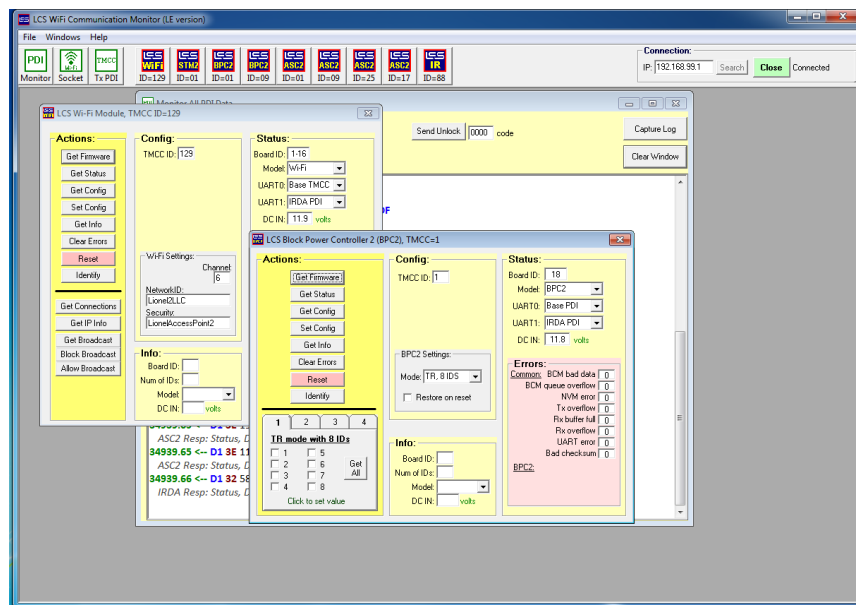


# LCS WiFi Monitor LE

## Installation and Operation

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## Introduction

The Lionel LCS WiFi Monitor LE program gives you a detailed, technical look into your Layout Control System (LCS) installation. This is a Windows-only program, offered free of charge by Lionel. We do not provide customer support for this program, use it at your own risk.

You can use LCS WiFi Monitor LE to confirm that all your LCS modules and SensorTracks are connected and operational. You can also use it to configure your LCS WiFi MODULE to Join To Network if you are unable to accomplish that task using the WPS button. You may also use the monitor program to see real-time status of modules and their configuration settings.

The program comes with a simple setup/install program and should run under Windows 95 and later. It has not been tested under Windows 10.

## Hardware Requirements

- An LCS WiFi Module with DB9 LCS Cable and power supply
- In most cases, a Lionel Legacy Command base
- A computer with WiFi capability, running Windows XP or Windows 7. This utility may not be compatible with other versions of Windows.

## Installing the LCS WiFi Monitor LE Program

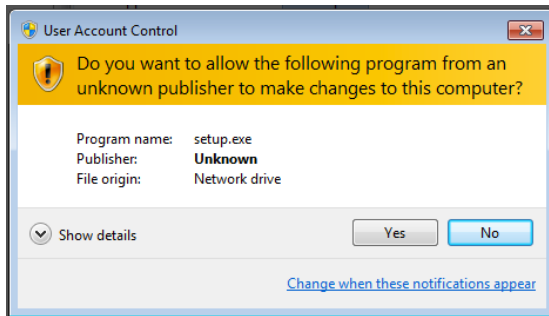
To begin, download the LCS WiFi Monitor LE Installer from Lionel.

Next, unzip the installer file.

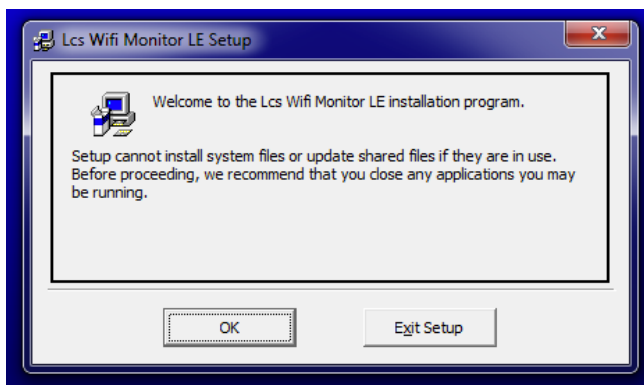
Then, double-click the “setup” button, shown below.



