninterruptible Power Supply (Battery Backup)

## Introduction

In this quick start guide, you will learn how to set up and configure the FinishLynx network as shown in the diagram above: set up the EtherLynx Fusion camera and the Etherlynx 2000+ camera and align with the finish line using the remote positioners and remote lens, capture, evaluate, and print a FinishLynx image and results, configure FinishLynx to work with the scoreboard and wind gauge, and import a start list of competitors that you have created in LynxPad.

For more detailed or advanced instructions, including how to use the ACM Plug-in, consult the *FinishLynx 32 Operator's Manual* or the FinishLynx online help by clicking [Help](#) | [Contents](#) from the Menu bar.

## Step 1: Go to the track!

Bring your "MVP" system and an assistant to your track. Make sure there is power near the finish line, on both the inside and outside of the track, and at least three power outlets.

Set up a table near the finish line, on the infield if a power source is available.

The finish line should have black lane marker boxes painted where it crosses each lane line. If not, we suggest you put black tape over the intersections of the finish line and the lane lines as shown to designate lane lines. This will help you align the camera and get a clearer FinishLynx image.



## Step 2: Install the software

### 1) FinishLynx

- Insert the Lynx Resource CD into your computer's CD drive.
- Follow the instructions on your screen to install FinishLynx, the ACM Plug-in, the NCP Plug-in, and the RadioLynx (SW) Plug-in. When prompted, enter the serial numbers found on the back of your Lynx Resource CD jewel case. Be sure that the version installed is 7.23 or higher.
- Start FinishLynx by clicking the Microsoft Windows **Start** button and selecting **All Programs** | **FinishLynx**.

## 2) LynxPad

- Insert the Lynx Resource CD into your computer's CD drive.
- Follow the instructions on your screen to install LynxPad. Once installed open LynxPad and go to **Help | Enter LynxPad License** and enter the serial number found on the back of your Lynx Resource CD jewel case.

## 3) USB/Serial adapter

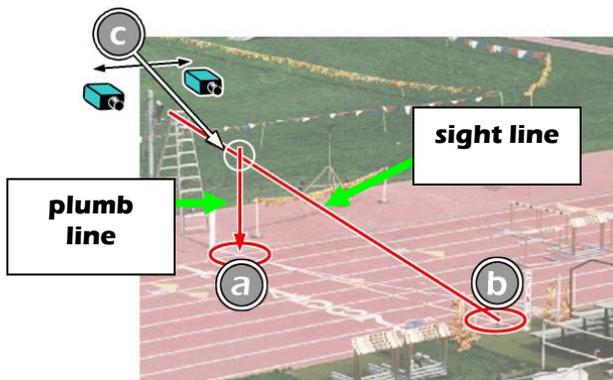
- insert CD supplied with the USB adapter into your computer's CD drive and select the correct driver software to install
- Insert the USB adaptor into an available USB port on your computer. Allow Windows to run through its recognition process for the device and driver.

## Step 3: Evaluate a sample image

- Start FinishLynx.
- Click **File** from the Menu bar and select **Open...**
- Double-click **Sprint** The sample FinishLynx image appears on your screen.  
Note: This sample is a two-camera image.
- Click the mouse once on the torso of a competitor on the left side of the screen. A red hairline appears.
- If necessary, click and hold the red crosshair in the middle of the hairline and drag it up or down until the correct lane number for that competitor is highlighted in red on the left side of your screen.
- Press the **Enter** key on your computer. The finisher's time appears in the start list above the image.
- Repeat these steps for all of the competitors on the screen. You have just successfully evaluated a race in FinishLynx.
- Click **File | Close window**. If you want to reuse the image later for practice evaluation, click **No** when asked to save your changes. Close FinishLynx.

## Step 4: Set up the Primary Camera Position

- Open the legs of the tripod in a position in line with the finish line, preferably on the infield and approximately 3 meters back.
- Extend the legs of the tripod so they are approximately 2-3 meters high.
- On the side of the finish line closest to the camera, hold the plumb bob so that it is suspended directly above the middle of the finish line. This is the plumb line, shown as (a) in the image below.
- Tie string to the screw on the top of the tripod head. Have your assistant take the other end of the string to the far side of the finish line and hold the string taut. This is the sight line, shown as (b) in the image below.
- Move the tripod to the left or right until the plumb line and sight line touch at position (c) in the image below. The tripod is now in the plane of the finish line.



