

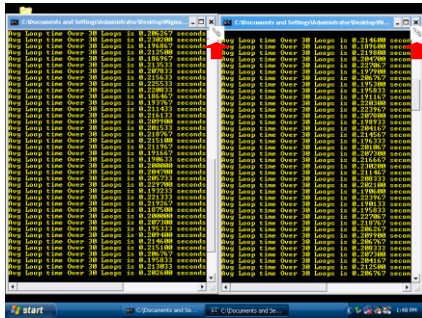
MigmaBicycle™

for detecting and counting bicyclists at bike lane or trail

Configuration Instructions

Monitor Connection

Connect the VGA and USB connectors of the monitor to the SBC. Close both programs (two screens with yellow prints) by clicking on the exit button (X) on top of each DOS window.



There are three ways to interfacing with SBC:

- MigmaMonitor™, a portable computer monitor with VGA connector and touch screen. This monitor can be left in the controller cabinet.
- A laptop using an Ethernet crossover cable (crossover cable is provided). You can find the remote login procedures in this guide.
- A regular desktop PC VGA monitor and USB mouse. This approach is suitable for configuration and test in the office.

Detection Zone Configuration

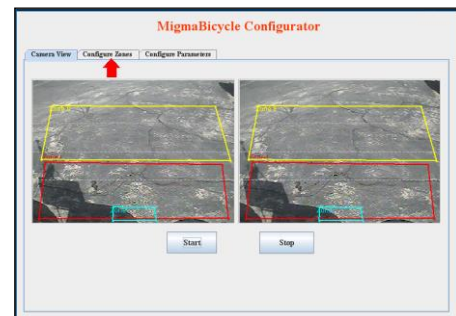
There are two systems in the SBC, System 1 and System 2. The configuration procedures for both System 1 and System 2 are identical. To configure the detection zones for System 1, please follow the steps below:

Step 1: On the desktop, double click on the *System1_GUI* icon to configure the detection zone for System 1. This will start the configuration software.



The stereo camera view from System 1 is shown. The zone marked in color of red is the zone used for detecting bicyclists traveling in the forward direction, the zone in yellow is for bicyclists who turn left. The zone in color of cyan is the avoid zone. Objects in this avoid zone will be ignored. You can configure each of these zones in terms of its location and size.

Step 2: Click on the tab, *Configure Zone*. This will bring you to the zone configuration screen.



Step 3: To detect and count bicycles on the through path or forward direction, click on the **Zone I (Forward)** button located below the image.



Step 4: Now click on the *Clear Zone* button to clear the exiting zone, and then click on the *Draw Zone* button to start drawing the zone.



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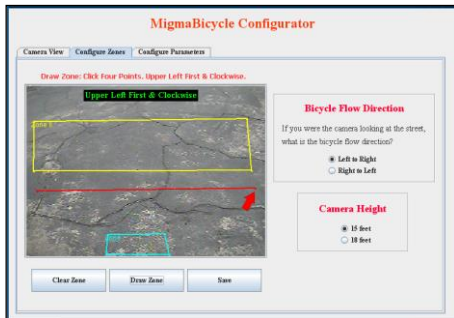
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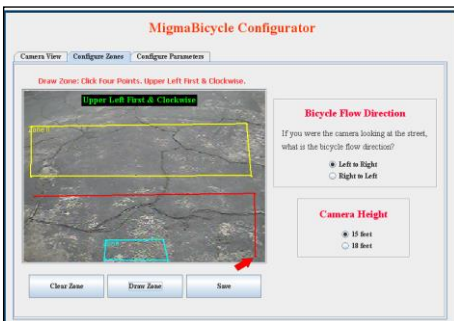
Step 5: Draw zone by using a stylus (MigmaMonitor™) or a mouse (desktop PC or laptop) to touch the upper left corner of the desired location of the zone.



Step 6: Touch the upper right corner of the monitor screen. You will see a red line connecting two points you clicked.



Step 7: Now touch the lower right corner of the zone. Notice the second red line drawn.