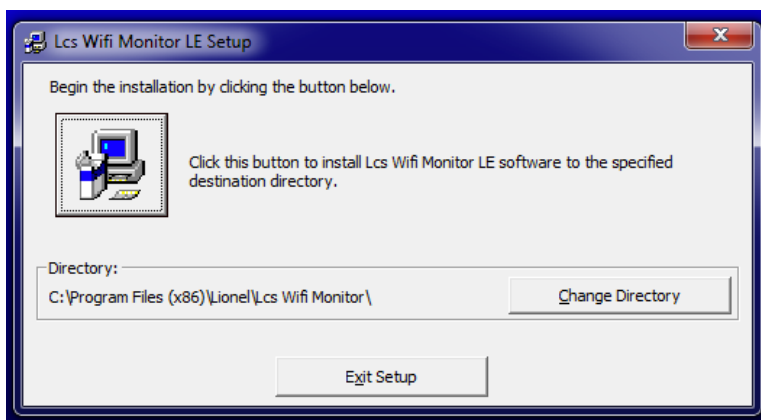
You may see a warning message similar to the one below. If you do, click “Yes.”



Your display will switch to a blue background with the following welcome message:



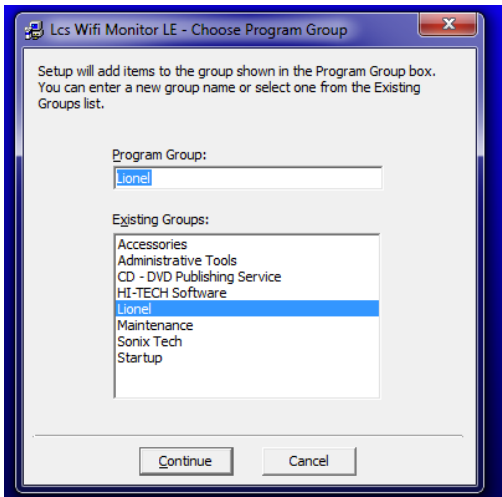
Click OK to continue with the installation process. Your display should change to this:



Proceed with the installation by clicking on the large SQUARE button with the image of the blue computer screen and software box, right under the text “Begin the installation by...”

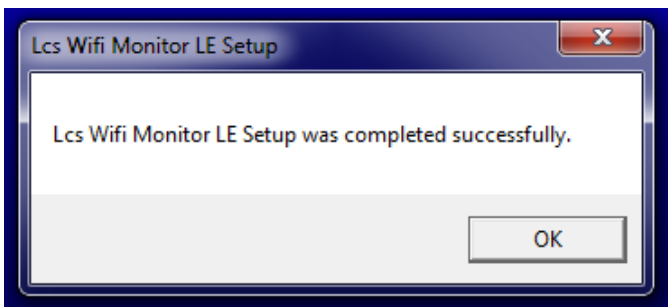
You may optionally choose to install the software in a directory of your choosing by clicking **Change Directory**, or you can **Exit Setup**.

The next step in the installation process allows you to Choose Program Group, as shown below:



The program group determines where the LCS WiFi Monitor LE program will appear in your Windows Start menu. We suggest using the default value "Lionel" and proceed by clicking **Continue**.

This installation process should conclude with the message shown below. Click **OK** and you are ready to run the LCS WiFi Monitor LE program.



## Running the LCS WiFi Monitor LE program

Now let's move on to running the program.

*IMPORTANT! Start by checking that your computer and your Lionel LCS WiFi Module are connected to the same WiFi Network. If they are not, you will not be able to follow ANY of the following examples in this document.*

### WiFi Network Connection

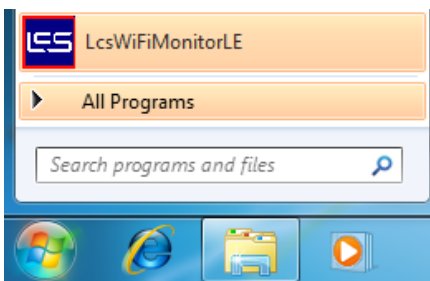
Make sure your LCS WiFi Module is powered on and the Access Point/Join To Network switch is set to Access Point mode. This will create a named WiFi Network like "Lionel LCS – xxxx" where "xxxx" will be a unique combination of the letters A-F and numbers 0-9.