## Step 5: Set up the Reverse Angle Camera Position

- Open the legs of the tripod in line with the finish line, on the opposite side of the track from the primary camera position and approximately 3 meters back from the track.
- Extend the legs of the tripod so they are approximately 2-3 meters high.
- Repeat instructions 3), 4), 5) above

## Mount the Primary camera

- The Primary camera (the Fusion [White] camera) is fitted with a remote control lens and is supplied with a remotely controlled adjustment platform. When fully assembled, your camera assembly will resemble the picture below.



- Secure the remote positioner to the camera bottom by turning the black handled thumbscrew. Make sure the Lynx label faces in the same direction as the camera lens.
- Connect the cable that comes with the remote positioner between the port on the positioner and the port on the back of the camera labeled **Remote Control**.
- Connect the cable on the remote lens to the remaining serial port on the remote positioner.
- Secure the geared head to the top of the tripod.
- Note how the mounting plate is attached to the top of the geared head. Then, pull back on the lever at the top of the geared head to release the mounting plate.
- Tighten the mounting plate to the bottom of the remote positioner by turning the screw with a flathead screwdriver.
- Attach the camera with the remote positioner and mounting plate to the tripod by clicking the mounting plate into place on the geared head.
- With the camera lens lined up with and facing the finish line, make minor adjustments to the tripod legs so both bubbles on the tripod are centered.
- Turn the black knob on the geared head that controls the tilt of the camera so that it is aiming at about the mid point of the Finish Line.

## Step 6: Mount the Reverse Angle camera

- The reverse angle camera is also fitted with a remote control lens and is supplied with a remotely controlled adjustment platform. When fully assembled, your camera assembly will resemble the picture below.



- Repeat Steps 2) through 10) of Step 5: above.

## Step 7: Configure the network

- 1) On your FinishLynx Computer, click the Microsoft Windows Start button and select **Control Panel**, or click **Start | Settings | Control Panel**.
- 2) Double-click **Network Connections**.
- 3) Right-click the **Local Area Connection** associated with the network interface card (NIC) in use and select **Properties**. The Local Area Connection Properties dialog appears.
- 4) Check the box next to Internet Protocol (**TCP/IP**).
- 5) Click to select Internet Protocol (**TCP/IP**) and then click **Properties**. The Internet Protocol (**TCP/IP**) Properties dialog appears.
- 6) Click the **Use the following IP Address**: button and then type the following numbers:
- 7) **IP address**: 192.168.0.5
- 8) **Subnet mask**: 255.255.255.0. Click **Ok** and then click **Close**.
- 9) **If you are running Microsoft Windows XP, follow these steps to disable the firewall.**
  - a) **Right-click My Network Places on your computer's desktop and select Properties. The Network Connections screen appears.**
  - b) **Right-click the Local Area Connection associated with your NIC, and select Properties. The Local Area Connection dialog appears.**
  - c) **Click the Advanced tab.**
  - d) **Make sure the box under Internet Connection Firewall is unchecked.**
  - e) **Click Ok and then exit the Network Connections screen.**

**NOTE** If running a wireless Ethernet card, you must disable it while the camera is booting.

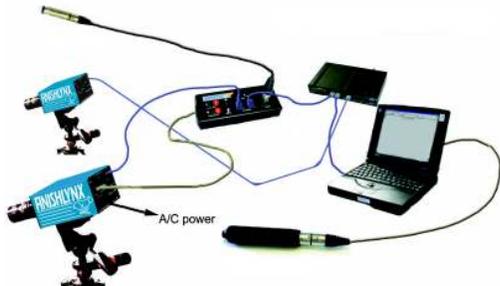
- 10) Restart your computer.

## Step 8: Connect the Hub to your Computer

- 1) Use one of the supplied Ethernet cables to connect the Ethernet card/port on your FinishLynx computer to Port 2 on the supplied Ethernet Hub.
- 2) Connect the Ethernet Hub to an AC power supply.
- 3) If your computer is powered on, you will see a green link light indicating an active connection at Port 2 on the Hub, if you do not, check that your Hub and computer are powered on, and the Ethernet cable is properly connected.