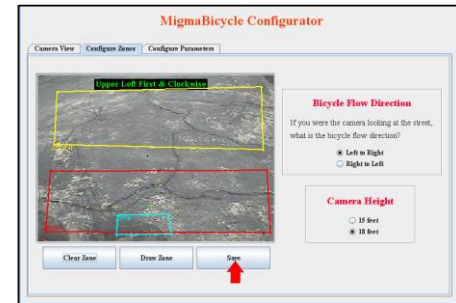


Step 8: Finally touch the lower left corner. Observe that the zone is complete. Congratulations!

Note: You can always clear the zone and draw again if needed.

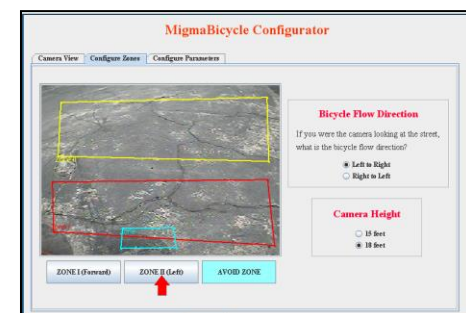


Once you are satisfied with the zone, you **MUST** click on the **Save** button. This will save the zone you just configured.



Once you have saved **Zone I (Forward)**, it will bring you back to the Configure Zones screen. To configure the left turn zone for bicyclists who will make a left turn, you will follow the same procedure as **Zone I (Forward)**.

Step 1: Click on the **Zone II (Left)** button located below the image.

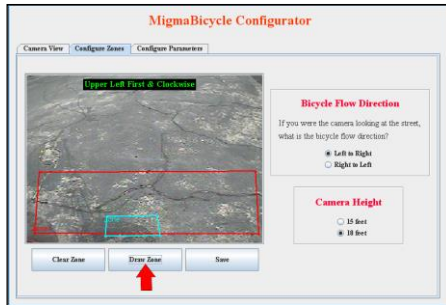


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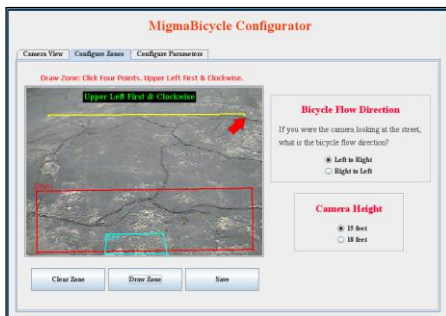
Step 2: Click on the *Clear Zone* button to clear the existing zone, and then click on the *Draw Zone* button to draw the zone for the left turn.



Step 3: Draw zone by using a stylus (MigmaMonitor™) or a mouse (desktop PC or laptop) to touch the upper left corner of the desired location of the zone.



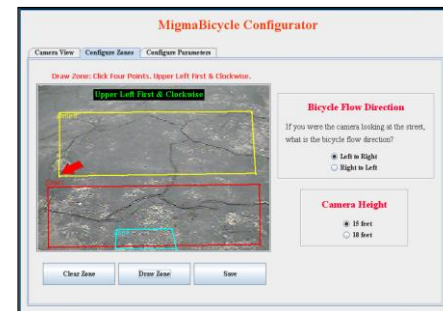
Step 4: Touch the upper right corner of the monitor screen. You will see a yellow line connecting two points you clicked.



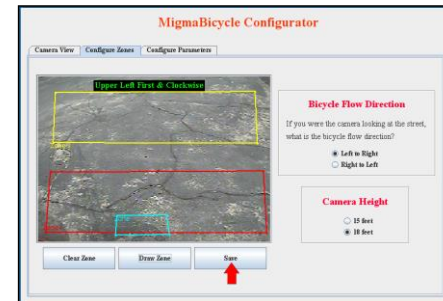
Step 5: Now touch the lower right corner of the zone. Notice the second yellow line drawn.



Step 6: Finally touch the lower left corner. Observe that the zone is complete.



Step 7: Now you have finished the left turn zone, you **MUST** click on the *Save* button.