Your computer should be connected to this named network before proceeding.

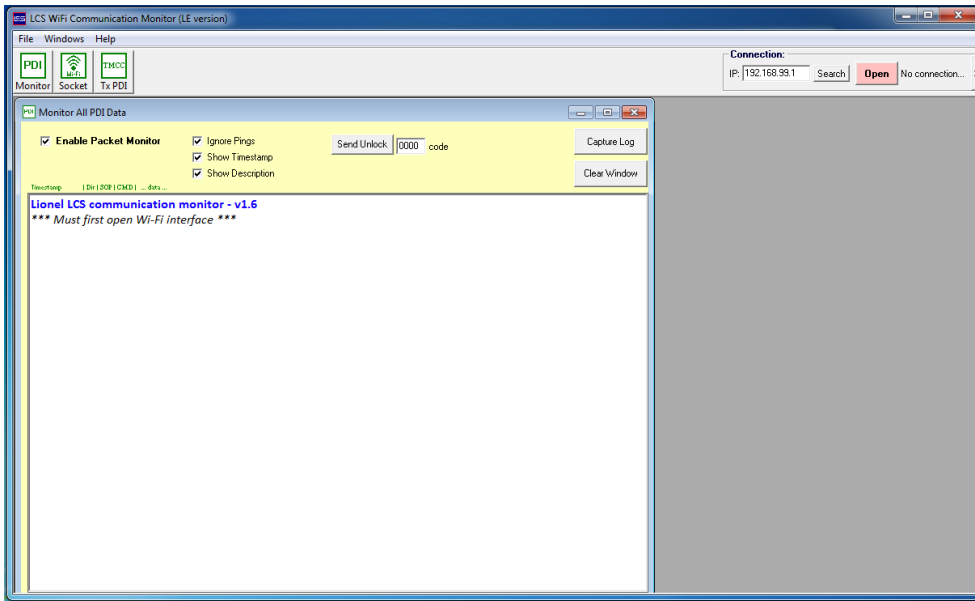
*NOTE: If you have previously configured your LCS WiFi Module to work in Join To Network mode, you may elect to instead connect to your normal home or club WiFi network, but you will need to manually enter the IP address your router has assigned to your LCS WiFi module.*

### Launching The Program

From the Windows Start menu, select the LCS WiFi Monitor program as shown below, or by moving your mouse over the "Lionel" program group and selecting LCS WiFi Monitor LE there.



The LCS WiFi Monitor LE program window will open.

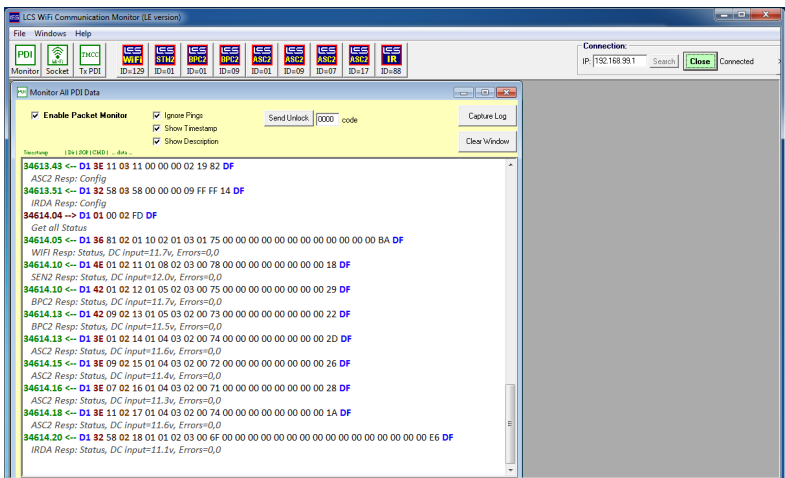


## Connecting to the Physical LCS WiFi Module

Note the red **“Open”** button in the upper-right of the screen. Click on it and the program will connect to your LCS WiFi module.

