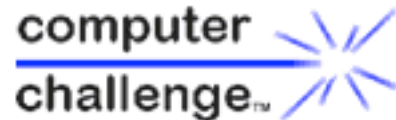


## Robot Tutorials Setting Up



### ***Set Up the IR Tower***

The IR tower connects your computer to your robot with an infra-red signal, the same technology used by a TV remote control. "IR" stands for infra-red, a type of light invisible to the human eye. You write a program on your computer with RoboLab®, download it to your robot through the IR tower, then run the program on the robot.

There are two types of IR towers as shown below. First, get the IR tower out of the Lego Mindstorms box and determine which type it is.



Serial IR Tower

USB IR Tower

### ***Serial IR Tower***

Follow these instructions if you have a serial IR tower. This type of tower only works on PCs (IBM PC compatible computers), since iMac computers do not have a serial port. It will work with any version of RoboLab, and it is good for older PCs that don't have a USB port.


1. Open the back of the tower and insert a 9-volt battery. Be sure the + and - signs on the battery line up with the + and - signs inside the tower and that the battery is firmly seated.
2. Find the serial cable. It is about 6 feet long, gray, and has a D-shaped connector on each end with 9 holes.
3. Plug one end of the serial cable into the IR tower, and the other end into a serial port on the back of your computer. The serial port is the one with 9 pins matching the serial cable. If there is more than one 9 pin port, any one will work.

## **USB IR Tower**

Follow these steps if you have a USB IR tower. This type of tower works with any PC or Mac computer that has a USB port. It requires RoboLab version 2.5 or later.

The USB IR tower does not have a battery since it draws power through the USB cable. The cable is permanently attached to the tower. Simply plug it into any USB port on your computer.

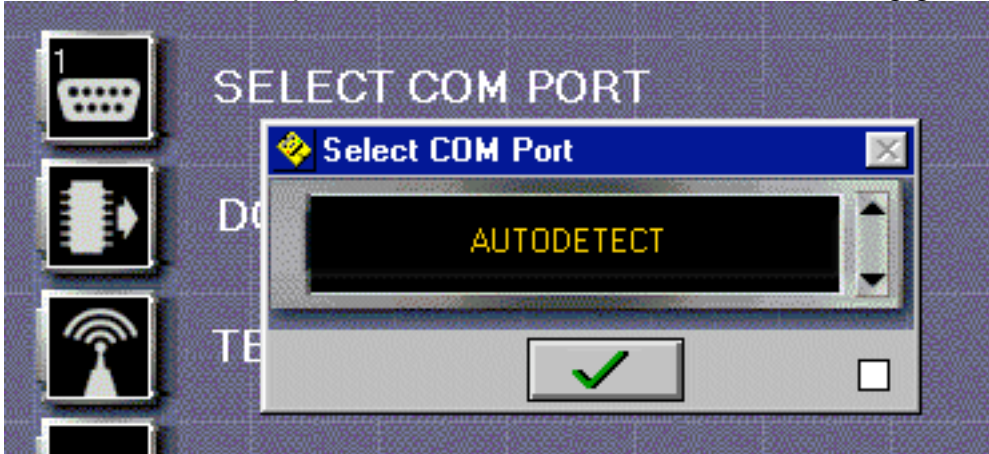
## **Start RoboLab**

1. Place your robot 4 - 6 inches in front of the IR tower, with the windows of the IR tower facing the windows on your robot.
2. Turn on your robot by pressing the On-Off button.
3. Double click the RoboLab icon  on your desktop. If you can't find the RoboLab icon, ask your coach where to find RoboLab on your computer.
4. The RoboLab main menu appears. Click Administrator.



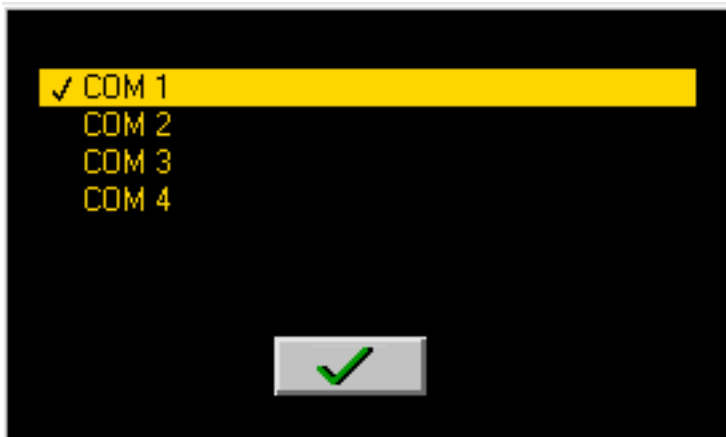
### ***Set the COM Port to Autodetect***

Click the SELECT COM PORT button. The Select COM Port dialog box appears. Click inside the black area and choose AUTODETECT. This makes RoboLab search for the COM port the tower is connected to. Click the big green check.



### ***Test RCX Communications***

Now click TEST RCX COMMUNICATIONS. A window will appear as RoboLab searches through the COM ports trying to communicate with the RCX. If it finds the RCX, a check mark will appear next to the correct port. Click the big green check. The RCX will play some descending beeps, meaning that communication is established.



If RoboLab can't find the RCX, an 'x' will appear next to every COM port. Try the following one at a time and test it in between:

- Make sure the RCX is turned on
- Reposition the tower and RCX
- Check the cable connections to the tower
- Replace the battery in the tower
- Replace the batteries in the RCX
- Ask your coach for help.