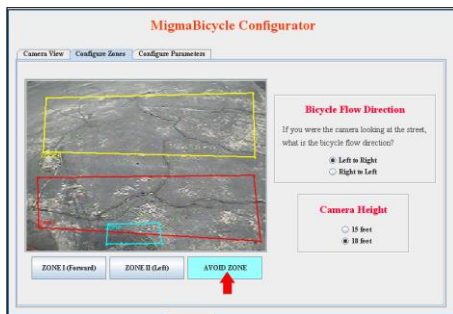
The last zone to configure is the **Avoid Zone**. Any detection in this zone will be ignored. Again, to configure this zone, you will follow the same procedures as the two previous zones.

Step 1: Click on the **Avoid Zone** button in cyan color shown below.

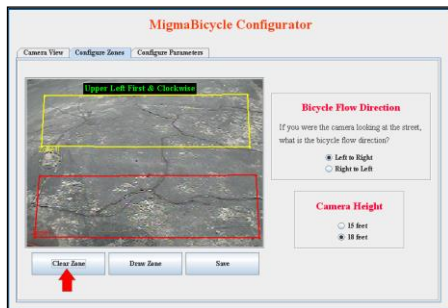
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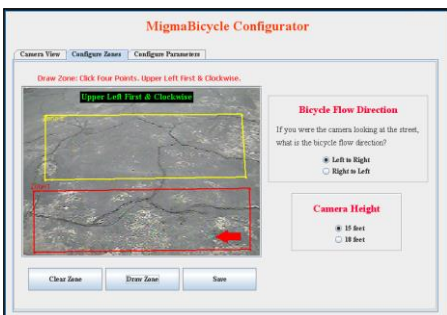
Configuration Instructions



Step 2: Click on the *Clear Zone* button to clear the existing zone and then click on the *Draw Zone* button.



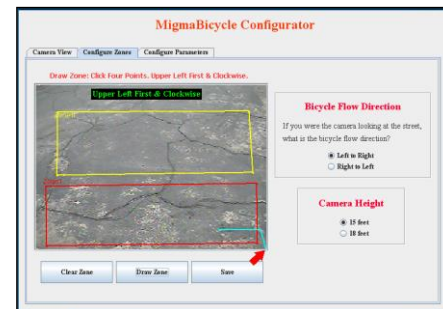
Step 3: Draw zone by using a stylus (MigmaMonitor™) or a mouse (desktop PC or laptop) to touch the upper left corner of the desired location of the zone.



Step 4: Touch the upper right corner of the monitor screen. You will see a cyan line connecting two points you clicked.



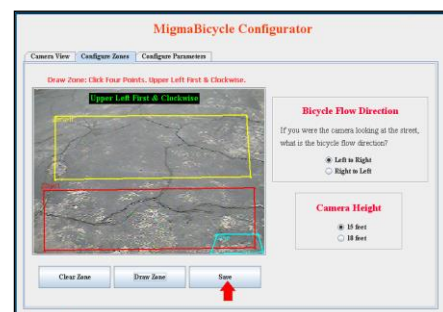
Step 5: Now touch the lower right corner of the zone. Notice the second cyan line drawn.



Step 6: Finally touch the lower left corner. Observe that the zone is complete.



Step 7: Now you have finished the left turn zone, you MUST click on the *Save* button.



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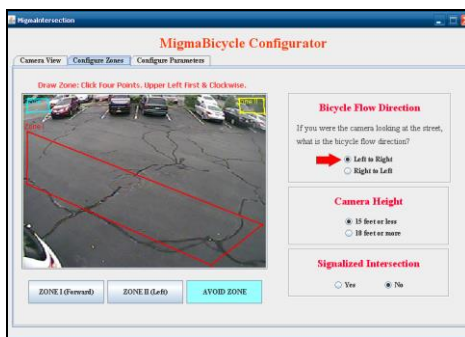
Bicycle Direction Configuration

In all three zone configurations, you will see a box for *Bicycle Flow Direction*, *Camera Height* and also *Signalized Intersection*. These three options are located to the right of the screen. You may select any of them at any time.