*NOTE: If your LCS WiFi is in Join To Network mode, you must enter the IP address your router assigned to your LCS WiFi. You could also use the **“Search”** button, but this may take several tries.*

The Red **“Open”** button should turn into a green **“Close”** button and your display will look like this:



### The “Monitor All PDI Data” window

The Monitor All PDI Data window displays all the traffic on your LCS system. This highly technical information is beyond the scope of this document. If you are interested in digging deeper, join the free LCS Partner Program to gain access to the relevant technical documentation.

See the web page <http://www.lionel.com/lcs/LCSPartner/index.html> or email [lcs-dev-support@lionel.com](mailto:lcs-dev-support@lionel.com) for more information.

### Connected Module Icons

For now, turn your attention to the connected module icons that appear across the top of the screen. Each of these represents one LCS module in your system. You can see we have a WiFi, an STM2, two BPC2’s, four ASC2’s and one SensorTrack (aka “IR”).



The module icons are displayed left to right in the same physical order in which they are connected. In the above example, the WiFi module is first in the chain. It is connected to the STM2 and so on. The TMCC ID of each module is also shown in each square.

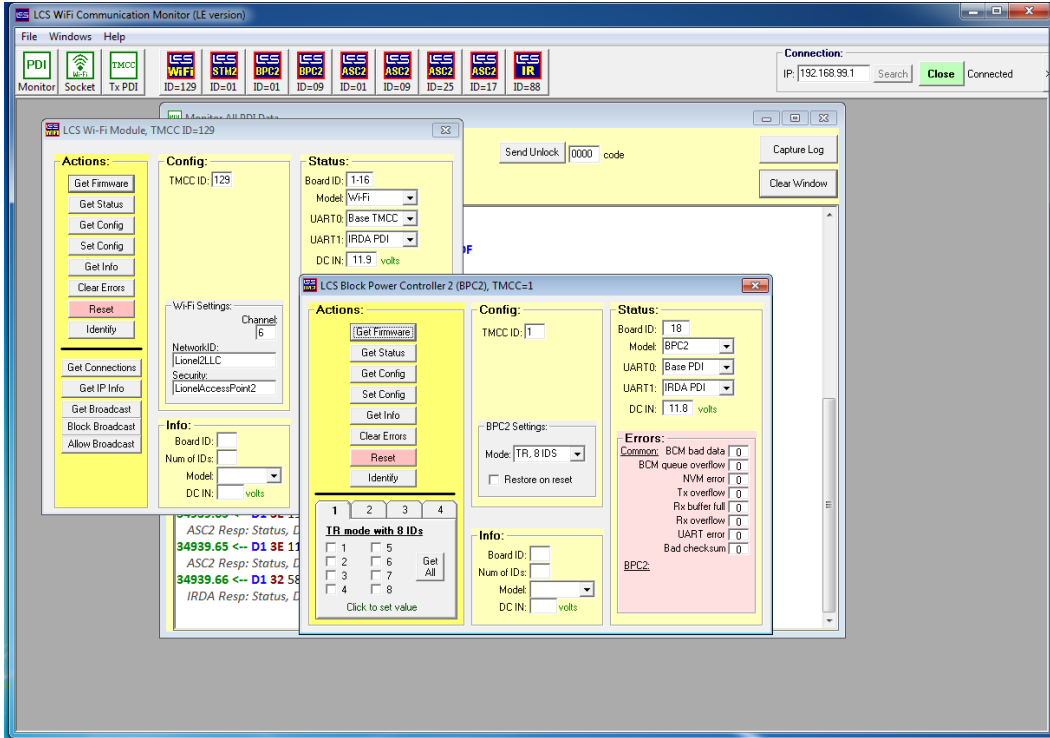
Reviewing the list of module icons can be a helpful trouble-shooting tool. Make sure that each and every one of your physical LCS modules are represented here on-screen. If any are missing, you may have a loose cable or some other hardware problem.

NOTE: If you connect or disconnect any LCS Modules, you will need to Exit and re-launch the LCS WiFi Monitor LE program in order to update the list of Connected Module Icons.



## Opening a Module Window

Click on any of the Connected Module Icons to view its details. In the image below, the WiFi and the first of two BPC2 module details are shown.



Each type of module share some basic buttons and each has details unique to just that module type. In the example above, you can see that the WiFi module and BPC 2 both have identical Action buttons.