## Step 9: Connect the Cables to your Primary Camera

- 1) Select the TIMING ENABLED camera (confirm check box is marked on camera ID plate on base of camera) Connect the female end of connection box cable to the port on the back of the camera labeled **Connection Box** and the male end to the left side of the connection box.
- 2) Connect one of the Ethernet cables to the back of the camera labeled **10 Base T** and to one of the connection box ports labeled **Ethernet**. Set the "Hub" switch on the connection box to "Yes."



- 3) Connect an Ethernet cable between the remaining Ethernet port on the connection box and Port 3 on the supplied Ethernet Hub.
  - 4) Connect the black power cord to the back of your camera and plug the other end into the power source.
- NOTE: If using RadioLynx wireless start system, you should now configure this using the instructions that came with the RadioLynx wireless start system. In this case, skip the following stage 5).*
- 5) If using a wired start detection system, connect the male end of the start sensor cable to the connection box where it says **Start**. Attach the start sensor to the other end of the cable and keep the start sensor close by.
  - 6) If you have not already done so, connect the supplied USB to Serial adapter to a USB port on the back of your computer.
  - 7) Connect the capture button cable to the 9-pin serial port on the USB adapter.
  - 8) Turn on the camera by switching the black power button on the back.
  - 9) You should see a green link light indicating a connection at Port 3 on the Hub, if you do not, check that your Hub and camera are powered on, and the Ethernet cable is properly connected.

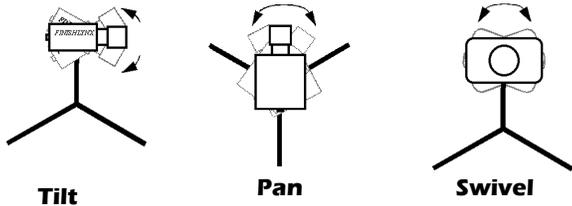
## Step 10: Align the Primary camera

- 1) Ensure that Camera Alignment is turned off (Camera Alignment Icon should be red ) Look at the FinishLynx software and check the lower right corner of the screen while your assistant turns on the power to the reverse angle camera.
- 2) The green status bar should complete their reporting of the status of the camera boot process and you should now see a camera in the Camera listing at the top of the Hardware Control screen.
- 3) Select the primary camera by clicking on the listing for it in the Hardware Control window. The information will highlight when selected.
- 4) Click , the red camera alignment icon in the top left hand corner of the FinishLynx **Hardware Control** screen. The icon turns green, and image appears on the computer monitor. Because you are only taking a picture of the finish line, the picture on your computer screen does not resemble anything recognizable.

In the next steps, your goal is to obtain an image with a white background (the color of the finish line) and black lane lines.

- 5) Click . The **Camera Settings** dialog for the Primary cameras appears.
- 6) Click the **Setup** Tab.
- 7) In the **Name** field type "Primary" to make camera identification easier. Select Lane for **Identify By** and enter the correct number of **Lanes** for the track.
- 8) Have your assistant walk across the finish line. Note which side of the computer screen they are travelling towards. If the left side of your monitor, enter **Left** in **Orientation**, if the right side of your monitor, enter **Right**
- 9) Click the **Parameters** tab.
- 10) In the **Gain Method**: line, click **Manual** and type 30 in the **Gain** field, and then click Ok.
- 11) On the keypad on the right of the FinishLynx screen, click and hold in two-second increments  until the iris of the remote lens is open all of the way.
- 12) Focus the camera by looking at a point approximately 1/3 of the way up the finish line (lane 3 if you are on the infield) and clicking  and  buttons on the keypad on the right of the FinishLynx screen until the image becomes crisp.
- 13) If your picture looks washed out by too much light, click and hold  in two-second increments to let less light in.