The direction flow is based as if you were the camera facing towards the bicycle lane. The bicycle can go either:

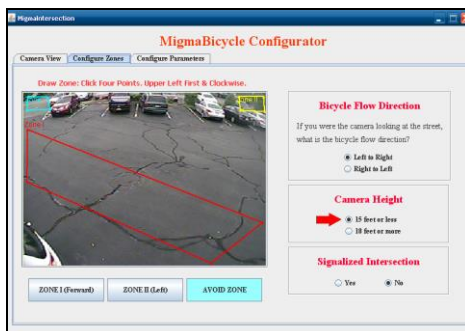
- left to right or
- right to left.

Since the bicycle detection of MigmaBicycle™ is directional, you will need to specify so the system will know the bicycle flow direction. You click on the direction in which the cyclists will be riding as shown below.



Camera Height

The recommendation for the camera height is no lower than 12' and as high as 18'. The user may select the camera height simply by clicking on 15 ft or less, or 18 ft or more, as shown below.

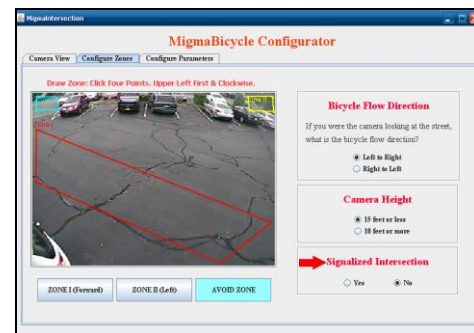


Please note: The bicycle flow direction and camera height apply to all three zones.

Bicycle Speed Configuration

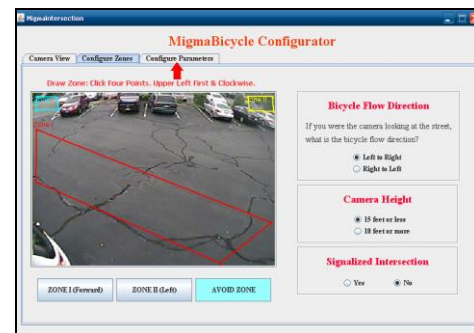
The bicycle speed configuration allows the user to enable or disable the system to estimate and save the speed of bicyclists detected. This feature is mainly used to separate bicyclists from pedestrians as pedestrians often walk at a slower speed than bicyclists. If no pedestrians are expected in the bike lanes, the bike speed can also be saved for data collection purposes.

While still in the *Configure Zones* window, at the bottom right you can select YES or NO to indicate whether or not an installation is at a signalized intersection (YES) or bike trail (NO). If the system is installed at an intersection, bicycle speed will *not* be estimated as the bicyclists will slow down while approaching to intersection and the estimated speeds near the intersection may not reflect their normal riding speeds.



Note: Only if you select NO (i.e., bike trail) will the fields in *Configure Parameters* be enabled for configuration.

Once you have selected NO for a non-signalized intersection or bike trail, you will need to click on the tab named *Configure Parameters*.

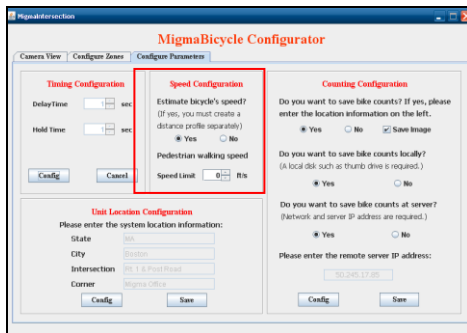


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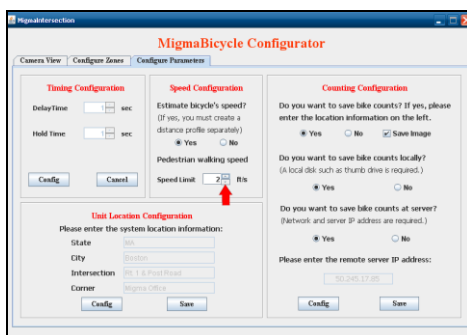
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In order to estimate the bicycle speed, a *Distance Profile* must be created. Please read the *Distance Profile Guide* for step by step instructions. Once the *Distance Profile* is completed, select YES to enable the estimation of bicycle speed, shown in the image below. If you select NO, bicycle speed estimation is disabled. Using this option, you can disable the speed estimation even though the system is installed at a bike trail and the *Distance Profile* is not available yet.