When using the program, it is good practice to press the **Get Config** and **Get Status** buttons when you initially open a module's window. This insures that you are viewing the current state of the module.

## General Module Details

Following is a brief description of some common module controls. This will not be an exhaustive description. We recommend that you refrain from operating buttons whose purpose is not described or that you do not understand. It is possible that you could make changes that would negatively affect operation of your layout. Again, remember that this program is provided free of charge, without technical support. Use it at your own risk.

The following Action buttons are common to all modules:

#### Get Firmware

Returns the firmware revision of the selected module.

#### Get Status

Updates the Status fields shown in the selected module's window.

#### Get Config

Updates the Config field (TMCC ID) shown in the selected module's window.

#### Set Config

This allows you to modify the selected module's configuration, **BUT you must press the PGM button on the physical module before the Set Config button will actually make a permanent change.** Without pressing the button, your modified Config settings may not be applied, or may not be restored following a power off/power on cycle.

#### Get Info

Self-explanatory.

#### Clear Errors

Self-explanatory.

#### Reset

Self-explanatory.

#### Identify

Pressing this button will cause the LED on the selected module to glow solidly for several seconds. This is helpful in a larger installation when you are trying to confirm which physical module corresponds to the display shown on screen. For example, if you are trying to use the Set Config command, pressing Identify first will help insure you press the PGM button on the correct LCS module (assuming you have multiple modules of a given type).

NOTE: The LCS WiFi and SensorTrack will illuminate a green LED in response to an Identify command, other modules will shine their red LEDs.

The following Config and Status fields are common to all modules:

**TMCC ID**

The TMCC ID of the selected module.

**Board ID**

Automatically assigned, not user changeable.

**Model**

Automatically assigned, not user changeable.

**UART 0 and UART 1**

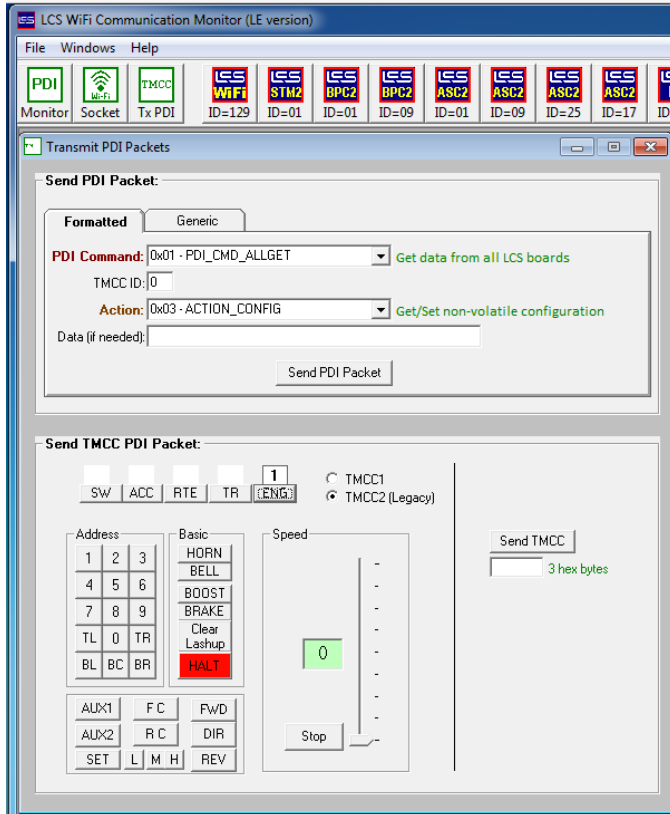
One should indicate Base TMCC, the other should indicate xxx PDI. Not user changeable.

**DC IN**

This displays the voltage supplied by the LCS PDI cables present at this particular module. This value may be useful to check when trouble-shooting a large installation or one with very long cable runs. Compare the voltage shown at the first few modules to that present at the last few modules.

## Sending Legacy and TMCC Commands

Click on the white **TMCC/TxPDI** button in the upper left corner of the screen. A virtual CAB remote window opens, as shown below:



Using the Transmit TMCC PDI Packet window, you can operate engines, trains, switches, accessories and routes as though you were using a physical CAB remote. Be sure to select the appropriate style of command (TMCC1 vs. TMCC2/Legacy), depending on the target engine you are addressing.