- Click  to center the camera automatically using the remote positioner.
- Click  to automatically align the camera on the finish line. The camera pans and swivels automatically



- Now, have your assistant run through the inner-most and outer-most lanes. Adjust the **tilt** and **zoom** of the camera until he/she is clearly visible on both ends of the finish line.
- After the image on the computer shows a white background and black lane lines and your assistant appears in the inner and outer-most lanes, adjust the camera lens focus again by adjusting  or  until all lanes appear crisp and in focus
- Turn off Camera Alignment

### Step 11: Connect the cables to the Reverse Angle Camera

- Connect an Ethernet cable between the port on the back of the Reverse Angle camera labeled **10 Base T** and Port 4 on the supplied Ethernet Hub.
- Connect the black power cord to the back of your camera and plug the other end into the power source – **do not turn on the power yet.**

### Step 12: Align the Reverse Angle camera

*NOTE: When using a two camera system it is vital that the reverse angle camera is aligned with the Primary camera in the same plane. Repeat Steps 1-15 of Section 11 above. When naming the camera enter "Reverse Angle" to make camera identification easier.*

- Have your assistant run through the finish line and adjust the tilt of the camera until he/she is clearly visible on both ends of the finish line.
- After the image on the computer shows a white background and black lane lines and your assistant appears in the inner and outer-most lanes, adjust the camera lens focus again by adjusting  or  until all lanes appear crisp and in focus.
- Turn off Camera Alignment

### Step 13: Connect the Scoreboard and Wind Gauge

- Connect the serial data cable supplied with the display to the DB9 port marked **Display** on the SerialLynx unit
- Connect the serial data cable supplied with the Wind Gauge to the DB9 port marked **Wind Gauge** on the SerialLynx unit.
- Connect an Ethernet cable between the Ethernet port on the SerialLynx unit and **Port 5** on your Hub

### Step 14: Configure FinishLynx camera settings

#### Primary Camera

- In the Hardware Control window, select the Primary camera by clicking on it and highlighting it
- Click  | **Parameters** | **AGC**.
- Click **Frame Rate** and type a value in the field between **600-800** for sprints (400m and under) or type **500** for distance events. Change this value when moving between sprints and distance races, or else the competitors in your FinishLynx image appear distorted.  
**Note:** Image distortion does not affect timing accuracy.
- Click **Ok**.
- Open a new event in FinishLynx by clicking  in the top left corner of the screen.
- Capture a small amount of image containing a white object, such as a person wearing a white t-shirt.
- Right-click and draw a box around a small amount of the white image. You may need to zoom in to the image to do this.
- Click **Image** from the Menu bar and select **Set white balance**. Close event after setting White Balance.
- Reset the **Gain** value by clicking . The **Camera Settings** dialog appears.
- Click the **Parameters** tab.
- In the Gain Method: line, click **AGC**, and then click **Ok**.

#### Reverse Angle Camera

- Repeat instructions 2) through 11) above

### Step 15: Configure the Automatic Capture Plug in settings

#### To Enable Auto Capture

- In FinishLynx, click **Window** from the Menu bar and select **Hardware Control**
- Click on the information line for your Primary Camera to highlight it.
- Click on the information icon .
- Select the **Inputs** tab.
- On the **Photo Eye line** select the **Internal** radio button

#### To Use the Plug-in to control the Display clock

- Repeat instructions 1), 2), 3) above
- Select the **Capture** tab.
- On the **Capture Method** line select the **ACM** radio button
- Click **Ok**.
- Exit FinishLynx and then restart it to save the settings
- Power on the Wind Gauge and Scoreboard Display..

### Step 16: Configure the Scoreboard and Wind Gauge settings

#### Display

- In FinishLynx, click **File** from the Menu bar and select **Options....**
- Select the **Scoreboard** tab
- Click the **New** button to activate the scoreboard.
- From the **Script:** drop-down list, click to select **microtab16-9.Iss**. Then, click **Ok**.
- In the **Serial Port** drop-down list, click to select Network (Connect)

- 6) Enter the **Port** and **IP Address** settings that refer to Display on the label on your SerialLynx unit.
- 7) To display **Running Time**, select the **Normal** radio button option
- 8) Set the **Results** radio button to **Off**
- 9) Click **Ok**.