In order to separate bicyclists from walking pedestrians, the user can set the pedestrian walking speed limit which has the unit of feet per second and should be determined based on the typical pedestrian walking speed at the bike trail. This limit is used by the system to reject pedestrians. For example, if you set the speed limit as 5 ft/s, and an object is detected and its speed is less than 5 ft/s, it is treated as a non-bicyclist and will be rejected by the system, i.e., this object will not be counted as a bicyclist and bike signal call will not be placed.



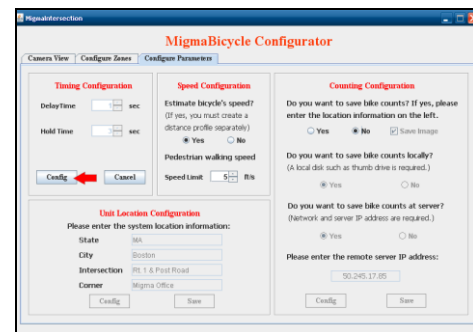
While in the *Configure Parameters* screen you will see there are quite a few more options that can also be configured, which are explained below.

Timing Configuration

Configure the delay time (i.e. how long the bicyclist must be in the zone before being detected) and the hold time (i.e. how long the call is held by the system).

The default delay time is 1 second, meaning that the bicyclist will be detected about 1 second after he or she enters the zone. The default hold time is 3 seconds. You can use the default values for both.

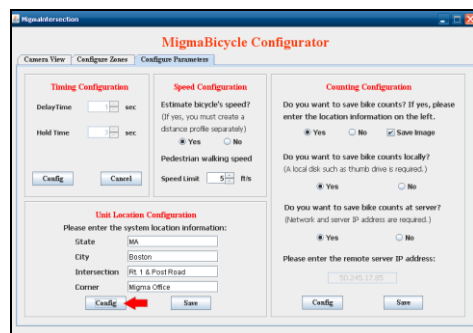
If you want to change their values, please click on the *Config* button to change the time in seconds. Click the *Save* button to save the new delay and hold time.



Unit Location Configuration

You will need to enter the location information that will be used to organize the bike counts and associated images saved both locally and remotely. Entry lines have a space limit of 20 characters.

Click on the *Config* button to enter the information for State, City, Intersection and Corner. Please click on the *Save* button to save the location information entered.



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Data Saving Configuration

On the right hand side of the screen there are options for bike count and image saving. Data can be saved locally in an external USB drive, and/or remotely to a data server or the Amazon Cloud.

The screenshot shows the 'MigmaBicycle Configurator' window with the 'Counting Configuration' section highlighted by a red box. This section contains three questions: 'Do you want to save bike counts? If yes, please enter the location information on the left.', 'Do you want to save bike counts locally? (A local disk such as thumb drive is required.)', and 'Do you want to save bike counts at server? (Network and server IP address are required.)'. Each question has 'Yes' and 'No' radio buttons, and a 'Save Image' button is present. Below these are fields for 'State', 'City', 'Intersection', and 'Corner' under the 'Unit Location Configuration' section.

You can enable or disable data saving. The default is already YES. If you prefer not to save the counts simply click NO. If YES, you will also need to specify if the bicycle detection images will be saved.

This screenshot is identical to the previous one, showing the 'MigmaBicycle Configurator' window with the 'Counting Configuration' section highlighted by a red box. It shows the same set of questions and options for saving bike counts locally or at a server.

If you would like to save the bike counts/images locally to an external USB drive, click YES and insert a local disk.

This screenshot is identical to the previous ones, showing the 'MigmaBicycle Configurator' window with the 'Counting Configuration' section highlighted by a red box. It shows the same set of questions and options for saving bike counts locally or at a server.

To save the bike counts and images remotely, please enter the remote server IP address. Migma server application must be installed at this remote server in order to receive the data from clients and save the data appropriately. Simply, click on the *Config* button to enter the IP address and then click the *Save* button.

This screenshot is identical to the previous ones, showing the 'MigmaBicycle Configurator' window with the 'Counting Configuration' section highlighted by a red box. It shows the same set of questions and options for saving bike counts locally or at a server.

You now have completed the System1 configuration. **You will need to configure System2 by following the same procedure as the System1 configurations.**

Now you have finished the configuration and ready to have the system operational, you **MUST** save the configuration data to the disk inside SBC.



To do this, on the desktop screen,

Double Click on the Save icon

The system will then save the data and automatically reboot. The system will use the new configuration data for the bike detection and counting.

REMEMBER: *Whenever you configure the system, you must click on the Save icon to save the configuration and reboot the system. Otherwise your configuration changes will NOT be saved.*

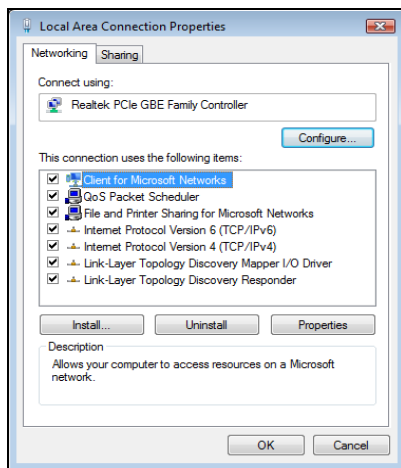


Once the system has restarted, you may unplug the monitor and close the cabinet door. The system is ready for use. In MigmaBicycle™ Reporter User Guide, you will find how to view the data saved locally and remotely.

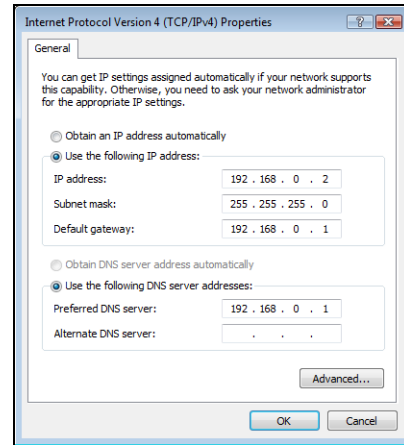
Remote Login Configuration

Before logging into SBC remotely, you should configure your laptop that you will use to connect to SBC with crossover Ethernet cable.

- Open **Properties of Local Area Connection** in **Network Connections** in **Control Panel**



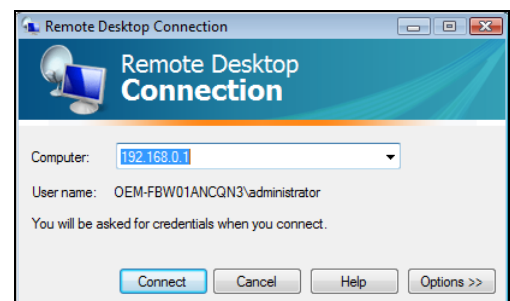
- Open **Properties of Internet Protocol version 4 (TCP/IPv4)**



- Select **Use the following IP address** and enter the following network information:
 - IP address: 192.168.0.2
 - Subnet mask: 255.255.255.0
 - Default gateway: 192.168.0.1
- Select **Use the following DNS server addresses**:
 - Preferred DNS server: 192.168.0.1
- Click on **OK** button to finish configuration of local area connection.

Remote Access

- Open **Remote Desktop Connection** in Windows
- **Enter 192.168.0.1 in Computer**
- Click **Connect** button



A remote desktop login window appears. Enter the following information:

- **Username:** administrator
- **Password:** migmapsys

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Click on **OK** button to access the SBC.