#### Wind

- 1) In FinishLynx, click **File** from the Menu bar and select **Options....**
- 2) Select the **Wind** tab.
- 3) From the **Wind Module:** drop-down list, click to select **Gill**. Then, click **Ok**.
- 4) In the **Serial Port** drop-down list, click to select **Network (Connect)**
- 5) Enter the **Port** and **IP Address** settings that are on the label on your SerialLynx unit.
- 6) In the **Default Mode** drop-down list, click to select **100M**
- 7) Click **Ok**.
- 8) Exit FinishLynx and then restart it to save the settings

### Step 17: Create a competition directory for FinishLynx and LynxPad to share

- 1) Right-click on your computer desktop and select **New | Folder**. When the **New Folder** appears, change the name to **Practice competition**.
- 2) In FinishLynx, click **File | Options....** Click the **Browse** button on the **Event Directory:** and navigate to the **Practice competition** directory you just created. Then, click **Ok**.
- 3) Still in FinishLynx, click **File | Options...** and click the **Database** tab. Click the **Browse...** button next to the **Input** and **Output Directory:** and navigate to the **Practice competition** directory. Then, click **Ok**.
- 4) Now, start LynxPad by clicking the Windows **Start** button and then **All Programs | LynxPad**.
- 5) Click **File | Options...** and **uncheck** the **Load Existing Results on Program Start** box. Then, click **Ok**.
- 6) Open the sample competition by clicking **File | Open**. Navigate to **C:\LynxPadData\Sample** and then double-click the **lynx.cmp** file. A practice competition opens on the screen.
- 7) Still in LynxPad, click **File | Options...** Click the **Browse** button next to the **Directory:** text field. Navigate to the **Practice competition** file you created earlier. Select it and click **Ok**. Click **Apply** and then click **Ok** again.
- 8) Still in LynxPad, click **File | Save as...** and navigate to the **Practice competition** folder. Then, click **Ok**. Now, FinishLynx can get start lists created in LynxPad, and LynxPad can import results generated by FinishLynx.

### Step 18: Use FinishLynx with data from LynxPad Sample competition

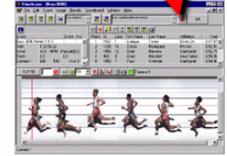


- 1) In FinishLynx, click  to load the schedule of events from LynxPad. The **Goto Event** dialog appears.
- 2) Click the **Load Schedule** button once. Click the drop-down list under the **Load Schedule** button. A list of events appears. Click to select the "**110 Meter Hurdles Men (9, 3, 1)**" event in the list, and then click **Ok**. The first heat of the third round of the men's 110m hurdles opens on the FinishLynx screen.

- 3) Clap your hands together sharply over the start sensor. This simulates the firing of the starting gun and starts the yellow FinishLynx timer.



- 4) If you are using Automatic Capture you will need to activate the capture function just prior to the athletes crossing the finish line. To do this click on the **Activate Capture** icon shown below. When capture is active the red circle will disappear. Now any motion at the finish line will record image.



- 5) If you are using Manual capture, you will need to set capture to **Manual** as indicated in *instruction 8) of Step 15: above*. Have your assistant run through the finish line while you press down and hold the red capture button to capture the image. Release the button as soon as he/she has run completely through the finish line.
- 6) Practice evaluating the image by following the same steps you followed earlier in *Step 3: Evaluate a sample image on page 4*. In the **Setup** Tab of the **Camera Information** dialog, make sure **Identify by** is set to **Lane**.
- 7) Click **File | Save** to save the race to the **Practice competition** directory.
- 8) Crop space between competitors in your FinishLynx image by right-clicking and drawing a box around the unwanted space. Release the mouse button and select **Crop** from the dialog that appears.
- 9) (Optional) Print the results and a portion of the FinishLynx image by right-clicking on the image and drawing a box around the portion you want to appear in your printout; for example, the first place finisher or a close finish between two competitors. Click **Ok** and then select the printer from the **Print** dialog to send the image with results to the printer.
- 10) Click **File | Close window** and then click **Yes** to save changes you made to the FinishLynx image when you cropped it.
- 11) In LynxPad, click to highlight **Men 110 Meter Hurdles** in the **Events** window. The start list appears in the **Heats** window.
- 12) Still in LynxPad, click **Competition | Refresh All Results**. The results from the race you just evaluated appear in LynxPad.

This completes the *FinishLynx "MVP" System Quick Start Guide*.

**Notes:**